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Part 12: Discovery and global services

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OPC unified architecture - Part 12: Discovery and Global Services

FOREWORD

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IEC 62541-12 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This second edition cancels and replaces the first edition published in 2020. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of a "Quantity Model" which can be referenced from EngineeringUnit Properties. The model defines quantities and assigned units. In addition it provides alternative units and the conversion to them;

b) addition of rules for ValuePrecision Property:

- can also be used for other subtypes like Duration and Decimal.
- additional rules when ValuePrecision has negative values.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65E/1051/CDV	65E/1097/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

Throughout this document and the other parts of the IEC 62541 series, certain document conventions are used:

Italics are used to denote a defined term or definition that appears in the "Terms and definitions" clause in one of the parts of the IEC 62541 series.

Italics are also used to denote the name of a service input or output parameter or the name of a structure or element of a structure that are usually defined in tables.

The *italicized terms and names* are, with a few exceptions, written in camel-case (the practice of writing compound words or phrases in which the elements are joined without spaces, with each element's initial letter capitalized within the compound). For example, the defined term is *AddressSpace* instead of Address Space. This makes it easier to understand that there is a single definition for *AddressSpace*, not separate definitions for Address and Space.

A list of all parts in the IEC 62541 series, published under the general title *OPC Unified Architecture*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

1 Scope

This part of IEC 62541 specifies how OPC Unified Architecture (OPC UA) *Clients* and *Servers* interact with *DiscoveryServers* when used in different scenarios. It specifies the requirements for the *LocalDiscoveryServer, LocalDiscoveryServer-ME and GlobalDiscoveryServer.* It also defines information models for *Certificate* management*, KeyCredential* management and *AuthorizationServices*.

Annex A informatively discusses deployment and configuration aspects.

Annex B defines NodeSet and numeric NodeIds.

Annex F provides installation rules for the LDS.

Annex H compares the *Certificate* management defined in this document with IETF RFC 7030.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62541-1, *OPC Unified Architecture - Part 1: Overview and Concepts*

IEC 62541-2, *OPC Unified Architecture - Part 2: Security Model*

IEC 62541-3, *OPC Unified Architecture - Part 3: Address Space Model*

IEC 62541-4, *OPC Unified Architecture - Part 4: Services*

IEC 62541-5, *OPC Unified Architecture - Part 5: Information Model*

IEC 62541-6, *OPC Unified Architecture - Part 6: Mappings*

IEC 62541-7, *OPC Unified Architecture - Part 7: Profiles*

IEC 62541-9, *OPC Unified Architecture - Part 9: Alarms and Conditions*

IEC 62541-14, *OPC Unified Architecture - Part 14: PubSub*

IEC 62541-17, *OPC Unified Architecture - Part 17: Alias Names*

IEC 62541-20, *OPC Unified Architecture - Part 20: File Transfer*

IEC 62541-21, *OPC Unified Architecture - Part 21: Device Onboarding*

ITU-T Recommendation X.500 | ISO/IEC 9594-1, *Information technology - Open Systems interconnection - The Directory: Overview of concepts, models and services*

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IETF RFC 7030, Pritikin M., Yee P.E. and Harkins D., “Enrollment over Secure Transport”, October 2013, available at https://datatracker.ietf.org/doc/html/rfc7030

DI, *OPC Unified Architecture for Devices (DI)*, available at https://opcfoundation.org/documents/10000-100

ADI, *OPC Unified Architecture for Analyzer Devices (ADI)*, available at http://www.opcfoundation.org/documents/10020

PLCopen, *OPC Unified Architecture / PLCopen Information Model*, available at http://www.opcfoundation.org/documents/30000

FDI, *OPC Unified Architecture for FDI*, available at http://www.opcfoundation.org/documents/30080

ISA-95, *ISA-95 Common Object Model*, available at http://www.opcfoundation.org/documents/10030

IEEE Std 802.1AR-2018, *IEEE Standard for Local and Metropolitan Area Networks - Secure Device Identity*, available at https://standards.ieee.org/standard/802_1AR-2018.html

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