zenon
by COPA-DATA

zenon manual
Tools

v.8.20

Contents

1 Welcome to COPA-DATA help

ZENON VIDEO TUTORIALS

You can find practical examples for project configuration with zenon in our YouTube channel (https://www.copadata.com/tutorial_menu). The tutorials are grouped according to topics and give an initial insight into working with different zenon modules. All tutorials are available in English.

GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to documentation@copadata.com.

PROJECT SUPPORT

You can receive support for any real project you may have from our customer service team, which you can contact via email at support@copadata.com.

LICENSES AND MODULES

If you find that you need other modules or licenses, our staff will be happy to help you. Email sales@copadata.com.

2 Tools

A range of tools support you for the management, analysis and configuration of zenon:

- **3D Integration**:
  In this zenon application, 3D CAD files can be linked to zenon project configurations in a graphical user interface. The project configuration is displayed in zenon Runtime with a zenon WPF element.
  You can find detailed documentation, project configuration notes and information on operation in zenon Runtime in the 3D integration manual.
- **Diagnosis Viewer** (on page 7): Allows zenon LOG files to be read and configured.

- **GIS Integration**:
  This tool makes it possible to draw objects in geographical relationships and to link these objects to zenon ALC information, variables and functions.
  The display in zenon Runtime visualizes ALC project configurations with selectable map providers.
  You can find detailed documentation, project configuration notes and information on operation in zenon Runtime in the GIS integration manual.
- **Keyblock Runtime Start** (on page 56):
  Starts zenon Runtime and at the same time blocks all Windows system keys.
- **Online updating of the zenon help** (on page 47):
  Allows online updating of the zenon help.
- **Project Translation Interface**:
  Tool for the translation of zenon language files. Opens or saves data for the zenon **Language Translation Wizard**. With this, projects can be imported into or exported out of zenon.
- **Startup Tool** (on page 67):
  Makes it possible to start the Editor and Runtime with certain parameters, to administer different zenon versions on one computer, to administer SQL instances and to define languages for Editor and Runtime.
- **System Information Collector** (on page 119):
  Reads system information and zenon information, displays it in an output window and saves it as a ZIP file.
- **COPA-DATA PRP** (on page 126):
  Allows the operation of a hardware-redundant zenon network via PRP communication.
  Note: PRP communication requires a valid zenon license on the computer.

The following are available for zenon Logic:

- **zenon Logic Runtime Manager**: Administer all stand-alone/manual-start zenon Logic Runtime projects on your computer.
  The documentation for this tool is part of the zenon Logic documentation.

3 Diagnosis Viewer

All zenon modules such as Editor, Runtime, drivers, etc. as well as zenon Analyzer write messages to a joint log file. These can be read and configured with the Diagnosis Viewer program. It allows the reading of existing LOG files, online logging, saving of the current view, parameterizing the Diagnosis Viewer and the Diagnosis Server.

START THE DIAGNOSIS VIEWER

The Diagnosis Viewer is installed in the folder: *%Program Files (x86)%\Common Files\COPA-DATA\STARTUP*. Call it up under:

- Windows 8: Enter "**Diagnosis Viewer**" on the desktop for **Apps**
- Windows 7: **Start/All Programs/zenon/Version Independent Tools -> Diagnosis Viewer.**

The Diagnosis Viewer is only available in English.

USING IPV6

The Diagnosis Server also works with Diagnosis Clients which addresses via IPv6 addresses. For this the format of the log file has been adapted. The Diagnosis Viewer only reads the new format of the log files. If files from older zenon versions are opened (or vice versa), the IP address of the Diagnosis Client is not displayed correctly.

DRIVER ANALYSIS

zenon driver log all errors in the LOG files.LOG files are text files with a special structure. The default folder for the LOG files is subfolder **LOG** in the folder **ProgramData**. For example:

%ProgramData%\COPA-DATA\LOG.

Attention: With the default settings, a driver only logs error information. With the Diagnosis Viewer you can enhance the diagnosis level for most of the drivers to "Debug" and "Deep Debug". With this the driver also logs all other important tasks and events.

In the Diagnosis Viewer you can also:

- Follow newly-created entries in real time
- customize the logging settings
- change the folder in which the LOG files are saved

Note:

1. The Diagnosis Viewer displays all entries in UTC (coordinated world time) and not in local time.
2. The Diagnosis Viewer does not display all columns of a LOG file per default. To display more columns activate property **Add all columns with entry** in the context menu of the column header.
3. If you only use **Error-Logging**, the problem description is in the column **Error text**. For other diagnosis level the description is in the column **General text**.

4. For communication problems many drivers also log error numbers which the PLC assigns to them. They are displayed in **Error text** or **Error code** or **Driver error parameter** (**1** and **2)**. Hints on the meaning of error codes can be found in the driver documentation and the protocol/PLC description.
5. At the end of your test set back the diagnosis level from **Debug** or **Deep Debug**. At **Debug** and **Deep Debug** there are a great deal of data for logging which are saved to the hard drive and which can influence your system performance. They are still logged even after you close the Diagnosis Viewer.

> **Attention**
>
> In Windows CE errors are not logged per default due to performance reasons.

3.1 General

The zenon Diagnosis System logs error messages from zenon and zenon Analyzer. It consists of three parts:

- Diagnosis Server (on page 22): local or defined in zenon6.ini defined **zenLogSrv**
- Diagnosis Clients (on page 25): all modules, drivers, services, etc. which write messages
- Diagnosis Viewer (on page 28): Analysis program

VERSIONS

From version zenon 7.00 on the service **zenLogSrv** is used instead of the **zenSysSrv** for the diagnosis system. That means:

- Diagnosis systems up to version 6.51 and from version 7.00 are each compatible among themselves.
- The diagnosis mechanism of zenon 6.51 SP0 and zenon 7.00 SP0 are not compatible.

Compatibility	Diagnosis Server 6.51 SP0 and earlier	Diagnosis Server 7.00 SP0 and higher
Diagnosis Client 6.51 SP0 and earlier	*compatible*	**incompatible**
Diagnosis Viewer 6.51 SP0 and earlier	*compatible*	**incompatible**
Diagnosis Client 7.00 SP0 and higher	**incompatible**	*compatible*
Diagnosis Viewer 7.00 SP0 and higher	**incompatible**	*compatible*

With the Diagnosis Viewerversion 7.00 SP0 and higher you can open log files which were created by Diagnosis Server version 6.51 SP0 (or earlier). It does not work the other way round.

DEFAULT PORTS

- Version 7 and higher: *50780* (port of service **zenLogSrv**)
- up to 6.51: *1101* (port of service **zenSysSrv**)

If the port cannot be opened, the service closes itself.

> **Attention**
>
> If the port to which the Diagnosis Viewer should connect is closes, then it is tried to start the local Diagnosis Server. This makes sure that local logging is carried out if no Diagnosis Server is available in the network.

MEMORY OCCUPANCY

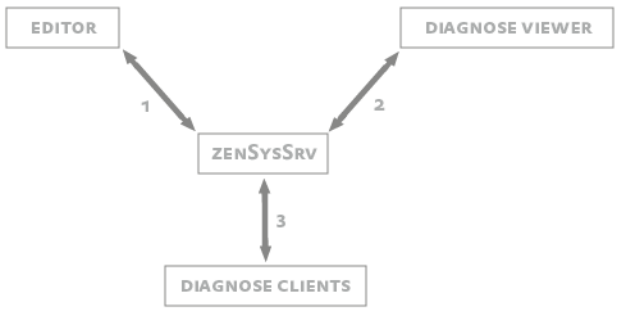
Service **zenLogSrv** buffers log entries until they can be written in the LOG file. If the memory consumptions increases continuously by **zenLogSrv**, it is an indicator that the LOG file cannot be written.

3.2 Topology of the diagnosis system

The topology of the diagnosis system differs for versions up to 6.51 SP0 and from 7.00 SP0 on.

TOPOLOGY BEFORE ZENON 7.00 SP0

The diagram displays all possible connections for which **zenSysSrv** is responsible. Each arrow represents a network connection between the applications. All applications connect to the **zenSysSrv** on port *1101* regardless of whether Client and Server are on the same computer or communicate with each other via a network.



1. The Editor sends log entries, commands and data of the Remote Transport to **zenSysSrv**. **zenSysSrv** sends the configuration of the Diagnosis Client (Editor, Runtime, driver, zenon Web Server, zenon Web Client, etc.) and the Remote Transport data to the Editor.

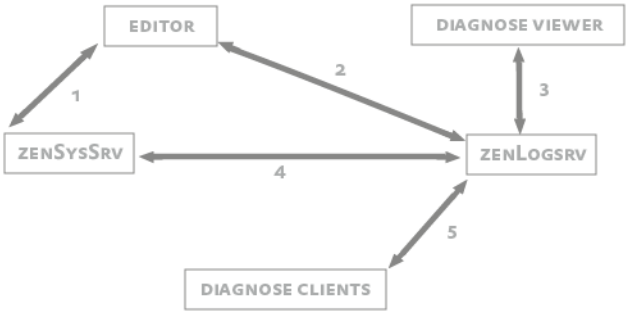
2. The Diagnosis Viewer sends diagnosis commands, diagnosis configurations and log entries to **zenSysSrv**. **zenSysSrv** sends diagnosis data and the Diagnosis Clientconfiguration to the Diagnosis Viewer.
3. **zenSysSrv** sends the Diagnosis Client configuration to the Diagnosis Clients. The Diagnosis Clients send log entries to **zenSysSrv**.

zenSysSrv reacts correspondingly to each incoming message:

- Log entries are written in log files.
- Remote Transport commands (start Runtime, write/read back data, etc.) are executed.
- Diagnosis commands (set Server/Client configuration, start online logging, etc.) are executed.

TOPOLOGY AS OF ZENON 7.00 SP0

The diagram displays all possible connections for which **zenSysSrv** and **zenLogSrv** (as of version 7.00 SP0) are responsible. Each arrow represents a network connection between the applications. All applications connect to **zenLogSrv** on port 50780. The editor connects to **zenSysSrv** on port 1101. It is regardless of whether Client and Server are on the same computer or communicate with each other via a network.



1. The Editor sends commands and data of the Remote Transport to **zenSysSrv**. **zenSysSrv** sends data of the Remote Transport to the Editor.
2. The Editors send log entries to **zenLogSrv**. **zenLogSrv** sends the Diagnosis Client configuration to the Editor.
3. The Diagnosis Viewer sends diagnosis commands, diagnosis configurations and log entries to **zenLogSrv**. **zenLogSrv** sends diagnosis data and the Diagnosis Client configuration to the Diagnosis Viewer.
4. The **zenSysSrv** sends LOG entries to **zenLogSrv**. **zenLogSrv** sends the configuration of the Diagnosis Clients to **zenSysSrv**.
5. **zenLogSrv** sends the configuration of the Diagnosis Clients to the Diagnosis Clients. Diagnosis Clients send log entries to **zenLogSrv**.

The **zenSysSrv** reacts to incoming Remote Transport commands.
The **zenLogSrv** reacts to incoming diagnosis commands and log entries

EXAMPLE

IN an environment with a central Diagnosis Server the Runtime is started on a device. Based on the Runtime version the configuration is read from **zenon6.ini**. Versions before 7.00 SP0 read entry **LOG_CONFIG** from **[SYS_REMOTE]**, later versions read this entry from **[LOGGING_SYSTEM]**. This configuration is used to establish a diagnosis connection. (For details see Standard procedure (on page 12).) Each additional component loaded by the Runtime (driver, **zenNetSrv**, etc.) also establish a diagnosis connection.

3.3 Procedure

As default only error messages (errors) are sent from the Clients to the Diagnosis Server.

The Diagnosis Server saves the received messages in TXT files with a special structure (on page 44). The default folder for the log files is the **LOG** subfolder in the **%ProgramData%** folder.For example: **%ProgramData%\COPA-DATA\LOG**.
You can find further information in the installation and updates manual in the File structure chapter.

Note: Under Windows CE error messages are also not created per default due to resource issues.

In order to report not only error messages to the Diagnosis Server but also other information important for the diagnosis, the according settings have to be defined for the Client (on page 25).

You can also configure the behavior of the Server (on page 22).

CONFIGURATION

The configuration of the connection is done in zenon6.inI (on page 13) divided in:

- Diagnosis Clients
- Diagnosis Server
- Versions to make sure that the configuration of the versions does not affect each other

The configuration of the Diagnosis Viewer (on page 28) also enables you to configure settings for the connection:

- Settings of the server (on page 23)
- Connection setting for Diagnosis Server connection (on page 30)
- Diagnosis Client (on page 25)
- Diagnosis Viewer analysis program (on page 28)

We recommend to do the configuration of the connection for Server and Client via zenon6.ini.

PROCEDURE

The Diagnosis Server is:

- a service at the PC.
  The service starts automatically when the operating system boots. The local service can only be started once.
- an application under CE.
  Under CE only one process can use the port. Additionally started processes terminate themselves as the port cannot be opened. If the local configuration of the Diagnosis Servers is set under CE in such a way that only the user interface is displayed (INIT=2), several processes could emerge by the Diagnosis Clients trying to start the local Diagnosis Server

As soon as a Diagnosis Client gets active, the following steps are carried out:

1. The Diagnosis Client reads and uses the configuration from **zenon6.ini**. If no configuration is available in **zenon6.ini**, the default configuration (Diagnosis Server**=***localhost:50780*) is used.
2. The Diagnosis Client attempts to establish a connection to the Diagnosis Server:

   Establishing successful:

   a) The diagnosis connection has been established and the log entries are sent.

   Establishing failed:

   b) The Diagnosis Client tries to start and use the local Diagnosis Server.
   On a PC it tries to start the service.
   Under CE it tries to create the process.

   c) The Diagnosis Client attempts to establish a connection to the local Diagnosis Server. If it succeeds, the diagnosis connection is established and the log entries are sent.

   If it fails, no log entries are created.

3.3.1 Entries in zenon6.ini

zenSysSrv and **zenLogSrv** are configured in zenon6.ini. At this it is differentiated between version 7.00 and up and versions 6.51 and earlier. With this you can configure old and new Diagnosis Clients and Diagnosis Server independent of each other on one device. For example, the LOG entries of old Diagnosis Clients are diverted, without the LOG entries of new clients being affected.

DIAGNOSIS SERVER PRIOR TO VERSION 7.00 SP0

INI entry	Description
[SYS_REMOTE]	Section in **zenon6.ini**.

INI entry	Description
	Contains parameters for *zenSysSrv* (Remote Transport and Diagnosis Server).
LOGDirectory=	Defines folder for the LOG files. If there is no entry, the LOG folder in the **%ProgramData%** folder is used by default. **Example:** **LOGDirectory=** *%ProgramData%\COPA-DATA\zenon760\LOG*
CONFIG=	Configuration string for the Diagnosis Server and **zenSysSrv** . Remote Transport and the diagnosis system use the same server configuration up to and including version 6.51 SP0. The string consists of the following parts: **DEVICE=***[Device];HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]* ▸ *DEVICE*: Sets the communication type used. *TCP/IP* and *serial* are available. ▸ *HOST*: is set to the computer name of the Diagnosis Server. ▸ *PORT*: states the port to be used. ▸ *TIMEOUT*: Provides the timeout time for the connection is seconds. ▸ *BAUD*: provides the connection speed of a serial connection. **PC configuration:** ▸ *DEVICE*=TCP/IP ▸ *HOST*=localhost ▸ *PORT*=1101 ▸ *TIMEOUT*=10 **CE configuration:** ▸ *DEVICE*=COM1 ▸ *BAUD*=115200
LOGMinFreeDiskSpace =	Defines minimum memory (in MB) that must be available on the hard drive. LOG files are deleted before this value is gone below. Default: *1024*
LOGMaxUsedDiskSpace	Defines the maximum memory on the hard drive in MB used for LOG

INI entry	Description
=	files. LOG files are deleted if this value is exceeded. Default: *1024*
LOGMinUsedDiskSpace =	Defines memory on the hard drive (in MB) that is used even if there are no LOG files. Default: *5*
LOGLogLifeTime=	Defines the lifecycle of the LOG files in seconds. Older LOG files are deleted. Default: *1209600* (corresponds to 14 days)
LOGImageCnt=	Defines the number of LOG entries, after which all incremental LOG files are written. ▸ *0*: inactive (default)
LOGLogUpdateTime=	Number of milliseconds, after which the LOG entries received are written to a LOG file. Default: *2000*
LOGMaxBufferedRecs=	Defines the number of LOG entries that are buffered if they cannot be written to files. Default: *10240*
LOGMaxLogFileSize=	Maximal size of a log file in bytes. If a log file reaches this size, it is closed and a new log file is created. Default: *5242880* (corresponds to 5 MB)
LOGCheckDiskTime=	Defines the interval in seconds, in which the memory occupied by LOG files is checked. Default: *60*
INIT=	Action when starting the application with Windows CE: ▸ *0*: end immediately ▸ *1* (or other value greater than 2): Open Listening Port and minimize in system tray ▸ *2*: only display surface Default: *1* **Note:** As part of the separation of zenSysServ and zenLogServ for

INI entry	Description
	zenon 7.00, this default value was also changed for other versions. The default value was previously *2*.

DIAGNOSIS SERVER AS OF VERSION 7.00 SP0

INI entry	Description
[LOGGING_SYSTEM]	Section in **zenon6.ini**. Contains parameters for Diagnosis Server. Only affects **zenLogSrv** and has no effect on **zenSysSrv**.
LOGDirectory=	Defines the folder for the LOG files. If there is no entry, the following is used: ▸ The path extracted from the Registry, z. B. **%ProgramData%\COPA-DATA\LOG** ▸ the LOG folder in the **%ProgramData%**folder of the **zenLogSrv**, if no path is defined in the registry, e.g. **%ProgramData%\COPA-DATA\zenon760\LOG**
CONFIG=	Configuration string for the Diagnosis Server. The string consists of the following parts: **DEVICE=***TCP/IP;HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]* ▸ *DEVICE*: Sets the communication type used and must always be set to *TCP/IP* ▸ *HOST*: is set to the computer name of the Diagnosis Server. ▸ *PORT*: states the port to be used. ▸ *TIMEOUT*: Provides the timeout time for the connection is seconds. **Configuration:** ▸ *DEVICE*=TCP/IP ▸ *HOST*=localhost ▸ *PORT*=50780 ▸ *TIMEOUT*=10
LOGMinFreeDiskSpace =	Defines minimum memory (in MB) that must be available on the hard drive. LOG files are deleted before this value is gone below. Default: *1024*

INI entry	Description
LOGMaxUsedDiskSpace=	Defines the maximum memory on the hard drive in MB used for LOG files. LOG files are deleted if this value is exceeded. Default: *1024*
LOGMinUsedDiskSpace=	Defines memory on the hard drive (in MB) that is used even if there are no LOG files. Default: *5*
LOGLogLifeTime=	Defines the lifecycle of the LOG files in seconds. Older LOG files are deleted. Default: *1209600* (corresponds to 14 days)
LOGImageCnt=	Defines the number of LOG entries, after which all incremental LOG files are written. Default: *0*
LOGLogUpdateTime=	Number of milliseconds, after which the LOG entries received are written to a LOG file. Default: *2000*
LOGMaxBufferedRecs=	Defines the number of LOG entries that are buffered if they cannot be written to files. Default: *10240*
LOGMaxLogFileSize=	Maximal size of a log file in bytes. If a log file reaches this size, it is closed and a new log file is created. Default: *5242880* (corresponds to 5 MB)
LOGCheckDiskTime=	Defines the interval in seconds, in which the memory occupied by LOG files is checked. Default: *60*
INIT=	Action when starting the application with Windows CE: ▸ *0*: end immediately ▸ *1* (or other value greater than 2): Open Listening Port and minimize in system tray ▸ *2*: only display surface Default: *1*

DIAGNOSIS CLIENT PRIOR TO VERSION 7.00 SP0:

INI entry	Description
[SYS_REMOTE]	Section in **zenon6.ini**. Contains parameters for Diagnosis Client.
LOG_CONFIG=	A configuration string for the Diagnosis Client is stored here. The string consists of the following parts: **DEVICE=***TCP/IP;HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]* ▸ *DEVICE*: Sets the communication type used and must always be set to *TCP/IP* ▸ *HOST*: is set to the computer name of the Diagnosis Server. ▸ *PORT*: states the port to be used. ▸ *TIMEOUT*: Provides the timeout time for the connection is seconds. **Configuration:** ▸ *DEVICE*=TCP/IP ▸ *HOST*=localhost ▸ *PORT*=1101 ▸ *TIMEOUT*=10

DIAGNOSIS CLIENT AS OF VERSION 7.00 SP0

INI entry	Description
[LOGGING_SYSTEM]	Section in **zenon6.ini**. Contains parameters for Diagnosis Client.
LOG_CONFIG=	A configuration string for the Diagnosis Client is stored here. The string consists of the following parts: **DEVICE=***TCP/IP;HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]* ▸ *DEVICE*: Sets the communication type used and must always be set to *TCP/IP* ▸ *HOST*: is set to the computer name of the Diagnosis Server. ▸ *PORT*: states the port to be used. ▸ *TIMEOUT*: Provides the timeout time for the connection is seconds.

INI entry	Description
	Configuration: ▸ *DEVICE*=TCP/IP ▸ *HOST*=localhost ▸ *PORT*=50780 ▸ *TIMEOUT*=10

NOTE:

INIT UNDER CE

Under Windows CE we urgently recommend to not set entry **INIT=** (in section [LOGGING_SYSTEM] or [SYS_REMOTE]) to value *2*.

Reason: The value *2* means that both **SysSrvCE** and **LogSrvCE** only display the user interface and do not open the listening port.
If now a Diagnosis Client wants to establish a connection, it will fail. As in this case the Diagnosis Client start process **LogSrvCE** and the process does not open the port, each Diagnosis Client starts such a process. This leads to several parallel **LogSrvCE** processes and to a delay in starting the Diagnosis Clients as it waits for the timeout of the connection while establishing the diagnosis connection.

ZENLOGSRV ON A SYSTEM WITH DIFFERENT ZENON VERSIONS

If **zenLogSrv** is used for a system with different zenon versions as a central local Diagnosis Server, the **LOG_CONFIG** entry in the **[SYS_REMOTE]** section must be as follows:
DEVICE=*TCP/IP;HOST=localhost;PORT=5780;TIMEOUT=10*

Reason: Older clients use the **zenLogSrv** as a result of this entry (instead of the obsolete **zenSysSrv** service) as a Diagnosis Server. New clients use the current **zenLogSrv** service by default. This service is automatically started when the system is started.

Attention: If the port cannot be reached, older clients start **zenSysSrv** and retry connecting to it.

3.3.2 Windows CE

Under Windows CE the Diagnosis Server is started as an application.

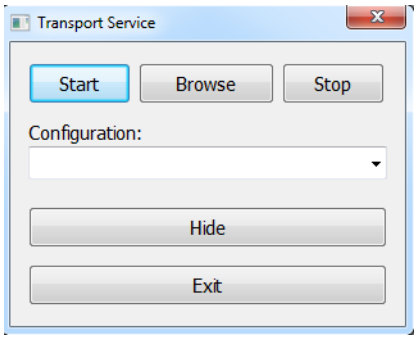
At the configuration (on page 13) of the connection consider the recommendation for parameter **INIT**:

Under Windows CE we urgently recommend to not set entry **INIT=** (in section [LOGGING_SYSTEM] or [SYS_REMOTE]) to value *2*.

Reason: The value *2* means that both **SysSrvCE** and **LogSrvCE** only display the user interface and do not open the listening port.
If now a Diagnosis Client wants to establish a connection, it will fail. As in this case the Diagnosis Client start process **LogSrvCE** and the process does not open the port, each Diagnosis Client starts such a process. This leads to several parallel **LogSrvCE** processes and to a delay in starting the Diagnosis Clients as it waits for the timeout of the connection while establishing the diagnosis connection.

USER INTERFACE UNDER CE

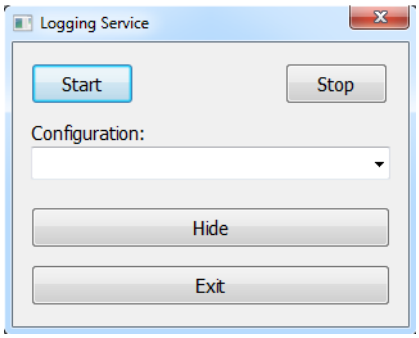
TRANSPORT SERVICE (ZENSYSSRV)



Parameter	Description
Start	Opens the Listening port and enables **zenSysSrv** to receive Remote Transport commands.
Browse	Opens the dialog for browsing the file system.
Stop	Terminates the receiving of Remote Transport commands and closes the Listening port.
Configuration	Selection of an existing server configuration from drop-down list. New connections cannot be configured. See section Entries in zenon6.ini (on page 13) for the configuration of the connection. Available are: ▸ Configuration from **zenon6.ini** ▸ Default configuration for TCP/IP ▸ Default configuration for COM1 to COM4
Hide	Minimizes the user interface into the task bar.

Parameter	Description
Exit	Terminates the application and closes the Listening port if necessary.
X (button top right)	Minimizes the user interface into the task bar.

LOGGING SERVICE (ZENLOGSRV)



Parameter	Description
Start	Opens the Listening port and enables **zenLogSrv** to receive log entries.
Stop	Terminates the receiving of log entries and closes the Listening port.
Configuration	Selection of an existing configuration from drop-down list. New connections cannot be configured. See section Entries in zenon6.ini (on page 13) for the configuration of the connection. Available are: ▸ Configuration from zenon6.ini ▸ Default configuration for TCP/IP
Hide	Minimizes the user interface into the task bar.
Exit	Terminates the application and closes the Listening port if necessary.
X (button top right)	Minimizes the user interface into the task bar.

3.4 Diagnosis Server

The Diagnosis Server:

- Creates and manages log files.
- The Server is:
  - implemented from zenon 7.00 on as zenLogSrv
  - up until zenon 6.51 integrated in the zenSysSrv.
- The configuration of the server is read from the zenon6.ini (on page 13).
- The server writes the received log data into the log file.
- The saving location for the files has to be configured. Standard: *%ProgramData%\COPA-DATA\LOG*
- Log files are named after the following fashion *LOG<YYMMTThhmmss>.txt*.
- The server is multi client able. Several evaluations can connect to the server simultaneously.
- It is possible to connect to the server online, to see the current logging messages.
- It is possible to connect to Diagnosis Server different than the local and to execute the same tasks (configuring server, configuring clients, online logging) as on the local server.
- The parameters of the current server (with which the Diagnosis Viewer is connected) can be modified. If a modification of another Diagnosis Server is needed, the server connection can be changed in the menu under **File – Connect to...**. .
- The menu entry **Settings – Server configuration** is only available, if online logging is not used at the moment.

3.4.1 System integrity monitoring

At the start of the Runtime a monitoring thread with high priority is also started. The monitoring thread checks critical parameters every ten seconds and writes corresponding warnings or errors in module Supervisor of the Diagnosis Server.

The following parameters are monitored.

Parameter	Limit value
Warning threshold for used handles	> 5000
Error threshold for used handles	> 9000
Warning threshold for used GDI objects	> 5000
Error threshold for used GDI objects	> 9000

Parameter	Limit value
Warning threshold for CPU use for the main thread	> 70 %
Error threshold for CPU use for the main thread	> 90 %
Warning threshold for total CPU use	> 70 %
Error threshold for total CPU use	> 90 %
Warning threshold for free main memory	< 30 %
Error threshold for free main memory	< 10 %
Warning threshold for OnTimer in the main frame	> 1000 ms
Error threshold for OnTimer in the main frame	> 5000 ms

3.4.2 Settings of the server

The Diagnosis Server can be configured via entries in file zenon6.ini or via dialog **Server configuration** in the Diagnosis Client. We recommend to do the settings in file zenon6.ini.

CONFIGURATION VIA ZENON6.INI

See section Entries in zenon6.ini (on page 13).

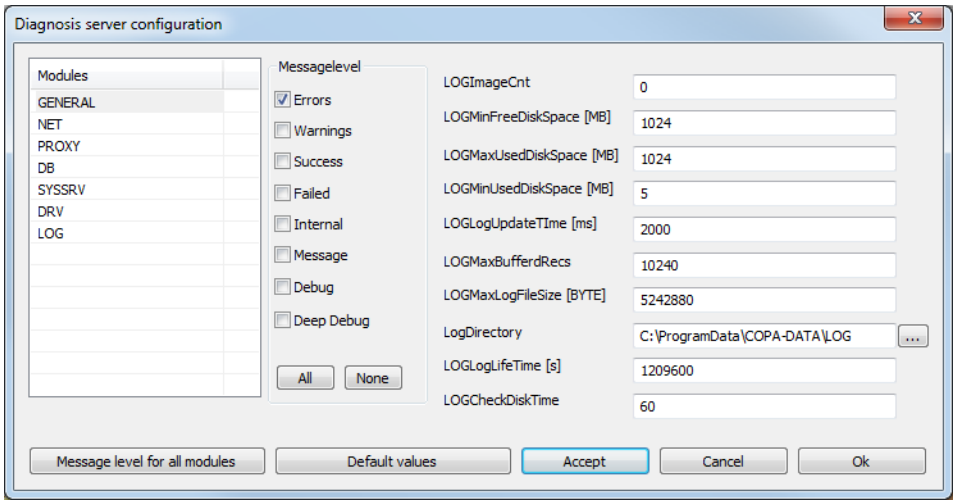
CONFIGURATION VIA DIALOG

To configure the Diagnosis Server via the dialog:

1. start the Diagnosis Viewer
2. open entry **File Connect to... (on page 30).**
3. configure the desired Server
   (Take care of the correct port selection depending on the version!)
4. open entry **Settings -> Server configuration**
5. configure the events which should be logged
6. Close the dialog by clicking on **OK**.

Note: All changes are written to **zenon6.ini** when the dialog is confirmed.

Configuration of the events which should be logged by the Diagnosis Viewer:



Parameter	Description
Modules	Selection of the modules which you want to configure.
Messagelevel	Selection of the events to be logged. Default: **ERRORS**
LOGImageCnt	Number of records, after which all incremental fields will be written. Default: *0* (inactive)
LOGMinFreeDiskSpace	It is continuously checked, if less than the configured minimal free disk space is available. The oldest log files are deleted. Minimal free disk space in MB, before log files are deleted. Default: *1024 MB*
LOGMaxUsedDiskSpace	Maximal used disk space for the LOG file in MB. Default: *1024 MB*
LOGMinUsedDiskSpace	Minimal used disk space in MB independent whether LOGMinFreeDiskSpace is under-run. Default: *5 MB*
LOGLogUpdateTime	Time in ms, after which the received entries are saved. Default: *2000 ms*
LOGMaxBufferedRecs	The server buffers the contents of all incremental log fields for diverse applications, in order to be able to write images of them into the LOG file. With the start of a log file and after configurable number of log entries a complete image for all addresses is written into the log file. Received data are written to the log files. The entry is done via temporary buffer. It can be configured whether the data should be

Parameter	Description
	written immediately or delayed. Number of buffered entries if they cannot be saved. Default: *10240*
LOGMaxLogFileSize	The server writes the received log data into the log file. If this log file reaches the configured size, a new file is started. Maximal size of a single log file in bytes. Default: *5 MB*
LOGDirectory	Folder in which the log files are written. Default: *%ProgramData%\COPA-DATA\LOG*
LOGLogLifeTime	It is continuously checked, if the lifetime of the log files is exceeded. The oldest log files are deleted. Number of seconds to keep the log files. Default: *14 days*
LOGCheckDiskTime	Time in sec, in which the used disk space id checked. Default: *60 s*
Message level for all modules	Settings are taken over for all modules.
Default values	Restore default settings.
Accept	Take over settings for this module.
Cancel	Discards changes and closes dialog.
OK	Applies changes and closes dialog.

