

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Spécification des interfaces des outils des dispositifs de terrain (FDT) –
Partie 2: Concepts et description détaillée**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Spécification des interfaces des outils des dispositifs de terrain (FDT) –
Partie 2: Concepts et description détaillée**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.040.40; 35.100.05; 35.110

ISBN 978-2-8322-4532-3

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	10
INTRODUCTION	12
1 Scope	13
2 Normative references	13
3 Terms, definitions, symbols, abbreviated terms and conventions	13
3.1 Terms and definitions	13
3.2 Symbols and abbreviated terms	14
3.3 Conventions	14
3.3.1 Use of UML	14
3.3.2 State availability statement	14
3.3.3 Data type names and references to data types	14
4 Fundamentals	14
4.1 General	14
4.2 Abstract FDT model	15
4.2.1 FDT model overview	15
4.2.2 Frame Application (FA)	18
4.2.3 Device Type Manager (DTM)	19
4.2.4 Channel object	26
4.3 Modularity	28
4.4 Bus categories	28
4.5 Identification	29
4.5.1 DTM instance identification	29
4.6 System and FDT topology	30
4.7 FDT Communication	31
4.7.1 General	31
4.7.2 Handling of communication requests	32
4.7.3 Handling of communication errors	32
4.7.4 Handling of loss of connection	32
4.7.5 Point-to-point communication	32
4.7.6 Nested communication	33
4.8 DTM, DTM Device Type and hardware identification information	35
4.8.1 DTM and DTM Device Type	35
4.8.2 Supported hardware identification	36
4.8.3 Connected hardware identification	36
4.9 DTM data persistence and synchronization	37
4.10 DTM device parameter access	38
4.11 DTM state machine	38
4.11.1 DTM states	38
4.11.2 'Communication allowed' substates	39
4.12 Basic operation phases	40
4.12.1 Roles and access rights	40
4.12.2 Operation phases	40
4.13 FDT version interoperability	41
4.13.1 Version interoperability overview	41
4.13.2 DTM and device versions	42
4.13.3 Persistence	42

4.13.4	Nested communication	43
5	FDT session model and use cases	43
5.1	Session model overview.....	43
5.2	Actors	44
5.3	Use cases	46
5.3.1	Use case overview.....	46
5.3.2	Observation	46
5.3.3	Operation	46
5.3.4	Maintenance	50
5.3.5	Planning	53
5.3.6	OEM service.....	56
5.3.7	Administration.....	56
6	General concepts	57
6.1	Address management	57
6.2	Scanning and DTM assignment.....	58
6.2.1	Scanning overview.....	58
6.2.2	Scanning	58
6.2.3	DTM assignment.....	59
6.2.4	Manufacturer-specific device identification.....	59
6.2.5	Scan for communication hardware	60
6.3	Configuration of Fieldbus Master or Communication Scheduler.....	60
6.4	PLC tool support.....	61
6.4.1	General	61
6.4.2	Process image modifications while PLC is running.....	62
6.5	Slave redundancy	63
6.5.1	Redundancy overview.....	63
6.5.2	Redundancy support in Frame Application	64
6.5.3	Parent component for redundant fieldbus.....	64
6.5.4	Redundancy support in Device DTM	65
6.5.5	Scan and redundant slaves.....	65
7	FDT service specification.....	65
7.1	Service specification overview	65
7.2	DTM services.....	66
7.2.1	General services.....	66
7.2.2	DTM services related to installation	68
7.2.3	DTM services related to DTM/device information	69
7.2.4	DTM services related to the DTM state machine	71
7.2.5	DTM services related to functions	74
7.2.6	DTM services related to Channel objects – service GetChannels.....	77
7.2.7	DTM services related to documentation – service GetDocumentation	77
7.2.8	DTM services to access the instance data	77
7.2.9	DTM services to evaluate the instance data.....	79
7.2.10	DTM services to access the device data	80
7.2.11	DTM services related to network management information	81
7.2.12	DTM services related to online operation	82
7.2.13	DTM services related to data synchronization	84
7.2.14	DTM services related to import and export.....	86
7.3	Presentation object services	86
7.4	Channel object service.....	87

