

**SLOVENSKI STANDARD**  
**SIST-TP CLC IEC/TR 62453-51-90:2019**  
**01-junij-2019**

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**Specifikacija vmesnika orodja procesne naprave - 51-90. del: Implementacija komunikacije za skupni model objekta - IEC 61784 CPF 9 (IEC/TR 62453-51-90:2017)**

Field device tool (FDT) interface specification - Part 51-90: Communication implementation for common object model - IEC 61784 CPF 9 (IEC/TR 62453-51-90:2017)

Field Device Tool (FDT)-Schnittstellenspezifikation - Teil 51-90: Kommunikationsimplementierung mit dem allgemeinen Objektmodell (COM) - Kommunikationsprofilfamilie (CPF) 9 nach IEC 61784 (IEC/TR 62453-51-90:2017)

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 51-90: Mise en oeuvre d'un profil de communication pour le modèle d'objet commun - CPF 9 de l'IEC 61784 (IEC/TR 62453-51-90:2017)

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**CLC/TR 62453-51-90**

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Field device tool (FDT) interface specification - Part 51-90:  
Communication implementation for common object model - IEC  
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(IEC/TR 62453-51-90:2017)

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 51-90: Mise en œuvre d'un profil de communication pour le modèle d'objet commun - CPF 9 de l'IEC 61784  
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(IEC/TR 62453-51-90:2017)

This Technical Report was approved by CENELEC on 2019-01-07.

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

CLC/TR 62453-51-90:2019 (E)

## European foreword

This document (CLC/TR 62453-51-90:2019) consists of the text of the IEC/TR 62453-51-90:2017 prepared by IEC/TC 65 "Industrial-process measurement, control and automation".

### Endorsement notice

The text of the International Standard IEC TR 62453-51-90:2017 was approved by CENELEC as a European Standard without any modification.

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61784-1	2014	Industrial communication networks - Profiles - Part 1: Fieldbus profiles	EN 61784-1	2014
IEC 62453-1	2016	Field device tool (FDT) interface specification - Part 1: Overview and guidance	EN 62453-1	2017
IEC 62453-2	2016	Field device tool (FDT) interface specification - Part 2: Concepts and detailed description	EN 62453-2	2017
IEC TR 62453-41	2016	Field device tool (FDT) interface specification - Part 41: Object model integration profile - Common object model	-	-
IEC 62453-309	2016	Field device tool (FDT) interface specification - Part 309: Communication profile integration - IEC 61784 CPF 9	EN 62453-309	2017

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# TECHNICAL REPORT



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**Field device tool (FDT) interface specification –  
Part 51-90: Communication implementation for common object model –  
IEC 61784 CPF 9**

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INTERNATIONAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

**Part 51-90: Communication implementation for common object model –  
IEC 61784 CPF 9**

## 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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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC TR 62453-51-90, which is a technical report, has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process management, control and automation.

This document cancels and replaces IEC TR 62453-509 published in 2009. This edition constitutes a technical revision. The main changes provide support for the updated HART protocol.

Each part of the IEC 62453-51-xy series is intended to be read in conjunction with its corresponding part in the IEC 62453-3xy series. This document corresponds to IEC 63453-309.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
65E/440/DTR	65E/514/RVC

Full information on the voting for the approval of this technical report 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.

The list of all parts of the IEC 62453 series, under the general title *Field device tool (FDT) interface specification*, 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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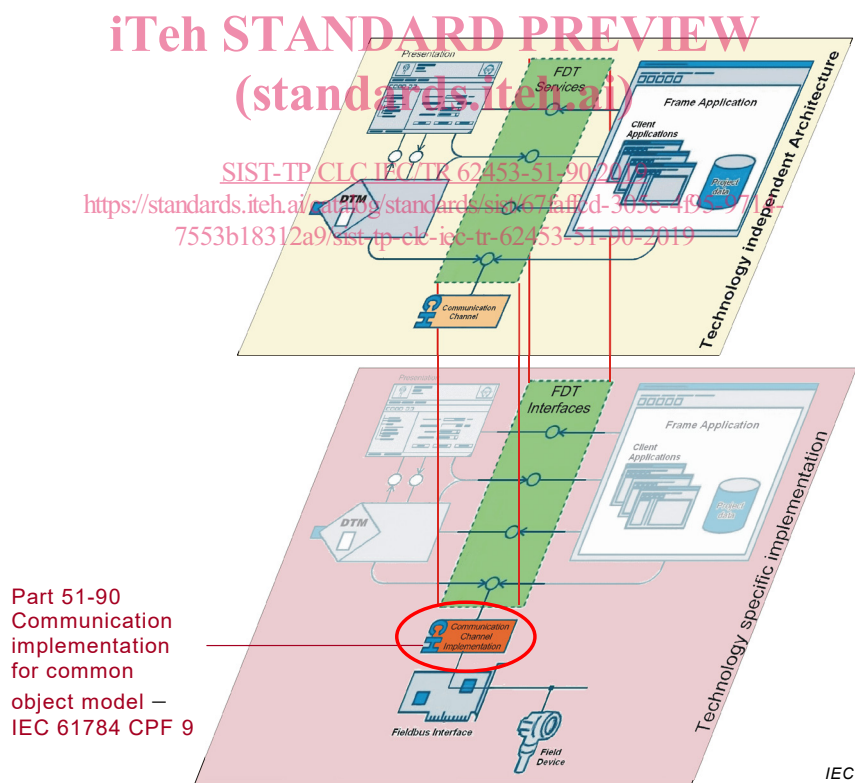
## INTRODUCTION