3.5 Diagnosis Client

Each program that creates log entries is a Diagnosis Client. These log entries are sent to the Diagnosis Server via TCP/IP. Server computer and port are read - dependent on the used version - from the local *zenon6.ini* (on page 13) and contacted. If the connection fails the following procedure is carried out cyclically:

- If the Diagnosis Server cannot be reached, a attempt to reconnect is made every 500 ms.
- If no connection could be established after half the timeout time, the system tries to start the service **zenSysSrv** or **zenLogSrv**.

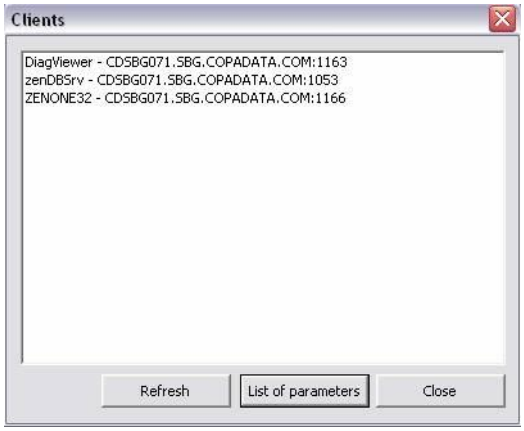
The settings are configured with the **LOG_CONFIG=** entry in the *[SYS_REMOTE]* section (up to 6.51) or **[LOGGING_SYSTEM]** (from 7.00).

CONFIGURATION OF DIAGNOSIS CLIENT

To configure the Diagnosis Client via the dialog:

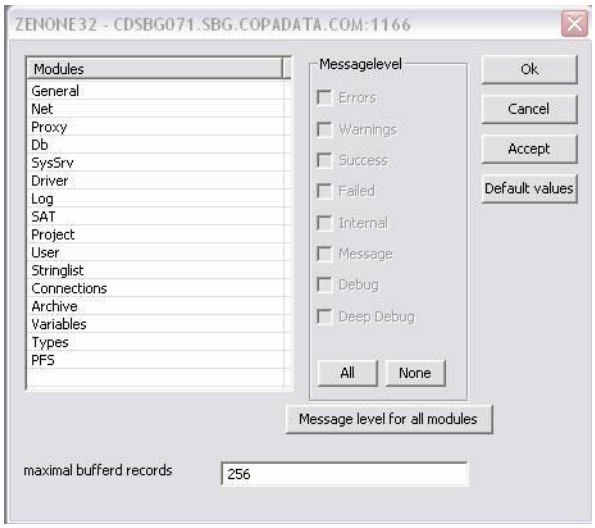
1. Start the Diagnosis Viewer.
2. Open the entry **Settings -> Client configuration** (only available if logging is inactive)
3. Highlight a Client.
4. Click on **List of parameters**.
5. The dialog for configuration is opened
6. Configure the Client.
7. Close the dialog by clicking on **OK**.
8. Repeat the procedure for other Clients if necessary

CLIENT LIST



Parameter	Description
Clients	Lists all available Clients.
Refresh	Updates the list of the Clients.
List of parameters	Opens the dialog for configuring the selected Client.
Close	Closes the dialog.

CONFIGURE CLIENT



Modules that can be selected:

Module	Description
Modules	Selection of the modules which you want to configure. The list is made up of default modules and modules dependent on the respective client. ▸ **General**:General messages ▸ **Net**:Network messages ▸ **Proxy**: Messages of the zenon Proxy ▸ **Db**: Messages from **ZenDbSrv** ▸ **SysSrv**: Messages from **ZenSysSrv** ▸ **Driver**: Messages from a driver ▸ **LOG**: Messages from logging ▸ **SAT**: SICAM 230 specific messages
Messagelevel	Type of information which should be logged.
All	Selects all.
None	Deselects all.
Message Level for all Modules	Assigns highlighted message levels to all modules.
Max Buffered records	Number of entries to be buffered if there is no connection to the *Diagnosis Server*.

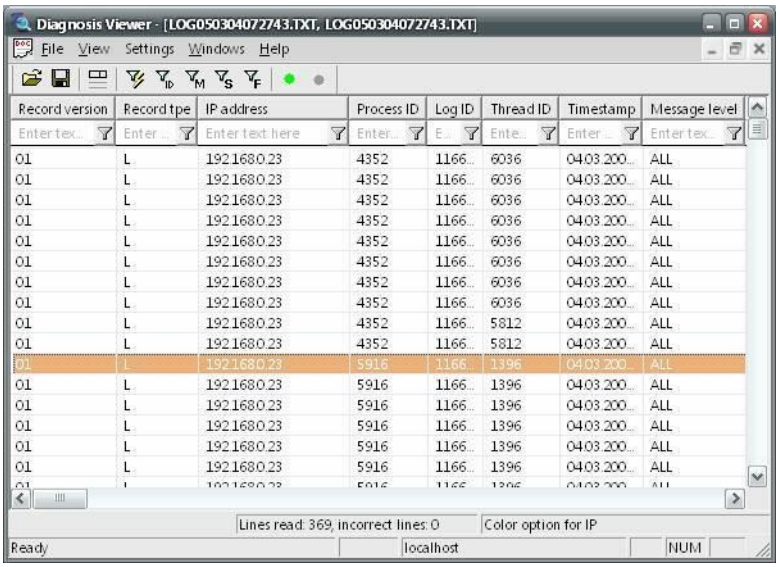
Module	Description
	Default: *256*
OK	Applies all changes and closes dialog.
Cancel	Discards all changes and closes the dialog.
Accept	Applies all changes. The dialog remains open.
Default values	Enters the defaults.

3.6 Diagnosis Viewer - Analysis Program

The Diagnosis Viewer is used to display the LOG data. It connects to the Diagnosis Server in order to display data online or read back historic log files. Log files contain not only the log data, additional information which is important for the analysis such as column headings are also saved in them.

To display a log file:

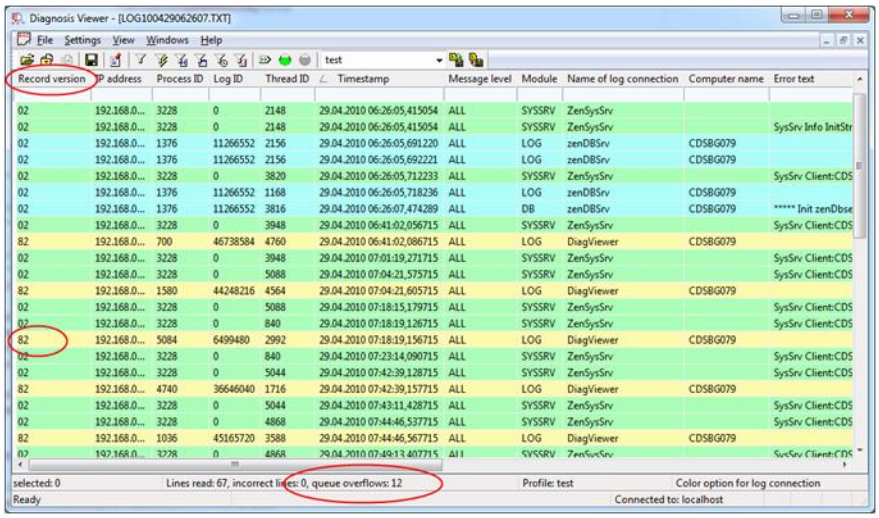
1. Select **File -> Open**.
2. the dialog for selecting a LOG file is opened with focus on the configured default folder
3. Select the desired file.
4. The LOG file is displayed



5. Double click an entry to open the detail view.

RECOGNIZING QUEUE OVERFLOW AT DRIVER

If messages of a driver are deleted because of queue overflow, the Diagnosis Client and the Diagnosis Server set a marker in the new entry when writing a new entry for all activated modules (on page 37) that older entries were deleted from the queue. The overflow recognitions contained in the opened log files are counted:



Parameter	Description
Column **Record version**	This column must be part of the column selection. It shows the version of the data record. Version *8x* tags overflows.
Counter *82*	*8* refers to overflow, *2* refers to the concerned version of the data record.
Status line **queue overflows**	If status bar is active, the number of overflows is displayed there.

Note: Not all entries written in the log file are displayed. If a not displayed log data record is tagged with an overflow, it will be displayed at the next visualized data record of this client. If several not displayed entries in a row are tagged with an overflow, the counter in the status bar can deviate from the number of data records with overflow tags.

3.6.1 Global settings

The entries are in the English language.

Parameters	Description
File	Commands in menu File.
Open	Opens dialog for selecting a log file saved in TXT format. Each newly opened log file is displayed in its own window.

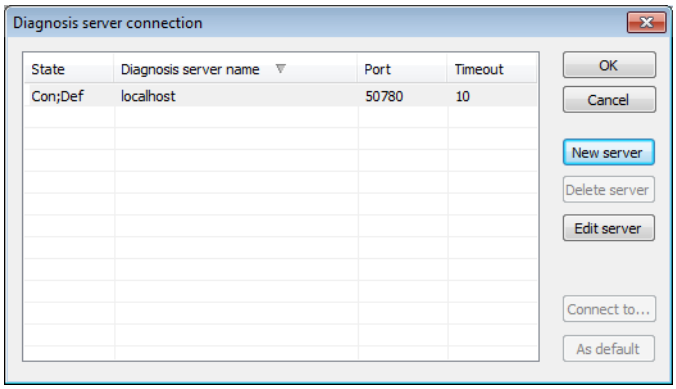
Parameters	Description
Open to active document	Each new log file is added to the active window.
Close	Closes the active window.
Save	Saves the log files of the active window.
Save as	Saves the current view of the active window (e.g. filter settings) to a file to be selected.
Remote Download	Only available, if a connection to a Remote Diagnosis Server exists. Enables the download of logging files of the Remote Server to the local log folder. A subdirectory with the name of the PC is created. Only file, which have changed or which are new, are available.
Connect to	Opens the dialog for the Connection selection (on page 23).
Online	Activates the online error view. If online logging is started, all incoming entries are displayed. The same filter dialog as for reading files can also be set here. Difference: If no log connection is selected, all incoming log entries will be displayed, otherwise only the ones from the selected clients. If the filter of the log connection is modified, all entries not fulfilling the filter criteria will be lost. (Logging file nevertheless is created and all entries are saved.) Displayed entries can be saved.
Offline	Deactivates the online error view. (Default)
Exit	Closes the Diagnosis Viewer.

3.6.1.1 Connection settings Diagnosis Server connection

The Diagnosis Viewer automatically connects to a selected default Server at the start. If no default server is defined, **localhost** is used as default server.
Recommendation: Set up the server configuration using the entries in **zenon6.ini** (on page 13).

SELECT DIAGNOSIS SERVER

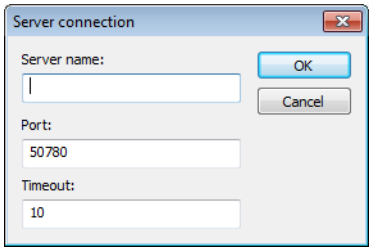
Click on **File -> Connect to...** to open the dialog to select a server:



Parameter	Description
List Server	Lists all configured Servers and displays them: ▸ Status: Con: connected server Def: Default Server. This is shown on opening. ▸ Name ▸ Port ▸ Timeout
OK	Applies settings and closes the dialog.
Cancel	Discards settings and closes the dialog.
New Server	Opens the dialog for configuring a new Server.
Delete Server	Selected Server entry is deleted from the list.
Edit Server	Opens the dialog for configuring the selected Server.
Connect to	Establishes a connection to the selected Server.
As default	Selected server becomes default server.

CREATE AND EDIT DIAGNOSIS SERVER

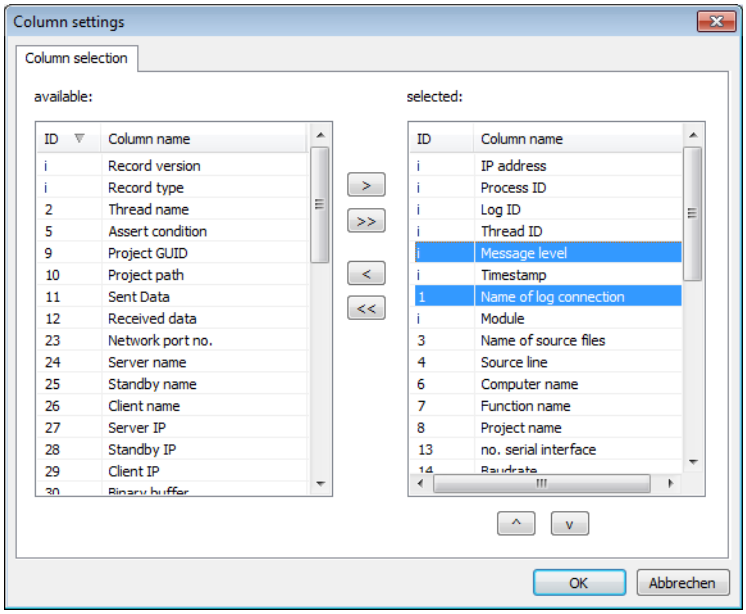
Click on **New Server** or **Edit Server** in dialog **Diagnosis Server connection** to open the dialog for configuring the Server:



Parameter	Description
Server name	Name of the PC to which to connect. Each computer can only be entered as a server once. The following must run on the PC: ▸ up to version 6.51: **zenSysSrv** ▸ from version 7.00: **zenLogSrv**
Port	Port of the service on the target computer: ▸ Up to version 6.51: *1101* ▸ From version 7.00: *50780*
Timeout	Time in seconds to wait for a response from the **Sysservice**. Default: *10 s*
OK	Applies settings and closes the dialog.
Cancel	Discards settings and closes the dialog.

3.6.1.2 Column settings

You can select the columns that are to be displayed in the menu under **Settings -> Column settings**. The selection is only applicable for the time period in which the file is opened. Column settings can however be saved as profiles.



Parameters	Description
available	available columns
selected	Columns which are displayed
>	adds columns selected at "available" to "selected"
>>	adds all available columns at "available" to "selected"
<	removes selected columns from "selected"
<<	removes all available columns from "selected"
^	sorts selected entries one level higher (multi-select is possible)
v	sorts selected entries one level lower (multi-select is possible)
OK	Applies settings and closes the dialog.
Cancel	Discards settings and closes the dialog.

Columns can also be configured via the context menu:

Parameters	Description
Add all columns with	Adds all columns which contain entries.

Parameters	Description
entry	
Remove Column	Hides the selected column.
Remove all empty columns	Hides all columns which do not contain entries.
Column width automatic	The width of the selected column is automatically adjusted to the longest entry
All columns widths automatic	The width of all columns is automatically adjusted to the longest entry

3.6.1.3 Profiles

Column settings can be saved as profiles.

To save profiles:

1. Enter a name into the filed in the toolbar.
2. Click on the symbol with the disk.

To load profiles:

1. Select a saved profile from the drop-down list.
2. Click on the symbol with the disk.

The profiles are saved as a ***.lvs** file.

3.7 Possibilities of Filtering

To define filters open the corresponding filter dialog via the corresponding symbol or the tab of the filter.

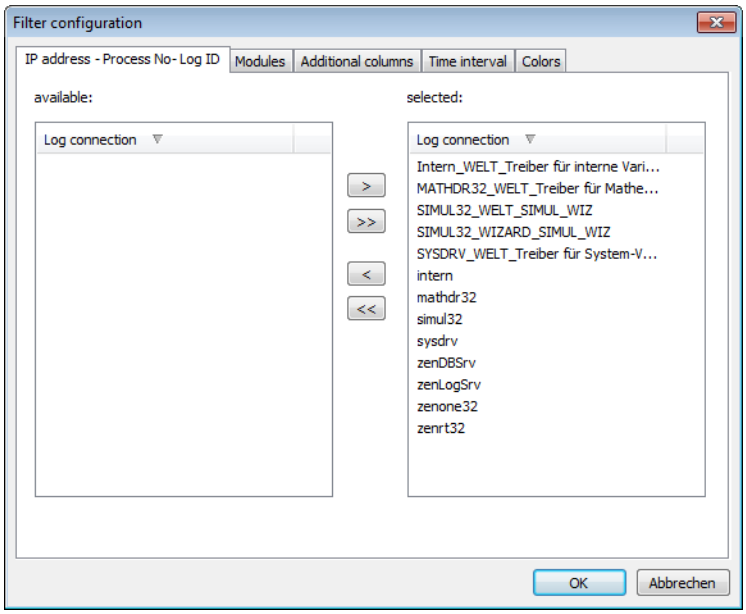
SYMBOL BAR FILTER

To use the symbol bar, you must activate it in menu **View** via menu item **Icon bar**.

Symbol	Tool tip	Description
1	**Change pre-filter settings**	Opens dialog with five tabs for defining filters.

Symbol	Tool tip	Description
2	**Change pre-filter for IP-ProcessID-LogID**	Opens tab **IP address - Process No - Log ID (on page 36).**
3	**Change pre-filter for modules**	Opens tab **Modules** (on page 37).
4	**Change pre-filter for additional columns**	Opens tab **Additional columns** (on page 38).
5	**Change pre-filter for time interval**	Opens tab **Time interval** (on page 39).
6	**Change pre-filter for coloring**	Opens tab Colors (on page 40).

FILTER DIALOG

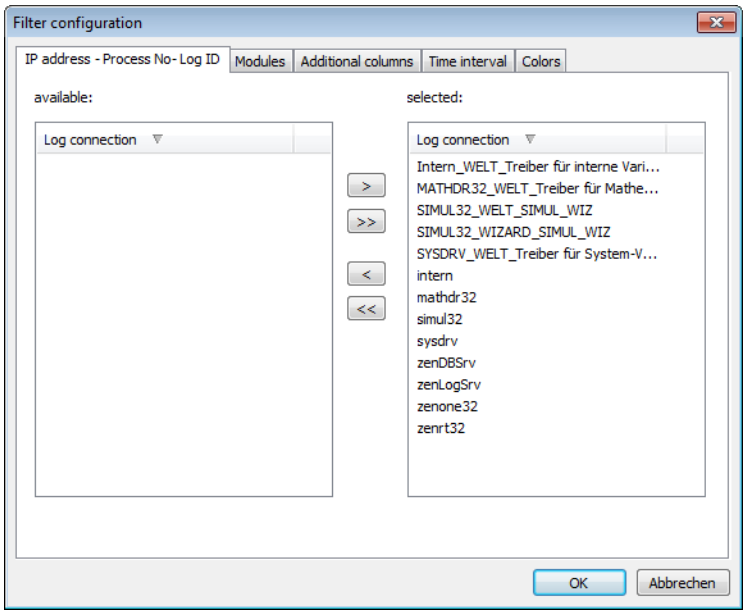


Tabs	Description
IP-ProcessID-LogID	Opens tab **IP address - Process No - Log ID** (on page 36) for configuring the connection which should be logged.
Modules	Opens tab **Modules** (on page 37) for the modules which should be logged.
Additional columns	Opens tab **Additional columns** (on page 38) for selecting additional columns which should be displayed.
Time interval	Opens tab **Time interval** (on page 39) for defining time filter.

Tabs	Description
Colors	Opens tab Colors (on page 40) for selecting the color-coding of information.

3.7.1 IP address - Process No - Log ID

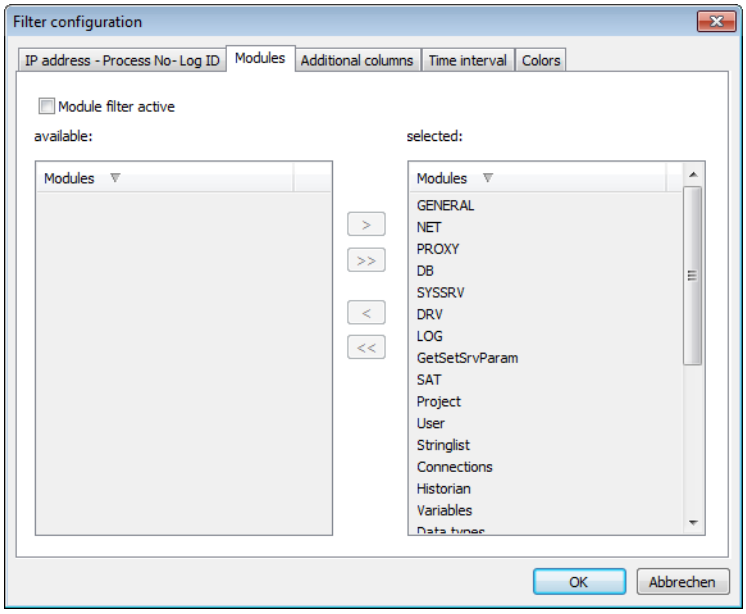
Configuration of the connections and processes which should be displayed.



Parameter	Description
available	List of available connections.
selected	List of selected connections.
[Arrow keys]	Add selected (**>**) or all (**>>**) connections to list **selected** or removes them from the list (**<** or **<<**).
OK	Applies all changes on all tabs and closes the dialog.
Abbrechen	Discards all changes on all tabs and closes the dialog.

3.7.2 Modules

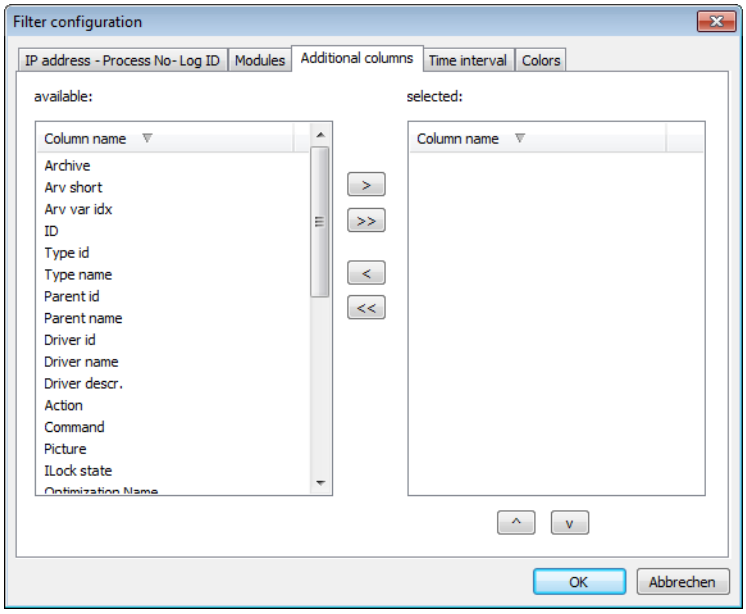
Selection of the modules which should be displayed.



Parameters	Description
Module filter active	*Active:* It is filtered on modules. With this only LOG data records are displayed which are assigned to a selected module.
available	Available modules.
selected	Selected modules.
Cursor keys	Add selected (**>**) or all (**>>**) connections to list **selected** or removes them from the list (**<** or **<<**).
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

3.7.3 Additional columns

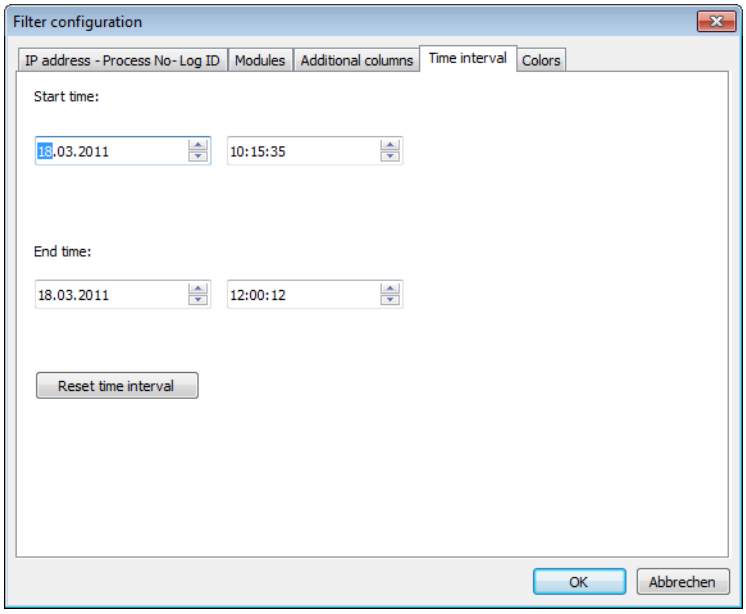
Selection of the columns which should be displayed additionally.



Parameters	Description
available	List of the available columns. All field definitions existing in the file are displayed.
selected	List of the selected columns.
Cursor keys	Add selected (**>**) or all (**>>**) connections to list **selected** or removes them from the list (**<** or **<<**).
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

3.7.4 Time interval

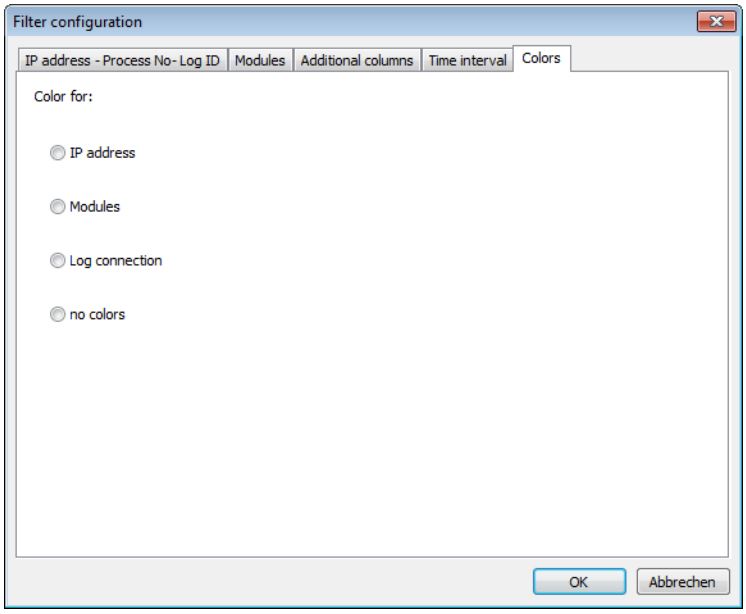
Configuration of the time filter for displaying the entries.



Parameter	Description
Start time:	Selection of the date and point in time from which entries should be displayed. Default: Current date
End time:	Selection of the date and point in time up to which entries should be displayed. Default: Current date
Reset time interval	Sets filter back to default.
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

3.7.5 Colors

Selection of the color display of the information.



Parameters	Description
Colors for:	Selection of the color
IP address	*Active*: Different IP addresses are colored differently.
Modules	*Active*: Different modules are colored differently.
Log connection	*Active*: Different names of the log connection are colored differently.
no colors	*Active*: Entries are not colored.
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

3.8 Reading the log files

One or more log files can be opened in an analysis at the same time. A pre-filter (on page 34) has to be set to limit the display. This is possible with five property pages. This filter can be modifies later on. If the filter is set, only the entries fulfilling these filter criteria are displayed. The entries are listed chronologically.

FILTER COLUMNS

Another filter possibility is available with the filter columns. Filter criteria can be entered for each column in the input field below the column header. The fields support **Regular Expressions**, so that also complex filter criteria can be defined. The list can be sorted ascending or descending by clicking the column headers. Displayed entries can be saved. Fields to be displayed can be selected using the **Settings -> Column settings** menu entry.

DEFAULT FIELDS IN THE LOG FILE:

ID	Parameter	Description
i	*IP address*	IP address. These fields identify the clients and allow the message to be assigned.
i	*Log ID*	entry ID These fields identify the clients and allow the message to be assigned.
i	*Message Level*	Name of the message level for which the message was entered.
i	*Module*	Name of the module, which entered the message.
i	*Process ID*	ID of the project. These fields identify the clients and allow the message to be assigned.
i	*Record type*	Type of entry.
i	*Record version*	Version number of the entry.
i	*Thread ID*	ID of the thread, from which the message was entered.
i	*Timestamp*	Time of the message in UTC.

OPTIONAL FIELDS WITH FIX ID.

ID	Constant	Description
1	*Name of log connection*	Name of logging connection
2	*Thread name*	Name of the threads.
3	*Name of source files*	Name of the source file.

ID	Constant	Description
4	*Source line*	Source line
5	*Assert condition*	Assert condition
6	*Computer name*	Computer name
7	*Function name*	Function name
8	*Project name*	Project name
9	*Project GUID*	GUID of the project.
10	*Project path*	Project path
11	*Sent Data*	Sent data
12	*Received data*	Received data
13	*no. serial interface*	Number of the serial interface.
14	*Baudrate*	Baud rate
15	*dtr setting*	DTR setting.
16	*rts setting*	RTS setting.
17	*Serial char. length*	Serial character length
18	*Parity*	Parity
19	*No. stopbits*	Number of stop bits
20	*CTS*	CTS.
21	*dsr*	DSR.
22	*dsr sensitivity*	DSR sensitivity.
23	*Network port no.*	Port number in the network.
24	*Server name*	Server name.
25	*Standby name*	Name of standby server
26	*Client name*	Client name.
27	*Server IP*	IP address server.
28	*Standby IP*	IP address standby.
29	*Client IP*	IP address client.

ID	Constant	Description
30	*Binary buffer*	Binary buffer.
31	*Pointer*	Pointer
32	*Class name*	Class name
33	*Error code*	Error code:
34	*DLL instance handle*	DLL instance handle
35	*DLL name*	DLL name
36	*Driver error parameter 1*	Driver error parameter 1
37	*Driver error parameter 2*	Driver error parameter 2
38	*Trace Message*	Trace message
39	*Errortext*	Error text
40	*Error file name*	Name of error file.
41	*Success condition*	Condition for success
42	*Value if successful*	Value when successful
43	*Net adress*	Net address:
44	*Datablock*	Data block.
45	*Offset*	Offset:
46	*Bit number*	Bit number
47	*Area in PLC*	Area in the PLC.
48	*Communication direction*	Shows the direction of the communication in a string.
49	*General text*	General text
50	*Main version no.*	Number of main version.
51	*Sub version no.*	Number of sub-version.
52	*Build no.*	Build number.
53	*Servicepack*	Service Pack.
54	*Hotfix no.*	Hotfix number

ID	Constant	Description
55	*Sending client*	Client, which sent the command
56	*Target client for command*	Client that is the target of the command.
57	*Database no.*	Number of database.
58	*Datapoint no.*	Datapoint number (channel number)
59	*Datapoint value*	Value of datapoint
60	*Datapoint status*	Status of datapoint
61	*Datapoint timestamp*	Time stamp of datapoint in seconds
62	*Duration in ms*	Error wait time in milliseconds.
63	*Number, counter*	number, counter.

