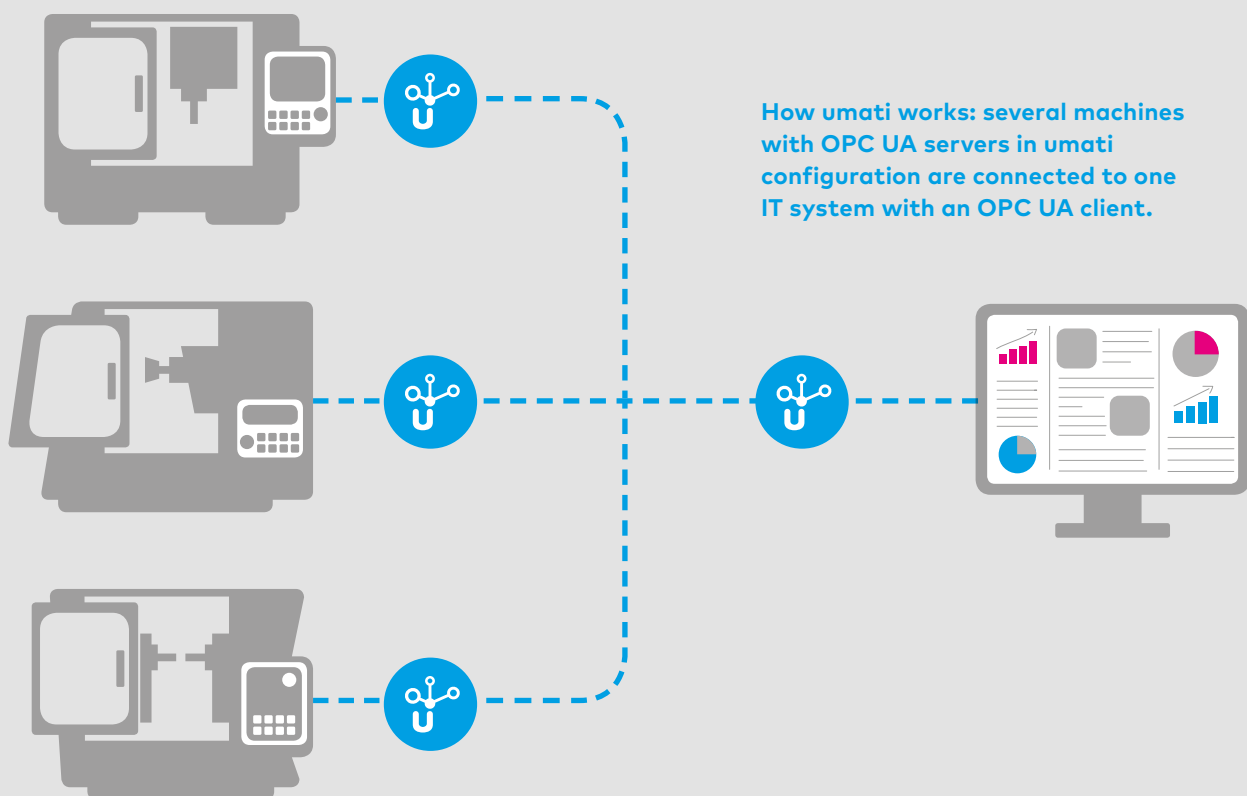


connecting the world
of machine tools

umati @ EMO Hannover
showcase information
hall 9, booth E24

welcome to the showcase umati @ EMO Hannover 2019...

The easier machine tools
exchange and share information,
the more efficient they are.
umati enables machine tools
and peripherals to connect to
customer-specific IT ecosystems.



... and see how umati works: easy, secure and seamless

70

companies

110

machines

28

software solutions

10

countries

At EMO Hannover 2019, umati partners show how umati as a common interface enables the connection between machine tools and software applications.

The setup follows the OPC UA client-server communication. All the machines listed in this brochure feature an OPC UA server following a specific design-freeze version of the first umati OPC UA specification. It contains data for the following use cases:

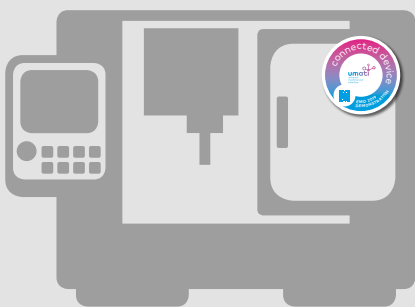
- Identify machines of different manufacturers
- Overview if production is running
- Overview of machine tool state

For reasons of stability and safe data handling within the trade show environment, the setup uses a central data hub.

