

1st World Interoperability Conference

Networking with OPC UA Boothardization groups

01 April
2019

12:00 pm to 15:30 pm
Hall 19 - room New York
Hannover Messe

Registration

www.opcfoundation.org/wic2019



Hosting
Organizations



Conference Host



Industrial Interoperability



Manufacturing Industry



FIELD COMM GROUP™
Connecting the World of
Process Automation

Process Industry

Presenting Organizations



<AutomationML/>
The Glue for Seamless
Automation Engineering



IEC61850
IEC61970



ISA-95



The Concept

The conference will run in parallel to the Hanover Fair and is intended to connect national organizations, international organizations and working groups developing industry specific OPC UA Companion Specifications.

The conference will start with keynote talks on Industrie 4.0 and OPC UA, as seen from the perspective of the OPC Foundation, VDMA and the FieldComm Group.

The conference is to be scheduled in such a way that it can also be attended by non-fair visitors without an overnight stay in Hannover. Afterwards the participants will have the opportunity to discuss and network with different working groups within the OPC UA CS standardization in 3 sessions.

Each workgroup will present its vision and mission in each of the sessions. The sessions will take place at each group's theme table. The working group representatives will be at their theme table, with visitors of the conference switch rotating between the theme tables after each session.

This event is intended to show the near-term future of seamless information exchange using secured and standardization information and interfaces. End users and development engineers should join this event to receive early insides into future work and to network with key influencers.

Participation in this event is free of charge.

Pre-registration is required here

www.opcfoundation.org/wic2019

Agenda

Hall 19 - room New York
Hannover Messe

12:00 noon	Keynotes
13:30 h	Thematic Round 1 (short talk Vision, Mission, Discussion)
14:00 h	Break - change between theme tables
14:15 h	Thematic Round 2 (short talk Vision, Mission, Discussion)
14:45 h	Break - change between theme tables
15:00 h	Thematic Round 3 (short talk Vision, Mission, Discussion)
15:30 h	End of the event



OPC Members exhibiting on Hannover Messe

ABB Automation	Hall 11, Booth D44
Alarm IT Factory	Hall 7, Booth E14
Alfa Laval	Hall 26, Booth E60/1
Analog Devices	Hall 9, Booth H23
Automation ML	Hall 9, Booth A11
Beckhoff Automation	Hall 9, Booth F06
Bosch Rexroth	Hall 17, Booth A40
Bundesamt für Sicherheit BSI	Hall 8, Booth C13
B&R Industrie-Elektronik	Hall 9, Booth D26
C-Labs	Hall 9, Booth A11
cab Produkttechnik	Hall 17, Booth D68
Capgemini Deutschland	Hall 6, Booth B30
Cisco Systems	Hall 6, Booth F30
Compressor and Machine Controls	Hall 26, Booth A32
CoreTigo	Hall 9, Booth D68
Crosser Technologies	Hall 6, Booth B52
Dassault Systemes Deutschland	Hall 6, Booth K30
Delphin Technology	Hall 11, Booth B57
Delta Electronics (Netherlands)	Hall 11, Booth A57
Endress+Hauser Messtechnik	Hall 11, Booth C43
Ethernet POWERLINK	Hall 9, Booth D33
FRAKO Kondensatoren- und Anlagenbau	Hall 13, Booth E56
Fraunhofer IOSB	Hall 9, Booth A11
Fraunhofer IPMS	Hall 9, Booth A11
FZI Forschungszentrum Informatik am KIT	Hall 2, Booth C47
GILDEMEISTER energy solutions	Hall 27, Booth H45
HIMA Paul Hildebrandt	Hall 11, Booth D44
HMS Industrial Networks	Hall 8, Booth D31
Honeywell/MatrikonOPC	Hall 7, Booth C40
IBHsofttec	Hall 9, Booth H10
Industrie Informatik	Hall 7, Booth C12
INSYS MICROELECTRONICS	Hall 8, Booth E07
iTAC Software	Hall 7, Booth A34
Janitza electronics	Hall 12, Booth D49
Kaspersky Lab UK	Hall 6, Booth D15
KEB Automation	Hall 15, Booth B10
Leuze electronic	Hall 9, Booth F68
M&M Software	Hall 11, Booth C72

