

Information Unlimited

Magazine for Automation Industry

June, 2007 · Issue No. 14

DREAM.EXPLORE. DISCOVER.

1987-2007 20 years of COPA-DATA

Development zenOn 6.21 certified for Windows Vista™

Tips & Tricks Automated Engineering (Part 02)

COPA-DATA wins Frost & Sullivan Award 2007

BUT WHAT, IF NOT
THIS DESIRE FOR THE
IMPOSSIBLE THINGS,
WOULD BE THE DRIVING
FORCE THAT GIVES US
THE POWER TO FINALLY
MAKE THESE DREAMS
COME TRUE?

DREAM. EXPLORE. DISCOVER.

When we planned our 20th anniversary celebration, we were also looking for a motto. We decided for “Dream—Explore—Discover”—and now I can quite happily say that this motto has shaped the last 20 years of COPA-DATA and it will also shape the next 20 years.

Now what exactly does—having a dream—mean? I browsed around the Internet a bit and I found a definition saying that dreams are often about impossible or unlikely things. But what, if not this desire for the impossible things, would be the driving force that gives us the power to finally make these dreams come true?

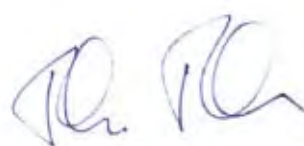
Even if not everything works out as we imagined, it is important to have this dream, this desire, or in other words: a vision. Only with a vision, can we follow our goal, and only if we keep following that goal, can we discover many things and explore new territory on our way towards this goal.

What are our goals for the future?

Of course, we want to become the biggest independent SCADA producer worldwide. We also want to make life easier for our customers. A dream that I already had 20 years ago. Maybe the day will come when you only have to picture the automation of a factory in your head and little automated helpers do everything else automatically. All the while, zenOn is running in the background, stable and robust, optimizing your production automatically. And you? You can dream of new goals.

Anyway, there is still a lot left to discover and explore until that day comes.

In this spirit, I wish all readers a wonderful summer and some good dreams in a comfortable hammock.



Thomas Punzenberger, CEO



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REINHARD MAYR

If it is about zenOn, product manager Reinhard Mayr has no mercy for the developers. He measures their work on a simple scale: What do the users need?



MARKUS HELBOK

from product marketing wants one thing above all: the best zenOn. This is why he cold-heartedly exposed zenOn to another usability test and invited the testers for quality control.



JÜRGEN RESCH

Product manager Jürgen Resch tells you all about the language skills of STRATON and how you benefit from that. Plus, the answer to: What connects STRATON and WAGO?



ROBERT FICKER

Robert Ficker from product marketing shows you how to reuse existing project parts efficiently—in the second part of our series about Automatic Engineering.



GÜNTHER HASLAUER

If it is about security, you can make it easy for yourself—or for your customers. No doubt, Günther Haslauer, head of development, adjusts zenOn for smooth operation in Windows Vista.



MARK CLEMENS

Mark Clemens, head of support, took a close look: What do the users need to know when working in Vista? His overview guides zenOn users safely through the winds of change.



JÉRÔME FOLLUT

Not everyone who wants perfect products founds his own company. Jérôme Follut does. No wonder his favorite book is “Himalaya. My first 8000 meters.”

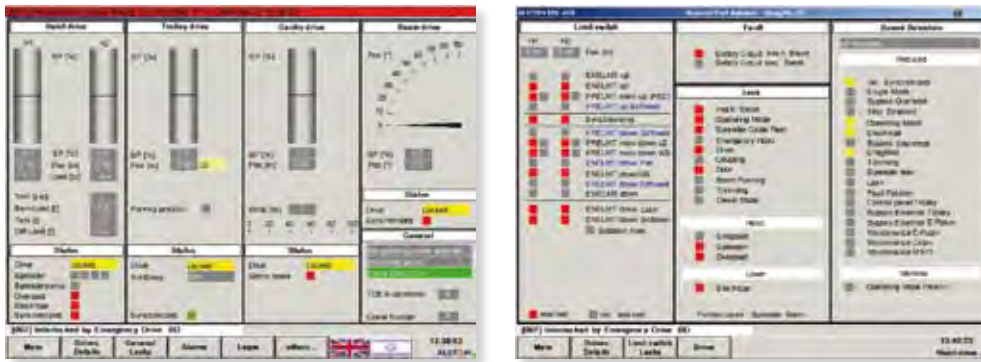
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Transporting heavy loads safely— with zenOn.

Converteam, a specialist in traction technology, equips large-scale cranes with zenOn software for visualization and control. Converteam's most important reason for this decision: the flexibility of the software makes it easy to find a suitable solution for every project in traction technology.



“COPA-DATA assists us as an experienced automation specialist and as a competent and reliable software provider.”

Karl-Heinz Schacht, Converteam GmbH

Today, large-scale cranes are used in every port, in shipyards and in many industrial plants worldwide. Customer demands on the cranes are rising steadily: available resources must be used more efficiently, processes must be improved and accelerated. Karl-Heinz Schacht, responsible for automation solutions at Converteam GmbH in Berlin, explained, “The operators of industrial plants are increasing their investments in modern traction technology to establish a high level of performance and, consequently, to reduce handling times.”

Specialists in industry automation can confirm this statement. An example: a container ship used to stay in port for several days, but today, only a few hours remain to turn around hundreds of containers. This task is executed by highly automated cargo handling technology. Many movements are now automated. The crane operator no longer has to care about swinging loads or about where to place a container—sensor technology on the crane and computer-based logistic systems allow him to concentrate on “driving” and supervising.

CREATING TAILOR-MADE TECHNOLOGICAL SOLUTIONS

Converteam is represented in eight countries with a total of 25 establishments through which it supports its customers worldwide in introducing efficiency-boosting solutions. Besides power electronics for the drives, the Company also delivers complete automation solutions

and electronic equipment. For its customers, Converteam also handles the project management and the engineering of complex electronics for drive systems and automation. The company has a modern manufacturing plant with powerful production and system testing facilities at its disposal. Converteam GmbH employs about 800 persons in Germany and over 3.300 persons worldwide. Their total volume of sales reached 520 million Euros in 2005.

SAFE CRANE MANAGEMENT

The “Material Handling” division of Converteam GmbH delivers electronic equipment for large-scale cranes. zenOn has been used for the visualization of control and drive technology and the electrotechnical equipment of large-scale cranes since the year 2003. Before that, the company preferred an in-house solution, which was powerful but did not satisfy modern hardware and software requirements. It took a great engineering effort to adapt this solution, which is why Karl-Heinz Schacht and his colleagues decided to perform a market analysis and evaluate available tools for visualization and automation. Karl-Heinz Schacht explained, “We have used zenOn successfully in several parts of our company; for instance in mining. However, we decided to make a new, more comprehensive evaluation, in order to test whether zenOn would satisfy important criteria like flexibility, network capability and an open interface architecture. And it did fulfill

our requirements.” There were several other reasons for using zenOn. Because COPA-DATA offers very flexible license models, the customer is never “over-licensed” and the solution always stays attractive in relation to costs. Besides, the training effort for users keeps within reasonable limits and employees are able to adapt the visualization themselves after a short time using the system. This saves time and costs, because there is no need to send for specialists.

Another advantage of zenOn: The software runs on Windows CE. This means that it can also be used under adverse conditions. As a system without hard drive, zenOn powered HMI (human-machine interfaces) can operate in difficult climatic environments regardless of other influences like vibrations.

zenOn—OPTIMUM OPERATION AND TARGETED MONITORING

Today, Converteam is using zenOn as an effective tool for operating and monitoring large-scale cranes. The software displays current states, delivers statistics whilst archiving all the necessary data and makes daily operation more secure, thanks to its alarm function. Several cranes are integrated vertically in a central station. Therefore, employees can access the current states of all cranes and the common alarm list from a central location. Additionally, Converteam uses the zenOn In-

dustrial Maintenance Manager to plan and document maintenance tasks. Both Converteam (as the equipment supplier) and the operators of cranes/industrial plants benefit in several ways from using zenOn.

For Converteam GmbH, zenOn supports the configuration of equipment. Startup times are reduced for several reasons. Adaptations are simple to perform, projects can be synchronized automatically, and clients can be launched

station and the error detection support increase the availability of the cranes. The state and alarm displays are user friendly and easy to understand, according to users. The openness of the system is also demonstrated in the possibility to interface with other information systems and establish connections to error analysis tools, electronic documentation systems or overlying logistics solutions.

Eurogate is the Number One in Europe. Converteam GmbH successfully introduced the cranes for a division of this transport and logistics infrastructure. This included 13 container cranes in Hamburg and 5 container cranes in Bremerhaven, each of which have already been or are in the process of being equipped with zenOn for crane management. Karl-Heinz Schacht is pleased with this success: "Eurogate is one of the many satisfied customers who profit from our high quality and project standards. COPA-DATA assists us as an experienced automation specialist and as a competent and reliable software provider. zenOn meets our requirements and enables us to implement customer projects in a fast and competent way." 

"zenOn meets our requirements and enables us to implement customer projects in a fast and competent way."

Karl-Heinz Schacht, Converteam GmbH

quickly and safely. The user-friendly interface of the zenOn editor enables even non-software specialists like startup personnel and technicians to work with the solution after a very short period of training. This has improved the acceptance of the software within their own company significantly.

The customers also value the numerous advantages of the software. They profit from the openness of the system and can perform adaptations on their own. The software is based on Windows standards and enjoys a broad acceptance—protecting investment. Additionally, the powerful information display in the central

zenOn—FIELD (AND ROOFTOP) TESTED

zenOn is used in the cranes of the world's biggest manufacturer ZPMC and also serves the cranes of Kocks Krane International GmbH. Customers such as HHLA CTT Hamburg, China State Shipbuilding Corp. or Eurogate in Hamburg and Bremerhaven benefit from the competence of Converteam GmbH and the software of COPA-DATA.

Eurogate is a container-terminal and logistics group and operates sea terminals on the North Sea, in the Mediterranean and on the Atlantic, with connections to Europe. With nine terminals, and handling 12.1 million TEUs in 2005,



20 YEARS COPA-DATA:

HOW A PHILOSOPHER TURNED INTO AN INDEPENDENT SCADA SYSTEM

20 years COPA-DATA. The employees who made me write this article assured me that “It is certainly interesting for many people to learn how COPA-DATA developed from an idea.” Well, what is the interesting thing about it?

Is it the question, “Why does a 25 year-old start a business and change from the safe haven of a company to the insecurity of being self-employed?”

The question of security was at the bottom of the list for me—in fact, I don’t think I considered it at all. There was something that had a much stronger influence on me: the attraction of independence, the attraction of no longer being constrained within a big organization, more technical challenges, less bureaucracy and the attraction of being my own master.

Brimming with ideas, I started out in a two-room apartment belonging to my parents in the year 1987. One room for sleeping, one for working. Soon, my brother Alexander also supported me. However, I quickly realized that there was not much freedom and independence to be enjoyed in the beginning. The expectations of our first customers and the financial pressure put me back down to earth very quickly. We did not develop, we became salesmen. We earned our money selling printers, monitors, PCs, standard software and a few customer-specific developments.

After two years, I realized: This was not what I had hoped for. I wanted to develop technical applications, apply my knowledge. Alexander and I had to decide: Either give up our independence and go back to work in a company – or concentrate on our own product, our initial ideas. We soon reached a decision, and in the year 1989 we began to develop our own product. But we still needed funding.

zenOn OF ELEA

At that time, I established contact with a supplier of my former employer, who decided to use our resources for his projects. By then, we were five people, four of which are still “on board”. One half of our company developed “our” product, the other half took care of the paid projects. For some of us, this also meant doing customer projects by day, “our” product by night. Free weekends were a curiosity, and we took the first holiday –two weeks in Italy– after five years.

After about two and a half years, at the end of 1991, it was time. Our product was ready for a its first release, but we still needed a name. At that time, Alexander was reading a book (Gödel Escher Bach), which contained a story about a certain zenOn of Elea. Alexander liked the story about arrows (see also www.copadata.com) and the name so much, that we decided to name our baby zenOn. Now, there was nothing to us succeeding! Really, nothing?

No, somebody was pushing the brakes hard: the company who had ordered our “paid” projects. In May 1992, that company went bankrupt and left us with irrecoverable debts of about € 300 000.