3.9 Structure of the LOG file

Log files are ANSI text files. The individual fields are separated using tab characters. **CR+LF** is used as an end character. This data can be opened in Notepad as a result.

Log file get the information sequentially, not sorted chronologically.

3.9.1 Message levels

Eight groups can be selected to divide the log messages. These are bit coded and can thus also be combined.

1	Error message
2	Warnings
4	Success messages
8	TRACE
16	ASSERT
32	LOG messages
64	Debug
128	Extended Debug

3.9.2 Search function

With **View/Find** the current window can be searched. All hits are marked.

3.10 Handling of errors and messages for the Diagnosis Viewer

ERROR

Error	Possible causes
The port cannot be opened.	▸ Another application uses the port. Check via "netstat". ▸ The ports for entries **[SYS_REMOTE] CONFIG** and **[LOGGING_SYSTEM] CONFIG** are identical. **zenLogSrv** and **zenSysSrv** then try to open the same port.
Diagnosis Clients *do not start the zenLogSrv*	▸ **zenAdminSrv** was ended. Without it the service cannot be started. ▸ **zenLogSrv** is not registered as a service at the PC. In this case enter the following in the command line: **zenLogSrv.exe –Service** ▸ Diagnosis Clients are not of version 7.00 SP0 or higher. The **zenLogSrv** is only supported from this version on. ▸ Under Windows CE: The individual components (Runtime, **SysSrvCE**, **LogSrvCE**) are located in different folders. They must be located in the same folder. Otherwise the components do not find one another.
Under CE many processes are created by SysSrvCE.exe or *LogSrvCE.exe*.	▸ One of the two entries in zenon6.ini **[SYS_REMOTE] INIT** or **[LOGGING_SYSTEM] INIT** has the value *2*. As a result the application only displays the user interface and does not open the Listening port. Each Diagnosis Client then tries to start the process as it cannot connect to the Diagnosis Server.
Several processes crash.	▸ The versions do not match. Diagnosis Clients, Diagnosis Server and Diagnosis Viewer must either all

Error	Possible causes
(Unhandled Exceptions of the Diagnosis Server *at receiving log messages or configuration commands or of the* Diagnosis Client *and* Diagnosis Viewer *during booting or during receiving the configuration)*	have version 7.00 SP0 or higher or all version 6.51 SP0 or earlier (see Compatibility (on page 9)).

LOG ENTRIES

Entry	Description
SysSrv received not supported network message!	**zenSysSrv** received a network telegram which is not supported. Example: Log entries.
LogSrv received not supported network message!	**zenLogSrv** received a network telegram which is not supported. Example: Remote Transport commands
Could not open listening port. Server will be stopped.	The **zenLogSrv** or the **zenSysSrv** could not open its Listening port. The error message is logged as follows: ▸ **zenLogSrv** and **zenSysSrv** on the PC: Entry in the Windows event display. ▸ **zenSysSrv** under CE: Message box for the user and log entry to the Diagnosis Server. ▸ **zenLogSrv** under CE: Message box for the user.

The following log entries are assigned to different systems. The first part of the messages states whether service or Client are effected:

- **SysSrv**: **zenSysSrv**
- **SysCli**: Client for **zenSysSrv**
- **LogSrv**: **zenLogSrv**
- **LogCli**: Diagnosis Client

Entry	Description
[SysSrv/LogSrv/SysCli/LogCli] Info InitString [String]	A network connection has been initialized with the displayed configuration string. Server opens ports and Clients connect to the Server.
[SysSrv/LogSrv/SysCli/LogCli]	An exception occurred during a network operation. The

Entry	Description
WINSOCK ERROR	details are also displayed.
[SysSrv/LogSrv] Accept Failed!	An incoming connection from a Client could not be accepted.
[SysSrv/LogSrv/SysCli/ LogCli] Write Faild	Not all data which should be sent could be sent. The number of the sent bytes and the number of the bytes which should be sent is displayed.
[SysSrv/LogSrv] Client [String] in List Delete!	The Client log off from the Server.
[SysSrv/LogSrv] Client [String] in List Insert	The Client log on to the Server.

4 Online updating of the zenon Help:

The **Documentation Download Tool** manages the updating of your online help including embedded help, dialog help, tooltips and the PDF product documentation from zenon and zenon Logic.

The updating is carried out online. An internet connection is necessary for this.

CONTENTS OF THE DOCUMENTATION UPDATE:

The **Documentation Download Tool** supports the updates of:

- zenon and zenon Logic product documentation
- Driver Documentation
- Tutorials
- Glossary

FILE FORMATS OF THE DOCUMENTATION UPDATE:

The **Documentation Download Tool** supports the updates of:

- Online help for zenon and zenon Logic (.chm)
- zenon product documentation (.pdf)

Note: The tool is only available in English

4.1 Installation

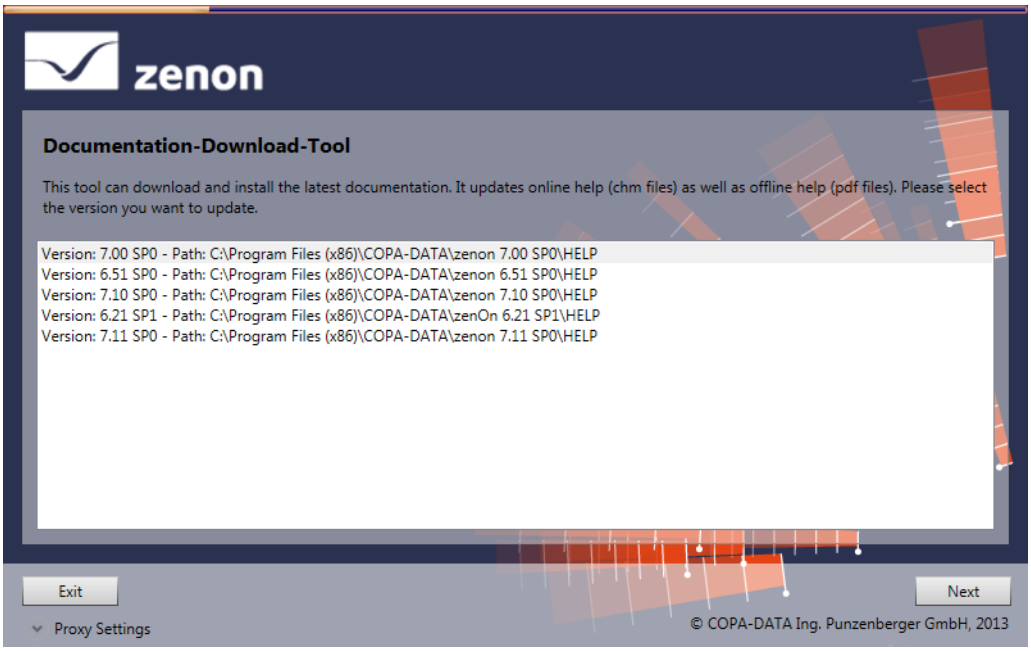
The **Documentation Download Tool** is automatically installed with zenon.

4.2 Starting the program

To start the **Documentation Download-Tool**:

1. Go to the following folder: *%PROGRAMFILES(X86)%\Common Files\COPA-DATA\STARTUP*.
2. Start the program called **DokumentationDownloadTool.exe** by double-clicking on it.

   The program start dialog opens



4.3 Navigation

It is possible to navigate through the individual dialogs by means of the navigation bar in the lower area of the dialog:

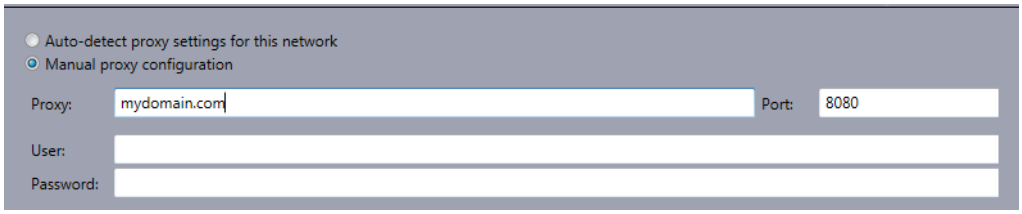
Button	Description
Exit	Closes the **Documentation Download Tool**
Back	Goes back one dialog in the tool process.
Next	Goes forward one dialog in the tool process.

Button	Description
Proxy Settings	Opens/closes expandable list for the configuration of the proxy settings (on page 49). Only active in the start dialog.

4.4 Proxy Settings

The proxy settings of your network can only be configured using the **Proxy Settings** entry.

To call this up, click on **Proxy Settings** in the start window of the tool. It is only possible to call this up in the start dialog. This property is not active in subsequent dialogs.

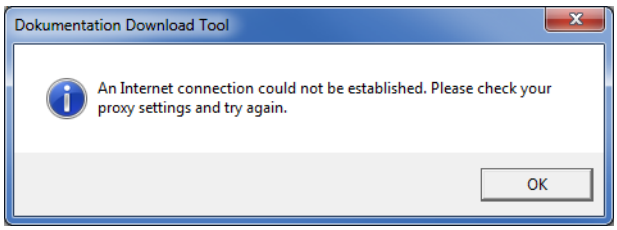


Parameter	Description
Auto-detect proxy settings for this network	The proxy settings of your system are used for communication with the internet. (Default: *active*)
Manual proxy configuration	Enables the proxy settings to be configured.
Proxy:	Address of the proxy server
Port:	Proxy server port (Default: 8080)
User:	User name on the proxy server (optional)
Password:	Password on the proxy server (optional)

Information

The Documentation Download Tool notes these proxy settings. If you regularly change your password, you must also change the password in the proxy settings of the Documentation Download Tool.

4.4.1 Incorrect proxy settings

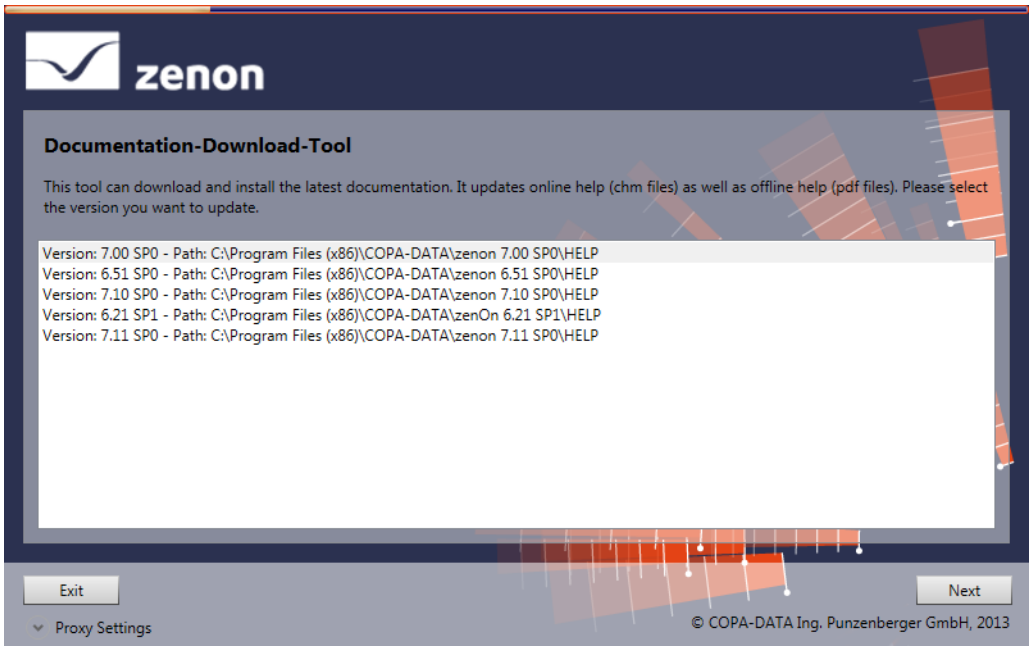


An error dialog appears with incorrect entries.

Confirm this error dialog with **OK** to automatically return to input of the **Proxy Settings**.

4.5 Selection of version

In this dialog, select the version of zenon to be updated.

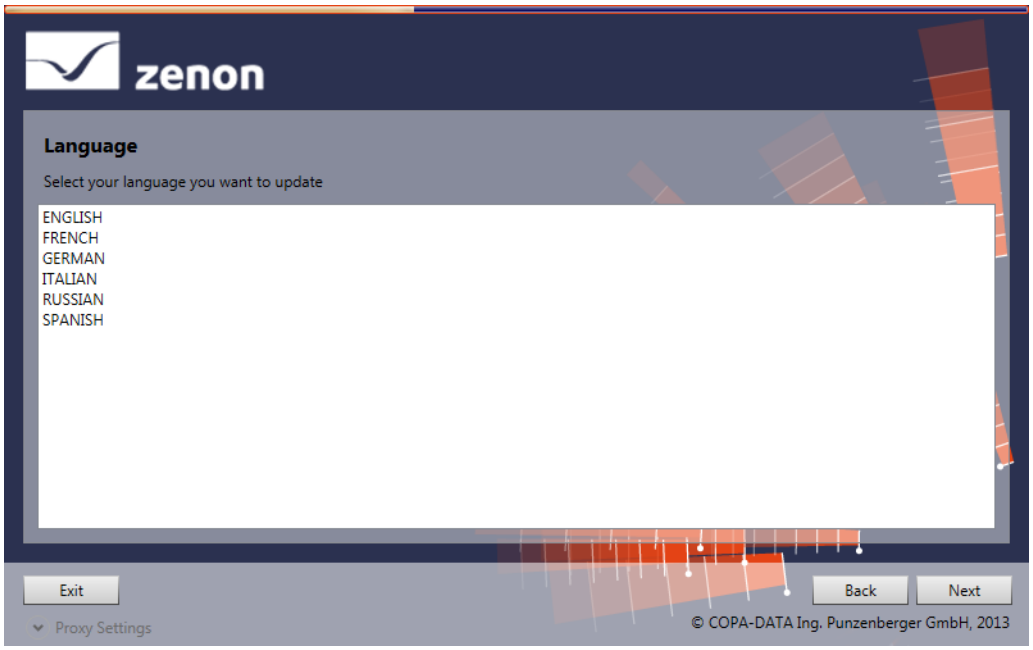


Parameter	Description
List of installed versions	Lists the versions of zenon installed on the computer. Select the version to be updated by simply clicking. **Note:** only one version of COPA-DATA can be updated each time. Multiple selection is not possible.
Exit	Closes the **Documentation Download Tool**

Parameter	Description
Next	Goes forward one dialog in the tool process.
Proxy Settings	Not active in this dialog.

4.6 Language dialog

In this dialog, you select the zenon language to be updated.

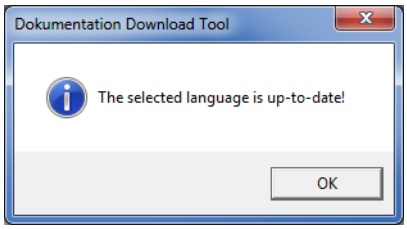


Parameter	Description
List of available languages	Lists the languages available for zenon: ▸ English (ENGLISH) ▸ French (FRENCH) ▸ German (GERMAN) ▸ Italian (ITALIAN) ▸ Russian (RUSSIAN) ▸ Spanish (SPANISH) Select the language to be updated by clicking on it. **Note:** only one version of COPA-DATA can be updated each time. Multiple selection is not

Parameter	Description
	possible.
Exit	Goes back one dialog in the tool process.
Back	Goes back one dialog in the tool process.
Next	Goes forward one dialog in the tool process.
Proxy Settings	Not active in this dialog.

4.6.1 No updates available

If online and offline help is up to date, a dialog appears:



Clicking on the **OK** button reverts to the **Language** dialog.

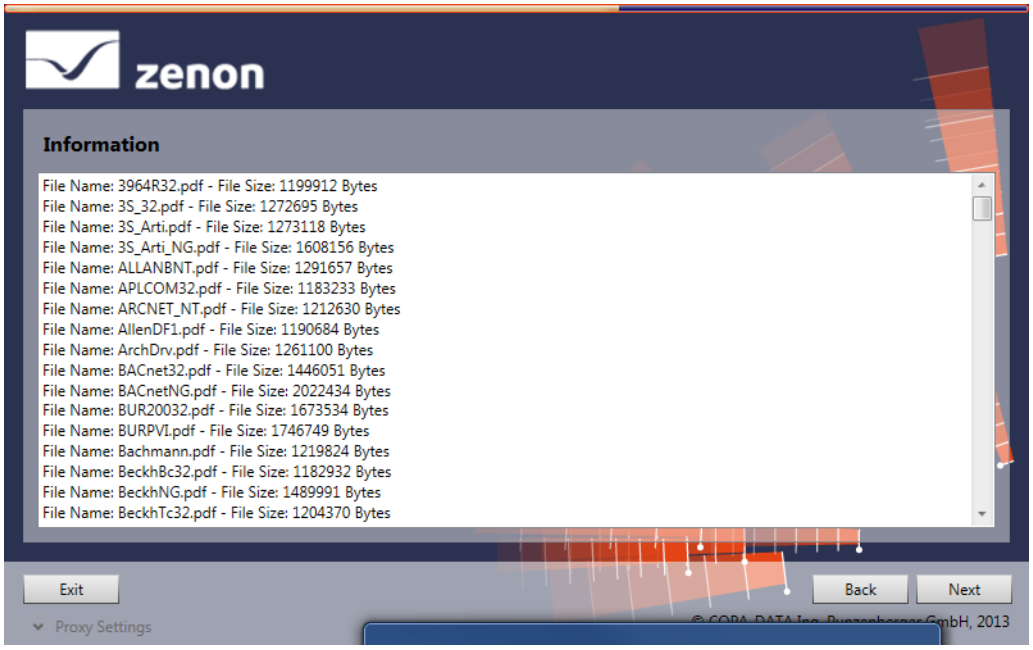
4.6.2 Language-dependent content of zenon help

Available language content for zenon and zenon Logic:

Language	Embedded help	Online/offline help	Online/offline driver documentation
English	English	English	English
French	French	English	English
German	German	German	German
Italian	Italian	Italian	English
Russian	Russian	English	English
Spanish	Spanish	English	English

4.7 Overview of available updates

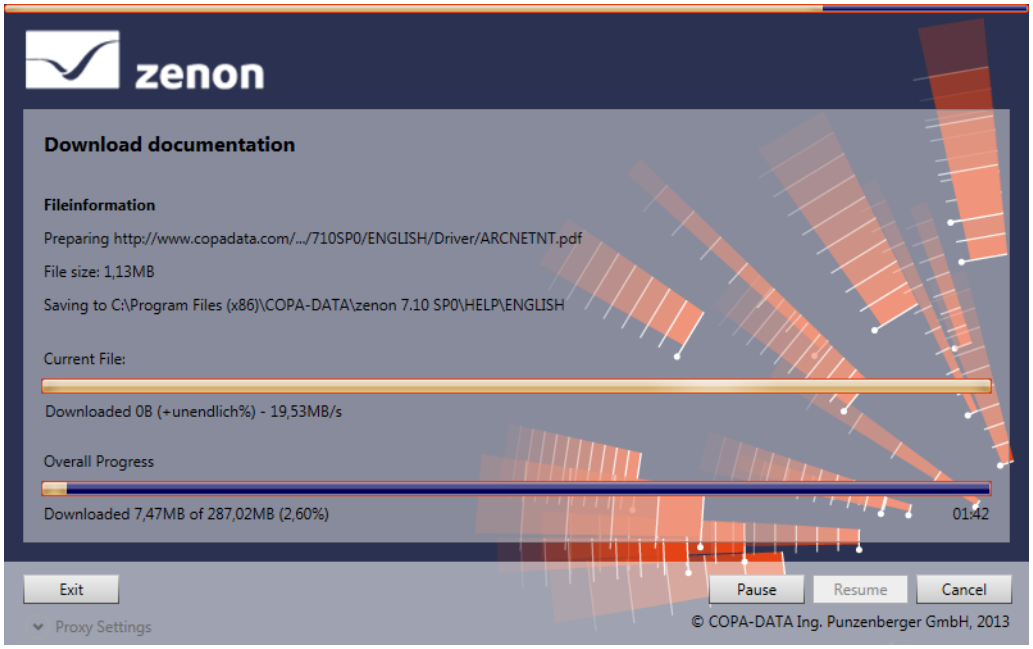
Once the update conditions have been selected, a dialog with the available updates is displayed:



Parameters	Description
List of available Updates.	List of the documents that are available for the selected version of zenon. **Note:** the list is for information only. Selection is not possible.
Exit	Closes the **Documentation Download Tool**
Back	Goes back one dialog in the tool process.
Next	Goes forward one dialog in the tool process.
Proxy Settings	Not active in this dialog.

4.8 Status dialog

This dialog shows the progress when downloading the PDF or online help file to be updated.



Parameters	Description
Fileinformation	Detailed information on the file that is currently being downloaded: ▸ File origin ▸ File size ▸ Save location on the local computer
Current File:	Status of the current file including current download speed
Overall Progress	Status of the complete update including percentage and remainder display
Exit	▸ Cancels the download that is currently in progress ▸ Closes the **Documentation Download Tool**
Pause	Pauses the current download
Resume	Resumes the download that was paused (by clicking on **Pause**). This button is only active if the **Pause** button has been pressed beforehand

Parameters	Description
Cancel	Cancels the current download
Proxy Setting	Not active in this dialog.

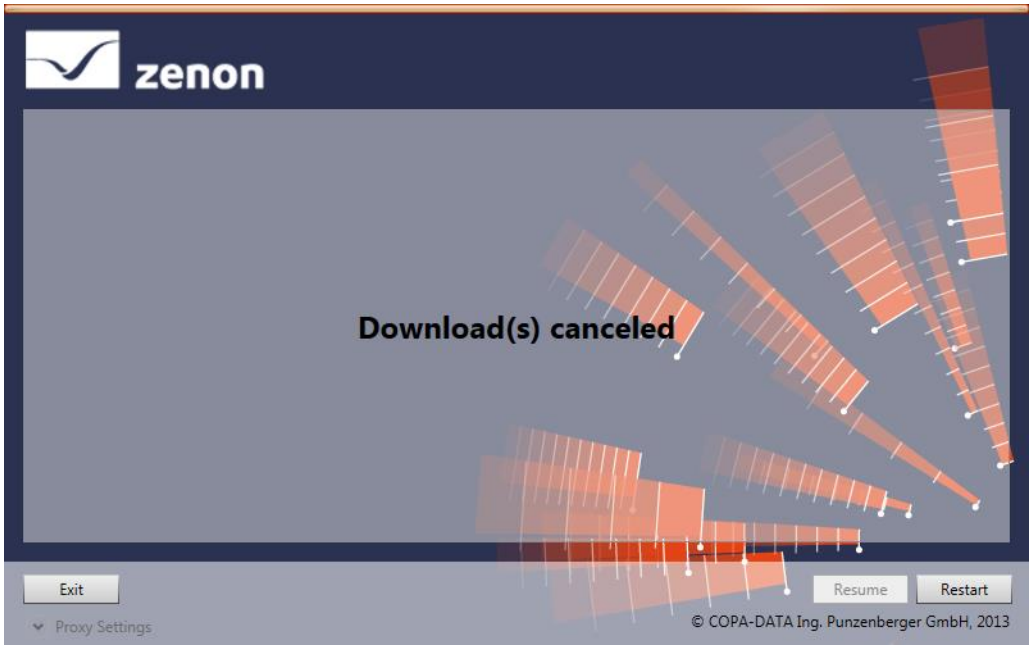
4.8.1 Download complete

The following dialog is shown once the download has been completed:

Parameter	Description
Exit	Closes the **Documentation Download Tool**
Resume	Not active in this dialog.
Restart	Reverts to the start dialog (on page 48) of the tool.
Proxy Settings	Not active in this dialog.

4.8.2 Cancel

The following dialog is displayed once the Cancel button has been clicked:



Parameters	Description
Exit	Closes the **Documentation Download Tool**
Resume	Not active in this dialog.
Restart	Reverts to the start dialog (on page 48) of the tool
Proxy Settings	Not active in this dialog.

5 Keyblock Runtime Start

Keyblock Runtime Start is a program with which zenon Runtime runs as a **Shell**. In doing so, zenon Runtime is started, but all **Windows** system tasks are blocked. Keyboard shortcuts such as the **Windows key + L** or **Ctrl+Alt+Del** no longer have an effect.

Note: Ctrl+F4 cannot be blocked. To lock all key combinations with the Windows key: Deactivate the **Windows key** in the **Startup Tool** (on page 72) under **Application -> Options -> General**.

You can find details in the **Use** (on page 57) chapter. User can no longer access the operating system but only work on the zenon user interface. Limitations from the **Lock system keys** project property are thus enhanced.

The precondition for this is that the project properties are set **Runtime title** to *No title (full screen)*. Then zenon runs in full screen mode and the Runtime cannot be minimized.

This locking cannot be bypassed during Runtime. When the Runtime is closed normally, the system restrictions are canceled. If the Runtime is to be operable without these limitations, Runtime must be started without the **Keyblock Runtime Start**.

Note also the information provided in the **Protect Runtime files** (on page 58) chapter**.**

5.1 Use

To use **Keyblock Runtime Start**:

1. In the Windows start folder, under COPA-DATA, open the zenon **Tools**.
2. Select **Keyblock Runtime Start**.
3. The program is opened and automatically starts Runtime.
4. The program blocks all access to the operating system.

BLOCKED FUNCTIONS

Locked keyboard shortcuts:

- **Ctrl+Alt+Del**
- **Ctrl+Esc**
- **Alt+Tab**
- **Alt+Esc**
- **Alt+F4**
- **Windows+L** and the functionality of the Windows key itself
  To block all key combinations with the Windows key: Deactivate the **Windows key** in the **Startup Tool** (on page 72) under **Application -> Options -> General**.

Note: Ctrl+F4 cannot be blocked. Windows keys

System locks:

- Hiding of the control panel in the start menu.
- Locking of the toolbar for operation.
- Prevents:
  - Changing passwords
  - Closing Windows
  - Logout

- Locking the computer
- User change

- Hiding of all elements in the task manager.

Notes:

- When locking the system keys, normal operation of the scroll bars with the mouse in the Runtime is also blocked. You can work around the blocking with the help of the context menu.
- To block all Windows keys: Deactivate the **Windows key** in the **Startup Tool** (on page 72) under **Application -> Options -> General**.

> **Attention**
>
> Take care that you engineer a possibility to close the Runtime in your project. There is no possibility to end the Runtime regularly.
>
> - It can only be ended by shutting the computer down using the hardware
> - All system keys also remain blocked after restarting
>
> In order to make system keys accessible again after not being shut down properly (in the event of a power cut for example):
>
> - start the Runtime again with the help of **Keyblock Runtime Start**
> - end the Runtime regularly via a close button

NOTES ON AUTOSTART

If **Keyblock Runtime Start** is started using the operating system's startup process, then note the following:

- The Autostart folder is user specific:
  If another user logs in, the program is not executed.
- Execution of the Autostart programs can be prevented by pressing the **Shift** key when the operating system is booting.

5.2 Protect Runtime files

The access to the Runtime files can be strongly restricted and therefore well protected. At this only a single Windows user has read and write rights for the Runtime folder. All other Windows user do not have any rights in the Runtime folder including read rights. Operators in the Runtime log on as zenon users.

In order to limit access to the file system:

1. Only create a single Windows user (for instance: **zenon_ADMIN)** who is authorized to start zenon as well as to read and write in the zenon Runtime folder.
2. Disable access to the zenon Runtime folder for all other Windows users – including read authorizations!
3. Disable any remote access to the user **zenon_ADMIN**.
4. Block any software for remote maintenance or remote access.
5. Make sure that zenon can only be started if this user (**zenon_ADMIN)** is logged in.
   Since other Windows users do not have read authorization Runtime will only start in the context of this user (**zenon_ADMIN)**.
6. Make sure that zenon runs as shell:
   a) For this purpose, create a zenon autostart with **Keyblock Runtime Start** (on page 57)
   b) Activate the property **Lock system keys** in the group **Runtime settings** of project properties.
   c) Start zenon in full-screen mode: Set property **Runtime title** to *No title*.
   d) Ensure that you also take multi-monitor systems into account during configuration.
   e) Disable Explorer start
   f) Do not offer file selection dialogs.
   Note: In this case, no functions that require the user to select files in the Runtime can be configured.

Access to the zenon file system is thus restricted.

6 Service Node Configuration Tool

You use the **Service Node Configuration Tool** (SNCT) to establish a connection to the **Service Hub**. The **Service Node** to be configured gets the required credentials in the form of a **Certificate Bundle** from it.

To issue a **Certificate Bundle**, the computer on which the **Service Node Configuration Tool** is running must trust the HTTPS certificate of the **Hub Controller**. If this is not the case, an error message is displayed when establishing a connection. It is possible to have the information of the certificate displayed and then decide whether a connection should be established or not.

> **Attention**
>
> The connection can only be established if the trustworthiness of the certificate has been ensured by inspecting it.
>
> If the certificate and thus the desired connection cannot be identified as being trustworthy, the connection cannot be established. Otherwise, there is the risk of Man-In-The-Middle attacks and thus a weak point for an attack on the system.

CERTIFICATE

The SNCT requires a certificate for the secure connection to the **Hub Controller**. If this is not available, an error message is displayed when establishing a connection. The error message can be accepted and the connection can still be established.

Recommendation: Install a trustworthy certificate as early as possible.

INSTALL CERTIFICATE FROM THE HUB CONTROLLER

In order to install the certificate:

1. Log in to the **Hub Controller**.
2. Download the CA certificate by clicking on **Download certificate** in the **Certificate** tab.
3. Install the certificate in the Windows Certificate Store **Trusted Root Certification Authorities**.
4. Start **Service Node Configuration Tool**.

START SERVICE NODE CONFIGURATION TOOL

To start the Service Node Configuration Tool:

1. Open Windows **Start**.
2. Search for **SNCT**.
3. Open the provided desktop app.

Alternative:

1. Open the zenon **Startup Tool**.
2. Click on the **Tools** button.

   The **Start external application** dialog is opened.
3. In the **Available applications (current folder)** section, select the **Service Node Configuration Tool** entry.

4. Click on **Start**.

   The **Service Node Configuration Tool** is opened.

Note: The Services Nodes that are available for configuration also depend on the product that is activated in the **Startup Tool**. For example, if the zenon web client is active, the products zenon Editor and zenon Runtime are not offered.

