IEC 62541-11

Edition 3.0 2025-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

OPC unified architecture - Part 11: Historical Access

Architecture unifiée OPC - Partie 11: Accès à l'historique

ICS 25.040.40, 35.100.05

ISBN 978-2-8327-0846-0



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CONTENTS

FOREWORD....5
1 Scope....7
2 Normative references....7
3 Terms, definitions and abbreviations....7
3.1 Terms and definitions....7
3.2 Abbreviated terms....9
4 Concepts....10
4.1 General....10
4.2 Data architecture....10
4.3 Historians and interruption of data collection....11
4.4 Modification of Historical Data/Events....11
4.5 Timestamps....12
4.6 Bounding Values and time domain....12
4.7 Changes in AddressSpace over time....14
5 Historical Information Model....15
5.1 HistoricalNodes....15
5.1.1 General....15
5.1.2 Annotations Property....15
5.2 HistoricalDataNodes....16
5.2.1 General....16
5.2.2 HistoricalDataConfigurationType....16
5.2.3 Attributes....18
5.2.4 Historical Data Configuration Object....18
5.3 References....19
5.3.1 Overview....19
5.3.2 HasHistoricalConfiguration ReferenceType....19
5.3.3 HasCurrentData ReferenceType....20
5.3.4 HasCurrentEvent ReferenceType....20
5.4 HistoricalEventNodes....21
5.4.1 General....21
5.4.2 HistoricalEventFilter Property....21
5.4.3 HistoricalEventConfigurationType....22
5.4.4 HistoricalEventNode Attributes....22
5.5 External History sources....23
5.5.1 General....23
5.5.2 External Historical Event Node....23
5.6 Example Object Models in Historian Servers (informative)....24
5.6.1 Overview....24
5.6.2 HistoricalDataNodes Address Space Model....24
5.6.3 Historical data....25
5.6.4 HistoricalEventNodes Address Space Model....26
5.6.5 Historical Events....27
5.7 Exposing supported functions and capabilities....28
5.7.1 General....28
5.7.2 HistoryServerCapabilitiesType....29
5.7.3 Default configuration....32
5.8 Historical Audit Events....33

5.8.1 General 33
5.8.2 AuditHistoryEventUpdateEventType 33
5.8.3 AuditHistoryValueUpdateEventType 34
5.8.4 AuditHistoryAnnotationUpdateEventType 34
5.8.5 AuditHistoryDeleteEventType 35
5.8.6 AuditHistoryRawModifyDeleteEventType 36
5.8.7 AuditHistoryAtTimeDeleteEventType 37
5.8.8 AuditHistoryEventDeleteEventType 37
5.8.9 AuditHistoryConfigurationChangeEventType 38
5.8.10 AuditHistoryBulkInsertEventType 38
6 Historical Access specific usage of Services 39
6.1 General 39
6.2 Historical Nodes StatusCodes 40
6.2.1 Overview 40
6.2.2 Operation level result codes 40
6.2.3 Semantics changed 42
6.3 Continuation Points 42
6.4 Arrays, index ranges and substrings 42
6.5 HistoryReadDetails parameters 44
6.5.1 Overview 44
6.5.2 ReadEventDetails structure 46
6.5.3 ReadRawModifiedDetails structure 49
6.5.4 ReadProcessedDetails structure 51
6.5.5 ReadAtTimeDetails structure 53
6.5.6 ReadAnnotationDataDetails structure 54
6.6 HistoryData parameters returned 55
6.6.1 Overview 55
6.6.2 HistoryData type 55
6.6.3 HistoryModifiedData type 55
6.6.4 HistoryEvent DataType 56
6.6.5 HistoryModifiedEvent DataType 56
6.6.6 Annotation DataType 57
6.7 HistoryUpdateType Enumeration 58
6.8 PerformUpdateType Enumeration 58
6.9 HistoryUpdateDetails parameter 59
6.9.1 Overview 59
6.9.2 UpdateDataDetails structure 61
6.9.3 UpdateStructureDataDetails structure 63
6.9.4 UpdateEventDetails structure 64
6.9.5 DeleteRawModifiedDetails structure 67
6.9.6 DeleteAtTimeDetails structure 68
6.9.7 DeleteEventDetails structure 68
Annex A (informative) Client conventions 70
A.1 How clients can request timestamps 70
A.2 Determining the first or last historical data point 71
Bibliography 73

Figure 1 – Possible OPC UA Server supporting Historical Access 10

Figure 2 – ReferenceType hierarchy....19
Figure 3 – Historical Variable with Historical Data Configuration and Annotations....25
Figure 4 – Historical Variable with Historical Data Configuration and Annotations....26
Figure 5 – Representation of an Event with History in the AddressSpace....27
Figure 6 – Event History configuration example....28
Figure 7 – Server and HistoryServer Capabilities....29
Figure 8 – History Array example....43
Figure 9 – Historian Array Illustration 2....44

