

Instruction manual

AkvisIO IME
(Injection molding
edition)
Type 2878A

Version 9.0.0



Foreword

Thank you for choosing a Kistler quality product characterized by technical innovation, precision and long life.

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1. Introduction

Please take the time to thoroughly read this instruction manual. It will help you with the installation, maintenance, and use of this product.

To the extent permitted by law Kistler does not accept any liability if this instruction manual is not followed or products other than those listed under *Accessories* are used.

Kistler offers a wide range of products for use in measuring technology:

- Piezoelectric sensors for measuring force, torque, strain, pressure, acceleration, shock, vibration and acoustic emission
- Strain gage sensor systems for measuring force and torque
- Piezoresistive pressure sensors and transmitters
- Signal conditioners, indicators and calibrators
- Electronic control and monitoring systems as well as software for specific measurement applications
- Data transmission modules (telemetry)

Kistler also develops and produces measuring solutions for the application fields engines, vehicles, manufacturing, plastics and biomechanics sectors.

Our product and application brochures will provide you with an overview of our product range. Detailed data sheets are available for almost all products.

If you need additional help beyond what can be found either on-line or in this manual, please contact Kistler's extensive support organization.

1.1 Summary

AkvisIO IME (Injection Molding Edition) is a software solution developed by Kistler to centralize and streamline data management for injection molding processes.

It combines a high-performance database with a modern web-based interface to collect, store, and analyze process data from Kistler devices such as ComoNeo and ComoScout. By leveraging PostgreSQL with the TimescaleDB extension, AkvisIO efficiently handles large volumes of time-series data, ensuring fast access and robust analytics even for high-frequency production environments.

The system is designed to provide operators, process engineers, and quality managers with comprehensive tools for monitoring and improving production quality. Core functionalities include real-time visualization of trends and cycles, statistical process control (SPC) for key process indicators, and detailed reporting capabilities. Users can export audit trails, production reports, and cycle data in various formats, while integrated role-based access control and audit trail functionality ensure compliance with industry standards such as FDA 21 CFR Part 11.

AkvisIO offers significant benefits by reducing manual data handling, improving process transparency, and enabling data-driven decision-making. Its modular architecture allows for easy integration with existing production networks and scalability for future requirements. By using AkvisIO, manufacturers can optimize cycle performance, minimize scrap rates, and enhance overall process capability, making it an essential tool for modern injection molding operations.

1.2 System requirements and preparation

The following system requirements and preparations need to be respected to ensure successful installation of AkvisIO IME on your server.



Please take care of the preparations and hardware recommendations that are listed in the following and/or in the product's datasheet or reach out to your local Kistler contacts to get a hardware-check. Otherwise, it cannot be guaranteed that the system runs as smoothly as intended.

Hardware requirements

	Minimum	Recommendation
CPU	4 Cores	8 Cores
RAM	16 GB	16 GB
Bandwidth	1 GB/s	1 GB/s
Storage	100 GB SSD	1 TB SSD

AkvisIO will run safely at 100 GB storage, but you may need to adjust the storage according to the size and frequency of data in your production.

Software requirements

AkvisIO has been developed and tested for operating systems listed as following and should thereby be running on these systems and be compatible to corresponding higher versions:

- Windows 10 22H2 and more recent
- Windows Server 2016 1607 and more recent

As several services are set up and registered that use different ports on your network, please make sure that the following ports are not used by any other system or blocked by your network firewall:

- 80
- 123
- 443
- 3000
- 3001
- 4222
- 5000
- 5001
- 5003
- 5004
- 5005
- 5006
- 5432
- 9080
- 9090
- 9095
- 9182
- 9988

To check if a port is already occupied, please run the following command on Windows PowerShell:

```
tnc localhost -port {port_number}
```

Or you can use the following command on Windows Powershell to find out which process is already using a specific port:

```
Get-Process -Id (Get-NetTCPConnection  
LocalPort {port_number}).OwningProcess
```



Please make sure to have all actual service updates installed to your windows operating system. To have a final check, please start the Windows Update right from the Start-Menu or navigate to the corresponding website (<https://windowsupdate.microsoft.com>).

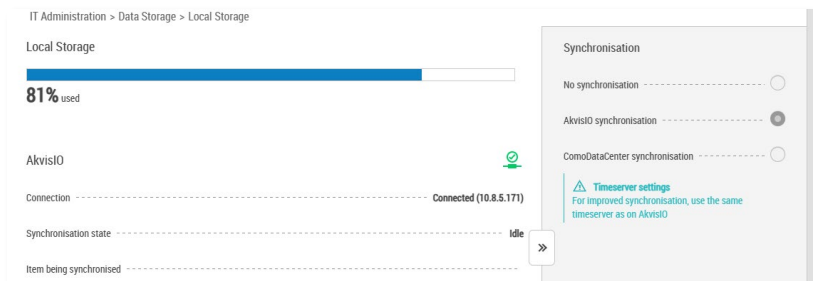
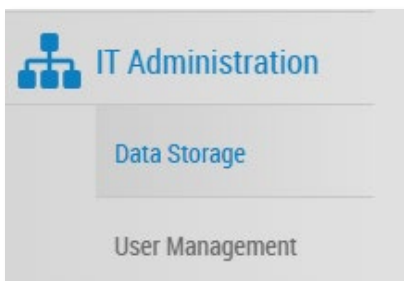
Kistler device settings (ComoNeo, ComoScout)

Please make sure that you have all your Kistler Devices set to the current software version by updating to the latest firmware (**FW**). AkvisIO needs to have at least the following versions installed on your Kistler devices:

ComoNeo FW 6.0.0

ComoScout FW 2.0.0

To enable synchronization to AkvisIO, please navigate to *IT Administration > Data Storage* on your ComoNeo or ComoScout and enable **AkvisIO synchronization**.



1.3 AkvisIO IME components

AkvisIO consists in general of a high-performance database, a web-based (or server-based) user interface (**UI**) and multiple features to register data sources, analyze recorded data for quality-reasons as well as to manage raw data (e.g. export as .csv-files), complex data objects (e.g. import mold configuration or reference cycles) or reports (e.g. HTML-Report-Pages).

To store and access recorded data, a single relational database (default **PostgreSQL**) is used. Each module exclusively uses its own schema (namespace) within the AkvisIO Database. In addition, TimescaleDB Extension is implemented to the PostgreSQL to manage timeseries data. Timeseries data is characterized as a sequence of data points collected over time intervals e.g., to track changes of a cavity-pressure or a screw-position over time. As these timeseries data can consist of massive amounts of time-centric data, a basic relational database might not be suitable. TimescaleDB Extension, however, is purpose-built for timeseries use cases. It is commonly used for e.g., product or web analytics and IoT Devices that require rapid ingestion of large datasets in high frequency.

1.4 License agreement

Please refer to the software license agreement supplied with the system components. This package describes the software license agreement in detail. The AkvisIO Injection Molding Edition (IME) system and its components are protected by copyright laws pertaining to computer software. It is illegal to copy software or documentation except for backup purposes. It is illegal to share components, software or documentation with other persons or institutions. The software contains trade secrets and must therefore not be decompiled or converted by any other means into a form comprehensible to a person. The software and its documentation must not be modified, adapted, translated, loaned, or leased.

The software may be permanently transferred to another user if you notify Kistler in advance, hand over the documentation and all CDs, and inform the new user of the conditions in the license agreement.

2. Customer service

Kistler's global service organization is available to assist you with specific questions and problems that may arise. For general assistance and customer service, please use the services and support facilities as well as the complaint offices. Before contacting Kistler Support, please be prepared to describe the problem in detail so that we can provide you with targeted assistance.

2.1 General customer information

AkvisIO IME contains a high-performance database to store high-frequent time series data. Therefore, a PostgreSQL Database with Timescale Extension is used to store and process huge amount of time series data. The provided database combines the benefits of relational databases for efficient filtering and visualizing stored data with effective storage of complex timeseries data recorded from Kistler FieldDevices like ComoNeo and ComoScout as well as Third-Party Data Sources like Injection Molding Machines.

Besides storing data, AkvisIO offers many features to enable an operator or data analyst to analyze the recorded data, manipulate and share data e.g., in the form of quality reports. Basic statistical analytics e.g., to conduct Statistical Process Control (**SPC**) not only on process parameters but also on implemented Evaluation Objects (**EOs**) are already part of the core features of AkvisIO. Finally, the software can be extended by further analytical or management features to control process and part quality according to the needs of our customers.

2.2 Capabilities

AkvisIO consists in general of a high-performance database, a web-based (or server-based) user interface (UI) and multiple features to register data sources, analyze recorded data for quality-reasons as well as to manage raw data (e.g. export as .csv-files), complex data objects (e.g. import mold configuration or reference cycles) or reports (e.g. HTML-Report-Pages).

To store and access recorded data, a single relational database (default **PostgreSQL**) is used. Each module exclusively uses its own schema (namespace) within the AkvisIO Database. In addition, TimescaleDB Extension is implemented to the PostgreSQL to manage timeseries data. Timeseries data is characterized as a sequence of data points collected over time intervals e.g., to track changes of a cavity-pressure or a screw-position over time. As these timeseries data can consist of massive amounts of time-centric data, a basic relational database might not be suitable. TimescaleDB Extension, however, is purpose-built for timeseries use cases. It is commonly used for e.g., product or web analytics and IoT Devices that require rapid ingestion of large datasets in high frequency.

The web-based UI is written in JavaScript using React and our own Skybase UI libraries. Thereby, scalability and connectivity to other Third-Party Software Solutions can easily be realized as many modern software systems are using interfaces based on JavaScript or TypeScript.

2.3 Features

Features are developed to directly process data and present results in the UI or by running e.g. python-based algorithms in the backend. Therefore, several Kistler-specific data objects are used and listed as follows:

- Mold (*.mold)
- Process (*.process)
- Reference Cycle (*.ref)
- Production (*.oei, *.pei, *.bei, *.dei)

2.3.1 Additional features

While AkvisIO IME already offers many features to help you control your production environment and continuously improve your injection molding processes, new features for advanced data analysis and operator support are already in development. Stay tuned about new features that can be added to your current AkvisIO version through functional upgrades or as an optional software module. These may also be new interfaces or export options that are currently not included in AkvisIO.

If you have additional comments or requests for features to be added to AkvisIO, please contact us at plastics@kistler.com. We will consider your wishes in the upcoming development sprints and releases in the best possible way and will be happy to discuss the specifications of your individual feature request with you.

Additional features for e.g., enhanced data analytics that extend the basic functionalities of AkvisIO to a customer's specific purpose are also sold on annual basis and need to be prolonged after expiration.

2.4 Service and support

The customer is responsible for proper installation and correct operation of the systems. Every system component must be installed in accordance with the instructions. If it is necessary to make modifications to these instructions for a specific customer, Kistler recommends that the customer consults a Kistler representative for advice about these changes.

Installation problems and subsequent problems with system performance can be resolved quickly by prompt communication. Most questions can be answered quickly and easily by e-mail or via phone. We would encourage customers to contact the responsible Kistler organization by email or telephone.