OPERATE SERVICE NODE CONFIGURATION TOOL

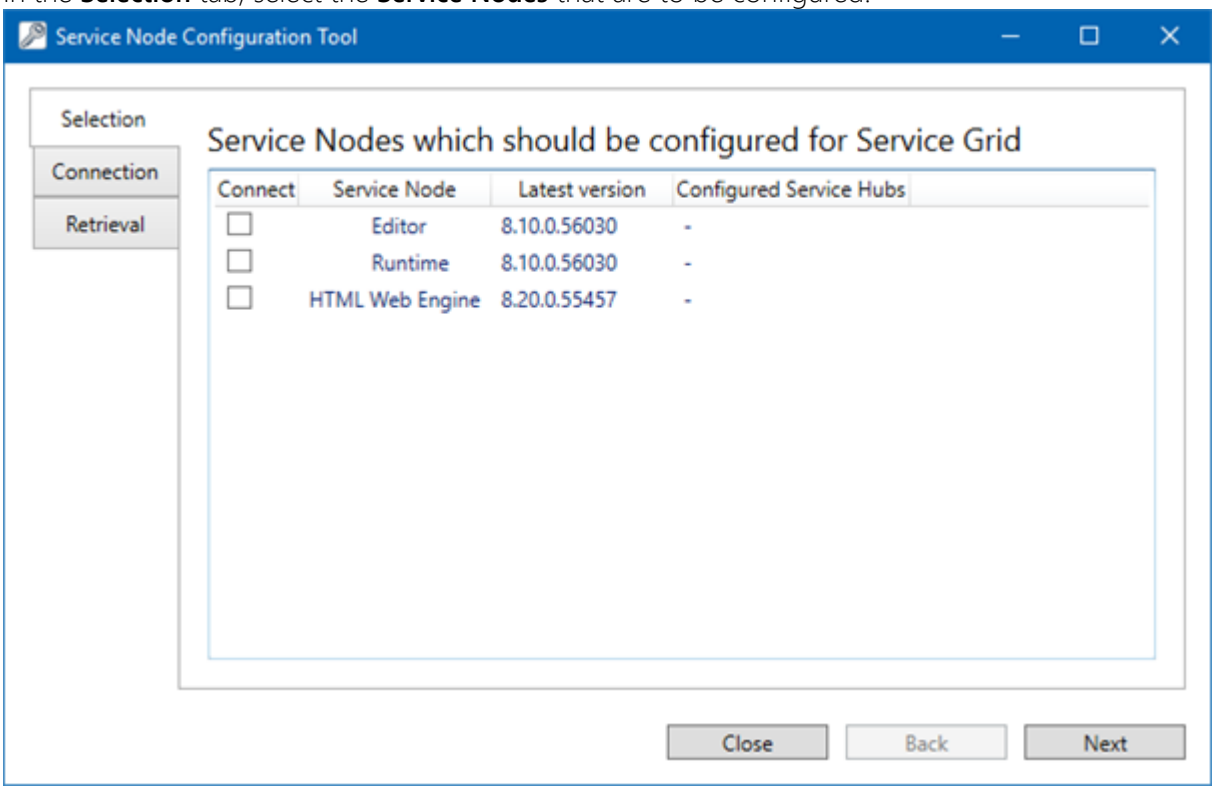
You use the **Service Node Configuration Tool** to configure the connections of the **Service Nodes** via the tabs:

- **Selection**: Selection of the **Service Nodes** that are to be connected to the **Service Hub**.
- **Connection**: Entry of the connection parameters to the **Service Hub**.
- **Retrieval**: Check of the connection and configuration of the **Service Nodes**.

These can only be edited in order. In order to be possible to switch to the next step, the current tab must be configured correctly. Errors are highlighted with a red frame the next time there is an attempt to switch further.

To configure the connection from a **Service Node** to the **Service Hub**:

1. In the **Selection** tab, select the **Service Nodes** that are to be configured.



2. Click on **Next**.

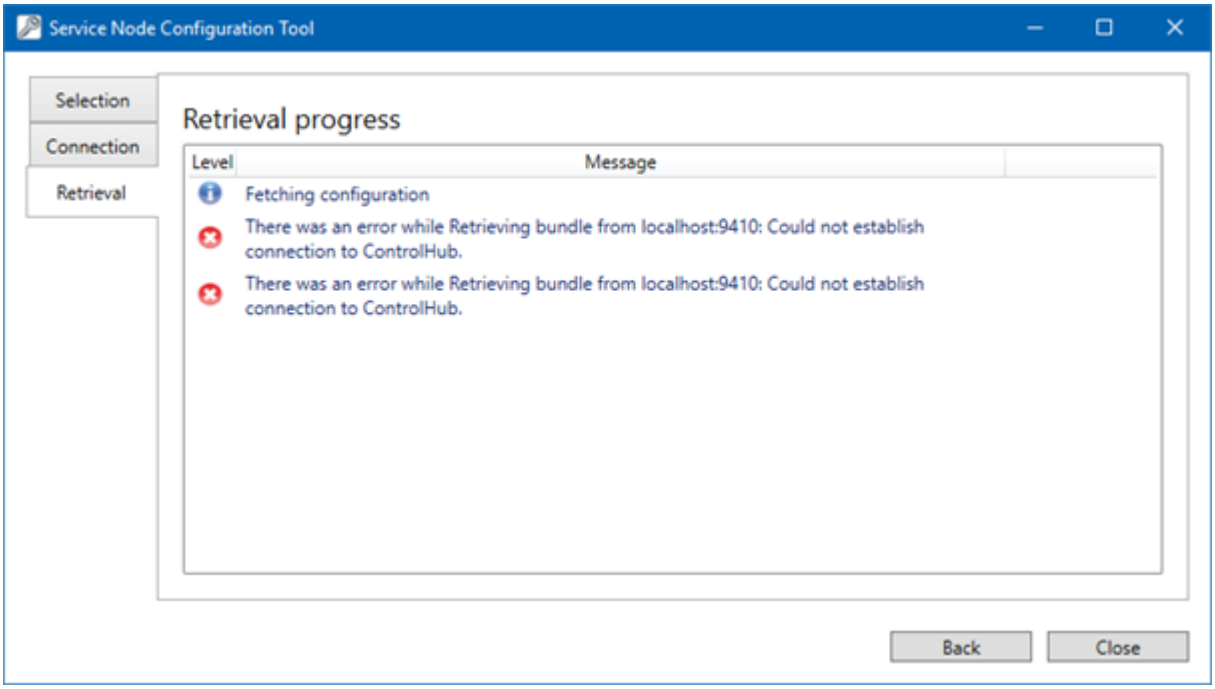
The **Connection** tab is opened.

3. Enter the address under which the hub controller can be contacted.
4. If the default port is not used:
   a) Activate the **Custom** option.
   b) Enter the port to be used.
5. Enter a user name and password.
6. Optional: Enter an alias.
   This makes it easier for the user to find information during operation.
7. Click on **Execute**.
   The connection data entered is validated.

   The **Retrieval** tab is opened.

   A connection to the Hub Controller is established and the credentials for the previously-selected **Service Nodes** are queried from the **Hub Controller**. These **Service Nodes** are then configured with their respective credentials.

   The individual steps are displayed in the form of log messages. These inform you of successful execution, as well as problems with the establishment of a connection to the **Hub Controller**, the data query or the configuration of the **Service Nodes**.



8. Close the dialog by clicking on **Close**.

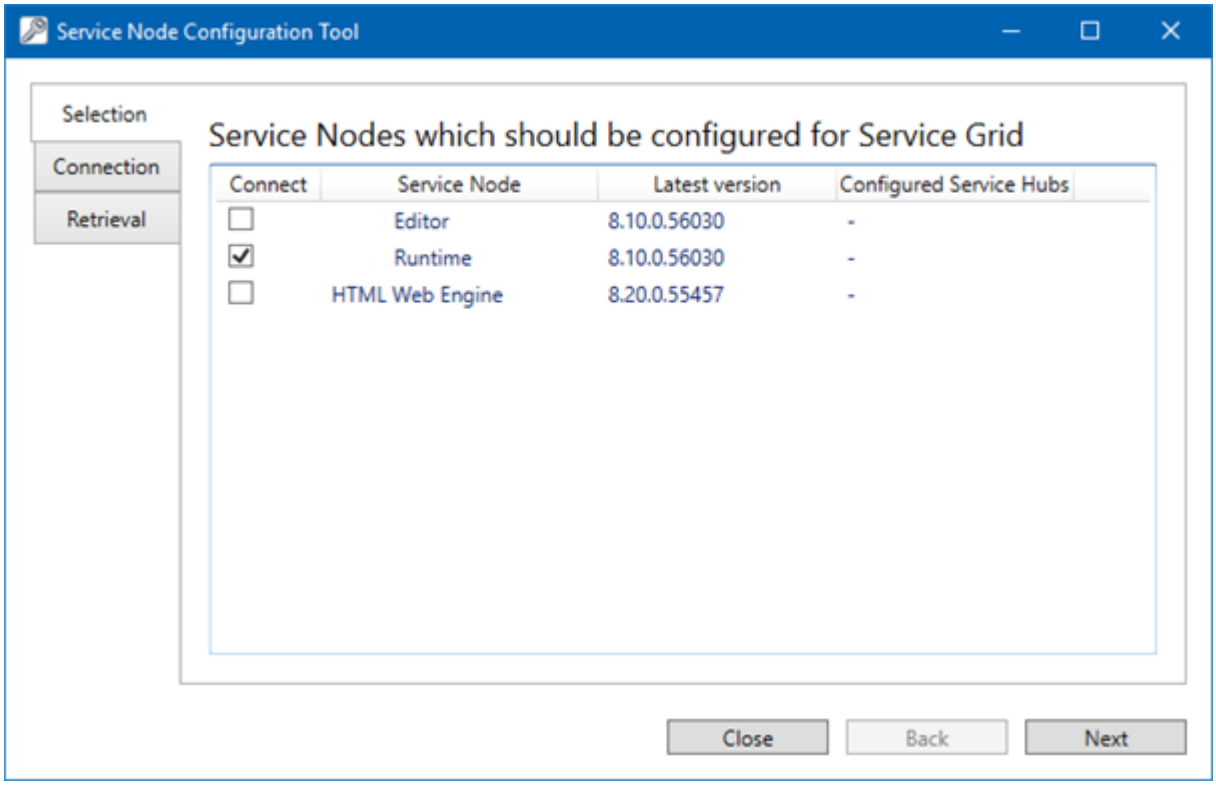
6.1 Dialog: Service Node Configuration Tool

The user interface of the **Service Node Configuration Tool** is divided into three tabs:

- Selection
- Connection
- Retrieval

SELECTION

Here you can configure the **Service Nodes** that are to be connected to the **Service Hub**.



Column	Description
Connect	Selection of the **Service Nodes** that are to be connected to the **Service Hub** . Click the checkbox to select the respective **Service Node** for the following steps.
Service Node	Display of the installed **Service Nodes** that can be connected to the **Service Hub**. **Note:** The following is applicable for zenon Runtime or zenon Editor: ▸ **zenon Runtime**: Two Certificate Bundles are created, one for the Runtime and one for the Runtime Add-In. ▸ If a Runtime or the Editor are selected, Certificate

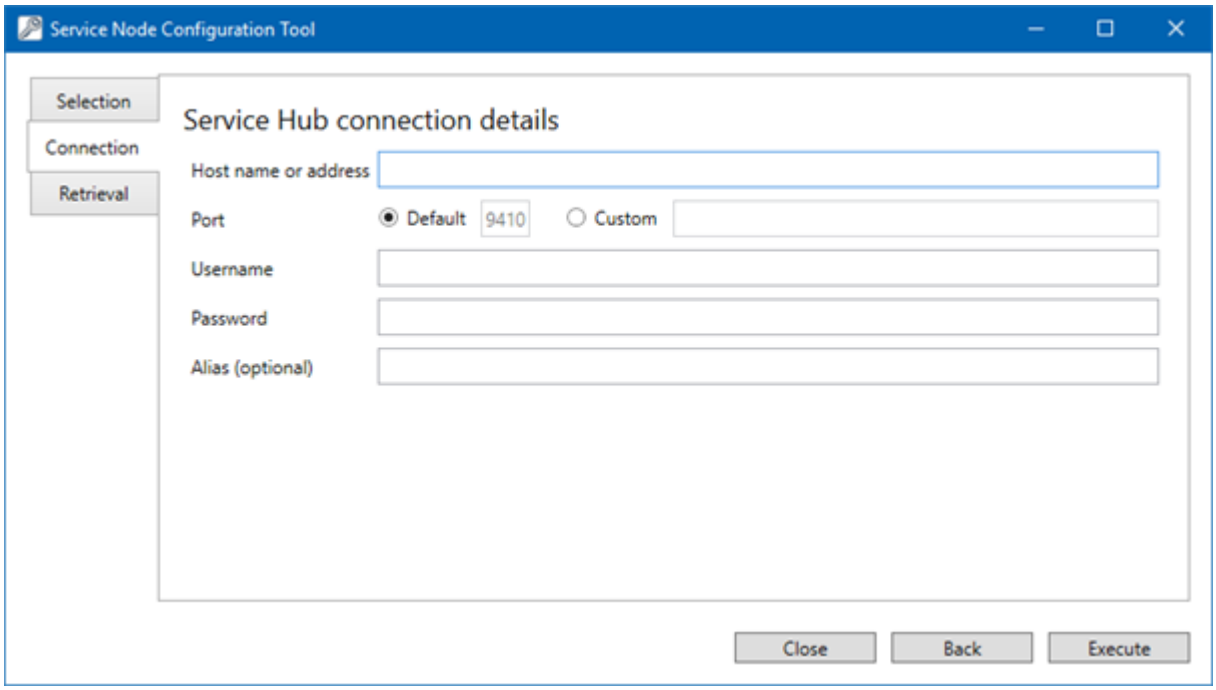
Column	Description
	Bundles are also created for the Predicitve Analytics driver and the SERVICEGRID driver.
Latest version	Display the current version number of the **Service Node**.
Configured Service Hubs	Display the previously configured connections for the **Service Node**.

NAVIGATION

Option	Description
Close	Closes the dialog. Changes that have not been saved are lost.
Back	Goes back one tab. Not available for **Selection**.
Next	Moves one step forward to **Connection**. Only available if at least one Service Node has been selected.

CONNECTION

Here you can configure the connection to the **Hub Controller**.



Option	Description
Host name or address	Address at which the **Hub Controller** can be contacted. Input as IP address or host name. at least have to have 1 character
Port	Selection of the port at which the **Hub Controller** can be contacted: ▸ **Default**: The port selected by the system is used. Default: *9410* ▸ **Custom**: The port selected by the user is used. Entry of the port number in the field. Permitted values: *1* to *65535*. **Note:** Make sure that the user-defined port is not blocked by the firewall.
Username	Entry of the user name for the **Hub Controller**. Must contain at least 1 character.
Password	Entry of the password for the **Hub Controller**. Must contain at least 1 character.

Option	Description
Alias	Optional entry of an alias for the **Service Node**. This is used, for instance, by the zenon Editor or zenon Analyzer to make it easier for the user to distinguish between the configured connections later on.

NAVIGATION

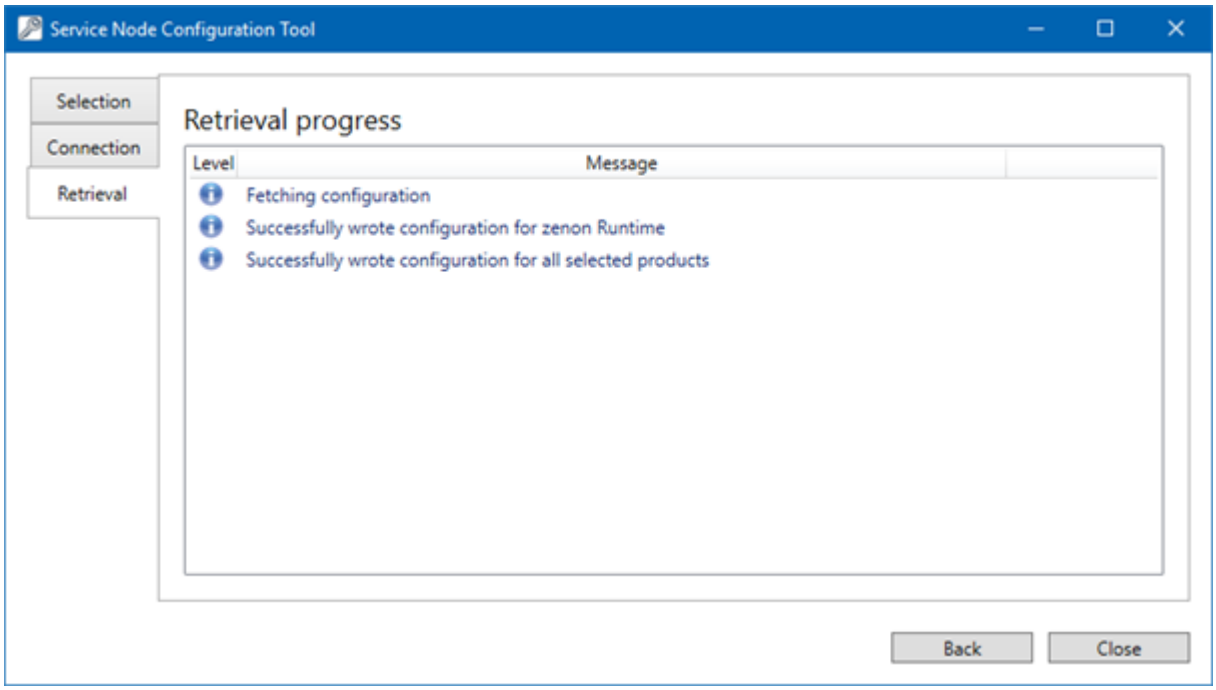
Option	Description
Close	Closes the dialog. Changes that have not been saved are lost.
Back	Goes back one tab.
Execute	Checks the entered connection parameters and starts the configuration of the previously selected **Service Nodes**.

RETRIEVAL

The credentials for the selected **Service Nodes** are requested and configured here.

All the steps performed are listed.

The successful configuration of the **Service Nodes** and any problems that occur are also displayed. The messages in the window can be highlighted and copied.



Column	Description
Level	Uses a symbol to show the type of message that is displayed.
Message	Information on the individual steps performed. All information can be copied from the window.

NAVIGATION

Option	Description
Back	Goes back one tab. Not available for **Selection**.
Close	Closes the dialog.

7 Startup Tool

The **Startup Tool** enables you:

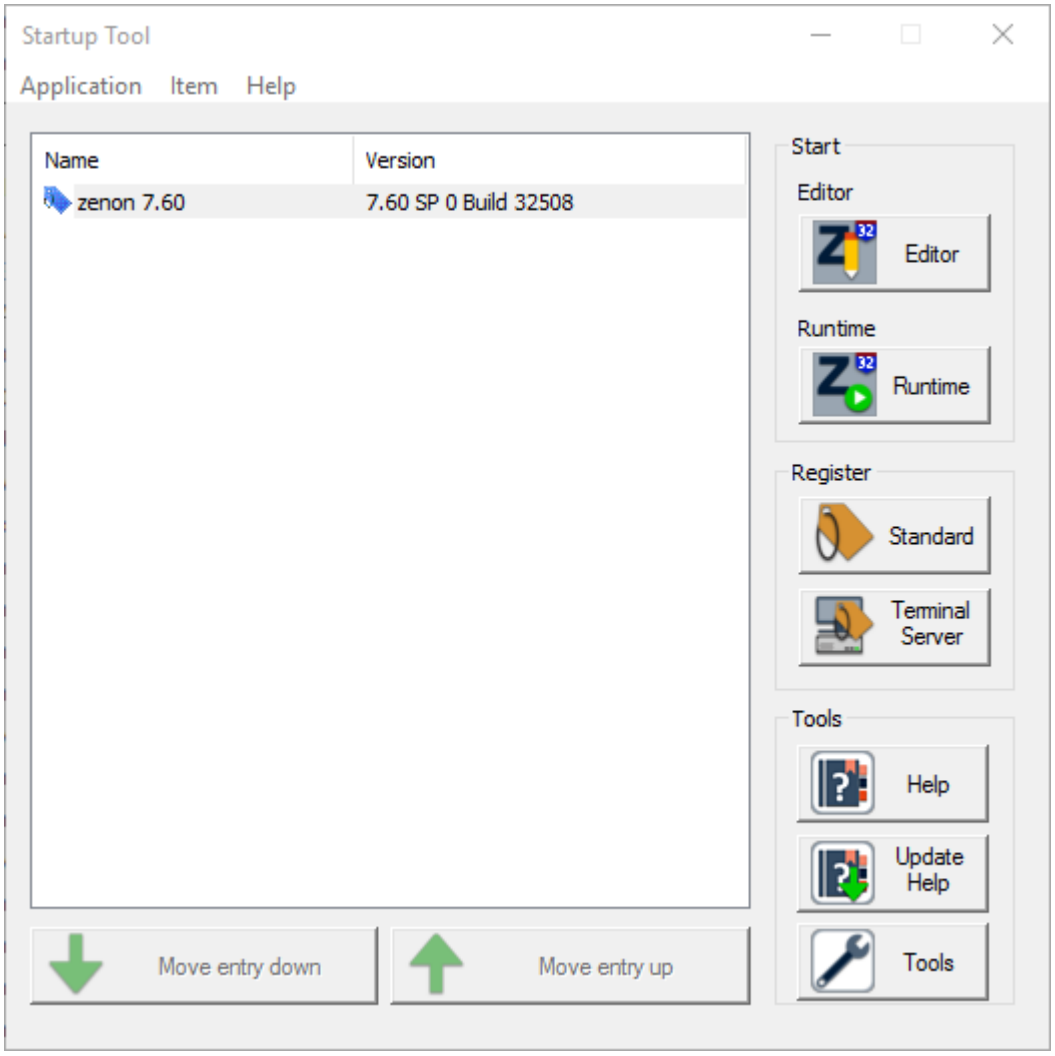
- to start Editor and Runtime with certain parameters
- to run different zenon versions on one computer in parallel
  (already installed zenon versions are automatically created in the **Startup Tool**)
- to administrate different SQL instances for the same zenon version
- to administrate the settings for different versions
- to define the language of the Editor and the Runtime before the start
- To define the language of the web client
- to start tools in the **Startup Tool** directly

> **Attention**
>
> The **Startup Tool** only starts if the **zenAdminSrv** service is running. If it is not active, you can start it manually in the Windows **Control Panel** under **Administrative Tools/Services**.

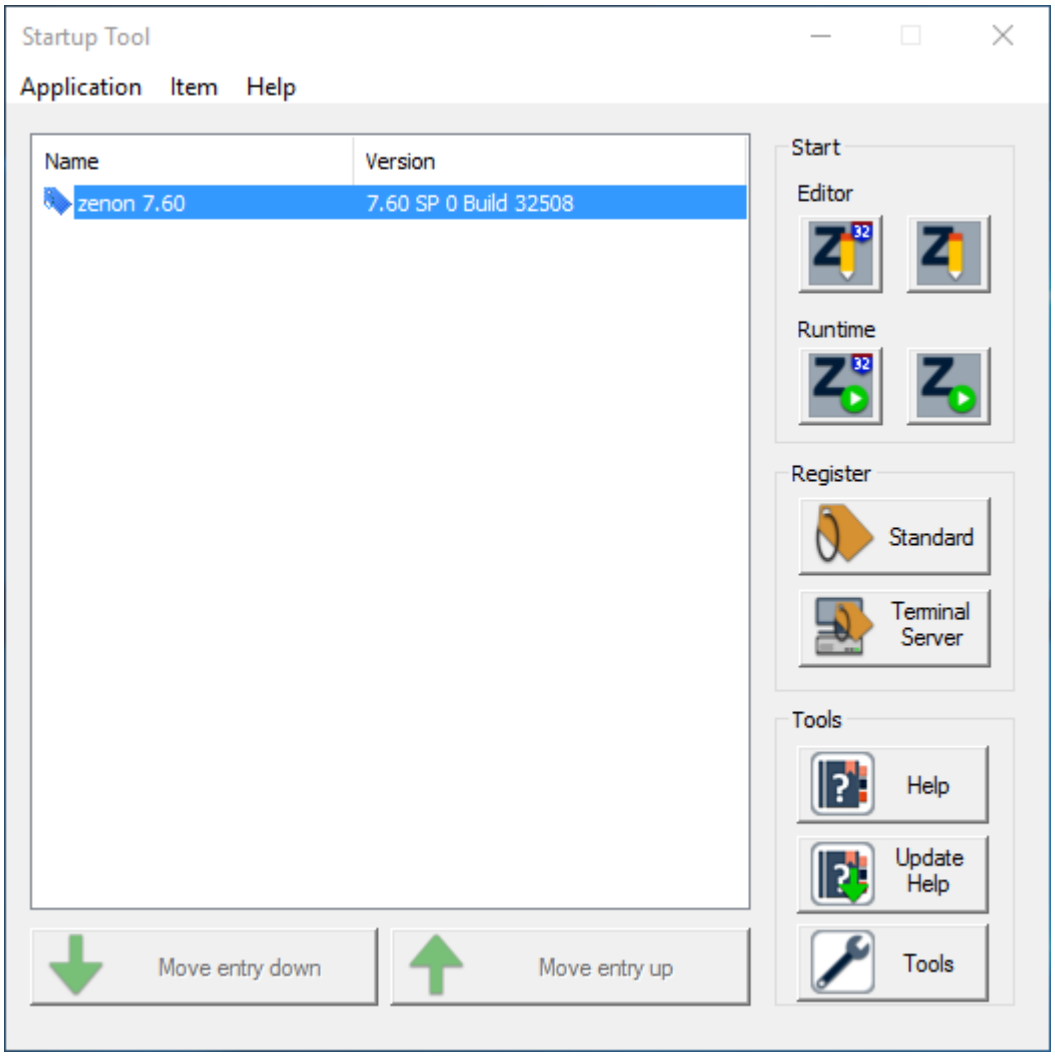
7.1 Start dialog

You administrate the currently installed zenon versions in the start dialog. From version 7.10, you have the possibility to choose whether to start the Editor and the Runtime as a 32-bit application or as a 64-bit application.

If only a 32-bit version of zenon 7.10 was specified or an older version was detected, only one button is shown for the Editor and Runtime respectively:



If both versions are specified, separate buttons for 32-bit and for 64-bit are displayed.



Button	Function
List of zenon versions.	Shows all installed zenon versions.
Move entry down	Moves the selected entry in the list downwards.
Move entry up	Moves the selected entry in the list upwards.
Editor	Starts the Editor of the selected zenon version Two buttons each are displayed when the 64-bit version is installed: ▸ Button to start the 64-bit version. ▸ Button to start the 32-bit version. The appearance of the 32-bit version is also marked with a small graphic

Button	Function
	indicator in the button. In addition, a tooltip is visualized if the mouse is moved over a button.
Runtime	Starts the Runtime of the selected zenon version Two buttons each are displayed when the 64-bit version is installed: ▸ Button to start the 64-bit version. ▸ Button to start the 32-bit version. The appearance of the 32-bit version is also marked with a small graphic indicator in the button. In addition, a tooltip is visualized if the mouse is moved over a button.
Register	Registers all services of the selected zenon version for Editor, Runtime and HTML web engine: ▸ **Standard**: Registers zenon. **ZenSysSrv** is registered as a process. ▸ **Terminal Server**: Registers zenon for use with a terminal server. Procedures: **ZenDBSrv** is deregistered and no longer re-registered and also not started. **ZenSysSrv** is registered as a service. The entries in **zenon6.ini** are amended for use on the terminal server. If, in an entry, there are no parameters (on page 92) stored for **workspace** or **Runtime**, the current version is re-registered. This applies for registration as a **standard** server and as a **terminal server**.
Help	Opens online help.
Update Help	Starts the **Documentation Download Tool** (on page 47).
Tools	Opens a dialog (on page 101) for starting additional applications of the selected zenon version

Button	Function
	If the tools for a valid 64-bit version are opened, then the tools are displayed in two lists for 32-bit tools and 64-bit tools.

Hint: Actions for the selected element are also available as a context menu for the symbol in the system tray.

PROCESSES DURING STARTING

When starting the Editor or the Runtime, data from the start settings are written to the *zenon6.ini* file. Existing settings in the INI file are overwritten.

From version 5, network communication has been handled with the two services **zenNetSrv.exe** and **zenSysSrv.exe**. Both files must exist in the zenon folder. As these services are version dependent, they must be registered for the appropriate version.

> **Attention**
>
> After conversion of a project into a later zenon version, this can no longer be edited with the previous version or will no longer run on it. However, the backup version created during the conversion can still be used in the original editor.
>
> For network projects, the same zenon Editor versions must be started on the server and clients.

7.1.1 Application

Entry	Function
Options	Opens the dialog for configuring the settings.
Exit	Closes the **Startup Tool**.

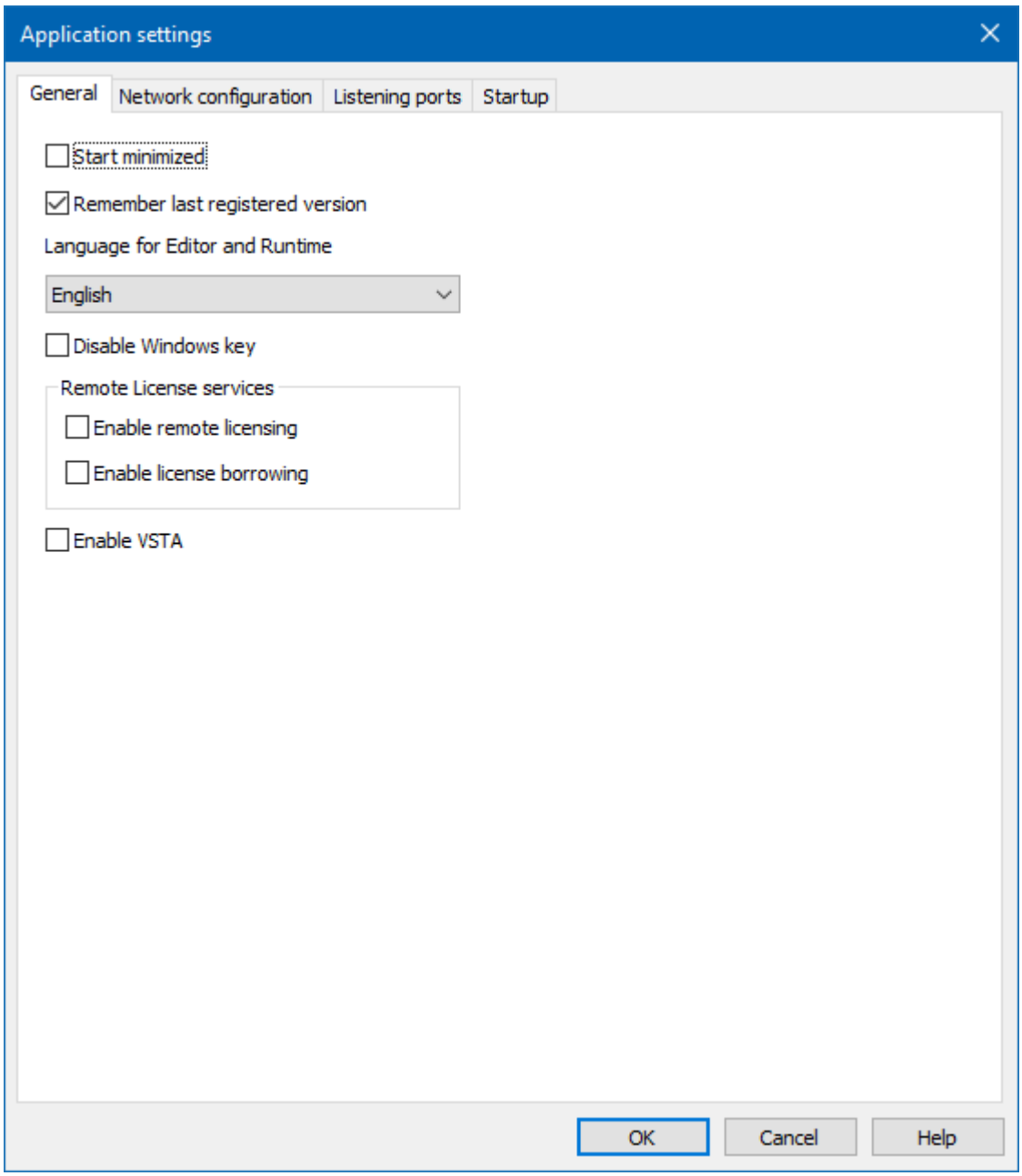
OPTIONS

- The **Options** entry in the **Application** menu opens the dialog to configure the properties for:
- **General** (on page 72):
  General settings
- **Network configuration** (on page 76):
  Configuration of the network and the strong encryption of network communication

- **Listening ports** (on page 82):
  Configuration of the monitoring ports
- **Service startup** (on page 86):
  Start programs as a service

7.1.1.1 General

General settings:



Note: This dialog is only available in English.
The buttons are displayed in the system language of the computer.