MES D.A.CH Verband	Hall 7, Booth A17
Microsoft	Hall 7, Booth C40
Mitsubishi Electric Europe	Hall 17, Booth D26
MPDV Mikrolab	Hall 7, Booth A12
Murrelektronik	Hall 9, Booth D27
MVtec Software	Hall 17, Booth E42, (15)
NEXCOM International	Hall 9, Booth D15
OGP Messtechnik	Hall 5, Booth D53
OPC Foundation	Hall 9, Booth A11
Parker Hannifin	Hall 23, Booth C33
Peakboard	Hall 6, Booth L38
Phoenix Contact	Hall 8, Booth D27
Prediktor	Hall 16, Booth D27
PROFIBUS Nutzerorganisation	Hall 9, Booth D68
ProsysOPC	Hall 9, Booth A11
Prosyst	Hall 8, Booth F07
Proxia Software	Hall 7, Booth A26
PTC / Kepware	Hall 9, Booth A11
Rockwell Automation	Hall 6, Booth K46
Schneider Electric	Hall 11, Booth C58
SEW-EURODRIVE	Freigelände, Booth S95
Siemens AG	Hall 9, Booth D35
Softing Industrial Automation	Hall 9, Booth D68
Software AG	Hall 6, Booth E46
SSV Software Systems	Hall 5, Booth D05
Takebishi Corporation	Hall 9, Booth A11
Techman Robot	Hall 17, Booth B24
Tetra Pak	Hall 27, Booth H30
Tsubakimoto Europe	Hall 24, Booth B35, (16)
TTTech Computertechnik	Hall 3, Booth H20
Unified Automation	Hall 9, Booth A11
VDMA e.V.	Hall 8, Booth D10
Volkswagen Nutzfahrzeuge	Hall 27, Booth H61
WAGO Kontakttechnik	Hall 11, Booth C72
Weidmüller Interface	Hall 11, Booth B58
WIBU-SYSTEMS	Hall 6, Booth C15
Yokogawa Deutschland	Hall 11, Booth D44

Presenting Groups



1

VDMA: Forum Industrie 4.0

Meet the experts from VDMA Dr. Christian Mosch and Andreas Faath leading the strategic and central OPC UA initiative.

2

VDMA: Boothardized interfaces for glass industries Initiative

Glass – a material rich in tradition, that goes along with us for more than 5000 years and we use it more than before in our modern daily life for architecture, mobility, communication and smart home. This Initiative will develop an OPC UA Companion Specification for the flat glass industry.

3

VDMA: Pumps and Vacuum Pumps Initiative

This Initiative develops as a first step an „administration shell pumps and vacuum pumps“ by the comparison of existing and now recognized needs from the 4.0 topic. Various conversions into machine-readable languages can then be derived from this management shell. The clear focus here to derive an OPC UA Companion Specification from this administration shell.

4

VDMA: End of Arm Tools Initiative

In September 2018, the group „End-of-Arm Tools“ was founded, which in the first step deals with the description of gripping systems. In the next step, screwdriving systems are described. The Specification will include a basic description and has the main scope to generate data for asset management and condition monitoring, which can be used by higher level manufacturing for information and diagnostic purposes.

5

VDMA: Robotics Initiative

The OPC UA Companion Specification Robotics provides a generic information model for all robotics systems. The description of the information model is based on a motion device system, which

can contain several motion devices, control systems, software etc. It describes an abstraction of the generic motion device system and handles the use cases asset management, condition monitoring, predictive maintenance and vertical integration into production IT systems.

6

VDMA: Vision Initiative

The OPC UA Companion Specification Vision provides a generic information model for all vision systems - from simple vision sensors to complex inspection systems. It handles the management of recipes, configurations and results in a Boothardized way, whereas the contents stay vendor-specific and are treated as black boxes. It allows the control of a vision system in a generalized way, abstracting the necessary behavior via a state machine concept.

