

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

---

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

**Architecture unifiée OPC -  
Partie 5: Modèle d'information**

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

IEC 62541-5:2026

<https://standards.iteh.ai/catalog/standards/iec/1828518b-1050-4d74-86bd-1a080ef0c7f2/iec-62541-5-2026>



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2026 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat  
3, rue de Varembe  
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 It also gives information on projects, replaced and withdrawn publications.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.

### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Recherche de publications IEC -

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

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

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

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

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

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications, symboles graphiques et le glossaire. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

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

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 500 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 25 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

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

**Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

|                                                               |    |
|---------------------------------------------------------------|----|
| FOREWORD .....                                                | 15 |
| 1 Scope .....                                                 | 17 |
| 2 Normative references .....                                  | 17 |
| 3 Terms, definitions, abbreviated terms and conventions ..... | 18 |
| 3.1 Terms and definitions .....                               | 18 |
| 3.2 Abbreviated terms .....                                   | 18 |
| 3.3 Conventions for Node descriptions .....                   | 18 |
| 4 NodeIds and BrowseNames .....                               | 20 |
| 4.1 NodeIds .....                                             | 20 |
| 4.2 BrowseNames .....                                         | 21 |
| 5 Common Attributes .....                                     | 21 |
| 5.1 General .....                                             | 21 |
| 5.2 Objects .....                                             | 21 |
| 5.3 Variables .....                                           | 21 |
| 5.4 VariableTypes .....                                       | 22 |
| 5.5 Methods .....                                             | 22 |
| 6 Standard ObjectTypes .....                                  | 23 |
| 6.1 General .....                                             | 23 |
| 6.2 BaseObjectType .....                                      | 23 |
| 6.3 ObjectTypes for the Server Object .....                   | 23 |
| 6.3.1 ServerType .....                                        | 23 |
| 6.3.2 ServerCapabilitiesType .....                            | 26 |
| 6.3.3 ServerDiagnosticsType .....                             | 30 |
| 6.3.4 SessionsDiagnosticsSummaryType .....                    | 31 |
| 6.3.5 SessionDiagnosticsObjectType .....                      | 32 |
| 6.3.6 VendorServerInfoType .....                              | 32 |
| 6.3.7 ServerRedundancyType .....                              | 33 |
| 6.3.8 TransparentRedundancyType .....                         | 33 |
| 6.3.9 NonTransparentRedundancyType .....                      | 34 |
| 6.3.10 NonTransparentNetworkRedundancyType .....              | 34 |
| 6.3.11 OperationLimitsType .....                              | 35 |
| 6.3.12 AddressSpaceFileType .....                             | 37 |
| 6.3.13 NamespaceMetadataType .....                            | 37 |
| 6.3.14 NamespacesType .....                                   | 39 |
| 6.3.15 NonTransparentBackupRedundancyType .....               | 40 |
| 6.4 ObjectTypes used as EventTypes .....                      | 41 |
| 6.4.1 General .....                                           | 41 |
| 6.4.2 BaseEventType .....                                     | 41 |
| 6.4.3 AuditEventType .....                                    | 45 |
| 6.4.4 AuditSecurityEventType .....                            | 46 |
| 6.4.5 AuditChannelEventType .....                             | 46 |
| 6.4.6 AuditOpenSecureChannelEventType .....                   | 47 |
| 6.4.7 AuditSessionEventType .....                             | 48 |
| 6.4.8 AuditCreateSessionEventType .....                       | 48 |
| 6.4.9 AuditUrlMismatchEventType .....                         | 49 |
| 6.4.10 AuditActivateSessionEventType .....                    | 50 |