Today, this might seem manageable. But considering that we also had to carry the costs for

*Freedom develops in young heads.
And it lives on in the young at heart.*



the development of zenOn, we were in a really tight corner. Additionally, that company was supposed to distribute our new product.

RISE LIKE A PHOENIX

We did not let that get us down, our optimistic spirit kept us alive. I remember the time when I drove my VW Golf all across Germany to attend to customers who we had already acquired. Of course, these were not based around Munich, but resided in Berlin, Düsseldorf and all the other “nearby” cities. Sometimes it seemed to me as far away as possible.

However, the bankruptcy of our late business partner also left us with a profit: a young engineer who had a liking for zenOn and wanted to join us. Insiders know him as Werner Kropf, who is still successfully using zenOn for many customers of his company, *Prozesstechnik Kropf*.

Werner Kropf went out to look for some customers. I clearly remember our first meeting at KRONES AG. zenOn was nowhere as complete as today, but our philosophy was well-defined: Open architecture, simple interfaces, open driver interfaces and easy-to-use.

The engineer at KRONES liked this concept so much, that he decided to use zenOn for their fillers. We used a 21" plasma display, which



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Thomas Punzenberger, CEO COPA-DATA

cost a fortune at that time. This display made it necessary to develop a touchscreen driver for Windows. KRONES also required a 3964R driver. A lot of expensive equipment was necessary for development. But how were we to get all this stuff to our office in Salzburg? Quite easily, by car, one might think. But there was an obstacle: The border.

At that time, the border between Germany and Austria was still closely guarded by customs officers. Transporting a simple PC over the border could easily turn into an odyssey. I could write a whole book about my experiences with German and Austrian customs officers. I hope that all these nice people now do their job somewhere near the Siberian border, far away from here. You can read more about this in the section entitled "Anything to declare?"

SIMPLY DIFFERENT, SIMPLY INDEPENDENT, SIMPLY BETTER

The company was thriving, we found new customers. One of the most important customers at that time was SAT GmbH (specialists for automation technology).

We faced a completely new challenge, because energy infrastructure was an unknown domain

for us. But together, we managed to adapt zenOn for this sector.

At the same time, the first projects at BMW developed and we had also established other regular customers. With a small financial reserve, we decided to get on the international stage and started to look for distributors.

In the meantime, zenOn developed rapidly. We launched a 32-bit version, which was fully Windows NT compatible and already offered complete client/server capabilities as well as redundancy. But we did not stop there. We were constantly looking for new concepts and possibilities, because I realized that simple client/server applications were indeed useful, but would not be sufficient in the future.

Fate lent a helping hand. SAT had won a project that required many stations in geographically distributed locations. We now had to find a solution for this project and simultaneously create a (product) solution, which is obviously not the same. We found a solution, actually a very ingenious one: our Multi-project administration, Multi-server solution with automatic synchronization mechanisms, which remain unsur-



passed by others today. At that time, Windows CE also became an important topic. When I read the first White Paper about Windows CE, I knew: We had to make a zenOn version for this. We made the first steps on a Handheld PC, which we imported from the USA, because they were not yet available in Austria.

zenOn 5 was the first HMI/SCADA system on the market that could—and can—be used in all areas, from Windows CE up to control system applications. Of course, others try to copy this continuity, but even big suppliers like Siemens still need two or three products to cover an application range as big as this.

HELLO WORLD

It soon became obvious that we would require a separate company in the markets that were most important for us, like Germany. Again, Werner Kropf played an important role for this, when he brought a certain Jürgen Schrödel with him one day. I had only met him briefly in some common customer projects. He came from our industry sector and was a full-blooded salesman. After a few meetings, we decided to establish COPA-DATA Germany in 1999. Based on the customers and endorsements received to

date, COPA-DATA Germany quickly turned into a success story.

One year later, we decided to expand into Italy. This happened from a different starting point, because we had exactly 0% market share in Italy. However, we did bring a lot of love for the language, the culture and the food of Italy. This was not only an important market for zenOn, but also a place where we felt comfortable right from the start, although the brand-new 21 inch LCDs that we brought to our first appearance on an exhibition were misinterpreted as presents for our hosts!

The name zenOn was completely unknown and we could not show any endorsements. As a consequence, getting established was quite challenging. Nevertheless, we can be proud of many satisfied customers by now.

In the year 2002, we made an important step in the direction of the Soft PLC. COPALP joined our forces and it enjoys a special status in our company. A group of people with many years of experience in the area of Soft PLCs, COPALP is the only subsidiary that develops its own software: our Soft PLC STRATON.

“zenOn 5 was the first HMI/SCADA system on the market that could—and can—be used in all areas, from Windows CE up to control system applications. zenOn 6 scores with integrated data storage between the PLC programming system and zenOn. We also added automatic project creation functions with wizards and other equally important features like object-oriented parameterization, intelligent networking and full Unicode support.”

Thomas Punzenberger, CEO COPA-DATA



“Our goal for the next few years is to become the biggest independent SCADA provider. The development of zenOn is still based on the motto “easier—faster—safer”. This makes sure that you, dear customers, have more time for your actual tasks—or simply a bit more spare time.”

Thomas Punzenberger, CEO COPA-DATA

I also had to learn what this term actually means and where a Soft PLC can be applied. At that time, I thought of a Soft PLC as a PLC that is running on a PC. I learned that most of the classical hardware PLC systems, drives, robots or RTUs use a so-called Soft PLC. And of course, more and more systems that use STRATON in this way come to enjoy our integrated SCADA / SoftPLC solution.

In the year 2003, zenOn 6 was born into the world of SCADA and HMI: it scores with integrated data storage between the PLC programming system and zenOn. We also added automatic project creation functions with wizards and other equally important features like object-oriented parameterization, intelligent networking and full Unicode support .

More recently, we have opened offices in the Middle East and in the USA. Our team has grown to over 100 employees. Of course, the present structure cannot be compared to what we had in the beginning.

Anything to declare?

Before Austria joined the EU, I kept having encounters of a very special kind—when I tried to take technical equipment to exhibitions.

At that time, my office was quite close to the small border station Freilassing. As I often had to cross the border with technical equipment, I had also got myself a Carnet. This document should have made crossing the border quite easy. At least it should have. Typically, it went like this:

An exhibition was planned to start in Germany on Monday, so I went there on Sunday. With a car full of equipment—and a Carnet for free passage. The first stop: Freilassing. A long line of cars, my equipment and the desire to go on. I was only missing the stamp in my Carnet. After (perceived) hours of waiting, I finally drove up to the Austrian customs officer. He looked at my Carnet, hesitated and said: “No, we do not process that here. You have to go to the border station Walserberg.” I was already a bit moody from waiting so long,

but I turned around, went onto the Autobahn and arrived at the border station Walserberg. The customs officer gave me a hearty welcome: “What are you doing here with a Carnet, on Sunday? Come on. Can’t you do that sometime during the week?” (This is the short version, to save time.) A little irritated, I asked whether he would process my Carnet or whether I would have to turn around again. Well, finally, he showed mercy and processed it.

Back home from the exhibition I was curious about the legal situation and wrote a letter to the regional finance authorities. They apologized for the behavior of the customs officers, who had probably had a bad day. They told me that a Carnet could be processed at any border station in Austria at any time of week and day. Very well, that was all I wanted to know.

Three weeks later I was on my way again, to another exhibition. And again, I was in a long line of cars at the border station Freilassing on a Sunday. But this time, I was equipped with

new information about customs. When it was finally my turn, the customs officer gave me his well-known standard sentence: “What are you doing here in Freilassing with this? We are such a small border station, we don’t do that here. You have to go to the station in Walserberg.”

“Not with me!” I thought. I was well prepared, so I raised my voice and my finger with a short “But...”, and presented the letter from the finance authorities to the customs officer, with a growing feeling of triumph. He read the letter, nodded and said to his German colleague, who was sitting on the opposite side, “Well, maybe we could do that, but you can’t—am I right?”

Of course, my next station was Walserberg, where I heard a familiar: “What are you doing here with a Carnet on Sunday?”

I have moved away from programming and attend to administration now, which I confess is a little less exciting. Somehow, I have also come to enjoy the fact that I am no longer on the technical front line. Nevertheless, I always have to put in my oar into technical discussions. My product managers could write a book about that.

In 2006, we also bought back all external shares of our company. This means that Thomas and Alexander Punzenberger now hold 100% of COPA-DATA again. Many things have not changed, for example the desire to develop our product, our company and our employees, who are still of particular importance for me and who make up the spirit of COPA-DATA.

Our goal for the next few years is to become the biggest independent SCADA provider. The development of zenOn is still based on the motto “easier—faster—safer”. This makes sure that you, dear customers, have more time for your actual tasks—or simply a bit more spare time.

I could go on and on and tell you even more stories and anecdotes, but I will save them for our 20th anniversary celebration on June 15th.

🔗 **Thomas Punzenberger, CEO**



2007

FROST & SULLIVAN

Product Innovation of the Year Award

COPA-DATA WINS FROST & SULLIVAN AWARD FOR PRODUCT INNOVATION

Independent automation software provider COPA-DATA has been awarded a Frost & Sullivan Award for Product Innovation, having demonstrated excellence in new products and technologies through their zenOn HMI/SCADA software.

The award recognizes the Company's commitment to the continuous development that ensures the innovation, usability and openness of their product.


Managing Director Thomas Punzenberger commented on the award, "For me, there has only ever been one vision, to deliver open and flexible systems. It gives me great pleasure to receive this award from Frost and Sullivan recognizing COPA-DATA's position as a trailblazer in SCADA and HMI software." zenOn was launched in 1991 to address a growing demand for open and flexible SCADA software. zenOn was developed for Windows platforms, making the software more open and usable than competing products.

The software is open and compatible for seamless integration with existing infrastructure. Analyst Karthikeyan Balasubramaniyam commented, "The speciality of zenOn has been its inherent ease of operation. Apart from that, zenOn is an extremely open and compatible system which makes it really easy to integrate into existing infrastructure. "Continuous upgrades to zenOn software have maintained customer's trust and demand for their software in the competitive European market. The

company has established itself as a leading automation software provider with strong sales channels throughout the world."

The award highlighted the milestones of zenOn's development. For example, version 3.5 provided built-in redundancy which meant that data was never lost. In 1999 version 5 broke new barriers, providing 100% compatible SCADA for all Windows platforms from Windows CE PDAs and terminals up to XP workstations. Shortly afterwards, zenOn 5.2 added a built-in web server which is always up to date and uses the same look & feel as the zenOn program. In recent years zenOn 6 improved distributed engineering, allowing multiple users to work on a project in parallel and reduce engineering time. Recognising the revolution in consumer software, version 6 also marked further improvements in usability that are helping to bring industrial software out of the dark ages and make it as intuitive to use as leading consumer products.

Improvements included new automatic engineering features such as project wizards that eliminate errors and save time by automating repetitive or complex tasks. zenOn HMI/SCADA software has flexibility, reliable performance

and provides numerous features that provide added value, illustrating COPA-DATA's technical expertise and experience in automation. Recognising its product innovations and the commitment to provide complete solutions, COPA-DATA was presented with a 2007 Frost & Sullivan Award for Product Innovation for automation and control solutions in the European market. 

zenOn 6.21—As you wish!

In our last issue, we reported on the development of our current zenOn version 6.21 and our underlying motivations. It was our biggest and most comprehensive project dealing with the topic of usability so far.



Reinhard Mayr, Product Manager COPA-DATA

From my position as Product Manager, it was both exciting and instructive to follow this version through from the very first ideas to its final implementation. More than once, the things that looked quite small and unspectacular later created the biggest “ah-hah experiences” for users.

These very experiences proved to us how important it was to get external professional help for a project as big as this and how important it was to leave the weighting of the weak spots not to the pure technicians, but primarily to the users. A button labeled wrongly, or not at all may not sound like a big issue compared to a graphical template editor. However, if the user loses precious time and energy only because of this button, it has far more serious effects than a new feature.

This is why it was an absolute “must” for us to clean up all these “little details”, to smooth out the rough edges of the product and to offer a homogenous, yet flexible user interface with many helpful function.