Option	Active
Start Startup Tool mimimized	Start behavior of the startup tool: ▸ *Active*: Starts the Startup Tool minimized. You can reach the tool with the help of its icon in the task bar. The context menu offers all possible actions from the start dialog (on page 68) for the active zenon. ▸ *Inactive*: Opens the tool on the desktop (*default*). Default: *inactive*
Remember last registered version	Selection of the last-registered version: ▸ *Active*: Sets the chosen version as standard and selects it automatically at the next start. Then the version is not registered again (*default*). ▸ *Inactive*: Offers the first version in the list when starting the Startup Tool. When the Editor or the Runtime are started, the respective version is always registered again. Default: *active*
Language for Editor and Runtime	Starts Editor or Runtime in the selected language. Select from drop-down list: ▸ Czech ▸ Chinese ▸ German ▸ English ▸ Spanish ▸ French ▸ Italian ▸ Russian ▸ Korean ▸ Japanese Ensure that zenon is started with the language defined in the **Startup Tool**. Has no influence if **zenon.exe** is started directly.
Disable Windows	Windows button action:

Option	Active
Key	▸ *Active*: The **Windows-** key is blocked on the keyboard and is not functional. Changes only take effect after the system has been restarted. This required restart is visualized with a dialog. ▸ *Inactive*: The **Windows-** key is available. Changes only take effect once the system has been restarted. This required restart is displayed with a dialog. Default: *inactive* For details, see the **Action of the option Disable Windows Key**.

REMOTE LICENSE SERVICE

Settings for the use of the remote licensing service and license loan.

Option	Active
Enable remote licensing	Allows the licensing of a computer via another computer in the network. ▸ *Active*: Remote licensing is possible. ▸ *Inactive*: Licensing is only possible on the computer directly. Default: *inactive*
Enable license borrowing	Allows the loaning of licenses to another computer. ▸ *Active*: Licenses can be loaned out. ▸ *Inactive*: No licenses can be loaned out. Default: *inactive*

VSTA

Settings for the use of VSTA.

Option	Active
Enable VSTA	Enables the use of VSTA. Only available if VSTA has already been installed or an installation package has been found on the system. ▸ *Active*: VSTA can be used. If VSTA is not installed, but an installation package is available, the installation will be offered. The installation starts as soon as this dialog is closed by clicking on **OK**. **Attention:** The .Net Framework 3.5 must have already been installed. The checkbox can only be activated on a lasting basis if VSTA is installed correctly. ▸ *Inactive*: VSTA is deactivated and not available in zenon Editor. Default: *inactive*

BEHAVIOR OF THE DISABLE WINDOWS KEY OPTION

The **Disable Windows Key** option behaves as follows:

Set block

- Initial situation: The option is not set.
- Action: The option is activated.
- Result:
  - The system must be restarted.
  - The **Windows-** key is deactivated for operation. **Windows-** keyboard shortcuts are blocked.

Undo block

- Initial situation: The option is not set.
- Action: The option is deactivated.
- Result:
  - The system must be restarted.
  - The **Windows-** key is available for operation. The block of the **Windows-** key combinations is released.

7.1.1.2 Network configuration

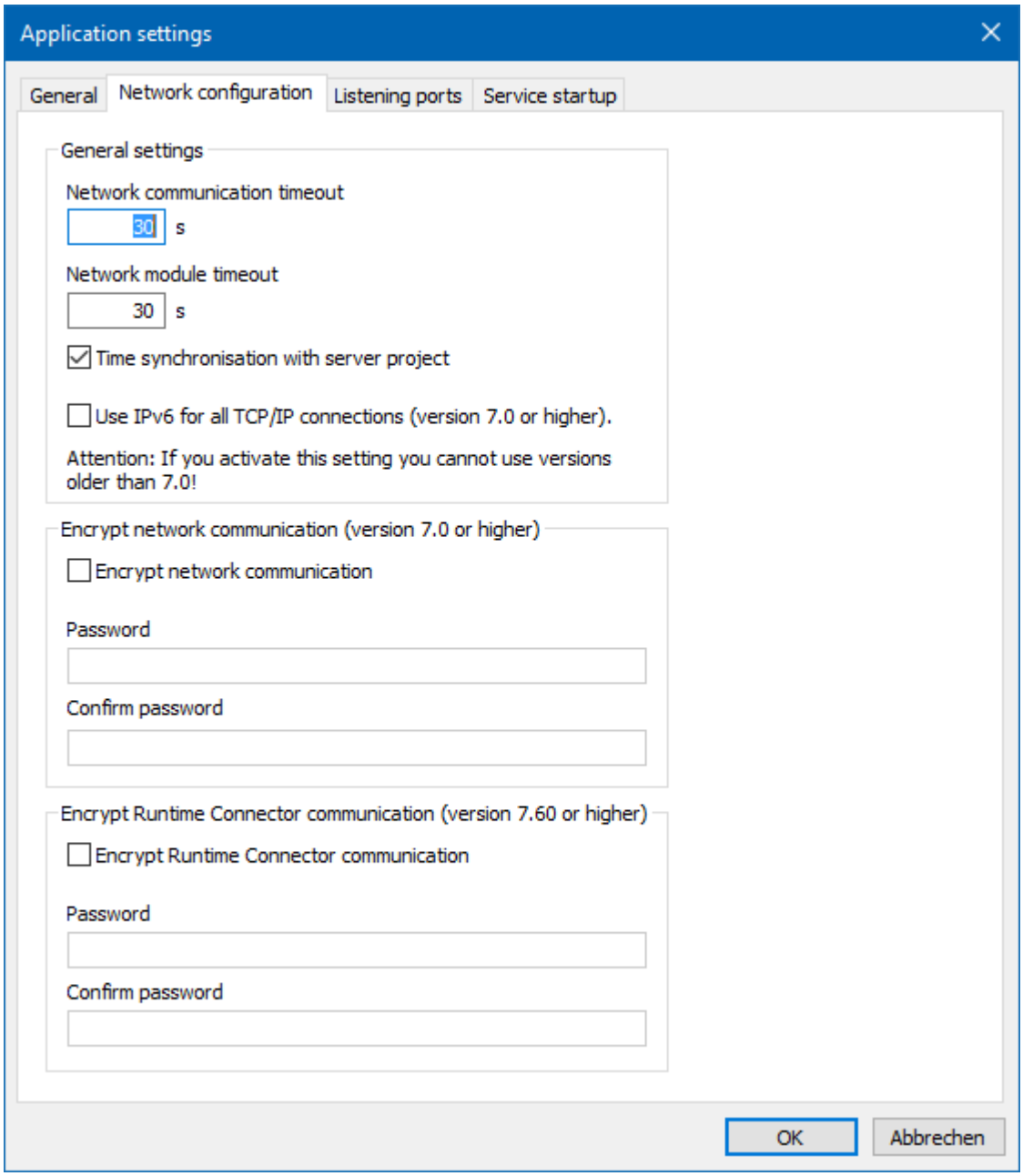
The following applies for zenon from version 7 onwards:

- you can use IPv6
- you can encrypt the transfer in the network.

This dialog configures:

- Timeouts
- the use of TCP/IP via IPv4 or IPv6
- the serious encryption of the network communication at the local computer

- the encryption for Runtime connector



Note: This dialog is only available in English.
The buttons are displayed in the system language of the computer.

GENERAL SETTINGS

General settings.

Changes of these settings are written to the registry in the **zenon6.ini** file and overwrite manual configurations that may be different.

Changed settings must be carried out for all Runtime computers or all connected stations. At changes of the **IPv6** settings, the computer must be restarted.

Changes are carried out after leaving the dialog only after the confirmation of a warning message by clicking on the **Yes** button.

Parameter	Description
Network communication timeout	Timeout for network communication in seconds. Default: *30* Corresponds to the **NET_TIMEOUT_MSEC=** entry in **zenon6.ini**.
Network module timeout	Timeout for module communication in seconds. Is not used for spontaneous module request on the client or standby. If no response comes from the server in the set time, the action is canceled. Default: *30* **Examples:** Call up of archive data for Extended Trend, recipe administration, password list ... Corresponds to the **NET_NETMODULTIMEOUT_MSEC=** entry in **zenon6.ini**.
Time synchronisation with server project	Checkbox for the setting of the time synchronization. ▸ *Active*: Time is synced with a server project (default). ▸ *Inactive*: Time is not synced (for circular redundancy, for example) Default: *inactive* Corresponds to the **TIMESYNCH=** entry in **zenon6.ini**.
Use IPv6 for all TCP/IP connections	Checkbox for the activation of IPv6 for TCP/IP communication. ▸ *Active*: All TCP connections are only established via IPv6. ▸ *Inactive*: All TCP connections are only established via IPv4.

Parameter	Description
	Default: *inactive* Dual operation is not possible. Corresponds to the **USEIPV6=** entry in **zenon6.ini**. **Note:** If this option is changed, the computer must be rebooted. The change must also be carried out on all connected stations. The following components are not affected by the setting (IPv4 used): ▸ Driver communication with the PLCs ▸ Protocol communication in the Process Gateway plug-ins ▸ Workbench and Runtime communication in zenon Logic ▸ SNMP trap service communication (**zenSnmpTrapSrv.exe**) with the SNMPNG32 driver **Attention:** Only works with version 7 onwards. No versions prior to version 7 can be started if this is active.

ENCRYPT NETWORK COMMUNICATION

Settings for serious encryption in the network

Parameter	Description
Encrypt network communication	Checkbox for the activation of strong encryption. ▸ *Active*: Communication is encrypted. ▸ *Inactive*: Communication is not encrypted. Default: *inactive*
Password	Input field for the password for encrypted network communication. For the criteria, see the "**Network encryption password**" section in the Strong encryption of network

Parameter	Description
	communication chapter. The displayed length is always set at *20 characters*, in order to hide the actual length. The password defined here is stored encrypted in the **zenon6.ini**.
Confirm password	Input field for password confirmation. enter password for confirmation again.

ENCRYPT RUNTIME CONNECTOR COMMUNICATION

Settings for encrypted communication of the HTML web engine, the SCADA Runtime connectors (zenon and <ZRS> and the Remote Runtime driver (**RemoteRT.exe**).

Parameter	Description
Encrypt Runtime Connector communication	Checkbox for the activation of encrypted communication with **SCADA Runtime connectors** (HTML web engine, zenon, zenon Analyzer) and **Remote Runtime driver**. ▸ *Active*: Communication in the network is encrypted. ▸ *Inactive*: Communication in the network is encrypted. Default: *inactive* **Note:** This encryption is also applicable for zenon web client communication.
Password	Input field for the password for encrypted network communication. For the criteria, see the "**Network encryption password"** section in the Strong encryption of network communication chapter. The displayed length is always set at *20 characters*, in order to hide the actual length. Corresponds to the **ENCRYPTION_PWD=** entry in **zenon6.ini**.

Parameter	Description
Confirm password	Input field for password confirmation. enter password for confirmation again.

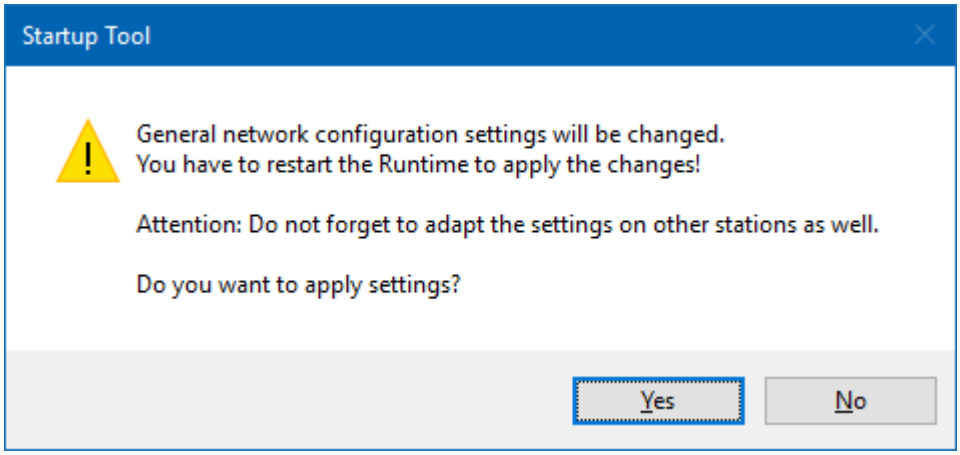
Attention

If entries were changed manually in the local **zenon6.ini**, they are overwritten as soon as the confirmation message is answered with **"Yes"** on login.

CONFORMATION DIALOG

Changes to the configuration are only completed after corresponding confirmation in a confirmation dialog:

- Click the **YES** button to apply your configurations.
- Clicking on the **Cancel** button returns to configuration.



MESSAGES

For explanations about system messages and error messages see chapter Message at registration (on page 100).

Information

You can find notes on error messages from strong encryption in:

Network handbook -> Strong encryption of network communication chapter -> Error messages section.

7.1.1.3 Listening ports

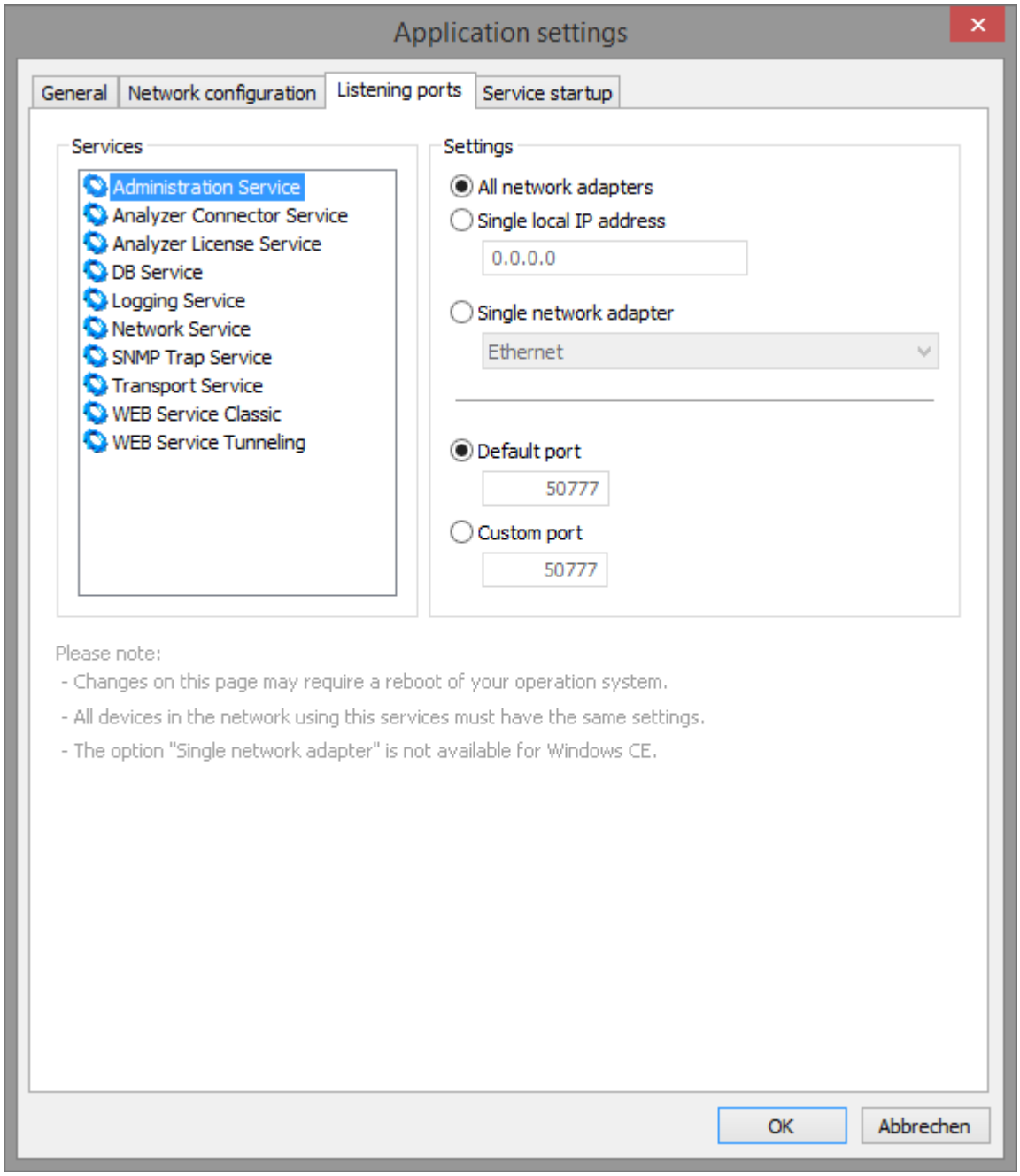
In this tab, the ports that are used by zenon can be individually configured for individual applications. The settings that were saved in the respective **zenon6.ini** file are used in the Runtime.

Attention

Note the following during configuration:

- Changes in this tab can trigger a restart of the computer.
  Note: This is shown by a corresponding dialog. If this dialog is closed by clicking on the **No** button, no changes are made.
- All computers with which communication takes place must have the same settings.
- These settings are not available under Windows CE.
- If an IP address is defined, it must be amended if the setting for IPv6 is activated or deactivated
- If a defined network address is not connected at the time when the service is started, no Listening Socket is opened
- Error messages are not logged in the Diagnosis Server but in the **Windows Application Event Log**.

LISTENING PORTS DIALOG



Note: This dialog is only available in English.
The buttons are displayed in the system language of the computer.

Parameter	Description
Services	List with all configurable applications. The selected application can be configured by means of the options in **Settings**.

Parameter	Description
Settings	Settings for the application selected in **Services**.
All network adapters	All available network cards are used for the binding of the **Listening ports**.
Single network adapter	The local address defined here is used for the binding of the **Listening ports**. Supported protocols: ▸ IPv4 ▸ IPv6
Single network adapter	The first address of the network card defined here is used for the binding of the **Listening ports**.
Default port	The standard port number is used for the binding.
Customer port	The port number entered here is used for the binding.

CLOSE DIALOG

Parameter	Description
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

STANDARD PORTS

Assignment of the standard ports to applications:

ZENON

Application	Standard port
Network Service	*1100*
Transport Service	*1101*
WEB Service Classic	*1102*
DB Service	*1103*
SQL Browser Service, (for distributed engineering in the Editor)	*1434*

Application	Standard port
zenAdminSrv.exe	*50777*
zenLicTransfer (License Transfer Service)	*50784*
Logging Service	*50780*
SNMP Trap Service	*50782*
WEB Service Tunneling	*8080*

ZENON LOGIC

Application	Standard port
Assigned port for zenon Logic or straton depends on the project and service. E.g.: First zenon Logic project used *1200* and *9000*, second project *1201* and *9001* etc.	*1200 - 1210* *4500 - 4510* *7000 - 7010* *9000 - 9010*

ZENON ANALYZER

Application	Standard port
Administration Service	*50777*
Analyzer Connector Service	*50778*
Analyzer License Service	*50779*
ZAMS	*50781*

DRIVERS

Application	Standard port
Driver Simulation	*6000 - 6020*
Process Gateway OPC Server	*135*
Process Gateway SNMP	*161*
Process Gateway Modbus	*502*
Process Gateway IEC60870-5 104 slave	*2402*

Application	Standard port
Process Gateway DEC	*5555*
Process Gateway DNP3 Slave	*20000*

SERVICE GRID

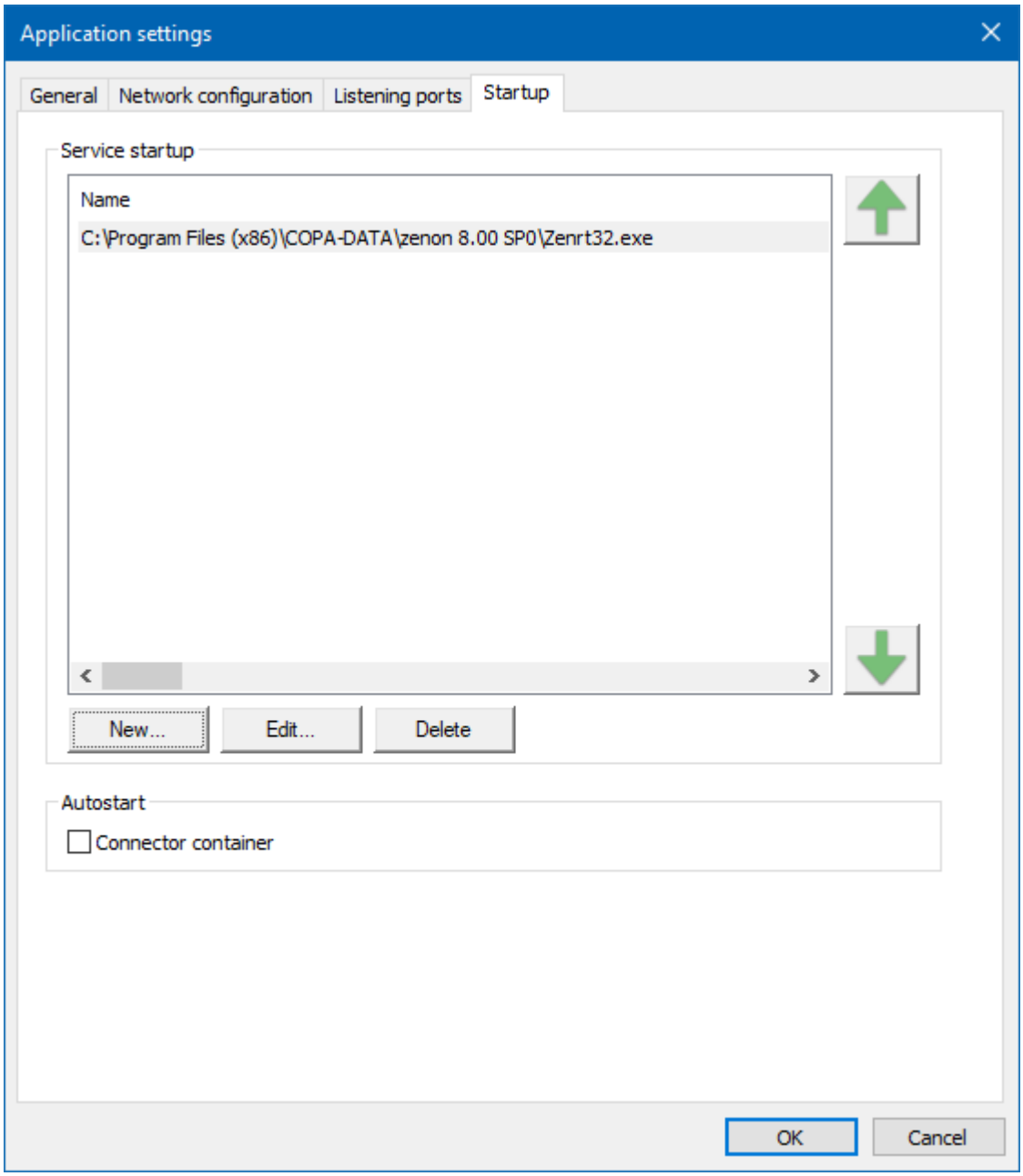
Application	Standard port
Service Grid API	*9400*
Hub Controller	*9410*
Data Hub	*9411*
Hub Controller: Dedicated port for connection to **Data Hub**	*9412*
Configuration Backend	*9420*
Identity Service	*9430*
Policy Service	*9440*

7.1.1.4 Startup

Programs and services can be started automatically using the **zenStartupMgr** service.

> **Hint**
>
> Use the possibility to start zenon Runtime automatically as a service.

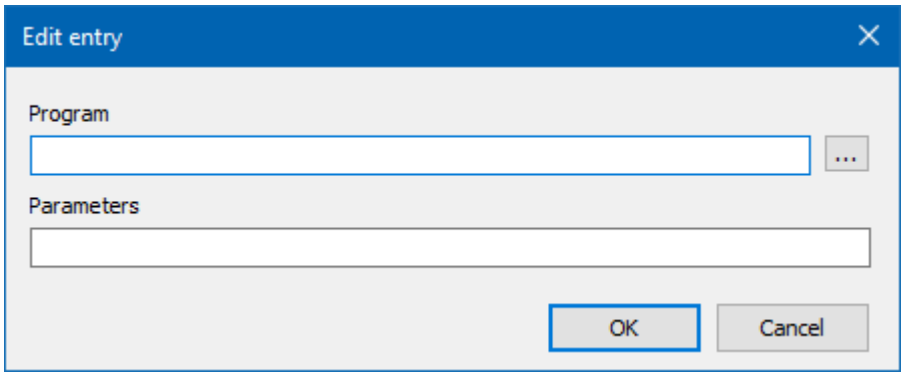
DIALOG SERVICE STARTUP



Parameter	Description
Service startup	Autostart for services. Makes it possible to start programs as a service.
Liste Services	List of configured services.
New	Opens dialog to select a program.
Edit	Opens the dialog to edit the highlighted entry.
Delete	Deletes the highlighted entry.

Parameter	Description
Autostart	Section for the activation of Autostart.
Connector Container	Autostart for Connector Container, for zenon Analyzer, **Web Engine** or Remote Runtime for example. ▸ *Active*: The Connector Container is automatically started when a user logs in. Only available if the folder with the Connector Container is in the same path as the **Startup Tool**. Example: The **Startup Tool** is in *%ProgramFiles(x86)%\Common Files\COPA-DATA\STARTUP*. The Connector is searched for in *%ProgramFiles(x86)%\Common Files\COPA-DATA\Connectors*.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

SELECT PROGRAM DIALOG



Parameter	Description
Program	Path to the program that is to be started as a service. Clicking on the ... button opens the file selection dialog. Maximum length: *259 characters*
Parameters	Input of parameters. The possible parameters depend on the program selected in the **Program** option. Maximum length: *259 characters*

Parameter	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

START RUNTIME AS A SERVICE

To start Runtime as a service:

1. Register the file **zenStartupMgr.exe** as a service.
2. Configure the properties for sign-in.
3. Start, if necessary, Remote Transport with **zenStartupMgr.**
4. Define the Runtime to be started in the **Startup Tool**.
5. Configure a start delay for zenon Runtime if you are using a dongle license.

You can find details on this in the Runtime manual in the Starting Runtime as a service chapter.

Attention: If Runtime is started using the **zenStartupMgr**, it can no longer be stopped or restarted by users.

REGISTER SERVICE

To register **zenStartupMgr.exe** as a service:

1. Open the command line.
2. You can navigate to the location of the **zenStartupMgr.exe** file.
   - For native 32-bit OS: *%ProgramFiles%\Common Files\COPA-DATA\zenStartupMgr*
   - For 64-bit OS:

     64-bit folder: *%ProgramFiles%\Common Files\COPA-DATA\zenStartupMgr*

     32-bit folder: *%ProgramFiles(x86)%\Common Files\COPA-DATA\zenStartupMgr*
3. Register the file as a service with the **zenStartupMgr.exe –service** command.
   Note: The service, if it is already running, is first stopped and then registered. If **zenStartupMgr** is running, it is closed.

CONFIGURE SERVICE FOR THE USE OF MANY DRIVERS

Windows as an operating system limits the number of windows that can be created due to its fixed, reserved desktop memory, depending on the version and possible interaction with the desktop.

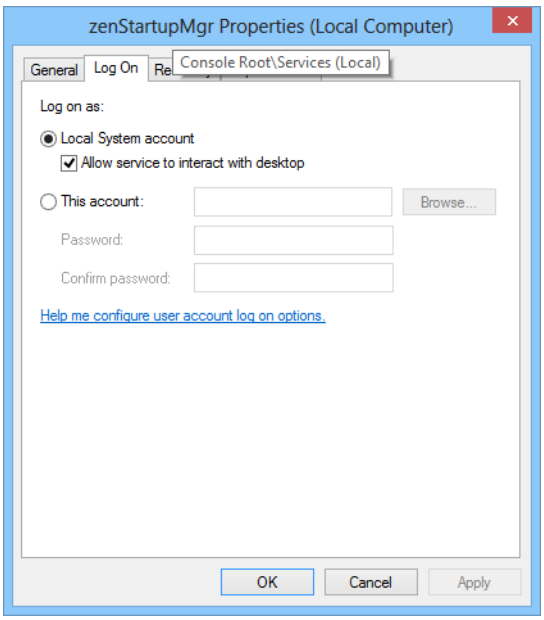
Version/action	Interactive Desktop	Non-Interactive Desktop
Windows 7 32-Bit	12 MB	512 KB
Windows 7/Windows Server 2008 R2 64-bit	20 MB	768 KB

zenon drivers each need several windows. The number of drivers that can be used can be influenced using the **Allow data exchange between service and desktop** option in the properties of the service.

- *Inactive*:
  A maximum of 20 drivers can be started.
- *Active*:
  As many drivers as there are in a Runtime started as a user process can be started.

To activate the **Allow data exchange between service and desktop** option:

1. Open the Windows Service Manager.
2. Open the properties of the **zenStartupMgr** service.
3. Go to the **Login** tab.



4. Activate the **Allow data exchange between service and desktop**.
   This service must be configured to *automatic* start type. With the service active, the user logged on to the computer is notified if the zenon Runtime as a service opens an additional window, for example in the event of a new alarm and active status line.

   Note Windows 8/Server 2012: In order for the service to be able to be started, the entry must be set correctly in the Windows registry:

   a) Go to the entry *HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Windows*.

   b) Open or create the DWORD value **NoInteractiveServices**.

c) Set the decimal value of *1* to *0*.

