



zenon
by COPA-DATA

zenon manual

Installation and updates

v.12



COPA-DATA

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1 Welcome to COPA-DATA help

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.

LICENSES AND SERVICES

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

SUPPORT & SERVICES

Hungry for more information? Want to get your zenon questions answered fast and easy or trouble shoot yourself?

Visit our new Self Service Portal (<https://selfservice.copadata.com/>) to access hundreds of checklists and FAQs created by zenon experts. Access thousands of technical posts and get involved in our zenon community forum. Search all bugfixes and product changes to keep track of what has changed.

ZENON ACADEMY

If you want to learn about zenon, this is the right place. Easily increase your zenon knowledge, book online or face-to-face courses (<https://www.zenon-academy.com/>) and receive your zenon Certificates.

ZENON VIDEO TUTORIALS

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

2 Installation and updates

During the first installation of zenon, the installation routine automatically starts and leads you through the entire installation process. If the autoplay of media is disabled in the operating system of the computer, the installation routine will not start automatically. Start the installation by executing the **START.exe** file in the root folder of your zenon installation medium.

Hint

The autoplay of media can be enabled in the settings of your operating system.

- ▶ Press the **Windows button + I** to open the Windows settings dialog.
- ▶ Enter *Enable/Disable Auto Play* in the input field. This opens the system configuration dialog.
- ▶ Select the **Use AutoPlay for all media and devices** option.

Notes for the installation:

- ▶ Before installing zenon:
 - ▶ All current operating system updates must be installed
Note: If you always use the latest version (Service Pack) of your operating system, you not only avoid compatibility issues but also security problems.
 - ▶ There must not be a restart pending
- ▶ During the installation of zenon, the **COPA-DATA Multiple Network Protocol Driver (cdprotdrv.sys)** is installed. To start the driver, the operating system must be restarted after installation.

Attention

From version 7.10 on, zenon cannot be installed on systems on which the **Microsoft SQL Server Data Engine (MSDE)** is already installed. This affects all systems in which zenon 6.01 or 6.20 have been installed.



Information

If you receive an error message during installation stating that a service cannot be started, then:

- ▶ first reboot the computer
- ▶ then start the zenon setup again

3 zenon Software Platform standard installation

zenon will automatically start its installation routine and guide you through the whole installation process when the zenon installation medium is connected. Alternatively, it is possible to start the installation by executing **START.exe** in the root folder of your zenon installation medium.

The zenon software platform is available in different embodiments with different names. Product names and the scope may differ from the standard installation described.

Attention

The computer is automatically restarted during installation if necessary. Close all other programs before installation.

Administrator rights are required for the installation process on the computer!

Attention

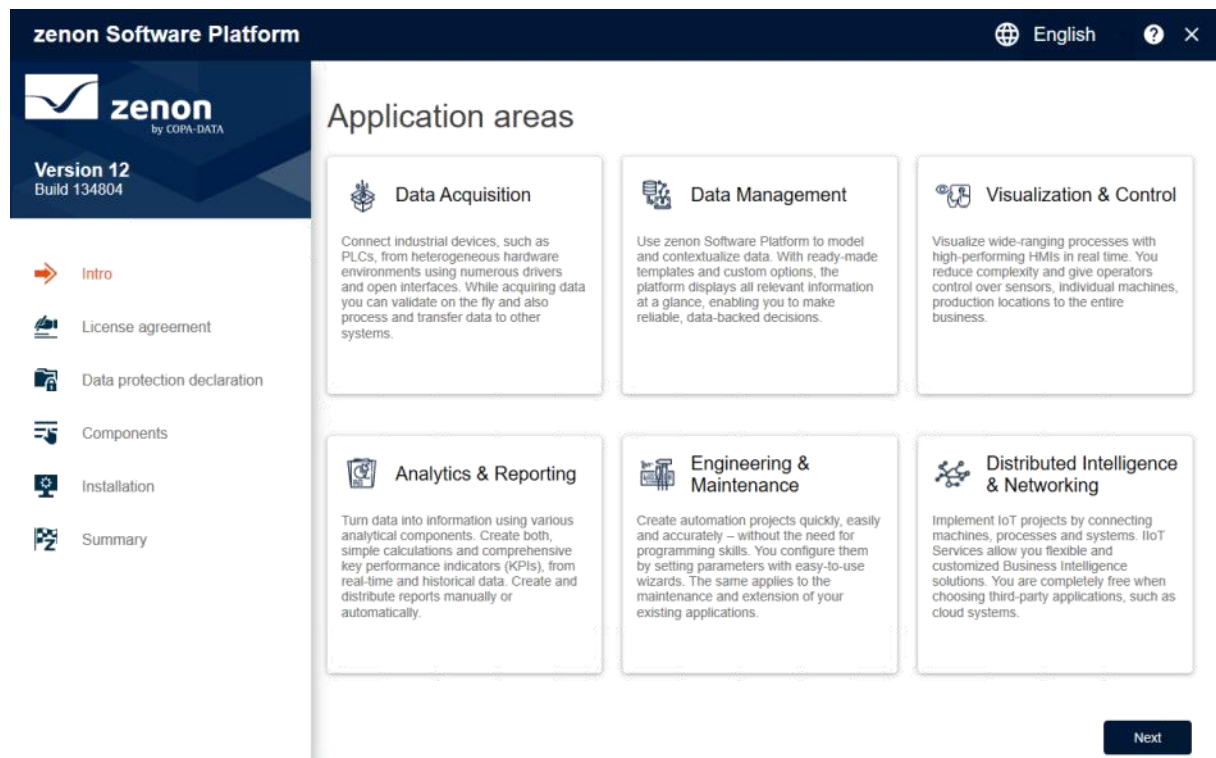
The minimum screen resolution for the setup is 1280 x 800 pixels.

3.1 Start window

You are given general information about the zenon Software Platform in the start window.

The information in the left window shows you the current status of the installation process. You switch to the next respective window with the **Next** button.

You can get help on installation by clicking on the Help symbol at the top right.



1. From the drop-down list at the top right, select the desired language for installation. The following languages are available:

- ▶ German
- ▶ English
- ▶ Italian
- ▶ French
- ▶ Spanish
- ▶ Czech
- ▶ Japanese
- ▶ Korean
- ▶ Chinese
- ▶ Russian

Note: The language can only be changed on this page. In the following steps, the language is shown but can no longer be amended.

2. Clicking on the **Next** button opens the window with the license conditions.
3. Confirm the license conditions by activating the corresponding checkbox.
If you do not accept the license conditions, you cannot install the product.

You can also print the license conditions out by clicking on the **Print** button.

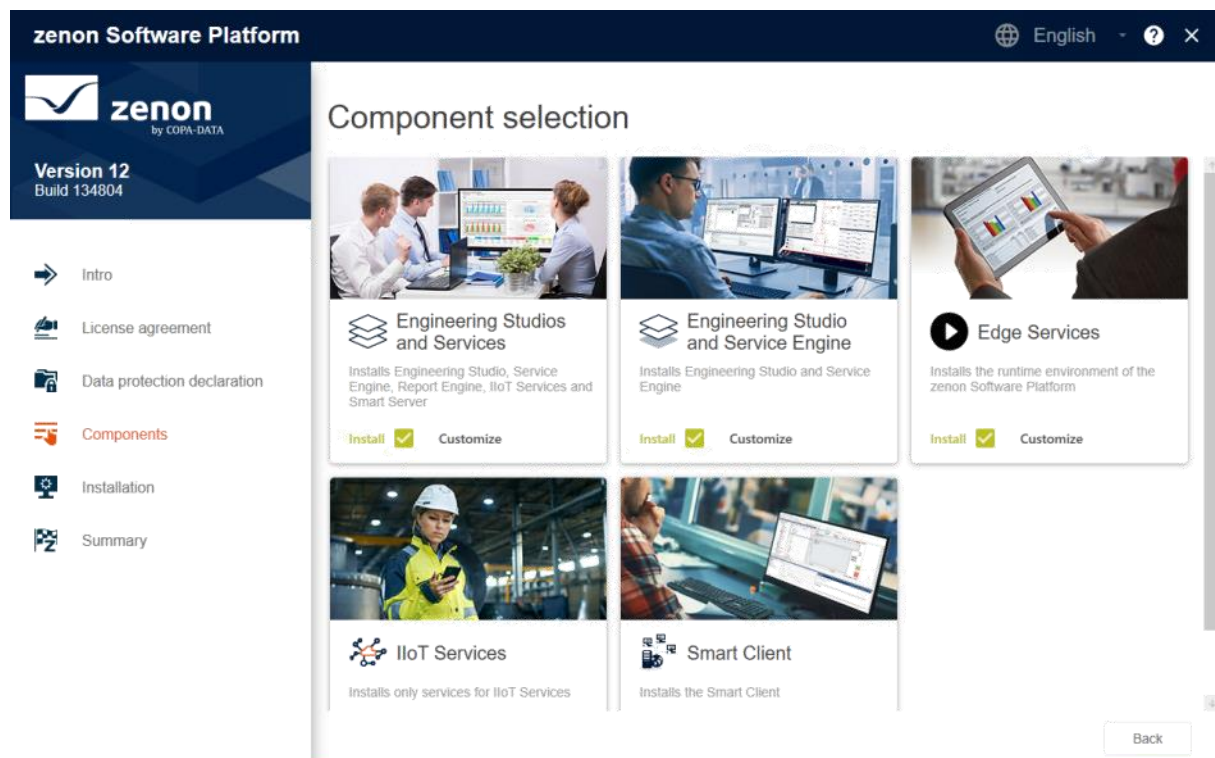
4. Clicking on the **Next** button opens the privacy policy.
Read the privacy policy carefully.
You can print out the privacy policy by clicking on the **Print** button.
5. Activate the checkbox for the privacy policy.
This will confirm that you have read this. If you do not accept the privacy policy, the product cannot be installed.

6. Clicking on the **Next** button opens the window to select the desired product.

Note: The **Next** button is only available if you have agreed to the license conditions by activating the checkbox.

3.2 zenon Standard installation

Select the desired components It is only possible to select components that have not already been installed. If you want to carry out a reinstallation, you must first uninstall the previously-installed component using the Control Panel.



INSTALLATION PACKAGES

There are five collections of packages available for installation.
You can individually configure their content before installation by using the **Customize** button.

Package	Components
Engineering Studios and Services	Contains: <ul style="list-style-type: none"> ▶ Report Engine ▶ IIoT Services ▶ Device Management Interface Components ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ Smart Client
Engineering Studio and Service Engine	Contains: <ul style="list-style-type: none"> ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ Report Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ Smart Client ▶ IIoT Services ▶ Device Management Interface Components
Edge Services	Contains: <ul style="list-style-type: none"> ▶ Report Engine ▶ IIoT Services ▶ Device Management Interface Components ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ GraphQL Interface ▶ Smart Server

Package	Components
	<ul style="list-style-type: none"> ▶ Reporting Studio ▶ Smart Server ▶ Smart Client
IloT Services	<p>Contains:</p> <ul style="list-style-type: none"> ▶ IloT Services with management and communication environment for data distribution, Identity Service, API and Data Storage ▶ Device Management Interface Components ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ Report Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ Smart Client
Smart Client	<p>Contains:</p> <ul style="list-style-type: none"> ▶ Smart Client ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ Report Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ IloT Services ▶ Device Management Interface Components

3.3 Configuration and installation

All packages can be installed with a click. You also have the possibility to amend the installation packages individually.

COMPLETE INSTALLATION

To install a package in full:

1. Select the desired package.
2. Click on the **Install** button.

The installation is started. The computer may be restarted automatically during installation. Follow the instructions of the wizard

CUSTOMIZED INSTALLATION

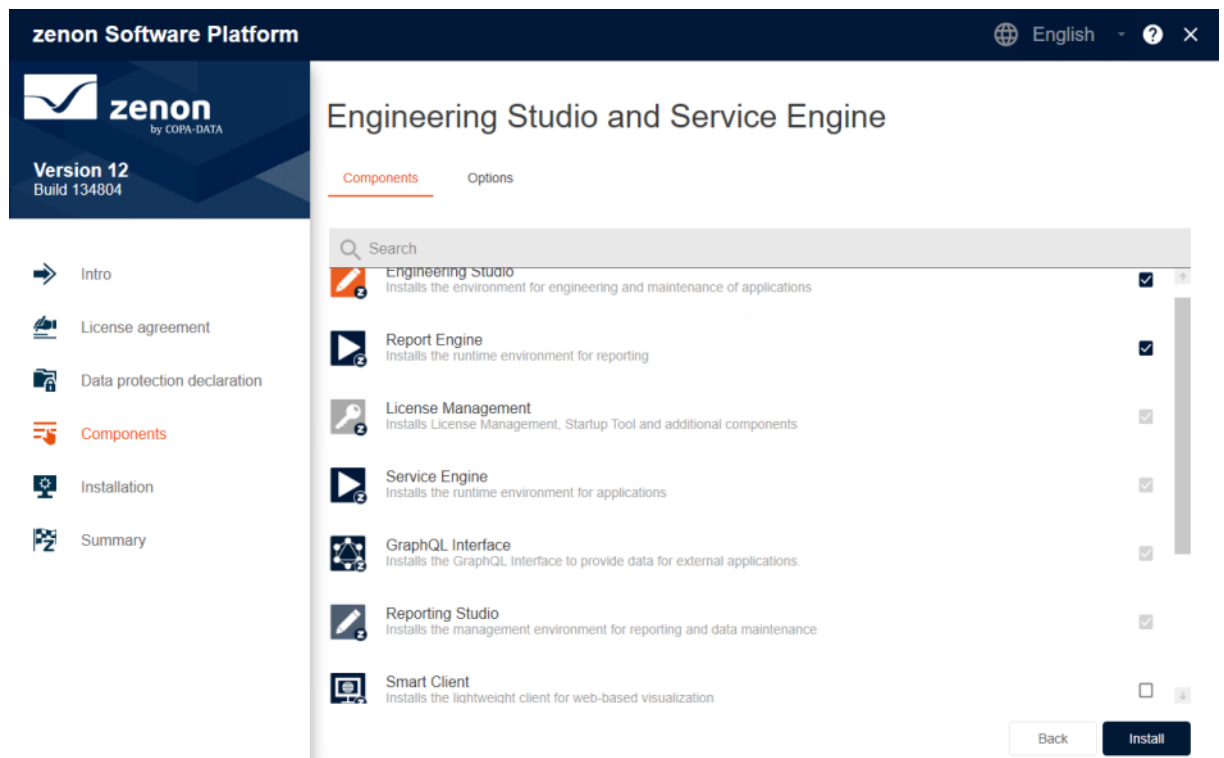
You can amend the packages individually.

