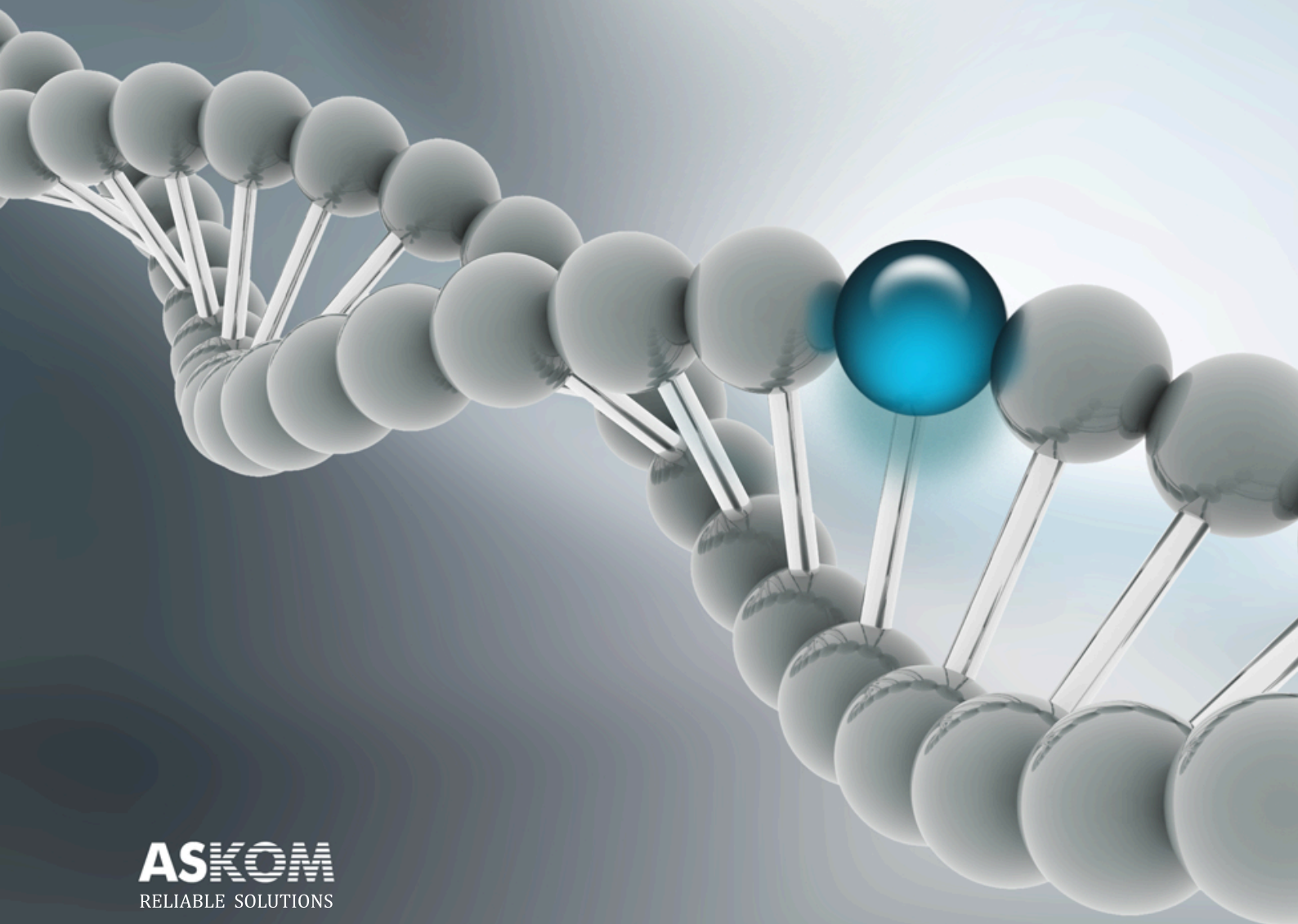# asix®.evo 7

ASKOM

RELIABLE SOLUTIONS

Asix.Evo - the new face of the visualisation system

The new generation of ASKOM's Asix visualization package embodies far-reaching evolution of the system highlighted also by its new logo: **Asix.Evo** - a new quality, new features and capabilities, based on the experience gained from the operation of the legacy package version, ASKOM's own experience as well as experience of more than thirty integrators and many investors who put their trust in Askom knowledge and the package capabilities.

