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OPC unified architecture -
Part 6: Mappings

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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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FOREWORD

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IEC 62541-6 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 fourth edition cancels and replaces the third 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 support for ECC to UA Secure Conversation;
b) use of the AuthorityKeyIdentifier extension in Certificate Revocation Lists;
c) enhancement of JSON mapping of Unions;
d) addition of Decimal data type encoding.
e) description of ECC keyUsage rules;

f) addition of Media assigned by IANA to UANodeSet definition;

g) addition of requirements for user and issuer Certificates;

h) addition of rules which specify what happens when DateTime precision is lost;

i) addition of rules to allow for the truncation of strings containing embedded nulls.

j) definition of a normative string representation for NodeId, ExpandedNodeId and QualifiedName for JSON mapping.

k) requirement that TAI times be converted to UTC;

l) new possibility to omit Symbol if unknown in JSON encoding;

m) addition of fields needed to support RolePermissions to the UANodeSet.

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

Draft	Report on voting
65E/1063/CDV	65E/1131/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 the mapping between the security model described in IEC 62541-2, the abstract service definitions specified in IEC 62541-4, the data structures defined in IEC 62541-5 and the physical network protocols that can be used to implement the OPC UA specification.

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

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

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

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ISO 8601-1, *Date and time - Representations for information interchange - Part 1: Basic rules*

Recommendation ITU-T X.200 | ISO/IEC 7498-1, *Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model*

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