5. To stop Runtime messages being displayed on the desktop:
Deactivate the **Detection of inactive services** service.

7.1.2 Item

The menu **Item** has the following entries:

Entry	Function
New	Creates a new entry in the list and opens dialog **Properties (on page 91).**
Delete	Deletes the selected entry after confirming a confirmation message.
Properties	Opens **Properties** (on page 91) dialog for the selected entry.

7.1.3 Help

Help menu to call up:

- **Help**:
Opens the online help for the **Startup Tool**.
- **Info about**:
Shows version information for the **Startup Tool**.
- **Update Help**:

  Starts the **Documentation-Download-Tool** (on page 47).

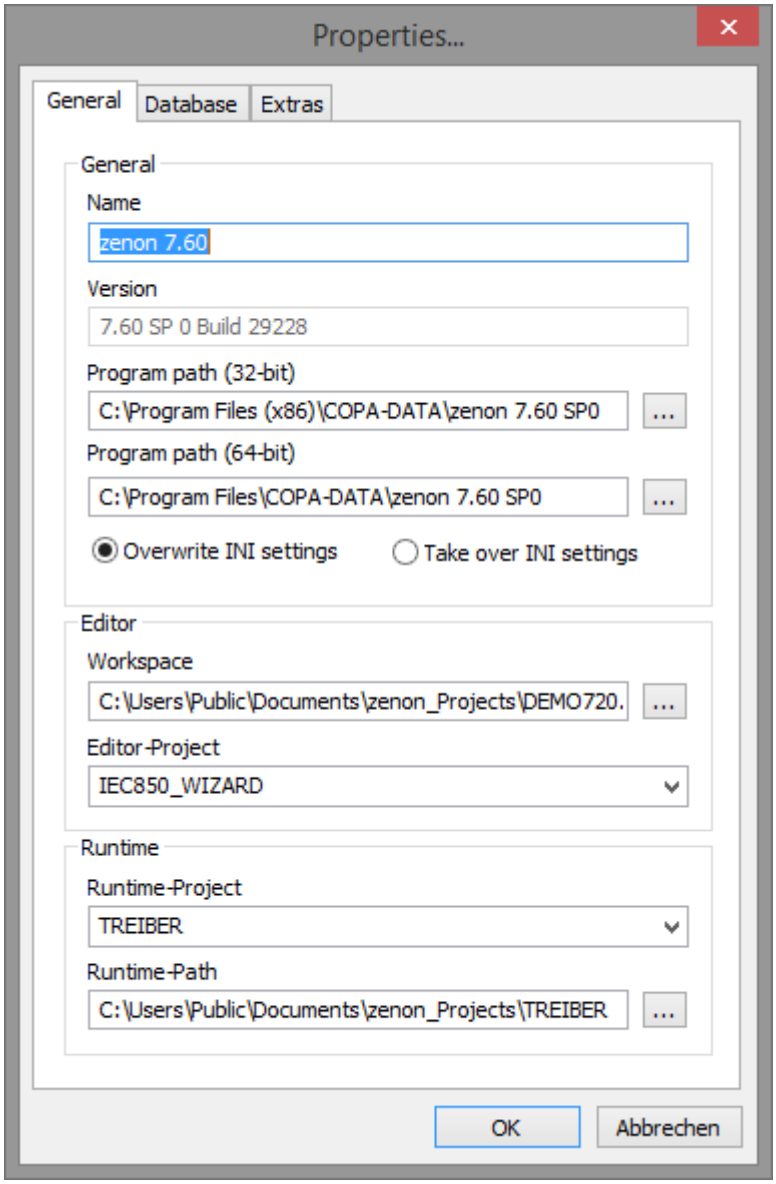
7.2 Properties

The parameters for each entry are defined in the **Properties** dialog:

Entry	Function
General	General settings
Database	Settings for the database connection
Extras	Settings for registering ActiveX controls (OCX) and COM servers (DLL) and for starting additional programs or batch files.

7.2.1 General

In this part, details about the zenon versions are entered. The path to the 32-bit version of zenon is absolutely necessary. If the **Startup Tool** detects a 64-bit version, the path to the 64-bit version is also cleared for an entry.



The following properties are available for a selected entry:

GENERAL

Parameter	Description
Name	Distinct name as it should be displayed in the list. This entry is absolutely essential.

Parameter	Description
Version	The **Startup Tool** automatically enters the zenon version number here. To do this, a program path must be entered beforehand under **Program Path**.
Programm path (32-bit)	Program path in which the executable 32-bit version of the zenon file (**Zenrt32.exe**) is located. If a 64-bit version of zenon is detected here, the **Programm path (64-bit)** property is also unlocked for input.
Programm path (64-bit)	Program path in which the executable 64-bit version of the zenon file (**Zenrt32.exe**) is located. Input only possible if the path to the 32-bit version was stated and a 64-bit version was detected by zenon. As soon as both paths have been entered correctly, the buttons for starting Editor and Runtime are divided into two buttons, one for 32-bit and one for 64-bit.
Overwrite INI settings	*Active*: The settings of this dialog are always used when the Editor is started. Changes made while working with the Editor are discarded. **Workspace, Editor-Project**, **Runtime-Project** and **Runtime-Path** are affected.
Take over INI settings	*Active*: All amended settings for **Workspace, Editor-Project**, **Runtime-Project** and **Runtime-Path** are saved in **zenon6.ini** after the Editor is closed, read into the Startup Tool and used for the next start.

EDITOR

Parameter	Description
Workspace	The desired workspace when the Editor is started. As soon as this is entered, all projects that are in this workspace are displayed automatically in the drop-down list under **Editor-Projekt**.
Editor-Project	Select the project which should be active after the Editor started.

RUNTIME

Parameter	Description
Runtime-Project	Project that is set as the start project for Runtime.

Parameter	Description
Runtime-Path	Path of the project. If the Runtime project is part of the workspace, the path is entered automatically.

Info

UNKNOWN PARAMETERS?

If the settings for the workspace are unknown, use the following approach.

1. Enter **Name**, **Program Path** and **Workspace**
2. Leave **Editor-Project**, **Runtime-Project** and **Runtime-Path**
3. Activate **Read back the INI settings**
4. Leave dialog by clicking **OK**.

After the Editor has been started and closed once, the start settings are automatically taken from the INI file.

7.2.2 Database

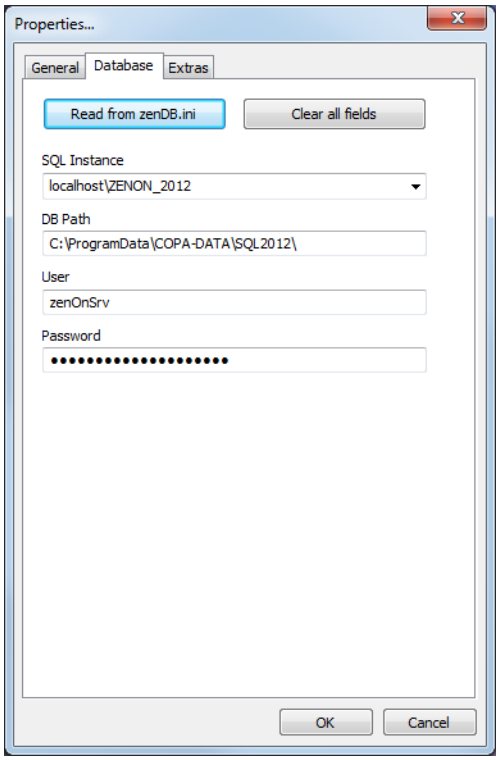
Define the database properties. It is possible to use different SQL instances for the different entries (zenon versions).

Attention

From version 6.51, the SQL instance can be defined and the password is saved in encrypted form. New entries have a higher priority than existing entries.

Compatibility: If nothing is changed, the existing entries remain valid. However, if an entry for version 6.51 or higher is amended, the new entries are valid. Older versions must be maintained separately. You can find the settings for version previous to 6.51 in the Database before version 6.51 (on page 97) chapter.

Display dialog: The display of the dialogs is automatically amended to the selected version (before 6.51 (on page 97), from 6.51).



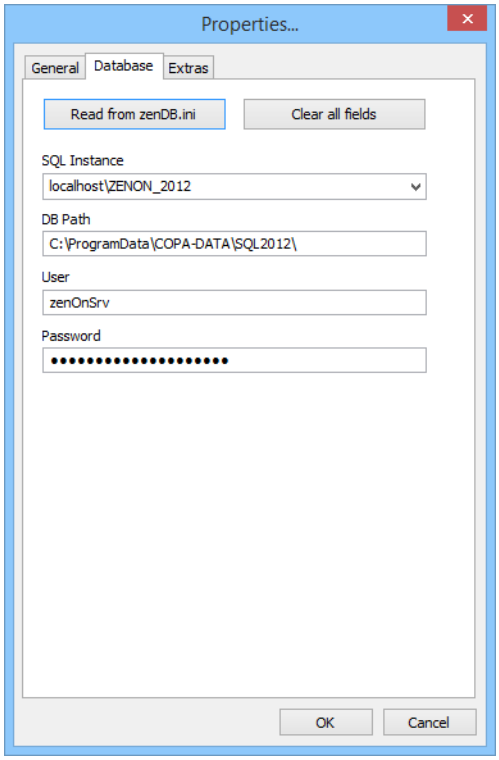
Entry	Function
Read from zenDB.ini	Clicking on the button reads off the settings from the *zenDB.ini* file and the following fields are automatically filled: ▸ **SQL instance** ▸ **DB Path** ▸ **User** ▸ **Password**
Clear all fields	All input field are cleared. Empty entries are not written to zenDB.ini at registering.
SQL Instance	Name of the SQL server instance which should be used. The name can be entered directly in the input field or can be selected from the drop-down list. **Note:** By clicking on the drop-down list the local computer is searched for instances which are then listed. The search may take some time.
DB Path	Path for the SQL database of the zenon projects. For example: *%ProgramData%\COPA-DATA\SQL* **Attention:** Different SQL Servers (for example 2008R2, 2012 and 2017) must use separate paths.

Entry	Function
	Background: When converting projects the GUID stays the same. If the same folders are used, both instances overwrite each others database files.
User	User name for the database. **Necessary rights** In SQL Server, the user must have the following **Server roles**: ▸ public ▸ sysadmin
Password	Password of the user. It is stored encrypted. The entry length is always displayed with 20 characters regardless of the actual length. Note: ▸ The encryption is done via the **Startup Tool**. ▸ The database setting must be set using the **Startup Tool**. The password must also be amended on the SQL server for the **zenOnSrv** user.

These settings are saved in the **zenDB.ini** file.

7.2.2.1 Database previous version 6.51

Setting of the database property before zenon 6.51:



Entry	Function
Read from zenDB.ini	Clicking on the button reads off the settings from the **zenDB.ini** file and automatically fills the **Provider** and **DB Path** fields.
Clear all fields	All input field are cleared. Empty entries are not written to zenDB.ini at registering.
Provider	Connection to the SQL instance. Important information: ▸ Instance name ▸ Used provider ▸ User name ▸ User password **For example:** *Provider=SQLNCLI.1;* *Password=srv_000;* *Persist Security Info=False;* *User ID=zenOnSrv;* *Initial Catalog=%s;*

Entry	Function
	Data Source=localhost\ZENON_DEV;
DB Path	Path for the SQL database of the zenon projects. For example: *%ProgramData%\COPA-DATA\SQL* **Attention:** It is necessary that SQL Server 2005 and SQL Server 2008 R2 use different folders. Background: When converting projects the GUID stays the same. If the same folders are used, both instances overwrite each others database files.

Attention

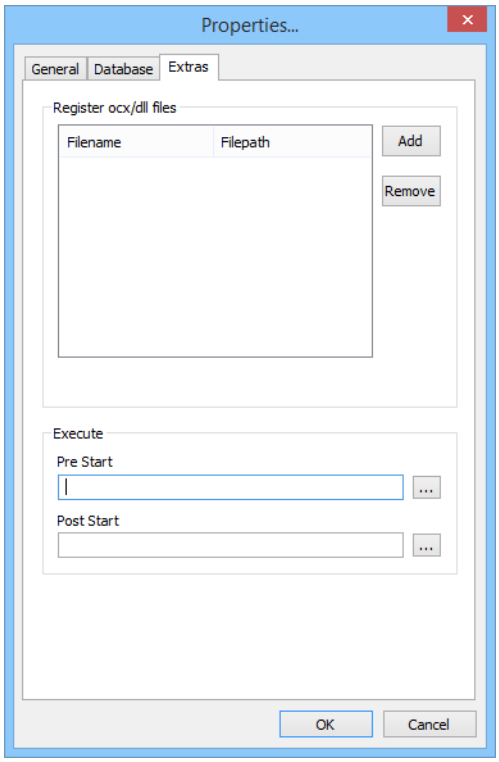
The entry for Provider differs in this dialog from the entry in the zenDB.ini.

Dialog: String starts with **Provider=...**

zenDB.ini: String starts with **Provider=Provider=...**

7.2.3 Extras

Here, you create ActiveX controls (*.ocx) or COM servers (*.dll) which should be registered together with the respective zenon version. These OCX and DLL files can originate from any source, i.e. they can be written by you or come from other providers. Additionally you can define programs which are carried out before the starting or after the closing the Editor or the Runtime.



REGISTRATION ACTIVEX CONTROLS - COM SERVER

All files listed here are automatically registered together with the respective zenon version - independent of the central setting (on page 68) **register**.

Parameter	Description
Filename/Filepath	List of all files to be registered
Add	Opens the Windows dialog to select a file to be registered. There you can select OCX or DLL files individually and add them to the list. First select the wanted file type (OCX or DLL). All files are saved with path information. If the path changes, remove the link with **Remove** and create a new one.
Remove	Removes all selected entries from the selection list of the files to be registered. **Attention:** the selected entries are deleted without requesting

Parameter	Description
	confirmation.

PRE-START AND POST-START PROGRAMS

Pre Start and **Post Start** allow you to define programs and batch files that are to be executed before starting or after ending zenon.

Parameter	Description
Pre Start	External program that should be started, before the Editor or Runtime is started. Clicking on **...** opens the Windows selection dialog to select a program or batch file to be executed. **Attention:** Editor or Runtime are only started if this program is ended again.
Post Start	External program that should be started, after the Editor or Runtime is closed. Clicking on **...** opens the Windows selection dialog to select a program or batch file to be executed. **Attention:** Post Start is only called up if the **Read back the INI settings** (**Item->Properties->General**) option has been activated.

7.3 Message at registering

POP-UP AT REGISTERING

Message	Meaning
You have changed the IPv6 setting. All internal TCP/IP connections will be switched to IPv6/IPv4. **To ensure that all affected components are properly switched you have to restart the computer! You will also have to change this setting on all connected station!** **Do you really want to apply the change?**	You change the settings for the IP protocol from IPv4 to IPv6 or vice versa. After the changes you must restart the computer for all services to be adapted accordingly. The change must also be carried out on all connected stations. These changes are written to **zenon6.ini** or **zenon.ini** together with the registration and overwrite any manual configurations.

Message	Meaning
Gerneral network configuration settings will be changed. **You have to restart the runtime to apply the changes!** **Attention: Do not forget to adept the settings on other stations as well.** **Apply settings.** **Are you sure this is your intent?**	You change general settings (on page 76) in the same ways as time outs. These changes are written to **zenon6.ini** or **zenon.ini** together with the registration and overwrite any manual configurations. You must adapted changed settings for all Runtimes.

MESSAGE AT REGISTERING

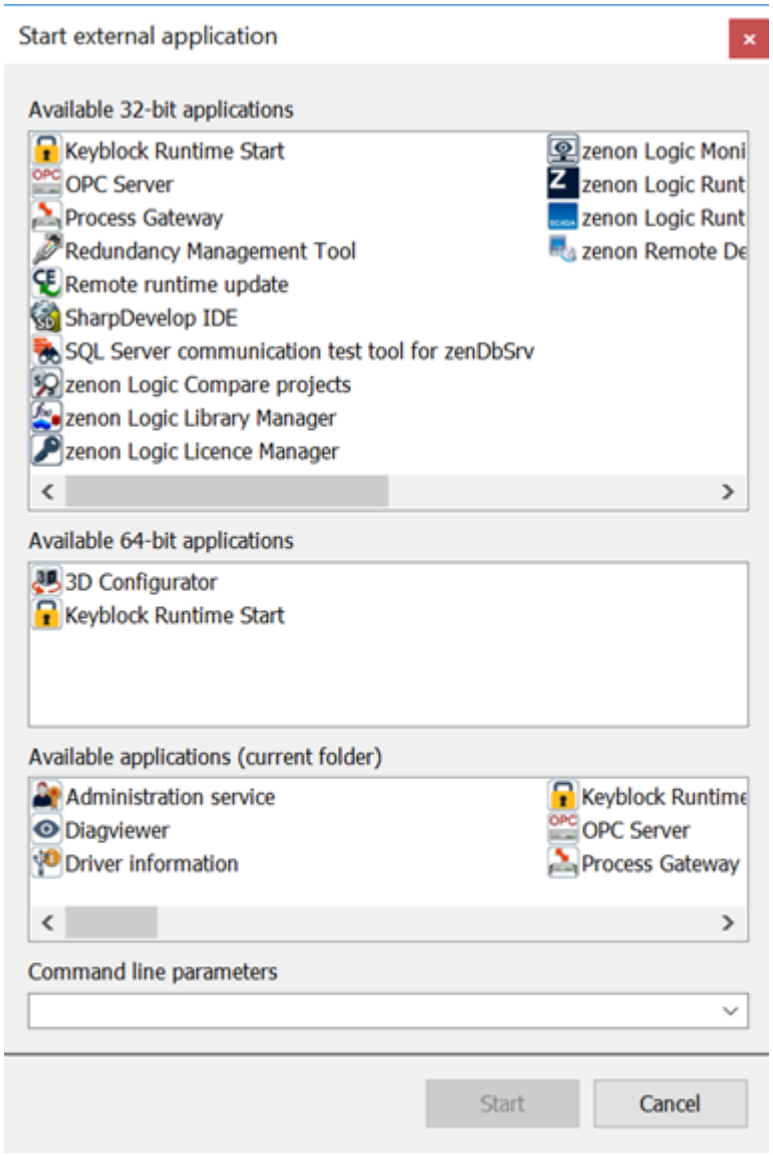
At registering the service all steps are displayed in an own window which closes after 4 seconds automatically. When an error occurs, a warning message informs you about the cause. After confirming the message the procedure is canceled. zenon is not started. Possible error messages:

Message	Reason	Hint
Couldn´t find zenNetSrv Service!	File *zenNetSrv.exe* is missing from the zenon program folder or a wrong version is available.	Most of the time the fastest and safest solution is a new installation of zenon.
zenNetSrv.exe still running!	The service *zenNetSrv.exe* could not be stopped.	It is possible that a security tool is running on the computer which prevents the access.
Couldn´t find zenSysSrv Service!	File *zenNetSrv.exe* is missing from the zenon program folder or a wrong version is available.	Most of the time the fastest and safest solution is a new installation of zenon.
zenSysSrv.exe still running!	The service *zenSysSrv.exe* could not be stopped.	It is possible that a security tool is running on the computer which prevents the access.

7.4 Tools

Tools allow the starting of applications from the **Startup Tool**.

You can find the tools in their own dialog. You can get to this by clicking on the **Tools** dialog in the **Startup Tool**:



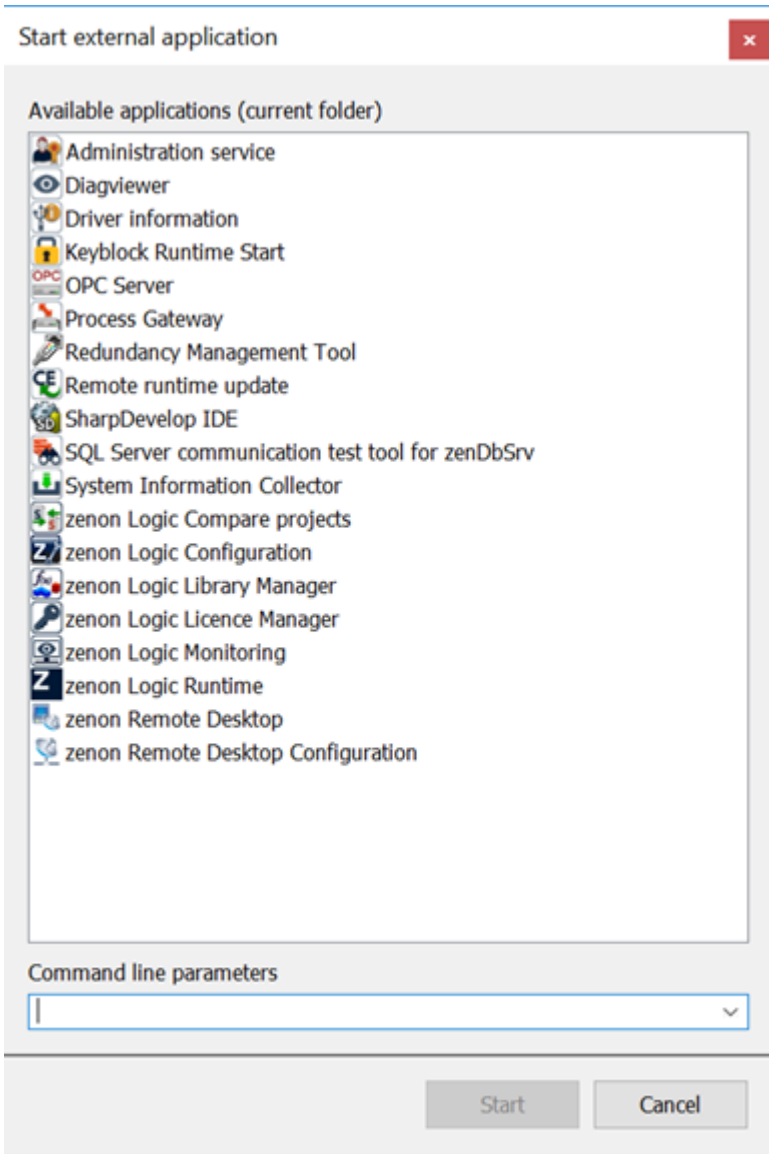
Depending on the application, parameters for the command line can also be transferred. The tools that are available depend on the zenon products and operating system installed.

The tools that are available depend on which applications are installed and which application has been selected in the start dialog.
The following are generally available:

- **Available 32-bit applications**: List of available 32-bit applications.
- **Available 64-bit applications**: List of available 64-bit applications.
- **Available applications (current folder)**: List of the applications available in the current folder.

- **Command line parameters**: Entry of the application and parameter for starting tools by means of command line entry.

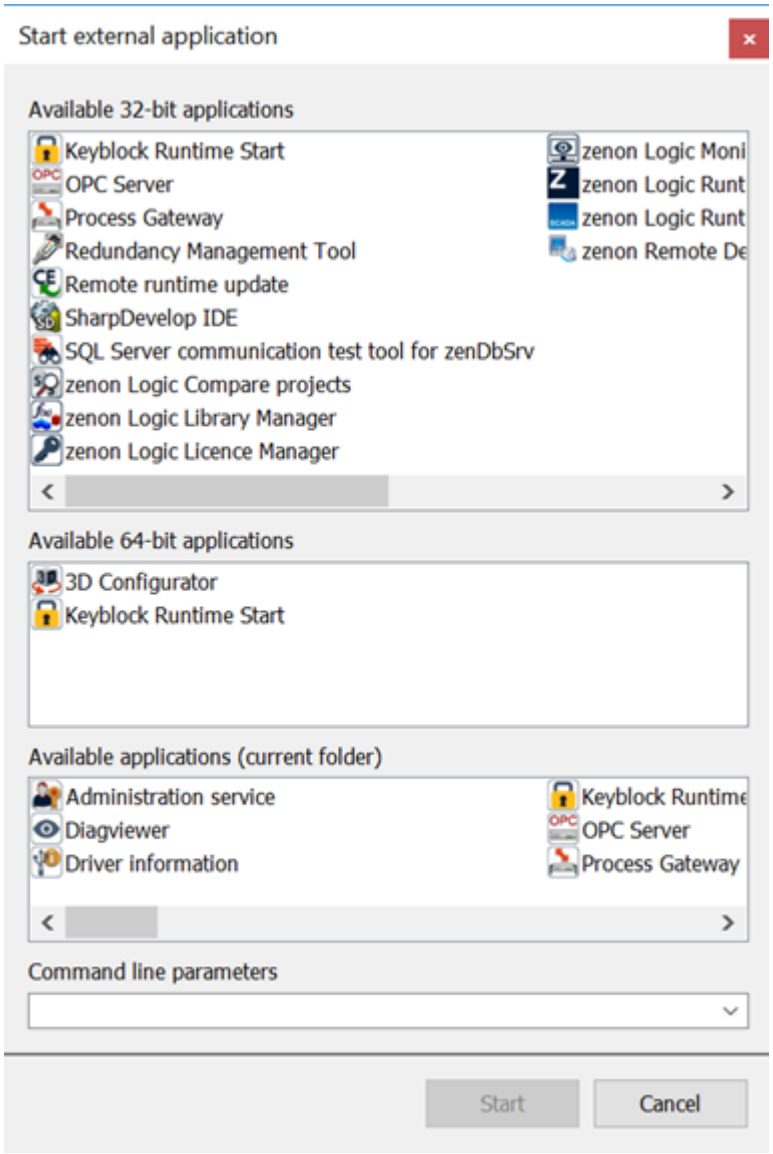
Empty areas are hidden. The space for hidden areas is used by the remaining ones. If, for example, only zenon Analyzer is installed but no zenon application, the areas for 32-bit and 64-bit are hidden:



If no tools are available, all areas are hidden and displayed as empty.

7.4.1 Options

START EXTERNAL APPLICATION DIALOG



AVAILABLE 32-BIT APPLICATIONS

List of available 32-bit applications.

Option	Description
Keyblock Runtime Start	Starts the currently-active Runtime with the *Keyblock* option. All **Windows** system keys thus remain blocked when Runtime is started.

Option	Description
	Note the Information in the **Keyblock Runtime Start** (on page 56) chapter in the **Runtime** manual. Name of the EXE file: **zenKeyBlock.exe**
OPC Server	Starts the zenon OPC server. Name of the EXE file: **zenOPCSrv.exe**
Process Gateway	Starts the **Process Gateway**. Note the information in relation to configuration of the parameters. Name of the EXE file: **zenProcGateway.exe** **Parameter**: **/ini:MyConfig.INI** Replace **MyConfig.INI** with the correct name of your INI file
Redundancy Management Tool	Starts the zenon **Redundancy Management Tool**. Name of the EXE file: **zenon_redman.exe**
Remote runtime update	Opens the dialog to configure the **Remote Runtime Update** for CE. Name of the EXE file: **UpdateCE.exe**
SharpDevelop IDE	Start the SharpDevelop IDE for creating AddIns. Name of the EXE file: **SharpDevelop.exe**
SQL Server communication test tool for zenDBSrv	Opens the dialog to access to the zenon Database Admin client. Name of the EXE file: **zenDBAdmin.exe**
zenon Logic Compare projects	Opens the dialog to compare two zenon Logic projects. Name of the EXE file: **K5DiffTest.exe**
zenon Logic Library Manager	Opens the dialog of the zenon Logic Library Manager. Name of the EXE file: **K5LibMan.exe**
zenon Logic License Manager	Opens the zenon Logic License Manager. Name of the EXE file: **K5LicMan.exe**

Option	Description
zenon Logic Monitoring	Opens the zenon Logic monitoring. Name of the EXE file: **W5Monitoring.exe**
zenon Logic Runtime	Starts zenon Logic Runtime. You can also find further information in the **Starting Runtime** chapter in the **zenon Logic Runtime** manual. Name of the EXE file: **STRATONRT.exe**
zenon Logic Runtime Manager	Starts the **zenon Logic Runtime Manager**, which administers all stand alone/manually-started zenon Logic Runtime projects on your computer. Name of the EXE file: **autorun.exe**

AVAILABLE 64-BIT APPLICATIONS

List of available 64-bit applications.

3D Configurator	**Opens the 3D configurator. 3D files are loaded in this project configuration environment.** **Name of the EXE file:** zen3DConfig.exe
Keyblock Runtime Start	Starts the currently-active Runtime with the Keyblock option. All **Windows** system keys thus remain blocked when Runtime is started. Note the Information in the **Keyblock Runtime Start** (on page 56) chapter in the **Runtime** manual. Name of the EXE file: **zenKeyBlock.exe**
zenon Logic Compare projects	Opens the dialog to compare two zenon Logic projects. Name of the EXE file: **K5DiffTest.exe**
zenon Logic Library Manager	Opens the dialog of the zenon Logic Library Manager. Name of the EXE file: **K5LibMan.exe**
zenon Logic License Manager	Opens the zenon Logic License Manager. Name of the EXE file: **K5LicMan.exe**
zenon Logic Monitoring	Opens the zenon Logic monitoring.

3D Configurator	**Opens the 3D configurator. 3D files are loaded in this project configuration environment.** **Name of the EXE file: zen3DConfig.exe**
	Name of the EXE file: **W5Monitoring.exe**

AVAILABLE APPLICATIONS (CURRENT FOLDER)

List of the applications available in the current folder.

Option	Description
Diagviewer	Starts the Diagnosis Viewer (on page 7). Name of the EXE file: **DiagViewer.exe**
License Manager	Opens the License Manager. Name of the EXE file: **LicenseManager.exe**
SCADA Runtime Connector	Opens the SCADA Runtime Connector.
Service Node Configuration Tool	Opens the tool for service node configuration (on page 59) in the **Service Grid**.
System Information Collector	Starts the **System Information Collector** (on page 119). Name of the EXE file: **SIC.exe**
Web Engine Deployment Tool	Starts the **Web Engine Deployment Tool**. You can also find further information in the Deployment of the web engine chapter in the **zenon Web Server** manual. Name of the EXE file: **WebEngineDeploymentTool.exe** Parameters: none

COMMAND LINE PARAMETERS

Entry of the application and parameter for starting tools by means of command line entry.

Command line parameters	Entry of the parameters for the command line (on page 116). Syntax: [Name of the EXE] /[Parameters] The name of the EXE file must be given.