For most people, car is an important part of life. We are no different. Sitting behind the wheel, you appreciate the car's stable suspension and powerful engine. However bodywork is equally important - after all a car has to be pleasing to the eye! Using this analogy, Asix.Evo is just like a brand new vehicle – built on the proven chassis and reliable engine and put in a new, attractive and modern body. Our Evo incorporates proven controller data exchange mechanisms, a great and powerful archiver and tools for archive data analysis. AsTrend for presentation of charts is still part of the package, but it has a refreshed interface offering new features, which are sometimes surprising, such as this: presentation of data from Wonderware InTouch® historian or any OPC HDA compatible server.

Data processing method , data access by the designer and the way data is displayed on the screen has also changed. We proceeded as any car manufacturer would: the old chassis (data exchange, archiving and data analysis), was given the new cabin (new designer tools) and body (new graphical interface, new objects) and suspension (ability to use long variable names) and a driver warning system (new, completely redesigned alarms system).

At first glance

The new application graphical interface is noticed right away - the legacy asix that has been around for many years, uses bitmap graphics. This allows you to create applications using popular file formats (JPG, TIF, PNG, or GIF, including animated GIFs), so the quality is fine - after all, the digital cameras always handle bitmap images!

The problems start when you need to resize the image. The legacy Asix applications were designed so that resizing of open windows was not possible. It is a good solution for most operator applications, but more and more customers expect resizing of the windows to adjust them to the space available on a desktop. This is of particular importance when an application is running on the terminal, where a significant number of other applications are running at the same time.