To install a package with an amended installation:

1. Select the desired package.
2. Click on the **Customize** button.

The dialog to amend the installation is opened.

The standard components have already been pre-selected.



3. In the **Components** tab, select or deselect the desired components.
Components can only be deselected if they are not required by another component.
Already-installed components cannot be deselected.
Information on the installation status and necessary requirements is available as a tool tip via the appropriate checkbox.
4. If necessary, configure the paths for installation in the **Options** tab.
Paths can be selected for:
 - ▶ Engineering Studio
 - ▶ SQL Server databases of Engineering Studio and Report EngineClicking on the button with the folder symbol opens the dialog for selecting the required folder. This configuration is only possible if no objects have been installed that require the installation location.
5. If necessary, select the **Harden installation** option in the **Options** tab.
In this case, please note the additional required Configuration of the connections (on page 13) after installation.
Note: You can only activate this option if there is no other version of the zenon Software Platform on the device.
6. Click on the **Install** button.
The installation is started.
The computer may be restarted automatically during installation.
7. Follow the instructions of the wizard

Attention

If there is already a version of IIoT Services on the system, it is strongly recommended that the data from this installation be backed up before an update. You can find information about this in the **Backup and Restore – Persistence Instance** (on page 19) section.

3.3.1 Hardening zenon

If you activate the **Harden Installation** option, TCP/IP communication is limited:

- ▶ zenon only permits local access.
- ▶ The SQL Server only permits local access.
- ▶ The firewall rules only allow zenon services to have local access

This primarily has effects on distributed engineering. You must amend the SQL Server, firewalls and connection to your requirements after installation. You can find information about the configuration

of hardened systems in the Help in the **Security - distributed engineering with hardened system** section.

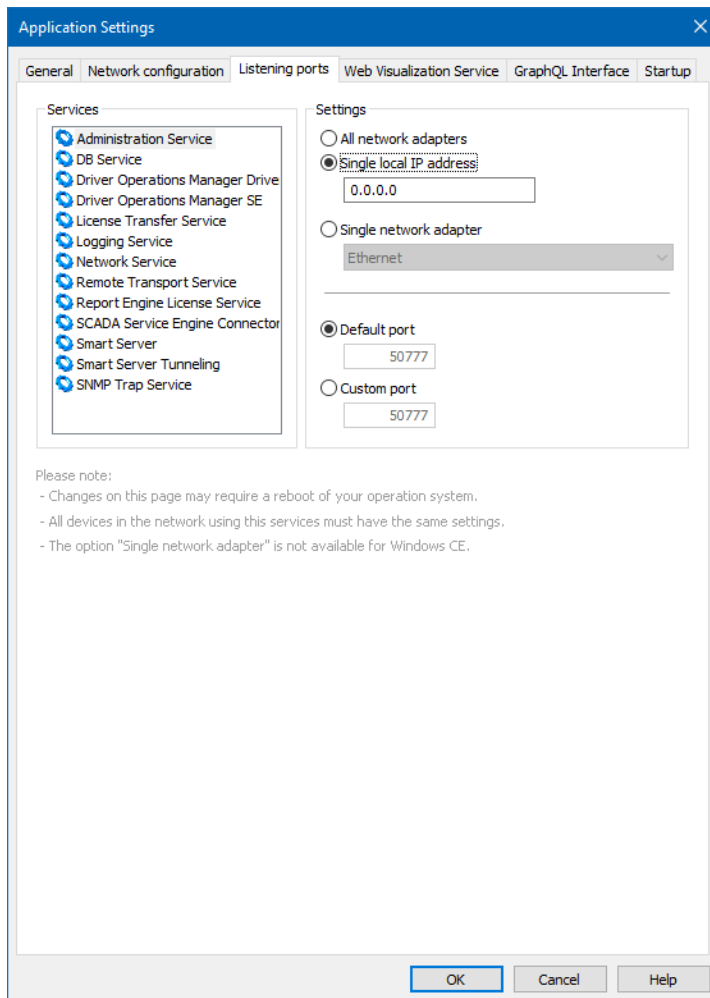
AMENDMENT IN THE STARTUP TOOL

When zenon is installed, exceptions are created in the Windows firewall by the setup. They are configured for applications and services that open a TCP Listening Port.

After installation, configure the exceptions in the Windows firewall to be more restrictive, suitable to their environment and the required apps and services.

On multi-homed systems with multiple network cards, zenon apps and services open the TCP Listening Port for all network cards present in the system by default. However communication throughout all network cards is often not necessary and not desirable.

After installing zenon, configure the TCP Listening Ports for the respective services and apps, according to their environment and requirements. Use the **Startup Tool** to do this. Only allow communication between the network card or IP address that is absolutely necessary for this. If you assign a service to the Loopback adapter or the IP address *127.0.0.1*, you only allow local communication. This way, local Diagnosis Server access to local diagnosis clients can be limited, for example.



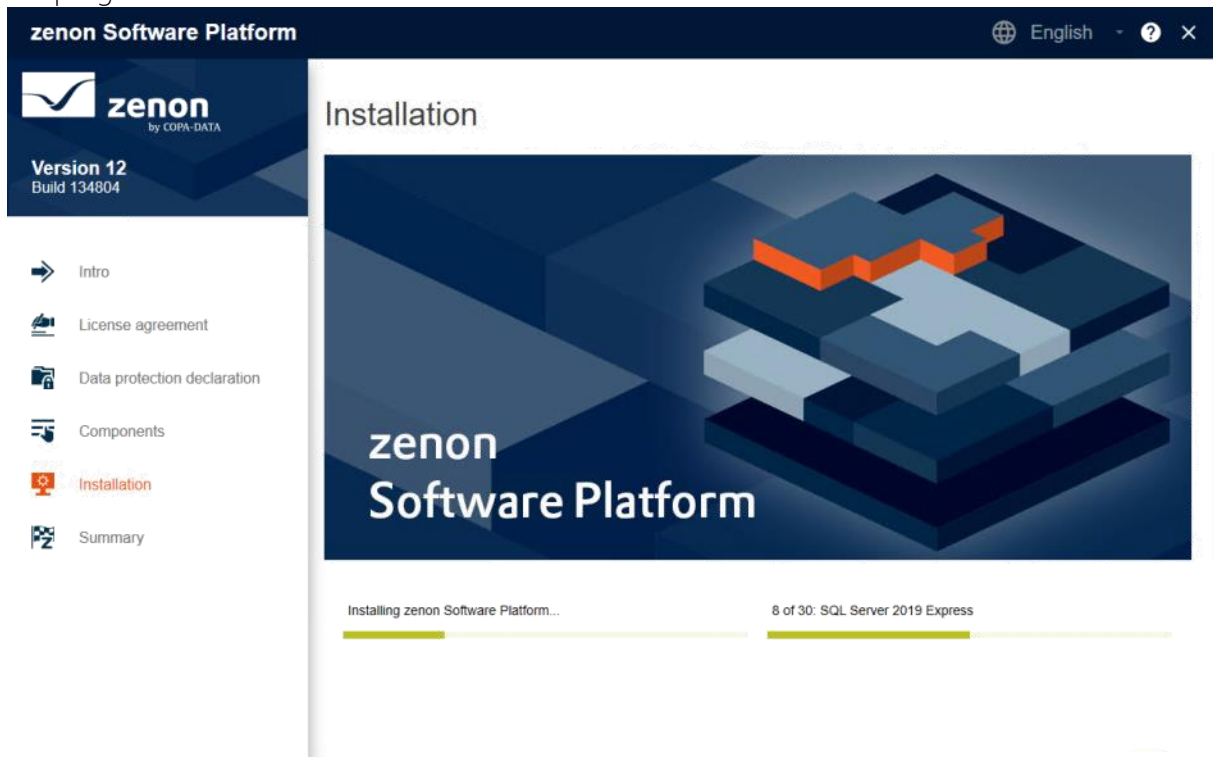
Note the following for platform functionalities that are independent of the configuration of the services:

Service	Platform functionality
Administration Service	Provides general functionalities for the operation of zenon.
DB Service	The database service is only needed by Engineering Studio. If you want to use distributed engineering , the service must be able to communicate via the network.
Driver Operations Manager	The Driver Operations Manager administers the local

Service	Platform functionality
	driver instances of Service Engine. It must be contactable from outside.
License Transfer Service	For Remote Licensing of zenon components, they must be able to communicate via the network. The service can also be limited again after concluding the licensing.
Logging Service	For Remote Logging via the Diagnosis Viewer , the service must be contactable via the network.
Network Service	This service must be reachable via the network for the use of : <ul style="list-style-type: none"> ▶ zenon network ▶ Smart Client
Remote Transport Service	Serves to manually transfer Service Engine files from an external instance of Engineering Studio. The service must be reachable via the network for this. With local instances of Engineering Studio, the service can only be operated locally.
Report Engine Licensing Service	For Remote Licensing of Report Engine, this service must be able to communicate via the network. The service can also be limited again after concluding the licensing.
SCADA Service Engine Connector	This service must be able to be contacted via the network if Report Engine, IIoT Services or remote Service Engine drivers: <ul style="list-style-type: none"> ▶ are used with a remote instance ▶ access online data of a Service Engine
Smart Server	This service is necessary for the operation of the Smart Server. Recommendation: Operate it as a separate instance, separate from Service Engine.
Smart Server Tunneling	This service is necessary for the operation of the Smart Server. Recommendation: Operate it as a separate instance, separate from Service Engine.
SNMP Trap Service	This service must be reachable via the network when using zenon SNMP services.

3.4 Installation and finishing

During installation, you are informed of the installation progress and the current installation stage in the progress bar.



The installation process may take some time. Do not turn your computer off in this time. Please also ensure that your computer is not automatically put into sleep mode.

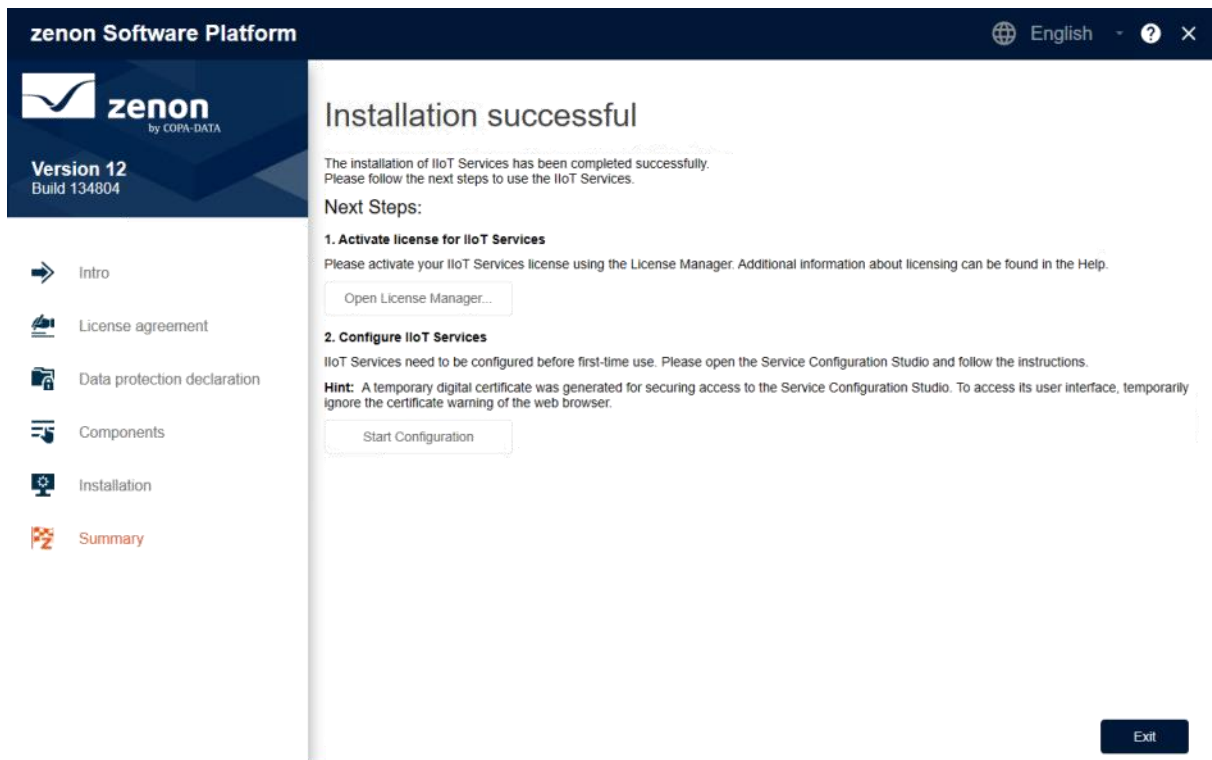
INSTALLATION IS COMPLETED

You will receive a message about the success of the installation at the end of installation.

When the IIoT Services have been installed:

1. Now activate the license for the installed IIoT Services components using the corresponding button.

2. Configure the IIoT Services using the corresponding button.



CANCEL INSTALLATION

You can cancel the installation by clicking on the **Cancel** button.

Before canceling the installation there is a security query.

Possible actions:

- ▶ Yes: The installation is canceled.
The dialog for an invalid installation is shown.
- ▶ No: The installation is continued.

CANCELED OR INCORRECT INSTALLATION

If an error occurs during installation or the installation was canceled, this is shown in a dialog.

You have the option of creating a detailed log with the **System Information Collector**. You can also send this log to COPA-DATA Support if needed.

Procedure:

1. Click on the **Collect system information for Support** button.
The **System Information Collector** is started. Relevant data is collected.
You will receive information on where the file was saved.
2. Use the information from the System Information Collector file for a reinstallation.

3. If necessary, send the file to your COPA-DATA support.
4. Attempt the installation again.

POSSIBLE CAUSES OF THE ERROR:

Important possible causes for a cancellation:

- ▶ A pending update to the Windows operating system.
- ▶ The SQL server required for Engineering Studio could not be installed.

3.5 Backup and Restore – Persistence Instance

You will find information in this section about backup, restore and updates of Persistence Instance of a MongoDB.

The following applies for the Persistence Instance:

- ▶ The Persistence Service should be backed up before every update of the IIoT Services. This is a precaution.
- ▶ A restore of the backup is only necessary in rare cases. This is the case, for instance, if a problem occurs during an update.

The Persistence Service is based on MongoDB. The CLI tools `mongodump` and `mongorestore` of the database manufacturer can be used for backup and restore. Both tools are described in the following chapters.

Info

Host operating system and backup folder:

The following applies for all paragraphs:

- ▶ You will execute the CLI tools locally on the host operating system where IIoT Services is installed natively or in Docker.
- ▶ The backup is stored in the host operating system in the *backups* folder.

