

INTERNATIONAL STANDARD

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**OPC unified architecture –
Part 5: Information Model**

**Architecture unifiée OPC –
Partie 5: Modèle d'informations**

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPC UNIFIED ARCHITECTURE –

Part 5: Information Model

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62541-5 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

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

- a) Defined ProgressEventType in 6.4.35 identifying the progress of an operation such as a service call (issue number 0057);
- b) Defined DataType called BitFieldMaskDataType in 12.18 representing a bit field where individual fields can be written without redefining other fields (issue number 0188);
- c) Delete Property SamplingRateCount in ServerDiagnosticSummaryDataType (12.9) as it was not needed (issue number 0635);

- d) Added the Property “EffectiveTransitionTime” to TransitionVariableType in B.4.4 (issue number 0728);
- e) Introduced VariableType OptionSetType in 7.19 representing a bit mask and text defining the semantic of the individual bits (issue number 0983);
- f) Added a new EventType called SystemStatusChangeEvent in 6.4.30 that can be used to indicate connection to the underlying system is lost (issue number 1416);
- g) Added properties to ServerCapabilitiesType (6.3.2) describing the max array length and string length for variables as well as added an object for operation limits (max size of arrays when calling services (e.g. read)). Added type OperationLimitsType (6.3.11) containing that information (issue number 1451);
- h) Added SecureChannelId to AuditActivateSessionEventType (6.4.10) and adapted text in various places (issue number 1492);
- i) Added normative Annex C defining FileType and Methods used to transfer files (issue number 1502);
- j) Added a Method GetMonitoredItems on ServerType (6.3.1) to receive information on monitored items (issue 1543);
- k) 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 numbers 1555 and 1556).
- l) Added meta data for namespaces in ServerType (6.3.1) and created types for managing that (issue number 1702).
- m) Added representations for ModellingRules OptionalPlaceholder in 8.4.4 and MandatoryPlaceholder in 8.4.5 (issue number 1831);
- n) Added new types NonTransparentNetworkRedundancyType (6.3.10), NetworkGroupDataType (12.19) and EndpointUrlListDataType (12.20) to manage HotAndMirrored redundancy. Added more description on redundancy and updated RedundancySupport enumeration in 12.5 (issue number 2031);

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

CDV	Report on voting
65E/376/CDV	65E/404/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.

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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

OPC UNIFIED ARCHITECTURE –

Part 5: Information Model

1 Scope

This part of IEC 62541 defines the Information Model of the OPC Unified Architecture. The Information Model describes standardised *Nodes* of a *Server's AddressSpace*. These *Nodes* are standardised types as well as standardised instances used for diagnostics or as entry points to server-specific *Nodes*. Thus, the Information Model defines the *AddressSpace* of an empty OPC UA *Server*. However, it is not expected that all *Servers* will provide all of these *Nodes*.

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 62541-3, *OPC unified architecture – Part 3: Address Space Model*

IEC 62541-4, *OPC unified architecture – Part 4: Services*

IEC 62541-6, *OPC unified architecture – Part 6: Mappings*

IEC 62541-7, *OPC unified architecture – Part 7: Profiles*

IEC 62541-9, *OPC unified architecture – Part 9: Alarms and conditions*

IEC 62541-10, *OPC unified architecture – Part 10: Programs*

IEC 62541-11, *OPC unified architecture – Part 11: Historical Access*

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