Introducing vector graphics in Evo is a radical change - the graphic objects in your application can be now seamlessly resized to fit the application window.
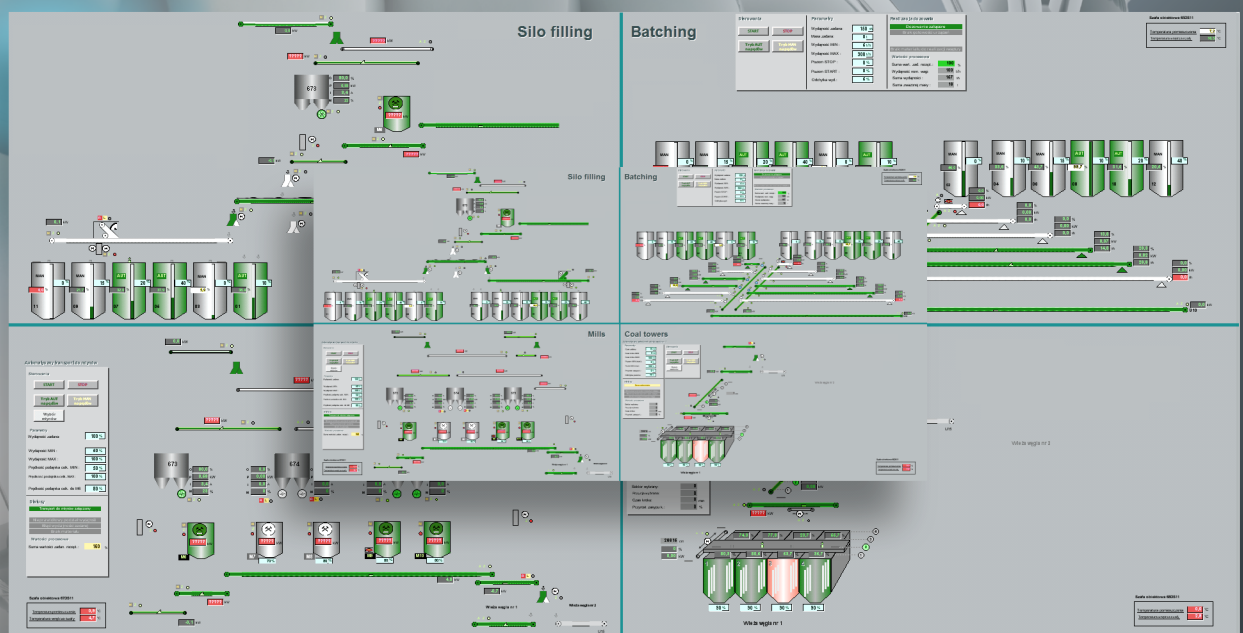
Additionally, Asix.Evo changes how applications are launched. Until recently, the application was a collection of loosely related windows (running under the MS Windows), but now it runs in a single window, where only the window parts (panels) change. Therefore, it is easy to move the application to a secondary display or minimise the entire application to the icon.
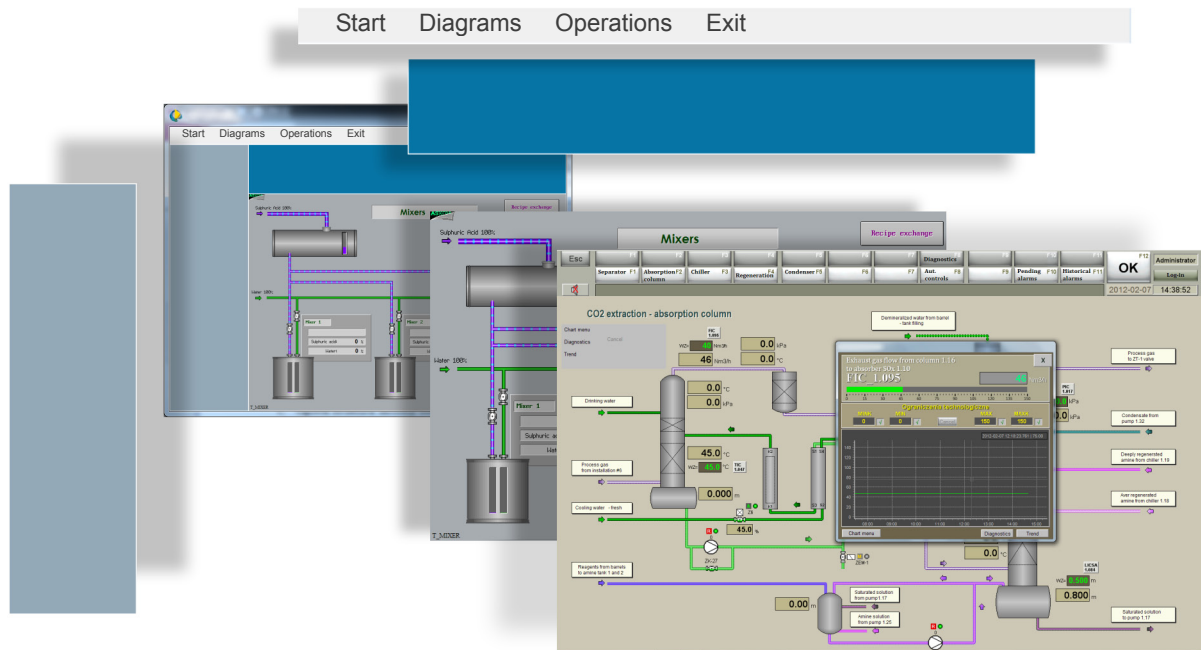
What's inside?

SCADA system is a complex software with many features. Data collection and archiving alone are not enough. Data collected from the controllers and archive data need to be presented to the user in the best possible way. The next step is even more important - to ensure that the operator can control operations with a mouse, keyboard and touch screen.

This is what changes in Asix.Evo are all about. New visualization objects have been introduced, which are now much simpler but feature unprecedented parameterization flexibility.

New objects

Now, every property of an object can be parameterized and linked to a variable, attributes of other objects or any parameter of the runtime environment. Object visibility, transparency, location on the screen, control lock, proportions and the response to keystrokes or mouse actions - all this can be parameterized. The old objects had fixed properties and features, while the new ones are formed freely by the designer - for example, now it presents no problem to define ten upper technological limits for an analogue measurement in place of the previous two. Neither is it a problem to link displayed image object attributes such as colour, shape, fill, transparency etc., to more than one variable, or elements that are not directly related to the Asix application. Not only that! Changing the variable whose value is displayed on the screen "on the fly" is not a problem either, so you can design an on-screen universal multimeter, which the operator can switch to different modes much like in real-life hardware multimeters.