In the past year, more than 150 requirements with different dimensions and impacts were incorporated in the product in order to reach these goals. Constant supervision and excellent communication between product design and product planning made it possible to make the fruits—or rather “the fruit”—of our labor ready for the market.

It would seem a unnecessary to simply list all these items on the following pages. You would get a nice and complete list, but you could not really reconstruct the motivations of all the single optimizations and the connections be-

tween them. Therefore, I will bring out only a few highlights, in order to illustrate the ideas and concepts that lie behind our current version 6.21.

OVERVIEW—ALWAYS AND EVERYWHERE

Every user of standard software knows the problem: You expect a certain feature, maybe a more self-explanatory one, then you find the solution after some wrong turns, and you promise yourself: “I will remember that for the future!”

But most of the time, the experiences acquired so laboriously are swiftly forgotten after the end of the project. Furthermore, if you want to use a module or optimize a function again later on, you have to take the time to become acquainted with existing implementations. Quite often, you require high lead-times for only small changes. It gets even worse when an employee leaves the company and a colleague gets the honor of taking over his tasks.

This topic made us think a lot during the development of version 6.21: What can we do to assist users not only with the creation of applications, but also with the optimization of existing solutions? The easiest way would be to always lead the user to the required source information—without the need for specific knowledge about the project. Everybody can now show the source information for any element, edit this information and then return to where he came from, in a perfect circle.

You just select the desired element, have yourself led to the data point lying beneath it automatically, take the changes you want directly on the data point (direct editing from all views)

and switch back to the element, where you can instantly review the changes. All of this without filtering, confusing windows changes, manual refreshes or similar annoyances. Simply perform the desired change with a few clicks, as if you had just created the project a moment ago. It does not matter whether you want to change the unit of a data point or the color of a font, the procedure always stays as simple as that.

FLEXIBLE WORK

Another painful user experience: It has happened again, I am stuck in a dead end and I cannot go on. Annoying, but what can you do? Just remember everything that happened and go back to the start, hoping that you will do it right this time. You know this situation?.

These dead ends belong in the past. True to the motto “flexible work”, the user can now decide when and where he wants to define his elements during engineering. If he wants to start with picture design, he can do so. If he wants to create a complete function list first, he can start with that, too. And so on.

The current version of zenOn offers the best of both worlds. It is no longer a problem whether somebody wants to work in a structured or in a sequential way. The editor environment is so flexible now, that it fully allows both ways of working, without any trade-offs in comfort and familiarity. It is completely up to every user whether he defines his data point before defining the “Set value function” or whether he starts with the function and defines his data point afterwards. Every user can go his own way, to get the most out of it.

TAILOR-MADE TOOLS

A modern high-quality tool should also offer the most current technologies, in order to be of maximum use for its users. This was our motto for the optimization of version 6.21. We concentrated on the question “Which features make it easy for our users to perform their tasks quickly and efficiently?” We often found very easy but efficient ways to support the different working methods of our users.

For example, the current editor allows you to work with “slide-in windows”. That way, the user interface can be adjusted to personal needs. Unnecessary information is hidden and it can be brought back again if required. The user can always concentrate on the current task without being distracted by too much information on the screen. Textual or property-based information is often hard to remember, especially when the product is not regularly used. This is why we placed optical elements at many different spots, supporting the user. The user does not have to remember names or structures for graphical elements like symbols; he can choose quickly and precisely now, based on a graphical preview.

Even for the design and manipulation of the underlying templates, we have created a complete graphical interface. And again, the user gets the freedom to work in a structured way by means of our property concept—without restrictions.

SYSTEMATIC REUSE

For all our solutions, reusability has always been at the center of attention. zenOn stands

“We concentrated on the question ‘Which features make it easy for our users to perform their tasks quickly and efficiently?’ We often found very easy but efficient ways to support the different working methods of our users.”

Reinhard Mayr, Product Manager

for efficient engineering, whether you look at the open import/export standards, or at the easy copy-and-paste mechanisms. Despite the already well-developed functions, we managed to define further milestones here as well.

The handling of the symbols was enhanced significantly with new, improved functions. These include a graphical preview with full filtering and sorting options.—Just like you know it from a variable list or a function list. However, we also implemented additional functions.


Single properties of elements in symbols can now be brought to the outside as a concrete, manipulable property for the whole symbol. That way, the user can define complete symbols with dynamics, display, labeling etc. and store them centrally. For multiple use of the same element, he can change the labeling of each element without losing the advantages of inheritance from the linked element. If the user wants to change the labeling, he can do so directly on the individual element. If he wants to change the text color, he can still do so at the central symbol; all changes are automatically applied to the other symbols in the project.

This is how we included many optimizations and supporting features into our development tool over the last few weeks and months. We managed to finally provide the best engineering tool to our users. Creating and maintaining projects has never been so easy and efficient.

BACKWARDS COMPATIBLE

In order to allow the use of this improved user interface for as many users as possible, we

decided to ensure full compatibility. Are you still using version 6.20 SP4 on your runtime systems? No problem. You can use the current development tool and profit from efficient engineering, but at the same time, you can create your runtime files for the runtime version 6.20 SP4. This means that you do not have to update all environments. You can make use of the new functions where they help you most. The same applies to the Runtime: if you do not want to convert all projects to the new version, the zenOn 6.21 Runtime can make use of your old projects without problems. Decide on your own where and when to perform updates.

With zenOn 6.21, you open up a whole new world of possibilities to guarantee your project and company success.  **Reinhard Mayr, Product Manager**



Windows Vista™

Many things are better now— but also different.

“Many things are better” also applies for zenOn, by the way. Whether you are already using Windows Vista or you are still using Windows XP, 2003 Server or Windows 2000, with zenOn 6.21, engineering has turned into a real pleasure.



Version 6.21 is the first version that fully supports the new security concept of Windows Vista. As the first HMI and SCADA software package, it received the hard earned „Certified for Windows Vista” logo. In this article, we will talk about the changes brought about by Vista.

SECURITY: RETHINKING NECESSARY

With Windows Vista, the user gets not only changes and improvements of the user interface, like the glass style Aero, the Sidebar or the new Start Menu. The new operating system is also supposed to improve the security of the whole computer system.

You can read about the details of this new security concept in the article “Software and Implementation in Vista” on page 30 of this issue of IU. In this article, you will see what this concept means for working with zenOn and why we introduced a new database engine in version 6.21.

With Windows Vista, the user does not get full access to the system, even if he belongs to the Administrators group. The user must confirm every action that constitutes a potential danger to the system using a dialog on the screen. This functionality in Windows Vista is called “User Account Control” (UAC).

One of the goals during the development of zenOn 6.21 for Windows Vista was to make the Runtime and the Editor work without administrator rights. And we did it! In Windows Vista, a standard user can use all the functions of zenOn 6.21. The only action that still requires administrator rights is a change between program versions.

TABOO ZONES CREATED

In Windows Vista, it is no longer that easy to write into the Windows folder, the Program folder or parts of the Registry (Hkey_Local_Machine). However, these are exactly the places where many programs used to save their preferences.

For older programs that were not written according to Windows Vista rules and that can be started by restricted users, the write accesses are redirected to the so-called “Virtual Store”. In the directory `c:\Appdata\username\local\virtualstore`, Windows creates a Virtual Store for every user. The drawback is that central settings, like the start project in the `zenon6.ini` file, can only be saved separately, for each user.

It is clear that Microsoft will use this “Write-Redirection” only as a temporary solution for maintaining the compatibility with older programs. If you want to be play it safe, you should

only use software that does not need any of these provisional measures, like the new Vista-certified zenOn.

WYSI(N)WYG—

WHAT YOU SEE IS (NOT) WHAT YOU GET

Windows Vista consists of a language-independent core and a localized user interface. This means that, even though the program folder is displayed as “Programme” in the Explorer of German systems, it is in fact called “Program Files”. So, do not be surprised when you suddenly see a different folder name in the command prompt, because here, the “real” folder names are displayed.

AN OVERVIEW OF THE NEW FOLDER STRUCTURE AS OF VERSION 6.21

Considering all these taboo zones of Windows Vista, we decided to use a new, consistent folder structure. At the same time, this enabled a feature desired from many sides: to be able to specify where to save the editable configuration and system files (see box).

SERVICE RIGHTS—LESS THAN EVER

The direct interaction of services with the user interface has always constituted a potential danger. After all, a service is usually launched from the local system account and therefore has unrestricted access to the system. With



"Hacker?"

"Data Integrity?"

"Everything Secure?"

„Nope.“

„Perfect.“

„Certified!“

zenOn – Certified for Windows Vista.

"If you want to play it safe, you should only use software that does not need any of these provisional measures, like the new Vista-certified zenOn."

Mark Clemens, Support

Windows Vista, this is no longer the case. Services are still started with the local system account. After all, they perform important tasks that require full access. However, Windows Vista offers the so-called "Secure Desktop" as a safe alternative, which is completely separated from the rest of the system.

For zenOn, this affects the Remote Transport and the "zenSysSrv", which is an integral part of every zenOn installation. If zenSysSrv is registered as a service and the Remote Transport starts the Runtime, then the service interacts with the Desktop. If the user confirms the execution of the Runtime in the Secure Desktop, the Runtime will run separated from the rest of the system—however not properly.

This is why, from version 6.21 on, the zenSysSrv will no longer be registered and started as a service, but as an application during the login of the user. This makes sure that the Runtime is started over Remote Transport in the correct user context, without Secure Desktop.

FAST USER SWITCHING

With Windows Vista, fast user switching is now coming to the business versions of Windows.

To the situation where user A starts the Runtime and user B logs in and starts the Runtime a second time, the system displays a message showing which user started the Runtime and makes an entry in the Windows Event Log.

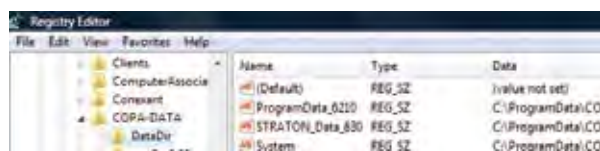
STARTUP TOOL

The new Startup Tool is required for a smooth operation of both zenOn 6.20 and zenOn 6.21 on one computer. If the setup program of zenOn 6.21 finds an existing 6.20 SP4 installation, the entries for the registration of 6.20 SP4 and 6.21 are automatically added to the Startup Tool. If there are already several zenOn versions on the computer and the Startup Tool is already in use, the existing preferences are imported and the new version 6.21 is added to the entries.

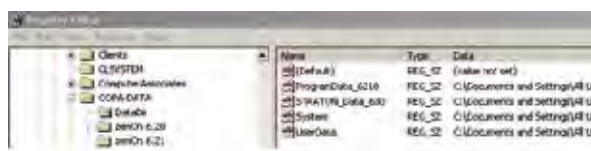
I WISH I HAD: A NEW DATABASE (OR "WHERE ARE MY PROJECTS?")

When we tested zenOn with the first beta version of Vista in late summer 2006, we were not really surprised to see that even Microsoft products would have compatibility problems with Windows Vista. For example, Windows Vista no longer officially supported the Microsoft SQL database, which we were using for storing engineering data.

DEFAULT WORKSPACE/PROJECT FOLDER VISTA C:\Users\Public\Documents\zenOn_Projects XP C:\Documents and Settings\All Users\Documents\zenOn_Projects		SQL DATABASE FOLDER VISTA C:\ProgramData\COPA-DATA\SQL XP C:\Documents and Settings\All Users\Application Data\COPA-DATA\SQL	
CONFIGURATION DATA LIKE ZENDB.INI VISTA C:\ProgramData\COPA-DATA\System XP C:\Documents and Settings\All Users\Application Data\COPA-DATA\System		zenOn PROGRAM FOLDER FOR SYMBOLS, WIZARDS, LOG FILES, STRATON VISTA C:\ProgramData\COPA-DATA\zenOn621 XP C:\Documents and Settings\All Users\Application Data\COPA-DATA\zenOn621	



Folder structure Windows Vista



Folder structure Windows XP

For zenOn 6.21, this means: It is time to say goodbye to the MSDE (Microsoft SQL Server 2000, Desktop Engine) as a means of data storage and to switch to its successor. During the installation of zenOn 6.21, a new SQL Server 2005 Express (SP2) database instance is installed. Any existing MSDE instances from an earlier 6.xx version will remain on the computer.