7

VDMA: Drive Technology Initiative

The VDMA develop OPC UA Companion Specifications for the “Powertrain System”, including drive components such as motor starter, frequency converter module, motor as well as transmission elements. The Specification includes a basic description of the powertrain. The main scope is to provide essential technical data for asset management applications and diagnostic purposes.

8

VDMA: Machine Tools Initiative

The OPC UA joint working groups of the VDW, collaborate on the “internal” (OPC UA for CNC systems) and “external” (umati: universal machine tool interface) interfaces for machine tools and manufacturing systems. The purpose of umati is to develop an OPC UA Information Model for a universal communication interface of machine tools towards “external” communication partners, e.g. MES, ERP, cloud, automation system etc.

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EUROMAP: OPC UA Plastics and Rubber Machinery

Under the umbrella of EUROMAP several OPC UA Companion Specifications are released and under development. EUROMAP 83 defines general information regarding plastics and rubber machines. The purpose of EUROMAP 77 is the data exchange between injection moulding machines and MES. The EUROMAP 82 series defines OPC UA based interface for peripheral devices for plastics and rubber machinery. The EUROMAP 84 series defines OPC UA based interfaces for extrusion.

10 **VDMA: High Pressure Die Casting Initiative**

The first part contains the definition of a diecasting cell and all devices that fall within the scope of the Companion Specification. The second part contains the common interfaces of pressure die casting devices for horizontal and vertical communication. Specific Boothards for die casting equipment are covered by additional parts of the Devices CS specification.

11 **VDMA: Mining Initiative**

The VDMA develops together with the IREDES Organization an OPC UA Companion Specification which covers the horizontal and vertical communication for surface and underground mining. The OPC UA Companion Specification will describe the automation processes of extraction of minerals.

12 **VDMA: Surface Technology Initiative**

The data transport among surface treatment machinery, between surface treatment machinery and supporting systems and from surface treatment machinery into higher level manufacturing systems, for information and diagnostic purposes and to set information parameters regarding the surface treatment process will be defined.

13 **VDMA: Food and Packaging Initiative**

The goal of the current project is the development of an OPC UA Companion Specification for the already defined industry-specific data contents. The result will enable machine builders to implement a uniform, cost-effective interface with a uniform information model according to the service and object-oriented OPC UA Boothard. The resulting information model will also provide an expandable basis for future new IoT-M2M and cloud applications.

14 **VDMA: Woodworking Machines Initiative**

The VDMA develops under the umbrella of EUMABOIS OPC UA information models for commonly used woodworking machines and equipment used in primary and secondary wood processing. For communication between woodworking machines and the higher-level systems/devices in the respective processes, a multi-part set of universal manufacturer-independent interfaces based on OPC UA are to be created.



OPC Foundation: OPC DI & meet the experts

Meet representatives and experts like Stefan Hoppe (President), Karl Deiretsbacher (Technical Director), Alexander Allmendinger (Certification Lab), Matthias Damm (Editor DI) for networkng. Learn about current status of OPC DI specifying a generic data model to represent devices. Parameters as well as control functions can be exposed and grouped according to their purpose (e.g. configuration, diagnosis, and statistics). Most OPC UA Companion Specifications are derived from DI.



PLCopen

Initiative to combine the programming standard for industrial control, IEC61131-3, and OPC UA technologies to a platform and manufacturer independent information and communication architecture. 2 parts released and adopted 1) mapping IEC61131-3 into OPC UA Namespace and 2) Generate OPC UA Client FBs for IEC 61131-3.



AIM: AutoID devices

AIM (Association for Automatic Data Capture, Identification and Mobility) information model to Boothardize interaction with identification devices for skills like executing a scan, read or write process. Covers comprises barcode, OCR, 2D code, RFID, NFC, RTLS, sensors and mobile computing.



OMAC packaging initiative

A packaging Boothard. Reflects the ISA88 Technical Report (TR88.00.02). Defines StateMachines for the PackML states



AutomationML Initiative

AutomationML is an open, internationally Boothardized data format for the storage and exchange of plant engineering data. The companion specification describes the generation of OPC UA information models from existing AutomationML plant models. Furthermore, AutomationML allows the storage of OPC UA system configuration.