The same applies to the controls. The previous simple mouse click can be enhanced with the right-click, mouse hovering over the object, the use of mouse roller or a combination of (Alt, Ctrl) keys and mouse actions. Many different mouse actions or keystrokes can be also attributed to an object, for example, an object can respond differently to a single, or a double click. This makes it easier to build touch screen optimised application interface, where two-button and roller mouse is not used, but instead finger taps on the touch screen are used as controls. For now, it is not possible to recognize which operator finger touched the screen, but perhaps in the future...?

It is worth mentioning entirely new possibilities offered by some new objects, like the BROWSER. On the screen, in that object you can view e.g. web pages or images from a surveillance camera. In principle, the operator can be allowed to surf the web, however, the permitted sites can be reduced to a specific list. Displaying a PDF document, for example part of documentation, is not a problem too.

We have also modified the approach to objects templates. Now, modification of the application template will automatically update all the diagrams (in legacy version - the masks), where the template was used. Seemingly not a lot, but just imagine a situation where the customer does not accept a solution that was applied in

your whole application project. The contested solution is already used in the dozens (or even hundreds!) of location throughout your project. If templates are used, the modification does not involve the need to edit all diagrams, where the contested solution was implemented - the designer will not miss any of the unwanted solutions in the application!

We have yet another novelty for the most demanding designers - the ability to create absolutely new, custom objects. All this is possible by providing a data exchange interface between Asix and objects (API). Efficient programmer can create objects implementing even the most exotic demands of the customer!
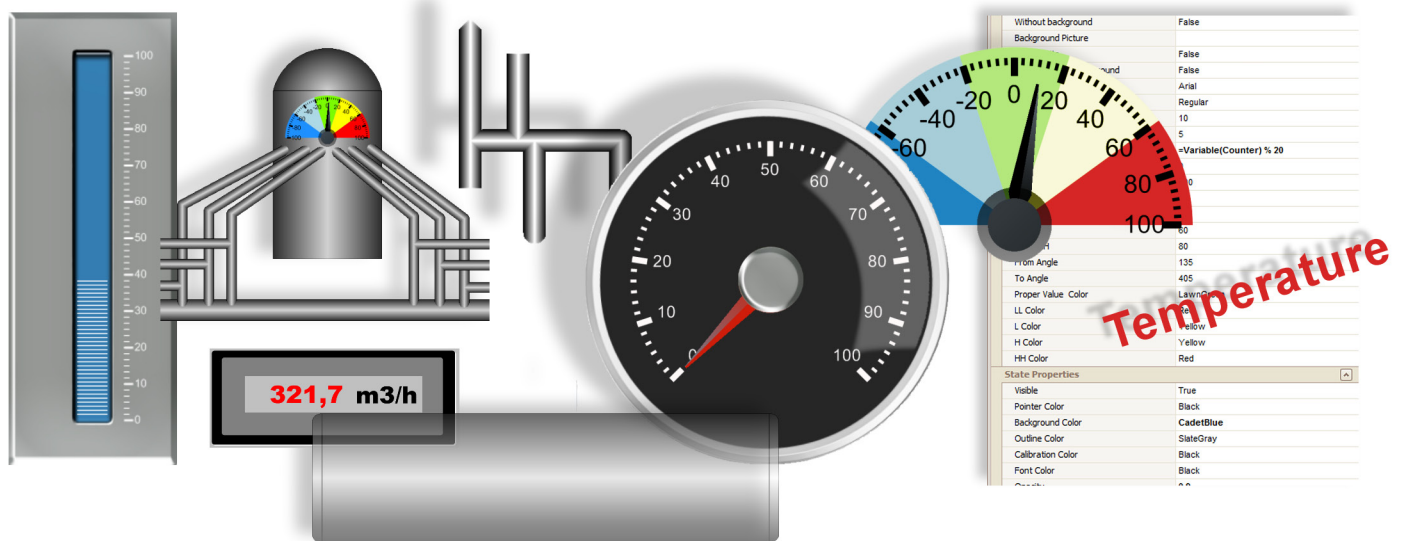
Feeding the application with data - process variables

Objects are fed with process variable values. The legacy Asix had 15-character variable name length limit, which proved to be a problem in some cases. This happened, in particular, when variables names were imported from the controller software, and they had to be truncated — there was a problem of repeating edits each time import was executed. System design process is often complicated and frequently requires the variable list is imported from the controller several times. To facilitate such operations, and to allow names that better reflect the nature of the variable, long variable names are now allowed. These are even longer than those permitted in controllers software.