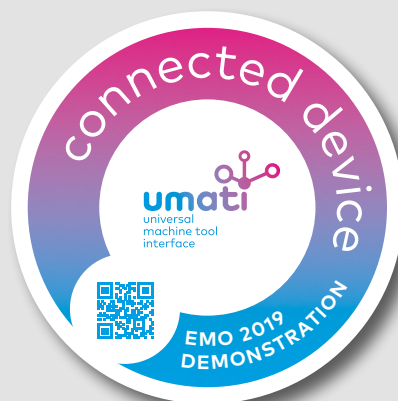
powered by 

Every machine connects to this data hub. Software application providers also connect to the data hub using an OPC UA client following the same specification. There, they can access the entire data pool of all machines streaming information and demonstrate how their application helps to create added value from data.

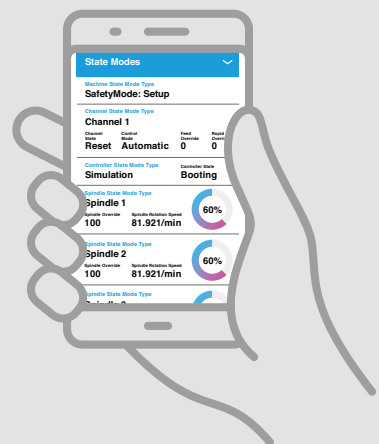
The confluence of the data can be experienced by navigating to the central umati dashboard at <https://umati.app>. More information at the umati booth (Hall 9, E24) or at the booth of any partner.



Every connected machine features a sticker.

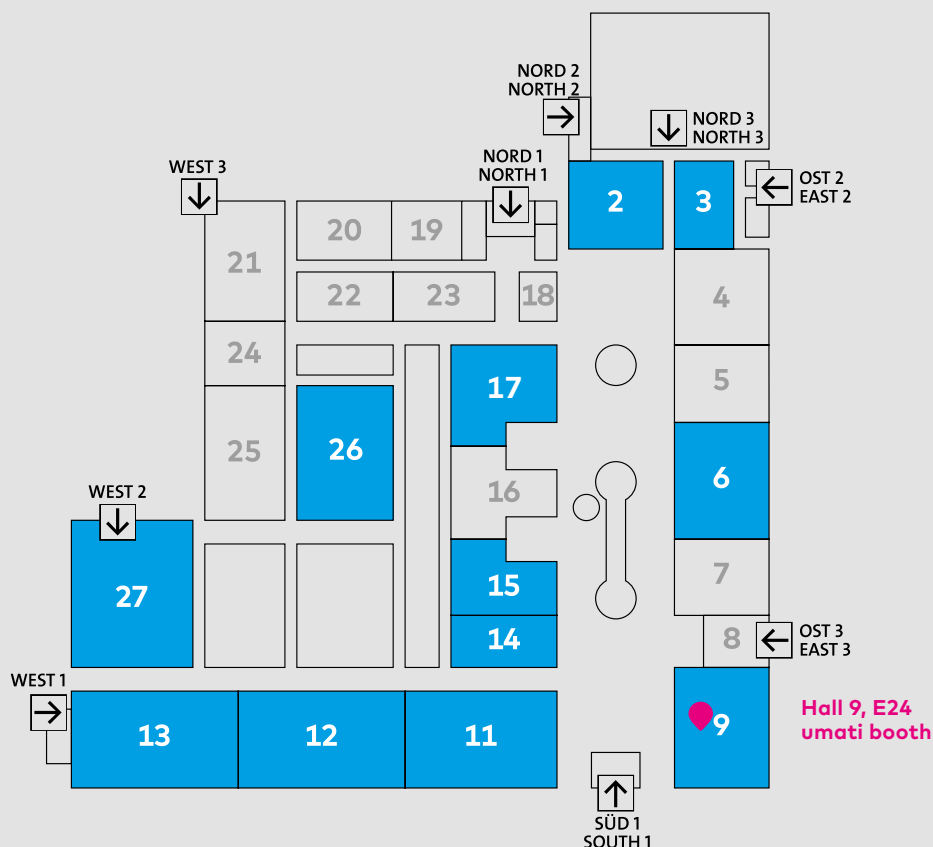


Scan the QR code or type the shortcut link to access the live data streaming from the machine.



