

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**OPC unified architecture –  
Part 3: Address Space Model**

**INTERNATIONAL STANDARD PREVIEW**  
(standards.iteh.ai)

**Architecture unifiée OPC –  
Partie 3: Modèle de l'Espace d'Adressage**

IEC 62541-3:2015  
<https://standards.iteh.ai/catalog/standards/sist/40c2f21d-0b5c-421e-83d9-05e56f5c53e6/iec-62541-3-2015>





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IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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IEC 62541-3

Edition 2.0 2015-03

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INTERNATIONAL  
ELECTROTECHNICAL  
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INTERNATIONALE

ICS 25.040.40; 35.100

ISBN 978-2-8322-2385-7

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This second edition cancels and replaces the first edition published in 2010. This edition constitutes a technical revision.

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

- a) Added rules for subtyping enumerations in 8.14 (issue number 0606);
- b) Added *Property EnumValues* in 5.8.3 to support integer representation of enumerations that are not zero-based or have gaps (issue number 0876);
- c) Added *Property ValueAsText* in 5.6.2 providing a localized text representation for enumeration values (issue number 0951);

- d) Added *EventType SystemStatusChangeEvent* in 9.31 that can be used to indicate connection to sub system is lost (issue number 1255);
- e) Added *Properties MaxArrayLength and MaxStringLength* in 5.6.2 to identify the maximum string length and array length for clients writing values (issue number 1547);
- f) Removed the concept of *ModelParent* from document as it is not that useful. The *NodeId* of the *ReferenceType* will be kept not breaking existing applications (issue number 1554).
- g) Added *EventType ProgressEventType* in 9.4 identifying the progress of an operation such as a service call (issue number 1557);
- h) Stated in 8.38 that it is allowed to use TAI in all places where UTC time is used to avoid problems with leap seconds (issue number 1563);
- i) Added *Property EngineeringUnits* in 5.6.2 as used in IEC 62541-8 (issue number 1749);
- j) Added *ModellingRules OptionalPlaceholder* and *MandatoryPlaceholder* in 6.4.4.5.5 and 6.4.4.5.6 (issue number 1804).

The text of this standard is based on the following documents:

CDV	Report on voting
65E/374/CDV	65E/402/RVC

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

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This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 [www.iec.ch](http://www.iec.ch).

<https://standards.iteh.ai/catalog/standards/sist/40c2f21d-0b5c-421e-83d9-05e56f5e53ef/iec-62541-3-2015>

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- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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## OPC UNIFIED ARCHITECTURE –

### Part 3: Address Space Model

#### 1 Scope

This part of IEC 62541 describes the OPC Unified Architecture (OPC UA) *AddressSpace* and its *Objects*. This part of IEC 62541 is the OPC UA meta model on which OPC UA information models are based.

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

ISO/IEC 10918-1, *Information technology – Digital compression and coding of continuous-tone still images: Requirements and guidelines*

ISO/IEC 15948, *Information technology – Computer graphics and image processing – Portable Network Graphics (PNG): Functional specification*

ISO 639 (all parts), *Codes for the representation of names of languages*

ISO 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*

IEEE 754-1985, *IEEE Standard for Binary Floating-Point Arithmetic*, <http://ieeexplore.ieee.org/servlet/opac?punumber=2355>

IETF RFC 3066, *Tags for the Identification of Languages*, <http://tools.ietf.org/html/rfc3066>

XML Schema Part 1: <http://www.w3.org/TR/xmlschema-1/>

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

XPATH: <http://www.w3.org/TR/xpath/>

### 3 Terms, definitions, abbreviations and conventions

#### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TR 62541-1 as well as the following apply.

##### 3.1.1

###### **DataType**

instance of a *DataType Node* that is used together with the *ValueRank Attribute* to define the data type of a *Variable*

##### 3.1.2

###### **DataTypeId**

*NodeId* of a *DataType Node*

##### 3.1.3

###### **DataVariable**

*Variables* that represent *values* of *Objects*, either directly or indirectly for complex *Variables*, where the *Variables* are always the *TargetNode* of a *HasComponent Reference*

##### 3.1.4

###### **EventType**

*ObjectType Node* that represents the type definition of an *Event*

##### 3.1.5

###### **hierarchical Reference**

*Reference* that is used to construct hierarchies in the *AddressSpace*

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Note 1 to entry: All hierarchical *ReferenceTypes* are derived from *HierarchicalReferences*.

##### 3.1.6

###### **InstanceDeclaration**

*Node* that is used by a complex *TypeDefinitionNode* to expose its complex structure

Note 1 to entry: It is an instance used by a type definition.

##### 3.1.7

###### **ModellingRule**

metadata of an *InstanceDeclaration* that defines how the *InstanceDeclaration* will be used for instantiation and also defines subtyping rules for an *InstanceDeclaration*

##### 3.1.8

###### **Property**

*Variables* that are the *TargetNode* for a *HasProperty Reference*

Note 1 to entry: *Properties* describe the characteristics of a *Node*.

##### 3.1.9

###### **SourceNode**

*Node* having a *Reference* to another *Node*

EXAMPLE: In the *Reference* "A contains B", "A" is the *SourceNode*.

##### 3.1.10

###### **TargetNode**

*Node* that is referenced by another *Node*

EXAMPLE: In the *Reference* "A Contains B", "B" is the *TargetNode*.