Another major change is full support for 64-bit variables. This refers to double type variables (analogue measurements) and the

fixed-point variables. Now, retrieval, archiving and correct presentation of the data stored in eight bytes is not a problem. This includes a wide range of applications for reading different types of meters and precise measurements. This is a substantial scope of SCADA system applications, and a loss of readings accuracy caused problems in the settlements of accounts between the supplier and recipient of the medium or materials or controversy when determining the environmental charges.

We have removed also the limitation preventing support of 64-bit variables by discrete objects - now they are fully supported. On the one hand there's a measurable benefit for the customer (cheaper license required), and on the other hand there's more functionality and the designer's work is easier.

New 'on-board computer'

What good would changing the cockpit be without changing the on-board computer. For the operator controlling the production line or a single machine, SCADA application is very much like an on-board computer in your car. Today, every car has a similar functionality. The trouble begins when you need to adjust the 'on-board computer's' communications to the driver's needs. The new version of Asix offers a choice of any application language: Asix.Evo fully supports Unicode, which means you can use any character from the operator's own language and switch between many languages. Chinese or Russian are no longer a problem.

That's not all - we have gone even further! Typically, vehicle diagnostic software used by authorised service can communicate in a finite number of languages. Similarly, SCADA software design tools and system windows use languages to communicate with the designer when the application is running. Asix.Evo makes available the text strings used in this communication, so that the designer can translate them into his native language. This can be the most exotic and rare dialect from any corner of the globe.
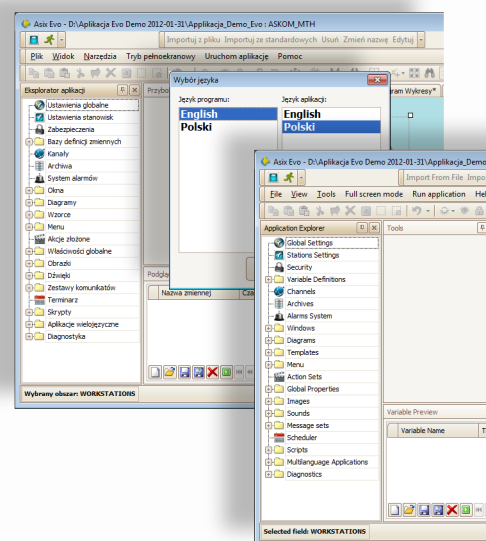
The new windows configuration

Previous naming convention is discontinued as masks are no longer used in Asix.Evo. Now the application runs in a *window* divided into *panels*, which display *diagrams*. The content of the panel (diagram) is replaced without affecting the rest of the window, which corresponds to replacing windows when opening new diagrams in the legacy application. This method of viewing graphics allows the operator to open just one window, which can be easily moved, minimised and resized. Operator workspace can be thus easily arranged by positioning the windows of all running applications.

Diagrams can also be opened in separate windows depending on the designer's needs and imagination.

User alarms

We have taken a modern approach to the alarming system. Now the list of alarms is not a specialized mask designed by the Asix developers, but an object that can be placed on the diagram next to the graphics and application control elements. The alarm list object is currently a configurable alarms toolbar that allows acknowledging, filtering, alarms excluding, etc.

Alarm handling and acknowledging philosophy has also changed. It is now possible to acknowledge past alarms. To make the alarm system even more complete, alarm information has been supplemented with who and on which workstation the alarm was acknowledged and at what time.

Operator will not miss any momentary alarm, because (depending on the alarms list object parameter) it will be shown until acknowledged and the delay to acknowledging the events in the control system will also be known. We have also added other alarm information, for example detection time is now different from the time the event was logged in the Asix application.

Network capabilities are also enhanced. Collective terminal application can participate in the alarm systems of many applications that feed data and alarms. This means that current alarm status from different domains, or different sources can be now displayed on one diagram (in separate alarm list objects). You can also use a single alarm list object and toggle between the domains. It is clear that opportunities to work with alarm lists from various component applications and alarm lists from various technology nodes controlled by the collective application have been broadened.

In addition, we have abolished the previous limit of 65535 alarms in a domain, which was a large number of alarm string definitions in Asix applications, but our customers' needs would sometimes exceed it! Now there is no limit!