Get an overview of all the connected machines at <https://umati.app>

umati showcase partners



connected machine tools

Booth	Partner	Type of machine	Type designation	Control
2 A21	DMG MORI	Turning center	CTX gamma 2000 TC	Siemens
		Turning center	CTX beta 800 4A	Siemens
		Advanced technology machine	Ultrasonic 50	Siemens
		Turning center	NLX 2500 1250	MAAPS
		Milling center	CMX 800 V	Siemens
3 B14	BIG KAISER Precision Tooling Ltd.	Milling center	Fanuc Robodrill D21MiB5	Fanuc
6 F18	Agathon AG	Grinding machine	Evo Quinto	Bosch Rexroth
		Grinding machine	Dom Plus	Bosch Rexroth
		Grinding machine	Leo Peri	Bosch Rexroth
6 F66	VOLLMER WERKE Maschinenfabrik GmbH	Tool grinding machine	VGrind 360	NUM
		Erosion machine	VPulse 500	Beckhoff
6 J35	ANCA Pty. Ltd.	Tool and cutter grinding	MX 7	ANCAMotion
9 A30	Orchestra Srl	Gear grinding machine	Samputensili G160	Siemens 840D sl / SMARTEdge4.0
9 A50	FANUC Corporation	Machining center	α-D21MiB5ADV	Fanuc
		Wire EDM	α-C800iB	Fanuc
		Robonano ultra precision	α-NTiA	Fanuc
9 C32	Bosch Rexroth AG	Laser cutting demonstrator	DCL 104	Bosch Rexroth MTX
		Dental milling machine	CIMT Tizian Cut 5.4	Bosch Rexroth MTX
9 D32	Beckhoff Automation GmbH & Co. KG	Demonstration machine	TwinCAT CNC tech. Demonstrator	TwinCAT CNC
9 D40	Mitsubishi Electric Europe B.V.	Multitasking machining center	iMulti8 Demonstration Machine	Mitsubishi M8 CNC Series
9 E08	Precision Machinery Research & Development Center (PMC)	Milling center	NDV102A	Fanuc
9 E20	NC-Link	Sample machine controller	i5 CNC	iSESOL
		Sample machine controller	HNC-818D CNC	HNC
		Sample machine controller	GSK988TA-H CNC	GSK
		Sample machine controller	BOCHI B80 CNC	Baoji
9 E24	Gebr. Heller Maschinenfabrik GmbH	Learning machine	Heller Profitrainer	Siemens
9 E24	ISW Universität Stuttgart	Simulated machine	umati DEMO	ISW
9 E24	TRUMPF Werkzeugmaschinen GmbH + Co. KG	Laser marking machine	TruMark Station 3000	Trumpf
9 E24	United Grinding Group AG	Tool measurement machine	WALTER HELICHECK 3D	Beckhoff

