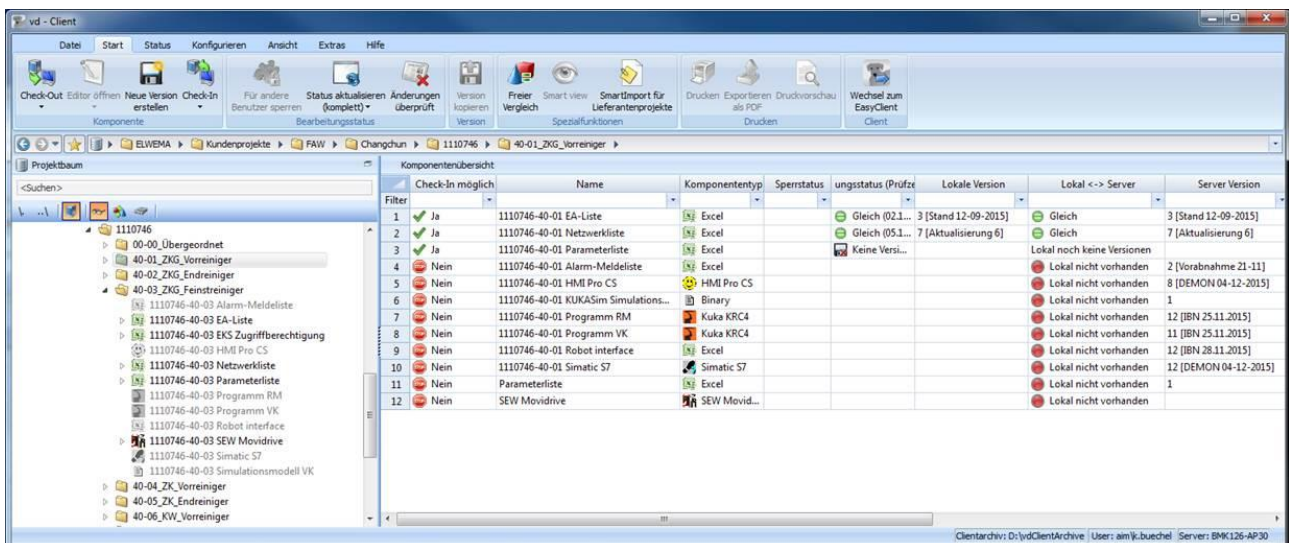# Version control also used in system and machine production

versiondog makes the latest versions available to everyone working on a system project. With standardised version control, there is no longer any need for searching, guessing or asking questions. This saves a great deal of time, even after a system has been completed.

When Karl-Heinz Büchel talks about the benefits of versiondog, the manufacturer-independent version control and data management solution by AUVESY from Landau, Germany, he speaks of transparency, a clear rights structure, less time spent searching, greater reliability, improved traceability, a reduced workload and much, much more. Büchel is Director of Control Systems & Automation at ELWEMA Automotive GmbH. Based in Ellwangen and Monschau, the company specialises in innovative and customer-specific manufacturing solutions in the areas of cleaning, testing and assembly, particularly for engines, steering and gearboxes in the automotive sector. Its list of clients reads like a "who's who" of vehicle manufacturers worldwide. As a result, ELWEMA has stringent requirements for its systems and for data and program management for PLCs, HMIs, robotics and configuration data.

versiondog brings clarity

versiondog is used by ELWEMA in the fields of engineering and system production. In this environment, project-specific program versions are required in order to control the individual systems. These program versions may include network lists, EA lists, multiple components such as HMI visualisation, PLCs, robot programs, configurations for frequency converters, specifications for safety interlocks etc. Around 35 employees currently have access to this data, and it is extremely important that they are always aware of the most recent versions of programs and data. versiondog makes this possible by allowing users to create documented versions of changes and to easily keep track of all project data using systematic life-cycle management. Checking the most recent data and program versions also ensures greater reliability. versiondog analyses the data and programs of the various different project components. Its automated functions help deal with the flood of data and versions in any production environment. versiondog not only manages data centrally, it also identifies, records and tracks all changes in device software automatically. Users can see exactly which program is running in production, and setpoints and parameters can be checked and restored at any time.

