SVENSK STANDARD SS-EN IEC 62541-7

Fastställd	Utgåva	Sida	Ansvarig kommitté
2020-11-11	3	1 (1+127)	SEK TK 65

OPC unified architecture – Del 7: Profiler

OPC unified architecture – Part 7: Profiles

Som svensk standard gäller europastandarden EN IEC 62541-7:2020. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 62541-7:2020.

Nationellt förord

Europastandarden EN IEC 62541-7:2020

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62541-7, Third edition, 2020 - OPC unified architecture - Part 7: Profiles**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 62541-7, utgåva 2, 2015, gäller ej fr o m 2023-07-27.

ICS 25.040.40; 35.100.05

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62541-7

August 2020

ICS 35.100.05; 25.040.40

Supersedes EN 62541-7:2015 and all of its amendments and corrigenda (if any)

English Version

OPC unified architecture - Part 7: Profiles (IEC 62541-7:2020)

Architecture unifiée OPC - Partie 7: Profils (IEC 62541-7:2020)

OPC Unified Architecture - Teil 7: Profile (IEC 62541-7:2020)

This European Standard was approved by CENELEC on 2020-07-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 62541-7:2020 E

SEK Svensk Elstandard

SS-EN IEC 62541-7, utg 3:2020

European foreword

The text of document 65E/707/FDIS, future edition 3 of IEC 62541-7, 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 IEC 62541-7:2020.

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) 2021-04-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-07-27

This document supersedes EN 62541-7:2015 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC 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.

Endorsement notice

The text of the International Standard IEC 62541-7:2020 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 are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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/TR 62541-2	-	OPC unified architecture - Part 2: Security model	CLC/TR 62541-2	-
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 62541-6	-	OPC Unified Architecture - Part 6: Mappings	-	-
IEC 62541-8	-	OPC Unified Architecture - Part 8: Data Access	-	-
IEC 62541-9	-	OPC Unified Architecture - Part 9: Alarms and Conditions	-	-
IEC 62541-11	-	OPC Unified Architecture - Part 11: Historical Access	-	-
IEC 62541-12	-	OPC unified architecture - Part 12: Discovery and global services	-	-
IEC 62541-13	-	OPC Unified Architecture - Part 13: Aggregates	-	-
Compliance Part 8 UA Server	-	OPC Test Lab Specification: Part 8 - UA Server	-	-
Compliance Part 9 UA Client	-	OPC Test Lab Specification: Part 9 - UA Client	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPC UNIFIED ARCHITECTURE –

Part 7: Profiles

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
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International Standard IEC 62541-7 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) new functional Profiles:
   - profiles for global discovery and global certificate management;
   - profiles for global KeyCredential management and global access token management;
   - facet for durable subscriptions;
   - standard UA Client Profile;

- profiles for administration of user roles and permissions.

b) new transport Profiles:
   - HTTPS with JSON encoding;
   - secure WebSockets (WSS) with binary or JSON encoding;
   - reverse connectivity.

c) new security Profiles:
   - transportSecurity – TLS 1.2 with PFS (with perfect forward secrecy);
   - securityPolicy [A] – Aes128-Sha256-RsaOaep (replaces Base128Rsa15);
   - securityPolicy – Aes256-Sha256-RsaPss adds perfect forward secrecy for UA TCP);
   - user Token JWT (Jason Web Token).

d) deprecated Security Profiles (due to broken algorithms):
   - securityPolicy – Basic128Rsa15 (broken algorithm Sha1);
   - securityPolicy – Basic256 (broken algorithm Sha1);
   - transportSecurity – TLS 1.0 (broken algorithm RC4);
   - transportSecurity – TLS 1.1 (broken algorithm RC4).

e) deprecated Transport (missing support on most platforms):
   - SOAP/HTTP with WS-SecureConversation (all encodings).

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

FDIS	Report on voting
65E/707/FDIS	65E/725/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.

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

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

Italics are used to denote a defined term or definition that appears in the "Terms and definition" clause in one of the parts of the IEC 62541 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, 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.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document 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 7: Profiles

1 Scope

This part of IEC 62541 defines the OPC Unified Architecture (OPC UA) *Profiles*. The *Profiles* in this document are used to segregate features with regard to testing of OPC UA products and the nature of the testing (tool based or lab based). This includes the testing performed by the OPC Foundation provided OPC UA CTT (a self-test tool) and by the OPC Foundation provided Independent certification test labs. This could equally as well refer to test tools provided by another organization or a test lab provided by another organization. What is important is the concept of automated tool-based testing versus lab-based testing. The scope of this standard includes defining functionality that can only be tested in a lab and defining the grouping of functionality that is to be used when testing OPC UA products either in a lab or using automated tools. The definition of actual *TestCases* is not within the scope of this document, but the general categories of TestCases are within the scope of this document.

Most OPC UA applications will conform to several, but not all, of the *Profiles*.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 62541-6, *OPC Unified Architecture – Part 6: Mappings*

IEC 62541-8, *OPC Unified Architecture – Part 8: Data Access*

IEC 62541-9, *OPC Unified Architecture – Part 9: Alarms and Conditions*

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

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Compliance Part 8 UA Server: OPC Test Lab Specification: Part 8 – UA Server
http://www.opcfoundation.org/Test/Part8/

Compliance Part 9 UA Client: OPC Test Lab Specification: Part 9 – UA Client
http://www.opcfoundation.org/Test/Part9/