Various methods of application publication

Previous versions of Asix package required special conversion to allow internet browser publishing. Also, use of some visualization objects was not allowed in the legacy Asix if the application was to be published by the web server in the future. We moved away from those inconvenient practices - the application can be now published by the web server and accessed in MS Internet Explorer without any changes or additional edits. Thank to this, application modernization does not require time-consuming conversion. The application in its basic form can be shared through the web server right away. This greatly simplifies system maintenance.
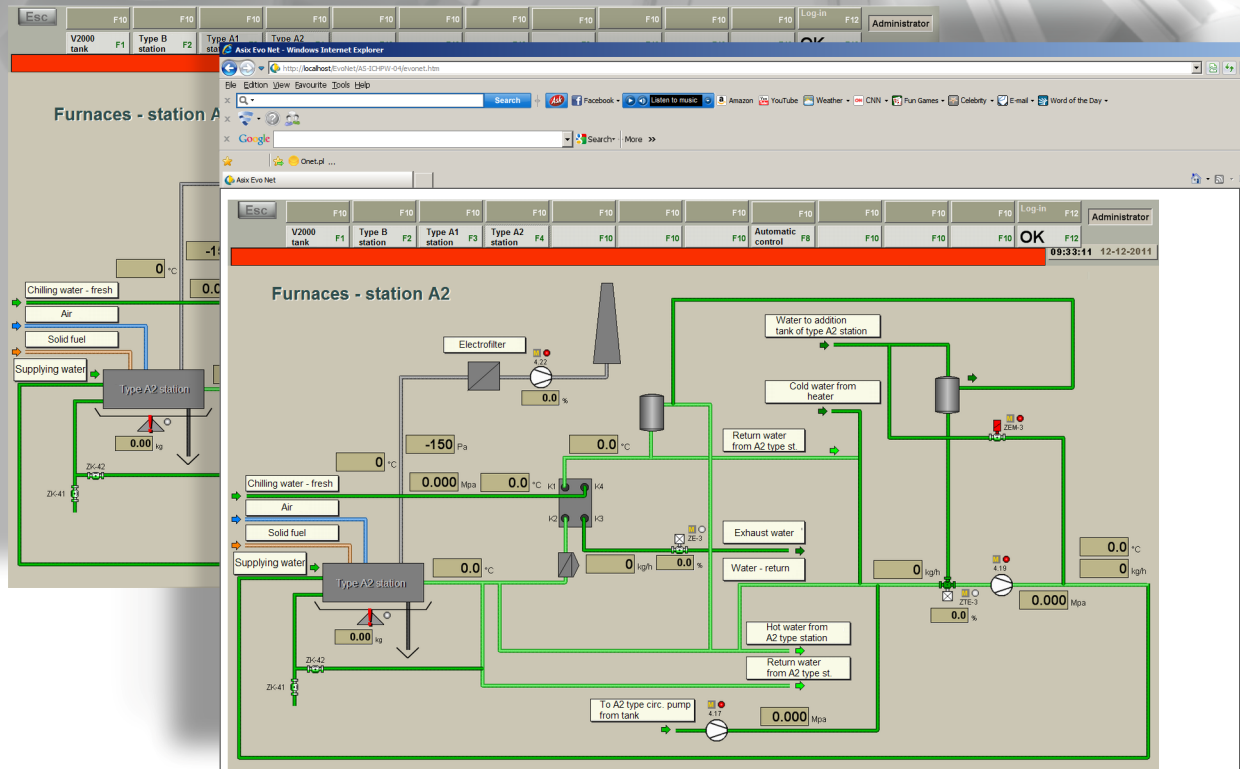
One should add to these novelties ability to execute controls by the 'web-based' application. It does not matter which application publication method the designer has chosen. In each case all the features and capabilities, all objects of a windows-based version of the application are preserved and fully supported by the web server.

User permissions management

The legacy Aasix package utilised the AsAudit module to manage user permissions and operator actions log. Extra license payment was required to achieve full module functionality, however some of its features were available in each package. AsAudit is used more and more by our system integrators. It allows a precise allocation of permissions to operators, application integrity control and operators actions logging to allow creating applications compliant with the requirements of FDA 21 CFR 11 and GAMP5.

