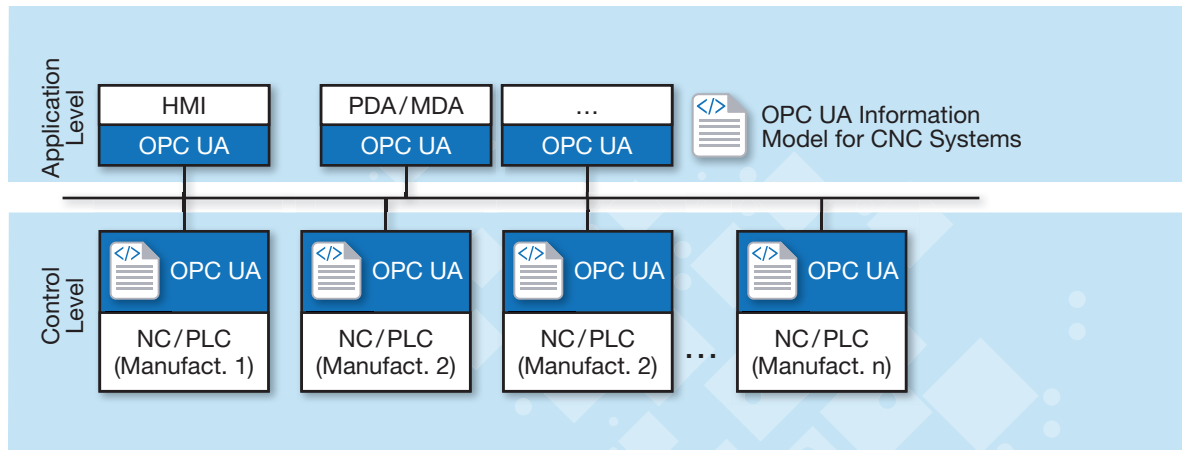
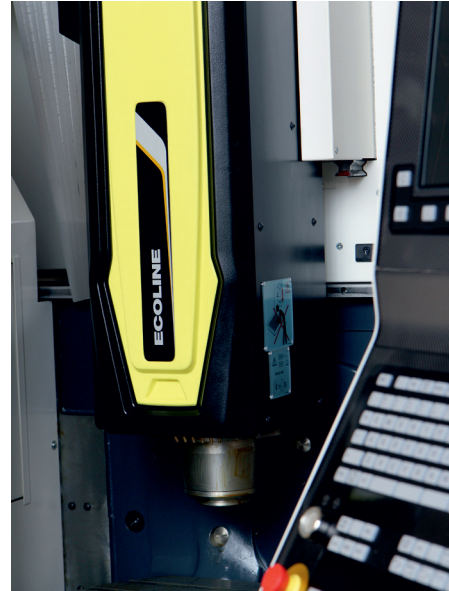


## VDW and OPC Foundation – OPC-UA Information Model for CNC Systems

In the field of CNC machine tools, there is a multitude of communication interfaces, profiles and mechanisms for the integration of machine tools into a production network. There are standardized as well as manufacturer-specific solutions to be found. This variety just like the lacking consistency of the standardization currently lead to considerable effort in the case of system networking.

OPC UA presents a standard for cross-vendor communication between different participants. There is a possibility to specify domain and application-specific information models. Although OPC UA presently becomes established in the field of CNC machine tools, there are no universal and consistent information models available.

For this reason, an OPC UA information model has been developed within the cooperation of the German Machine Tool Builders' Association (VDW) and the OPC Foundation, in order to interface and exchange data with CNC systems.



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- March 2015: Release Candidate
- Prototyping Phase: March 2015 – September 2015
- End 2016 (Plan): Release of Companion Specification