We welcome your comments and suggestions relating to future functions and additions. You can send us your suggestions at any time by email: plastics@kistler.com.

2.5 Complaints

Complaints relating to supplied goods must be submitted within 14 days of receipt. After Kistler has verified the damage, settlement is made by the forwarding agent, the insurer or Kistler. Settlement is offered in the form of replacement, repair, or credit.

2.5.1 Direct contact

If you need extra assistance, you can contact your Kistler sales representative anytime.

3. Important information

Please always comply with the safety regulations that apply in your country and are stipulated by the machine manufacturer. No liability claims may be made for damages caused by improper handling or the infringement of safety regulations.

3.1 For your safety

This software is not a hazardous device. When working with this software, please observe the general guidelines for working on computers. To avoid loss of data, we request that you back up data on a regular basis and store it securely.

3.2 Disposal instructions for electrical and electronic equipment



Do not discard old electronic instruments in municipal trash. For disposal at end of life, please return this product to an authorized local electronic waste disposal service or contact the nearest Kistler Instrument sales office for return instructions.

3.3 Information on software upgrades and updates

Kistler may from time-to-time supply upgrades or updates for embedded software. Such upgrades or updates must always be installed.

Kistler declines any liability whatsoever for any direct or consequential damage caused by products running on embedded software which has not been upgraded or updated with the latest software supplied.

4. Getting started

AkvisIO IME can in general be used in various installations. The main distinction between these variants is whether the customer would like to use a network that contains all data sources (ComoNeo, ComoScout, Third-party Data Sources like Injection Molding Machines). Only with network connection, the software can work to its full potential and offer the intended benefits of synchronized data streams without the necessity of manual import/export workarounds.

AkvisIO is intended to be installed on a server that is not used to run other software solutions. The access to the recorded data as well as to the UI is done via login browser to a web-based interface. Therefore, specified users can be generated or a connection to the customer's Lightweight Directory Access Protocol (LDAP) can be build up to have enable user-rights-management and log-reports. To guarantee ideal performance of the software, it is important to not interfere with the generated program folder via any Anti-Virus Software.

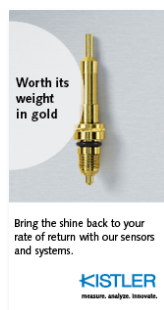
AkvisIO IME was designed as a server application and Kistler recommends using it as such. This allows the software to be used to its full potential within a customer's production network.

4.1 Installation of the software

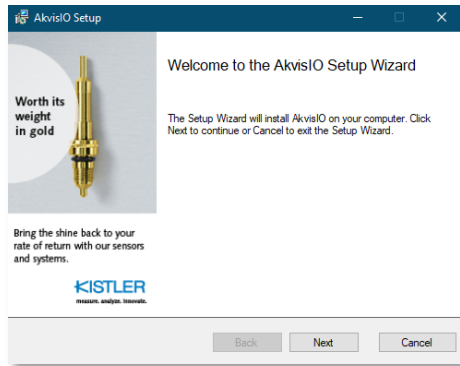
To install AkvisIO IME, please download the software executable installer (*.exe) from the Kistler product website.



The successful installation requires extended rights of the user to install and change corresponding services to setup databases. Therefore, we recommend you start the installer with administrator-rights by right-clicking the executable file and selecting **run as administrator**.



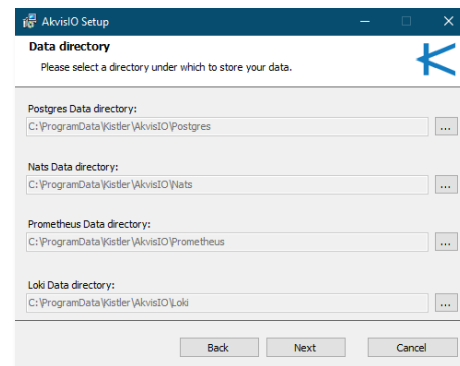
After starting the executable file named as AkvisIO_< version number >.exe, the Pop-up on the left indicates that the installer is starting.



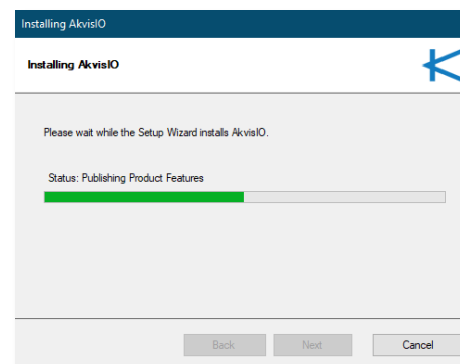
Next, the installation wizard is requesting your confirmation to install AkvisIO IME by clicking on **Next**.



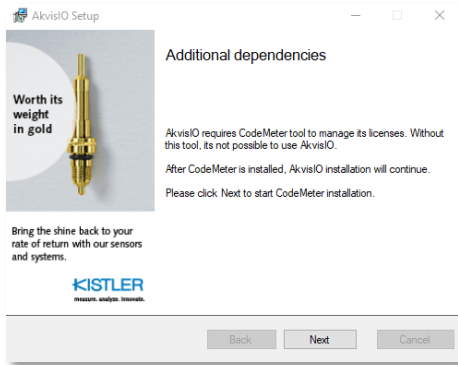
Please read and accept the terms in the End-User License Agreement by ticking the checkbox labelled *I accept the terms in the License Agreement* and clicking on **Next** to continue the installation procedure.



In the upcoming window, the installer asks you to select a directory under which to store your application data. To ensure proper running the software, we recommend going with the pre-selected directory that will create a Kistler-folder at your ProgramData and the corresponding sub-directories once you click **Next**.



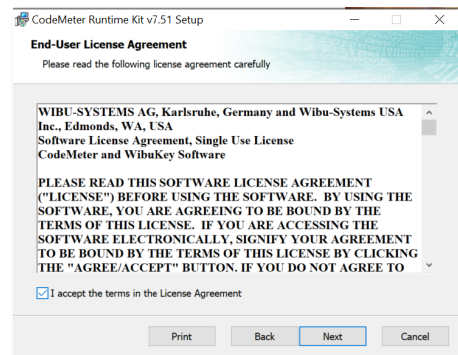
The Installer will run the mandatory commands and create all files and folders necessary to start AkvisIO and its services.



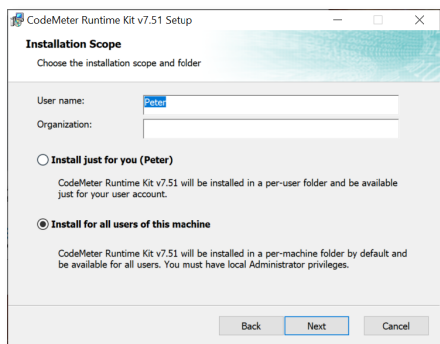
After successful setting up the files and folders to run AkvisIO, you need to continue with installing CodeMeter as third-party-dependency to manage software licenses with this software tool. Please confirm continuing with **Next**.



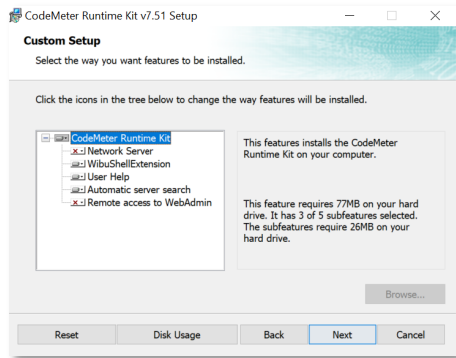
The software tool CodeMeter will be installed once you click **Next**.



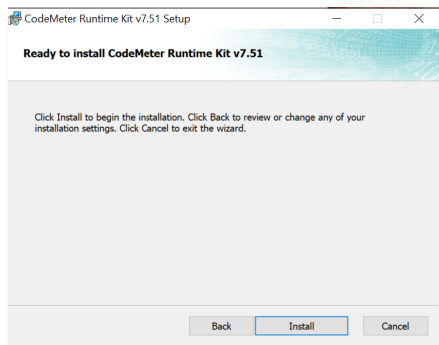
Please again read and confirm the End-User License Agreement by ticking the checkbox labelled as *I accept the terms in the License Agreement* and click on **Next**.



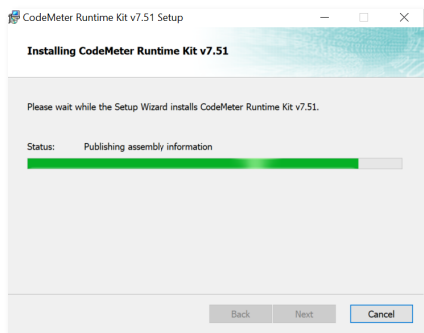
The following pop-up asks you to select the user account for installing CodeMeter. After choosing the desired option, please just confirm by clicking on **Next** to continue installation.



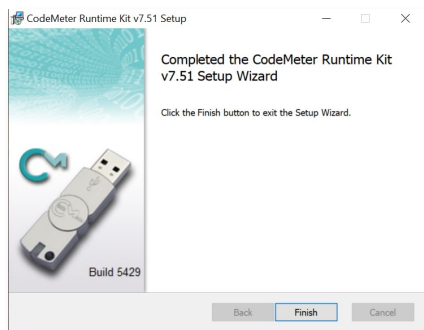
Next, you might go for a customizable setup or just go with all standard options and continue with **Next**.



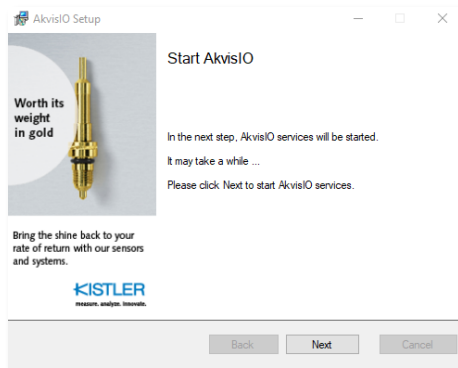
You will be asked to finally confirm installing CodeMeter (**Install**), to adjust the previous settings (**Back**) or to cancel the installation (**Cancel**).



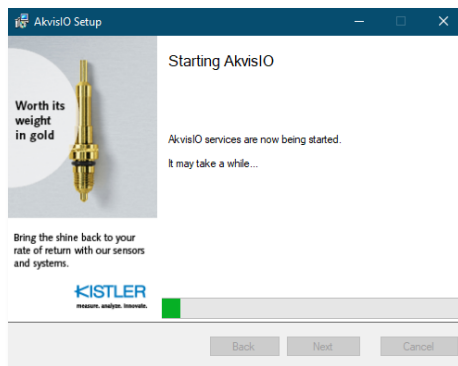
Once you confirm and start installing CodeMeter, the installer will setup all necessary files and folders.



