

# TECHNICAL REPORT



---

**Field device tool (FDT) interface specification –  
Part 62: Field device tool (FDT) styleguide for common language infrastructure**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 25.040.40; 35.100.05; 35.110

ISBN 978-2-8322-3793-9

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

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms, definitions, symbols, abbreviated terms and conventions .....	7
3.1 Terms and definitions.....	7
3.2 Symbols and abbreviated terms .....	8
3.3 Conventions.....	8
3.3.1 Data type names and references to data types .....	8
3.3.2 Vocabulary for requirements .....	8
3.3.3 Specific formatting .....	8
4 Fundamentals of designing DTM user interfaces.....	8
5 Benefits from the FDT user’s point of view.....	9
6 DTM user interface .....	10
6.1 Objective .....	10
6.2 Appearance .....	10
6.2.1 General .....	10
6.2.2 DTM user interface categories .....	10
6.2.3 DTM user interface areas .....	13
6.3 General behaviour .....	20
6.3.1 General .....	20
6.3.2 WPF user interfaces .....	20
6.3.3 UI navigation .....	21
6.3.4 UI resize .....	21
6.3.5 Display of information .....	21
6.3.6 Use of modal user interfaces .....	22
7 Parameter handling .....	22
7.1 Representation within Application Area .....	22
7.2 Change of parameter values .....	22
7.2.1 Relation between parameters .....	22
7.2.2 Block mode.....	22
7.2.3 Direct Mode.....	22
7.2.4 Continuous Check and One Time Check.....	23
7.3 Representation of parameters .....	24
7.3.1 Parameter value and associated information.....	24
7.3.2 Parameter value modifications .....	25
8 Applications of a DTM.....	25
8.1 General.....	25
8.2 Application categories.....	26
8.2.1 Online application/data source: device.....	26
8.2.2 Offline application/data source: data set .....	26
8.2.3 Synchronized application/data source: data set and device .....	26
8.3 User role related default application.....	27
8.4 Main Operation .....	27
8.5 Typical workflow .....	27
8.5.1 General .....	27

8.5.2	Parameterize device offline.....	27
8.5.3	Parameterize device with online connection (synchronized).....	29
8.5.4	Parameterize device with online connection (non synchronized).....	30
9	DTM behaviour.....	31
9.1	Close of user interface.....	31
9.1.1	Close of user interface with modified parameter values.....	31
9.1.2	Synchronization on close of user interface.....	32
9.2	Data set.....	32
9.2.1	Parameter in multiple user interfaces.....	32
9.2.2	Locking mechanism.....	32
9.3	Error handling.....	33
9.4	Localization.....	33
9.5	Global report information.....	33
Annex A (normative)	Dictionary of standard terms.....	34
Annex B (normative)	Dictionary of standard phrases.....	37
Bibliography	.....	42
Figure 1	– IEC 62453-62 in IEC 62453 (all parts).....	6
Figure 2	– Areas of a Standard user interface.....	11
Figure 3	– Areas of an Advanced user interface.....	12
Figure 4	– Areas of a Wizard user interface.....	13
Figure 5	– Structure of the Identification Area.....	13
Figure 6	– State diagram: Continuous Check.....	23
Figure 7	– State diagram: One Time Check.....	24
Figure 8	– Parameter value and associated information.....	24
Figure 9	– Parameterize device offline.....	28
Figure 10	– Parameterize device with offline parameterize and subsequent download.....	29
Figure 11	– Parameterize device with online connection (synchronized).....	30
Figure 12	– Parameterize device with online connection (non synchronized).....	31
Table 1	– Contents of Identification Area.....	14
Table 2	– Toolbar.....	15
Table 3	– Methods for UI using Block Mode.....	16
Table 4	– Methods for UI using Direct Mode.....	17
Table 5	– Wizard actions.....	17
Table 6	– Contents of Status Bar.....	18
Table 7	– Possible connection states.....	18
Table 8	– Possible data source and target states.....	19
Table 9	– Possible states of the instance data set.....	19
Table 10	– Possible modification states.....	20
Table 11	– Possible device diagnostic states (see [1]).....	20
Table 12	– Display of inadmissible data.....	24
Table 13	– Priority of parameter value states.....	25
Table 14	– Recommended default application.....	27

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –****Part 62: Field device tool (FDT) styleguide  
for common language infrastructure**

## 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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 62453-62, which is a Technical Report, has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
65E/442/DTR	65E/515/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.

