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OPC unified architecture -
Part 1: Overview and concepts

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Architecture unifiée OPC -
Partie 1: Vue d'ensemble et concepts

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OPC unified architecture - Part 1: Overview and concepts

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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.

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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 the IEC 62541 series. Each of the other parts is briefly explained along with a suggested reading order.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/

– ISO Online browsing platform: available at https://www.iso.org/obp

3.1.1
AddressSpace
collection of information that a *Server* makes visible to its *Clients*

Note 1 to entry: See IEC 62541-3 for a description of the contents and structure of the *Server* AddressSpace.

3.1.2
Aggregate
function that calculates derived values from *Raw data*

Note 1 to entry: Raw data may be from a historian or buffered real time data. Common Aggregates include averages over a given time range, minimum over a time range and maximum over a time range.

3.1.3
Alarm
type of Event associated with a state condition that typically requires acknowledgement

Note 1 to entry: See IEC 62541-9 for a description of Alarms.

3.1.4
Attribute
primitive characteristic of a Node

Note 1 to entry: All Attributes are defined by OPC UA and may not be defined by *Clients* or *Servers*. Attributes are the only elements in the AddressSpace permitted to have data values.

3.1.5
Broker
intermediary program module that routes *NetworkMessages* from *Publishers* to *Subscribers*

Note 1 to entry: *Brokers* are building blocks of *Message Oriented Middleware*.

3.1.6
Certificate
digitally signed data structure that contains a public key and an identity

Note 1 to entry: Certificates are used to identity for example *Clients*, *Servers*, users, and certificate authorities.

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