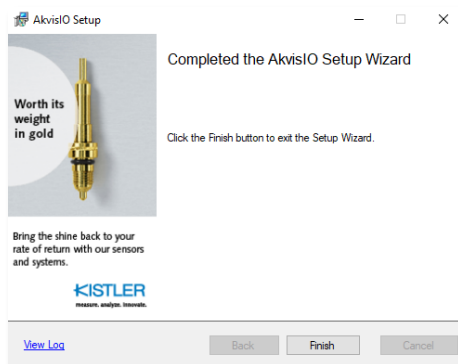
After successful installation of CodeMeter, you can close the CodeMeter Installation by clicking on **Finish**.



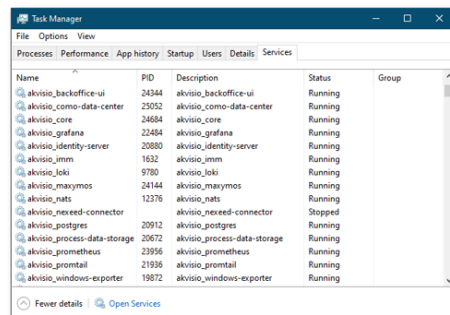
You will be able to continue AkvisIO IME installation by starting the AkvisIO Services. Therefore, just continue with **Next**.



Once you confirmed, it may take a minute or two to start and register all services.



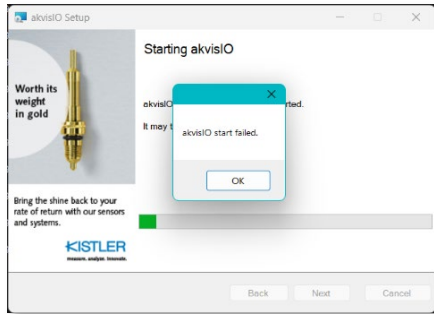
After successful start of the services, the installation has been completed. You can now close the procedure by clicking on **Finish**.



By checking the services listed in your TaskManager, you will see the listed services running. Therefore, just open the TaskManager via **ctrl + shift + esc** or by searching for the TaskManager in your Windows Start Menu.

In the current version, all services except for *akvisio_nexeed-connector* should be in the state of running.

4.1.1 Known issues



Running the installer without administrator rights

If you start the installation procedure without administrator rights, some of the mandatory services might not start as intended. This refers e.g. to services to run and start databases that are needed for AkvisIO to store data.

You might be informed about failed starting of the AkvisIO services right before the installation should have been completed. The stopped services can be tracked by looking up the services at the TaskManager.

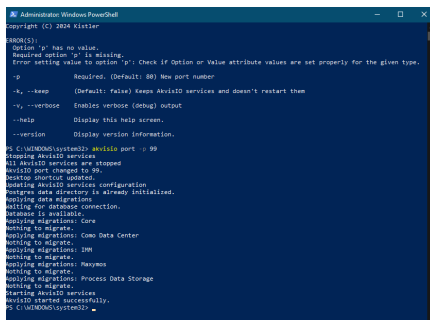
Changing the folder structure

If you change the pre-selected folder structure at the installation walkthrough, some of the services might not be registered and started the right way. Therefore, we recommend leaving the pre-selected directories as-is. Development and testing are ongoing and will enable configuration with stable services in upcoming software versions.

Blocked port 80 for backoffice-ui service

The service backoffice-ui is used as a handler between several other services e.g. when synchronizing data and writing into the database. It is installed by default to listen to port 80. Thereby, the UI also can be accessed by entering

<https://localhost/> or
<https://localhost:80/>

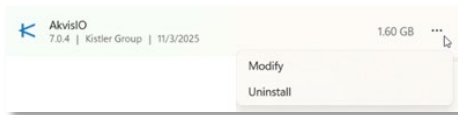


The requested port 80 might be blocked by e.g., existing Windows-Services as it is commonly permitted to send and listen to http-requests. Seamless communication of AkvisIO services might thereby also be blocked. By starting Windows PowerShell as Administrator and running the following command, you can change the port that backoffice-ui is listening to:

```
akvisio port -p {new port number}
```

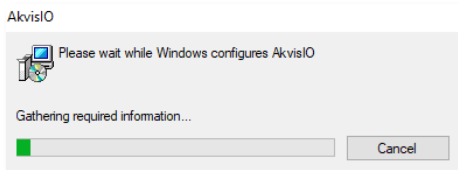
In the following, the services will be restarted autonomously and listening to the new port. Furthermore, the desktop icon will also be reassigned to open AkvisIO by entering localhost at the new port.

4.2 Uninstalling of AkvisIO IME

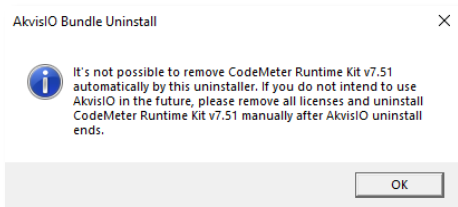


You can uninstall AkvisIO IME by navigating to your windows system settings and the menu to add or remove programs. AkvisIO should be listed there in its currently installed version with the options to **Modify** or **Uninstall**

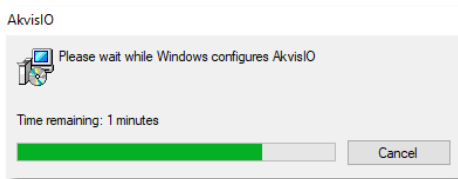
To uninstall, just continue with selecting **Uninstall**.



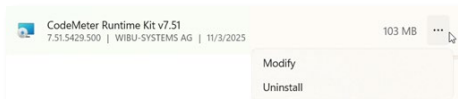
The Software will directly gather all information about services and folders to remove.



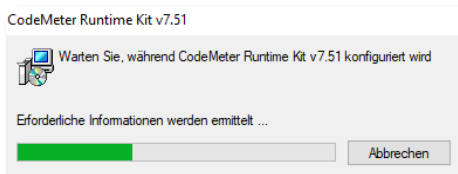
Regarding the mandatory third-party-installation of CodeMeter for running Kistler Licenses, a direct uninstallation of this software cannot be done automatically. A pop-up will inform you that deinstalling this software needs to be done separately if requested. Please confirm by clicking **OK**.



Afterwards, deinstallation will then continue by removing all services and folders as planned. The deinstallation process will then be completed.



If CodeMeter should be uninstalled as well, please repeat the procedure by selecting CodeMeter from the list of installed programs and continue with **Uninstall**.



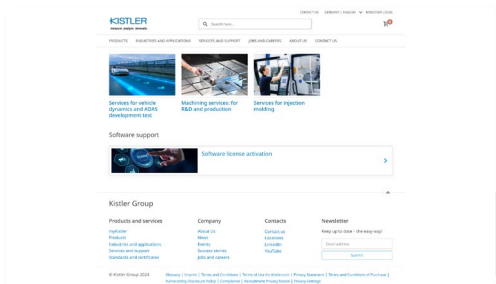
Afterwards, CodeMeter will be uninstalled completely from your Computer.

4.3 Licensing

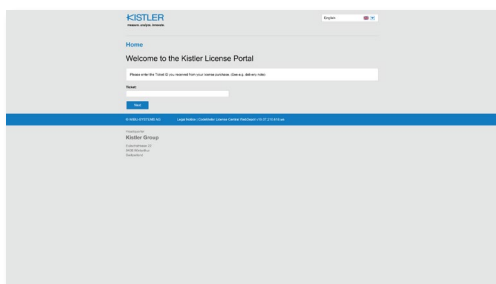
AkvisIO IME is intended to be sold as single-installation purchase with a validation-period of 365 days in which all functional upgrades and safety updates are covered. After 365 days, another maintenance-license needs to be purchased to continue with the full service.

Otherwise, AkvisIO will still be usable to access and to store data. Also, critical safety updates and bug fixing will be covered, but the overall functionality and functional upgrades for e.g., improved system performance and stability as well as the overall software support are strictly limited. In case of a paused maintenance and continuing the services after some years, it may be necessary to compensate the interim downtime of maintenance-validation or to setup a completely new version of AkvisIO. Therefore, it is highly recommended to ensure a continuous maintenance-service on annual basis.

4.3.1 Online license activation



Once you purchase AkvisIO IME, you will get a license ticket for activation according to your product configuration via the Kistler License Certificate. This ticket needs to be activated at the Kistler Homepage via www.kistler.com before being able to use AkvisIO. To activate the ticket, navigate to *Home / Service and Support / Software Licensing* and enter the Ticket-Key afterwards at the *Kistler License Portal*.



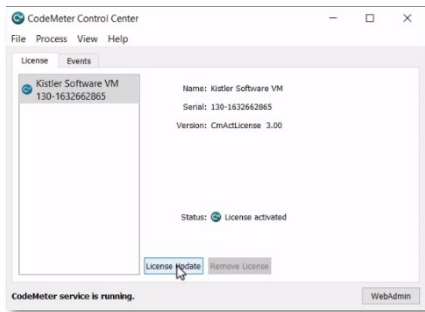
If possible, the license-activation-procedure via CodeMeter will be started by transferring the request to the Kistler License Service and generating an Activation-Container to the device that AkvisIO has been installed on. You may confirm afterwards by clicking on **Ok**.

The valid licenses will be presented afterwards in the web interface for your overview. The validation has been completed; you can now close the browser.

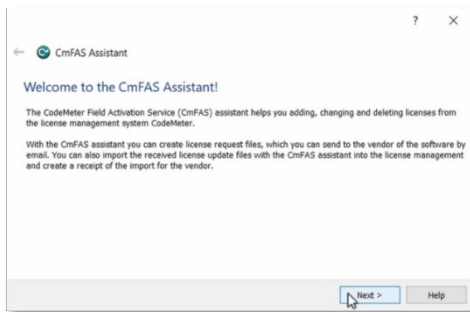
4.3.2 Offline license activation



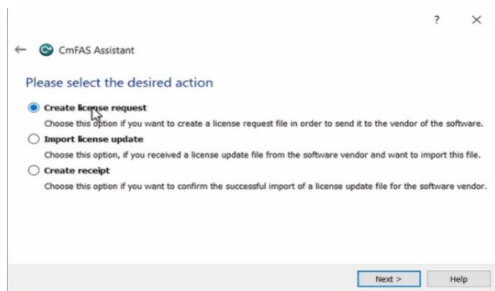
If you installed AkvisIO on a server that is not connected to the internet for license validation, you can also activate the license manually with the help of e.g. a USB-Stick.



First, start the CodeMeter application and click on **License Update**.



You will be welcomed by the CodeMeter FieldDevice Activation Service Assistant. To continue just confirm by clicking on **Next >**.

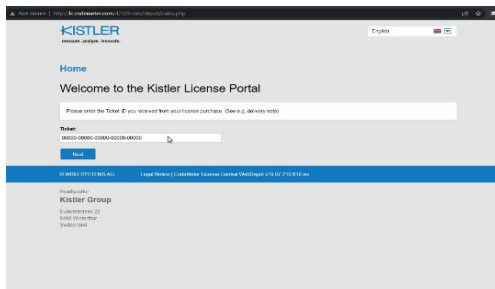


Choose **Create license request** and go on with **Next >**.