The backup commands described create the *backups* folder relative to the folder path in which you are located during the command processing in PowerShell.

3.5.1 CLI tools: mongodump and mongorestore

The CLI tools mongodump and mongorestore allow you to back up and restore the Persistence Service via the command line.

For further information, see the documentation at www.mongodb.com (<https://www.mongodb.com/>).

Links to download:

- ▶ mongodump — MongoDB Database Tools
(<https://www.mongodb.com/docs/database-tools/mongodump/>)
- ▶ mongorestore — MongoDB Database Tools
(<https://www.mongodb.com/docs/database-tools/mongorestore/>)

START CLI TOOLS UNDER WINDOWS

A corresponding environment variable is automatically saved in the host operating system when CLI tools are installed under Windows.

Thus the following applies:

- ▶ You can basically start the CLI tools via PowerShell from any folder path. This requires that the environment variable is active.
- ▶ In some cases, the operating system must be restarted after installation for the environment variable to be active.

You can start the CLI tools at any time – regardless of the environment variable – via the installation path.

3.5.2 Determine user credentials

The commands contain the following placeholders:

- ▶ `<username>`: The user name for MongoDB
- ▶ `<password>`: The password for MongoDB

You must replace the placeholders in the commands with the individual user credentials for your system. Where the user credentials can be found depends on your IIoT Services installation option.

See the comparison in the table below:

Placeholder	IloT Services (Windows native)	IloT Services (Docker)
<username>	"AdminUser"	"Persistence_Username"
<password>	"AdminUserPassword"	"Persistence_Password"
	<u>Path to the user credentials:</u> <i>C:\ProgramData\COPA-DATA\System\ServiceGrid\common.json</i>	<u>Path to the user credentials:</u> <i>.env</i> file in the installation directory of the IloT Services.

3.5.3 Perform backup

These instructions basically work for all installation options of IloT Services.

Please note the following:

- ▶ Information is provided at each configuration step on which installation of IloT Services it refers to.
- ▶ You can use the configuration steps for IloT Services (Docker on Windows) for IloT Services (Docker on Linux) too. However, you have to change the folder paths for linux and use a Linux Shell.

The tools and backup commands used are basically the same under Linux and Windows.

PREPARATION (DOCKER)

In Docker you must open the database containers beforehand for access from the host operating system.

To do this, carry out the following steps:

1. Open an elevated PowerShell.
2. In PowerShell, go to the installation directory of the IloT Services.
cd C:\iiot-services
Note: You have created this folder path yourself for the installation of the IloT Services. It contains all IloT Services configuration files such as *docker-compose.yml*.
3. Stop all containers:
docker-compose down
4. Start all containers with an additional configuration file:
docker-compose -f docker-compose.yml -f docker-compose.expose-db.yml up

Now you can access the database in the Docker containers via the Windows host system.

PERFORM BACKUP (WINDOWS NATIVE, DOCKER)

Follow these steps to use the command *mongodump* to back up the data of the Persistence Service:

1. Open an elevated PowerShell.
2. In PowerShell go to the directory path where the backup folder should be created.
3. Use the following command to create a backup folder in the selected directory path and back up the database there:

```
mongodump --username='<username>' --password='<password>' --host='fqdn-clientname'  
--port=27017  
--archive='backups\IloTServices.archive'
```

Note: You must replace the *<username>* and *<password>* placeholders with the appropriate user credentials.

You have now backed up the data from your Persistence Service.

POSTPROCESSING (DOCKER)

You must restart all containers in Docker:

1. Stop all containers:
docker-compose down
2. Restart the containers:
docker-compose up

The database is thus protected again from access via the host operating system.

3.5.4 Apply restore

These instructions basically work for all installation options for IIoT Services.

Please note the following:

- ▶ Each configuration step specifies for which installation version of IIoT Services this is valid.
- ▶ You can use the configuration steps for IIoT Services (Docker on Windows) for IIoT Services (Docker on Linux) too. However, you have to change the folder paths for linux and use a Linux Shell.

The tools and backup commands used are the same on Linux and Windows.

PREPARATION (DOCKER)

In Docker you must open the database containers beforehand for access from the host operating system. To do this, carry out the following steps:

1. Open an elevated PowerShell.
2. In PowerShell, go to the installation directory of the IIoT Services.
`cd C:\iiot-services`
Note: You have created this folder path yourself for the installation of the IIoT Services. It contains all IIoT Services configuration files such as *docker-compose.yml*.
3. Stop all containers:
`docker-compose down`
4. Start all containers with an additional configuration file:
`docker-compose -f docker-compose.yml -f docker-compose.expose-db.yml up`

Now you can access the database in the Docker containers via the Windows host system.

APPLY RESTORE (WINDOWS NATIVE, DOCKER)

Perform the following steps to restore the Persistence Service data using the mongorestore command:

1. Open a PowerShell.
2. Go to the directory path of the backup folder.
3. Perform the restore of the database:
`mongorestore --username='<username>' --password='<password>' --host='fqdn-clientname' --port=27017 --archive='backups\IIoTServices.archive' --drop`

You have now restored the Persistence Service from the backup.

Attention

With the `--drop` argument, all existing data in Persistence Service are deleted by the restore and replaced with data from the backup.

Tip

With the `--dryRun` argument, it is possible to simulate the restore of the data. Thereby, existing data of the Persistence Service are not overwritten.

POSTPROCESSING (DOCKER)

You must restart all containers in Docker:

1. Stop all containers:
docker-compose down
2. Restart the containers:
docker-compose up

The database is thus protected again from access via the host operating system.

3.5.5 COPA-DATA command line tool

As an alternative to the database manufacturer's CLI tools, the **CopaData.ServiceGrid.Tools.PersistenceManagementCli.exe** is also available. This app is best suited for IIoT Services in a Docker environment. After a call without parameters, the app provides integrated step-by-step instructions directly in the command line call. For native Windows environments, the update process is also implemented in the setup.

UPDATE STEPS

The tool performs the following steps:

- ▶ Stops all IIoT Services, except for Persistence
- ▶ Export of MongoDB database.
- ▶ Stop of the running (old) Persistence.
- ▶ Update of MongoDB
- ▶ Start of the latest (new) Persistence for the current version.
- ▶ Import of the MongoDB database saved from the previous version.
- ▶ Start all IIoT Services and the current version of the Persistence Service.

These steps are visualized directly in the commandline app when they run in a Docker environment. If an interaction by the user is necessary, this is indicated accordingly by the tool. After entering the necessary parameters, the tool continues to run.

3.5.5.1 Docker environment update

The following requirements are necessary for updating MongoDB in a Docker environment:

- ▶ The tool **CopaData.ServiceGrid.Tools.PersistenceManagementCli.exe** is installed on machines running Docker Desktop for Windows.

- ▶ The installation is done by running *PersistenceManagementCli.x64.msi*.
The data are stored in the following folder:
%programfiles%\zenon\zenon Platform 12\IIoT Services\PersistenceManagementCli.
- ▶ The **MongoDB Command Line Database Tools** (on page 19) are installed.
- ▶ The PATH environment variable has been extended with the path to the MongoDB Command Line database tools (see previous step), e.g.:
C:\Tools\mongodb-database-tools-windows-x86_64-100.7.0\bin
- ▶ The current version of the IIoT Services is installed and running.
- ▶ The .ENV file with the current settings and the docker-compose .YML file for the new version are available in their own Windows folder.
- ▶ Port 27017 is available on the computer for connecting to the MongoDB database.

RUN UPDATE

In the Docker environment, do the following:

1. Open an elevated PowerShell.
2. Navigate to the storage location of the CLI, e.g. (default path): *%programfiles%\zenon\zenon Platform 12\IIoT Services\PersistenceManagementCli*.
3. Enter the following command:
CopaData.ServiceGrid.Tools.PersistenceManagementCli.exe docker upgrade
4. The tool starts and guides you through the update process step by step. Necessary parameters are queried. The update process is continued after the necessary parameters are entered. In addition, information and a log are visualized directly in the tool.

4 Installing additional components

You can install components of the zenon software platform that you have not yet installed at any time, via the Setup.

To do this:

1. Start the Setup for the zenon software platform.
Because there are already components on the system, the page with the available components is opened immediately.
2. Select the desired components by clicking on the respective checkbox.
If a further component is needed for a component, this is automatically selected too.
3. Click on **Install**.

The selected components are installed.

Note: To uninstall components open the Windows **Apps** application.

5 Uninstalling components

To uninstall the zenon software platform or individual components:

Uninstall complete software platform:

- ▶ Open the Windows **Apps** settings.
- ▶ Click on the **zenon Platform Setup** entry.
- ▶ Click on **Uninstall**.
- ▶ Confirm the confirmation prompt.

All components of the zenon software platform are uninstalled.

Uninstall components:

- ▶ Open the Windows **Apps** settings.
- ▶ Click on the **zenon Platform Setup** entry.
- ▶ Click on **Change**
The dialog to select the components is opened.
 - ▶ Select the desired components
 - ▶ Click on Uninstall.

The selected components are uninstalled.

BEHAVIOR WITH DIFFERENT VERSIONS

For components of the zenon Software Platform that have been installed in different versions or upgraded to a higher version, the following applies:

Components can only be changed in the version in which they were installed or to which they were upgraded.

Example:

Components of versions 11 and 12 are available on the system.

- ▶ The Report Engine was installed in version 11. An upgrade to version 12 has not been made. This means that it can only be removed via the version 11 installer.
- ▶ The Report Engine was installed in version 11. It was then upgraded to version 12. This means that it can only be removed by the version 12 installer.

When calling up the Windows functionality for modifying and uninstalling apps, only those components that have been installed with or updated to the selected version are offered for modification for the zenon Software Platform.

6 zenon Logic for Windows (standalone installation)

On the installation medium, in the *%AdditionalSoftware%\COPA-DATA Logic Service* directory, you will find the installation packages for a standalone installation for **Logic Service for Windows**.

LOGIC SERVICE - CONTENTS OF THE INSTALLATION PACKAGE

With the standalone setup for **Logic Service for Windows** all components for operating the 61131-3 compliant Logic Service are installed on the target system. This includes among other things, components for licensing and diagnostics. No configuration components are installed.

INSTALLATION REQUIREMENTS

Keep in mind the general system requirements for installing the product. Pre-installation of **zenon Operator/Supervisor** or **zenon Logic for Windows (Standalone)** is not permitted.

The product requires software already installed on the target system. You can also find them in the *%AdditionalSoftware%* directory of the installation medium. Therefore, if necessary, manually install the following packages:

- ▶ **Microsoft Visual Studio C++ Redistributables**
- ▶ **WIBU-SYSTEMS CodeMeter Runtime Kit**

After installation, execute the appropriate installation package (x86 or x64) for your target system.



Information

The installation does not include a license for the product. Therefore Logic Service starts in test mode. Licensing can be done using the general licensing tools.

UPDATE

To update an already installed version, uninstall it and perform a new installation.

7 Silent installation and uninstallation

zenon can also be installed and uninstalled silently (Silent Installation) and (Silent Remove).

As part of Silent Installation, it is possible to exclude certain standard components from the installation specifically:

- ▶ **Firewall rules:** The **CDPROP_INSTALLFIREWALL** parameter decides whether rules for the firewall are set.
- ▶ **Codemeter Software:** Can be configured using the *PREREQUISITES_* argument for the **ISFeatureInstall** parameter. Codemeter is not installed if the argument is not used.
Attention: This argument is applicable for all *Prerequisites*. Other Prerequisites are also not installed in this case!



Information

All zenon versions from 7.10 on support silent installation and uninstalling.

PASSWORD CONVENTIONS FOR SA USERS

The random password created during a standard installation for the user SA on the SQL Server can be replaced with your own password. To do this, use an individual password for the argument **CDP_SQLADMINPW=** (Version 10 onwards) or **CDPROP_SQLADMINPASSWORD=** (before version 10).

Rules:

- ▶ Default length: 20 characters
- ▶ Permitted characters:
 - ▶ Letters: *A - Z, a - z*
 - ▶ Digits: *0 - 9*
 - ▶ Special characters: *!@?#%&**
- ▶ Composition:
 - ▶ at least 1 lower case letter
 - ▶ at least 1 upper case letter
 - ▶ at least 1 number
 - ▶ at least 1 special character

⚠ Attention

A user-defined password is not validated.

7.1 As of version zenon 10

Initiation of silent *silent* installation can be carried out with the following parameters:

- ▶ */silent -silent /s -s*
- ▶ */quiet -quiet /q -q*

For example:

- ▶ **SoftwarePlatform.exe** *-s* **CDP_WORKLOAD="WISmartClient"**
- ▶ **SoftwarePlatform.exe** */quiet* **CDP_WORKLOAD="WIFullSoftwarePlatform"**
- ▶ **SoftwarePlatform.exe** */silent* **CDP_WORKLOAD="WIEdgeServices"**

CDP_WORKLOAD does not make sense for installations that are not *silent*. The argument is therefore also not supported and is ignored.

Parameter	Arguments	Description
softwareplatform.exe		Call-up of the installation.
<i>/silent</i>		Silent installation.
CDP_WORKLOAD=	Workload to be installed. Must correspond to the ID from	Entry is mandatory for <i>silent</i> . Is ignored with non- <i>silent</i> .

Parameter	Arguments	Description
	WorkloadsSetup.config. Example: <i>WISmartClient</i> for a SmartClient installation. Attention: Workloads only, no features! Incorrect IDs or IDs that do not exist lead to the installation being aborted.	
CDP_INSTALLFIREWALL=	<ul style="list-style-type: none"> ▶ 1: is installed ▶ 0: is not installed Default:1	Whether firewall rules are installed.
CDP_INSTALLDEMO=	<ul style="list-style-type: none"> ▶ 1: is installed ▶ 0: is not installed Default:1	Whether the demo project is also to be installed. Is only transferred to MSI.
CDP_LANGUAGE=	<ul style="list-style-type: none"> ▶ 1031: German ▶ 1033: English ▶ 1034: Spanish ▶ 1036: French ▶ 1040: Italian ▶ 1041: Japanese ▶ 1042: Korean ▶ 1049: Russian Default:1033	Selection of the language. Is only transferred to MSI.
CDP_SQLPATH=	Path to SQL. <i>Empty:</i> Standard path Default: <i>Empty</i>	Path for SQL installation, as in GUI.
CDP_INSTALLDIR=	Path to 64-bit zenon installation folder. Default: default installation path	zenon software platform installation directory for 64-bit components
CDP_SQLADMINPW=	Any desired password. Must comply with SQL guidelines	SQL administrator password.

