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**OPC unified architecture –
Part 6: Mappings**

**Architecture unifiée OPC –
Partie 6: Mappings**



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CONTENTS

FOREWORD	8
1 Scope	11
2 Normative references	11
3 Terms, definitions, abbreviated terms and symbols.....	13
3.1 Terms and definitions.....	13
3.2 Abbreviated terms and symbols	14
4 Overview	14
5 Data encoding	16
5.1 General.....	16
5.1.1 Overview	16
5.1.2 Built-in Types	16
5.1.3 Guid	17
5.1.4 ByteString.....	17
5.1.5 ExtensionObject	17
5.1.6 Variant.....	18
5.1.7 Decimal	18
5.2 OPC UA Binary	19
5.2.1 General	19
5.2.2 Built-in Types	19
5.2.3 Decimal	30
5.2.4 Enumerations	30
5.2.5 Arrays.....	30
5.2.6 Structures.....	31
5.2.7 Structures with optional fields	33
5.2.8 Unions	35
5.2.9 Messages	36
5.3 OPC UA XML.....	37
5.3.1 Built-in Types	37
5.3.2 Decimal	43
5.3.3 Enumerations	43
5.3.4 Arrays.....	44
5.3.5 Structures.....	44
5.3.6 Structures with optional fields	45
5.3.7 Unions	45
5.3.8 Messages	46
5.4 OPC UA JSON.....	46
5.4.1 General	46
5.4.2 Built-in Types	46
5.4.3 Decimal	52
5.4.4 Enumerations	52
5.4.5 Arrays.....	52
5.4.6 Structures.....	53
5.4.7 Structures with optional fields	53
5.4.8 Unions	54
5.4.9 Messages	54
6 Message SecurityProtocols	55

6.1	Security handshake	55
6.2	Certificates	56
6.2.1	General	56
6.2.2	Application Instance Certificate.....	57
6.2.3	Certificate Chains	58
6.3	Time synchronization	58
6.4	UTC and International Atomic Time (TAI).....	58
6.5	Issued User Identity Tokens.....	58
6.5.1	Kerberos.....	58
6.5.2	JSON Web Token (JWT).....	59
6.5.3	OAuth2	60
6.6	WS Secure Conversation	62
6.7	OPC UA Secure Conversation	62
6.7.1	Overview	62
6.7.2	MessageChunk structure	62
6.7.3	MessageChunks and error handling.....	67
6.7.4	Establishing a SecureChannel.....	67
6.7.5	Deriving keys.....	69
6.7.6	Verifying Message security	70
7	TransportProtocols	71
7.1	OPC UA Connection Protocol.....	71
7.1.1	Overview	71
7.1.2	Message structure	72
7.1.3	Establishing a connection	75
7.1.4	Closing a connection	77
7.1.5	Error handling.....	77
7.2	OPC UA TCP	79
7.3	SOAP/HTTP.....	79
7.4	OPC UA HTTPS.....	79
7.4.1	Overview	79
7.4.2	Session-less Services.....	81
7.4.3	XML Encoding	81
7.4.4	OPC UA Binary Encoding	82
7.4.5	JSON Encoding	82
7.5	WebSockets.....	83
7.5.1	Overview	83
7.5.2	Protocol Mapping.....	84
7.5.3	Security	84
7.6	Well known addresses	85
8	Normative Contracts	86
8.1	OPC Binary Schema	86
8.2	XML Schema and WSDL.....	86
8.3	Information Model Schema.....	86
8.4	Formal definition of UA Information Model.....	86
8.5	Constants	86
8.6	DataType encoding.....	86
8.7	Security configuration	86
Annex A (normative)	Constants.....	87
A.1	Attribute Ids	87