Presenting Groups

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Lab Network Industrie 4.0 Testbeds for OPC UA Companion Specs

The pre-competitive and non-profit association LNI 4.0 (LNI) operates an OPC UA Companion Specifications testbed on neutral ground. It is open and obstacle-free accessible for interested partners. The testbed is based on use cases coming from SME. LNI acts as the use case broker. The testbed has 20 partners, half being SME. Continues plug-festivals and Boothardization validation are the goal.

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MTConnect

A comprehensive semantic data model for Manufacturing Technology in an "OPC UA for MTConnect companion specification". MTConnect covers factory floor equipment including machine tools and discrete manufacturing. The companion spec exposes data to supply factory visibility and analytics use cases."

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OPEN-SCS (Open Serialization Communication Boothard)

Initiative directly addressing the Healthcare Industry's Product Serialization focused on the Boothardization of data exchanges for Healthcare packaging serialization and the aggregations between a Healthcare provider's enterprise serialization management function and their product packaging lines.

23



ZVEI Industrie4.0 Asset Administration Shell

ZVEI, is the association of German Electrical and Electronic Manufacturer's. Together with VDMA this group transfers the concept of the Industrie4.0 Asset Administration Shell (I4AAS) "Administration shell in detail" into the Technology of OPC UA to exchange asset information between Industrie 4.0 components.

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FieldComm Group: FDI, PA-DIM

Manages information from intelligent field devices during their entire lifecycle – from configuration, commissioning and diagnostics to calibration, making one-off solutions for different devices obsolete. Information models for process automation instruments and servers.

25



NAMUR: PA-DIM

Specify and maintain OPC UA Information Models for Process Automation Devices initially based on NAMUR Core Parameters according to NE 131 including assignment of semantic identifiers according the IEC Common Data dictionary and/or eCI@ss. Device information can be provided to the enterprise level, e.g. for diagnostics, configuration, condition monitoring, visualization, maintenance etc.

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The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. The Open Process Automation™ Forum is delivering a standards-based, open, secure, and interoperable process control architecture.

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FDT Initiative

An open industry standard that maps the data from end devices on all control networks into the OPC DI model and exposes it through an OPC UA server. Devices described by DDs (Device Descriptions), DPs (Device Packages), and DTMs (Device Type Managers) are supported.

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Dexpi

Develop an OPC UA Information Model for the DEXPI P&ID specification. P&IDs are the central documents of the plant lifecycle. CAE vendors are currently working on the support for the DEXPI P&ID specification as an export format for Piping and Instrumentation diagrams (P&IDs) in their next software release.

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MDIS: Oil and Gas Boothardization

MDIS an Oil and Gas Boothard for interfacing Subsea Production Control System (SPCS) [a Master Control Station (MCS) or a Subsea Gateway] to the topside Platform DCS. Includes information model for common sub-sea equipment, rules for extending the model and a full certification. Model includes Valve, Chokes, Instruments, Methods, Interlocks and aggregation and extension rules.

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IEC 61850 Power System Device Modeling

The IEC 61850 Companion Boothard defines device modeling for electricity generation, transmission, distribution, and consumption. Generation models address solar, hydro, fuel cells, reciprocating engines, gas/steam turbines as well as battery systems. Transmission models address electrical substations. Distribution models address distribution system protection and automation. Consumption models address device load modeling and profiling.

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IEC 61970 Common Information Model

The IEC 61970 Common Information Model initiative addresses power system network modeling. This system level model is used to manage generation, transmission, distribution, and load modeling from the point of view of network planning, management and optimization. The Common Information Model includes models for equipment such as transformers, transmission/distribution lines, circuit breakers, and other power system equipment.

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IEC 61400-25 Wind Power Plant Modeling

The IEC 61400-25 wind information model specifies the data interface for monitoring and control of wind power plants. It is based on IEC 61850. The existing OPC XML-DA communication profile mapping is being replaced with OPC-UA, in order to meet existing and upcoming market requirements. The work is driven by the USE61400-25 user group.