Parameter	Arguments	Description
CDP_POSTINSTALLEXE=	Whether PostInstall.exe is executed after installation: <ul style="list-style-type: none"> ▶ 1: is executed ▶ 0: is not executed Default:0	
CDP_POSTINSTALLARGS=	Default: <i>empty</i>	Arguments for PostInstall.exe .
CDP_SERVICEHUB_PW=	Any desired password. <i>ServiceGrid</i>	Password for Certificate Management .
CDP_SQLADMINPW=	Any desired password.	Password for SQL server instance of Service Engine.
CDP_SQLADMINPW_REPORTING=	Any desired password.	Password for SQL server instance of Report Engine .

SILENT UNINSTALLATION

Uninstallation must be carried out using the same **SoftwarePlatform.exe** that was used for installation. Because this is saved in a folder with an execution-specific GUID, the following lines are also logged with each successful installation.

"For uninstalling of the currently installed product via CommandLine use:"

"For silent uninstall C:\\ProgramData\\Package Cache\\{bundleProviderGuid}\\SoftwarePlatform.exe /silent /uninstall"

"For uninstall via UI C:\\ProgramData\\Package Cache\\{bundleProviderGuid}\\SoftwarePlatform.exe /uninstall"

In doing so, **{bundleProviderGuid}** is always replaced with the execution-specific GUID. The full path to the EXE is thus given in the LOG file.

In principle, all actions are documented in the log. Certain queries that are displayed as GUI feedback during normal installation are written here in the LOG file.

7.2 zenon 7.20

Instigation of silent installation for version 7.20.

Syntax: **scada.exe /silent /language:[number] CDPROP_EDITION=[edition] CDPROP_TYPE=[type] ISFeatureInstall=[features]**

Examples:

- ▶ Installation of Engineering Studio, German, Energy Edition:
scada.exe /silent /language:1031 CDPROP_EDITION=ENERGY CDPROP_TYPE=ED ISFeatureInstall=PREREQUISITES_EDITOR,SCADA
- ▶ Installation of Service Engine, English, Supervisor Edition:
scada.exe /silent /language:1033 CDPROP_EDITION=SUPERVISOR CDPROP_TYPE=RT ISFeatureInstall=PREREQUISITES_RUNTIME,SCADA
- ▶ Installation of Smart Server, German:
scada.exe /silent /language:1031 ISFeatureInstall=PREREQUISITES_WEBSERVER,WEBSERVER
- ▶ Installation of Smart Client, German:
scada.exe /silent /language:1031 ISFeatureInstall=PREREQUISITES_WEBCLIENT,WEBCLIENT

PARAMETERS

TAGs	Arguments	Description
scada.exe		Call-up of the installation.
/silent		Silent installation.
/language:	<ul style="list-style-type: none"> ▶ 1031: German ▶ 1033: English ▶ 1034: Spanish ▶ 1036: French ▶ 1040: Italian ▶ 1041: Japanese ▶ 1042: Korean ▶ 1049: Russian 	Selection of the language. Example: English: language: 1033
CDPROP_EDITION=	<ul style="list-style-type: none"> ▶ ENERGY ▶ SUPERVISOR ▶ OPERATOR ▶ PHARMA 	Selection of the edition. Example: Energy Edition: CDPROP_EDITION= ENERGY Is not needed for Smart Server

TAGs	Arguments	Description
		and Smart Client.
CDPROP_TYPE=	<ul style="list-style-type: none"> ▶ <i>ED</i>: Engineering Studio and Service Engine ▶ <i>RT</i>: Service Engine 	<p>Selection Engineering Studio or Service Engine.</p> <p>Example Service Engine: CDPROP_TYPE=RT</p> <p>Is not needed for Smart Server and Smart Client.</p>
CDPROP_INSTALLFIREWALL	<ul style="list-style-type: none"> ▶ <i>0</i> or <i>1</i> 	<p>Denotes whether rules for the firewall have been created:</p> <ul style="list-style-type: none"> ▶ <i>0</i>: Rules are not created ▶ <i>1</i>: Rules are created
CDPROP_SQLADMINPASSWORD=	<p>User-defined password</p> <p>You can find further information on passwords in the Password conventions for SA users chapter.</p>	<p>Password for the SA user in SQL Server. This password is created for the SA user and used during installation.</p> <p>Example: CDPROP_SQLADMINPASSWORD=H1342DFAhzgs\$*464578</p> <p>If no password is transferred, a random password is created during installation.</p> <p>Attention: User-defined passwords are not validated for validity and compliance with password rules!</p>
ISFeatureInstall=	<ul style="list-style-type: none"> ▶ <i>PREREQUISITES_EDITOR,SCADA</i>: Engineering Studio ▶ <i>PREREQUISITES_RUNTIME,SCADA</i>: Service Engine ▶ <i>PREREQUISITES_WEBSERVER,WEBSERVER</i>: Web Server ▶ <i>PREREQUISITES_WEBCLIENT,W</i> 	<p>Selection of features to be installed.</p> <p>Arguments:</p> <ul style="list-style-type: none"> ▶ <i>PREREQUISITES_</i>: Decides whether Prerequisites are installed. The reasons why Prerequisites are installed is given after the underscore. E.g.:

TAGs	Arguments	Description
	<i>EBCLIENT:</i> Web Client	<p>EDITOR Codemeter is not installed if the argument is left out.</p> <ul style="list-style-type: none"> ▶ <i>SCADA</i>: Installs Engineering Studio and/or Service Engine, depending on the parameters for CDPROP_TYPE=. ▶ <i>WEBSERVER</i>: Installs the Web Server. ▶ <i>WEBCLIENT</i>: Installs the Web Client. <p>Examples:</p> <ul style="list-style-type: none"> ▶ Service Engine with Prerequisites: ISFeatureInstall=PREREQUISITES_RUNTIME,SCADA ▶ Service Engine without Prerequisites: ISFeatureInstall=SCADA

SILENT UNINSTALLATION AS OF ZENON 7.20.

The **GUID** is part of the path and depends on the version. The attendant version is visible in the file properties of a **GUID**.

Without LOG file:

- ▶ Path: %ProgramFiles(x86)%\InstallShield Installation Information\{GUID}
Example: C:\Program Files (x86)\InstallShield Installation Information\{9BE6EDFE-3465-486F-87EE-1C439DE5EA9A}
- ▶ Syntax: **SCADA.exe /remove /silent**

With LOG file:

- ▶ Path: %ProgramFiles(x86)%\InstallShield Installation Information\{GUID}
Example: C:\Program Files (x86)\InstallShield Installation Information\{9BE6EDFE-3465-486F-87EE-1C439DE5EA9A}
- ▶ Syntax: **SCADA.exe /remove /silent /log"%TEMP%"**

7.3 zenon 7.10 and 7.11

Syntax: `scada.exe /silent /language:[number] CDPROP_EDITION=[edition] CDPROP_TYPE=[type] ISFeatureInstall=[features]`

Parameters	Arguments	Description
<code>scada.exe</code>		Call-up of the installation.
<code>/silent</code>		Silent installation.
<code>/language:</code>	<ul style="list-style-type: none"> ▶ 1031: German ▶ 1033: English ▶ 1034: Spanish ▶ 1036: French ▶ 1040: Italian 	Selection of the language. Example: English: language:1033
<code>CDPROP_EDITION=</code>	<ul style="list-style-type: none"> ▶ ENERGY ▶ SUPERVISOR ▶ OPERATOR ▶ PHARMA 	Selection of the edition. Example: Energy Edition: CDPROP_EDITION=ENERGY Is not required for Smart Server.
<code>CDPROP_TYPE=</code>	<ul style="list-style-type: none"> ▶ ED: Engineering Studio and Service Engine ▶ RT: Service Engine 	Selection Engineering Studio or Service Engine. Example Service Engine: CDPROP_TYPE=RT Is not required for Smart Server.
<code>ISFeatureInstall=</code>	<ul style="list-style-type: none"> ▶ WIBU,SCADA,MS,MSALL,SQL,COMMON: Engineering Studio ▶ WIBU,SCADA,MS,MSALL,COMMON: Service Engine ▶ WIBU,WS,MSALL,COMMON: Web Server 	Selection of features to be installed. Example Engineering Studio: ISFeatureInstall=WIBU,SCADA,MS,MSALL,SQL,COMMON

Examples:

- ▶ Installation of Engineering Studio, German, Energy Edition:
`scada.exe /silent /language:1031 CDPROP_EDITION=ENERGY CDPROP_TYPE=ED
ISFeatureInstall=WIBU,SCADA,MS,MSALL,SQL,COMMON`

- ▶ Installation of Service Engine, English, Supervisor Edition:
**scada.exe /silent /language:1033 CDPROP_EDITION=SUPERVISOR CDPROP_TYPE=RT
ISFeatureInstall=WIBU,SCADA,MS,MSALL,COMMON**
- ▶ Installation of Smart Server, German:
scada.exe /silent /language:1031 ISFeatureInstall=WIBU,WS,MSALL,COMMON

SILENT UNINSTALLATION IN ZENON VERSION 7.10 AND 7.11

ZENON 7.10

Path: **C:\Program Files (x86)\InstallShield Installation
Information\{860C41F0-6034-4822-BCF1-88D4849AE897}**

Syntax: **SCADA.exe /remove /silent**

ZENON 7.11

Path: **C:\Program Files (x86)\InstallShield Installation
Information\{ED00D319-77B8-4C58-8D67-2DA2D48E90DB}**

Syntax: **SCADA.exe /remove /silent**

8 Error treatment

CHECK BEFORE INSTALLATION:

The system requirements are checked before installation. If the requirements are not met, you are shown these on a separate page with notices on how to rectify this.

ERROR DURING INSTALLATION

You will receive an error message if there are errors during installation.

If you need help from the Technical Consulting department of COPA-DATA:

1. If possible, create a screenshot of the error message
2. Navigate to the *%Temp%/SoftwarePlatform* folder.
3. Here you can find the log files of the installation.
4. Create a ZIP file with the content of the folder.
5. Forward the file and the screenshot to support@copadata.com

If you have already closed the error message window, you can find the log files with the installation information for the SQL Server in the folder:

C:\Program Files\Microsoft SQL Server\150\Setup Bootstrap\LOG

Tip: The file **summary.txt** provides information for troubleshooting.



Information

Firewalls: zenon automatically configures the firewall installed with Windows during installation. Firewalls from other providers must be properly configured by the user

FREQUENT SOURCES OF ERROR DURING INSTALLATION:

- ▶ The virus scanner is active and blocks the installation because the scanner thinks it's a virus. Solution: Separate the system from the network, disable the virus scanner, execute the installation again.
- ▶ The firewall was not configured correctly. Solution: Separate the system from the network, disable the firewall, execute the installation again.
- ▶ Erroneous SQL-installation on the system. Solution: Create project backups; if possible, reinstall SQL server, rename the SQL folder, and restart installation.

9 Windows Updates

Attention: Automatic Windows updates influence the installation

If an update of the Windows operating system is carried out while the zenon setup is running, it can cause problems during the zenon installation.

To prevent this:

- ▶ Deactivate the automatic Windows update during the time of installation.
- ▶ carry out the Windows update before starting the zenon installation

10 Virus scan

Anti-virus software can slow down or even prevent the installation of zenon.

Note: If the anti-virus software you use leads to problems during installation, deactivate the anti-virus software for the duration of the installation. The computers concerned can be exposed to higher risks during this time. Activate your anti-virus software immediately after the installation of zenon.

11 File Structure

The special file structure is created or extended during the installation.

The zenon program files are stored in a folder that is specified during installation.

Additionally the installation asks for a folder for the SQL databases of the projects. The storage medium for project archiving (SQL, screens etc.) must have enough free space, because all current and future project data is stored there.

Folder	Path
Program folder	32-bit system: %ProgramFiles%\COPA-DATA\zenon Software Platform 12 64-bit system: %ProgramFiles%\COPA-DATA\zenon Software Platform 12
Program data folder, e.g. global symbols, print templates, log files etc.	%ProgramData%\COPA-DATA\zenon Software Platform 12
Database folder (SQL)	%ProgramData%\COPA-DATA\SQL2019
System folder	%ProgramData%\COPA-DATA\System
Settings Engineering Studio and profiles	%Users%\UserName\AppData\Local\COPA-DATA\zenon\Engineering Studio
Setting for Diagnosis Viewer.	%Users%\UserName\AppData\Local\COPA-DATA\zenon\Diag View

DEFINITION SERVICE ENGINE FOLDER AND DATA FOLDER

SERVICE ENGINE FOLDER

Engineering Studio creates Service Engine files in the Service Engine folder, or they are transferred to this folder by means of Remote Transport. The Service Engine folder is created or updated when compiling a project in Engineering Studio. This folder can be parameterized in Engineering Studio with the **Service Engine folder** project property. With remote transfer, the Service Engine folder is defined in the Remote Transport settings.

DATA FOLDER

Service Engine saves all data files that were created in Service Engine such as alarm files, archive files etc. in the data folder. The data folder is created as a subfolder of the Service Engine folder by

default. The folder is automatically assigned the name of the computer that Service Engine is running on. You can change this save location in the project properties (**General/Data folder**).

Hint: Never set the data folder to a removable device such as an USB stick or a network device. It is recommended that the data is recorded locally and backed up externally.

Attention

If the defined path does not exist or is not available, no more data is written from Service Engine. This means a complete loss of data. Service Engine can still be operated but must be restarted as soon as the path is available again. The availability of the folder can be checked via the system driver variable **[Systeminformation] Service Engine folder not available**.

12 Free ports

zenon and zenon Logic require certain communication ports to communication in the network. If other apps, for example an already installed SQL Server, occupy these ports, communication from zenon can be disturbed. Many ports in zenon can be changed using the **Startup Tool** or properties in Engineering Studio.

This is how you check the port assignments:

1. Enter `netstat -a -n -o` in the command line.
You can reach the command line in Windows:
 - ▶ by pressing the Windows-key and R
 - ▶ Enter `cmd` and confirm with **OK**.
 - ▶ A DOS-window pops up
 - ▶ enter the command `netstat`
2. A list of all currently used TCP and UDP ports will pop up.
3. Check the listening ports (status: *LISTEN*) if the process ID (PID) from the ports needed by zenon and zenon Logic corresponds with the apps from zenon and zenon Logic.

These PIDs can be read in the **Windows Task Manager**. To do this, open the **Windows Task Manager** and switch to the **Services** tab.

4. If another software uses these ports, reconfigure this software.
You can see which ports zenon and zenon Logic use in the **Table of port assignments by zenon and zenon Logic**. Here you can also see if ports can be customized in these apps.

