



IEC 62541-17

Edition 1.0 2025-12

# INTERNATIONAL STANDARD

---

**OPC unified architecture -  
Part 17: Alias Names**



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2025 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Secretariat  
3, rue de Varembé  
CH-1211 Geneva 20  
Switzerland

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

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

#### IEC publications search -

[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms, definitions and abbreviated terms.....	5
3.1 Terms and definitions.....	5
3.2 Abbreviated terms.....	5
4 Use cases.....	6
4.1 Complex configuration.....	6
4.2 Automatic reconfiguration.....	6
4.3 Cloud based system.....	6
4.4 Aggregated systems .....	6
5 AliasNames Information Model overview .....	6
6 OPC UA ObjectTypes.....	8
6.1 Overview .....	8
6.2 AliasNameType ObjectType Definition .....	8
6.3 AliasNameCategoryType ObjectType Definition .....	8
6.3.1 Definition .....	8
6.3.2 FindAlias Method .....	9
7 OPC UA DataTypes .....	11
7.1 Overview .....	11
7.2 AliasNameDataType .....	11
8 Reference Types .....	11
8.1 Overview .....	11
8.2 AliasFor ReferenceType.....	11
9 Instances .....	12
9.1 Overview .....	12
9.2 Aliases .....	12
9.3 TagVariables.....	12
9.4 Topics .....	13
Annex A (informative) Examples .....	14
A.1 Overview .....	14
A.2 AliasNames used within a single Server.....	14
A.3 AliasNames in an aggregating Server .....	15
A.4 Standalone AliasNames Server.....	16
A.5 Aggregating Server with a collection of Aggregates.....	17
A.6 GDS.....	18
A.7 Client use of an AliasName Server .....	18
Annex B (normative) GDS functionality .....	20
B.1 Overview .....	20
B.2 Register a Server.....	21
B.3 Unregister a Server.....	21
B.4 Disconnect between a Client and an AliasName Server .....	22
Bibliography.....	24
Figure 1 – AliasNames Overview.....	7

Figure 2 – AliasNames Example.....	7
Figure A.1 – AliasNames in a Server example .....	14
Figure A.2 – Aggregating AliasNames Server example .....	15
Figure A.3 – AliasNames Server example .....	16
Figure A.4 – Aggregating Server example 2 .....	17
Figure A.5 – GDS with merged AliasNames example.....	18
Figure B.1 – Example GDS aggregating AliasNames.....	20
Figure B.2 – Server Registration Process.....	21
Figure B.3 – Unregister Server Process .....	22
Figure B.4 – Example Client Process for Server subscription with errors .....	23
 Table 1 – AliasNameType Definition .....	8
Table 2 – AliasNameCategoryType Definition.....	9
Table 3 – FindAlias Method Arguments.....	10
Table 4 – FindAlias Method Error Codes .....	10
Table 5 – FindAlias Method AddressSpace definition .....	10
Table 6 – AliasNameDataType DataType structure .....	11
Table 7 – AliasNameDataType Definition .....	11
Table 8 – AliasFor Definition.....	12
Table 9 – Aliases definition.....	12
Table 10 – TagVariables definition .....	13
Table 11 – Topics definition.....	13

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**OPC unified architecture -  
Part 17: Alias Names****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.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 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.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62541-17 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

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

Draft	Report on voting
65E/1042/CDV	65E/1100/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

Throughout this document and the other Parts of the series, certain document conventions are used:

*Italics* are used to denote a defined term or definition that appears in the “Terms and definitions” clause in one of the parts of the 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 also often 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 in 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 [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## 1 Scope

This part of IEC 62541 provides a definition of *AliasNames* functionality. *AliasNames* provide a manner of configuring and exposing an alternate well-defined name for any *Node* in the system. This is analogous to the way domain names are used as an alias to IP addresses in IP networks. Like a DNS Server, an OPC UA Server that supports *AliasNames* provides a lookup *Method* that will translate an *AliasName* to a *NodeId* of the related *Node* on a *Server*. An aggregating *Server* can collect these *AliasNames* from multiple *Servers* and provide a lookup *Method* to allow *Client* applications to discover *NodeIds* on a system wide basis. An aggregating *Server* could also define *AliasNames* for *Nodes* in other *Servers* that do not support *AliasNames*. A GDS can be constructed that would automatically aggregate all *AliasNames* that are defined on any *Server* that has registered with the GDS. In this case, the GDS also provides the lookup mechanism for *Clients* at a well-known endpoint and address.

## 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 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 62541-5, *OPC Unified Architecture - Part 5: Information Model*

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

IEC 62541-14, *OPC Unified Architecture - Part 14: PubSub*

## Bibliography

ANSI/ISA-S5.1-1984 (R 1992), *Instrumentation Symbols and Identification*, available at <https://webstore.ansi.org/standards/isa/isa1984r1992>

---