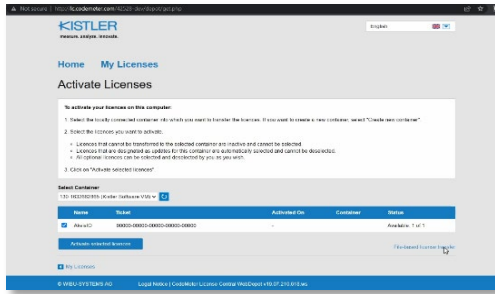


Select the file (...) name and save it on your USB by clicking on **Save** in the pop-up window. Afterwards go on with **Commit**.

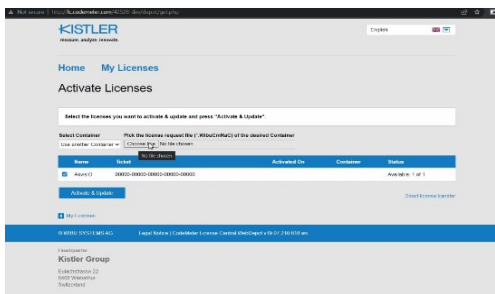
After the license request file has been created successfully, just close the window by clicking on **Finish** and take the USB to an online computer.



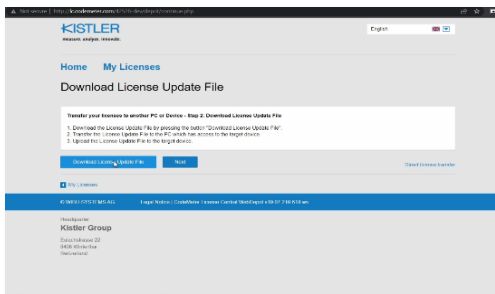
Go to the online CodeMeter WebInterface and type in your Ticket Number. Then click on **Next** and **Activate** the license on the next screen.



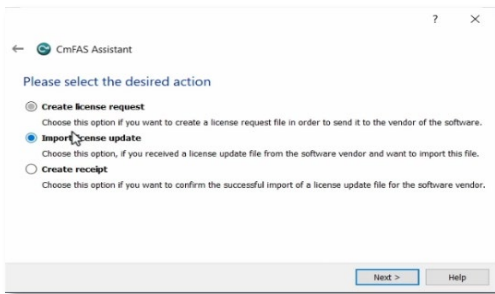
You will see the Activate License Page as shown for the Online License Activation described in Chapter 3.3.2. Instead of activating it right here on the online computer you are using, just continue with **File-based license transfer**.



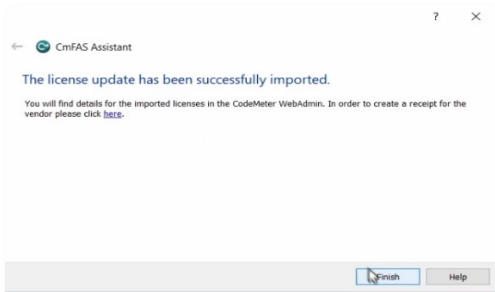
Choose File and select the previously generated license request file (*.WibuCmRaC) from your USB-drive and click on **Activate & Update** afterwards.



Download License Update File to the USB-drive and switch back to your offline computer AkvisIO is installed and should be used on.



Start the CodeMeter Application again and go for **License Update**. Confirm the Welcome-Statement with **Next >** and select **Import license update** afterwards. Choose the updated file from your USB-drive and Commit.



The license should be successfully imported on the offline computer to start and use AkvisIO. Complete and close the application by clicking on **Finish**.

4.4 Initial set-up

To use AkvisIO once it is installed, a Como device needs to be added. The explanation on how to add a device can be found in the "How to..." chapter, under "...add a device".

In order to avoid incompatibility issues, make sure to use the newest version of AkvisIO and ComoNeo or ComoScout.

To prepare the Como device, activate all the purchased licenses and connect the Como to AkvisIO either locally, through Ethernet or Wi-Fi. Once AkvisIO and the Como device are on the same network, change the data storage option to synchronize with AkvisIO.

To learn more about how to prepare the Como device, follow the mentioned steps and refer to the manual of your device.



To find the desired manual, the websites for the Como devices can be found below:

- ComoNeo:

<https://www.kistler.com/INT/en/search-results-list-page/search/5887>

- ComoScout:

<https://www.kistler.com/INT/en/search/5889>

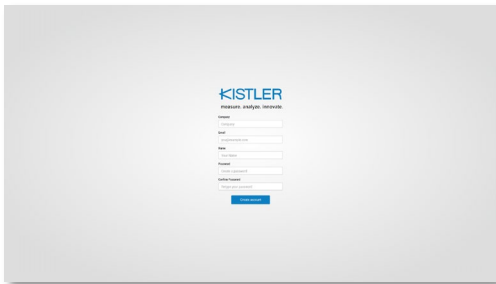
The manuals are stored on the website under
Downloads < Manual

5. Using the AkvisIO IME web interface

After successful installation of AkvisIO IME, you can now access the software's web interface via your browser by entering

<https://localhost/> or
<https://localhost:80>

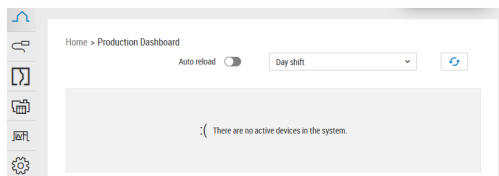
5.1 Starting AkvisIO



At the first login, you need to create a user as administrator. Afterwards, you can create additional users or connect to your company's Lightweight Directory Access Protocol (LDAP).

For detailed description or support in setting up LDAP, please contact your local Kistler Support. The setup is done via console / Windows PowerShell. Please get in contact to your internal IT Administrators to support the procedure and provide the required server configurations.

5.2 Screen layout



At your first access, there might be no molds, devices or processes listed. However, you will start at the production dashboard that will offer you an overview about several tabs from within the software.

The header will offer you the classic Burger-Icon to expand or collapse the menu on the left. Furthermore, you can click on the username typed in previously as your administrator account to *View profile*, *Change password* or *Logout* or you may click on the preselected language shortcut to change the preferred language settings. Next to the Kistler logo, finally, current date and time settings are shown.

The expanded or collapsed menu on the left enables you to navigate through the system to add devices or molds, setup and analyze productions or change settings.

Once you click on any of the labels in the menu, you will see the actual page content in the center of your screen. If there is a sub-menu the menu will expand and activate the menu-view in the center. By entering AkvisIO, you will start at the Dashboard.

5.3 Structure within AkvisIO

AkvisIO files are structured in a way, that mimics the typical production line.

Typically, each Como device is connected to a machine with one physically installed mold. This is also displayed in AkvisIO. By connecting the Como device, all molds are loaded into the Molds / Processes menu page, the loaded mold will be marked red, the unloaded molds are marked green.

For each mold or process, at least one or multiple production series are created. For each mold or process, each production series can be viewed by clicking on the Productions column for the desired mold, on the Molds/ Processes page.

Each production contains at least one or multiple batches, which can be viewed, by clicking on the desired production on the Productions page.

5.4 Manage your own user

Existing users can log into AkvisIO by entering their Email and Password.

In order to edit your own name or role, click on your username and select View profile. To edit your role, the required permissions are needed under Settings < Roles.

To change your password, click on your username and select Change Password.

To learn how to manage other users and roles, refer the "How to..." chapter under "...manage users and roles". Cursor controls.

5.5 Cursor controls

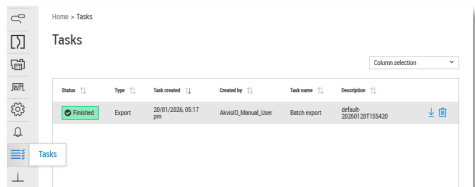


When visualizing data, the tab Cursors on the right hand side allows the user to analyze a point of interest, or to compare two different points. Once selected in the tab, the cursor can then be dragged to the point of interest.

The cursor displays specific values of a cycle in a tabular overview below the graphic. A second cursor can be used to display deviations between values of the markers or integral values between these two markers. To do this, switch from Absolute to Delta or Integral for the second marker.

5.6 Navigation

5.6.1 Navigating through menus



The navigation at the left side of the screen guides through the individual pages of AkvisIO. Click on a main page to open it and display all available sub-menus. The navigation is adapted to the injection molding process in such a way that it is usually not necessary to jump between individual main topics to complete a workflow.

The header will show an icon three lines, known as burger-icon, to expand or collapse the menu on the left.

You can click on the username typed in previously as your administrator account to View profile, Change password or Logout or you may click on the preselected language shortcut to change the preferred language settings.

The expanded or collapsed menu on the left enables you to navigate through the system to add devices or molds, setup and analyze productions or change settings. Once you click on any of the labels in the menu, you will see the actual page content in the center of your screen. If there is a sub-menu the menu will expand and activate the menu-view in the center.

5.6.2 Navigating tables with data

Knowing how to navigate tables is essential in AkvisIO, as they appear throughout the software. For example, when clicking on *Home*, *Device Management*, *Molds / Processes*, *Productions*, *Settings*, *Notifications*, or *Tasks*.

To select your desired columns, navigate to the *Column selection* drop-down menu in the top right of the content page. All of the columns with the check mark selected will be shown inside of the table.

To order the columns on the table, the same *Column selection* drop down menu can be used. Each column listed on the drop-down menu can be moved by clicking on the "six dots" icon next the column title using drag and drop. The columns dropped at the top of the drop-down menu will be listed first, the columns at the bottom of the drop down-menu will be listed last.

For many of the tables it is also possible to filter data within the remaining selected columns. If the option is available, under each column title on the table an option for filtering the data appropriately will be given.

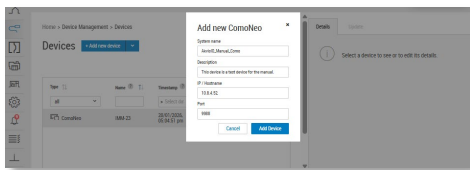
To sort the data within a column, click on the column title on the table. To swap between sorting ascending and descending, click on the column title again.

For many data tables it is also possible to investigate the shown data further, by using the blue action icons. If available, the blue action icons are shown as the last column.

6. How to...

This section explains commonly used functionalities. For detailed page-based instructions, see the next chapter below.

6.1 ...add and update a device



To add the device, it is required to know the IP-address and port of the device. To find The IP-address and port, navigate to IT Administration inside of the Como device.

Inside of AkvisIO, devices can be added and updated under Device Management > Devices. To add a device, click on Add new device and select the correct device. The system needs to be named, and the IP-address and port of the device need to be entered. Once the device is added, click on the device to verify the Details tab.



To update the Como device through AkvisIO, the Como device must be on version **9.0** or newer.

To update the device, the update file *.upt is required. To obtain the latest update file, visit the Kistler website and navigate to the page of the device. Then select the Downloads tab and download the file under Firmware. You may need to log in.