PORT SETTINGS BY ZENON AND ZENON LOGIC

App	Description	Ports	Transport log
stratonrt[k].exe	Logic Service polling communication and Logic Studio.	▶ 1200-1210	TCP
stratonrt[k].exe		▶ 4500-4510	TCP
stratonrt[k].exe	zenon Logic Redundancy.	▶ 7000-7010	TCP
stratonrt[k].exe	Logic Service - spontaneous communication	▶ 9000-9010	TCP
zennetsrv.exe	zenon Network service	▶ 1100-1100	TCP
zensysrv.exe	zenon Transport service.	▶ 1101	TCP
zendbsrv.exe	zenon Database service.	▶ 1103	TCP
zenAdminsrv.exe	zenon Management service.	▶ 50777	TCP
zenLogSrv.exe	zenon Logging service.	▶ 50780	TCP
CodeMeter.exe	Code Meter dongle service.	▶ 22350 (changeable but must not be changed)	TCP
WkSvW32.exe	WibuKey Network service	▶ 22347 (fixed)	TCP
Zenrt32.exe	Message Control with Voice over IP.	▶ 5060: SIP ▶ 4000: RTP ▶ 4001: RTCP (fixed) SIP and RTP can be configured using Engineering Studio. RTCP is automatically set by the system.	UDP
zenHelpService.exe	zenon Help provisioning service	▶ 50790	TCP

13 Installation of an older version after installation of zenon 12 (64-bit operating system)

If, on a 64-bit operating system, after installation of zenon 12, a version of zenon with a version number lower than 7.10 is installed, the 64-bit services of version 7.10 must be re-registered afterwards using the command line. Registration can be carried out using a batch file or manually.

Registration with a batch file:

1. Copy the file named **Register.bat** from the zenon installation medium.
2. You can find this in the following folder: ... \AdditionalSoftware\Register Admin Service and Log Service (x64)\
3. Execute the file on the respective computer as an administrator.

manual registration:

1. run the command line with administrative rights
2. Go to the folder %ProgramFiles%\Common Files\COPA-DATA\zenAdminSrv
3. Start the service **zenAdminSrv.exe** with the parameter **-service**
4. Go to the folder %ProgramFiles%\Common Files\COPA-DATA\zenLogSrv
5. Start the service **zenLogSrv.exe** with the parameter **-service**

Example

zenAdminSrv:

- ▶ Folder: C:\Program Files\Common Files\COPA-DATA\zenAdminSrv
- ▶ Command: **zenAdminSrv.exe -service**

zenLogSrv:

- ▶ Folder: C:\Program Files\Common Files\COPA-DATA\zenLogSrv
- ▶ Command: **zenLogSrv.exe -service**

14 Installation of version 7.x and version 6.51 on the same computer

If a version 7.x is installed on a system that already has zenon 6.51 installed, the **Multiple Network Protocol Driver** must be reinstalled after a reboot.

FOR X64 SYSTEMS

For new installation:

1. Restart the system.
2. On the installation medium, open the following path: *AdditionalSoftware\COPA-DATA Multiple Network Protocol Driver*.
3. Execute the file called **MNDPx64Setup.bat**.

This means that the driver is reinstalled and properly linked to the network adapters.

FOR X86 SYSTEMS

For new installation:

1. Restart the system.
2. On the installation medium, open the following path: *AdditionalSoftware\COPA-DATA Multiple Network Protocol Driver*
3. Execute the file called **MNDPx86Setup.bat**

This means that the driver is reinstalled and properly linked to the network adapters.

15 Licensing preview versions

The following time-limited licenses are available for zenon preview programs. They have a fixed expiry date.

If a preview version is installed, it needs an internet connection. The licensing will fail if this is not present.

In this case, the timestamp can be updated manually.

To do this:

1. Open the command line.
2. Enter: `%programfiles(x86)%\CodeMeter\Runtime\bin\cmu32.exe --time-update`

The timestamp is updated and the license is valid.

16 System requirements

Changes due to Service Packs, Hotfixes or Patches from Microsoft can cause incompatibilities and affect the functionality of the software. In this case, COPA-DATA will provide an updated version of zenon as soon as possible. In this case you can get more information from COPA-DATA support: support@copadata.com.

⚠Attention

Note when configuring the project:

- ▶ For the optimal display of zenon in the Service Engine, the standard setting (corresponds to 100%) is recommended for the Windows **display**. Higher values can lead to graphic elements, symbols, texts, etc. not being displayed correctly.
- ▶ Windows themes can overlay elements in Service Engine. Ensure, when configuring a project, that there is an appropriate distance from the elements to the screen edge.

Note: According to Windows conventions, hostnames may not contain more than 15 characters.

16.1 Operating systems

In this section, you will find information about different operating systems supported by the zenon Software Platform version 12.

16.1.1 Windows Operating Systems (1/2)

Supported operating systems and minimum required Windows Service Pack/version:

Operating system	zenon Engineering Studio	Service Engine	Logic Service	zenon Report Engine
Windows 10 (Pro, Enterprise)	Only x64 from version 1607	From version 1607	From version 1607	Only x64 from version 1607
Windows 10 (Enterprise LTSC, IoT Enterprise LTSC)	Only x64 from version 2016	From version 2016	From version 2016	Only x64 from version 2016
Windows 11 (Pro, Enterprise)	Only x64 from version 21H2	From version 21H2	From version 21H2	Only x64 from version 21H2
Windows Server 2016 (All editions with the exception of Core)	Only x64 from version 1809	From version 1607	From version 1607	Only x64 from version 1607
Windows Server 2019 (All editions with the exception of Core)	Only x64 from version 1809	From version 1809	From version 1809	Only x64 from version 1809
Windows Server 2022 (All editions with the exception of Core)	Only x64 from version 21H2	From version 21H2	From version 21H2	Only x64 from version 21H2

LTSC VERSIONS

An overview of LTSC versions and their **Equivalent GA Channel releases** can be found on the Microsoft Homepage (<https://learn.microsoft.com/en-us/windows/whats-new/ltsc/>).

16.1.2 Windows Operating Systems (2/2)

Supported operating systems and minimum required Windows Service Pack/version:

Operating system	zenon Smart Server	zenon Smart Client	zenon HTML Web Engine Web Visualization Service	IIoT Services
Windows 10 (Pro, Enterprise)	From version 1607	From version 1607	From version 1607	From version 1607
Windows 10 (Enterprise LTSC, IoT Enterprise LTSC)	From version 2016	From version 2016	From version 2016	From version 2016
Windows 11 (Pro, Enterprise)	From version 21H2	From version 21H2	From version 21H2	From version 21H2
Windows Server 2016 (All editions with the exception of Core)	From version 1607	From version 1607	From version 1607	From version 1607
Windows Server 2019 (All editions with the exception of Core)	From version 1809	From version 1809	From version 1809	From version 1809
Windows Server 2022 (All editions with the exception of Core)	From version 21H2	From version 21H2	From version 21H2	From version 21H2

16.1.3 Linux

Supported Operating Systems and zenon Services for Linux:

Hardware	Operating system	Service Engine for Linux	Logic Service
PC	<i>Ubuntu 22.04, x86</i>	--	x
PC	<i>Ubuntu 22.04, amd64</i>	x	--
Raspberry Pi 4	<i>Raspberry Pi OS 11, armhf</i>	--	x
Raspberry Pi 4	<i>Raspberry Pi OS (64-bit) 11, arm 64</i>	x	x
BICX	<i>Debian (64-bit) 11, arm64</i>	x	x
Siemens IoT2050	<i>Debian (64-bit) 11, arm 64</i>	x	x

Key:

x: supported

--: not supported

REQUIREMENTS

To be able to run Service Engine in a Linux environment, the following applies:

- ▶ The zenon version must always match the version of Service Engine for Linux. In Linux, you cannot use different versions of zenon and Service Engine.
- ▶ zenon projects can only be run for the operating systems listed in the table.
- ▶ For Service Engine, a 64-bit operating system is required.

16.1.4 Linux Docker

Supported zenon apps for Linux amd64 Docker containers:

- ▶ Service Engine for Linux
- ▶ zenon Logging Server for Linux
- ▶ HTML Web Engine
- ▶ IIoT Services:
 - ▶ Data Hub
 - ▶ Data Storage
 - ▶ Certificate Management
 - ▶ Identity Service
 - ▶ Identity Management
 - ▶ Platform Configuration
 - ▶ IIoT API
 - ▶ Persistence Service
 - ▶ Service Configuration Studio
 - ▶ Device Management
 - ▶ Proxy Service

16.1.5 Windows Docker

Windows Docker Container supports the Service Engine.

16.2 System requirements when using DirectX

The following minimum requirements must be met when using *DirectX hardware* or *DirectX software*:

Note: For extensive projects or several projects loaded at the same time you will need accordingly faster/stronger hardware. The minimum requirements can increase as a result of this.

Parameter	Minimum requirements	Recommended
CPU:	Single core with SSE2 support.	Quad Core or more cores
Graphics adapter: (DirectX hardware)	DirectX 11 mainstream graphics card.	Dedicated DirectX 11 AMD or nVidia high-end graphics card

Parameter	Minimum requirements	Recommended
only)	Note: When an integrated graphics chip is used in particular, it is possible, depending on the driver used, that there are impairments to the display quality.	
Graphics memory: (DirectX hardware only)	1 GB VRAM Note: The size that is actually needed depends on the number of screens called up and the elements displayed.	2 GB VRAM
Graphics card driver: (DirectX hardware only)	The graphics card manufacturer's most recent driver.	
Operating system:	<i>DirectX Hardware</i> and <i>DirectX Software</i> only work on operating systems with <i>DirectX 11.1</i> support. If the system does not support <i>DirectX 11.1</i> , it is automatically switched to <i>Windows based</i> . The current <i>DirectX-Service Engine</i> must be installed. For zenon it is installed together with the setup. It must be manually installed for Smart Client.	

You can check the DirectX hardware compatibility of the graphics card and the driver with the **dxdiag.exe** of the Windows operating system.

As of Windows 8: All supported versions of DirectX are displayed in the **Display** tab under **Feature Levels**. For example, DirectX 11 is displayed as *11.0*.

16.3 User authorization

Windows administrator rights are required for installation.

Standard Windows user rights are required for ongoing operation. The user account control (UAC) can be activated at the highest security level.

Attention

Keep in mind that Windows user rights settings are not overridden by internal security software.

16.4 Hardware requirements

In this chapter, you can find the hardware requirements for the individual versions of Engineering Studio and Service Engine, as well as Smart Server and Smart Client. This information represents the requirements for a system with average complexity and project size. When a zenon service has additional restrictions, this is documented accordingly in the relevant section of the Help.

For your planning, also take into account consumption of zenon independent system resources such as the size of the storage medium, main memory, CPU performance, etc.

Attention

Graphics cards with their own graphics memory and DirectX support are recommended. Shared-memory graphics cards may require too much working memory and may thus lead to performance impairments. Note the system requirements when using DirectX (on page 48) chapter. The recommended configuration from this chapter is to be noted for the use of Multi-Touch.

ENGINEERING

Engineering Studio uses a Microsoft SQL Server as an SQL Server and has higher hardware requirements than Service Engine. If Engineering Studio and Service Engine are to be running on a system simultaneously, the requirements increase.

Information

In Service Engine, an automatic check is carried out to determine whether the computer has sufficient hardware and operating system resources for the current process.

For further information, see the section **Service Engine** in the chapter **System integrity monitoring**.

PERFORMANCE OPTIMIZATION

Note that all information stated only constitutes the minimum requirements for your system. Better hardware equipment improves the performance of zenon considerably.

- ▶ Equip your hardware - both clients and most of all the server - with sufficient memory (RAM).
- ▶ Optimize the hardware for data backup, for example with fast SSD data storage.
- ▶ Match the hardware of the clients and the network to one another. A system is only as powerful as its weakest component.

- ▶ Optimize your network architecture, for example with the use of cabling with a high data transfer rate and corresponding devices (switches and routers).
- ▶ When using a virtual environment, ensure that the virtual system is correspondingly configured with performance optimization.

16.4.1 Engineering Studio

The minimum requirements are based on a complete installation of Engineering Studio. For extensive projects or several projects loaded at the same time you will need accordingly faster/stronger hardware. The minimum requirements can increase as a result of this.

Hardware	Minimum requirements	Recommended
CPU	Single core with SSE2 support.	Quad Core
Memory	From 4 GB Note: The more projects you have simultaneously available in memory, the more memory you need.	8 GB
Storage medium	20GB of free memory is required to install the entire zenon Software Platform. The following applies for individual installations: <ul style="list-style-type: none"> ▶ Engineering Studio: 10 GB ▶ Service Engine: 6 GB ▶ Report Engine: 7 GB ▶ Reporting Studio: 4 GB ▶ Smart Server: 2 GB ▶ Smart Client: 3 GB ▶ IIoT Services: 4 GB ▶ License Management: 1 GB In addition, free memory is required for projects.	
Monitor resolution	Extended VGA with 1024 x 768 pixels. Attention: Some dialogs, e.g. the filter of the AML/CEL image, are difficult to operate or	Double monitor setup: 2 times 1920 x 1080.

Hardware	Minimum requirements	Recommended
	possibly non-operable at a height of less than 850 pixels.	
Graphics adapter	64 MB dedicated memory. Cards with shared memory can lead to performance loss. Note the system requirements when using DirectX (on page 48) chapter.	
Input devices	Standard keyboard or standard mouse.	
USB interface or DVD drive	For the installation, regardless of installation medium. The installation is also possible via network. Installation files can also be downloaded from the customer area of the COPA-DATA website.	
Parallel or USB interface	In case of dongle licensing required for dongle. For network dongle only required for the dongle server.	
Network connection (optional)	Recommended 10 MBit/s with TCP/IP protocol for Remote Transport, network dongle, project backups on central file server, multi-user capable Engineering Studio, etc.	1000 MBit/s

Note: When using comprehensive multi-user projects, note the information in the hardware requirements chapter.

16.4.2 Service Engine

Minimum requirements refer to a complete installation of the Service Engine.

For extensive projects or several projects loaded at the same time you will need accordingly faster/stronger hardware. The minimum requirements can increase as a result of this.

