BS EN 62541-3:2015

BSI Standards Publication

OPC unified architecture

Part 3: Address Space Model

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National foreword

This British Standard is the UK implementation of EN 62541-3:2015. It is identical to IEC 62541-3:2015. It supersedes BS EN 62541-3:2010 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AMT/7, Industrial communications: process measurement and control, including fieldbus.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Amendments/corrigenda issued since publication

Date	Text affected

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English Version

OPC unified architecture - Part 3: Address Space Model (IEC 62541-3:2015)

Architecture unifiée OPC - Partie 3: Modèle de l'Espace d'Adressage
(IEC 62541-3:2015)

OPC Unified Architecture - Teil 3: Adressraummodell
(IEC 62541-3:2015)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

The text of document 65E/374/CDV, future edition 2 of IEC 62541-3, prepared by SC 65E "Devices and integration in enterprise systems", of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62541-3:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-01-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-04-29

This document supersedes EN 62541-3:2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

Endorsement notice

The text of the International Standard IEC 62541-3:2015 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC/TR 62541-1	-	OPC unified architecture - Part 1: Overview and concepts	CLC/TR 62541-1	-
IEC 62541-4	-	OPC Unified Architecture - Part 4: Services	EN 62541-4	-
IEC 62541-5	-	OPC unified architecture - Part 5: Information Model	EN 62541-5	-
IEC 62541-6	-	OPC unified architecture - Part 6: Mappings	EN 62541-6	-
IEC 62541-8	-	OPC Unified Architecture - Part 8: Data Access	EN 62541-8	-
IEC 62541-11	-	OPC unified architecture - Part 11: Historical Access	EN 62541-11	-
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	series	Codes for the representation of names of languages	-	-
ISO 3166	series	Codes for the representation of names of countries and their subdivisions	-	-
ANSI/IEEE 754	1985	IEEE Standard for Binary Floating-Point Arithmetic	-	-

Publication	Year	Title	EN/HD	Year
IETF RFC 3066	-	Tags for the Identification of Languages	-	-
W3C XML Schema Part 1	-	Structures	-	-
W3C XML Schema Part 2	-	Datatypes	-	-
W3C Xpath	-	XML Path Language (XPath)	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPC UNIFIED ARCHITECTURE –

Part 3: Address Space 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 62541-3 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 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 SystemStatusChangeEventType* 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.

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 document using a colour printer.

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/