The websites for the Como devices can be found below:

- ComoNeo:

<https://www.kistler.com/INT/en/search-results-list-page/search/5887>

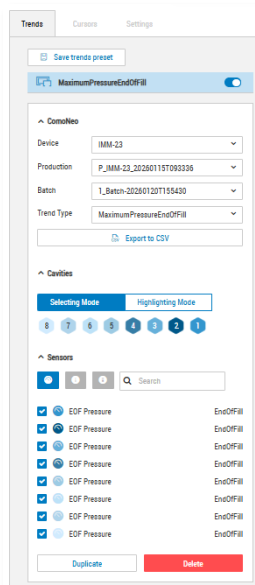
- ComoScout:

<https://www.kistler.com/INT/en/search/5889>

After opening the link, click on the device and select the tab *Downloads* as explained above.

To update the Como device with the update file in AkvisIO, navigate to **Management > Devices**. Click on the device, select the **Update** tab on the right hand side, and click on **Import file**.

6.2 ... compare cycles and trends

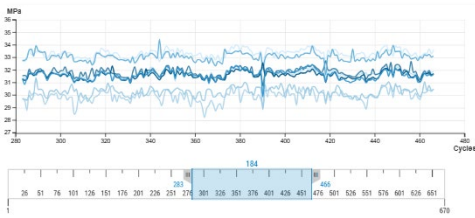


Trends and cycles can both be compared under **Visualizations > Cycles/Trends**.

For trends, click on **Add Trend** in the middle of the page to add multiple trends.



The EO trend types are only shown in productions, where the EO is set. If the EO is not defined for a given production, it will not show as trend type.



On the main page of **Visualization**, under the tab **Settings** on the right, the visual can be adjusted such as the numbers the number of cavities shown. If the cavities should not be sorted by ID number, but rather by highest/lowest value, select the **Settings** tab next to the trends tab. The trend color can also be adjusted here.



The **Cursors** tab on the right-hand side of Trends, and also Cycles, allows to add markers to the graphic. This allows the user to display specific values of a cycle in a tabular overview below the graphic. A second marker can also be used to display deviations between values of the markers or integral values between these two markers. To do this, switch from **Absolute** to **Delta** or **Integral** for the second marker.

To compare cycles, the correct batch first needs to be selected on the main page of **Cycles**. If the desired cycle number is known, the desired cycle can be shown by typing the cycle number into the Cycles field on the main page. To compare the cycle a range of 1 to 100 cycles can be shown before the desired cycle by adjusting the slider at the bottom of the main page. If a cycle is particularly of interested, it can be saved as reference cycle on the **Settings** tab on the right hand side. To create a reference cycle, scroll down to the **Reference Cycle** section on the Settings tab, and click **Create Reference Cycle**. Make sure that **Show Reference Cycle** is turned on. If multiple reference cycles are defined, the desired reference cycle can be selected in the drop-down menu above the Create Reference Cycle button.

On the Settings tab, the option to select only certain cavities or sensors is provided, similar to the *Trends* functionality is also provided. Additionally, EOs can be toggled on or off in a similar manner.



There is multiple ways to compare data in AkvisIO, this is one of the possible methods. For detailed instructions, see the page-based instructions below.

6.3 ... visualize trend statistics in a histogram

For each trend, the corresponding histogram can be shown by navigating to *Visualization > Statistics* and selecting the blue icon on the right hand side.

On the tab at the right side of the histogram page, the number of bins for the histogram can be adjusted. Additionally, in the same tab, EO limits and control limits can be toggled on or off as needed.

6.4 ... export audit trails, production reports, cycle, and mold data

Several export features are available in AkvisIO:

- Export mold / process
- Export production
- Export batch as *.aio
- Export batch as *.csv
- Export production report of a batch
- Export Audit Trail

Before exporting the desired mold (ComoNeo) or process (ComoScout), make sure that it is unloaded and not actively running. To export the Molds / Processes, navigate to Molds / Processes, select the desired mold or process and click on the blue *Export* icon on the right of the desired mold / process.

The process for exporting productions is identical. Simply navigate to the Productions page and click on the blue *Export* icon on the right of the desired production.



When exporting a production, only **closed** batches will be exported.

To export a batch, navigate to the Productions page and click on the production that contains the desired batch. If the desired batch is not in the status *closed*, it must first be set to closed. On the right of the desired batch are multiple icons to export data.

To export the batch as AkvisIO file, click on the blue *Export batch icon* on the right side. This export is faster and also allows for a faster import than a *.csv file. The file will be ready to download in *Tasks*.

To export the batch as *.csv click on the blue CSV icon on the right side. After clicking on the *CSV icon*, several export options are provided, such as whether trends or cycles should be exported, or the number of desired sensors for the export. If the time-steps between two points for the *.csv file should be identical, choose Equidistant as time distribution.



It is also possible to export a batch as *.csv file by navigating to *Visualization > Trends*.

To export the production report of a batch, navigate to the *Productions page* and click on the production that contains the desired batch. To open the production report, click on the blue *Production Report* icon on the right side next to the CSV icon. To export Production Report select *Print* and save it as *.pdf file. If desired, a company or customer logo can also be added to the report. To do this, save the corresponding vector graphics with the file name "customer_logo.svg" under the following file path in the file system:

**C:\ProgramFiles\Kistler\AkvisIO\BackofficeUI\www\asset
s\images**

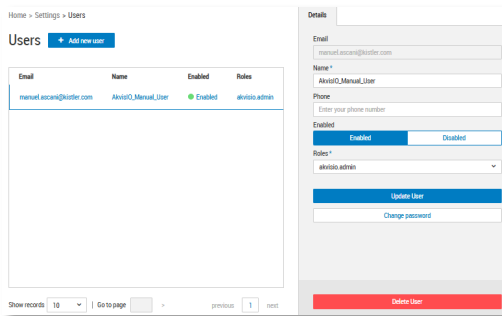
6.5 ... define trend presets

To define trend presets, navigate to *Visualization < Trends* and add the desired trends. Then click on the Save trends preset buttons under the tab *Trends* on the right side. When changing between batches, the same Trends will now be shown for the new batch.



If EO trend types are saved as preset, they will only be shown in batches, where the EO is set. If the EO is not defined for a given production, it will not show as trend type.

6.6 ... manage users and roles



To add users navigate to *Users* and click on *Add new user*. Alongside an email, name and password, a role needs to be assigned. The default roles are admin, guest and external, each have a different level of access to AkvisIO.

To define additional roles, navigate to *Settings < Roles*, click on *Add new role*, and define the desired privileges for the role.

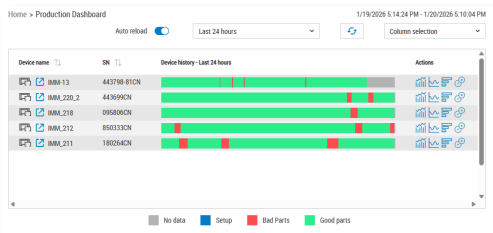
To adjust or remove a user or role, click on the desired defined user or role under *Settings > Users* or *Roles*, and after the adjustments, click *Update User* or *Role*, or *Delete User* or *Role*.

To edit or remove a user or role, navigate to *Settings > Users* or *Settings > Roles*, select the desired user or role, apply the necessary changes, and then click update to save or delete to remove the user or role.

7. Page-based instructions

7.1 Dashboard

7.1.1 Production Dashboard



The Production Dashboard provides an overview across all connected Devices for a specified time period. The time period can be adjusted by selecting desired choice in the drop-down menu. The work shift can be configured under *Settings > Other Settings*.

On the Production Dashboard, to automatically receive the newest cycle, *Auto reload* can be selected. If this is not selected, the newest cycle can manually be loaded by clicking on the reload button.

The second drop-down menu can be used to select which columns should be shown on the page. The column *Device history* shows the evaluation of the Como cycles for the specified time period. On the left of the bar the oldest received data in the specified time frame is shown, on the right, the most recent received data is shown. If for some time within the specified time frame no data is received, the device history will be gray for that time.

Once the Como is in production mode and transferring cycle data, the bar on the right will be either red or green. If the cycles were good, it will be green, if the cycles were bad, it would be red. If the Como device is not in production mode, all incoming cycles will be marked blue.



For high cycle counts (>1000 cycles/hour) the display will summarize multiple cycles into one color. Priority will be given to red. For example, if three cycles are combined into one, and two cycles are good, while one is bad, the segment would be displayed as red. This does not affect the scrap rate or utilization calculation.

The utilization calculates the ratio of time in production to the selected time period. For example, if your machine runs for 6.00 hours in production, with an 8-hour period selected, then the utilization would be shown as 75.00%.

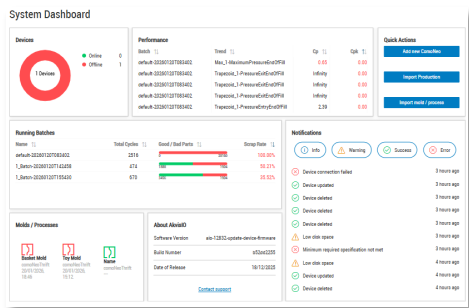
The scrap rate calculates the ratio of bad parts to total parts cycles while in production, for the specified time period.

The Actions column allows the user to navigate to the visualizations of: *Trends*, *Cycles*, *Statistics*, and to *Good / Bad Parts*.



Under the *Device name* column a blue arrow is shown for each device. Clicking this blue arrow will open the Como URL. The link to the Como URL can be changed under *Device Management < Devices*.

7.1.2 System Dashboard



The System Dashboard has seven widgets to give you a broad overview about current or recent activities on registered devices, the current performance and many more. It serves as first entry point and offers some quick links to most frequent tasks.

Devices: Gives a statistic about the number of devices that are connected to AkvisIO and whether they are online or offline for data access. By clicking on the widget, you can directly take the shortcut to the menu to inspect the respective devices, add or configure data sources.

Performance: Gives an overview about current statistics from Statistical Process Control (**SPC**) on Evaluation Objects (**EOs**). By clicking on the widget, you can directly take the shortcut to the menu to inspect the statistics and go for dedicated analytics and process improvements.

Quick Action: Offers three shortcuts to configure a new data source at *Device Management > Devices* via **Add new device**, to import stored production files (*.oei, *.pei, *.bei, *.dei) from local directories at Productions via **Import productions**, or to import a mold or process file (*.mold, *.process) from your local directories at *Molds / Processes > Molds / Processes* via **Import mold**.

Running Batches: Lists currently running batches and enables you to sort the batches by their *Name*, *Total Cycles*, *Good/Bad parts statistic*, or actual *Scrap rate* by clicking on either one of the labels. Furthermore, you can jump right into the batch details by clicking on the respective list entry.