The new Asix.Evo package offers the basic AsAudit module functionality free of charge, as it is now an integral part of the system and can be parameterized by defining the so-called roles. This allows you to precisely assign specific permissions to persons authorized to perform various actions in the application, such as access to selected technological diagrams (schemes), permissions to control certain drives, change the parameters. The same is true for application modification permissions such as editing trends and report templates and performing certain alarm operations. that allows acknowledging, filtering, alarms excluding, etc.
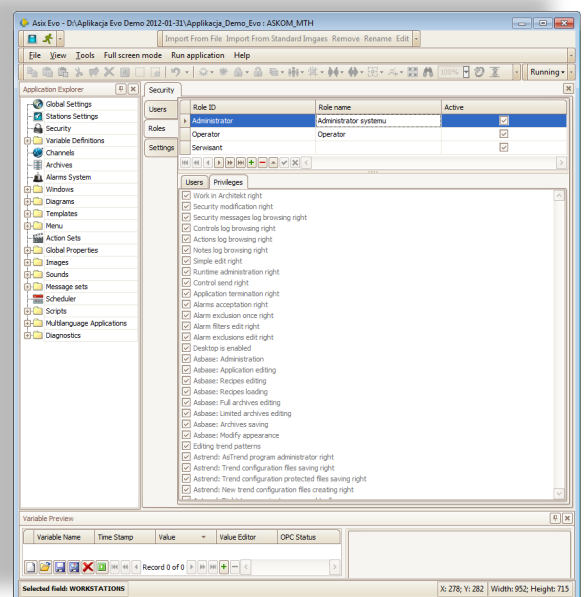
Asix.Evo

There is also a function allowing logging all (or selected) control operations. Other AsAudit module features, including the ability to control application integrity and its validation, will be gradually added to new Asix.Evo package editions. This does not necessarily mean they would be available in the standard license price, but we will ensure that editing operations, and parameterization of this aspect of the application will be facilitated.

Scripts

The strength of the legacy Asix has been always its variety of functions and objects diversity. Nevertheless, in non-standard cases scripts designed in **Visual Basic** or **JScript** can be used.

The new Asix can also run scripts. We now offer more possibilities — scripts can use all the benefits of the .NET environment and access all aspects of the Asix.Evo application. As for programming languages, **Visual Basic** and **C#** are now available. Other aspects remain the same - scripts can be run as specialized, complex operator actions, cyclical procedures or generate custom reports. Furthermore, a text editor highlighting source code syntax, prompting keywords, checking correct syntax of the source code and offering a print option has been built into the designer environment. The change of the script technology also allows you to write scripts that create their own window interfaces!

Flexible SCADA system configurations

Since Asix's 'chassis' remains unchanged, and there are more ways of running applications in a web browser, there are more opportunities for creating multiple workstation configurations. Naturally, seamless interoperability of the legacy Asix package and Asix.Evo is possible.

It can't be any simpler
The simplest system is a single user Asix.Evo application, which is running with its own data acquisition and archiving system. The application runs in windows mode, i.e. without the web browser, just as the previous legacy Asix application did. This is an excellent tool for small SCADA / HMI applications, for example, for single machines or applications that do not require redundancy for more complex technical installations.

PLC   ASIX.EVO OPERATOR STATION

The new terminal for the old application
Since Asix.Evo can scale windows converted from the legacy application, a configuration is possible, where Asix.Evo is used as the legacy application terminal, ie. operators work on the existing application, and the Evo version runs e.g. on the foreman's computer. The foreman has more work to do on the computer. He needs to run reports, generate task lists, keep holiday records, so Asix must not take over the computer - it must be one of the applications that are easy to move, minimise or close.

PLC   ASIX SERVER   ASIX.EVO OPERATOR TERMINAL

Web browser terminal

As already mentioned, the Asix.Evo can be run in MS Internet Explorer web browser. So you can configure the application in the way that Asix.Evo is also a web server and can be run as a terminal in the web browser. Naturally, full functionality and control actions are available.

PLC   ASIX.EVO SERVER   ASIX.EVO WWW OPERATOR TERMINAL

New Asix.Evo feeds the legacy application

Transmission of data collected from the controllers may also take place the other way round - from Asix.Evo to legacy Asix. Such configuration may save the customer's money. If there are already several legacy Asix applications and a synthetic application on the company network but new Asix.Evo application is added to such system. Data from this new application need be added to the composite application - this presents no problem! Asix can do it! Please note, however, that the legacy Asix cannot use Asix.Evo diagrams, so the graphics layer elements should either be prepared in the legacy Asix and viewed in Asix.Evo or designed for both environments separately.