Unfortunately, this step also leads to some restrictions for the compatibility of project backups. A project backup created from an MSDE database can be restored with the SQL Express 2005 instance and used in zenOn 6.21. However, project backups created with zenOn 6.21 and an SQL Express 2005 instance cannot be restored for use with an MSDE instance. This possibility has been ruled out due to changes in the database.

Hint: For distributed engineering, all computers should also have a new SQL Express 2005 database installed.

After installing zenOn 6.21, you can import all projects from the existing MSDE instance of an older zenOn version using project backup. A new directory is used for the SQL Express

2005 instance, so that the project backups cannot interfere. Of course, the new SQL Express 2005 database also has advantages, besides the Windows Vista compatibility. It already incorporates the extended security concept of the full Microsoft SQL Server 2005, which was especially important for us.

Christian Beyrl, Manager Server & Tools Platform at Microsoft Austria, told us, "Our experts cooperated closely with COPA-DATA to create an interface that would fully support the new security features and performance improvements of SQL Server 2005."

Overall, Vista combines high security with easy operation and an appealing user interface design. And with zenOn as the first certified HMI/SCADA software, users can already profit from this new trend-setting technology today.

☞ **Mark Clemens, Support**

Software Design and Implementation in Vista

For many months, Windows Vista has been the talk of the day. Since the beginning of February, the standard operating system for new PCs is Windows Vista and many people are confronted with new concepts—unfortunately, this often includes incompatibilities with existing software.

Hardly anybody reckoned that this would happen, because the changes of operating systems to Windows NT 4, Windows 2000 and Windows XP had been very unproblematic. Only now, the first negative comments can be heard—without reason, we think.

With Windows Vista, Microsoft has now finally taken care of security, a step which has long been demanded and promised. Users are now forced to work without administrator rights. This was already possible in Windows XP, but let us be honest: Who wants to make his own life harder than necessary, when we are “the administrator” on our PC anyway? Unfortunately, the virus programmers are well aware of this fact and take full advantage of it.

Of course, Windows Vista has many other useful and optically appealing new features. However, as the new system security regularly causes problems and makes rethinking necessary for both software developers and users, this topic will be dealt with in detail here.

UAC—THE RUTHLESS GUARD

Now, what exactly is this new UAC (User Access Control) about? From a user view, the most important change is the fact that now everybody generally works as a “normal user”, even when he is in fact the administrator on his own PC. Only if a program started by the user accesses an operating system function that requires administrator rights, can he make use of his administrator right by confirming in a MessageBox that he really wants the program to do that. This immediately shows that an application is trying to perform a security relevant operation. Normal applications now have to be programmed in a way that avoids security-relevant system functions. For compatibility reasons, non-Vista compliant applications are launched in a kind of mini-sandbox. This means that forbidden system calls are emulated and actions like disallowed registry or file accesses are redirected.

Now what does this mean for developers? What needs to be considered, what is allowed and what is not? What is necessary to receive the Vista logo certification?

First of all, you have to be sure about the architecture of program components and which security levels they must fulfill. Normal applications, for example, are not allowed to write registry entries, overwrite files in system and program folders or change system settings like the time and the date. A “manifest” included in the EXE files of a program confirms that it is running under user rights and that it can be considered harmless regarding security. If this is the case, the application can be launched at any time by any user without any annoying dialog boxes. However, Vista punishes violations like a write attempt in the Windows folder with a failure. There is no redirection to the virtual store.

Required files in the system or program folders and registry entries must be created during setup. This must be done with administrator rights, including the security dialogs mentioned above.


UAC, WELL-PLANNED RIGHT FROM THE START

If security related functions are required during runtime, there are two possibilities. Either, they are outsourced into a separate program, which demands administrator rights in its “manifest” and which can only be started by the user after the confirmation of the security dialog—provided the user actually has administrator rights. Or, all the required functions are outsourced into a signed system service.

However, especially for UAC, things get a bit tricky on the implementation side for some details. Some system functions are now severely restricted, in order to avoid gaps in the new security concept. System services, for example, which always run with administrator rights, must not start any GUI applications with windows. This means that the system service itself cannot have any windows, and neither can any

of the secondary processes launched by it. In addition, the sending of window messages from a process without administrator rights to the window of a process with administrator rights is no longer allowed. The reason for this is clear: if this was allowed, a program without administrator rights could acquire higher rights by “remotely controlling” a program with administrator rights and simulating keyboard or mouse inputs.

As we can see, many “little details” need to be considered when developing software for Windows Vista with its new UAC, before one can create a smoothly running program that earns the Vista certification logo.

Of course, you could also shut off UAC completely, but this is not recommended. Even though most of the programs would run just like in Windows XP, you would also give away one of the most important improvements of Windows Vista—the virus programmers would be more than happy about that. And as usual, zenOn 6.21 works without restrictions when UAC is activated.  **Günther Haslauer, Development Manager**



Audi Plant in Győr, Hungary

Paving the path for the future— Conveyor systems for engines optimized with zenOn

For Audi Hungary in Győr, Hungary, the integrated software solution zenOn offered new potential for optimizing the conveyor systems for engines: a smooth flow of information enables more efficient operations.



AUDI IS UNSTOPPABLE.

Every day this car manufacturer reports new successes. They include record production during the last two months, and the best year in the entire history of the company. The decisive factor for this great success is the company philosophy that has not changed since the company's founding more than one hundred years ago.

Audi, as a brand, stands for progressive design, serious environmental protection and trend-setting technology—in short: “Competitive edge through technology” or as we all prefer to call it, “Vorsprung durch Technik”.

The Hungarian Audi plant in Győr, which employs over 500 employees is part of this success story. Founded in 1993, the Hungarian plant manufactures up to 6500 engines a day—starting with four cylinders, six- and eight cylinders, all the way to ten-cylinders and special custom-made engines—all in all 1.7 million engines every year throughout the entire corporation including Audi, Volkswagen, Seat and Skoda. This success is made possible by sophisticated production and plant technology. Efficient information flow enables a smooth transport.

In order to ensure the continuation of the success story at the Hungarian Audi plant, further expansion was planned for the engine conveyor systems. The plant management decided to extend and optimize the facility by adding storage and automatic sorting mechanisms. Just like before, the finished engines are transferred to the conveyor systems at the existing dispatch stations on transport pallets. Now, however, important additional data like pallet number, engine number, engine type, reception station, dispatch station and more parameters are submitted to the control station.

The engines that have been dispatched from different locations in the plant are first buffered and stored in a pre-storage location where a rough sorting by engine type and reception station is completed. From pre-storage, the engines are transferred to a circulating storage where the main sorting using ABC analysis takes place and from where the engines are forwarded to their respective main storage destination. The facility currently has two main storage locations and two reception stations. Because the reception station is defined when the engines are dispatched, the delivery to the

“The software by COPA-DATA met all of these requirements. Each employee has access to all relevant information—quickly and reliably—which is critical for competitiveness and success in a manufacturing facility.”

Dipl.-Ing. Zoltan Ponty, Audi Győr

reception station or the main storage happens safely and easily.

In the reception station the engines are pulled out of the main storage in blocks and then prepared for further transport. Additionally the conveyor system has a reception station before the main storage locations. This way engines can be pulled out of the circulating conveyor on demand and directed straight to the desired dispatch location through a highway. This happens, for example, with custom-made engines.

AUDI HAS THE PERFECT SOLUTION: zenOn
For an automated facility of this size it is important to apply a solution that allows for status and operating information to be visualized in a central location. The visualization software zenOn had been successfully put to use at Audi for existing projects such as the visualization of the SKID facilities in Ingolstadt, Germany, the project management decided to use zenOn software by COPA-DATA.

“We found a specialist for Industrial Automation in COPA-DATA. Their professionalism from the planning phase all the way to the realization has shown us that with COPA-DATA we are counting on the right partner. The software convinces us again and again in each project. Together we managed to create an innovative and safe engine conveyor system.”, explained Johann Mayr, member of the Audi Ingolstadt-planning group in electrical engineering. There are a number of critical requirements the software solution had to meet.

First, runtime redundancy had to be guaranteed, along with system stability and extensive alarm management with related alarm statistics. For the project manager it was also important to have a universal solution—from the single workstation all the way to the Intranet.

Since the plant in Győr, Hungary is an international Audi plant, the facility to switch language between German and Hungarian within the software had to be guaranteed as well. Furthermore, a clear depiction of the project structure was a requirement, as was extensive and flexible user administration. The software by COPA-DATA met all of these requirements. “The flexibility of zenOn allows us to implement our requirements in a quick and uncomplicated manner”, added Johann Mayr.

EVERYTHING AT ONE GLANCE— FROM ANYWHERE IN THE FACILITY

The individual components of the solution were set up spread across the plant. The visualization has a Runtime-server and a Standby-server, which are at different locations in the plant for safe operation in the First, of fire. The additional web-server enabled visualization over the Intranet.

The central display was set up in the engine management office and the office for maintenance in the plant. These control stations have a total of eight zenOn-Client- displays at their disposal. “Today, each employee has access to all relevant information—quickly and reliably—which is critical for competitiveness and

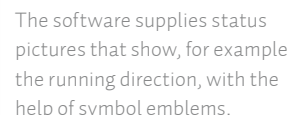
success in a manufacturing facility.” says Zoltan Ponty, Head of engine handling at Audi Győr.

ELIMINATING SOURCES OF ERROR UND OPTIMIZING OPERATIONS


In order to avoid sources of error in the future and to make the conveyor systems even more efficient, alarms had to be analyzed regularly and systematically. If an error had occurred, an alarm was immediately forwarded to maintenance by Message Control using SMS messaging and e-mail. This helped to keep the reaction time as short as possible. The zenOn Industrial Performance Analyzer tool enabled the statistical analysis of occurring errors, for example displaying frequently occurring errors in a transparent manner and detecting weak points in the facility. Additionally, sophisticated built-in monitor administration helped to make Maintenance’s work a lot easier. Using the tool, the process pictures were split up between two monitors. This way the user can have an overview picture displayed on one monitor and a detailed picture on the other monitor.

INCREASED TRANSPARENCY ENABLES FASTER DECISION-MAKING

The visualization of the plant encompassed the elements for display and input, as well as displaying the occupancy of individual transport channels and storage locations in tables. Together with COPA-DATA, the Audi Hungary project team generated several status pictures that depicted the current condition of the individual transport channels using symbolic elements. One piece of information depicted was



can now be followed over the individual conveyors to the storage location, and from the sorting facility all the way to the receiving location. Furthermore, this path can be corrected and redirected on demand.

Thanks to the visualization of the facility, today Audi Hungary has a clear overview of the status and the features of their engines, as well as all required actual and target values. Project managers Johann Mayr and Zoltan Ponty have already drawn to their conclusion, “zenOn enables us to use our engine conveyor systems in an economical way. This year we benefit from increased transparency and optimized operations. With the application of zenOn, we responded to our growing requirements and a constant need to increase efficiency.” 

For Audi Hungary, the visualization of the entire engine conveyor system made production more transparent than ever. Each engine's path

Hubert User discovers a whole new range of features

zenOn is the big hit. Powerful, comprehensive and prepared for everything. Making visualization enjoyable. But what if you get stuck somewhere? What happens then?

Hubert User has been working with zenOn for quite some time. Always under pressure, because there is always a project waiting to be finished. And then, suddenly, Hubert gets to the point where he feels insecure about how to go on. Hubert looks around, trying to find his colleague. He would know what to do now. But he is not here at the moment.

Hubert sighs and presses F1 to open online help. Horrified, he remembers his previous experience of zenOn help: Ugly design, out-of-date content and bad style - incomprehensible and detached. Hubert gets nervous. His colleague is still not there.

Hubert catches his breath. The main help page appears. What happened here? First, he notices the new design. He gets a bit more comfortable. Hubert opens the search tab and enters a keyword. Fortunately, he knows very well how

to search online help. Quite naturally, he uses Boolean operators to narrow down his search results. **1**

“Very good” Hubert thinks. Only five chapters remain; another “click” and he has found the correct chapter.

The help tree opens up in the selected chapter. Hubert User is surprised: The Fast Fact Box **2** gives him a good overview. He immediately finds all the information about what the feature does and what he can use it for.