CLOSE DIALOG

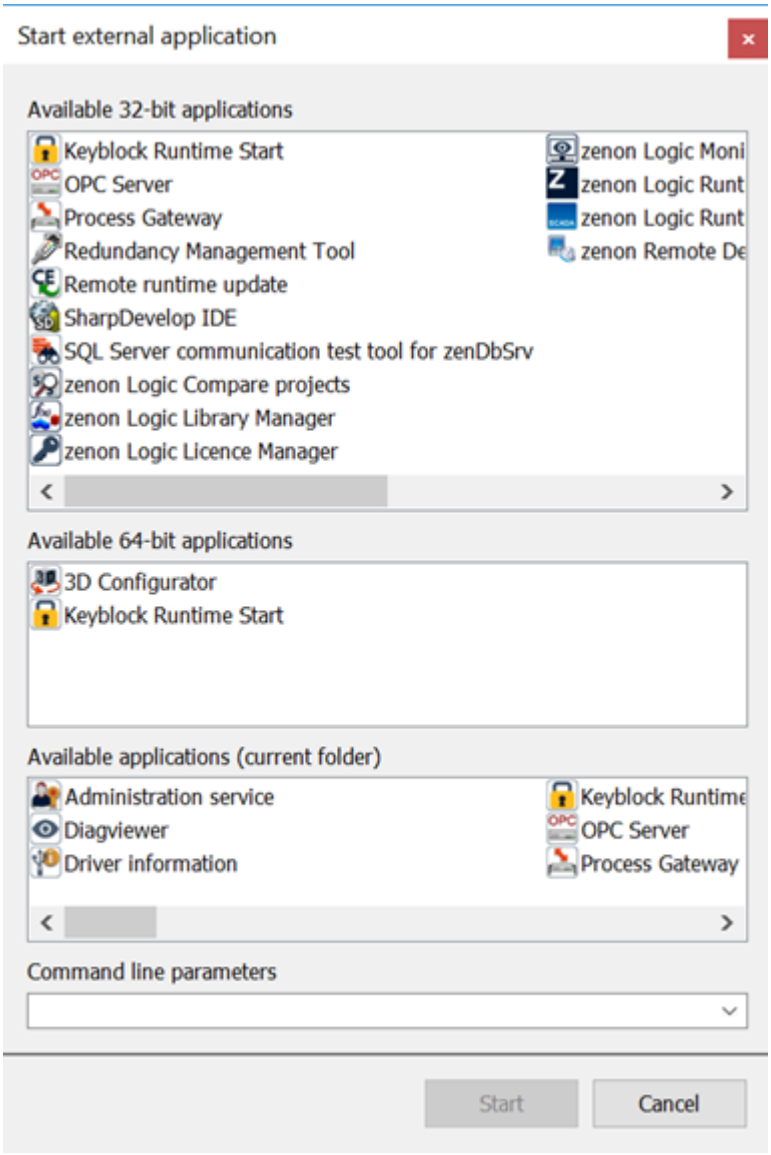
Start	Closes the dialog and starts the selected application with the parameters entered.
Cancel	Closes the dialog without starting an application.

7.4.2 Starting the tool

To start a tool:

1. Open the zenon **Startup Tool** (on page 67).
2. Click on **Tools**.

The dialog for configuring the zenon **Tools** is opened.



3. Select the desired tool.
4. Enter, if required, the following in the **Command line parameters** field:
   [Tool].EXE /[Parameter]
   Attention: The parameters alone are not sufficient. There must be a call to the respective EXE.
5. Click on **Start**.

AVAILABLE .EXE FILES

Application	EXE	Remark
Diagviewer	**DiagViewer.exe**	

Application	EXE	Remark
Keyblock Runtime Start	**zenKeyBlock.exe**	No parameters.
Licensing	**LizenzKnd.exe**	Parameter: ▸ *request* ▸ *silent* ▸ *sernum:<nummer>* ▸ *actkey:<key>* ▸ *mailto:<addr>*
OPC Server	**zenOPCSrv.exe**	No parameters.
Process Gateway	**zenOnOnline.exe**	
Process Gateway	**zenProcGateway.exe**	Name of the INI file: **/ini:MyConfig.INI** Replace **MyConfig.INI** with the correct name of your INI file. Parameter: ▸ *-ADAPTER:* Command line input parameters/INI settings for adapter name ▸ *-DELAY:* command line input parameters/INI settings for waiting time. Default: *10* ▸ *- ? (help):* Show help
Redundancy Management Tool	**zenon_redman.exe**	

Application	EXE	Remark
Remote runtime update	**UpdateCE.exe**	No parameters.
SQL Server communication test tool for zenDbSrv	**zenDBAdmin.exe**	Parameter: ▸ *-s*: Silent. ▸ *-checkconnectionstring* ▸ *-createsqluser* ▸ *-c*: Computer name ▸ *-exists*: Check to see whether the project exists. ▸ *-delete*: Delete project. ▸ *-backup*: Create backup. Password, description and the path to the file must be specified. ▸ *-restore*: Restoring from backup file. The password and the path to the file must be specified. ▸ *-password*: Password ▸ *-backupfile*: File for backup. ▸ *-desc*: Description. ▸ *- reload*: Reload project.
System Information Collector	**SIC.exe**	Parameter: ▸ **forcedbaction**:

Application	EXE	Remark
		Always allow **SQL Attach/Detach** ▸ **externalxmlenable**: Allow loading from external **Query-XML** ▸ **developer**: Quick scan
Web Engine Deployment Tool	**WebEngineDeploymentTool.exe**	No parameters.
zenon Logic Compare projects	**K5DiffTest.exe**	
zenon Logic Library Manager	**K5LibMan.exe**	
zenon Logic Licence Manager	**K5LicMan.exe**	
zenon Logic Monitoring	**W5Monitoring.exe**	
zenon Logic Runtime	**STRATONRT.exe**	
zenon Logic Runtime Manager	**StratonRT_Manager.exe**	

7.4.2.1 Applications - EXE files - parameters

Internal Information: Names of the EXE files and possible parameters for the following applications.

Information for customers is in the **Startup Tool** (on page 67) manual, **Start tool** (on page 108) chapter.

Application	EXE	Parameters
ArvView	**ArvView.exe**	
Diagviewer	**DiagViewer.exe**	
Driver information	**Driverinfo.exe**	

Application	EXE	Parameters
Keyblock Runtime Start	**zenKeyBlock.exe**	
Konvertor	**Konvertor.exe**	
LauerTakeOff	**LauerTakeOff.exe**	
Licensing	**LizenzKnd.exe**	▸ *-request* ▸ *-silent* ▸ *-sernum:<nummer>* ▸ *-actkey:<key>* ▸ *-mailto:<addr>*
LizenzCopaData	**LizenzCopaData.exe**	
LizenzKnd_PMI	**LizenzKnd_PMI.exe**	
LizenzLauer	**LizenzLauer.exe**	
MMCfg	**MMCfg.exe**	
MsgCtrlDB	**MsgCtrlDB.exe**	
NETEDIT	**NETEDIT.EXE**	
Network communication encryption	**zenWebCryptConfig.exe**	
oledb_test	**oledb_test.exe**	
OnlineSQL	**OnlineSQL.exe**	
OPC Server	**zenOPCSrv.exe**	
Process Gateway	**zenOnOnline.exe**	
Process Gateway	**zenProcGateway.exe**	Name of the INI file: **/ini:MyConfig.INI** Replace **MyConfig.INI** with the correct name of your INI file. Parameter: ▸ *-ADAPTER:* Command line input

Application	EXE	Parameters
		parameters/INI settings for adapter name ▸ *-DELAY:* Command line input parameters/INI settings for waiting time. Default: *10* ▸ *- ? (help):* Show help
Redundancy Management Tool	**zenon_redman.exe**	
Remote runtime update	**UpdateCE.exe**	
ResourceGenie	**CD_ResourceGenie.exe**	
SQL Server communication test tool for zenDbSrv	**zenDBAdmin.exe**	▸ *-s*: Silent. ▸ *-checkconnectionstring* ▸ *-createsqluser* ▸ *-c*: Computer name ▸ *-exists*: Check to see whether the project exists. ▸ *-delete*: Delete project. ▸ *-backup*: Create backup. Password, description and the path to the file must be specified. ▸ *-restore*: Restoring from backup file. The password and the path to the file must be specified. ▸ *-password*: Password ▸ *-backupfile*: File for backup. ▸ *-desc*: Description. ▸ *- reload*: Reload project.
SrvSetup	**SrvSetup.exe**	

Application	EXE	Parameters
STRATON_for_zenOn	**STRATON_for_zenOn.exe**	
System Information Collector	**SIC.exe**	▸ **forcedbaction**: Always allow **SQL Attach/Detach** ▸ **externalxmlenable**: Allow loading from external **Query-XML** ▸ **developer**: Quick scan
Web Engine Deployment Tool	**WebEngineDeploymentTool.exe**	--
zenNetCli	**zenNetCli.exe**	
zenon Logic Compare projects	**K5DiffTest.exe**	
zenon Logic Configuration	**CDRtHALConfig_EXE.exe**	
zenon Logic Global Binding Editor	**W5Binding.exe**	
zenon Logic Library Manager	**K5LibMan.exe**	
zenon Logic Licence Manager	**K5LicMan.exe**	
zenon Logic Monitoring	**W5Monitoring.exe**	
zenon Logic Runtime	**STRATONRT.exe**	
zenon Logic Runtime Manager	**StratonRT_Manager.exe**	

Key:

- --: No parameter

7.5 Command line

You can also operate the Startup Tool using the command line. To do this, **zenon_Startup.exe** must be in the system path. You can find the file in the following folder: *%Program Files%\Common Files\COPA-DATA\STARTUP*

In the commando line you can:

- create new entries (on page 116)
- reorganize (on page 119) existing entries (e.g. after older versions have been deleted)
- register (on page 119) entries

7.5.1 Parameters

The input is started with **zenon_Startup.exe** followed by a **Parameter** and possible **field names.**

Parameters:

Parameters	Function	Field name	Return value
-new	creates a new entry.	yes, list see also new (on page 116)	*0* or *1*
-reg	registers services	*Name of the entry*	none
-reorg	checks and reorganizes existing entries	not available	none

If the startup tool is only called up with **-reg**, only the version is re-registered. In doing so, **zenon6.ini** is accessed on a read-only basis only. The version defined in the **[PATH]** section is registered; all parameters are taken from **zenon6.ini**.

USING SEVERAL PARAMETERS AT ONCE:

It is possible to use several parameters at once. If several **-new** parameters are used at once, the return value cannot be evaluated unambiguously.

In general when several parameters are used, it is proceeded in the following order:

1. **–new**: Create new entries.
2. **–reg**: Register the stated entry.
3. **–reorg**: Remove all invalid entries for deleted zenon versions.

7.5.1.1 new - Creating new entries

The **-new** parameter is used for creating new entries. It needs at least two field names:

- **NAME** as unique name for the entry

  If the name of the entry is already available, no entry is created.
- **PATH** as path in which zenon is stored.

SYNTAX

The syntax is structured as follows: **zenon_Startup.exe -> Parameter > Field name="TEXT"**

1. **zenon_Startup.exe**
2. Space
3. Parameters
4. Space
5. Field name
6. **=** character
7. opening quotation marks
8. Text
9. closing quotation marks

> **Example**
>
> **zenon_Startup.exe -new NAME**="new entry" PATH="C:\example folder\test"

FIELD NAME

The following field names can be used:

Field name	Mandatory field	Description
NAME	X	Unique name of the entry. E.g.: NAME="**Test**"
PATH	X	The user path in which zenon is saved. E.g.: PATH="*C:\Program Files (x86)\COPA-DATA\zenon 7.10 SP0*"
PATH64	-	The application path, in which the 64-bit version of zenon is located. E.g.: PATH=**"***C:\Program Files\COPA-DATA\zenon 7.10 SP0***"**
PROJECT_RT	-	Name of the Runtime project which should be started.

Field name	Mandatory field	Description
		E.g.: **PROJECT_RT="test project"**
PROJECT_RT_PATH	-	The Runtime folder of the project (see **PROJECT_RT**). E.g.: PROJECT_RT_PATH="*C:\Users\Public\Documents\zenon_Projects\Test Project*"
PROJECT_ED	-	The project which should be activated in the Editor. E.g.: **PROJECT_ED="test project"**
WSP	-	The workspace with which the Editor should be loaded. E.g.: WSP="*C:\Users\Public\Documents\zenon_Projects\DEMO760.WSP6*"
SQLSRV	-	Name of the SQL Server which should be used by the Editor. E.g.: SQLSRV="MSSQL$ZENON_DEV"
PROVIDER	-	Provider string for the initialization of the SQL connection. E.g.: PROVIDER="*Provider=SQLNCLI.1;Password=000;Persist Security Info=False;User ID=zenOnSrv;Initial Catalog=%s;Data Source=localhost\ZENON_DEV;*"
DBPATH	-	Path for the SQL database which should be used E.g.: DBPATH="*C:\ProgramData\COPA-DATA\SQL*"
PRESTART	-	Program call which is executed before the start of the Editor or the Runtime or the registering of this version. e.g.: PRESTART="C:\zenon Versions\zenon8.20\Dlls\zenVNCCli.exe"
POSTSTART	-	Program call which is executed after the Editor is closed. E.g.: POSTSTART="C:\zenon Versions\zenon8.20\Dlls\zenVNCCli.exe" **Attention:** Post Start is only executed when in the Startup Tool or in Startup.ini option **Read back the INI settings** (**Item -> Properties -> General**) is activated.

The field names are separated by spaces.

Information

Paths with spaces must always be put between parentheses.

RETURN VALUES

- *0*: Execution faultless
- *1*: Entry could not be created

7.5.1.2 reorg - reorganizing of entries

Parameter **-reorg** checks all entries to see whether the linked zenon version is still available in the file system. If the application files are no longer found, the entry is finally deleted from the Startup Tool.

The command does not provide a return value. After execution the Startup Tool is started.

Example: **zenon_Startup.exe -reorg**

7.5.1.3 reg - register entries

The **–reg** parameter registers all necessary services in the folder of the stated entry. It is called up via:

- **-reg "***Name of the entry***"**

If the Startup Tool has already been started, nothing is registered but the **Startup Tool** is moved to the foreground.
The command does not provide a return value.

Example

zenon_Startup.exe -reg "version 6750"

Registers version 7.50.

Prerequisite: there is an entry with this name in the **Startup Tool**.

8 System Information Collector

When solving problems, COPA-DATA Support may ask for the relevant data about your operating system and zenon. The easiest way for you to create this data is in an automated manner with the System Information Collector and then sending this to Support.

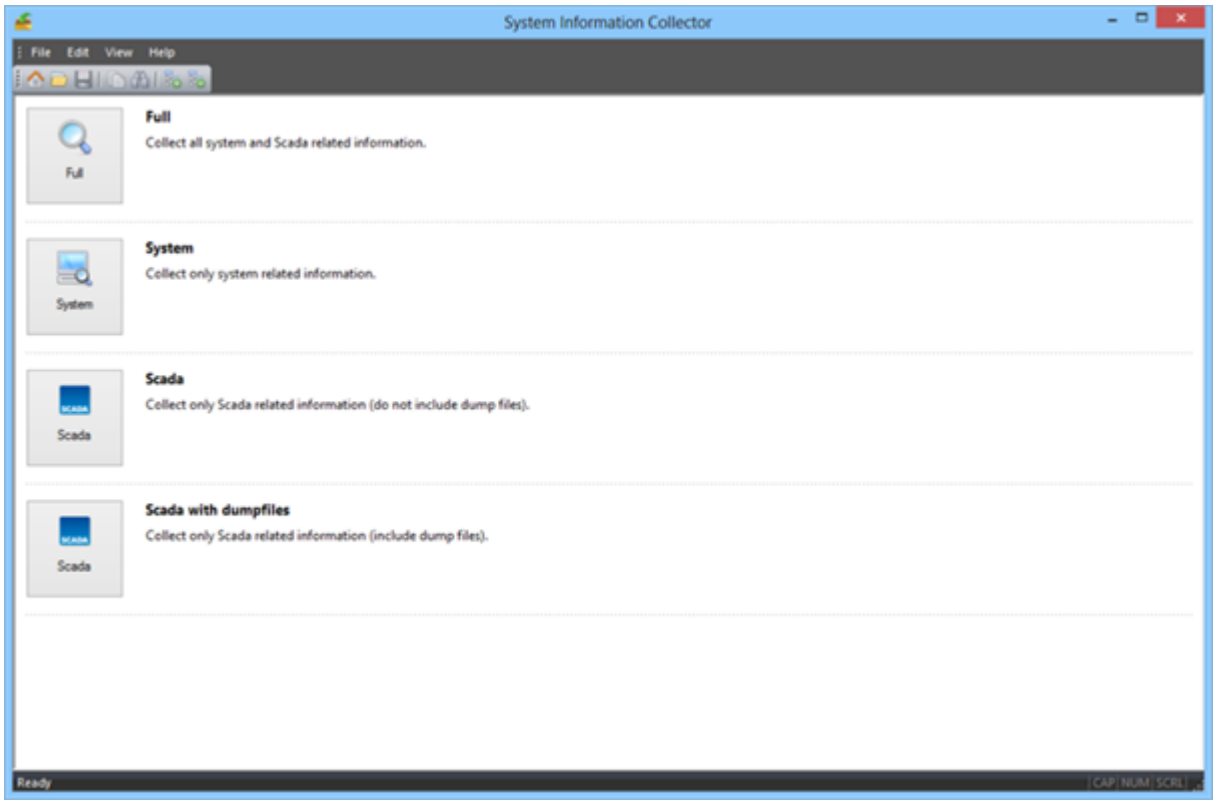
8.1 Starting the System Information Collector

The **System Information Collector** is also installed when zenon is installed. It is located at:

- Computer in the path: *%Program Files (x86)%\Common Files\COPA-DATA\STARTUP*
- Installation medium in the following path *\AdditionalSoftware\COPA-DATA System Information Collector*.

To start the **System Information Collector**:

1. Windows 8: enter **SIC** as a search term for **Apps** on the desktop
   Windows 7: go to **Start/All Programs/zenon/Version Independent Tools**
   or: start it from the installation medium
2. Click on **System Information Collector**
3. The **System Information Collector** starts



MENU AND TOOLBAR

MENU

The following options are available to you in the menu:

- **File**

- **New Scan**: Opens the Start window.
- **Open**: opens a saved report
- **Save**: saves the currently-displayed report as a ZIP file
- **Exit**: closes the **System Information Collector**

- **Edit**
  - **Copy**: copies highlighted text to the clipboard
  - **Find**: opens a dialog to search the current report
- **View**
  - **Expand**: expands all nodes
  - **Collapse**: closes all nodes
- **Help**
  - **About**: Information on the program version

With the exception of **Exit** and **About**, all options are also available from the toolbar.

TOOL BAR

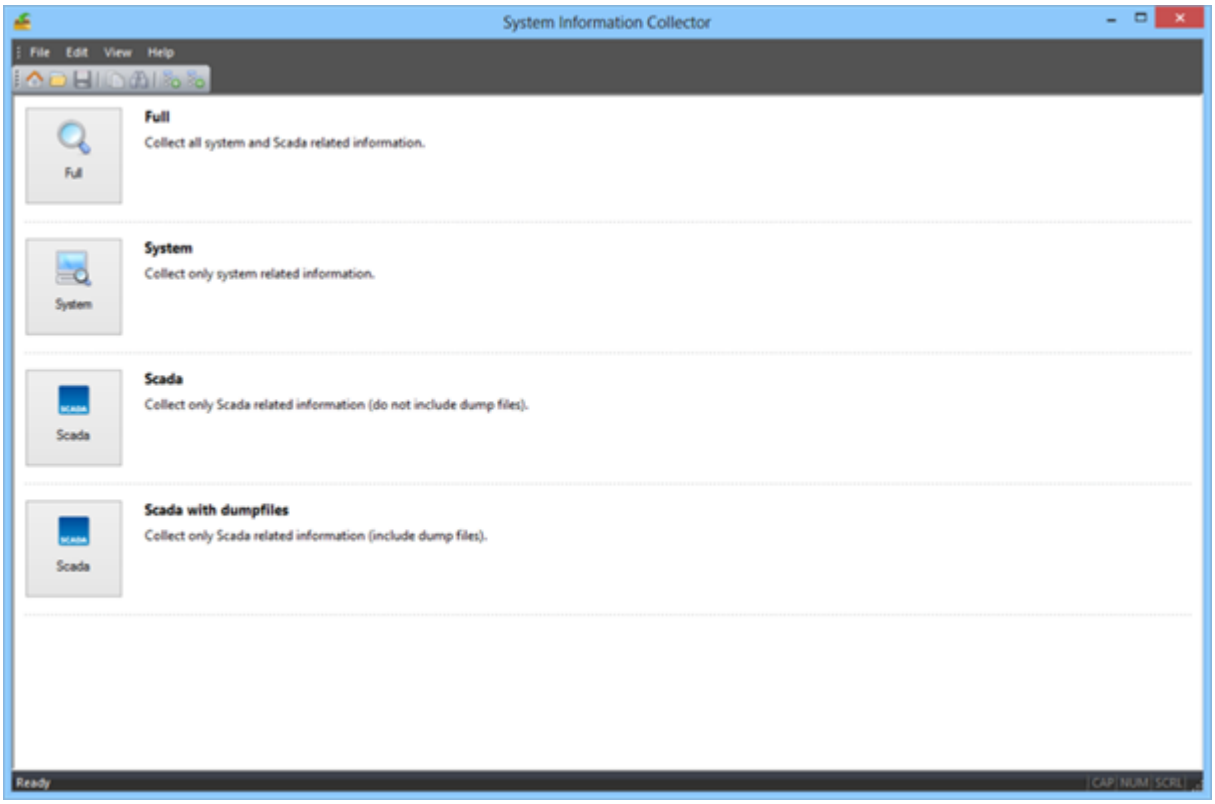
Symbol	Description
Home **New Scan**	Opens the Start window.
Open	Opens a saved report.
Save	Saves the currently-displayed report as a ZIP file.
Copy	Copies highlighted text to the clipboard.
Find	Opens a dialog to search the current report
Expand	Expands all nodes.
Collapse	Closes all nodes.

8.2 Collecting information

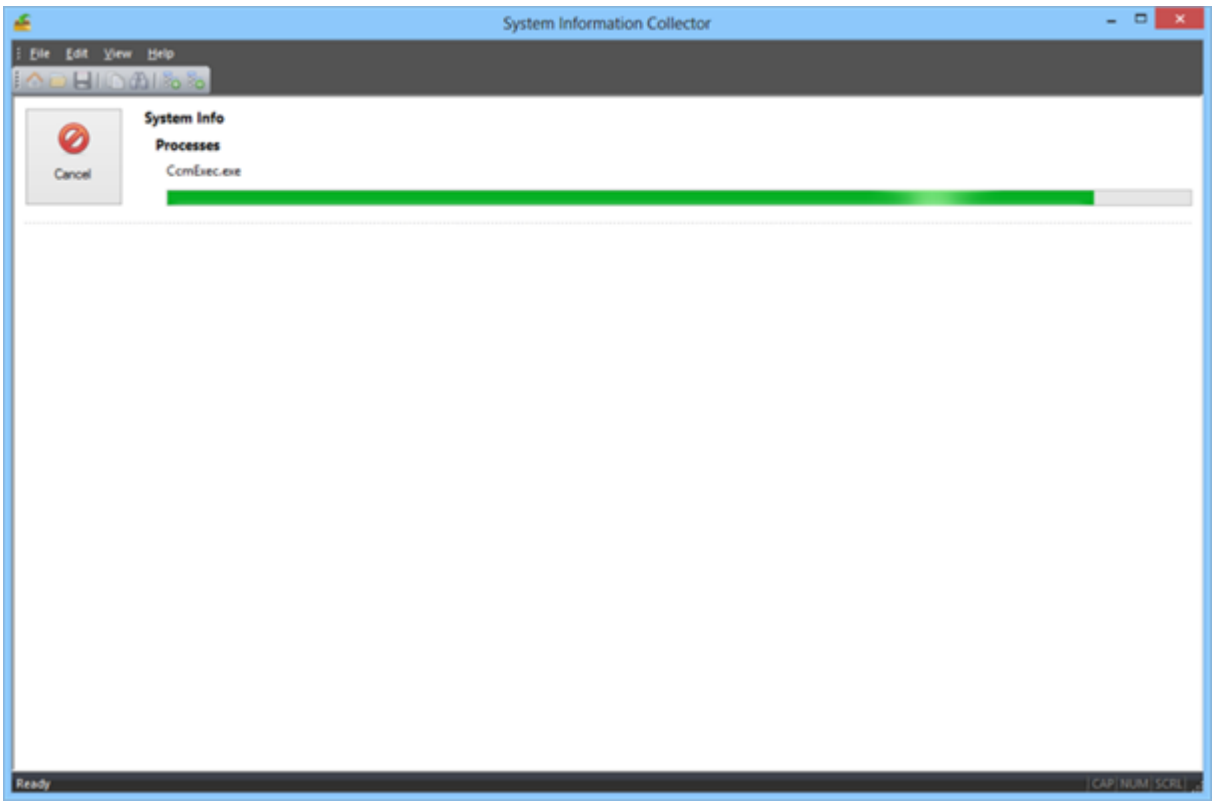
To collect information in an automated manner:

1. Start (on page 120) the **System Information Collector**
2. Select one of the four options by clicking on the corresponding button

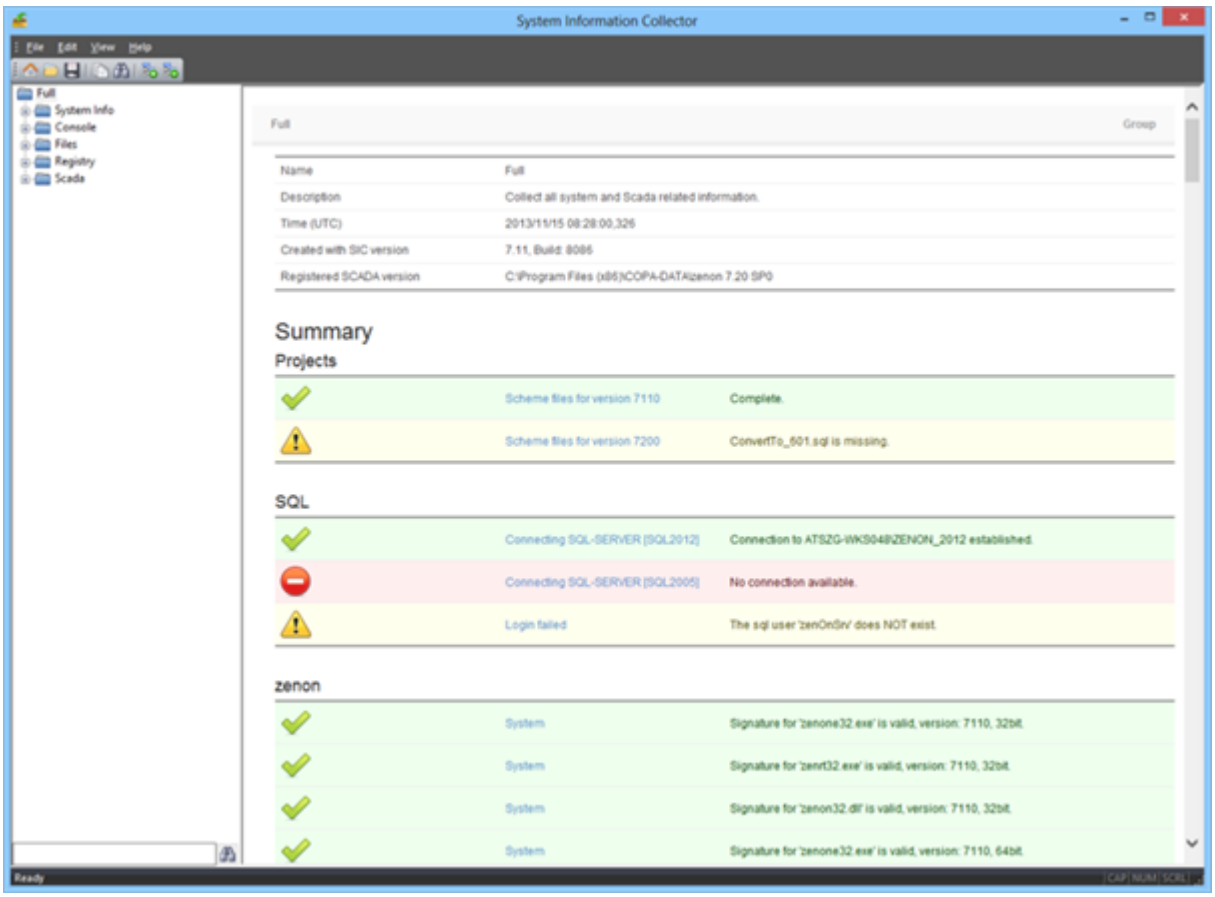
- **Full**: collects information about the system and zenon. Dump files are not collected
- **System**: collects information about the system only
- **Scada**: collects information about zenon, without dump files
- **Scada with dumpfiles**: collects information about zenon and includes dump files



3. The **System Information Collector** creates a report with the desired information



4. The completed report is displayed in the main window

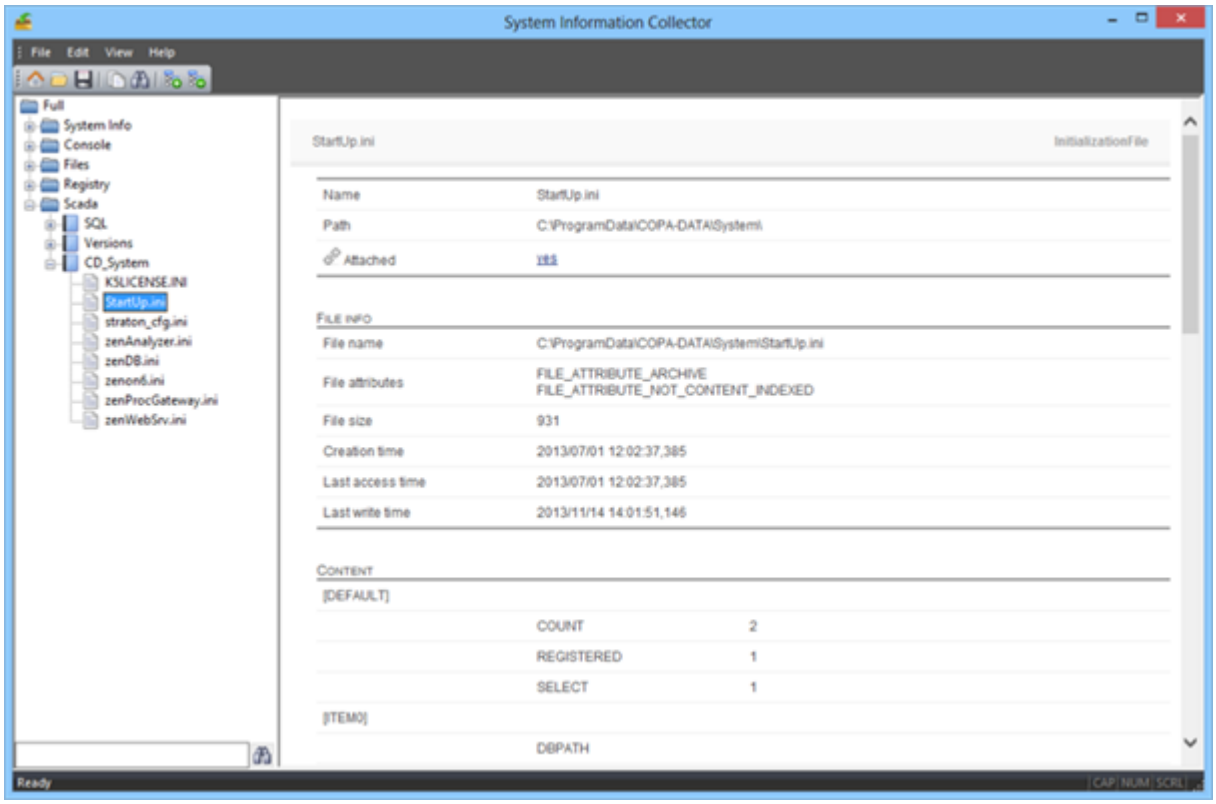


8.3 Using the information

All information collected is displayed in the **System Information Collector**. They can:

- Save the report
- Navigate through the report and search for certain information

- Highlight selected information and copy it to the clipboard



SAVING A REPORT

To save a report:

1. Click on the **Save** symbol or the **Save** command in the **File** menu
2. The dialog for voluntary entry of a password for the encryption of a report opens
3. the dialog for selecting a folder and file name is opened
4. The report is saved as a ZIP file

OPEN REPORT

To open a saved report:

1. Click on the **Folder** symbol in the toolbar
2. Select the report
3. If you have entered a password for the encryption of the report when saving, enter it again now or jump the step by clicking on **OK**
4. The report is opened

SAVING SELECTED INFORMATION

To saved selected information only:

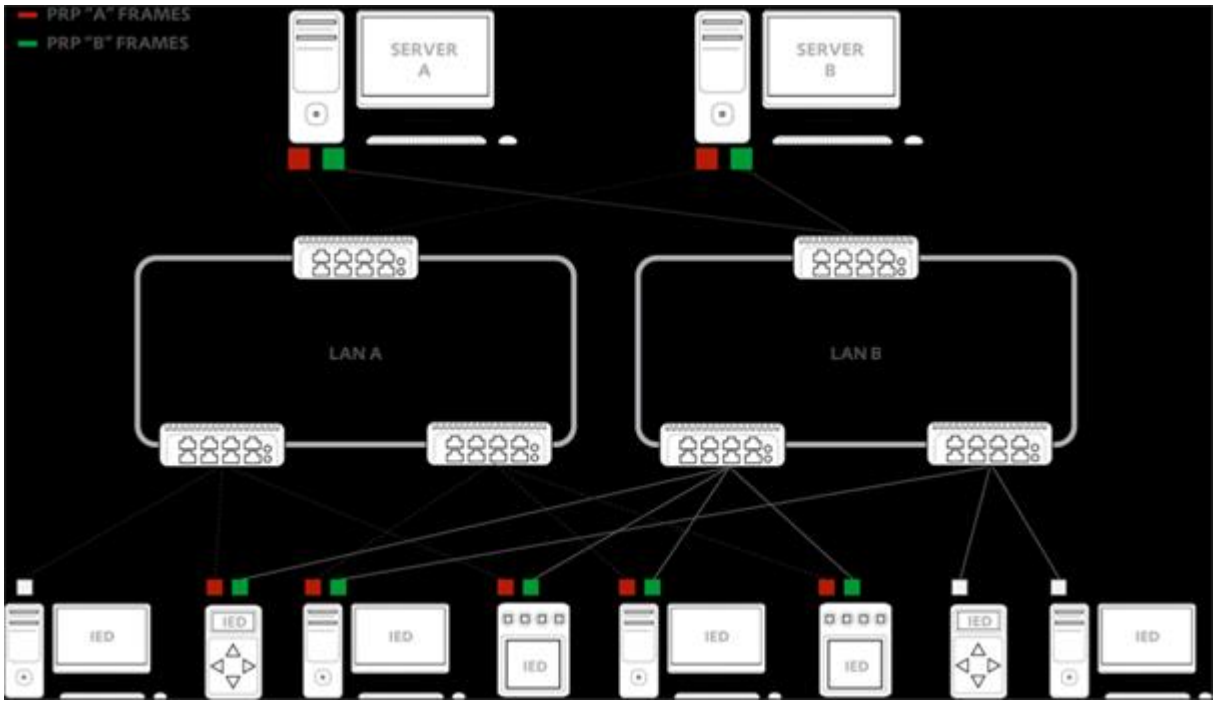
1. highlight the relevant information.
2. Click on the **Copy** symbol or the **Copy** command in the **Edit** menu
3. The selection is copied to the clipboard
4. Insert the content into a text file and save this
5. Repeat this process for further selected information

8.4 Forward report to COPA-DATA

The report can, depending on its size, be forwarded as an e--mail or uploaded to a defined save location to COPA-DATA. You can find out details on how you forward the report and which online save location you can use for this from your COPA-DATA Support contact.