connected machine tools

Booth	Partner	Type of machine	Type designation	Control
9 F32	Leibniz Universität Hannover (Institut für Fertigungstechnik und Werkzeugmaschinen)	Milling center	HSC 30	Siemens
		Mill turn machining center	NTX 1000	Siemens
		Universal turning center	CTX beta 800	Siemens
9 G50	Fagor Automation, S. Coop.	Demonstration machine	FagorCnc QUERCUS - QC-CNC70-OL	Fagor 8070
9 H50	Siemens AG	Training machine	Schulungssystem	Siemens Sinumerik Edge
9 K02	TRUMPF Werkzeugmaschinen GmbH + Co. KG	Additive production system	TruPrint 3000	B&R
		Laser cutting machine	TruLaser 1030 fiber	Siemens
11 B24	United Grinding Group AG	Grinding machine	BLOHM PROFIMAT XT	Siemens 840D sl
		Grinding machine	MÄGERLE MFP 30	Siemens 840D sl
		Grinding machine	JUNG J600	Siemens 840D sl
		Grinding machine	STUDER favorit 400	Fanuc OiTF
		Grinding machine	STUDER S33	Fanuc OiTF
		Tool measurement machine	WALTER HELICHECK PRO	Beckhoff
		Centerless grinding machine	MIKROSA KRONOS S 250	Siemens 840D sl
		Grinding machine	STUDER S41	Fanuc 31i
		Laser machine	EWAG LASER LINE ULTRA	Fanuc 31i-B
		Grinding machine	EWAG PROFIL LINE	Fanuc 31i-B
		Grinding machine	STUDER S31	Fanuc 31i-B
		Grinding machine	STUDER S131	Fanuc 31i-B
		Tool grinding machine	WALTER HELITRONIC POWER 400	Fanuc 31i-B5
Tool grinding machine	WALTER HELITRONIC POWER DIAMOND 400	Fanuc 31i-B5		
11 D45	Danobat S. Coop	Grinding machine	ILD 600	Siemens
12 B06	GROB-WERKE GmbH & Co. KG	Machining center	G350a	Siemens
		Machining center	G550a	Siemens
		Machining center	G552	Siemens
		Machining center	G352T	Siemens
12 B36	Makino Milling Machine Co., Ltd.	Machining center	DA300	Fanuc
12 C06	CHIRON-Werke GmbH & Co. KG	Machining center	DZ 16 W	Fanuc
12 C36	Maschinenfabrik Berthold Hermle AG	Machining center	C 32 U HS flex	Heidenhain TNC 640
12 C83	Gebr. Heller Maschinenfabrik GmbH	Milling center	HF 3500	Siemens
		Milling center	CP 6000	Siemens
12 D58	Röders GmbH	HSC milling machine	RXP501	Röders RMS6
12 D83	ELHA-MASCHINENBAU Liemke KG	Transfer center	FM SMART	Siemens, Sinumerik ONE
12 E96	Leadyang Precision Technology Co., Ltd.	Machining center	VU500EX	Fagor 8065
13 B38	Soraluce S.Coop.	Milling center	TR	Heidenhain
13 B56	Ibarmia Innovatek, S.L.	Multiprocess: milling, drilling and turning	THC30	Siemens
13 B84	Zayer, S.A.	Mill turn machining center	ARION G	Siemens 840D sl
13 B92	Mitsubishi Electric Europe B.V.	Wire erosion machine	MV4800R Connect	Mitsubishi M8 CNC Series
		Wire erosion machine	MP2400 Connect	Mitsubishi M8 CNC Series
		Diesinking erosion machine	SG12R	Mitsubishi M8 CNC Series
13 C65	Nicolas Correa, S.A.	Bridge type milling machine	FOX50	Heidenhain
14 G02	K.R. Pfiffner GmbH	Rotary transfer machine	RT 100-12 Application Center	Bosch Rexroth MTX
		Rotary transfer machine	RT 100-12	Siemens 840D sl
14 G02	MAG IAS GmbH	Milling center	SPECHT 700	Siemens
		Milling center	SPECHT 600	Siemens
15 E53	Soitaab Impianti Srl	Multiprocess: milling, piercing, tapping, plasma cutting	Ominatech	Bosch Rexroth
17 A04	MURATA MACHINERY, Ltd.	Lathe	MD120II-GT	Fanuc
		Lathe	MW120EX-GT	Fanuc
17 A59	Selica International Co., Ltd.	High speed milling machine	HM65T	Fagor 8060
17 B08	Sauter Feinmechanik GmbH	Turret	437.420	IQ-Box
17 B40	Nakamura-Tome Precision Industry Co., Ltd.	CNC turning lathe	AS-200L	Fanuc OiTF
		CNC turning lathe	SC100	Fanuc OiTF
		CNC turning lathe	NTY3-100	Fanuc 31i-B
		CNC turning lathe	MX-100	Fanuc 31i-B
		CNC turning lathe	JX250	Fanuc 31i-B5
		CNC turning lathe	NTRX-300L	Fanuc 31i-B5
		CNC turning lathe	WT150II	Fanuc 32i-B
CNC turning lathe	WY150	Fanuc 32i-B		