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**Project group:**

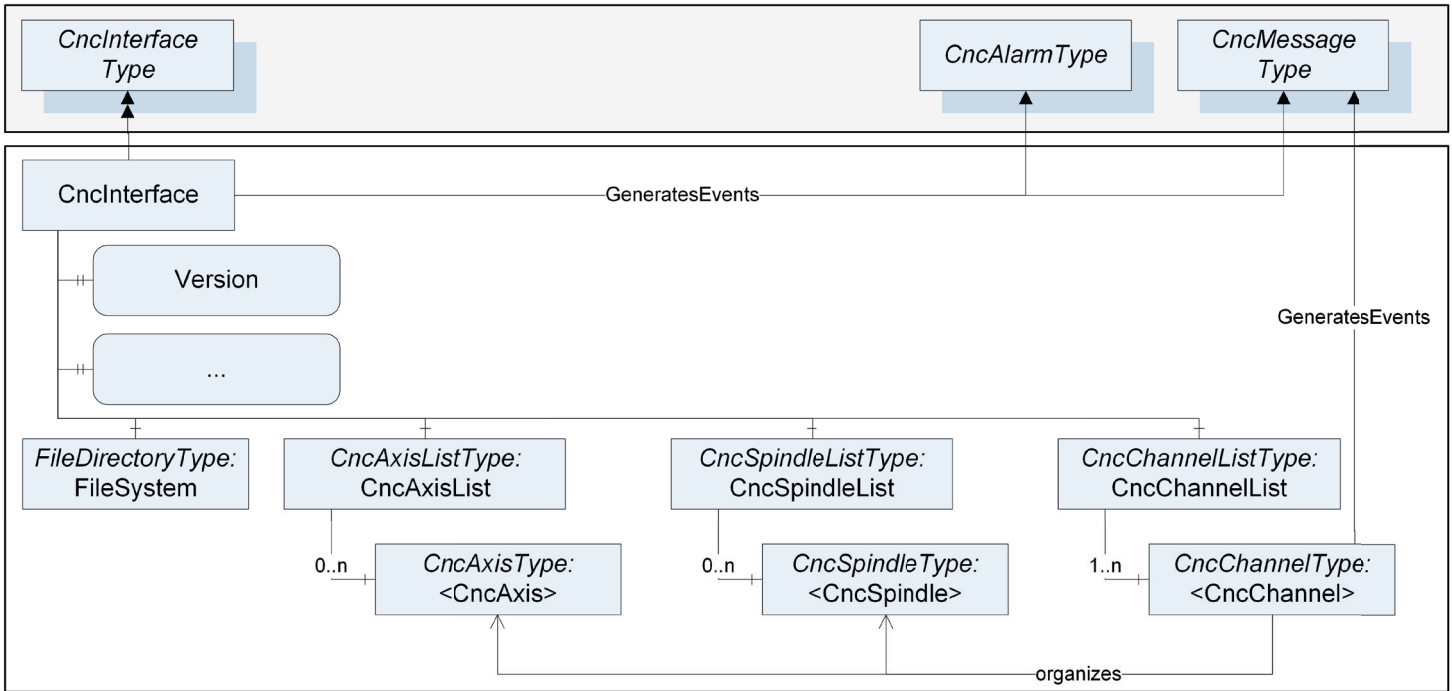




Main objective of the OPC UA companion standard for CNC systems is to have an Information Model that results in a clearly defined and structured CNC data interface. That means that both data items and its composition are specified. However, manufacturer- and use case-specific extensions shall be possible.

Regarding the structure of the CNC data interface, it is intended to realize flat hierarchies. However, multiple referencing of objects shall be used for exposing the assignment of components within the hardware or software system.

The focus of the “OPC UA Information Model for CNC systems” is on data that is situated within the CNC kernel but not within the PLC of a CNC system. This results from the main objective of this Information Model to standardize an interface that provides and enables the access to clearly defined raw data. Hence, this Information Model addresses applications like UIs, PDA/MDA systems, diagnosis and monitoring applications, but not necessarily MES or ERP systems as the two latter ones mostly need summarized data.



## About Institute for Control Engineering of Machine



The Institute for Control Engineering for Machine Tools and Manufacturing Units (ISW) of the University of Stuttgart is one of the internationally leading university research institutes in the area of control engineering – from the planning stage up to the tool. The ISW is researching on future technologies for production and automation in an interdisciplinary manner. Since 50 years we are an innovative and reliable partner for industry regarding ambitious challenges from the very first idea up to a product. Further information can be found here: [www.isw.uni-stuttgart.de](http://www.isw.uni-stuttgart.de)

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## About OPC Unified Architecture (OPC-UA)



OPC-UA is the interoperability standard for multi-vendor, multi-platform data exchange that is secure and reliable from small sensors up to IT Enterprise level systems. This technology provides open connectivity across multiple products, regardless of hardware platform or software operating system. OPC-UA (the IEC 62541 standard) includes automated discovery, security by design, data encryption, and exceptionally powerful information modeling.