Hardware	Minimum requirements	Recommended
CPU	Single core with SSE2 support.	Quad Core
Memory	<p>from 512 MB.</p> <p>Note: Projects with large amounts of data, network projects, several parallel projects and projects in redundant operation require more memory.</p>	4096 MB
Storage medium	<p>20GB of free memory is required to install the entire zenon Software Platform.</p> <p>The following applies for individual installations:</p> <ul style="list-style-type: none"> ▶ Engineering Studio: 10 GB ▶ Service Engine: 6 GB ▶ Report Engine: 7 GB ▶ Reporting Studio: 4 GB ▶ Smart Server: 2 GB ▶ Smart Client: 3 GB ▶ IIoT Services: 4 GB ▶ License Management: 1 GB <p>In addition, free memory is required for projects.</p> <p>Attention: If you log historical data (e.g. Archive data or Alarm/CEL data), there will need to be sufficient memory available or the configuration has to ensure that the historical data is evacuated or deleted.</p>	
Monitor resolution	<p>1024 x 768.</p> <p>Note also the information in the infobox under</p>	

Hardware	Minimum requirements	Recommended
	the table.	
Graphics adapter	64 MB dedicated memory. Cards with shared memory can lead to performance loss. Note the System requirements when using DirectX (on page 48) chapter in relation to this.	
Input devices	Keyboard and/or mouse. Operation via touchscreen is also possible. Many individual, customizable softkeyboards for the touchscreen are available for you. In addition, there is the possibility of Multi-Touch operation.	
USB interface (optional)	<ul style="list-style-type: none"> ▶ For installation. Installation also possible via network or other storage media. ▶ For dongle. Network dongle also available. 	
Network connection (optional)	64 kBits/s for standard Client/Server projects. 100 Mbit/s full duplex for redundant operation.	1000 kBits/s full duplex for standard Client/Server projects.
Remote connection (optional)	Minimum requirements: Dial-up modem with 9600 Bit/s.	1 Mbit/s full duplex.
WAN connection (optional)	Any desired connection via router, e.g. by means of ISDN or DSL. Data transfer is slower in a WAN than in a local network for technical reasons. Be sure to check the possible data transfer rates of your WAN technology already at the time when you create the project.	
Message Control (optional)	Please refer to chapter Message Control for the requirements.	
Interfaces (optional)	The necessary interfaces depend on the requirements of the PLC and/or the bus connection, for example serial RS232 or RS422/485 interfaces, ISA/PCI slots, etc.	



Information

The minimum recommended resolution in Service Engine is 1024 x 768 pixels. Smaller resolutions can also be configured. However it may then not be possible to operate some online dialogs. If these are not used, the resolution can be selected as lower.

16.4.3 Report Engine

The following prerequisites are applicable for work with Report Engine:

HARDWARE

Report Engine Server:

Parameters	Recommended	Minimum
CPU	CPU XEON (maximum 24 cores/4 sockets)	XEON processor
RAM	64GB or larger	32 GB
Free memory	1TB or more (depending on the data to be saved)	1 TB

Engineering computer:

Parameters	Recommended	Minimum
CPU	CPU i7 or more powerful	CPU i7
RAM	64GB or larger	32 GB
Free memory	1TB or more (depending on the data to be saved)	2 GB
Monitor (pixels)	Full HD or higher	1024 x 768

CONNECTORS

The following is applicable for the Service Engine Connector:

- ▶ Timeout: is independent of the report timeout.
Default: 5 minutes (can be configured)
- ▶ Variables: Only variables that are listed in metadata are requested
- ▶ String variable: maximum of 4000 characters

The performance of a Connector depends on the:

- ▶ Performance of the Report Engine server
- ▶ Performance of the Service Engine server
- ▶ Service Engine server load (connector runs with lower priority)
- ▶ Network performance and network load

PROJECTS AND FILTERS

Reports can generally be created throughout several projects.

Attention

Archive data can only be evaluated if the variables and archive configuration are in the same project.

This means: For example, in an integration project, if a variable from a subproject is archived in an archive, then Report Engine cannot access this variable.

SCHEDULES

- ▶ **Calendar days in months** are limited to 1 - 28 (corresponds to February in non-leap years)
- ▶ The "*Month end*" event is not available



Information

Do not use zenon color palettes for dynamic limit values for zenon projects whose data is to be exported for Report Engine. Limit values cannot be dynamically amended in Report Engine. Information from color palettes can therefore not be evaluated. This can lead to illegible graphics.

16.4.4 Smart Server

The minimum requirements are based on a complete installation of Smart Servers. For extensive projects or several projects loaded at the same time you will need accordingly faster/stronger hardware. The minimum requirements can increase as a result of this.

Hardware	Minimum requirements	Recommended
CPU	Single core with SSE2 support.	
Memory	From 1024 MB	
Storage medium	256 MB free harddrive space.	1 GB free harddrive space.
Network connection	10 Mbit/s full duplex.	1000 Mbit/s full duplex.
Remote connection (optional)	Minimum requirements: Dial-up modem with 9600 Bit/s.	1 Mbit/s full duplex.

16.4.5 Smart Client

The minimum requirements are based on a complete installation of Smart Client. For extensive projects or several projects loaded at the same time you will need accordingly faster/stronger hardware. The minimum requirements can increase as a result of this.

Hardware	Minimum requirements	Recommended
CPU	Single core with SSE2 support.	Quad Core
Memory	From 1024 MB	
Storage medium	64 MB of free space for Smart Client plus space for the projects.	80 GB free harddrive space.
Network connection	10 Mbit/s full duplex.	1000 Mbit/s full duplex.
Remote connection (optional)	Minimum requirements: Dial-up modem with 9600 Bit/s.	1 Mbit/s full duplex.
Graphics adapter	64 MB dedicated memory. Cards with shared	

Hardware	Minimum requirements	Recommended
	memory can lead to performance loss. Note the System requirements when using DirectX (on page 48) chapter in relation to this.	

17 Software and paths for installation and operation

Paths for zenon:

- ▶ Installation
- ▶ Engineering Studio
- ▶ Service Engine

Info

You can display many default paths with the help of the **set** command:

- ▶ start the command line (enter **cmd** in the Windows start area)
- ▶ enter command **set**
- ▶ By pressing the **Enter** key, the default folder for Windows and zenon are displayed.

Note: As absolute paths differ in different operating system, the paths are displayed as Windows environment variable in this chapter. For example *%ProgramData%* instead of *C:\ProgramData*.

INSTALLATION

During installation, paths are set for:

- ▶ Engineering Studio
- ▶ zenon SQL folder

Only the paths for Engineering Studio and zenon SQL folder can be customized.

The setup needs administrator rights. This is also true for changing the installation paths.

REQUIREMENTS

The installation paths of the required third-party software match the standard paths of the respective manufacturer and cannot be changed during setup.

The additional software packages that need to be installed depend on the type of installation:

- ▶ Engineering Studio
- ▶ Service Engine
- ▶ Smart Client
- ▶ Logic Service

Requirements	Engineering Studio	Service Engine	Smart Client	Logic Service
Microsoft .NET Framework 4.8	+	+	+	--
Microsoft SQL Server 2019 Express (Bei Report Engine Standard Edition)	+	--	--	--
Microsoft Visual C++ 2022 Redistributable	+	+	+	+
Microsoft .NET Core Hosting Bundle 6.0.3	+	+	+	+
CodeMeter Runtime Kit 7.40a	+	+	--	+
Microsoft Web Deploy 3.6	--	--	--	--
Visual Basic for Applications VBA 7.1	+	+	+	--
Visual Basic for Applications Language Pack VBA 7.1	+	+	+	--
COPA-DATA Multiple Network Protocol Driver	+	+	--	+

Note: Microsoft Visual Studio Tools for Applications (VSTA 2.0) is not required and is not installed during setup. It can be installed separately using the **Startup Tool**. To do this, the **VSTA_AddOn.exe** file must be on the system.

ZENON

The installation of Engineering Studio sets two paths:

- ▶ Engineering Studio:
 - ▶ 32-bit systems: %ProgramFiles(x86)%\COPA-DATA\zenon Software Platform [Version]
 - ▶ 64-bit systems: %ProgramFiles%\COPA-DATA\zenon Software Platform [Version]

These paths can be customized during the installation.

- ▶ zenon SQL folder:
 - ▶ Version 10 and higher: %ProgramData%\COPA-DATA\SQL2019\

These paths can be customized manually via zenDB.ini.

ENGINEERING STUDIO

In Engineering Studio, the following paths are used by default:

Object	Path
Workspace	%CD_USERDATA% For example: C:\Users\Public\Documents\zenon_Projects
Projects	%CD_USERDATA% For example: C:\Users\Public\Documents\zenon_Projects Hint for short cuts: highlight the project -> Ctrl+Alt+D
SQL folder of the project	%ProgramData%\COPA-DATA\[SQL-Ordner]\[GUID]\FILES Hint for short cuts: highlight the project -> Ctrl+Alt+E
project.ini	%ProgramData%\COPA-DATA\[SQL folder]\[GUID]\FILES\zenon\system
zenon6.ini	%ProgramData%\COPA-DATA\System For example: C:\ProgramData\COPA-DATA\System
Backup	%ProgramData%\COPA-DATA\[SQL folder]\[GUID]\BACKUP %ProgramData%\COPA-DATA\[SQL folder]\[GUID]\FILES\[Projekte]
Compiled files	%CD_USERDATA%\[Workspace]\[Projekt]\RT
External files	%CD_USERDATA%\[Workspace]\[Projekt]\RT\FILES\... Note: Can be set in the project using the file storage property.
System files	Windows system folder.

SERVICE ENGINE

In Service Engine, the following paths are used by default:

Object	Path
Projects	%CD_USERDATA%\[Workspace]\[Projekt]\RT
External files	%CD_USERDATA%\[Workspace]\[Projekt]\RT\FILES\...

Object	Path
Exported archives, Chronological Event List and Alarm Message List	<i>%CD_USERDATA%\[Workspace]\[Projekt]\Export</i> Note: Is created at the first export.
System files	Windows system folder.

ZENON LOGIC

Paths for zenon Logic are created equal to the zenon paths.

18 Report Engine

This section provides information for installing the Report Engine.

18.1 Installation and updates

The installation of Report Engine consists of several components:

- ▶ Report Engine Server: Central SQL server.
- ▶ Reporting Studio: Application to administer Report Engine and to create reports. It must be installed on the engineering computer:
- ▶ Additional applications

Attention

Ensure that you have the appropriate licenses.

Note: For each user, up to three different devices at the same time per license are permitted.

You can find the hardware and software requirements in the Prerequisites chapter.

NOTICES

Note the following before installation:

Theme	Description
User authorizations:	<p>Local administrator rights are required for installation of Report Engine. Ensure that, after installation, there is at least one user who can log into Report Engine.</p> <p>Attention: Every user who carries out an installation is automatically created as the first user for Report Engine. After installation, only this user can login to Report Engine and add further users. For example: User 1 is the local administrator and carries out the installation. Report Engine is used by User 2 however. User 1 must add User 2 in the Reporting Studio after installation.</p>
ISOs and restart:	<p>The content of ISO images must be copied to a local storage medium before the installation and setup can be started from here. The inclusion of an ISO image and the installation of Report Engine by the mounted driver cannot be completed successfully if a restart is required during installation.</p>
Licensing:	Licensing is carried out using the License Manager . This can be started from Reporting Studio or from the operating system directly.
.NET Framework 4.8:	.NET Framework 4.8 must already be installed and running on the target computer in order to carry out the installation successfully. Otherwise, an error notification from the Report Engine setup will show up and the installation process will be canceled.
Remote installation:	The installation medium must be on the local computer. Network drives may not be available punctually for a reboot during installation. For remote installations and virtual installations, copy the content of the installation medium to a temporary folder on the computer and start the setup.
Server:	The Report Engine server and the Domain Controller must not be installed on the same computer.
IIoT Services	Some components need a connection to the IIoT Services in order to connect with the Service Engine. You can configure this with the IIoT Services Connection Wizard .
SQL Server 2019:	<p>Note existing installations of SQL Server Management Studio (SSMS):</p> <p>SQL Server 2019 cannot be installed if version 18.3 or earlier of SQL</p>

Theme	Description
	<p>Server Management Studio (SSMS) has already been installed.</p> <p>To install SQL Server 2019:</p> <ul style="list-style-type: none"> ▶ Uninstall SQL Server Management Studio (SSMS). ▶ Uninstall Microsoft SQL Server 2012 Native Client. This is also installed with SSMS
SQL Server Management Studio:	If the SQL Server Management Studio (SSMS) is to be available, it must be installed manually.
Wizards	Several wizards are available for Report Engine. They work with different Report Engine versions and zenon versions. For details, read the Report Engine wizard compatibility chapter.

PERFORMING THE INSTALLATION

To install Report Engine components:

1. Connect the installation medium to the computer or copy its contents to a local folder. If Autorun does not automatically start the setup, use the file named **start.exezenon**.
The zenon Software Platform setup is opened.
2. Select the desired language from the drop-down list
3. Accept the license conditions.
4. Click on the **Next** button.
5. Accept the data protection agreement.
6. Click on the **Next** button.
7. Select the desired components

Note: For the installation of the Report Engine Server, a **Data Hub** for IIoT Services must also be installed. This is regardless of whether there is already a **Data Hub** in the system. The Report Engine uses the **Data Hub** to establish the connection to zenon. In an additional dialog, you are requested to issue a user name and password for access to the **Data Hub**.

Attention: Note the password in a safe place. It cannot be displayed or recovered later.

8. Click on the **Next** button.
The installation or the update will start.
9. Follow the instructions given to you by the installation wizard.
10. After successful installation, configure the connections to IIoT Services.

Notes on update: When switching version, the version of the assemblies contained in the database is checked before the update of the structure. If the version to be installed is more recent, the SQL elements contained are updated.