9 COPA-DATA PRP

zenon supports the Parallel Redundancy Protocol (PRP) for hardware-redundant communication in an Ethernet network. The protocol is standardized in IEC 62439-3.



Every PRP node, a Dual Attached Node (DAN), is bound to two networks, here *LAN A* and *LAN B*. As PRP is a Layer-2 protocol, the protocol of the two networks must be identical on the MAC level. Therefore, this basically means that there must be no direct connection between the LANs.

If one of the networks fails (e.g. if a cable is removed for one of the networks), this has no influence on the other one. The communication between PRP nodes remains seamless as long as one of the LANs is connected.

The PRP communication is established directly on the OSI Layer 2 level, thus making it applicable for TCP, UDP, Ethernet Multicast (e.g. GOOSE) etc. Its use is independent of the zenon Editor and the zenon Runtime. No special configurations are required in zenon, and the use of PRP is "transparent" for <CD_PRODUKTNAME> modules, drivers, process gateways etc. The settings are only made in the components of the operating system.

To use the protocol, the computer must have two network cards and be configured accordingly. You need the following for the use of PRP:

- *COPA-DATA PRP driver* network service (for the network cards of the computer).
- **PRP configuration and diagnosis tool** application.

You can find this on the installation medium. You can find a detailed description of the required configuration steps in this manual in the installation and configuration (on page 129) chapter.

9.1 System requirements

PRP communication is supported for 100 Mbit/s Ethernet.

Attention

Windows 10 operating system: Versions earlier than Windows 10 version 1607 are not supported.

Note: In the Parallel Redundancy Protocol (PRP), the original Ethernet frames are supplemented by additional information (on OSI Layer 2), which is different in *LAN A* and *LAN B*. The non-PRP nodes (devices that do not support PRP) can be connected to the PRP network via a Redundancy Box (RedBox).

Attention:

- A direct Ethernet connection - between a PRP and a non-PRP node of the communication network - will lead to errors in the Ethernet communication.
- Changing the assignment of network cards to *LAN A* and *LAN B* (or in the cabling) will lead the PRP communication to fail in all the PRP nodes.

GENERAL

The PRP solution of COPA-DATA integrates both the (*CDPrpFlt.sys*) kernel driver as well as a system component - the network bridge. The network bridge (Network Bridge) is an integral part of the Windows operating system and thus dependent on the operating system version and the installed Windows updates. This solution entails increased dependency on the network drivers that the operating system uses: Firstly on network adapters and secondly on additional installed protocols or filter drivers.

Additional driver software and network software from third-party manufacturers can lead to compatibility problems with the PRP protocol. Uninstall this software if PRP problems occur during communication. In the operating system, the list of the installed drivers can be displayed and managed by means of the system property in the **Network and Internet** properties group. Installed programs are displayed in the **Programs** system properties group and can be uninstalled there.

Perform a Windows update too, in order to ensure that the operating system is up to date.

Attention: Owing to described dependencies, there is no guarantee that the PRP solution works for every combination of operating system and network card type and/or additional third-party components. In the worst case, there can be an incompatibility between the network card driver and the COPA-DATA PRP implementation, which can only be solved technically by switching to a different adapter type (a different network card).

9.2 Hardware requirements

The following hardware requirements are applicable for communication via PRP:

- The computer must be equipped with at least 2 network cards.
- Only 100 Mbit/s Ethernet speed is supported.
  Both the two network cards as well as the Ethernet network components (routers and switches) must be set to 100 Mbit/s Ethernet.
- Both network cards used for PRP must support *Jumboframes*.
- For both the network cards used, the *Offload* tasks must be deactivated.
- Configuration of the locally administered MAC address must be possible for both network cards for the purpose of changing the MAC address.

> **Attention**
>
> PRP communication is only supported within a redundant network. In doing so, two physical networks can be connected via PRP.
>
> A connection with additional Ethernet networks or to another PRP network (e.g. 2x2 PRP) is not supported.

The cards configured for PRP can only be used in a PRP communication network. All other network cards of the computer can still be used for normal communication via Ethernet.

9.3 Installation and configuration

To prepare the computer for PRP installation:

1. Switch the computer off and separate the computer from the power supply (physical reset).
2. Restart the computer

Carry out the following steps in the operating system:

1. Configure your two existing network adapters.
2. Create a network bridge (= **Bridge**) from the network adapters.
3. Install the *COPA-DATA PRP driver* for the network bridge.
4. Configure your PRP connection

You can find a detailed description in the further chapters.

NOTE:

Note:

- Administrator rights on the computer are required for installation.
- The system must be restarted for the installation.
- Note the instructions for the respective steps.
- The packet sync of the network service supports networks up to 100 Mbit.
- The PRP files can only be updated with a zenon main version or a service pack. Build versions are not in a position to do this.

> **Attention**
>
> Ensure that you carry out the configuration steps in the given sequence.

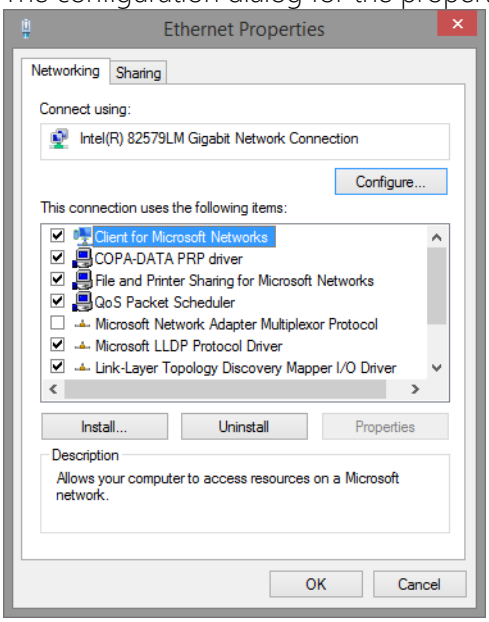
9.3.1 Installation and configuration

In the first step, amend the configuration of the operating system for both network adapters used. The configuration dialog and the naming of the enhanced properties depends on the network card used.

NETWORK ADAPTER 1

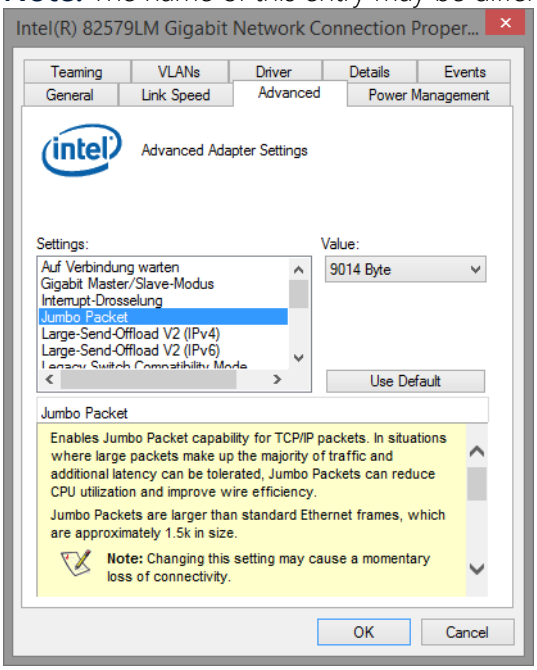
Configure the first network adapter in the operating system.

1. Open the **Change adapter settings** system setting.
   You can find these settings in the *Control Panel => Network and Internet => Network and Sharing Center*
2. Select the desired network adapter.
3. With the right mouse button, select the **Properties** entry in the context menu.
   The configuration dialog for the properties of the network adapter are opened.



4. Click on the **Configure ...** button
   The properties window of the network adapter is opened.

5. Switch to the **Advanced** tab there.
6. In the list of **settings** there, select the **Jumbo Packet** entry
   Note: The name of this entry may be different for each network card.



7. Select a value in the **Value** drop-down list.
   Select the lowest available value that is greater than 1530 bytes.
   Attention: The **Disabled** setting must not be selected.
8. **Deactivate** all **Offload** applications of the network adapter, e.g.: **Checksum Offload**, **Large Send Offload** etc.
9. In the **Advanced** tab, select the **Locally administered address** setting.
10. Enter a unique MAC address that begins with *0A* in the *Value:* input field. You can change the address in the **Value** input field.

    The format of the MAC address depends on the hardware used.
    Examples:

    - 0A:80:41:ae:fd:7e
    - 0A-80-41-ae-fd-7e
    - 0A8041aefd7e
11. Ensure that the same MAC address is used for both connections used.
    - This MAC address must start with *0A*.
    - The MAC address in the local network must be unique.
12. Finish configuration of the network card by clicking on the **OK** button.

NETWORK ADAPTER 2

Repeat the steps for the second network adapter.
When entering the MAC address, ensure that the same MAC address as the one in the previous configuration is entered.

Attention

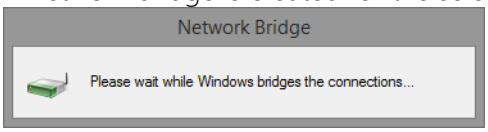
Ensure that

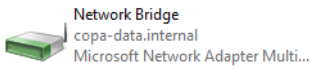
- the same MAC address is used on both network adapters;
- this MAC address begins with *0A*;
- And it is not used by any other computer in the local network.

9.3.2 Installation and configuration

In this step, you combine two network adapters with a network bridge. Amend the configuration for both network adapters used.

Create a network bridge in the system settings.

1. Open the **Change adapter settings** system setting.
   You can find these settings in the *Control Panel => Network and Internet => Network and Sharing Center*
2. Select the two network adapters that you want to use for PRP communication.
   Note: The necessary configuration has already been carried out for both network adapters. A subsequent amendment to the configuration of a network adapter only becomes effective if you then create a new bridge.
   Attention: Both network adapters selected must be configured with the same MAC address!
3. With the right mouse button, select the **Bridge connections** entry in the context menu.
   A network bridge is created for the selected network adapter. This is visualized in a dialog.
   

4. The bridge created is displayed in the Control Panel:
   

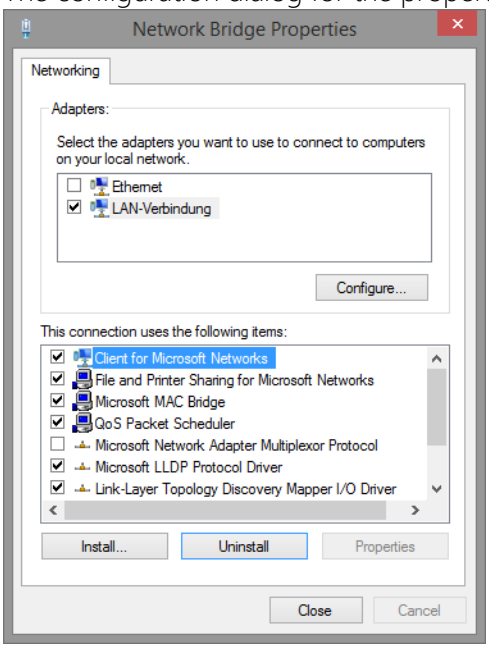
   Attention: The bridge must only contain two adapters.

9.3.3 Installation and configuration

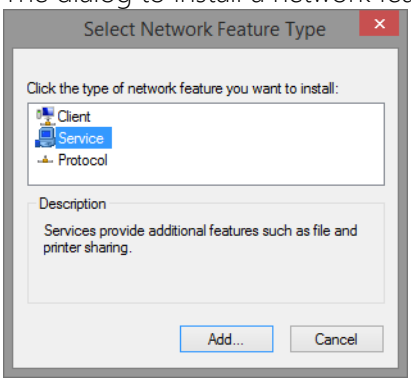
In this step, you install the service system required for PRP communication.

Install the *COPA-DATA PRP driver*

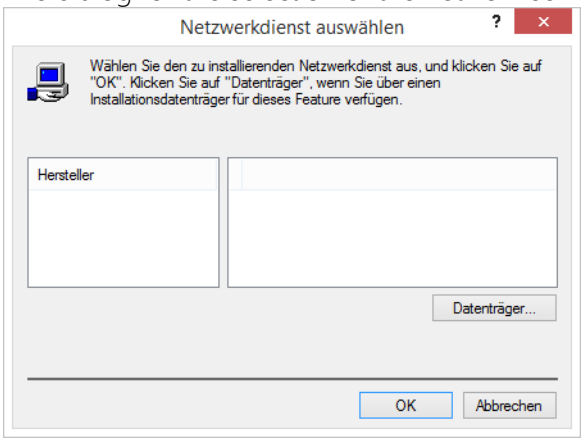
1. Select the Bridge created.
2. With the right mouse button, select the **Properties** entry in the context menu.
   The configuration dialog for the properties of the bridge is opened.



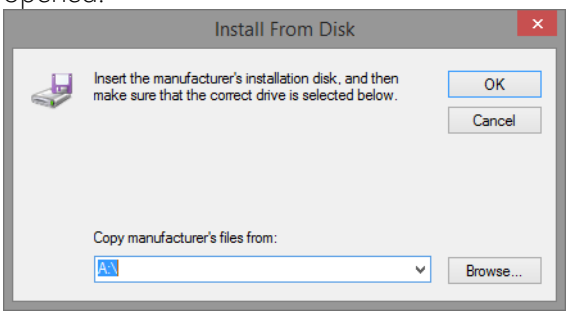
3. Click on the **Install** button.
   The dialog to install a network feature is opened.



4. Select **Service** as the network feature to be installed.
5. Click on the **Add...** button
   The dialog for the selection of the network service is opened.

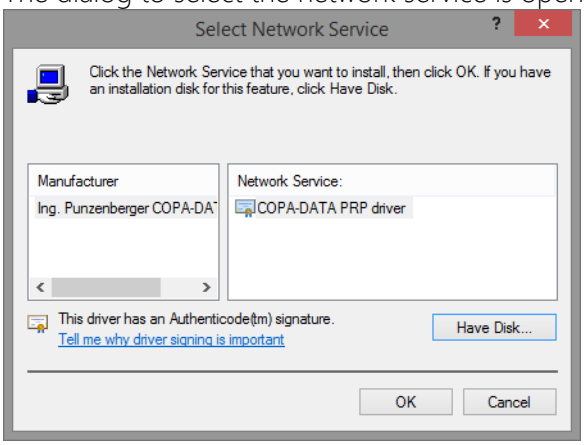


6. Click on the **Data medium ...** button
   The dialog to select the save location of the installation program for the network service is opened.



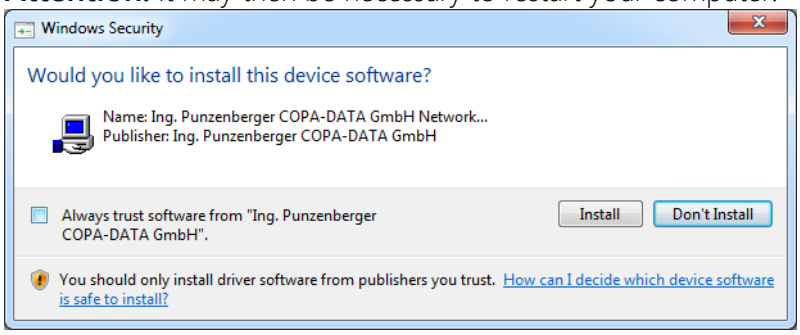
7. Click on the **Browse** button.
8. Go to the following folder on your local computer:
   - *\Programs (x86)\Common Files\COPA-DATA\CDPrpFlt*
     for 32-bit operating systems.
   - *\Programs\Common Files\COPA-DATA\CDPrpFlt*
     for 64-bit operating systems.

9. Select the *CDPrpFlt.inf* file.
   Attention: Ensure that you select the correct installer for your operating system (32-bit or 64-bit).
10. Confirm the selection by clicking on **OK**.
    The dialog to select the network service is opened.



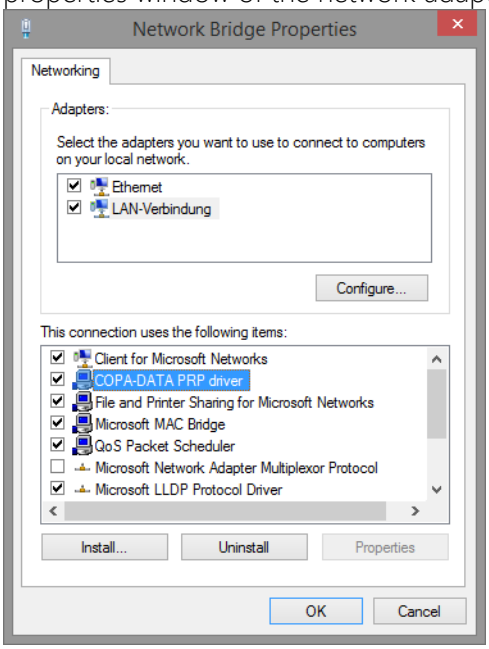
11. Select the *COPA-DATA PRP driver* network service.
12. Confirm your selection with **OK**.

- Confirm the Windows request for confirmation by clicking on the Install button.
  Attention: It may then be necessary to restart your computer.



Note: This request for confirmation is not shown if you have already activated the "... *always trust*" box when installing zenon program components earlier.

13. After successful installation (and restarting the computer) the service is visible in the properties window of the network adapter in the list of elements used.



14. Ensure that the LAN connection and the network service **COPA-DATA PRP driver** are activated using the checkbox.

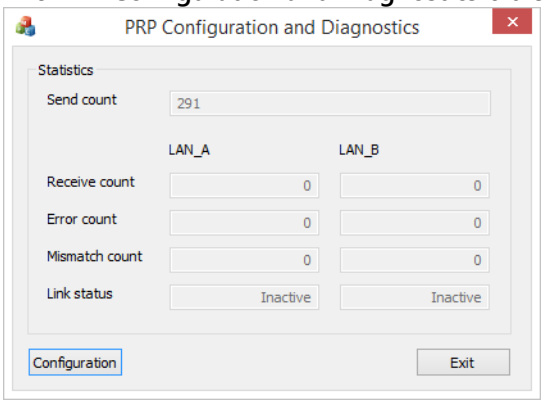
> **Attention**
>
> Ensure that use in the active system is not jeopardized by the required restart.

9.3.4 Configuration of PRP connection (step 4 of 4)

Before configuration, ensure that the LAN connection and the **COPA-DATA PRP driver** network service are activated.

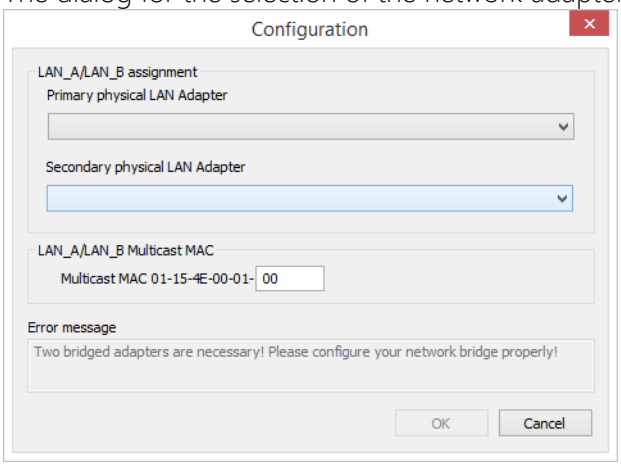
PRP CONFIGURATION

1. Start the program called *PRPCfgDiag.exe*.
   You can find this software on your computer in the following folder: *C:\Program Files (x86)\Common Files\COPA-DATA\STARTUP*.
   The **PRP Configuration and Diagnostics** dialog is opened.



   Note: The **PRP Configuration and Diagnostics Tool** is only available in English. You can find a detailed description of the **PRP Configuration and Diagnostics Tools** in the PRP configuration and diagnosis tool (on page 138).

2. Click on the **Configuration** button.
   The dialog for the selection of the network adapter is opened.



   Note: The content of the drop-down list is based on the system settings.

3. Select the network adapter for **LAN_A** and **LAN_B** from the drop-down list.
   Note: Ensure that for all PRP-compatible devices in the Ethernet network, the references between the physical network and **LAN_A** or **LAN_B** are configured the same. The plugs of the cables for **LAN A** and **LAN B** must not be mixed up.

4. Confirm the assignment with **OK**.

5. End the configuration by clicking on the **Exit** button.

After these steps, the entire communication of this network adapter is carried out using the PRP protocol. This means that all applications on the computer that access the Ethernet via this interface

(TCP, UDP etc.) communicate with the support of PRP. No additional engineering is required in the applications; the use of PRP is "transparent" for them.

Attention

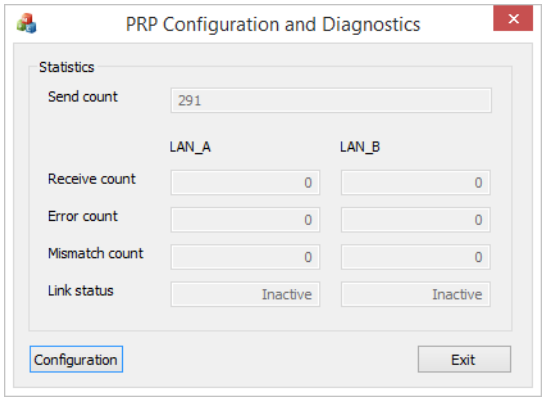
If the PRP communication does not function, make sure that all the System requirements (on page 127) and the Hardware requirement (on page 128) are met.

You can also delete the network bridge, restart the computer (don't forget Windows Updates) and carefully repeat all the configuration steps down to the last detail.

9.4 PRP configuration and diagnosis tool

The **PRP Configuration and Diagnostics Tool** performs two tasks:

- Visualization (on page 139)
  Display of the data traffic sent via PRP. The information is displayed separately for the two network adapters used.
- Configuration (on page 140)
  Assignment of the configured network adapter.



Note: This dialog is only available in English.

The **PRPCfgDiag.exe** program is supplied with zenon.
You can find this software on your computer in the *C:\Program Files (x86)\Common Files\COPA-DATA\STARTUP* folder.

REQUIREMENTS

The **PRP Configuration and Diagnostic Tool** needs the following for operation or configuration:

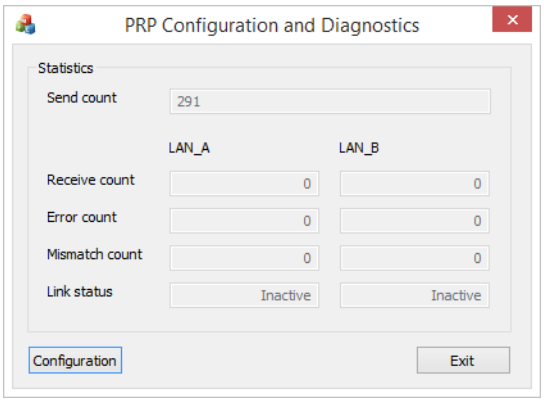
- Two network adapters that are combined into a bridge in the system settings.
  Note: In this bridge, only the two network adapters that are used for PRP communication can be configured. Other network adapters must not be included in this bridge.
- The CDPrpFlt driver must be installed in the operating system.

> **Information**
>
> You can find information on the installation and necessary preparations in the system settings in the installation and configuration (on page 129) chapter.

9.4.1 Statistics

The data flow is visualized in the **Statistics** dialog. The setting is displayed separately for both LAN adapters.

The flow of data is always recorded, even if the tool is not open.



Note: This dialog is only available in English.

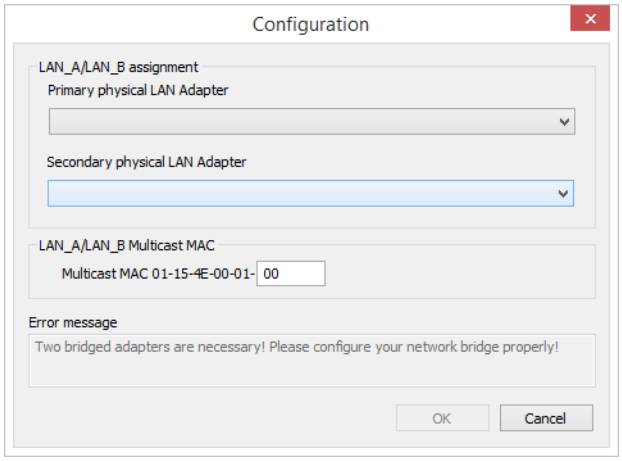
Parameter	Description
Send count	Display of the Ethernet frame sent.
Receive count	Display of the Ethernet frame received.
Error count	Display of corrupt PRP frames. Possible cause could be, for example, a mix-up of *LAN A* and *LAN B* (at any PRP nodes).
Mismatch count	Display of PRP frames received/sent differently if the network data traffic of the two LAN adapters differs from one another.
Link status	Status of the network card:

Parameter	Description
	▸ *Active* PRP-Supervision frames are received correctly for the respective (*LAN_A* or *LAN_B*). ▸ *Inactive* No PRP Supervision frames are received within the past two seconds. There is no PRP station in the network or there is an error.
Configuration	Opens the configuration dialog (on page 140).
Exit	Closes the program. **Note:** The data continues to be recorded.

9.4.2 Configuration

The following is carried out in the **Configuration** dialog:

- Network adapter is assigned by means of a drop-down list.
  The content of the drop-down list is based on the network settings.
  You can find further information in the installation and configuration (on page 129) chapter.
- The multicast MAC address is visualized
- Error messages from the network adapter configuration are visualized in an output window



Attention

The computer must be restarted after changes to the configuration have been made.

Note: This dialog is only available in English.

Parameters	Description
Primary physical LAN Adapter	Assignment of a network adapter to the physical connection to *LAN A* - for the primary LAN adapter. **Attention:** the assignment to *LAN A* and *LAN B* cannot be mixed in a PRP network. In the drop-down list, the adapters that are included on the configured bridge are listed. You can find information on this in the installation and configuration (on page 129) chapter.
Secondary physical LAN Adapter	Assignment of a network adapter to the physical connection to *LAN B* - for the secondary/redundant LAN adapter. In the drop-down list, the adapters that are included on the configured bridge are listed. You can find information on this in the installation and configuration (on page 129) chapter.
LAN_A/LAN_B Multicast MAC	Multicast MAC address for PRP Supervision frames. This address for the communication in the network is preset and cannot be changed. **Note:** Ensure that all PRP nodes use the same multicast MAC address in your network. No network adapter is to use this MAC address for another purpose. The last byte can be configured in the input field. The input format for this entry is hexadecimal (hex).
Error message	Output window with error messages.
OK	Accepts all changes and switches to statistics dialog (on page 139).
Cancel	Discards all changes and switches to statistics

Parameters	Description
	dialog (on page 139).

Attention: In the PRP communication network, the original Ethernet frames are supplemented by additional information (on OSI Layer 2), which is different in *LAN A* and *LAN B*. Mixing up the assignment of network cards (or cables) to *LAN A* and *LAN B* leads to errors in the Ethernet communication throughout the entire PRP network.