|        |                                             |    |
|--------|---------------------------------------------|----|
| 6.4.11 | AuditCancelEventType .....                  | 50 |
| 6.4.12 | AuditCertificateEventType.....              | 51 |
| 6.4.13 | AuditCertificateDataMismatchEventType ..... | 51 |
| 6.4.14 | AuditCertificateExpiredEventType.....       | 52 |
| 6.4.15 | AuditCertificateInvalidEventType .....      | 52 |
| 6.4.16 | AuditCertificateUntrustedEventType.....     | 53 |
| 6.4.17 | AuditCertificateRevokedEventType .....      | 53 |
| 6.4.18 | AuditCertificateMismatchEventType .....     | 54 |
| 6.4.19 | AuditNodeManagementEventType .....          | 54 |
| 6.4.20 | AuditAddNodesEventType .....                | 55 |
| 6.4.21 | AuditDeleteNodesEventType.....              | 55 |
| 6.4.22 | AuditAddReferencesEventType .....           | 56 |
| 6.4.23 | AuditDeleteReferencesEventType.....         | 56 |
| 6.4.24 | AuditUpdateEventType .....                  | 57 |
| 6.4.25 | AuditWriteUpdateEventType .....             | 57 |
| 6.4.26 | AuditHistoryUpdateEventType.....            | 58 |
| 6.4.27 | AuditUpdateMethodEventType .....            | 59 |
| 6.4.28 | SystemEventType .....                       | 59 |
| 6.4.29 | DeviceFailureEventType.....                 | 60 |
| 6.4.30 | SystemStatusChangeEventType.....            | 60 |
| 6.4.31 | BaseModelChangeEventType.....               | 61 |
| 6.4.32 | GeneralModelChangeEventType .....           | 61 |
| 6.4.33 | SemanticChangeEventType .....               | 62 |
| 6.4.34 | EventQueueOverflowEventType.....            | 62 |
| 6.4.35 | ProgressEventType.....                      | 63 |
| 6.4.36 | AuditClientEventType.....                   | 64 |
| 6.4.37 | AuditClientUpdateMethodResultEventType..... | 64 |
| 6.5    | ModellingRuleType .....                     | 65 |
| 6.6    | FolderType .....                            | 65 |
| 6.7    | DataTypeEncodingType .....                  | 65 |
| 6.8    | AggregateFunctionType .....                 | 66 |
| 6.9    | BaseInterfaceType.....                      | 66 |
| 6.10   | OrderedListType.....                        | 67 |
| 6.11   | IOrderedObjectType Definition .....         | 67 |
| 7      | Standard VariableTypes .....                | 68 |
| 7.1    | General .....                               | 68 |
| 7.2    | BaseVariableType .....                      | 68 |
| 7.3    | PropertyType .....                          | 69 |
| 7.4    | BaseDataVariableType.....                   | 69 |
| 7.5    | ServerVendorCapabilityType.....             | 70 |
| 7.6    | ServerStatusType .....                      | 70 |
| 7.7    | BuildInfoType .....                         | 71 |
| 7.8    | ServerDiagnosticsSummaryType.....           | 72 |
| 7.9    | SamplingIntervalDiagnosticsArrayType .....  | 72 |
| 7.10   | SamplingIntervalDiagnosticsType.....        | 73 |
| 7.11   | SubscriptionDiagnosticsArrayType .....      | 73 |
| 7.12   | SubscriptionDiagnosticsType .....           | 74 |
| 7.13   | SessionDiagnosticsArrayType.....            | 75 |
| 7.14   | SessionDiagnosticsVariableType.....         | 76 |