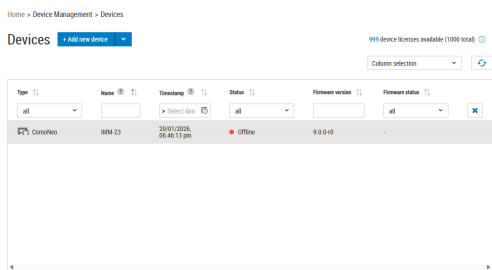
Molds / Processes: Lists the last three molds (ComoNeo) or process (ComoScout) configurations that have been set up by their name, type of communication and the timestamp of the last cycle. By clicking on the mold or process configuration, you can take a shortcut to *Molds / Processes* > *Molds / Processes* filtered by the name of the selection.

About AkvisIO: Indicates the current *Software version*, the *Build number*, and the *Date of release*. By clicking on **Contact support**, your preferred mail program will open an email to support@kistler.com.

Notifications: Lists the last notifications and offers the possibility to filter for the type of notification as **Info**, **Warning**, **Success**, or **Error** message. By clicking on either one of the listed notifications, you navigate directly to the *Notification* menu for closer examination.

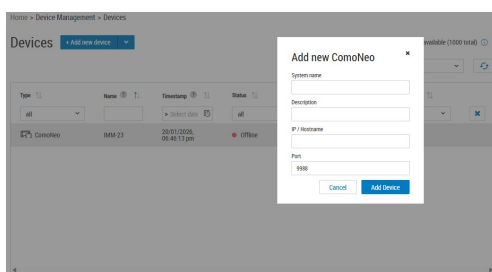
7.2 Device Management

7.2.1 Devices



By navigating to Device Management, you get a list of all registered devices that serve as data source for AkvisIO. They can be filtered by *Type*, *Name*, *Status*, or the *Timestamp* of the last recorded cycle data.

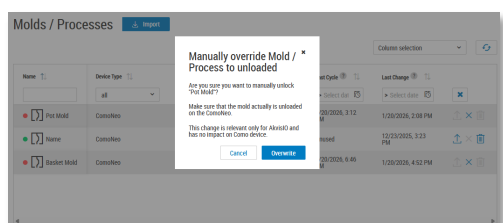
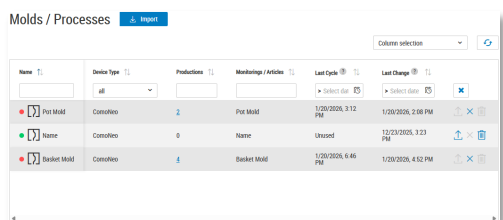
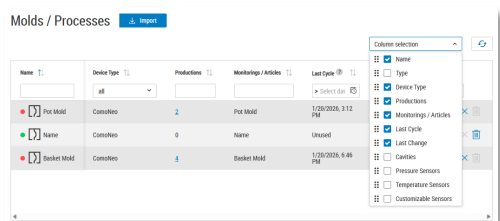
By selecting a device, you can edit its configuration to a customizable *Device Name*, a *Description* as well as the *IP / Hostname* and the *Port*. Just click on Save if any adjustments have been made. Furthermore, you can also completely Deactivate or Remove a Device.



Additionally, by clicking on **+ Add new device**, you can easily register and configure a new data source like ComoNeo, ComoScout or an injection molding machine (IMM).

To update an added device, change the tab from Details to Update and import the newest update-file. To see the progress of the update, navigate to the menu Tasks on the left hand side.

7.3 Molds / Processes



By navigating to *Molds / Processes*, you directly get an overview of the registered molds (ComoNeo) and processes (ComoScout) and their current activity status. You can search for a specific mold or process name, or filter / sort the instantiated configurations. Therefore, you can sort by *Type*, *Device Type* and many more.

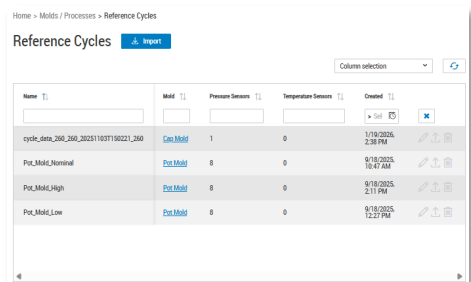
The dropdown-menu at **Column selection** enables you to add or remove columns or change the order to get a customized view on your molds and processes.

By clicking on **Import**, you can load stored *.mold or *.process files. The synchronization of connected devices like ComoNeo and ComoScout, however, automatically imports all instantiated configurations of molds and processes on these devices. Thereby, it is not necessary to import each preset manually. At the same time, e.g., process configurations can directly be analyzed after instantiation at the shopfloor device terminal.

To export a mold or process, make sure that it is unloaded and not actively running, this can be done inside of AkvisIO by clicking the blue X'icon. To export the Molds / Processes, select the desired mold or process and click on the blue *Export icon* on the right of the desired mold / process.

To delete a mold or process, click on the blue bin icon next to the blue X icon.

7.3.1 Reference cycles



After navigating to *Molds / Processes > Reference Cycles*, you can manage generated reference cycles assigned to a specific mold or process. Therefore, you can import additional reference cycles that have been generated e.g. somewhere else to take them as reference for local processes.

Furthermore, you can also delete reference cycles or edit some metadata to it like renaming or commenting it with additional information for analysts or shopfloor personnel.



To add or edit reference cycles, the batch must be closed. To add or edit reference cycles on a running batch, the Como device must be used, not AkvisIO.

7.4 Productions

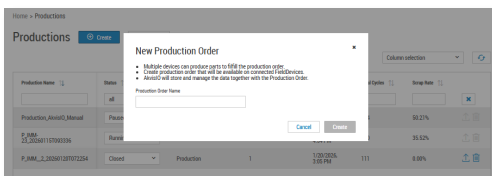
Home > Productions

Productions Create Import Columns selection

Production Name	Status	Type	Batches / Minutes	Start Date	Total Cycles	Scrap Rate
Production_AkvisIO_Material	Paused	Production	1	1/20/2026 13:47:00	474	10.21%
P_IMM_23_20260115T093336	Running	Production	1	1/20/2026 8:24:00	670	35.52%
P_IMM_23_20260127T1224	Closed	Production	1	1/20/2026 3:20:00	111	0.00%

The *Productions* page contains a table of all stored productions from connected devices and instantiated molds / processes respectively. The table lists the *Production name*, the *Status* and many more labels that can be extended or removed from the view at the drop-down menu at **Column selection**. A user can thereby customize its view, filter for specific entries, or sort the table to its preferred settings.

By clicking on **Import**, a user can load stored productions as *.oei, *.pei, *.bei, or *.dei file for closer analysis or simple visualization. If a production is not in *Running*, *Paused* or *Planned Status* (only if it is in *Closed Status*), the user can also delete the production from the view.



Once you click on **Create**, you are asked to give the new production order a Production Name. Afterwards it will be listed in the table in *Planned Status*.

To export a production, click on the blue *Export* icon on the right of the desired production.



Only closed batches will be exported when exporting a production.

Home > Productions > P_IMM_23_20260115T093336

P_IMM_23_20260115T093336 Import Export production Batch production

STATUS	MOLDS / PROCESSES	TOTAL CYCLES	GOOD PARTS / BAD PARTS	SCRAP RATE
Running	Batch: 001	670	560 / 110	16.42%

Batch Name	Status	Mold / Process	Product / Batch	Start Date	Last Cycle	Total Cycles	Good Parts	Scrap Rate
1. Batch: 00000127T1224	Running	Batch: 001	Product: 001	1/20/2026 4:42:00	1/20/2026 4:42:00	670	560	16.42%

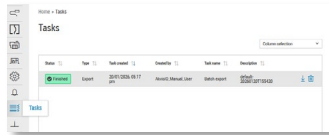
If you select a production for closer examination, the production history is opened, and another table lists the batches that relate to it. Above the table, statistics about *Total Cycles*, *Good Parts / Bad Parts* and the calculated *Scrap Rate* are shown. Furthermore, you can filter for *Planned*, *Running*, *Paused* or *Closed* batches that should be listed in the table.

The buttons on top allow you again to load a batch or to delete the whole production if all batches are closed.

The table lists the corresponding batches and allows you to sort the table entries to your preferences. The icons on the right serve as shortcuts to jump right into deeper analytics of the batches. Thereby, you can

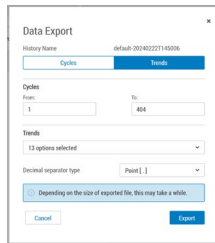
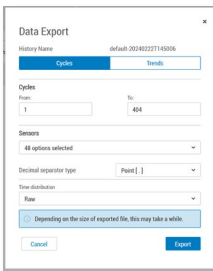
- Export the closed batch for AkvisIO
- Export the closed batch as .csv
- Navigate to the Production Batch Report
- Navigate to Trends
- Navigate to Cycles
- Navigate to Statistics
- Navigate to Good / Bad Parts
- Delete a closed batch

7.4.1 Data Export



To export the batch as AkvisIO file, click on the blue *Export batch icon* on the right side. This export is faster and also allows for a faster import than a *.csv file. The file will be ready to download in *Tasks*.

7.4.2 CSV export



If you click on the *blue CSV Export icon*, you can either export the *Cycles* or the *Trends* of this batch. You can select the number of cycles that you want to export (default setting refers to all cycles from the first to the last one) and the decimal separator type.

If you want to export a .csv of your cycle data, you can select the *Sensors* that recorded data as well as the *Time distribution* (either *Raw* or *Equidistant*).

If you want to export the trends, you may choose between the implemented trends like *CycleTime*, *EoMax_MaximumPressurePostGate* and many more.



Equidistant time distribution gives you even intervals between the exported data points. If the data is to be imported into other software such as Microsoft Excel, this setting can facilitate processing and display. Please keep in mind that the necessary time values are extrapolated from the raw data. Analysis tools such as Python, on the other hand, are quite capable of easily visualizing unevenly distributed time intervals.