INSTALLATION ON THE CLIENT

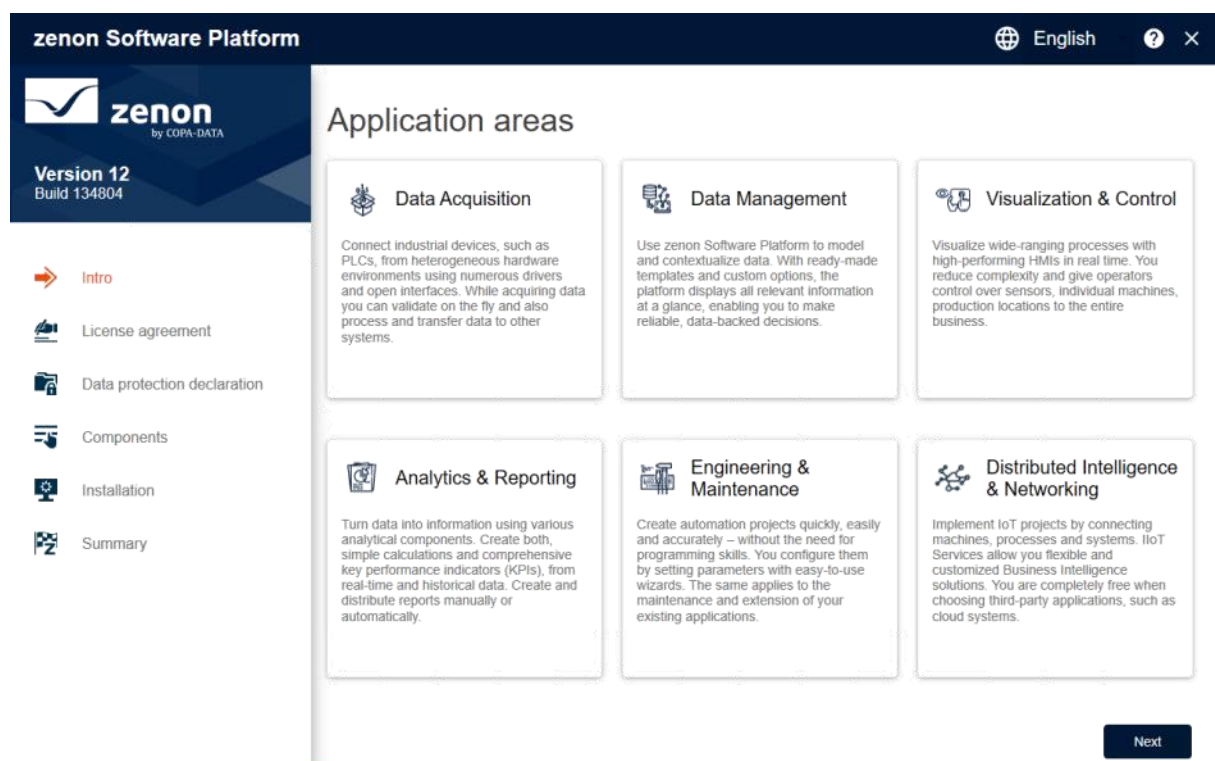
Only a current browser is needed on the client. The language that is set in the browser determines the language for Report Launcher. The language for Reporting Studio is stipulated in the options in Reporting Studio.

18.1.1 Start window

You are given general information about the zenon Software Platform in the start window.

The information in the left window shows you the current status of the installation process. You switch to the next respective window with the **Next** button.

You can get help on installation by clicking on the Help symbol at the top right.



1. From the drop-down list at the top right, select the desired language for installation. The following languages are available:
 - ▶ German
 - ▶ English
 - ▶ Italian

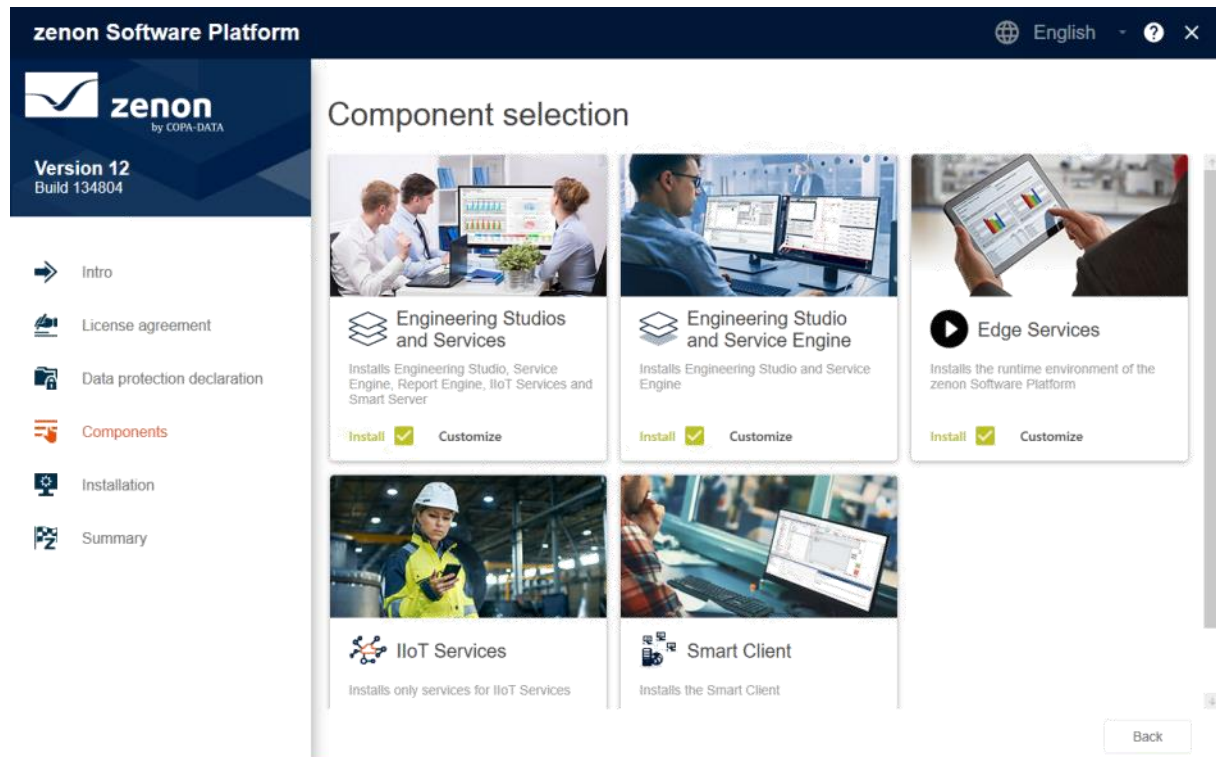
- ▶ French
- ▶ Spanish
- ▶ Czech
- ▶ Japanese
- ▶ Korean
- ▶ Chinese
- ▶ Russian

Note: The language can only be changed on this page. In the following steps, the language is shown but can no longer be amended.

2. Clicking on the **Next** button opens the window with the license conditions.
3. Confirm the license conditions by activating the corresponding checkbox.
If you do not accept the license conditions, you cannot install the product.
You can also print the license conditions out by clicking on the **Print** button.
4. Clicking on the **Next** button opens the privacy policy.
Read the privacy policy carefully.
You can print out the privacy policy by clicking on the **Print** button.
5. Activate the checkbox for the privacy policy.
This will confirm that you have read this. If you do not accept the privacy policy, the product cannot be installed.
6. Clicking on the **Next** button opens the window to select the desired product.
Note: The **Next** button is only available if you have agreed to the license conditions by activating the checkbox.

18.1.2 zenon Standard installation

Select the desired components. It is only possible to select components that have not already been installed. If you want to carry out a reinstallation, you must first uninstall the previously-installed component using the Control Panel.



INSTALLATION PACKAGES

There are five collections of packages available for installation. You can individually configure their content before installation by using the **Customize** button.

Package	Components
Engineering Studios and Services	<p>Contains:</p> <ul style="list-style-type: none"> ▶ Report Engine ▶ IIoT Services ▶ Device Management Interface Components ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ GraphQL Interface

Package	Components
	<ul style="list-style-type: none"> ▶ Reporting Studio ▶ Smart Server ▶ Smart Client
Engineering Studio and Service Engine	<p>Contains:</p> <ul style="list-style-type: none"> ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ Report Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ Smart Client ▶ IIoT Services ▶ Device Management Interface Components
Edge Services	<p>Contains:</p> <ul style="list-style-type: none"> ▶ Report Engine ▶ IIoT Services ▶ Device Management Interface Components ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ GraphQL Interface ▶ Smart Server ▶ Reporting Studio ▶ Smart Server ▶ Smart Client
IIoT Services	<p>Contains:</p> <ul style="list-style-type: none"> ▶ IIoT Services with management and communication environment for data distribution, Identity Service, API and Data Storage

Package	Components
	<ul style="list-style-type: none"> ▶ Device Management Interface Components ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ Report Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ Smart Client
Smart Client	<p>Contains:</p> <ul style="list-style-type: none"> ▶ Smart Client ▶ License Manager ▶ Engineering Studio ▶ Service Engine ▶ Report Engine ▶ GraphQL Interface ▶ Reporting Studio ▶ Smart Server ▶ IIoT Services ▶ Device Management Interface Components

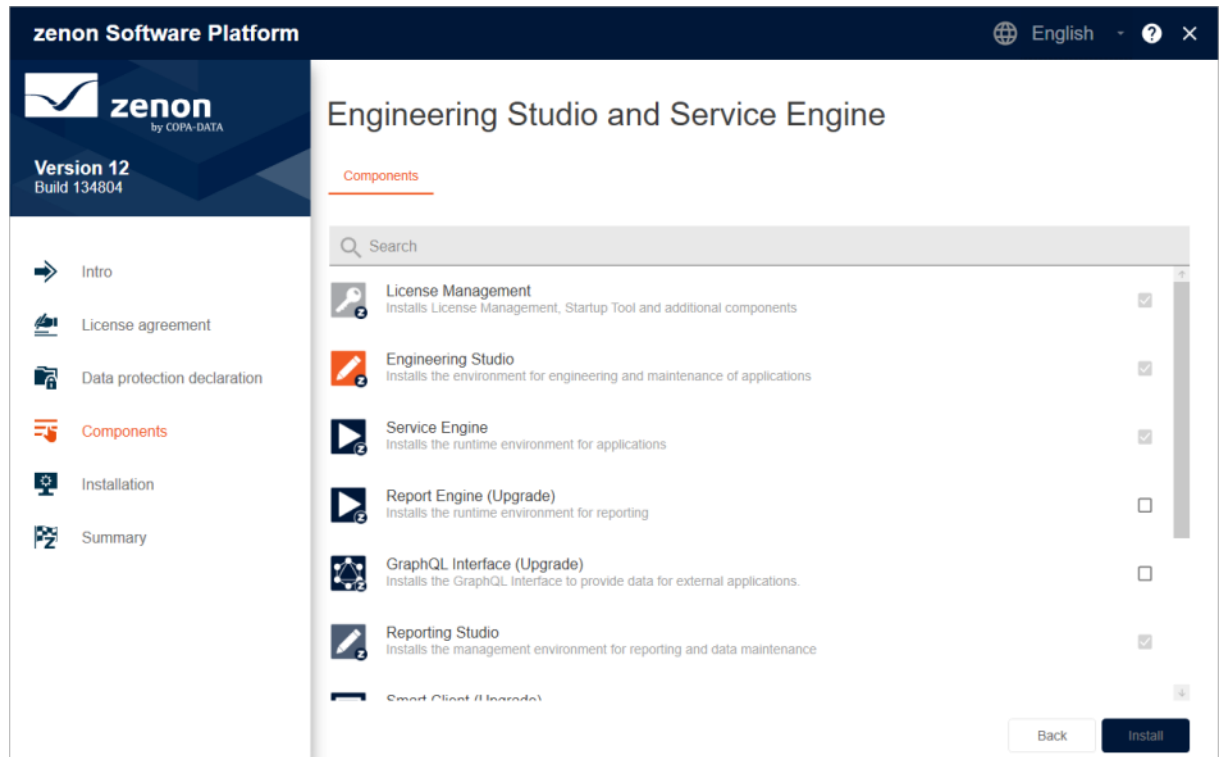
18.1.3 Selection and installation

The Report Engine is installed automatically during a full installation of the components **Engineering Studio and Service Engine**.

To install Report Engine only:

1. In **Engineering Studio and Service Engine** click on the **Customize** button.
The dialog to customize the installation is opened.
The standard packages have already been pre-selected.
2. Select or deselect other desired packages in the **Components** tab.

- a) If you want to fully install Report Engine: Select Report Engine. All other required packages are selected automatically. You can deselect all other packages.
- b) You only want to install Logic Studio: You only need the entries for Logic Studio, Metadata Editor and License Management.



Packages can only be deselected if they are not required by any other package. Already-installed packages cannot be deselected.

3. If necessary, configure the paths for installation in the **Options** tab.
4. Click on the **Install** button.

The installation is started.

The computer may be restarted automatically during installation. Follow the instructions of the wizard

18.1.4 Updates

In zenon, you can change to new versions for example, from 10 to 11. Or you can install updates within a version.

New versions can be installed in parallel with existing versions. They mainly offer new features.

Updates are provided in the form of build setups. Updates change a previously-installed version. They mainly fix bugs.

With each setup for new build or new versions, you receive a link to the COPA-DATA website with the changes between the previous version and the newly-installed one.

UPDATE (BUILD SETUP)

An update only updates those files which are more current than the previously installed files. All projects and individual settings will remain unchanged. Build setups can contain changes for all installed components. When calling up the setup, the components that have been changed and the version to which they have been changed are shown.

Keep in mind that Build setups have lower quality assurance standards than Release setups.

Note: Build setups can only be installed locally. Installation on network paths (UNC) is not possible.

19 IIoT Services

In this section you will find information for installing IIoT Services and for the initial setup on Windows or Docker.

19.1 Installation

It is recommended to always install the latest IIoT Services release. Existing installations can be upgraded within the recommended update paths (on page 75).

INSTALLATION VARIANTS OF THE IIOT SERVICES

IIoT Services offer the same range of functions in all installation options.

Please note the following differences:

	IIoT Services (Docker on Windows)	IIoT Services (Docker on Linux)	IIoT Services (Windows native)
Application area	<ul style="list-style-type: none"> ▶ Test environments 	<ul style="list-style-type: none"> ▶ Test environments ▶ Productive environments 	<ul style="list-style-type: none"> ▶ Test environments ▶ Productive environments
Host operating system	Windows	Linux	Windows
Method of installation	Configuration files	Configuration files	As native Windows application via a .ISO file The installation of the IIoT Services is integrated in the Setup of the software platform (on page 7).
Internal services	Docker services as a Linux container	Docker services as a Linux container	Windows Services
Monitoring of internal	<ul style="list-style-type: none"> ▶ Windows 	<ul style="list-style-type: none"> ▶ With Shell 	Windows Management Console.

	IloT Services (Docker on Windows)	IloT Services (Docker on Linux)	IloT Services (Windows native)
services	PowerShell <ul style="list-style-type: none"> ▶ With GUI via Docker Dashboard 	No GUI available.	
Minimum number of computers for test environment	<ul style="list-style-type: none"> ▶ 1 computer for the IloT Services and all clients (Windows host OS) 	<ul style="list-style-type: none"> ▶ 1 computer for the IloT Services (Linux host OS) ▶ 1 computer for clients (Windows host OS) 	1 computer for the IloT Services and all clients (Windows host OS)
Minimum number of computers for productive environment	<ul style="list-style-type: none"> ▶ 1 dedicated computer for the IloT Services. ▶ Separate computers for clients. 	<ul style="list-style-type: none"> ▶ 1 dedicated computer for the IloT Services. ▶ Separate computers for clients. 	<ul style="list-style-type: none"> ▶ 1 dedicated computer for the IloT Services. ▶ Separate computers for clients.

Note: The installation options of IloT Services are basically the same for the administration in the Service Configuration Studio.