|        |                                                           |     |
|--------|-----------------------------------------------------------|-----|
| 7.15   | SessionSecurityDiagnosticsArrayType .....                 | 79  |
| 7.16   | SessionSecurityDiagnosticsType .....                      | 79  |
| 7.17   | OptionSetType .....                                       | 80  |
| 7.18   | SelectionListType .....                                   | 81  |
| 7.19   | AudioVariableType .....                                   | 82  |
| 7.20   | RationalNumberType .....                                  | 83  |
| 7.21   | VectorType .....                                          | 83  |
| 7.22   | 3DVectorType .....                                        | 83  |
| 7.23   | CartesianCoordinatesType .....                            | 84  |
| 7.24   | 3DCartesianCoordinatesType .....                          | 84  |
| 7.25   | OrientationType .....                                     | 85  |
| 7.26   | FrameType .....                                           | 85  |
| 7.27   | BitFieldType .....                                        | 86  |
| 8      | Standard Objects and their Variables .....                | 87  |
| 8.1    | General .....                                             | 87  |
| 8.2    | Objects used to organise the AddressSpace structure ..... | 87  |
| 8.2.1  | Overview .....                                            | 87  |
| 8.2.2  | Root .....                                                | 88  |
| 8.2.3  | Views .....                                               | 88  |
| 8.2.4  | Objects .....                                             | 89  |
| 8.2.5  | Types .....                                               | 90  |
| 8.2.6  | ObjectTypes .....                                         | 90  |
| 8.2.7  | VariableTypes .....                                       | 91  |
| 8.2.8  | ReferenceTypes .....                                      | 92  |
| 8.2.9  | DataTypes .....                                           | 92  |
| 8.2.10 | EventTypes .....                                          | 93  |
| 8.2.11 | InterfaceTypes .....                                      | 94  |
| 8.2.12 | Locations .....                                           | 94  |
| 8.3    | Server Object and its containing Objects .....            | 95  |
| 8.3.1  | General .....                                             | 95  |
| 8.3.2  | Server Object .....                                       | 96  |
| 8.4    | ModellingRule Objects .....                               | 99  |
| 8.4.1  | ExposesItsArray .....                                     | 99  |
| 8.4.2  | Mandatory .....                                           | 99  |
| 8.4.3  | Optional .....                                            | 99  |
| 8.4.4  | OptionalPlaceholder .....                                 | 99  |
| 8.4.5  | MandatoryPlaceholder .....                                | 100 |
| 9      | Standard Methods .....                                    | 100 |
| 9.1    | GetMonitoredItems .....                                   | 100 |
| 9.2    | ResendData .....                                          | 101 |
| 9.3    | SetSubscriptionDurable .....                              | 102 |
| 9.4    | RequestServerStateChange .....                            | 103 |
| 10     | Standard Views .....                                      | 104 |
| 11     | Standard ReferenceTypes .....                             | 104 |
| 11.1   | References .....                                          | 104 |
| 11.2   | HierarchicalReferences .....                              | 104 |
| 11.3   | NonHierarchicalReferences .....                           | 105 |
| 11.4   | HasChild .....                                            | 105 |

|         |                                          |     |
|---------|------------------------------------------|-----|
| 11.5    | Aggregates .....                         | 105 |
| 11.6    | Organizes .....                          | 106 |
| 11.7    | HasComponent.....                        | 106 |
| 11.8    | HasOrderedComponent.....                 | 107 |
| 11.9    | HasProperty.....                         | 107 |
| 11.10   | HasSubtype .....                         | 107 |
| 11.11   | HasModellingRule.....                    | 108 |
| 11.12   | HasTypeDefinition .....                  | 108 |
| 11.13   | HasEncoding.....                         | 109 |
| 11.14   | HasEventSource.....                      | 109 |
| 11.15   | HasNotifier.....                         | 109 |
| 11.16   | GeneratesEvent.....                      | 110 |
| 11.17   | AlwaysGeneratesEvent .....               | 110 |
| 11.18   | HasArgumentDescription.....              | 111 |
| 11.19   | HasOptionalInputArgumentDescription..... | 111 |
| 11.20   | HasInterface .....                       | 111 |
| 11.21   | HasAddIn.....                            | 112 |
| 11.22   | IsDeprecated.....                        | 112 |
| 11.23   | HasStructuredComponent.....              | 113 |
| 11.24   | AssociatedWith.....                      | 113 |
| 11.25   | HasKeyValueDescription .....             | 113 |
| 12      | Standard DataTypes .....                 | 114 |
| 12.1    | General .....                            | 114 |
| 12.2    | DataTypes defined in IEC 62541-3 .....   | 114 |
| 12.2.1  | BaseDataType.....                        | 114 |
| 12.2.2  | Boolean .....                            | 114 |
| 12.2.3  | ByteString.....                          | 115 |
| 12.2.4  | DateTime .....                           | 117 |
| 12.2.5  | Enumeration.....                         | 118 |
| 12.2.6  | Guid .....                               | 119 |
| 12.2.7  | LocalizedText.....                       | 119 |
| 12.2.8  | NodeId.....                              | 120 |
| 12.2.9  | Number.....                              | 120 |
| 12.2.10 | QualifiedName.....                       | 125 |
| 12.2.11 | String .....                             | 126 |
| 12.2.12 | Structure.....                           | 128 |
| 12.2.13 | XmlElement.....                          | 132 |
| 12.3    | DataTypes defined in IEC 62541-4 .....   | 133 |
| 12.3.1  | AddNodesItem.....                        | 133 |
| 12.3.2  | AddReferencesItem.....                   | 133 |
| 12.3.3  | ApplicationDescription .....             | 133 |
| 12.3.4  | ContentFilter .....                      | 134 |
| 12.3.5  | DataValue .....                          | 134 |
| 12.3.6  | DeleteNodesItem .....                    | 134 |
| 12.3.7  | DeleteReferencesItem .....               | 135 |
| 12.3.8  | DiagnosticInfo .....                     | 135 |
| 12.3.9  | ExpandedNodeId .....                     | 135 |
| 12.3.10 | MessageSecurityMode .....                | 136 |
| 12.3.11 | NumericRange.....                        | 136 |