connected machine tools

Booth	Partner	Type of machine	Type designation	Control
17 C29	EMAG GmbH & Co. KG	Turning center	VL4	Fanuc
17 C46	DVS Technology Group	Shaft skiving machine	V300e (Hersteller WMZ)	Siemens 840D sl
17 C76	Precitrame Machines SA	Rotary transfer machine	MTR312H	PMM
17 D05	Index-Werke GmbH & Co. KG	Turning center	Traub TNL20	Mitsubishi TX8i-s
		Turning center	Index G220	Siemens 840D sl
17 D08	Alfred H. Schütte GmbH & Co. KG	Turning center	EC2-36	Siemens 840D sl
17 D15	Tornos SA	SwissType machine (Lathe)	SwissDeco 36 TB	Fanuc 31i-B5
26 B110	Klingelberg GmbH	Bevelgear grinding machine	Oerlikon G35 DS	Siemens Solutionline
26 C96	Profiroll Technologies GmbH	Spline rolling machine	Rollex HP	Siemens
		Spline rolling machine	PR 400 HP	B&R
26 D26	Citizen Machinery Europe GmbH	CNC lathe	D25	Mitsubishi
26 D76	KAPP NILES GmbH & Co. KG	Gear grinding machine	KNG 12P master	Siemens
		Gear grinding machine	KNG 350 expert	Siemens
26 E40	Giuseppe Giana SRL	Lathe	GGTRONIC 2000 CNC	Fagor 8065
26 E63	M.C.M Madar Costruzioni Meccaniche Srl	Lathe	ATL 400X3000	Fagor 8060
27 B52	Yamazaki Mazak Deutschland GmbH	Milling center	VTC-800/ 30 SR/	Siemens
		Milling center	VCN 530	Mazatrol
27 B63	Buffalo Machinery Co., Ltd.	Machining center	AXILE G8 MT	Heidenhain
27 B75	OKK Corporation	Machining center	VC-X500	Fanuc 31i-B5
27 D26	OKUMA Corporation	Machining center	MB-5000H II	OKUMA (OSP)
27 E24	EMCO GmbH	Mill/Turn center	HYPERTURN 65 POWERMILL	Siemens 840D sl
27 E81	Toshiba Machine Co., Ltd.	High precision machining center	UVM-450D	Fanuc
		Horizontal machining center	BM-U	TOSNUC PX200

connected software solutions

Booth	Partner	Type of service	Product name, brand
2 A21	ADAMOS GmbH	IIoT Platform	Adamos
6 J35	Anca Pty. Ltd.	Dashboard	Redax
9 A30	Orchestra Srl	MES	MINIMes 4.0
9 A50	FANUC Corporation	IIoT Platform	FIELD
9 D32	Beckhoff Automation GmbH & Co. KG	OPC UA client	TwinCAT OPC UA client
9 E20	NC-Link	CNC service	iNC-Cloud
		Cloudservice, Dashboard, Software, Digital Factory Solutions	iSESOL Platform, iSESOL
		CNC service	J-TECH
9 E24	umati	Dashboard	umati App
9 F32	Athena	Digital Assistant	Athena
9 F32	iT Engineering Software Innovations GmbH	Dashboard, Machine Learning Tool	it Engineering IIoT-Toolbox
9 F32	symmedia GmbH	Dashboard	symmedia Factory Portal
9 F32	T-Systems International GmbH	Secure and controlled OPC UA data broker	Telekom Data Intelligence Hub
9 F50	B&R Industrial Automation GmbH	Dashboard	APROL
9 G50	Fagor Automation, S. Coop.	Dashboard	EMO-APP, Fagor
9 H50	Siemens AG	OPC UA Client	UaExpert
9 I32	Dr. Johannes Heidenhain GmbH	MDE/BDE	StateMonitor
9 J24	HAGIWARA Solutions Co., Ltd.	Gateway	umati OPC UA Server Gateway
9 K02	TRUMPF Werkzeugmaschinen GmbH + Co. KG	Dashboard	TRUMPF Maschinen-Apps
11 B24	United Grinding Group AG	Production Monitor	United Grinding Digital Solutions™
12 B06	GROB-WERKE GmbH & Co. KG	Cloudservice, Dashboard, Software	www.cloud4machine.com
12 C36	Maschinenfabrik Berthold Hermle AG	Dashboard	HIMS Hermle Information & Monitoring Software
13 C65	Nicolas Correa, S.A.	IIoT Platform	Vixion
15 E53	Soitaab Impianti Srl	Dashboard	Bosch
17 C29	EMAG GmbH & Co. KG	Dashboard	MultMachineMonitor
17 D15	Tornos SA	Dashboard	TISIS Monitoring 4.0
26 A90	Liebherr-Verzahntechnik GmbH	Factory Monitoring/Optimization	LHWebPlatform/Liebherr
26 B110	Klingelberg GmbH	Dashboard	Klingelberg Digital Solutions – umati Interface

the universal machine tool interface

Connectivity is key for manufacturing in the 21st century. It means getting data in and out of devices and software systems – easy, secure and seamless.