“The help function has become really user-friendly”, Hubert thinks, surprised. He clicks on the Link **3**, tests the Path **4** and opens the Screenshots that he wants to look at. **5**

The Screenshots are up-to-date and already in Vista Design. “Oh yes” Hubert remembers, “zenOn is already running in Vista!”

Hubert is astonished, because the style was also improved considerably. But after a few

clicks he realizes that this is not the case for all chapters. This means that somebody is working on it. “Of course” Hubert admits, “this cannot happen overnight, considering the large amount of work to be done.” **6**

And there it is: the answer to Hubert’s question, clearly highlighted, in an Attention Box **7**. Hubert is satisfied and pleasantly surprised about the new Look & Feel of zenOn Help.

The door opens and his colleague comes back into the room.

Hubert asks him for his opinion about zenOn help. The colleague has known zenOn since its very start. He has also noticed the recent changes. He is especially happy about the overview chapters, from which he can comfortably access the required chapters, via the Links **8**.

1 Editor’s comment: In case he somehow loses this knowledge, we recommend that he either eat garlic (as we all know, this makes you smart) or that he look at our new help chapter: Online help feature—the perfect way to find what you need. We suppose the colleagues plead for the second option, the help chapter.

2 At the beginning of every main chapter, there is a blue Fast Fact Box. Here, you can find a short summary of what this feature is used for. Additionally, there is a feedback address in the box, so you can send your wishes, complaints and suggestions directly to the documentation department at COPA-DATA.

3 The chapters are linked with each other, connecting them according to topics.

4 Every chapter has a path bar on the top. This is where the chapter is linked to its overlying chapters.

5 Because of a big drawback of screenshots (they split up the text), it is now possible to enlarge only selected screenshots. We did not want to put aside the screenshots, because they are very helpful, especially for beginners.

6 Our online manual has approximately 1200 pages, not to forget about the four different languages ...

7 Beside the Fast Fact Box, there is also the yellow Info Box and the red Attention Box, which we use for highlighting important notices related to the current feature. Additionally, there is the green Example Box for examples and the purple See Also Box, which contains the Links.

8 e.g. for the chapters “functions” or “picture types”



Even he, as a zenOn veteran, cannot possibly keep all the features of zenOn in mind. He states: “Finally, I always get the information that I am looking for, when I click on the Help Button in a dialog.”⁹

“But Hubert, you know what still bothers me? That I never know whether I can find the required information in the properties help or in online help.”¹⁰

“Properties help?” Hubert frowns. “Well, look here!” his colleague points out “Under the properties window! You can show and hide it with the question mark.”¹¹ “Oh” Hubert marvels, “You are right, all properties are briefly described there.” “Wait a second” his colleague calls out, “go back again, there are also Links to the Online Manual now. This means that the information is no longer as scattered and divided as it was in the past.”¹²

Hubert activates the Link and arrives in the corresponding Online Manual.

The help tree is also much larger now; the zenOn Tools, the driver documentation, the tutorials, the videos - everything to do with help - is now there, accessible from a central spot. “This was really overdue” his colleague says.

Just to try, they open a chapter. “Finally!” Hubert shouts, “Look at that!” Every chapter now has a more intuitive structure. This means, there is always one part, which is about engineering in the editor, and another part, which is about operation during runtime. Even the headlines of the chapters have become really meaningful and significant. “As a user, you now already know beforehand what kind of information awaits you. This almost makes it boring!” Hubert rants. “Now we will try out something really challenging!” Hubert’s colleague grins

and rubs his hands together. He searches for information about a brand-new chapter, which he knows was added to zenOn only recently. And behold, Hubert User and his colleague are nodding happily. They have found the exactly corresponding piece of information in the help system. Hubert laughs and points a finger at his colleague: “Aaah, you wanted to check whether the guys at COPA-DATA forgot about their everyday work because they concentrated so much on developing the help system?”

The colleague makes a positive conclusion: “Really nice! If they continue like that, zenOn will soon be more than just a great product. It will be a great product with a great help system!”

🔗 *Elke Holzer, Documentation*

⁹ If you click the Help Button in a dialog, you will be forwarded to the help section. All the jump targets are checked and documentation is extended appropriately.

¹⁰ We offer different help functions, one of them being online help, the other being properties help. Because properties help is used very often, it makes sense to integrate it directly into the zenOn interface.

¹¹ You can find this button (with question marks) in the toolbar of the properties windows. You can use it for showing and hiding the properties help.

¹² We connected the properties help to the online help. Wherever it makes sense, you can now comfortably jump from the properties help to the corresponding online help chapter.

News & Events

What happened previously...

Full success at the HMI Fair 2007 with zenOn 6.21

For years, COPA-DATA has enjoyed success in Hannover—the same applied in 2007. The new Windows Vista certified zenOn Version 6.21 and our cooperation with EPLAN attracted the attention of many visitors. In lively conversations, customers and partners got to know the advantages of the “Usability Version” 6.21 and learned about how zenOn and EPLAN cooperate.

The visitors showed special interest in our main topics—the new software generation and the close cooperation with EPLAN. The close contact with important customers and the exchange with our actual and potential partners were especially valuable for us. As zenOn 6.21 shows, the suggestions and comments of our customers are what makes zenOn so successful.

EPLAN AND COPA-DATA CREATE NEW CHANCES FOR RATIONALIZING

The cooperation with EPLAN at the center of attention during of this year's exhibition. zenOn and the EPLAN product family are linked through the EPLAN platform and the EPLAN Engineering Center.

The integration of zenOn in EPLAN products brings together the engineering and maintenance of machinery and system technology at all stages—from design to daily operation. zenOn is the first HMI/SCADA system that works so well with EPLAN.

During the design process, the engineer can access zenOn directly from the EPLAN platform. During runtime, the user can launch the EPLAN Viewer or the full version from within zenOn. The simple data exchange between these two systems allows the complete automation of

the engineering process. Documentation data defined and composed in the EPLAN Engineering Center, like circuit diagrams, fluid plans, PLC programs and project information, is automatically available to the HMI/SCADA system zenOn.

The result: Engineering time is significantly reduced and errors due to manual copying or verbal communication are avoided. Consequently, parallel developments and high follow-up costs are a thing of the past. The tight interconnection of the COPA-DATA and EPLAN solutions also makes life easier for the commissioning engineer and guarantees easy and safe everyday operation. For example, alarms and error messages can be looked up in the EPLAN platform directly from within zenOn, and errors can be detected and resolved at a glance—all the way from the single workplace up to the control system.

zenOn 6.21 SUPPORTS WINDOWS VISTA

The products of COPA-DATA GmbH are already “Windows Vista certified”. The new version 6.21 is fully compatible with Windows Vista. Our existing and new customers can already swap to Windows Vista and profit from all the advantages offered by the next generation operating system. zenOn 6.21 fully supports all



the functions of Vista like the user interface Windows Aero or the new UAC (User Access Control). With version 6.21, the work of the users also becomes more clear and easy: It is no longer necessary to have administrator rights in Windows Vista. Engineering has become even faster and easier. The protection of investment is guaranteed, because zenOn 6.21 is of course backwards compatible. Projects created with zenOn 6.21 can be started with the current 6.20 SP4 Runtime. **Jürgen Schrödel**, General Manager COPA-DATA Germany

New distributor in India: Maestro Technologies

The worldwide zenOn distribution network is growing. At the beginning of 2007, COPA-DATA began a relationship with a new distributor in India, a market with a billion inhabitants and a yearly economic growth rate between five and seven percent. In Maestro Technologies, we found a partner with many years of experience in the area of control and visualization technology. The cooperation between our companies has been excellent. Maestro Technologies is fully concentrated on distributing the HMI/SCADA package zenOn. In order to place our product in this vast market in the best possible way, our new distributor uses his existing network of local distributors and system integrators.

Of course, zenOn's key sectors, like food & beverage, packaging and machine building, are served first. But energy technology is also a fast-growing market in this country, which has a lot of catching up to do when it comes to infrastructure. This is where especially the IEC drivers 60870 and 61850 are in high demand.

In the end of March, Markus Helbok traveled to the first big zenOn training in India. Up to then, there had been very successful online training with the COPA-DATA Interactive solution. The training took part in a hotel, and in addition to the Maestro employees, the audience

already included some customers and system integrators like B&R India and TTS Systematix. A total of 12 persons attended the four-day training session, which addressed all zenOn features: From the variety of drivers to object-oriented parameterizing, from a single workstation to a network with circular redundancy and horizontal transparency, and of course the unique continuity from Windows CE to 2000/XP/Vista up to the WWW.

Maestro Technologies is already successful in distributing zenOn on the Indian market. After only 2 months, they successfully implemented the first two zenOn projects for Pam-Pack, a packaging manufacturer for blister packaging. The facilities are in an environment regulated by FDA 21 CFR Part 11. This is why the choice for this project was the zenOn integrated solution "FDA with a mouse click".

Nilesh Chipade, project engineer for B&R India, is enthusiastic about zenOn: "zenOn is so easy to use. I never thought that I could create a whole visualization project within 2 weeks - without training, not to mention in a FDA CFR 21 Part 11 regulated environment. The training was an ideal addition for me, in order to refine my projects even more and to be prepared for upcoming projects."

☞ *Markus Helbok, Product Manager*

STRATON at the Embedded World exhibition

COPALP presented its PLC runtime systems for two WAGO controllers as a co-exhibitor at the stand of WAGO, connector technology, GmbH & Co. KG at the Embedded World exhibition in Nuremberg, Germany. Type 750-860, the smaller one of the two models is a small-sized and low-priced Linux-based controller. Its big brother, called the 758, runs Windows® CE and offers excellent performance as well as a variety of interfaces.

COPALP presented its expertise in OEM controllers at the exhibition.

...and what is still to come.

zenOn at
SMART Automation Austria Fair
Design Center Linz
October 3-5, 2007

zenOn at the
SPS/IPC/Drives Fair
Messezentrum Nuremberg
November 27-29, 2007



Training at Maestro Technologies, India



Guests fascinated by zenOn at COPA-DATA Giro 2007

April 17th, 2007: zenOn starts on a four day giro through upper Italy from Turin via Bergamo and Bologna to Padua. Over 100 guests experienced zenOn in theory and practical operation, got an overview of its capacity and learned to appreciate finer details. Step by step, topic by topic, COPA-DATA managed to highlight its leadership in the field of HMI/SCADA/Soft-PLC.

Professionals and prospects learned about the many advantages of the integrated STRATON and zenOn solution in precise presentations. They witnessed a live demonstration of “Networking à la zenOn” and experienced how safely zenOn operates—with regard to FDA 21 CFR Part 11, the traceability standard for the pharmaceutical and food industry.

IU readers already know how much we tortured zenOn in the Usability lab—and how this produced a really special zenOn. During the giro, the Italian HMI/SCADA professionals also peeked under the hood of zenOn 6.21 and gained first impressions of the new user interface.

Furthermore, each of the four tour events was crowned by a special highlight. A professional presentation, in which a customer showed his own application with STRATON or zenOn.

Mr Roberto Vigliermo and Gianni Vigliermo of Abelmec Srl presented machine operation based on an XPE platform in Turin.

In the city of Bergamo, Mr. Casali of System Spa demonstrated the integration of STRATON Embedded on a specific platform of System Spa.

Bologna staged the presentation of an application based on a CE platform, presented by Mr. Rondelli, Mr. Nichelini and Mr. Marcantoni of Kosme Srl.

In the city of Padua, Mr. Nicoletti and Mr. Volpato of Fen Srl presented their solution based on a CE / XPE platform.

Thomas Punzenberger, COPA-DATA CEO and Italy-aficionado, talked to customers and prospective customers about HMI/SCADA in Italy and the software of the future. In Padua, he got professional support from COPALP CEO Jérôme Follut, who gave a firsthand report about “his baby” STRATON.

The Italian COPA-DATA team was happy to see such enthusiastic guests and wishes to express special thanks to the customers who presented their own applications. Grazie e alla prossima!

✍ **Klaus Rebecchi, COPA-DATA Italia**



“User-friendliness and ease-of-use is a central topic in which we clearly differ from our competitors. Instead of lengthy scripts that make maintenance impossible, zenOn gives you easy handling and a clear overview.”