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DIN SPEC 92222: Reference Model on Industrial Cloud Federation

An increasing number of services for improving the operation of machines and plants based on different cloud platforms are available. This Boothard enables to provide these cloud services necessary data and access to services of field devices based on OPC UA including routing among different cloud platforms.

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ISA-S96

Describes the flow of information between Manufacturing Operations Management (MOM) and Enterprise Resource Management (ERP) systems

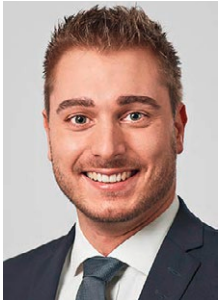
35



HKI: OPC UA for industrial kitchen equipment

The OPC UA based Boothard specifies manufacturer-neutral communication systems for Fryer, Frying Pan, Combi Steamer, Convection Oven, Multiple Deck Oven, Pressure Cooking Kettle, Cooking Kettle, Multi Function Pan, Pasta Cooker / Cook Marie, Coffee Machine, Dishwashing Machine, Served System, Cooking Zone, Frying And Grilling Appliance, Microwave Combination Oven, Ice Machine.

Contact



VDMA

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“The development of OPC UA standards for the industry 4.0 communication, paves the way for a world production language. This enables more efficient communication along the entire production processvalue chain. Especially for small and medium sized enterprises a standardized, simple integration of machines and components into already existing systems provides the opportunity to acquire new users and to innovate new business models. The VDMA and its members have the goal to define the world language of the manufacturing Industry. The VDMA has the worldwide lead role for OPC UA Companion Specification Boothardization work in the area of mechanical and plant engineering.”



OPC FOUNDATION

Stefan Hoppe
President OPC Foundation
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OPC UA is omnipresent in articles, industry fairs, manufacturer events, conference contributions, social media and more and is rightly called the key or enabler for Industrie 4.0, the Internet of Things and others also share OPC UA as a platform for secure exchange of information.

The OPC Foundation, a non-profit organization, acts as “The United Nations of Automation” where market leaders meet on neutral ground and act in 3 areas:

- 1) “Industrial Interoperability”:** With open source and open specifications OPC UA offers a modular framework for manufacturer and industry domain independent communications from sensors to IT and cloud. OPC UA is basically stable since the first release in 2008 but will probably never be “fully specified” because the kit for industrial interoperability is always extended with further solution components based on real requirements.
- 2) “Integrated security”** was prioritized at the beginning of the specification design as a key requirement for a networked world.



FIELDCOMM GROUP

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Mr. Sereiko is responsible for guiding worldwide marketing efforts to position FieldComm Group technologies in the marketplace, expand membership and increase the adoption of digital automation solutions in plant environments across the world. He holds a BS in Computer Engineering and an MBA in Marketing & Finance from Northwestern University’s Kellogg Graduate School of Management.

Device and machine vendors remain the masters of their data and can precisely configure access rights.

This “Security by Design” has been validated several times by international security experts - a process which guarantees a quick reaction and ongoing improvements is established.

3) “Data Modeling” offers the possibility to describe the “things” as devices, machines and services with their interfaces to interaction as well as their data and their meaning. Currently, about 50 industrial groups worldwide are working on these “companion specifications”, such as the key partners “VDMA” for factory automation and the “FieldComm Group” for the process industry – but many other groups like “OPEN-SCS” for the Pharma Industry or “AIM” for AutoID devices and lot more groups working on the “description of their things”. This is exactly what is needed for the “communication of things” and the goal of plug&play of standardized information (which is then securely exchanged with OPC UA mechanisms – from the sensor to the cloud but also horizontally). If every device, every machine and every service is uniformly described with OPC UA, then the OPC Foundation is the “world library of the description of things”.

The real challenge of the OPC Foundation is therefore to harmonize the Companion specifications in order to avoid “conflicts of information models”. The “1st World Interoperability Conference” should be the first step in this direction: A platform for networking, getting to know each other and talking to each other. We wish you a warm welcome and good discussions at this historic event.