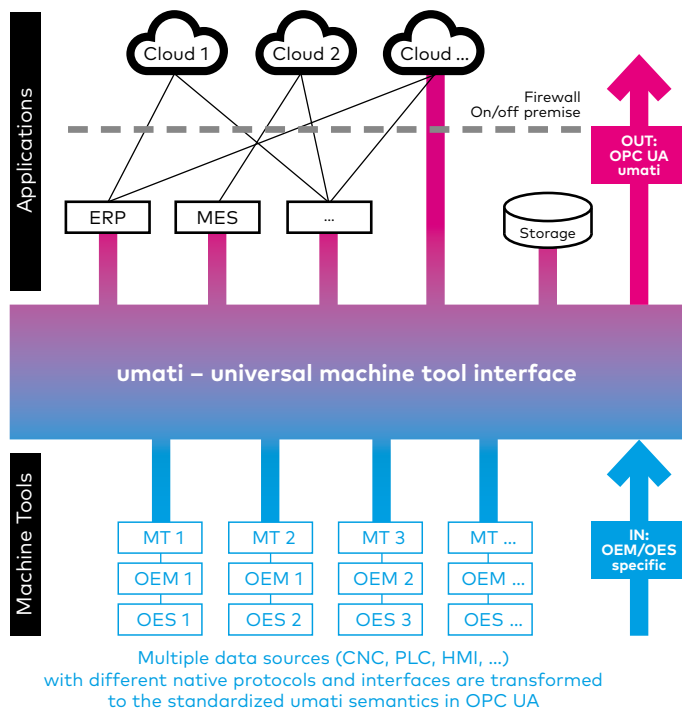
For the benefit of machine tool users and the machine tool industry itself, **umati** tackles this issue by setting an open standard throughout the world. **umati** serves to exploit new potentials for manufacturing of the future by:

- Simplifying the effort for machine tool connection to customer-specific IT infrastructures and ecosystems.
- Reducing costs through faster realization of customer specific projects.

umati was created in 2018 in a joint effort by VDW, the German machine tool builders' association, and 17 partners.

umati is still under development. It aims to provide

1. an **OPC UA Companion Specification** to define globally applicable semantics for machine tools
2. **Communication Default Requirements** for the implementation of an OPC UA environment (e.g., encryption, authentication, server settings (ports, protocols) to allow plug-and-play connectivity between machines and software
3. **Quality Assurance** through testing specifications and tools, certification, and serving as ombudsman for supplier-client disputes
4. **Marketing and a label for visibility in the market** through a global community of machine builders, component suppliers, and added value services.



setting the standard

Creating a standard with global acceptance is a challenge. **umati** relies on OPC UA as the global interoperability standard. The standardization work takes place in the **umati** OPC UA joint working group with the OPC Foundation. This guarantees maximum transparency and the support of a strong global community.

OPC UA and the OPC Foundation

- provide a framework for standardized communication (HOW to communicate)
- allow focusing on defining WHAT is to be communicated (Companion Specifications)
- include a global community for revising the standard
- assist in global outreach by publishing the standard with no license fee.



To get the work done, the **umati** group focuses on setting a standard for vertical integration of machine tools and production IT ecosystems. In a first version, the focus is on data requiring low update rates (approx. once per second). The following use cases for status monitoring of machine tools are being standardized:

1. Identify machines of different manufacturers
2. Overview if production is running
3. Overview of parts in a job
4. Overview of runtimes for a job
5. Overview of machine tool state
6. Overview of upcoming manual activities
7. Overview of errors and warnings
8. Providing information for KPI calculations
9. Providing data for media and energy usage statistics
10. Providing an overview of tool data

For future versions, higher update rates and further use cases are foreseen:

- Operating status
- Part/material information
- Control data management
- M2M communication (Automation systems)
- Job file management
- Lifecycle information
- Process analysis
- Wear indications

Applications with OPC UA Clients are able to connect directly to machines with OPC UA Servers – if both are in umati configuration

umati – a network of strong partners



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