	CycleNr	Timestamp	ChannelNr	PartNumber	Description	RangeYMin	RangeYMax	YMin	TimeYMin	YMax	TimeYMax	NumberOfPoints
1	1	20240222T145012.440192	4	1	Temperature 1	0	200	0	3.999063	9.006257	0.351688	621
2	1	20240222T145012.440192	5	2	Temperature 2	0	200	0	3.999063	9.006257	0.351688	621
3	1	20240222T145012.440192	6	3	Temperature 3	0	200	0	3.999063	9.006257	0.351688	621
4	1	20240222T145012.440192	7	4	Temperature 4	0	200	0	3.999063	9.006257	0.351688	621
5	1	20240222T145012.440192	8	5	Temperature 5	0	200	0	3.999063	0.381292	0	621
6	1	20240222T145012.440192	9	6	Temperature 6	0	200	0	3.999063	15.654907	0.535938	621

Figure 1: *.csv-export of cycle-based data

	CycleNr	Timestamp	ChannelNr	Cavity	Position	PartNr	TipNr	Trendname	LowerLimit	UpperLimit	YUnit	Value
1	1	20240222T145012	-	-	PostGate	-	-	CycleTime	-	-	eSecond	10.02
2	2	20240222T145023	-	-	PostGate	-	-	CycleTime	-	-	eSecond	10.012
3	3	20240222T145033	-	-	PostGate	-	-	CycleTime	-	-	eSecond	10.004
4	4	20240222T145044	-	-	PostGate	-	-	CycleTime	-	-	eSecond	10.004
5	5	20240222T145055	-	-	PostGate	-	-	CycleTime	-	-	eSecond	10.012
6	6	20240222T145105	-	-	PostGate	-	-	CycleTime	-	-	eSecond	10.008

Figure 2: *.csv-Export of trend-based data

7.4.3 Production - production report

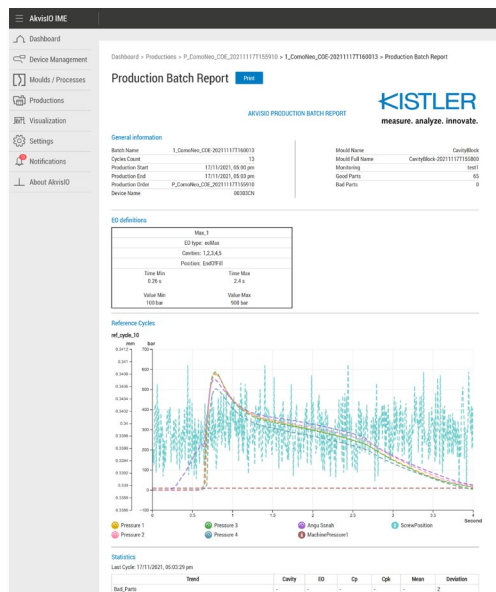
The production report button is used to create a summary of the batch in question. To open the production report navigate to *Productions* on the left hand side and select the desired production, then click on the "paper" icon between the CSV and *Trends*.

In addition to key data such as the name and production date of the batch, this also contains a list of the Evaluation Objects (EOs), reference cycles and statistics on the process capability of determinable process KPIs. If desired, a company or customer logo can also be added to the report. To do this, save the corresponding vector graphics with the file name "*customer_logo.svg*" under the following file path in the file system:

C:\Program Files\Kistler\AkvisIO\BackofficeUI\www\assets\images

The report can be printed afterwards by clicking on the corresponding button or be exported as *.pdf

7.5 Visualization



You can access the visualization area of your production data for a targeted analysis in the *Visualization* menu item or directly via the productions. The visualization offers the following sub-items

- **Trends:**

Enter various key figures and EO results for a batch via the number of cycles or compare the key figures of different batches in your database with each other

- **Cycles:**

Go directly to the detailed analysis of curve data for one or more production cycles via the cycle time. Reference cycles can also be created here for comparison.

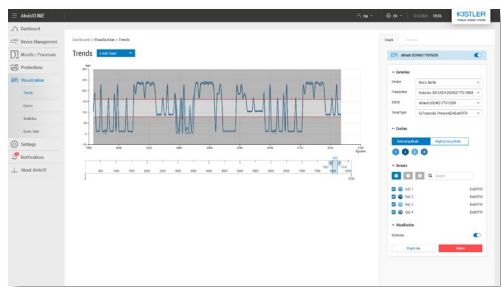
- **Statistics:**

Analyze the process capability and robustness of your manufacturing process using statistical process control methods applied to implemented Evaluation Objects.

- **Good / Bad:**

Determine defective production cycles of a batch using this overview and analyze the reasons for rejects by viewing the monitoring boxes of individual cavities in detail. Reduce rejects and improve process capability in a targeted manner.

7.5.1 Trends

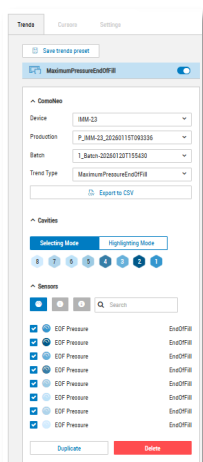


Under *Trends*, you can display, compare and analyze characteristic values or results from monitoring boxes (EOs) across cycles. You can either start the analysis directly without pre-settings by selecting a device type, production and batch or you can make a pre-selection via the previous production overview. The **+ Add Trend** button can be used to superimpose up to six trend displays to visually support your analysis.

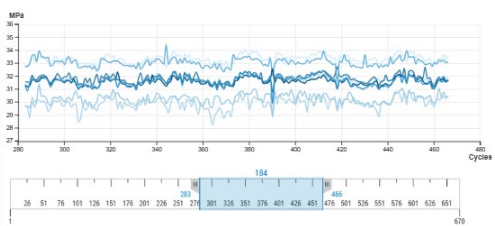
Once you have selected the device and the relevant batch, you can select available trend data for visualization from a drop-down list. The following trends are available among others for this purpose:

- CycleTime
- MeasuringTime
- DeltaTimePostGate
- Good_Parts
- Bad_Parts
- EoMax_MaximumPressurePostGate
- EoMax_MaximumPressureTimePostGate
- MaximumPressureEndOfFill
- Integral_CycleStartCycleEndEndOfFill

If EOs are set for monitoring, the associated limits can be enabled or disabled in the display.



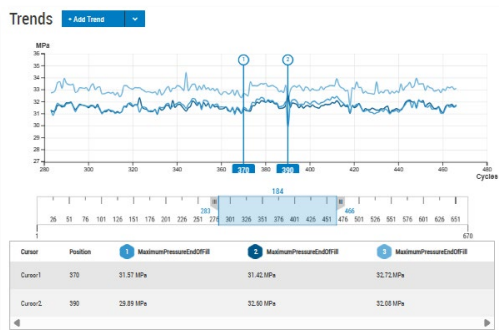
For a given EO, EO Trends will only be available as selectable option for every trend where this EO is set. If a different production does not have the EO set, it will not display.



As example, for the maximum pressure at the PostGate position, you can easily compare trend data from different production batches using the trend display. The individual trend displays can also be temporarily hidden again using the slider. You can also select individual cavities or sensors to narrow down the relevant section of the recorded data for the analysis. By switching from Selecting Mode to Highlighting Mode, the trend curves of the batch are not completely hidden, but only displayed in a faded form.

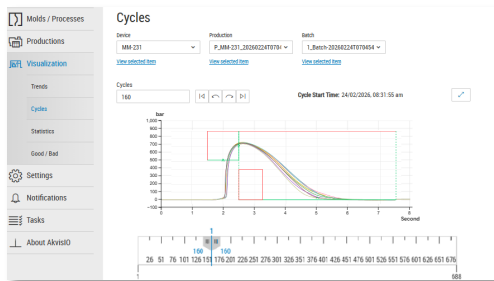
If you want to compare different key figures of a lot, you can simply duplicate the first preselection and change the relevant trend in the drop-down list.

By switching from *Trends* to *Cursors* on the right-hand side, you have the option of adding markers to the graphic to display specific values of a cycle in a tabular overview below the graphic. A second marker can also be used to display deviations between values of the markers or integral values between these two markers. To do this, switch from *Absolute* to *Delta* or *Integral* for the second marker.



Under the tab *Settings* on the right, the visual can be adjusted such as the numbers the number of cavities shown. If the cavities should not be sorted by ID number, but rather by highest/lowest value, select the *Settings* tab next to the trends tab. The trend color can also be adjusted here.

7.5.2 Cycles

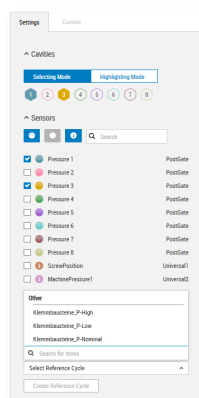


At *Visualization > Cycles*, you can view your cycle-related process data for detailed analysis. Either take the route via the previously selected production overview or take the direct route via the navigation menu and select the relevant device, the associated production and then the batch. Below the drop-down lists, you have the option to go to the next higher level of the selection and, for example, check the overviews of different batches of a production.

Once you have defined the batch, the cycle-related settings can be refined on the right-hand side regarding the cavities and sensors to be displayed.

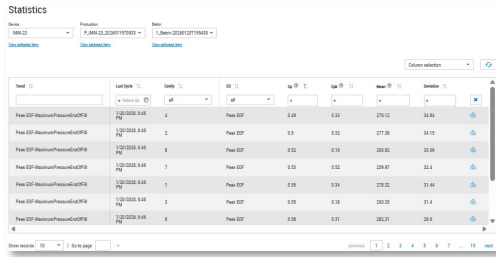


By switching from the *Settings* to *Cursors* on the right, two movable markers can be set to display specific individual values at relevant points in the cycle across all displayed signals. A tabular list of the absolute values, difference or integral values between the markers appears below the graph.



Finally, you can create a reference cycle from the cycle view, display it or compare it with other cycles in a batch.

7.5.3 Statistics

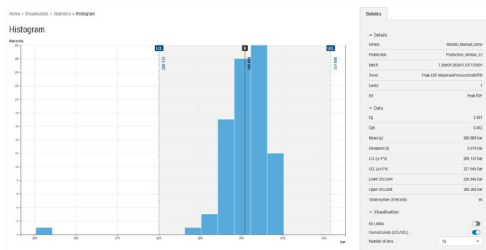


At *Visualization > Statistics*, you get an overview of available key figures for assessing process capability and robustness. For this purpose, AkvisIO uses the Evaluation Objects (EOs) created for a production lot and determines the capability indicators c_p and c_{pk} known from Statistical Process Control (SPC) based on the corresponding monitoring limits.

The table can be sorted according to the desired target criteria, e.g. to prioritize the most robust monitoring criteria.

For each trend a histogram can be shown by clicking on the blue icon on the right.

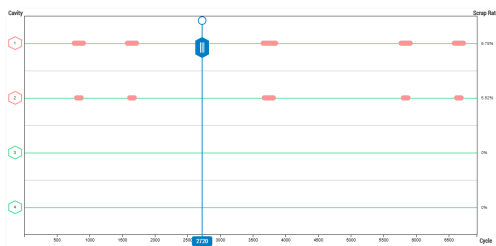
7.5.4 Statistics – histogram



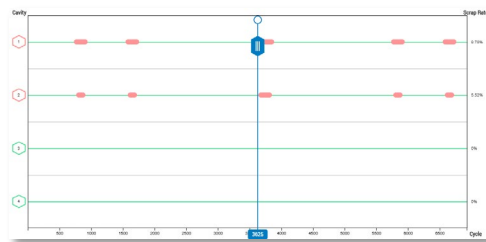
For each trend, the corresponding histogram can be shown by selecting it on the *Statistics* page on the right-hand side.

On the right side of the histogram, the number of bins for the histogram can be adjusted. Additionally, in the same sub-menu, EO limits and control limits can be toggled on or off as needed.

7.5.5 Good / Bad



The visualization of the *Good / Bad* analysis is the ideal entry point for detailed troubleshooting of multi-cavity molds. This view can be used to generate direct insights into the quality analysis of a batch regarding the good/bad evaluation based on implemented Evaluation Objects down to the individual cavity. The quality evaluation related to a cavity is displayed here for each cycle.



