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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**OPC unified architecture -  
Part 18: Role-Based Security**

**Architecture unifiée OPC -  
Partie 18: Sécurité fondée sur les rôles**



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**OPC unified architecture -  
Part 18: Role-Based Security**

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IEC 62541-18 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.

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

Draft	Report on voting
65E/1043/CDV	65E/1101/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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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](http://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- withdrawn, or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 defines an Information Model. The Information Model describes the basic infrastructure to model role-based security.

NOTE In the previous version, Role-Based Security was in IEC 62541-5:2020, Annex F.

## 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 62541-3, *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 62541-8, *OPC Unified Architecture – Part 8: Data Access*

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

## 3 Terms and definitions

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62541-1, IEC 62541-3 and IEC 62541-5 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>

## 4 Role Model

### 4.1 General

OPC UA defines a standard approach for implementing role-based security. *Servers* can choose to implement part or all of the mechanisms defined here. The OPC UA approach assigns *Permissions to Roles* for each *Node* in the *AddressSpace*. *Clients* are then granted *Roles* when they create a *Session* based on the information provided by the *Client*.

*Roles* are used to separate authentication (determining who a *Client* is with a user token and *Client* application identity) from authorization (*Permissions* determining what the *Client* is allowed to do). By separating these tasks *Servers* can allow centralized services to manage user identities and credentials while the *Server* only manages the *Permissions* on its *Nodes* assigned to *Roles*.