Markus Helbok, Product Manager

Usability Project: Presentation of the Implementation

In the last issue, we described how we laid the foundation for the development of zenOn 6.21: A team of customers, external specialists and COPA-DATA employees joined to develop ways to make the zenOn editor even more user-friendly.

Now the baby is born, as you might say. We have gladly taken the time to present it to all the involved persons.

The presentation of the results of our GUI Usability PLUS project (see Information Unlimited 13) on February 15th—exactly one year after the start of the project—was a worthy conclusion. We invited all test participants and also other interested partners to give them a first look on the new product. We deliberately chose to perform the presentation before the development stop of zenOn 6.21. In this way, our guests were still able to play an active role in the shaping of the product with their opinions and reactions. Our guests enjoyed a rich program:

1. Presentation of the results of the GUI Usability PLUS test:

Bernhard Ferro and Markus Helbok presented the detailed results of the tests.

2. Implementation of the test results in zenOn 6.21:

Reinhard Mayr and Markus Helbok showed the interested audience how the suggestions of the customers were implemented in zenOn.

3. Presentation of the new documentation:

Elke Holzer showed us how the Online Help and the Documentation have changed and which features can now be found in the Documentation.

4. Tech Preview Program:

Sebastian Kritzing presented the program that enabled the audience to put forward Last Minute Wishes and incorporate them in the development.

5. Additional new features:

Reinhard Mayr and Markus Helbok presented additional Usability features, which now make life easier for engineers

Some new options like the flexible working, the direct editing in the detail view and the new template editor caused great excitement. You can find more detailed descriptions of these new options in the article „zenOn 6.21—As you wish!“ in this issue.

The attendant customers and partners confirmed that we are heading in the right direction. User-friendliness and ease-of-use is a central topic in which we clearly differ from our competitors. Instead of lengthy scripts that make maintenance impossible, zenOn gives you easy handling and a clear overview. Even beginners find their way quickly in the complex and comprehensive environment of the zenOn editor. For us, this is the proof that “complex” does not necessarily imply “complicated”. With the new zenOn Editor, we demonstrate how to avoid this fallacy. Many useful functionalities, clearly arranged in one tool and each of them easy to handle, as usual.

We will continue in the right direction and take the next steps in cooperation with our customers. For the development of the next versions, we will focus again on user-friendliness and try to integrate new features in the most intuitive way that is possible.

✎ *Markus Helbok, Product Manager*

e+z=M²

A world first for mechatronics: zenOn integration optimizes workflow. Faster and easier engineering, reducing costs.



zenOn opens up a new dimension for mechatronic engineering. The HMI/SCADA system from COPA-DATA integrates into the product line of EPLAN Software & Service GmbH & Co KG, not only in one way but in two. This delivers not only speed and a clear overview, but engineers also profit from an absolute first: seamless integration both in engineering and in runtime. This makes a smooth workflow possible, from the very first plan up to maintenance processes. Experience the squaring of mechatronics at the Hannover exhibition 2007.

ENGINEERING? PREFERABLY AUTOMATIC. Leading visualization system zenOn guarantees a clear overview and transparent processes in many facilities around the world. It speeds up production and makes process control safer and easier.

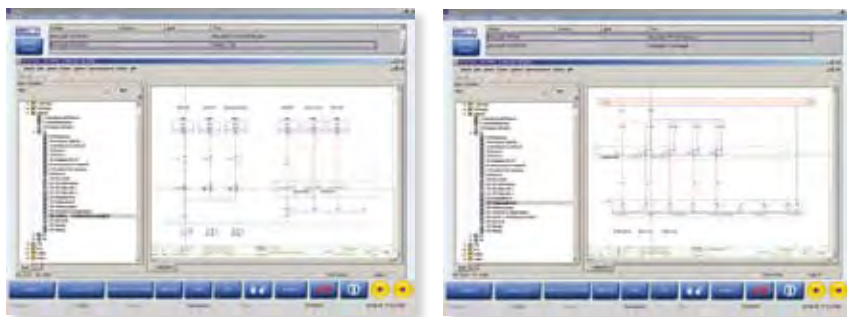
The perfect starting point for top-notch engineering. The HMI/SCADA system zenOn and the product line of EPLAN integrate in two important points: First, in the EPLAN platform; second, in the EPLAN engineering center. This means, in the engineering process, the engineer directly accesses zenOn from the EPLAN platform. During runtime, he can use the EPLAN

viewer quite instinctively from zenOn, or even start the full version of EPLAN. The simple data exchange between the two systems makes automatic engineering possible. But why do we call it “automatic”?

Product manager Timm Hauschke (EPLAN Software & Service GmbH & Co KG) considers the fact that sequential engineering processes are still standard in mechanical engineering as a frequent source of errors: “This causes long lead times, poor coordination and above all, many errors due to manual copying. The expensive consequences are costly multiple developments and unnecessary follow-up costs on the installation site.

However, there is a much better way: The EPLAN engineering center divides a facility or a machine into several modules. During the course of this, functional units are defined as mechatronic objects—across disciplines—and they are compiled into a building set.

The standardized functional components in the building set lead to noticeable improvements in productivity because these exactly defined components can be reused over and over again. At the push of a button, you can



“This direct combination of zenOn and the EPLAN platform saves a lot of time, money and energy. Instead of looking for error sources manually after an alarm, the target opens automatically. The users can react quickly and correctly, always supported perfectly by zenOn.”

Axel Netuschil, COPA-DATA Germany

generate all discipline-specific documentation like circuit diagrams, fluid plans, PLC programs and project information for the HMI/SCADA system zenOn.

This method of functional engineering not only divides the facility or machine in order to wrap complex processes into clearly structured modules, it also reduces dependencies—which is typical of zenOn.

PERFECT WORKFLOW:

FROM ENGINEERING TO MAINTENANCE

Design is one thing, but operation in the field is another matter. zenOn is ready for both. It makes work easier for the commissioning engineer and it ensures easy and safe everyday operation. You can look up alarms and error messages in the EPLAN platform directly from zenOn and then track and remove errors at a glance. What's more, because zenOn can access the EPLAN components list, it is easy to define and order replacement parts.

This link also turns out to be very useful when it comes to maintenance tasks. For example, the master data and maintenance data contained within the zenOn Industrial Maintenance Manager is generated directly from the EPLAN

platform. In practice, this means: A motor that must be checked every 5000 hours will automatically be registered within the zenOn Maintenance Manager.

Product manager Axel Netuschil of COPA-DATA Germany often experienced in his presentations how curious many EPLAN users are about the version of EPLAN that integrates with zenOn. “This direct combination of zenOn and the EPLAN platform saves a lot of time, money and energy. Instead of looking for error sources manually after an alarm, the target opens automatically. The users can react quickly and correctly, always supported perfectly by zenOn.” This is how the perfect workflow, from engineering up to maintenance, has come to be. Engineering time and costs are reduced, special customer demands can be met easily. These significant improvements in productivity free up users' resources for the development of new technologies and products.

EXPERIENCE zenOn 6.21 IN HANNOVER

zenOn has gained reputation on the market fast, safe and easy to use. The latest version, 6.21, was presented at the Hannover exhibition 2007. This time, the topic was “Usability”.

This means: even easier handling, faster engineering and costs dropping further.

Version 6.21 is also ready for Windows Vista. It runs on workstations with Windows Vista without any special adjustments and it remains compatible with its predecessor 6.20, protecting investments.

Its open structure and clean solutions for complex tasks turn zenOn into a solid partner for automatic engineering. Or, as Axel Netuschil sums it up: “Trust in its predecessor, trust in its performance, trust in its sustainability.”

COPA-DATA presented “the squaring of mechatronics” using EPLAN and zenOn, live at the Hannover exhibition 2007, hall 9, stand G32.

 **III**

STRATON AND COPALP

In recent years, the name STRATON has become more and more prevalent in the area of PLC and embedded systems. In this issue, we would like to tell you a bit more about the goals and the history of our product.



“STRATON’s flexibility and compatibility with international standards make application and integration very simple and secure.”

Jérôme Fullut, Président Directeur Général, COPALP

HISTORY

In the beginning, two companies recognized the Soft-PLC as the future generation of tools for industrial process control. These companies—Air Liquide and COPA-DATA—defined their requirements, searched—and found a concentration of know-how in the French city Grenoble, both for normal IEC 61131-3 as for the development of embedded software.

And so, in the year 2002, Christian Jargot and Jean-Claude Charles, in cooperation with COPA-DATA and Air Liquide, founded the company COPALP, which since then has been the center of competence for STRATON product. To be precise: This is where you will get first class program development systems and components for embedded systems in the area of process control. Our customers are mostly Original Equipments Manufacturers (OEMs), hardware and software producers, who purchase STRATON either as a complete package, or who select single software components and require high-quality products.

STRATON is a groundbreaking solution when it comes to robustness, guaranteed compatibility and compliance with international standards. Beside the highest quality, we also attach great

importance to long-term relationships. This is the best foundation for offering individual solutions to our customers.

STRATON

STRATON covers all areas of industrial process control, from embedded systems up to the Soft-PLC. We concentrate on IEC 61131-3, mainly targetting machines builders and controllers, system integrators and OEM customers. Every one of our products must fulfill our three key requirements—without compromise: compact, simple and fast.

Our powerful text and graphical editors are available for all five languages of the IEC 61131-3: SFC, FUP, LD, ST, IL. Each of these editors offers fast editing with the keyboard, automatic completion of variable names, drag & drop and an especially fast compiler.

Talking of compilers...

It is very important for us to give customers exactly what they need. For us, this means to react fast and flexibly. So, if you need a compiler for a very specific target system, just approach us. We will make sure that the applications you programmed in STRATON also start on other runtimes without problems.



STRATON also brings with it a complete set of debugging tools. For example: a simulator, a graphical debugger, online tools like Break-points or Step-by-Step execution, as well as a range of monitoring tools that significantly reduce the time you need for development and adjustment.

INTEGRATION AND EMBEDDED PLATFORM

The implementation of embedded systems is one of our special areas of expertise. No surprise, as our employees have over 20 years of experience in the area of Embedded Control. Our regular customers know that by cooperating tightly with us, they get exactly what they need. They rely on our considerable experience and sophisticated software. STRATON's flexibility and compatibility with international standards make application and integration very simple and secure. STRATON can be connected with other tools in a few easy steps and it facilitates the reuse of existing applications. This saves time, cost and energy.

STRATON—

A COMPLETELY OPEN SOLUTION

We designed STRATON to be uncompromisingly open and flexible, in order to make integration into your projects simple and straightforward. For example, we deliver the STRATON runtime as source code, which means that you can port it to any kind of hardware, comple-

ment I/Os to your desire and also add any kind of modules written in 'C'.

Furthermore, STRATON brings with it a complete set of communication tools. These tools allow your own applications, like HMI or data servers, to communicate easily with the STRATON runtime. The access to our database is handled with standard routines. You can use your own wizards to easily create applications, build your I/O configuration and much more. For I/O and fieldbus management, additional toolkits are provided, that allow you to create your own configuration tools and to integrate your I/Os into the STRATON runtime. With STRATON, you can even integrate parts of the development environment into your own IDE (Integrated Development Environment). Because of its flexible architecture, you can access its components at a very detailed level. For example, it is very straightforward to integrate single window classes. This allows you to integrate IEC 61131-3 editors into your system in a very quick and easy way.

We would be pleased to give you a live demonstration of just how much STRATON simplifies your projects. You can read more about STRATON on the COPA-DATA website www.copa-data.com or directly on the COPALP website www.copalp.com. *✉ Jérôme Follut, Président Directeur Général COPALP*

STRATON News



STRATON Language Conversion

The STRATON PLC is equipped with a very convenient and user-oriented language conversion tool.

Of course, you can program your PLC tasks in your favorite language. But your customer assumes that he can choose the programming language for the delivered equipment. No problem with STRATON: With one mouse click, your work is translated to the desired target language. No matter which source language was selected, no matter which target language is desired (see table).

SOURCE LANGUAGE TARGET LANGUAGE	FUP	KOP	ST	AWL
	FUP	KOP	ST	AWL
FUP		✓	✓	✓
KOP	✓		✓	✓
ST	✓	✓		✓
AWL	✓	✓	✓	

This functionality can be very helpful, not only for the customer with their particular demands, but also in other situations. For example, when you analyze code written by someone else, you can change to a language that is easier to read.