PLC   ASIX.EVO SERVER   ASIX OPERATOR TERMINAL

Process Information Portal gets data from Asix.Evo

Finally, the last capability - Asix.Evo application data is available in the Micosoft IE web browser as Process Information Portal. After all, there is no need for everyone to see the entire application, including all graphics and controls! Some users need synthetic view of the process status, and a tabular list of selected (or all) measurement data suits this purpose well. The AsTrend module is available on the Portal for users who prefer graphical data presentation. If needed, this module can run 'live' and show the current process data values. The AsTrend module allows analysis of analogue measurements, digital information as well as alarms and events information on one composite chart. One can also view historical alarm lists on the Portal. Only graphics diagrams of applications are not available.

PLC   ASIX.EVO SERVER

AsPortal
Portal Informacji Procesowych

What about the old application?

So far, our clients were accustomed to the fact that old applications could be run using the newer Asix versions. After evolutionary, yet very profound changes, Asix.Evo will not run applications made using the legacy Asix directly.

However we do not deny support for our loyal customers. The old application can be imported and converted to the new format without any loss of functionality. What's more. Now, your new converted application can be scaled on a screen.

And it's all as easy as snapping the door of your old car before starting an engine of a brand new one. It's not just moving from one vehicle to another - you will experience a completely new vehicle class.

So we wish you a peaceful and pleasant ride. We also look forward to hearing your impressions of the trip!

⚓ Package technical review

- ✓ **The new, completely redesigned visualization system featuring fully scalable vector graphics**
- ✓ Application builder in each run-time package
- ✓ **Flexible visualization objects, whose all properties can be linked to the dynamic parameters of the working environment (variable values, alarm status, etc.)**
- ✓ **The ability to create automatically updated parameterized object templates.**
- ✓ **The ability to create your own object types.**
- ✓ Improved application design productivity through on-line interactive database object parameterization.
- ✓ The ability to dynamically change visualization window content.
- ✓ **Longer process variable name strings**
- ✓ **Simultaneous use of multiple variable databases**
- ✓ Support for variables of different types, including 64-bit and array variables
- ✓ Full support for multi-monitor configurations
- ✓ A large library of technological symbols
- ✓ Automatic conversion of legacy asix applications to the new version
- ✓ **Running fully-featured applications in IE web browser**
- ✓ Pre-configured, universal Process Information Portal
- ✓ Super efficient process data archiver
- ✓ Logging variable waveforms in the daily, monthly or annual archives
- ✓ Automatic compression of data archive
- ✓ **Automatic calculation and archiving of variety of aggregated data**
- ✓ Automatic archiving of data on back-up fixed or removable drives (creating backup copies)
- ✓ Extensive list of communication drivers to ensure connectivity with most industrial controllers.
- ✓ **A new alarm system with logging of full event information how they are handled.**
- ✓ Long-term alarm and event log limited only by disk capacity with the ability to log events in SQL databases
- ✓ The fully synchronized active alarm handling in multiple workstation environments
- ✓ No limit on the number of defined alarms
- ✓ Open system: access to current and historical data based on OPC, OLE DB, OLE Automation protocols, .NET servers and Web services
- ✓ Built-in "hot reserve" mode increasing reliability of operator stations
- ✓ The ability to create systems based on LAN, WAN, Internet. modem connections and wireless communication systems (radio lines, GPRS)
- ✓ Interoperability with existing legacy Asix applications
- ✓ **The scripting language based on C# and Visual Basic .NET platform, with built-in source code syntax correction editor. The possibility to use all .NET platform services including creating own user interfaces**
- ✓ AsTrend historical data analysis tool that utilises charts. Ability to analyse the data retrieved directly from the OPC HDA servers
- ✓ AsAlarm statistical analysis tool of the logged alarm events
- ✓ AsBase recipe module and event data logging in SQL database
- ✓ Module to create reports based on Microsoft Reporting Services
- ✓ Integrated permissions management system based on user roles
- ✓ Logging of executed control operations in an SQL database
- ✓ Ability to create multilingual applications with the operator language switching during operation. Full Unicode support

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