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Part 1: Overview and concepts

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OPC unified architecture - Part 1: Overview and concepts

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC TR 62541-1:2020. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 62541-1 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 first edition cancels and replaces IEC TR 62541-1 published in 2020.

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

Draft	Report on voting
65E/1039/CDV	65E/1093/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 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 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 also often 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 presents the concepts and overview of the OPC Unified Architecture (OPC UA). Reading this document is helpful to understand the remaining parts of ~~this multi-part document set~~ the IEC 62541 series. Each of the other parts is briefly explained along with a suggested reading order.

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 TR 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 62541-8, *OPC unified architecture – Part 8: Data access*~~

~~IEC 62541-9, *OPC unified architecture – Part 9: Alarms and Conditions*~~

~~IEC 62541-10, *OPC unified architecture – Part 10: Programs*~~

~~IEC 62541-11, *OPC unified architecture – Part 11: Historical Access*~~

~~IEC 62541-12, *OPC unified architecture – Part 12: Discovery and global services*~~

~~IEC 62541-13, *OPC Unified Architecture – Part 13: Aggregates*~~

~~IEC 62541-14, *OPC unified architecture – Part 14: PubSub*~~

~~ITU X.509, *Information technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks*~~
~~https://www.itu.int/rec/T-REC-X.509~~

There are no normative references in this document.

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IEC 61784-3:2021, *Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses - General rules and profile definitions*

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 62541-8, *OPC Unified Architecture - Part 8: Data Access*

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

IEC 62541-10, *OPC Unified Architecture - Part 10: Programs*

IEC 62541-11, *OPC Unified Architecture - Part 11: Historical Access*

IEC 62541-12, *OPC Unified Architecture - Part 12: Discovery and Global Services*

IEC 62541-13, *OPC Unified Architecture - Part 13: Aggregates*

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

IEC 62541-15, *OPC Unified Architecture - Part 15: Safety*

IEC 62541-16, *OPC Unified Architecture - Part 16: State Machines*

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

IEC 62541-18, *OPC Unified Architecture - Part 18: Role-Based Security*

IEC 62541-19, *OPC Unified Architecture - Part 19: Dictionary References*

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

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

IEC 62541-22, *OPC Unified Architecture - Part 22: Base Network Model*

IEC 62541-23, *OPC Unified Architecture - Part 23: Common ReferenceTypes*

IEC 62541-24, *OPC Unified Architecture - Part 24: Scheduler*

Recommendation ITU-T X.509 (2019) | ISO/IEC 9594-8:2020, *Information technology - Open Systems Interconnection - The Directory: Public-key and attribute certificate frameworks*

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