



PRESS RELEASE

Plug and play milestones in mechanical and plant engineering

- **Publication of OPC UA for Machinery and OPC UA for Machine Tools**
- **umati community testing functionality of both specifications in umati demonstrator**

Frankfurt am Main, 14 October 2020. – "After many years of OPC UA standardisation work, the publication of OPC UA for Machinery brings us an important step closer to our goal of creating a 'global production language'," says Hartmut Rauen, Deputy Executive Director of the VDMA.

This specification, listed as VDMA standard sheet 40001-1 and also issued by the OPC Foundation, is the first to be developed on a joint and cross-sector basis by working groups from different technologies and industries. Dr. Wilfried Schäfer, Executive Director of the VDW, adds: "Simultaneously, the VDW has also published the OPC UA Specification for Machine Tools. This is the first mechanical engineering specification ever to fully integrate the Specification for Machinery and thus impressively offers the benefits of this joint project to machine manufacturers and customers alike."

The OPC UA Specification for Machinery - Part 1 contains basic modules for the machine interface which are crucial for the entire machine and plant engineering sector. These basic modules can be used individually as required, with each of them representing one or more use cases.

Part 1 contains machine identification as a use case, including information on the manufacturer, serial number and type designation. Andreas Faath, VDMA Project Manager for OPC UA interoperability and II4IP (Interoperable Interfaces for Intelligent Production; Federal Ministry for Economic Affairs and Energy BMWi project), explains the benefits: "Customers typically have different types of equipment in their production department, such as robots, injection moulding machines, machine tools, packaging machines etc. That's why it's important for information such as machine identification or status to be represented and issued in the same way by all machines."

The whole thing began with the comparison of a number of specifications that had already been published and were now being processed. This allowed Part 1 to be completed relatively quickly. On 25 September 2020 it became available for download, free of charge, from <https://opcua.vdma.org/catalog-detail/-/catalog/3803>.



Federal Ministry for Economic Affairs promoting VDMA as a focal point for OPC-UA standard development

The OPC UA Specification for Machinery represents the first step towards achieving overall harmonisation of the numerous established activities in the field of mechanical and plant engineering. Around 35 working groups are working on this in the VDMA alone. "This bottom-up approach is essential due to the high degree of specialisation to be found in our sub-sectors," Faath explains. "But this makes it all the more important to coordinate and harmonise the work in order to identify any synergies at an early stage."

The importance of these harmonisation activities was recognised by the BMWi and is supported within the framework of the II4IP project. This promotes the development and dissemination of cross-industry OPC UA standards. There are also plans for extensive knowledge transfer to increase interoperability within production. The project results thus form a central component of Industry 4.0, both at the national and international level.

"By means of OPC UA as the global production language, we in the VDMA, together with our members and other interested parties from all over the world, are raising interoperable communication in production to the next level," emphasises Faath.

Products based on OPC UA for Machine Tools now possible

The first version of the OPC UA for Machine Tools was simultaneously released on 25 September this year under number 40501-1 (download from <https://opcua.vdma.org/catalog-detail/-/catalog/3914>).

"It represents a major milestone for the machine tool industry. The release meant that we met the deadline which we set ourselves at EMO Hannover 2019. As a result, our members can now launch products with communication based on OPC UA as an open interface," says Wilfried Schäfer. It also means that the machine tools at the core of industrial production now have their own OPC UA standard <https://opcua.vdma.org/catalog-detail/-/catalog/3914> .

Above all, this provides standardised information for status monitoring, such as operating status, machined workpieces, tools used, and information for calculating KPIs. The VDW-led working group was also involved in shaping the OPC UA for Machinery.

"It made obvious sense to synchronise publication of the two specifications," explains Götz Görisch, head of the VDW working group. Based on the modular concept that distinguishes OPC UA as a communication standard, OPC UA for Machine Tools is the first specification that fully references the OPC UA for Machinery guidelines for the purpose of machine identification.

"This will do away with any need to abuse our specification in the near future in order to integrate this further development. We can then concentrate fully on expanding the functional scope of the specification," says Görisch, explaining the procedure.

Functionality proved by umati demonstrator

However, publication of the above two standards was only the first step. Their functionality has also been extensively tested and proven by being integrated into real machines. This is made possible using the umati demonstrator.

umati (universal machine technology interface) serves as a user community for the dissemination and establishment of OPC UA standards up to and including genuine plug and play deployment in mechanical and plant engineering. The initiative has been jointly supported by the VDMA and VDW since April 2020. A special environment has been created for trade fair demonstrations with the intention of communicating and highlighting the added value offered by open data interfaces to users. This consists of the umati data hub as an infrastructure for connecting machines, and a front-end or dashboard, the umati app.

The OPC UA for Machine Tools was thoroughly tested in two "plug-fests" before being released. "This proved that the umati infrastructure offers added value beyond simple trade fair demonstrations, and that we can now also make it available to our partners for development and testing," explains Dr. Alexander Broos, VDW project manager for umati.

Experience OPC UA and umati – Work continuing at rapid pace

"These milestones do not, however, mean that we can now sit back and relax," agree Hartmut Rauen and Wilfried Schäfer. There are still many aspects which need to be standardised and refined in order to establish OPC UA as the global production language and umati as a community for its application.

It is important to keep a close eye on the far-reaching interoperability requirements throughout production if we wish to see advances in harmonisation.

"From the expert discussions already held we know just how disparate company and customer interests can be, even within the same industry," says Faath, explaining the importance of a planned VDMA study, the results of which will be used to fine-tune both the VDMA strategy and the work in the working groups.



The general public will be invited to take part in the study from 1 November at www.opcua.vdma.org.

On 10 November 2020, the VDMA will launch a brand new immersive avatar-based online event format for OPC UA Companion Specifications, including their development, content and usage scenarios.

Experts will use a number of slots to present the OPC UA standards for mechanical engineering and various sub-sectors. It will also be possible to discuss any remaining questions and there will be ample opportunity for networking.

<https://opcua.vdma.org/en/viewer/-/v2article/render/51438024>

There are also plans for a web-based umati event in November. Customers all over the world will be able to follow when the participating companies link up their machines live. www.umati.org

Any questions?

Andreas Faath, VDMA, Project Manager Interoperability OPC UA, I4IP, umati, phone +49 69 6603-1495, andreas.faath@vdma.org,

and Götz Görisch, Head of the VDW umati Working Group, Tel. +49 69 756081-64, g.goerisch@vdw.de, will be happy to answer them.

Background:

VDMA - The VDMA represents around 3,300 German and European companies in the mechanical and plant engineering sector. The sector stands for innovation, exports and medium-sized business. It has around four million employees in Europe, with more than one million in Germany alone. www.vdma.org

VDW: The VDW (Verein Deutscher Werkzeugmaschinenfabriken - German Machine Tool Builders' Association) has roughly 300 members and is the mouthpiece of the German machine tool industry. The sector supplies metalworking production technology to all branches of industry, significantly raising innovation and productivity levels. In 2019, an average of roughly 73,400 employees produced machinery and services to the value of EUR 17.0 billion. www.vdw.de