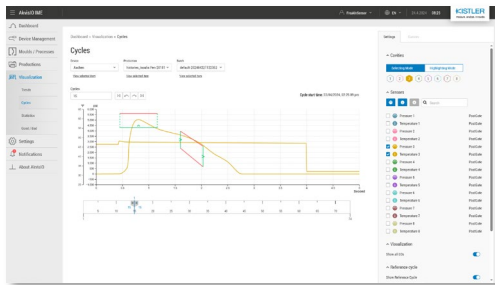
The marker can be moved manually to a relevant cycle to check the corresponding cycle result, or you can automatically jump to the next bad part cycle by clicking on the **Next NOK** cycle button in the right-hand area. If required, the shortcut already familiar from the production overview leads directly to the cycle view of the relevant cycle for a detailed analysis about the reason for rejects.

The reject rate of the respective cavities or machine signals is also shown in the middle display area.

Green framed hexagon	The cavity produced good party only.
Red framed circle	The reject rate of the machine signal is > 0 %.
Red framed hexagon	The cavity produced a bad part.
Red filled hexagon	The cavity is not monitored by an EO.
Green framed circle	The reject rate of the machine signal is at 0%.
Grey filled circle	The machine signal has been deactivated.
Green line	The reject rate is at 0 %.
Red dot on the line	A bad part has been produced.
Red line	The reject rate is at 100 % or no EO has been assigned.
Grey line	No data available or the cavity has been deactivated.
White line	No data available and no sensor has been assigned.
Dashed line	Cycle data is incomplete or still synchronizing.

To obtain a positive evaluation of a cycle as a good part, the following conditions are checked:

- All cavities / machine signals are monitored by at least one EO.
- The evaluation of the EOs allows the evaluation as a good part.
- If all EOs of all cavities are evaluated as a good part, the cycle result is also evaluated as good.
- If there are deactivated cavities, these are excluded from the evaluation.
- If there are cavities without sensor assignment, these are excluded from the evaluation.



If a cavity or machine signal is selected for individual viewing because, for example, it has a high reject rate, the individual EOs of this cavity or machine signal will be shown in the cycle view. This supports the search for relevant reasons for rejects in a targeted manner.

7.6 Settings

The following configurations can be made in the settings:

- **Audit Trail:** Monitor changes to the system configurations and data records as an IT administrator or production manager.
- **Users:** Add users and assign or remove user rights.
- **Roles:** Create group profiles and assign, for example, read and write permissions when dealing with AkvisIO.
- **Clients:** Integrate AkvisIO with other clients.
- **Other settings:** Change user-specific preferences for the time and unit system. You can also import a backup of ComoDataCenter at this point.

7.6.1 Audit Trail

Time	User	Device	Action	Status
1/20/2016, 12:43:44	AkvisIO_Memoal_User	dev17040-000	Delete Back	850271410
1/20/2016, 12:43:46	AkvisIO_Memoal_User	dev17040-000	Delete Production	3616467100
1/20/2016, 12:43:46	AkvisIO_Memoal_User	dev17040-000	Delete Back	90000000-000
1/20/2016, 12:43:44	AkvisIO_Memoal_User	dev17040-000	Delete Back	74000000-000
1/20/2016, 12:43:23	AkvisIO_Memoal_User	dev17040-000	Change production status	3617437100
1/20/2016, 12:43:20	AkvisIO_Memoal_User	dev17040-000	Change production status	33200000-000
1/20/2016, 12:43:15	AkvisIO_Memoal_User	dev17040-000	Login	dev17040-000
1/20/2016, 12:43:15	AkvisIO_Memoal_User	dev17040-000	Login	dev17040-000
1/20/2016, 12:43:12	AkvisIO_Memoal_User	dev17040-000	Change production status	3616467100
1/20/2016, 12:43:11	AkvisIO_Memoal_User	dev17040-000	Change production status	37000000-000

In the *Audit Trail* menu, changes to the system settings and the database are recorded for an IT administrator or a production manager. If required, the history of all changes can be exported as a *.csv file using the export button.

The list contains all actions that are currently being monitored by the system. This refers to:

The dropdown-menu at **Column selection** enables you to add or remove columns or change the order to get a customized view on your molds and processes.

- Login, Logout
- Create, edit, delete users
- Create, edit, delete user roles
- Add or remove devices
- Edit state, name, IP address as well as description of a device
- Import or delete mold or process configurations
- Create, import or delete productions
- Change state of a production
- Delete a lot
- Import, rename, create or delete of reference cycles
- Edit cycle comments
- Assign reference cycles to molds or processes



The implemented audit trail functionality thus fulfills the accountability and traceability requirements of the Code of Federal Regulations (CFR) Title 21 Food and Drugs, Subchapter A Part 11 - Electronic Process Records, Electronic Signatures [21CFR11] of the U.S. Food & Drug Administration (FDA).

7.6.2 Users

Email	Name	Enabled	Role
memoal.akvisio@kistler.com	AkvisIO_Memoal_User	Enabled	akvisio.admin

Details

Email: memoal.akvisio@kistler.com

Name: AkvisIO_Memoal_User

Phone: Enter your phone number

Enabled: ☒ Enabled ☐ Disabled

Roles: akvisio.admin

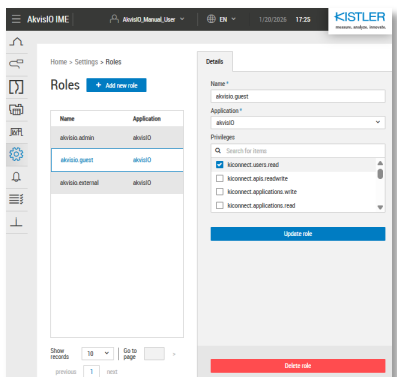
[Update user](#) [Change password](#) [Delete user](#)

In the *Users* menu item, new users can be created and existing users can be edited or removed. The assignment of access rights via predefined user roles can also be easily changed. To do this, a listed user can simply be selected to display the available configurations on the right-hand side of the screen. User details, role profiles and passwords can now be changed, or users can be completely activated/deactivated.

By selecting the **+ Add new user** button, a new window appears in which the details of the new user to be created are entered and the access rights are assigned.

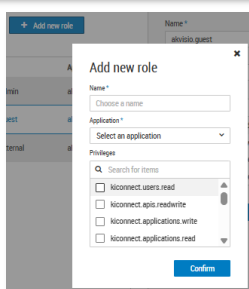
All user and access rights editing actions are tracked in the *Audit Trail* to maintain transparency about any security-relevant changes.

7.6.3 Roles



To create new role profiles, navigate to *Settings > Roles*. If required, customized group profiles can be created and edited here, for example to assign read-only rights to machine operators.

Three profiles have already been created by the system and can be identified as **akvisio.admin**, **akvisio.guest**, and **akvisio.external**.



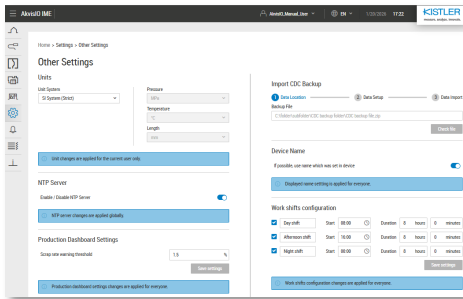
7.6.4 Clients



Changes here can irreversibly break AkvisIO and erase all data. Proceed only if you know what you're doing.

This AkvisIO page is designated to experienced developers who would like to set up communication between AkvisIO and another client.

7.6.5 Other Settings



At *Other Settings*, the unit and time systems can be adjusted according to a user's preferences. The selected unit system is then only applied to the current user and is not transferred to other user profiles in the system.

With regard to the unit system, you can choose between the following units for pressure, temperature and length measurements in AkvisIO:

SI System (Europe)	bar	°C	mm
SI System (Strict)	MPa	°C	mm
US Unit System	psi	°F	inch
US Unit System (mm)	psi	°F	mm



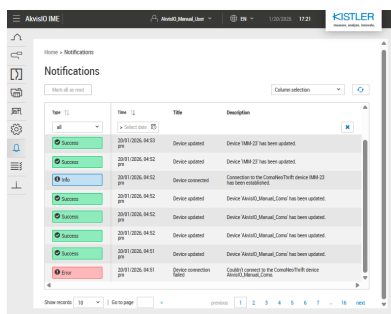
The changed settings of displayed unit systems only affect your specific user. Take this into account when talking to employees and colleagues about recorded process data or process adjustments based on it.

It is also recommended to activate synchronization with the NTP Server (**Network Time Protocol**) so that time data in AkvisIO synchronizes perfectly with that of the connected field devices (ComoNeo, ComoScout).

Finally, a backup (*.zip) of the ComoDataCenter (**CDC**) can also be imported at this point. To do this, simply place the backup file in the server's file system and copy the corresponding path from the address bar of the Explorer into the input field. The storage path is then checked, and the file can be imported by activating the button.

Please note that complex changes to the database structure between CDC and AkvisIO may result in incompatible production data. If necessary, please contact your Kistler support team for information on compatibility, especially for production data recorded with field devices before 2018 (ComoNeo FW 3.0.0) as such data is not supported by AkvisIO at all.

7.7 Notifications



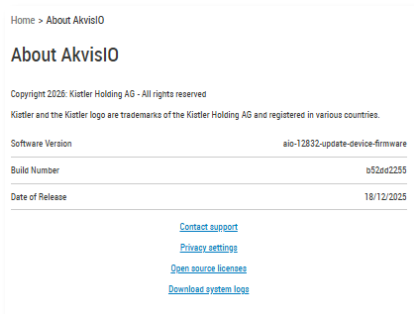
As already displayed on the System *Dashboard*, all notifications that have been recorded as *Errors*, *Success*, *Information* or *Warnings* are listed under *Notifications*. However, while the list on the dashboard only shows the current notifications, this menu item shows a complete list. In this list, you can filter by type and timestamp as usual, for example to display specific error reports.

Whenever a pop-up containing a notification appears at the top right of the screen, it is transferred to the list as an unread message.



Exiting the Notifications menu or performing any action, such as changing the page displayed, marks all visible **unread** notifications as **read**. They are then listed as read notifications.

7.8 About AkvisIO



About AkvisIO provides further information about the software and the currently installed version. Please always refer to the information on the software version, build number and release date listed here when contacting Kistler Support. This will enable our service staff to provide you with the best possible support to resolve any software problems that may arise.

You can also use the Contact Support link to send an email directly to service@kistler.com or download system logs to obtain an error report including the latest activities, which may provide information on the system errors in question.

8. Explanation of icons

Bold – Text in bold indicates the name of a button, e.g. **Next**, **Close**.

Italics – Text in italics indicates a word or phrase that occurs in exactly the same form in the software (e.g. a label or designation).

Failure to observe the symbols described below may result in malfunctions or impairment of individual system components:



Indicates a general caution notice.



Indicates an increased risk, and special caution is required.



Additionally, there is also the following symbol:

Indicates a tip or an important hint.