Table 1 – Bounding Value examples....13
Table 2 – Annotations Property....15
Table 3 – HistoricalDataConfigurationType definition....16
Table 4 – ExceptionDeviationFormat Items....18
Table 5 – ExceptionDeviationFormat definition....18
Table 6 – Historical Access configuration definition....19
Table 7 – HasHistoricalConfiguration ReferenceType....20
Table 8 – HasCurrentData ReferenceType....20
Table 9 – HasCurrentEvent ReferenceType....21
Table 10 – Standard Historical Events Properties....22
Table 11 – HistoricalEventConfigurationType definition....22
Table 12 – HistoricalExternalEventSourceType definition....23
Table 13 – HistoryServerCapabilitiesType Definition....30
Table 14 – DefaultHAConfiguration definition....32
Table 15 – DefaultHEConfiguration definition....32
Table 16 – AuditHistoryEventUpdateEventType definition....33
Table 17 – AuditHistoryValueUpdateEventType definition....34
Table 18 – AuditHistoryAnnotationUpdateEventType definition....35
Table 19 – AuditHistoryDeleteEventType definition....36
Table 20 – AuditHistoryRawModifyDeleteEventType definition....36
Table 21 – AuditHistoryAtTimeDeleteEventType definition....37
Table 22 – AuditHistoryEventDeleteEventType definition....38
Table 23 – AuditHistoryConfigurationChangeEventType definition....38
Table 24 – AuditHistoryBulkInsertEventType definition....39
Table 25 – Bad operation level result codes....40
Table 26 – Good operation level result codes....41
Table 27 – HistoryReadDetails parameter Symbolic Names....45
Table 28 – HistoryReadDetails definition....46
Table 29 – ReadEventDetails Structure....46
Table 30 – ReadEventDetails definition....46
Table 31 – ReadEventDetails2 Structure....47
Table 32 – ReadEventDetails2 definition....48
Table 33 – ReadRawModifiedDetails structure....49
Table 34 – ReadRawModifiedDetails definition....49

Table 35 – ReadProcessedDetails structure 51
Table 36 – ReadProcessedDetails definition 52
Table 37 – ReadAtTimeDetails structure 53
Table 38 – ReadAtTimeDetails definition 53
Table 39 – ReadAnnotationDataDetails Structure 54
Table 40 – ReadAnnotationDataDetails definition 54
Table 41 – HistoryData structure 55
Table 42 – HistoryData definition 55
Table 43 – HistoryModifiedData structure 55
Table 44 – HistoryModifiedData definition 56
Table 45 – HistoryEvent structure 56
Table 46 – HistoryEvent definition 56
Table 47 – HistoryModifiedEvent structure 57
Table 48 – HistoryModifiedEvent definition 57
Table 49 – Annotation Structure 57
Table 50 – *Annotation* definition 58
Table 51 – HistoryUpdateType Items 58
Table 52 – HistoryUpdateType definition 58
Table 53 – PerformUpdateType Items 58
Table 54 – PerformUpdateType definition 59
Table 55 – HistoryUpdateDetails parameter Symbolic Names 60
Table 56 – HistoryUpdateDetails Structure 61
Table 57 – HistoryUpdateDetails definition 61
Table 58 – UpdateDataDetails Structure 61
Table 59 – UpdateDataDetails definition 62
Table 60 – UpdateStructureDataDetails Structure 63
Table 61 – UpdateStructureDataDetails definition 63
Table 62 – UpdateEventDetails Structure 65
Table 63 – UpdateEventDetails definition 65
Table 64 – DeleteRawModifiedDetails Structure 67
Table 65 – DeleteRawModifiedDetails definition 67
Table 66 – DeleteAtTimeDetails Structure 68
Table 67 – DeleteAtTimeDetails definition 68
Table 68 – DeleteEventDetails Structure 68
Table 69 – DeleteEventDetails definition 69
Table A.1 – Time keyword definitions 71
Table A.2 – Time offset definitions 71

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OPC unified architecture - Part 11: Historical Access

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IEC 62541-11 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.

This fourth edition cancels and replaces the third edition published in 2020. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) a functionality has been added to support retrieving of modified events;
b) an Event has been added to indicate when a backfill occurred;
c) a new ReferenceType that can be used to indicate an external node has been defined;
d) the text has been improved to better explain the concept of annotation and remove conflicting explanations;

e) a default historian configuration (and where to find it) has been defined;

f) HistoricalEventConfigurationType, which provides general configuration information about the historical Event storage, has been added;

g) the text has been updated and optional fields have been added to HA configuration object to allow configuration to be defined for periodic data collection, not just for exception-based collection;

h) an ObjectType that can be used for external event collection has been provided as well as an example how historians can be configured.

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

Draft	Report on voting
65E/1058/CDV	65E/1096/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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 definitions" 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 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 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 belongs to the OPC Unified Architecture standards series and defines the *Information Model* associated with Historical Access (HA). It particularly includes additional and complementary descriptions of the *NodeClass*es and *Attributes* needed for Historical Access, additional standard *Properties*, and other information and behaviour.

The complete *AddressSpace* Model including all *NodeClass*es and *Attributes* is specified in IEC 62541-3. The predefined *Information Model* is defined in IEC 62541-5. The *Services* to detect and access historical data and events, and description of the *ExtensibleParameter* types are specified in IEC 62541-4.

This document includes functionality to compute and return *Aggregates* like minimum, maximum, average etc. The *Information Model* and the concrete working of *Aggregates* are defined in IEC 62541-13.

Conventions for Historical Access Clients are informatively provided in Annex A.

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 62541-7, *OPC Unified Architecture - Part 7: Profiles*

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

IEC 62541-13, *OPC Unified Architecture - Part 13: Aggregates*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62541-1, IEC 62541-3, IEC 62541-4, IEC 62541-13 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/

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