Or think of programming: Suppose you know the basics for writing certain sequences only in one language (e.g. FOR-loop in ST), but you have to deliver the solution in a different language (e.g. AWL). Then you can simply write the FOR-loop in ST, translate it to AWL and copy the result into the actual AWL program.

The STRATON developers came up with a nice additional feature: In case you have already translated your program and you want to return to the source language, you can easily do just that. By clicking on the “Undo” button, the exact state as it was before the translation is recovered. While other systems apply the translation algorithm a second time, STRATON remembers and delivers the exact original state.

STRATON and Wago hardware

STRATON is now available in two types of hardware of manufactured by the electrical connectors giant.

The first system using STRATON is the Wago IPC (Wago I/O system 758), a small top-hat rail PC running on Windows® CE. All interfaces (Profibus, Profinet, COM-Port, K-Bus, Ethernet-Ports, local I/Os, LEDs) can be used for input and output by the STRATON Runtime. This gives the user a complete PLC with onboard I/Os. The specifications are quite respectable: 32 MB program memory, 32 MB data memory, cycle time 5 ms. The Wago IPC with STRATON is the ideal PLC for machinery builders and building automation.

The second new system, the Wago 750-860 I/O system, is an OEM controller based on the ARM7 processor, and runs on the Linux operating system. Here, STRATON accesses 64 kB program memory and 2 MB data memory. The Wago I/Os are scanned with a cycle time of 20 ms. This economic version of a STRATON PLC with I/Os is the perfect choice for building automation.

Users who integrate STRATON into the appropriate Wago hardware can profit from the excellent interaction between STRATON and zenOn. Above all, they will profit from fast engineering and accelerated configuration. You can now handle several projects at the same time, instead of just one.

☞ **Jürgen Resch, Product Manager STRATON**

Who is who?

COPALP

JÉRÔME
FOLLUT



Responsibilities at COPALP: Président Directeur Général **Born:** September 27, 1973, in Romans. Now I live in Le Champ Près Froges near Grenoble and I can be on the ski slope in 15 minutes, if I want to. **What happened before:** After school, I went to the University for Automation and Electronics in Annecy for 2 years. After that, I went to the University of Tours for two years, to read my Masters in software development. And a short time ago, I finished my Master in General Management. My first job was at a company specialized in industrial control software, where I discovered my liking for the IEC 61131-3 language. Before coming to COPALP, I worked as a project manager for Getronics, a software engineering company. **Hobbies:** I like diving, climbing, riding the motorbike and skiing. **Favorite books:** Himalaya. My first 8000 meters. **Music:** POP **My motto:** Petit à petit l'oiseau fait son nid. (approx.: Step by step, the dove builds its nest.) **E-Mail:** JF@copalp.com

DANIEL
DIGONNET



Responsibilities at COPALP: Developpeur **Born:** September 22th, 1966, in La Tronche, now living in Lans en Vercors Bergen near Grenoble. **What happened before COPALP:** After finishing high school, I improved my programming skills at University for two years and specialized in industrial software for another year. I started my career in data processing at a company for temporary employment. After that I worked in the area of "Motion Control" for big companies like PEUGEOT, RENAULT, DASSAULT, VW for 9 years. A few years ago, I finally started working in the automation sector. **Hobbies:** I love sports activities like skiing, hiking or running—and I am chairman of a swimming club. I also like working in the garden and gathering mushrooms. **Favorite books:** Comics, Newspapers **Music:** Hard Rock **My motto:** Les autres sont vos amis. (The others are your friends.) **E-Mail:** DD@copalp.com

SÉBASTIEN ROBERTO



Responsibilities at COPALP: Directeur des ventes **Born:** June 6, 1971, in Grenoble. I live in Varcès now, which is 10 km south of Grenoble, in the Southeast of France. **What happened before COPALP:** After finishing high school, I studied English and Spanish at a University specialized in languages. After that, I went to a school for international commerce for two years, where I stayed another year and specialized on "International commerce and business management". I gained different experiences in small companies. For example, in a company importing sports equipment or in another one selling glass. My last job before COPALP was in a company that equips stores like Zara, Burton, Aigle, Lancel etc. **Hobbies:** My favorite sport is flying sailplanes. It is so beautiful and nice to sail over our mountains after skiing, hiking or mountain biking. This is something everybody should try someday! Flying like a bird is simply magical. But I also like flying remote control model helicopters, playing golf, snowboarding and surfing. Furthermore, I like French food (thank you grandma, thank you mother!) and French wine. **Favorite books:** Magazines about my hobbies. **Music:** Electronic music and Rock'n'Roll. **My motto:** Dans les airs! (Let's take to the skies!) **E-Mail:** SR@copalp.com

CHRISTIAN JARGOT



Responsibilities at COPALP: Directeur Produit **Born:** November 5th, 1962 **What happened before COPALP:** I studied at an academy for electronics and automation and became an engineer. I was interested mainly in automation. Before coming to COPALP, I developed automation software in another company. And before that, I developed automation software in yet another company... **Hobbies:** I play the guitar and the flute and I especially like Jazz and Hip Hop. **Favorite books:** Comics/Mangas and French literature of the 19th century. **My motto:** Je dois me rappeler qu'il faut aller récupérer mes enfants à l'école! (I must remember to go and pick up my kids from school!) **E-Mail:** CJ@copalp.com

PHILIPPE BREYSSE



Responsibilities at COPALP: Developpeur **Born:** January 27, 1973, in Vendôme. I live in Lancey now, which is 20 km east of Grenoble, in the Southeast of France. **What happened before COPALP:** After finishing high school, I went to a University, where I specialized in physical measuring. After that, I was at an academy for computer science and electronic measuring for three years. I gained different experiences in several companies. I was responsible for testing, measurement and HMIs in a company that develops test devices for cars. Later, I was in charge of measuring, calculation and HMIs in an X-ray laboratory. After that, I met Christian, Daniel and Jérôme at CJ International and started working together with them for the first time: I developed HMIs and I was there when COPALP was born. **Hobbies:** I like working in the garden and on the house, I like spending time with my family. As usual for COPALP employees, I like sport (I will start tomorrow, I promise!). Furthermore, I like illustrating books and I love fantasy stories. **Favorite books:** All fantasy and science fiction literature, books about "On Board Wargames" and about Fantasy Wargames. **Music:** Heavy Metal and French composers like Cabrel or Renaud. ... **My motto:** Sur la terre seulement! (Always stay on the ground!) **E-Mail:** PB@copalp.com



Kickoff with COPA-DATA in the Allianz Arena:

**zenOn creates clarity with
sophisticated visualization**



From match day to match day, the Allianz Arena shows how perfectly organized a football stadium can be—from the individually controllable lighting system and sophisticated building automation to the efficient security measures. This can only work when the different technologies and products are perfectly coordinated and visualized in the control room.



This job is done by zenOn, which was the only HMI/SCADA system to fulfill all the requirements of the operators regarding flexibility and compatibility. zenOn maintains an excellent overview, puts all the important processes on the screens in the control room and even keeps watch over unoccupied stations, if necessary.

OPEN AND INDEPENDENT

One of the biggest challenges at the Allianz Arena was to maintain a clear overview of the complex system and to ensure the smooth interaction of all components. COPA-DATA Sales Manager Hans-Peter Ziegler elaborated “Today, it is easy to monitor and control all sorts of things, but the problem usually lies in the overview and the appropriate visualization. It is important not only to realize that something happens, but also to see at a glance what is happening where. Preferably, with clear messages that leave no room for interpretation to the technician; this is the only way he can react quickly and correctly.”

For zenOn, this means displaying a few thousand sensors and many different signals in a clear and concise way, so the operating technician gets a clear overview. Complex processes are supposed to be packed into simple symbols and messages. Hans-Peter Ziegler explains, “If you want to use the best technology in every subsystem, you often have to coordinate very different systems.

With zenOn, we can correctly receive, interpret and forward a large amount of data and signals from different sources in a very safe and straightforward way. The main task of zenOn is to merge all the substations and connections into one zenOn integration project, creating a clear overview.”

zenOn makes life easier for engineers, when it comes to integrating different types of hardware and software. On the one hand, zenOn brings along over 250 fully developed drivers. On the other hand, it enables engineers to create their own individual connections, for exam-

“We feel committed to making work easier for the users. Easier, because they can see all the important information at a glance, but also because they can handle the system in an intuitive and simple way.” Reinhard Mayr, Product Manager

ple with VBA. A shining example, the engineers can control the exterior lighting that consists of colored neon lamps quite simply and create colored patterns on the stadium's 24.500 m² of membrane exterior cover.

COPA-DATA also feels committed to making work easier for the users. Easier, because they can see all the important information at a glance, but also because they can handle the system in an intuitive and simple way. The technicians in the Allianz Arena greatly appreciate the fact that they can usually work with their familiar user interface. By the way, this is one of the special advantages of zenOn: The integration of applications into a uniform user interface.

It works with all the different Windows operating systems and operates on most different kinds of hardware. This is due to its consistent design, the variety of drivers and—not to forget—its well-engineered security mechanisms.

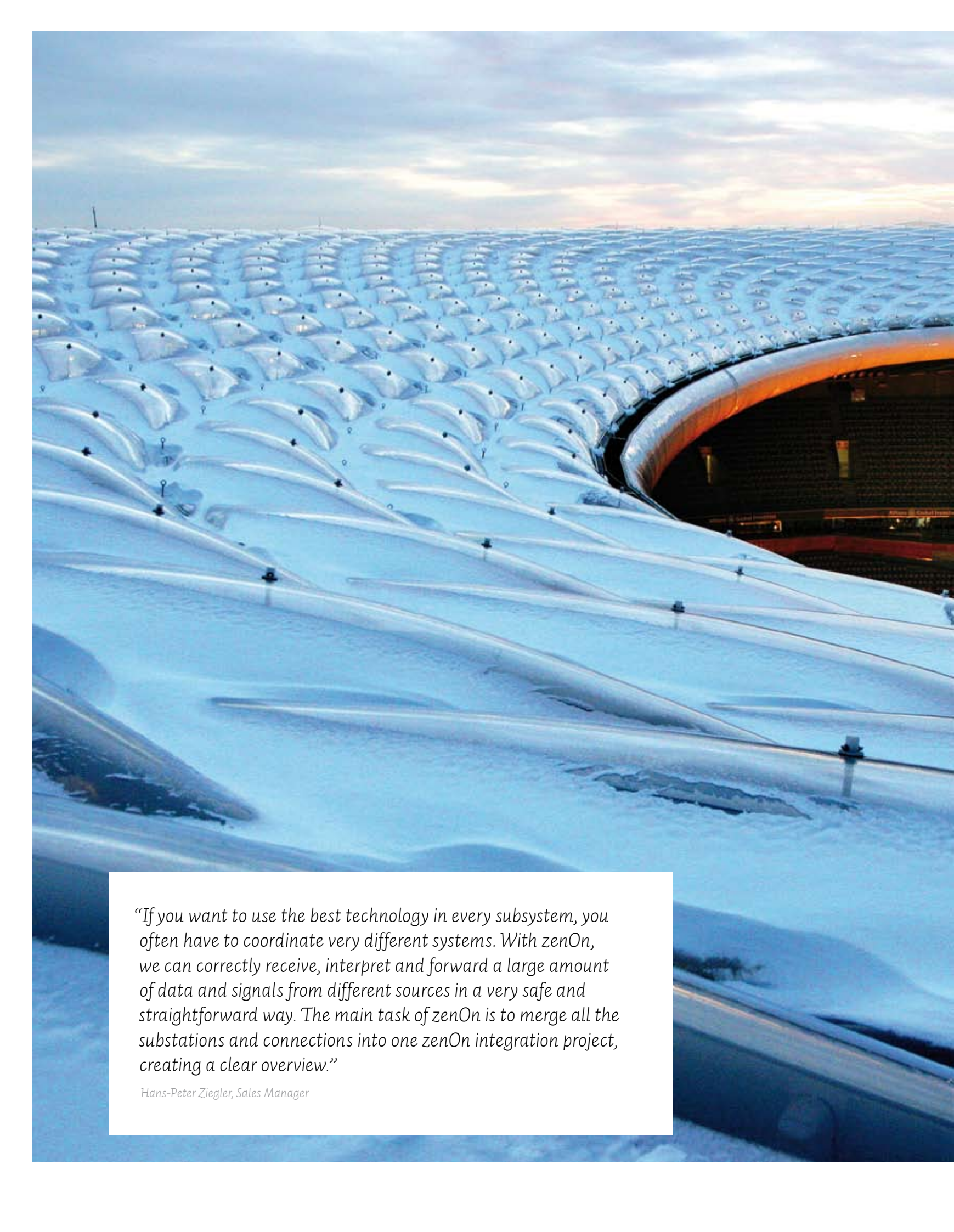
zenOn—

ON THE BALL LONG BEFORE KICKOFF

Popular matches fill the stadium up to the roof in a height of 52 meters. On seven levels, the perfectly engineered infrastructure bestows an untroubled match experience upon an audience of up to 70.000 people: quick yet safe access control, simple paths to the viewer seats, climate control adjusted to every situation.