A.2	Status Codes	87
A.3	Numeric Node Ids	88
Annex B (normative)	OPC UA Nodeset	89
Annex C (normative)	Type declarations for the OPC UA native Mapping	90
Annex D (normative)	WSDL for the XML Mapping	91
D.1	XML Schema	91
D.2	WDSL Port Types	91
D.3	WSDL Bindings	91
Annex E (normative)	Security settings management	92
E.1	Overview	92
E.2	SecuredApplication	93
E.3	CertificateIdentifier	96
E.4	CertificateStoreIdentifier	98
E.5	CertificateList	99
E.6	CertificateValidationOptions	99
Annex F (normative)	Information Model XML Schema	101
F.1	Overview	101
F.2	UANodeSet	101
F.3	UANode	103
F.4	Reference	104
F.5	RolePermission	104
F.6	UAType	104
F.7	UAInstance	105
F.8	UAVariable	105
F.9	UAMethod	106
F.10	TranslationType	106
F.11	UADatatype	107
F.12	DataTypeDefinition	108
F.13	DataTypeField	108
F.14	Variant	109
F.15	Example	110
F.16	UANodeSetChanges	112
F.17	NodesToAdd	113
F.18	ReferencesToChange	113
F.19	ReferenceToChange	114
F.20	NodesToDelete	114
F.21	NodeToDelete	114
F.22	UANodeSetChangesStatus	115
F.23	NodeSetStatusList	115
F.24	NodeSetStatus	115
Bibliography	.....	117
Figure 1 – The OPC UA Stack Overview	.....	15
Figure 2 – Encoding Integers in a binary stream	.....	20
Figure 3 – Encoding Floating Points in a binary stream	.....	20
Figure 4 – Encoding Strings in a binary stream	.....	21
Figure 5 – Encoding GUIDs in a binary stream	.....	22

Figure 6 – Encoding XmlElement in a binary stream	22
Figure 7 – A String NodeId.....	23
Figure 8 – A Two Byte NodeId	24
Figure 9 – A Four Byte NodeId.....	24
Figure 10 – Security handshake.....	55
Figure 11 – OPC UA Secure Conversation MessageChunk.....	63
Figure 12 – OPC UA Connection Protocol Message structure	72
Figure 13 – Client initiated OPC UA Connection Protocol connection.....	76
Figure 14 – Server initiated OPC UA Connection Protocol connection.....	76
Figure 15 – Closing a OPC UA Connection Protocol connection	77
Figure 16 – Scenarios for the HTTPS Transport.....	80
Figure 17 – Setting up Communication over a WebSocket	84
Table 1 – Built-in Data Types.....	16
Table 2 – Guid structure	17
Table 3 – Layout of Decimal	19
Table 4 – Supported Floating Point Types.....	20
Table 5 – NodeId components	22
Table 6 – NodeId DataEncoding values	23
Table 7 – Standard NodeId Binary DataEncoding.....	23
Table 8 – Two Byte NodeId Binary DataEncoding	24
Table 9 – Four Byte NodeId Binary DataEncoding.....	24
Table 10 – ExpandedNodeId Binary DataEncoding	25
Table 11 – DiagnosticInfo Binary DataEncoding.....	26
Table 12 – QualifiedName Binary DataEncoding	26
Table 13 – LocalizedText Binary DataEncoding	27
Table 14 – Extension Object Binary DataEncoding.....	28
Table 15 – Variant Binary DataEncoding.....	29
Table 16 – Data Value Binary DataEncoding.....	30
Table 17 – Sample OPC UA Binary Encoded structure.....	32
Table 18 – Sample OPC UA Binary Encoded Structure with optional fields	34
Table 19 – Sample OPC UA Binary Encoded Structure	35
Table 20 – XML Data Type Mappings for Integers.....	37
Table 21 – XML Data Type Mappings for Floating Points	37
Table 22 – Components of NodeId	39
Table 23 – Components of ExpandedNodeId	40
Table 24 – Components of Enumeration	44
Table 25 – JSON Object Definition for a NodeId	48
Table 26 – JSON Object Definition for an ExpandedNodeId	49
Table 27 – JSON Object Definition for a StatusCode	49
Table 28 – JSON Object Definition for a DiagnosticInfo	50
Table 29 – JSON Object Definition for a QualifiedName.....	50
Table 30 – JSON Object Definition for a LocalizedText.....	50

