SS IEC 62541-3 : 2019
IEC 62541-3:2015, IDT
(ICS 25.040.40; 35.100)

SINGAPORE STANDARD

OPC unified architecture

– Part 3 : Address space model

Singapore Standards Council

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The content of this Singapore Standard was approved on 17 October 2019 by the Manufacturing Standards Committee (MSC) under the purview of the Singapore Standards Council.

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The Technical Committee sets up the Working Group on Smart Manufacturing Readiness Level to prepare this standard. The Working Group consists of the following experts who contribute in their *individual capacity*:

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Beckhoff Automation Pte Ltd
INTECH Process Automation Pte Ltd
Nanyang Technological University
Rockwell Automation Southeast Asia Pte Ltd
SESTO Robotics Pte Ltd
Singapore Industrial Automation Association
Singapore Institute of Manufacturing Technology
TÜV SÜD Asia Pacific Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Working Group on Smart Manufacturing Readiness Level set up by the Technical Committee on Smart Manufacturing under the purview of MSC.

This standard is identical with IEC 62541-3:2015, “OPC unified architecture – Part 3 : Address space model”, published by the International Electrotechnical Commission.

NOTE 1 – Reference to International Standards are replaced by applicable Singapore Standards and Technical References.

NOTE 2 – Where numerical values are expressed as decimals, the comma is read as a full point.

This standard is expected to be used by system integrators, government agencies, testing, inspection and certification bodies, professional institutions, institutes of higher learning and training providers.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

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/