Long before kickoff, the systems in the stadium are launched; the energy supply is checked, the electronic access control with video surveillance caters for a smooth stream of visitors and high security. All of this happens without much effort, the organization of a match day's procedures is pre-programmed quite straightforwardly on the PC. After entering time and date, all the necessary actions are launched in the background.

All employees of the Arena are equipped with transponders, which enable a constant surveil-



"If you want to use the best technology in every subsystem, you often have to coordinate very different systems. With zenOn, we can correctly receive, interpret and forward a large amount of data and signals from different sources in a very safe and straightforward way. The main task of zenOn is to merge all the substations and connections into one zenOn integration project, creating a clear overview."

Hans-Peter Ziegler, Sales Manager







lance of access and the routes traveled. Access to the stadium without a transponder or a valid ticket is de facto impossible. The control system keeps a seamless record of all actions and messages and the sophisticated filtering and sorting functions of zenOn give a convenient overview from the flood of data. With a mouse click, the data currently important is filtered out for the operator.

Security is of course also an important issue for the HMI/SCADA system. We were able to provide the operators of the Allianz Arena with a user administration system which fulfills even the exacting requirements of the pharmaceutical and food industry. User rights can be defined very exactly and individually, and each manipulation of the system is recorded in detail.

SNMP—ALL CLEAR IN THE NET

A stadium as big as this depends on a high-performance power supply. zenOn Product Manager Reinhard Mayr explained, “In the case of the arena, we are talking about a 12 Megawatts power input. Two independent transformer stations guarantee a seamless power supply.

This puts fail-safety on top of the list. We advise against any compromises here. Redundant wiring, distributors and networks are a must.”

In the Allianz Arena, the energy infrastructure is also monitored by SNMP. With a few mouse clicks, SNMP-compatible components are read out and their data points are created.

Using a drag & drop mechanism, they can be put immediately into the appropriate process pictures. Without disturbing or even interrupting the system, the altered process pictures are transferred back to all zenOn terminals via Hot - reload. Consequently, new components can also be added without problems. The combination of redundant components and zenOn functionality guarantees the seamless availability of power supply in the Arena.

OVERVIEW IN THE CONTROL ROOM: AUTOMATIC MESSAGES AND REMOTE CONFIGURATION

The central control room is constantly collecting all the information and interpreting it. The interpretation is so clear and concise, that a single person can handle the control room dur-

ing calm phases. Even during peak periods, the overview is always maintained.

The best foundation for this is exact planning—the Extended Trend Module (ETM) of zenOn does just that. It shows current or archived data and creates the foundation for exact evaluations. For example, the operators get an overview of power consumption, visitor streams, parking-lot utilization and much more—at present or over any space of time. On this reliable basis, developments and requirements can be predicted and consumption peaks can be anticipated and their impacts reduced.

Additionally, the zenOn Web Server supports the technicians. It always displays the system in its current state and with the same familiar interface as on the terminals. The technicians use web clients to access the system directly, which enables them to react quickly to alarms, even from outside the control room.

On match days, the central control room is filled with technicians. They monitor and control the



“Today, it is easy to monitor and control all sorts of things, but the problem usually lies in the overview and the appropriate visualization. It is important not only to realize that something happens, but also to see at a glance what is happening where.”

Hans-Peter Ziegler, Sales Manager

SNMP

SNMP stands for “Simple Network Management Protocol”. It allows network administrators to monitor and control network components like routers, servers or printers from a central spot. SNMP is based on the TCP/IP protocol, which nearly all devices support today. In the case of the Allianz Arena, SNMP is employed mainly to monitor devices relating to the power supply, including UPS systems, and to bring together this information in the control system. So-called “agents” are responsible for the monitoring. These mini-programs are running on the devices, monitoring them and can even change settings.

lighting, network, access control, parking lot, ventilation, heating and cooling. Things get busy and everybody’s full attention is required and this is when, they really profit from zenOn’s multi-monitor technology. Multiple screens show all the important information simultaneously, so that nothing of importance gets out of sight. Nothing can be overlooked and potential problems are recognized from the very start.

AROUND-THE-CLOCK

During its operation, zenOn handles thousands of data points, prepares and archives data and transmits clear messages. Modules like the Extended Trend Module (ETM), Archiving, Alarming, Scheduler, but also SNMP and Beckhoff drivers, VBA macros and many other zenOn features are active. They guarantee a safe power supply, they monitor entrances and parking-lots, check the UPS or alarm the technicians, if necessary. And when the lights go down, the parking lots empty and the building services are shut down to a minimum after a long match day, zenOn stays vigilant and keeps watch.

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01	Setting standards for engineering (Standardization)
02	Reusing existing project parts (XML Importing)
03	Automatic engineering with Excel (Creating variables)
04	Project Wizard with data import from the database or file

Automated Engineering

Reusing existing project parts.

In this issue, we continue our four-part series Automatic Engineering. In this second part, you will learn how to export parts of existing projects and reuse them in other projects - and what you have to pay attention to.

WHAT ARE THE ADVANTAGES OF REUSABILITY?

The advantages are easy to explain: It takes time to create variables, engineer functions, draw pictures and attach functionality to them. Why invest this amount of time repeatedly in every project, when you can perform certain things once and then simply reuse them in other projects? Just think of the standard components of every project, like pictures for the system status or detail pictures for hardware components that are used repeatedly (pumps, valves, motors etc.).

EXPORT / IMPORT WITH XML

zenOn offers many possibilities to export selected data into an XML file. The most comprehensive way is to export a picture, because the resulting XML file contains not only the picture and the included elements, but also the template, associated variables and functions—or, in simple terms: everything that can be seen in the picture or is linked to it. When importing all of this into a new project, certain dependencies must be considered:

- If a picture is imported and its associated variables do not exist in the project, the links cannot be re-established!
- In some cases, you may have to import a picture or a variable twice, so that all links can be created correctly!

For example:

In picture “A”, we use a button to execute a function “B”, which opens picture “A” again. The function “B” requires the picture “A”, which needs to be linked in function “B”. Picture “A” requires function “B”, which needs to be linked to the button.

This means you have to import the function first, then the picture, and then the same function a second time, because otherwise the association with the picture cannot be established in the function.

This may seem a bit cumbersome at first, but with the help of a Wizard, it can be done with one mouse click. In VBA, this would take three lines of code ...

```
'Step 1: Import FUNCTION
MyWorkspace.ActiveDocument.RtFunctions.Import "C:\XML\MyExport.xml"
'Step 2: Import PICTURE
MyWorkspace.ActiveDocument.DynPictures.Import "C:\XML\MyExport.xml"
'Step 3: Import FUNCTION
MyWorkspace.ActiveDocument.RtFunctions.Import "C:\XML\MyExport.xml"
```

IMPORTING WITH THE VBA WIZARD

If several project parts are to be imported, there are accordingly several XML files with different contents. A VBA Wizard is useful to support the user with the import. In the wizard, the user can choose from a whole range of XML files to define exactly what he wants to import. We recommend to build up a kind of XML library that contains several variants of pictures and functionalities as single files.

Finally, the wizard can be used to create new functions and variables or to change existing ones.

Scenario:

Alarm picture was imported, the function "fct.Show.ALARM" was created with VBA

To create, for example, a picture switch function, it is necessary not only to indicate the picture, but also to set all the parameters associated with the picture-type.

Example:

```
Sub CreateAlarmFunction()
    Dim zFunction As RtFunction
    Const strAlarmPic As String = "ALARM"

    'CREATE NEW FUNCTION
    Set zFunction = zPRJ.RtFunctions.Create("fct _ Show _ ALARM", tpPicture)

    With zFunction
        'SET PICTURE TO SHOW
        .DynProperties("PictSwitch.Picture") = strAlarmPic
        'SET DEFAULT FILTERSETTINGS
        .CreateDynProperty "PictFilter"
        .DynProperties("PictFilter[0].VarFilter") = ""
        .DynProperties("PictFilter[0].FilterTitel") = ""
        .CreateDynProperty "PictFilter[0].TimeFilter"
        .DynProperties("PictFilter[0].TimeFilter[0].TimeFormat") = 25
        .DynProperties("PictFilter[0].TimeFilter[0].Options") = 65535
        .CreateDynProperty "PictFilter[0].TimeFilter[0].ChargeFilter"
        .CreateDynProperty "PictFilter[0].TextFilter"
        .CreateDynProperty "PictFilter[0].ListInfo"
    End With
End Sub
```


The “DynProperties” are properties that are not the same for every object, thus made accessible in this form. New nodes are created with the method “CreateDynProperty”, if they do not exist already, or if more nodes are required. The number of existing nodes can be read out by providing “-1” as index.

```
nCount = zFunction.DynProperties(„PictFilter[-1]“)
```

The DynProperties of an object can be read out by using the method “DynPropertiesEnum”, which delivers a String array with all properties supported by the objects.

```
Dim vProperties As Variant
vProperties = zFunction.DynPropertiesEnum(“”)
vProperties = zFunction.DynPropertiesEnum(“PictFilter”)
```

The result consists of several Strings, which are structured as follows:

Property,Type,Name,Description

(Example: „IsServer,Boolean,Server,Execution“)

In order to allow the change of the different parameters, the function is engineered in the editor and then exported. The resulting XML file is then opened in the Internet Explorer to show all the engineered settings.

```
<Function ShortName="fct_Show_ALARM" TypeID="3">
  <Name>fct_Show_ALARM</Name>
  <IsActual>TRUE</IsActual>
  <IsClient>FALSE</IsClient>
  <IsServer>FALSE</IsServer>
  <IsStandBy>FALSE</IsStandBy>
  <Monitor>0</Monitor>
  <PictSwitch_0 NODE="zenOn(R) embedded object">
    <PictFilter_0 NODE="zenOn(R) embedded object">
      <FileName />
      <VarFilter>*</VarFilter>
      <FilterTitle>*</FilterTitle>
      <IsFilterRT>FALSE</IsFilterRT>
      <IsMatchCase>FALSE</IsMatchCase>
      <IsFromFile>FALSE</IsFromFile>
      <IsReadAll>FALSE</IsReadAll>
      <Classes>0</Classes>
      <Groups>0</Groups>
      <Projekts />
      <ResString />
      <IncTime>01:00:00</IncTime>
      <IncSeconds>0</IncSeconds>
    <TimeFilter_0 NODE="zenOn(R) embedded object">
      <ARVTime1>01.01.1970 01:00:00</ARVTime1>
      <ARVTime2>01.01.1970 01:00:00</ARVTime2>
      <Options>65535</Options>
      <BoxType>0</BoxType>
    </TimeFilter_0>
  </PictFilter_0>
</PictSwitch_0>
</Function>
```

It is not necessary to define all properties in the Wizard; only the ones that differ from the zenOn standard need to be considered. This process is the same for all other functions, except for the properties. Think of the Extended Trend, for example.

As we saw, the Export/Import functionality of zenOn can be used even more effectively, when predefined Standards and Wizards are employed.

In the next issue of IU, our topic will be: *Automated Engineering with Excel*.

🔗 Robert Ficker, VBA specialist



INFORMATION UNLIMITED – WHAT'S NEXT

In the next issue...

...read more about the **Industrial Maintenance Manager**

...we use **zenOn and STRATON as DCS**

...we report about zenOn's use in the **Food & Beverage Industry**

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