

INTERNATIONAL STANDARD

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**OPC unified architecture -
Part 20: File transfer**

**Architecture unifiée OPC -
Partie 20: Transfert de fichiers**

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OPC unified architecture - Part 20: File Transfer

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IEC 62541-20 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/1045/CDV	65E/1102/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 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 in the data related to the specific document. At this date, the document will be

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1 Scope

This part of IEC 62541, the IEC standards series dedicated to the OPC Unified Architecture, defines an Information Model. The Information Model describes the basic infrastructure to model file transfers.

NOTE In the previous version, File Transfer was in IEC 62541-5:2020, Annex C.

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*

3 Terms and definitions

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62541-1, IEC 62541-3 and IEC 62541-5 apply.

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 File transfer model

4.1 Overview

This document describes an information model for file transfer. Files could be modelled in OPC UA as simple Variables using ByteStrings. However, the overall message size in OPC UA is limited due to resources and security issues (denial of service attacks). Only accessing parts of the array can lead to concurrency issues if one client is reading the array while others are manipulating it. Therefore, the *ObjectType FileType* is defined representing a file with *Methods* to access the file. The life-cycle of a file stored on a hard disk and an instance of the *FileType* representing the file in an OPC UA *AddressSpace* can be independent.

In addition to representing individual files this document also defines a way to represent a whole file system or a part of a file system. This can be done using the *FileDirectoryType* in combination with the *FileType*. The *FileDirectoryType* provides *Methods* to create, delete, and move files and directories. The root of a file system or part of a file system is represented by an instance of the *FileDirectoryType* with the *BrowseName FileSystem*. All directories below the root directory are represented by instances of the *FileDirectoryType* or a subtype. All files below the root directory are represented by instances of the *FileType* or a subtype.