Fig. 1: Overview of component statuses in an ELWEMA project directory

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Perfectly suited to project work

Before versiondog came along, it was sometimes difficult to maintain order and clarity. "There was no clear file structure. Simple tasks such as the naming of files were dealt with in many different ways, and changes were not always synchronised. We wasted a lot of time searching as a result," explains Büchel. He decided to look for a better solution and, through his own research, he came across AUVESY and versiondog. At first glance it seemed as though the software and data management system was only suitable for automation technology in a production environment, and not for project work in machine and system production. However, after consulting AUVESY, it became clear that versiondog would offer ELWEMA huge potential for improvement. A three-month test period followed as a result, with regular online meetings between AUVESY and ELWEMA ensuring that the process ran as smoothly as possible. ELWEMA has been using versiondog for almost a year now and the benefits are clear to see. Above all, versiondog has created greater transparency and sped up engineering and production processes, as everyone now has access to the most recent software versions. The financial benefits in particular have been huge.

Technological leadership

ELWEMA sees itself as the technology leader in the cleaning, testing and assembly of cylinder heads, crankshafts and connecting rods. The company provides complete components that are then integrated into assembly lines in the automotive industry. It is part of the ELWEMA philosophy to use innovative solutions to continuously improve the standardisation of work processes in the field of engine production – a philosophy they also apply to their own in-house projects. ELWEMA employs around 170 workers who operate all over the world, integrating completed components into assembly lines in automotive plants. Engineering lies at the heart of ELWEMA, with 80 workers currently active in this area. Incidentally, this is also the area that gave birth to the extremely impressive RPM Suite.

RPM Suite is a unique technology platform that integrates cleaning, testing and assembly functions into a

Fig. 2: ELWEMA employees make a great team

single production line. By interlinking three different technologies, RPM Suite helps customers to increase efficiency within the value-creation chain of assembling engine, transmission or steering systems. The key advantages of RPM Suite are extremely high availability, integrated lifecycle management to maximise service life and minimise the consumption of resources, a uniform human-machine interface as well as single-source customer service.

