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# INTERNATIONAL STANDARD



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**OPC unified architecture –  
Part 10: Programs**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## OPC UNIFIED ARCHITECTURE –

### Part 10: Programs

#### 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.
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IEC 62541-10 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 includes several clarifications and in addition the following significant technical changes with respect to the previous edition:

- a) Changed ProgramType to ProgramStateMachineType. This is in line with the NodeSet (and thus implementations). In ProgramDiagnosticDataType: changed the definition of lastInputArguments and lastOutputArguments and added two additional fields for the argument values. Also changed StatusResult into StatusCode. Created new version of the type to ProgramDiagnostic2DataType.
- b) Changed Optional modelling rule to OptionalPlaceholder for Program control Methods. Following the clarification in IEC 62541-3, this now allows subtypes (or instances) to add arguments.

The text of this standard is based on the following documents:

FDIS	Report on voting
65E/719/FDIS	65E/735/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 Clause 3 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, 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

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# OPC UNIFIED ARCHITECTURE –

## Part 10: Programs

### 1 Scope

This part of IEC 62541 ~~is part of the overall OPC Unified Architecture (OPC UA) standard series and~~ defines the *information model* associated with *Programs* in the OPC Unified Architecture. This includes the description of the *NodeClasses*, standard *Properties*, *Methods* and *Events* and associated behaviour and information for *Programs*.

The complete Address Space model including all *NodeClasses* and *Attributes* is specified in IEC 62541-3. The *Services* such as those used to invoke the *Methods* used to manage *Programs* are specified in IEC 62541-4.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 62541-3:~~2015~~, *OPC Unified Architecture – Part 3: Address Space Model*

IEC 62541-4:~~2015~~, *OPC Unified Architecture – Part 4: Services*

IEC 62541-5:~~2015~~, *OPC Unified Architecture – Part 5: Information Model*

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

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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**OPC unified architecture –  
Part 10: Programs**

**Architecture unifiée OPC –  
Partie 10: Programmes**



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

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

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## ARCHITECTURE UNIFIÉE OPC –

### Partie 10: Programmes

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L'IEC 62541-10 a été établie par le sous-comité 65E: Les dispositifs et leur intégration dans les systèmes de l'entreprise, du comité d'études 65 de l'IEC: Mesure, commande et automation dans les processus industriels.

Cette troisième édition annule et remplace la deuxième édition parue en 2015.

Cette édition inclut plusieurs clarifications ainsi que les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) remplacement de ProgramType par ProgramStateMachineType, conformément au NodeSet (et donc aux mises en œuvre). Dans le programme ProgramDiagnosticDataType, modification des définitions de lastInputArguments et lastOutputArguments, et ajout de deux champs complémentaires pour les valeurs d'arguments. Remplacement également de StatusResult par StatusCode. Création d'une nouvelle version du type de ProgramDiagnostic2DataType;



- b) remplacement de la règle de modélisation Facultative par OptionalPlaceholder pour les Méthodes de Commande de Programme. Ceci fait suite à la clarification apportée dans l'IEC 62541-3, et permet aux sous-types (ou instances) d'ajouter des arguments.

Le texte de cette norme est issu des documents suivants:

FDIS	Rapport de vote
65E/719/FDIS	65E/735/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Dans l'ensemble du présent document et dans les autres parties de la série IEC 62541, certaines conventions de document sont utilisées:

Le format *italique* est utilisé pour mettre en évidence un terme défini ou une définition qui apparaît à l'Article 3 dans l'une des parties de la série.

Le format *italique* est également utilisé pour mettre en évidence le nom d'un paramètre d'entrée ou de sortie de service, ou le nom d'une structure ou d'un élément de structure habituellement défini dans les tableaux.

Par ailleurs, les *termes* et les *noms en italique* sont, à quelques exceptions près, écrits en camel-case (pratique qui consiste à joindre, sans espace, les éléments des mots ou expressions composés, la première lettre de chaque élément étant en majuscule). Par exemple, le terme défini est *AddressSpace* et non Espace d'adressage. Cela permet de mieux comprendre qu'il existe une définition unique pour *AddressSpace*, et non deux définitions distinctes pour Espace et pour Adressage.

Une liste de toutes les parties de la série IEC 62541, publiées sous le titre général *Architecture unifiée OPC*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives au document recherché. A cette date, le document sera

- reconduit,
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- amendé.

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## ARCHITECTURE UNIFIÉE OPC –

### Partie 10: Programmes

#### 1 Domaine d'application

La présente partie de l'IEC 62541 définit le *modèle d'information* associé avec des *Programmes* dans l'Architecture unifiée OPC. Elle comprend la description des *NodeClasses*, des *Propriétés*, *Méthodes* et *Evénements* normalisés et du comportement associé ainsi que des informations relatives aux *Programmes*.

Le modèle d'espace d'adressage complet, comprenant toutes les *NodeClasses* et tous les *Attributs*, est spécifié dans l'IEC 62541-3. Les *Services* tels que ceux utilisés pour invoquer les *Méthodes* appliquées pour gérer les *Programmes* sont spécifiés dans l'IEC 62541-4.

#### 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC TR 62541-1, *OPC Unified Architecture – Part 1: Overview and Concepts* (disponible en anglais seulement)

IEC 62541-3, *Architecture unifiée OPC – Partie 3: Modèle d'espace d'adressage*

IEC 62541-4, *Architecture unifiée OPC – Partie 4: Services*

IEC 62541-5, *Architecture unifiée OPC – Partie 5: Modèle d'Information*

IEC 62541-7, *Architecture unifiée OPC – Partie 7: Profils*