Table 31 – JSON Object Definition for an ExtensionObject	51
Table 32 – JSON Object Definition for a Variant	51
Table 33 – JSON Object Definition for a DataValue	52
Table 34 – JSON Object Definition for a Decimal	52
Table 35 – JSON Object Definition for a <i>Structure</i> with Optional Fields	53
Table 36 – JSON Object Definition for a Union	54
Table 37 – SecurityPolicy	56
Table 38 – Application Instance Certificate	57
Table 39 – Kerberos UserTokenPolicy	59
Table 40 – JWT UserTokenPolicy	59
Table 41 – JWT IssuerEndpointUrl Definition	60
Table 42 – Access Token Claims	61
Table 43 – OPC UA Secure Conversation Message header	63
Table 44 – Asymmetric algorithm Security header	64
Table 45 – Symmetric algorithm Security header	65
Table 46 – Sequence header	65
Table 47 – OPC UA Secure Conversation Message footer	66
Table 48 – OPC UA Secure Conversation Message abort body	67
Table 49 – OPC UA Secure Conversation OpenSecureChannel Service	68
Table 50 – PRF inputs for RSA based SecurityPolicies	70
Table 51 – Cryptography key generation parameters	70
Table 52 – OPC UA Connection Protocol Message header	72
Table 53 – OPC UA Connection Protocol Hello Message	73
Table 54 – OPC UA Connection Protocol Acknowledge Message	74
Table 55 – OPC UA Connection Protocol Error Message	74
Table 56 – OPC UA Connection Protocol ReverseHello Message	75
Table 57 – OPC UA Connection Protocol error codes	78
Table 58 – WebSocket Protocols Mappings	84
Table 59 – Well known addresses for Local Discovery Servers	85
Table A.1 – Identifiers assigned to Attributes	87
Table E.1 – SecuredApplication	94
Table E.2 – CertificateIdentifier	97
Table E.3 – Structured directory store	98
Table E.4 – CertificateStoreIdentifier	99
Table E.5 – CertificateList	99
Table E.6 – CertificateValidationOptions	100
Table F.1 – UANodeSet	102
Table F.2 – UANode	103
Table F.3 – Reference	104
Table F.4 – RolePermission	104
Table F.5 – UANodeSet Type Nodes	104
Table F.6 – UANodeSet Instance Nodes	105
Table F.7 – UAInstance	105

Table F.8 – UAVariable 106

Table F.9 – UAMethod 106

Table F.10 – TranslationType 107

Table F.11 – UADatatype 108

Table F.12 – DataTypeDefinition 108

Table F.13 – DataTypeField 109

Table F.14 – UANodeSetChanges 112

Table F.15 – NodesToAdd 113

Table F.16 – ReferencestoChange 113

Table F.17 – ReferencestoChange 114

Table F.18 – NodestoDelete 114

Table F.19 – ReferencestoChange 114

Table F.20 – UANodeSetChangesStatus 115

Table F.21 – NodeSetStatusList 115

Table F.22 – NodeSetStatus 116

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPC UNIFIED ARCHITECTURE –

Part 6: Mappings

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International Standard 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.

This third edition cancels and replaces the second edition published in 2015. This edition constitutes a technical revision.

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

a) Encodings:

- added JSON encoding for PubSub (non-reversible);
- added JSON encoding for Client/Server (reversible);
- added support for optional fields in structures;
- added support for Unions.

- b) Transport mappings:
- added WebSocket secure connection – WSS;
 - added support for reverse connectivity;
 - added support for session-less service invocation in HTTPS.
- c) Deprecated Transport (missing support on most platforms):
- SOAP/HTTP with WS-SecureConversation (all encodings).
- d) Added mapping for JSON Web Token.
- e) Added support for Unions to NodeSet Schema.
- f) Added batch operations to add/delete nodes to/from NodeSet Schema.
- g) Added support for multi-dimensional arrays outside of Variants.
- h) Added binary representation for Decimal data types.
- i) Added mapping for an OAuth2 Authorization Framework.

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

FDIS	Report on voting
65E/718/FDIS	65E/734/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

Italics are used to denote a defined term or definition that appears in Clause 3 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, 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 of the IEC 62541 series, published under the general title *OPC Unified Architecture*, can be found on the IEC website.

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- reconfirmed,
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OPC UNIFIED ARCHITECTURE –

Part 6: Mappings

1 Scope

This part of IEC 62541 specifies the OPC Unified Architecture (OPC UA) mapping between the security model described in IEC TR 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, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

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

ISO 8601-1:2019, *Date and time – Representations for information interchange – Part 1: Basic rules*

XML Schema Part 2: XML Schema Part 2: Datatypes
<http://www.w3.org/TR/xmlschema-2/>

SOAP Part 1: SOAP Version 1.2 Part 1: Messaging Framework
<http://www.w3.org/TR/soap12-part1/>

SSL/TLS: RFC 5246 – The TLS Protocol Version 1.2
<http://tools.ietf.org/html/rfc5246.txt>

X.509 v3: ISO/IEC 9594-8 (ITU-T Rec. X.509), *Information technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks*

HTTP: RFC 2616 – Hypertext Transfer Protocol – HTTP/1.1
<http://www.ietf.org/rfc/rfc2616.txt>