⚠Attention: Fixed user context in "Docker on Windows"

A IloT Services installation in **Docker Desktop for Windows Docker on Windows** is started in a **fixed user context**.

Example: User A installs IloT Services using Docker Desktop for Windows.

- ▶ **User A** has access to IloT Services through their user account.
- ▶ **User B** does not have access to IloT Services through their user account on the same computer.

Hint: You can get around this limitation on a test system by using a shared user account.

19.1.1 Installation: Standalone vs. parallel

In general, it is recommended to install IIoT Services as standalone applications on a dedicated computer.

STANDALONE INSTALLATION

With a standalone installation, other than IIoT Services, no further zenon services are installed.

Standalone installation is recommended for:

- ▶ All installation options of IIoT Services (Docker and Windows native)
- ▶ All computer types (physical computer and VMs)
- ▶ All uses (test systems and productive systems)

Standalone installation ensures a clear separation of connected communication partners in IIoT Services networks.

PARALLEL INSTALLATION

In a parallel installation, both IIoT Services as well as other zenon services are installed on the same computer.

Parallel installation is only recommended for separately documented cases. An example of this is the test environment in the Getting Started Guide for the IIoT Services (Docker on Windows) installation option.

19.1.2 Kubernetes

In the Docker installation option, the services are installed by IIoT Services in Linux containers. This meets the requirements for operating IIoT Services in a Kubernetes cluster.

In particular, you should note:

- ▶ The configuration files `docker-compose.yml` and `.env` provided with IIoT Services can be used as a foundation for creating Kubernetes configuration files.
- ▶ You must create customized Kubernetes configuration files for your specific environment.

The following application scenarios are possible:

- ▶ self-hosted Kubernetes cluster (*on-premise*)

- ▶ third-party hosted Kubernetes cluster of cloud providers such as Amazon (*Amazon Kubernetes Cluster*), Google (*Google Kubernetes Engine*) or Microsoft (*Azure Kubernetes Service*)

By using the Kubernetes container management, you can provide, scale and manage containers automatically.

Hint

The use of IIoT Services in a Kubernetes cluster requires relevant prior knowledge and is generally recommended only for enterprise environments.

19.1.3 Update paths

The following update paths are recommended for IIoT Services:

- ▶ Version 2.0 to 2.1
- ▶ Version 2.x to 10.0
- ▶ Version 10.0 to 10.x
- ▶ 10.x to higher versions

Available configurations will be automatically carried over during the update. It is recommended to perform a backup of **Persistence Instance** before every version update.

20 Smart Server

To install Smart Server or Smart Server Pro:

1. Activate the WWW services on the computer.
Folder `C:\inetpub\wwwroot` must exist.
2. Start the zenon installation medium. The start screen is displayed
If you have deactivated the autostart feature, execute **start.exe** from the installation medium.
3. Select Smart Server.
The 32-bit or 64-bit version of Smart Server is installed automatically according to the version of the operating system.
4. Follow the installation routine.
5. Restart the computer.

The setup files for the web client can be found after installation in subdirectories of the Smart Server installation path.

For example: *C:/Programs*

(x86)/COPA-DATA/zenonWebserver/zenon/controlversion/SmartClientStandalone.exe

or

C:/inetpub/wwwroot/zenon/controlversion/SmartClientStandalone.exe

The example web pages (index*.htm und init*.htm) are also installed. They can be found in the zenon subdirectory of the Smart Server installation path.

For example: *C:/Programs/zenon Web Server/zenon/index.htm*

or

C:/inetpub/wwwroot/zenon/index.htm



Information

The service for Smart Server is only started automatically in the licensed version.

In demo mode, Smart Server must be started manually via the Smart Server console in the system properties.

ADDITIONAL INFORMATION

You can find details on Smart Server in the Smart Server and Smart Server Pro manual, and details on licensing in the Licensing manual.

21 Smart Client

The Smart Client is mainly an ActiveX control displaying the information in a browser. The display is 1:1 like in Service Engine client. The connection to the Service Engine server is established via Smart Server using TCP/IP communication.

You can find the setup files for Smart Client after installation in subdirectories of the Smart Server installation path (xxx stands for the respective version of zenon), for example:

%Programfiles%/COPA-DATA/Smart_Server/zenon/controlversions/Versionxxx/zenon_Webclient_Setup_ENGLISH.EXE

or

C:/inetpub/wwwroot/zenon/controlversions/Versionxxx/zenon_Webclient_Setup_ENGLISH.EXE

All zenon Logic Web Client setups are digitally signed and can also be provided for download from the Internet without any problems.

The Smart Client Starter is also installed with Smart Client. This makes it possible to open Smart Client from any desired browser.

Info

Smart Client sends error and LOG files. The application Diagnosis Server (necessary for the evaluation of these files) is included in the installation of Smart Client.

REMOTE DESKTOP SESSION HOST SETTINGS FOR SMART CLIENT

Entry	Description
[TERMINAL]	Settings for Remote Desktop Session Host
CLIENT=	<p>Service Engine or Smart Client on Remote Desktop Session Host.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ▶ 0: Service Engine can only be started once per session. Operation on the Remote Desktop Session Host is not possible. ▶ 1: Remote Desktop Session Host is being used. The Service Engine can be started several times, and all settings for the Remote Desktop Session Host operation are automatically made by the Service Engine. <p>Default: 0</p>
CLIENT_NO_FILE_ALIGN=	<p>Parameters for synchronization of the client with the server:</p> <ul style="list-style-type: none"> ▶ 0: Projects are always reloaded by all clients. ▶ 1: selective synchronization active. Only the zenon client that is started in the console session of the Remote Desktop Session Host, synchronizes the Service Engine files with the zenon server



22 Version changes and updates (build setups)

In zenon, you can change to new versions for example, from 10 to 11. Or you can install updates within a version.

New versions can be installed in parallel with existing versions. They mainly offer new features.

Updates are provided in the form of build setups. Updates change a previously-installed version. They mainly fix bugs.

With each setup for new build or new versions, you receive a link to the COPA-DATA website with the changes between the previous version and the newly-installed one.

UPDATE (BUILD SETUP)

An update only updates those files which are more current than the previously installed files. All projects and individual settings will remain unchanged. Build setups can contain changes for all installed components. When calling up the setup, the components that have been changed and the version to which they have been changed are shown.

Keep in mind that Build setups have lower quality assurance standards than Release setups.

Note: Build setups can only be installed locally. Installation on network paths (UNC) is not possible.

VERSION CHANGE

If you want to install a new version of zenon, start the installation routine. The new version is being installed parallel to the old one. All projects and individual settings will remain unchanged. Projects aren't converted to the new version during installation. The respective project is converted when it's being opened for the first time in Engineering Studio. A dialog box notifies you about this procedure. The old version is automatically backed up. If you want to use only the most up-to-date version, use the Windows control panel software deinstallation routine to remove the old version.

Attention

If an installation involves changing the SQL server (for example, from zenon 10 to zenon 11 or higher), you must back up all projects or the workspace must be backed up before the installation. This backup is read back after the installation. For details see also section **Multi-user projects/Update with change of SQL servers**.

If you want to use multiple versions of zenon simultaneously, you have to manage them using the **Startup Tool**. You can start only one version at a time. You can select which version you want to run using the **Startup Tool** that automatically adjusts all necessary settings. You can find details in chapter **Startup Tool**.



Information

New versions always bring about structural changes. Projects and settings remain untouched during installation. If you open Engineering Studio for the first time, projects are converted to the new version. Simultaneously, an automatic backup of the old version is created.

Converted projects cannot be edited in legacy versions. From version 6.2 on, Engineering Studio is able to create projects for different Service Engine versions.

Important tips for converting projects can be found in the revision text and in the **Project conversion** manual.

MULTI-USER PROJECTS

To ensure a change to a new zenon version in multi-user projects without data loss:

1. Check in all checked out elements on all Clients by clicking *Apply changes*. Nothing must be checked out. This is true for all projects.
2. Install the new zenon version on the server computer.
3. Convert all server projects to the new version.
To do this, load each project on the server computer into Engineering Studio and accept the conversion.
4. Install the new zenon version on the client computers.
5. Load the projects to the clients.

CHANGE THE SQL SERVER

If an installation involves changing the SQL Server (e.g. from zenon 7.00 to zenon 12), additional steps are needed.

These steps are carried out:

- ▶ after all projects are checked in
- ▶ before the new version is installed

Procedure when changing the SQL Server:

1. Check in all checked out elements on all Clients -> *Apply changes*.
2. On the multi-user server, open Engineering Studio in the original version.
3. Create backups of all projects which you want to edit or open with the new version:
 - ▶ either as single project backups
 - ▶ or as backup of the complete workspace

4. Install the new version on the Server.
5. Convert all Server projects to the new version by loading the previously created project backups one time in Engineering Studio.
6. Install the update on every Client.
7. Transfer the projects from the multi-user Server to the Clients
Keep in mind the new name of the SQL instance.

The projects are converted, synchronized and ready for use

Attention: Make sure that the settings of the firewall allows the data traffic between the multi-user Server and the Clients.

22.1 Compatibility

Compatibility in zenon concerns:

- ▶ Service Engine: Cooperation of different Service Engine versions.
- ▶ Engineering Studio: Up-converting existing projects to new Engineering Studio versions.
- ▶ Engineering Studio: Creating Service Engine files for different Service Engine versions in Engineering Studio.

SERVICE ENGINE

Service Engine online compatibility enables Service Engine systems to work together in the zenon network, as well as via Smart Clients.

The following is applicable here: The version of the client Service Engine must be the same or higher than the version of the server Service Engine.

For example:

- ▶ An 8.20 client can work together with an 8.10 server.
- ▶ An 8.00 client does not work together with an 8.10 server. In this case, the Service Engine client must be upgraded to version 8.10 or higher.

Note: When using the server and standby server, the same zenon version must be used on both of them.

The current Service Engine can load projects of the following versions:

- ▶ 6.20 SP4
- ▶ 6.21 SP0
- ▶ 6.21 SP1
- ▶ 6.22 SP0

- ▶ 6.22 SP1
- ▶ 6.50 SP0
- ▶ 6.51 SP0
- ▶ 7.00 SP0
- ▶ 7.10 SP0
- ▶ 7.11 SP0
- ▶ 7.20 SP0
- ▶ 7.20 SP0[*current build no.*]
- ▶ 7.50 SP0
- ▶ 7.60 SP0
- ▶ 8.00 SP0
- ▶ 8.10 SP0
- ▶ 8.20 SP0
- ▶ 10:00:00
- ▶ 11:00:00

Due to the multi-project administration, projects from different versions can be loaded. For example, the integration project can be version 8.20, a subproject from version 8.10 and another subproject from version 7.60.

ENGINEERING STUDIO

Engineering Studio can open projects from the previous versions in each new version. These can be edited further in the new version. If adjustments are required by the user, information can be found in the current revision text and in the **Project conversion** manual. When opening a project with a lower version number in a higher Engineering Studio version:

- ▶ the project is automatically converted
- ▶ a backup of the project is automatically created

⚠Attention

There is no backward compatibility between Engineering Studio versions. Backward compatibility is only ensured between Engineering Studio and Service Engine

That means:

- ▶ Converted projects can no longer be opened in a Engineering Studio with a lower version number.
- ▶ The project backup created during conversion can still be opened and edited.

Also avoid transferring projects via XML import from newer to older versions. This can lead to undesirable results. Drivers in particular can perform differently than expected.

COMPATIBILITY BETWEEN ENGINEERING STUDIO AND SERVICE ENGINE

With Engineering Studio, Service Engine files can be created for different versions of Service Engine. The Service Engine version therefore does not need to correspond to the Engineering Studio version. This backward compatibility is particularly suited for use of mixed systems.

For example: A project that has been configured with Engineering Studio version 10.00 and compiled for 8.00, can also be started with Service Engine8.00.

⚠Attention

If possible, the same version of Engineering Studio and Service Engine should always be used. Configurations of properties that are not available in older versions can lead to unwanted results in older versions of Service Engine.

CREATE SERVICE ENGINE FILES

To create Service Engine files for earlier versions in Engineering Studio:

1. Select the project in the project tree.
2. Navigate to the **General** section in project properties.
3. Open the **Create Service Engine files for** property drop-down list.
4. Select the desired version from the drop-down list

Attention: In order to ensure consistency of Service Engine files, all Service Engine files must be newly created each time this property is changed. The configurations for all drivers are converted. Settings that do not exist in the configured version are set to the default setting.

ERROR CREATING SERVICE ENGINE FILES AND MICROSOFT OFFICE 365

In certain configurations, an error may occur when creating Service Engine files:

- ▶ You can create Service Engine files on a computer with:
 - ▶ Windows 10 operating system and
 - ▶ Office 365.
- ▶ The creation of Service Engine files has failed and is ended with an error message.

This is caused when an incorrect version of a program library by VBA is loaded.

Solution:

1. Go to the folder: `%AppData%\Microsoft\FORMS`.
2. Delete the file **zenone32.box**.
3. This file is created new automatically by the zenon.

The creation of Service Engine files is possible again.

XML

Data exported in XML is then available for import into later Engineering Studio versions.

Exception: If data from the RGM is saved in Service Engine directly as an XML file using the export function, this cannot be reimported.

Recommendation: Avoid transferring projects via XML import from newer to older versions. This can lead to undesired events in Engineering Studio and Service Engine.

23 FAQ

Errors during the installation mostly occur when the replacement or creation of files is prevented by a virus scanner or by existing installations. Here you can find the most frequent reasons for installation errors and their solution.

ZENON

Problem	Solution
Installation is terminated. Typical error message: Error 1304. Error writing to file...	Deactivate the virus scanner. Close unnecessary programs.
Demo projects were installed but are not displayed. New projects cannot be created.	Check the computer name. The computer: <ul style="list-style-type: none"> ▶ must not consist of more than 15 characters ▶ must be in accordance with the convention of the NetBIOS computer name
Error message that a service cannot be started.	<ul style="list-style-type: none"> ▶ first reboot the computer ▶ then start the zenon setup again

SQL SERVER

GENERAL

Problem	Solution
The installation is unsuccessful because the password does not meet the requirements.	The installation of SQL Server is not possible if the security requirements do not permit a password length of 20 characters (A-Z, a-z, 0-9 and special characters). Each character can only be used once.

24 Technical support

BASIC SUPPORT

If you need support for the installation, our employees in Technical Consulting would be happy to help you.

User with basic support can reach the hotline at the following e-mail address:
support@copadata.com.

ADVANCED AND PREMIUM SUPPORT

If you have an Advanced or Premium service agreement, please use the telephone number or email address provided in that. Our sales employees (sales@copadata.com) will gladly assist you, if you want to upgrade your free basic service agreement to an Advanced or Premium service agreement.