|         |                                                                            |     |
|---------|----------------------------------------------------------------------------|-----|
| 12.3.12 | SecurityTokenRequestType .....                                             | 136 |
| 12.3.13 | SignedSoftwareCertificate.....                                             | 137 |
| 12.3.14 | StatusCode .....                                                           | 137 |
| 12.3.15 | UserIdentityToken.....                                                     | 137 |
| 12.3.16 | VersionTime .....                                                          | 139 |
| 12.4    | BuildInfo .....                                                            | 139 |
| 12.5    | RedundancySupport.....                                                     | 140 |
| 12.6    | ServerState.....                                                           | 141 |
| 12.7    | RedundantServerDataType.....                                               | 142 |
| 12.8    | SamplingIntervalDiagnosticsDataType .....                                  | 142 |
| 12.9    | ServerDiagnosticsSummaryDataType .....                                     | 143 |
| 12.10   | ServerStatusDataType .....                                                 | 144 |
| 12.11   | SessionDiagnosticsDataType.....                                            | 145 |
| 12.12   | SessionSecurityDiagnosticsDataType .....                                   | 147 |
| 12.13   | ServiceCounterDataType.....                                                | 148 |
| 12.14   | StatusResult .....                                                         | 149 |
| 12.15   | SubscriptionDiagnosticsDataType .....                                      | 150 |
| 12.16   | ModelChangeStructureDataType.....                                          | 151 |
| 12.17   | SemanticChangeStructureDataType .....                                      | 153 |
| 12.18   | BitFieldMaskDataType .....                                                 | 153 |
| 12.19   | NetworkGroupDataType .....                                                 | 154 |
| 12.20   | EndpointUrlListDataType.....                                               | 154 |
| 12.21   | KeyValuePair .....                                                         | 155 |
| 12.22   | RationalNumber.....                                                        | 155 |
| 12.23   | Vector .....                                                               | 156 |
| 12.24   | 3DVector .....                                                             | 156 |
| 12.25   | CartesianCoordinates.....                                                  | 157 |
| 12.26   | 3DCartesianCoordinates .....                                               | 157 |
| 12.27   | Orientation.....                                                           | 158 |
| 12.28   | Frame .....                                                                | 158 |
| 12.29   | DataTypeSchemaHeader.....                                                  | 159 |
| 12.30   | DataTypeDescription.....                                                   | 160 |
| 12.31   | StructureDescription .....                                                 | 160 |
| 12.32   | EnumDescription .....                                                      | 161 |
| 12.33   | SimpleTypeDescription.....                                                 | 161 |
| 12.34   | UABinaryFileDataType .....                                                 | 162 |
| 12.35   | PortableQualifiedName .....                                                | 163 |
| 12.36   | PortableNodeId .....                                                       | 163 |
| 12.37   | UriString .....                                                            | 164 |
| 12.38   | UnsignedRationalNumber .....                                               | 164 |
| 12.39   | SemanticVersionString DataType .....                                       | 165 |
| 12.40   | Handle.....                                                                | 167 |
| 12.41   | TrimmedString.....                                                         | 167 |
| 12.42   | RedundantServerMode.....                                                   | 167 |
| 12.43   | BitFieldDefinition .....                                                   | 168 |
| 12.43.1 | Type Definition .....                                                      | 168 |
| 12.43.2 | Example (informative).....                                                 | 169 |
| Annex A | (informative) Design decisions when modelling the server information ..... | 172 |
| A.1     | Overview .....                                                             | 172 |