This part of IEC 62453 is an interface specification for developers of Field Device Tool (FDT) components for function control and data access within a client/server architecture. The specification is a result of an analysis and design process to develop standard interfaces to facilitate the development of servers and clients by multiple vendors that need to interoperate seamlessly.

With the integration of fieldbuses into control systems, there are a few other tasks which need to be performed. In addition to fieldbus- and device-specific tools, there is a need to integrate these tools into higher-level system-wide planning or engineering tools. In particular, for use in extensive and heterogeneous control systems, typically in the area of the process industry, the unambiguous definition of engineering interfaces that are easy to use for all those involved is of great importance.

A device-specific software component, called Device Type Manager (DTM), is supplied by the field device manufacturer with its device. The DTM is integrated into engineering tools via the FDT interfaces defined in this specification. The approach to integration is in general open for all kind of fieldbuses and thus meets the requirements for integrating different kinds of devices into heterogeneous control systems.

Figure 1 shows how this part of IEC 62453-51-xy series is aligned in the structure of the IEC 62453 series.



**Figure 1 – Part 51-90 of the IEC 62453 series**

## FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

### Part 51-90: Communication implementation for common object model – IEC 61784 CPF 9

#### 1 Scope

This part of the IEC 62453-51-xy series, which is a Technical Report, provides information for integrating the HART®<sup>1</sup> technology into the COM-based implementation of FDT interface specification (IEC TR 62453-41).

This part of IEC 62453 specifies the implementation of communication and other services based on IEC 62453-309.

This document neither contains the FDT specification nor modifies it.

#### 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 61784-1:2014, *Industrial communication networks – Profiles – Part 1: Fieldbus profiles*  
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IEC 62453-1:2016, *Field device tool (FDT) interface specification – Part 1: Overview and guidance*

IEC 62453-2:2016, *Field device tool (FDT) interface specification – Part 2: Concepts and detailed description*

IEC TR 62453-41:2016, *Field device tool (FDT) interface specification – Part 41: Object model integration profile – Common object model*

IEC 62453-309:2016, *Field device tool (FDT) interface specification – Part 309: Communication profile integration – IEC 61784 CPF 9*

#### 3 Terms, definitions, symbols, abbreviated terms and conventions

##### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62453-1, IEC 62453-2, IEC TR 62453-41 and IEC 62453-309 apply.

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<sup>1</sup> HART ® is the trade name of a product supplied by HART Communication Foundation. This information is given for convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

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

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

### 3.2 Symbols and abbreviated terms

For the purposes of this document, the symbols and abbreviations given in IEC 62453-1, IEC 62453-2, IEC 62453-309, and IEC TR 62453-41 apply.

### 3.3 Conventions

#### 3.3.1 Data type names and references to data types

The conventions for naming and referencing of data types are explained in IEC 62453-2:2016, Clause A.1.

#### 3.3.2 Vocabulary for requirements

The following expressions are used when specifying requirements.

Usage of “shall” or “mandatory” No exceptions allowed.

Usage of “should” or “recommended” Strong recommendation. It may make sense in special exceptional cases to differ from the described behaviour.

Usage of “can” or “optional” Function or behaviour may be provided, depending on defined conditions.

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## 4 Bus category

IEC 61784 CPF 9 protocol is identified in the attribute busCategory of the BusCategory element by the identifiers, as specified in IEC 62453-309.

## 5 Access to instance and device data

Used at methods:

- IDtmParameter methods
- IDtmSingleDeviceDataAccess methods
- IDtmSingleInstanceDataAccess methods

These methods (if supported according IEC TR 62453-41) shall provide access to at least all parameters defined in IEC 62453-309.

## 6 Protocol specific usage of general data types

Table 1 shows how general data types are used with IEC 61784 CPF 9 devices.