A bilingual version of this publication may be issued at a later date.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

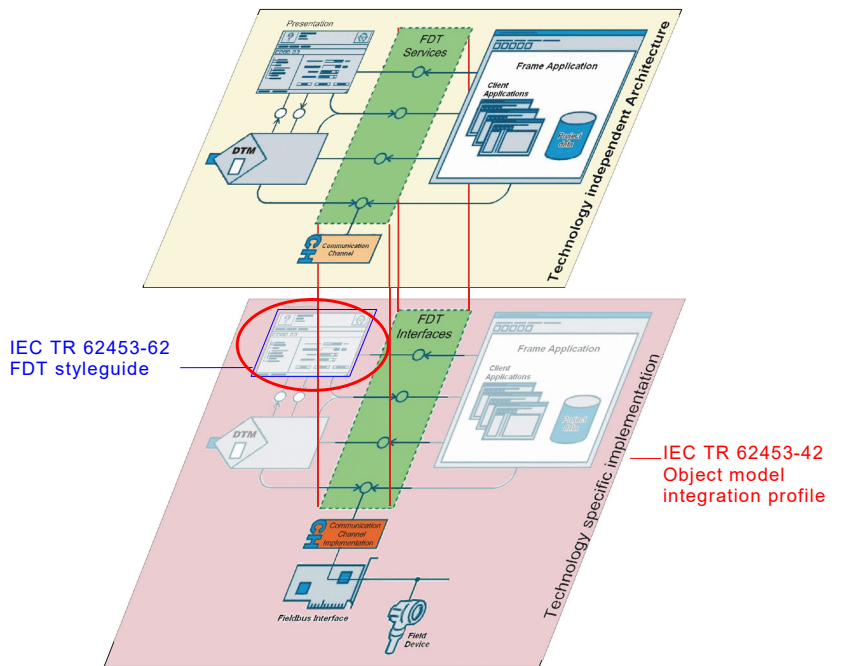
## INTRODUCTION

This document is a user interface design specification for developers of FDT (field device tool) components for Function Control and Data Access within a Client/Server architecture. This document is a result of an analysis and design process to develop standard interfaces to facilitate the development of components by multiple vendors that interoperate seamlessly.

A device-specific software component, called DTM (Device Type Manager), 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 kinds of fieldbuses and thus meets the requirements for integrating different kinds of devices into heterogeneous control systems.

To ensure the consistent management of a plant-wide control and automation technology, fieldbuses, devices and sub-systems are fully integrated as a seamless part of a wide range of automation tasks covering the whole automation life-cycle. This integration also requires a consistent look and feel of device specific components.

Figure 1 shows how IEC TR 62453-62 is aligned in the structure of IEC 62453 (all parts).



IEC

Figure 1 – IEC 62453-62 in IEC 62453 (all parts)

## FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

### Part 62: Field device tool (FDT) styleguide for common language infrastructure

#### 1 Scope

IEC TR 62453-62, which is a Technical Report, explains the guidelines and rules for the CLI-based implementation of a Device Type Manager (DTM) and parts of a Frame Application with regard to the user interface and its behaviour. These guidelines and rules are part of the FDT specification (IEC TR 62453-42) and are intended to ensure that all users are provided with clear and consistent user interface functions and features across DTMs in a system.

This specification 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 62453-1, *Field device tool (FDT) interface specification – Part 1: Overview and guidance*

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

IEC TR 62453-42, *Field device tool (FDT) interface specification – Part 42: Object model integration profile – Common Language Infrastructure*