Improving internal processes

"Working with versiondog has allowed us to develop as a company and helped us to standardise internal processes," says Büchel. "We now have a centralised data storage location, a clear structure for user rights, transparency about who changed what, where when and why, source code control and the ability to compare
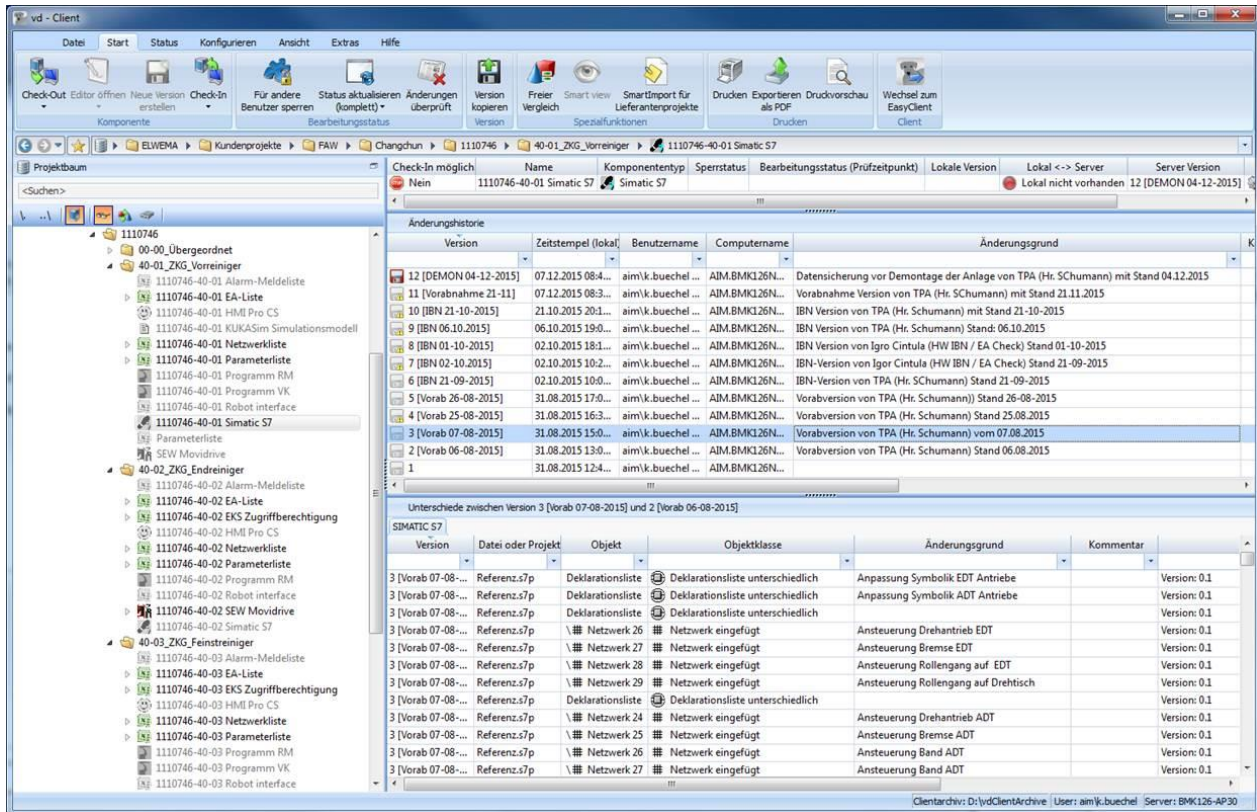
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versions, which helps with standardisation. It is now easy to deal with changes: we Check-out the file, set the lock state, make changes, and check it back in. This is all fully documented and can be traced at any time, which also facilitates standardisation and contributes further to our development as a company."

The system lives on

The versioning process does not end with the completion of a system, however. After a system has been assembled and commissioned, the customer conducts an acceptance test prior to delivery. The system is then disassembled and subsequently reassembled at the customer's premises. ELWEMA components are often installed after a CNC machine because, after work has been carried out (on a crankcase, for example), the finished parts must be cleaned, assembled and checked for leaks that may be present in the oil and water chambers. For the process to run smoothly, versions must be created of the relevant data and program versions. This delivery status is also forwarded to the customer because, as stated above, the system always lives on. Even after it has been delivered, changes will be made, things will be added etc.

Throughout this entire process, it is important to stick to the most recent data and software versions. With

Fig. 3: Version history of an S7 software component in versiondog, with changes made to version 3 shown in the bottom-right window

versiondog, this is now very simple. From both a technical perspective and a safety and warranty perspective, everyone must have the same information and be working with the same program versions. This is why versiondog is used to guide processes throughout the entire life cycle of a system, thus ensuring complete documentation of what exactly the customer has done with the system after it was delivered. The timestamp also shows exactly when a change was made, which can be important for warranty considerations. All in all, versiondog provides a consistently reliable basis for clear data.

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Worker training

To reliably track changes to systems or production processes, it is necessary to document the reason, time and person responsible for all changes to programs and data. This all sounds perfectly logical and yet, in practice, workers do not always understand that this task must be completed in a timely manner.

ELWEMA solved this problem by holding versiondog training sessions. The 35 or so users now know exactly what to do and are always kept on the right track. This is necessary to keep this type of system running smoothly – even one as easy to use as versiondog.

Fig. 4: ELWEMA headquarters in Ellwangen

The company

AUVESY was founded in 2007 and is based in the Karlsruhe-Landau technology region. The company has grown consistently, and currently employs more than 60 qualified personnel. In more than 700 projects in 36 countries worldwide, versiondog is used by the automation and engineering sector for reliable version control and data management. These projects are looked after at the headquarters in Landau and by more than 15 international sales partners.

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