7.4.1	Channel object service overview.....	87
7.4.2	Service ReadChannelInformation.....	87
7.4.3	Service WriteChannelInformation.....	87
7.5	Process Channel object services – services for I/O related information.....	87
7.5.1	Service ReadChannelData.....	87
7.5.2	Service WriteChannelData.....	88
7.6	Communication Channel object services.....	88
7.6.1	Services related to communication.....	88
7.6.2	Services related to sub-topology management.....	92
7.6.3	Services related to GUI and functions.....	94
7.6.4	Service Scan.....	95
7.7	Frame Application services.....	96
7.7.1	General state availability.....	96
7.7.2	FA services related to general events.....	96
7.7.3	FA services related to topology management.....	97
7.7.4	FA services related to redundancy.....	100
7.7.5	FA services related to storage of DTM data.....	101
7.7.6	FA services related to DTM data synchronization.....	102
7.7.7	FA service related to process image validation – service ValidateProcessImage.....	103
7.7.8	FA services related to presentation.....	104
7.7.9	FA Services related to audit trail – service RecordAuditTrailEvent.....	105
8	FDT dynamic behavior.....	105
8.1	Generate FDT topology.....	105
8.1.1	FDT topology generation triggered by the Frame Application.....	105
8.1.2	FDT topology generation triggered by the DTM.....	106
8.2	Address setting.....	107
8.2.1	Address setting overview.....	107
8.2.2	Set or modify device address – with user interface.....	107
8.2.3	Set or modify device address – without user interface.....	107
8.2.4	Display or modify all child device addresses with user interface.....	108
8.3	Communication.....	109
8.3.1	Communication overview.....	109
8.3.2	Point-to-point communication.....	109
8.3.3	Nested communication.....	109
8.3.4	Device-initiated data transfer.....	110
8.4	Scanning and DTM assignment.....	111
8.5	Multi-user scenarios.....	112
8.5.1	General.....	112
8.5.2	Synchronized and non-synchronized locking mechanism for DTMs.....	114
8.5.3	Additional rules.....	116
8.6	Notification of changes.....	116
8.7	DTM instance data state machines.....	116
8.7.1	Instance data set overview.....	116
8.7.2	Modifications state machine.....	117
8.7.3	Persistence state machine.....	118
8.7.4	Modification in device.....	118
8.7.5	Storage life cycle.....	119
8.8	Parent component handling redundant slave.....	120

8.9	DTM upgrade	121
8.9.1	General rules	121
8.9.2	Saving data from a DTM to be upgraded	122
8.9.3	Loading data in the replacement DTM	122
Annex A (normative) FDT data types definition		124
A.1	General	124
A.2	Basic data types	125
A.3	General data types	125
A.4	User information data types	141
A.5	DTM information data type	142
A.6	BTM data types	142
A.7	Device and Scan identification data types	144
A.8	Function data types	148
A.9	AuditTrail data types	151
A.10	Documentation data types	152
A.11	DeviceList data type	153
A.12	Network management data types	155
A.13	Instance data types	156
A.14	DeviceStatus data types	161
A.15	OnlineCompare data types	161
A.16	UserInterface data types	162
A.17	Fieldbus-specific data types	163
Bibliography		165
Figure 1 – Part 2 of the IEC 62453 series		12
Figure 2 – Abstract FDT model		15
Figure 3 – Frame Application with integrated Communication Channel		19
Figure 4 – Device Type Manager (DTM)		19
Figure 5 – Communication DTM		20
Figure 6 – Device DTM		21
Figure 7 – Gateway DTM		21
Figure 8 – Composite Device DTM		22
Figure 9 – Module DTM		23
Figure 10 – Block Type Manager (BTM)		24
Figure 11 – Presentation object		25
Figure 12 – Channel object		26
Figure 13 – Communication Channel		27
Figure 14 – Combined Process/Communication Channel		28
Figure 15 – Identification of connected devices		29
Figure 16 – FDT topology for a simple system topology		30
Figure 17 – FDT topology for a complex system topology		31
Figure 18 – Point-to-point communication		33
Figure 19 – Nested communication		34
Figure 20 – DTM, DTM Device Type and device identification information		35
Figure 21 – Connected hardware identification		36
Figure 22 – FDT storage and synchronization mechanisms		37

Figure 23 – DTM state machine	38
Figure 24 – Substates of communication allowed	39
Figure 25 – Main use case diagram	44
Figure 26 – Observation use cases	46
Figure 27 – Operation use cases	47
Figure 28 – Maintenance use cases	50
Figure 29 – Planning use cases	54
Figure 30 – OEM Service	56
Figure 31 – Administrator use cases	56
Figure 32 – Address setting via DTM Presentation object	58
Figure 33 – Fieldbus scanning	59
Figure 34 – Fieldbus master configuration tool as part of a DTM	61
Figure 35 – Process Image	62
Figure 36 – Transfer of layout information using ProcessImage services.....	62
Figure 37 – Redundancy scenarios	63
Figure 38 – FDT topology generation triggered by the Frame Applications	106
Figure 39 – FDT topology generation triggered by a DTM	106
Figure 40 – Set or modify device address – with user interface	107
Figure 41 – Set or modify device address – without user interface	108
Figure 42 – Set or modify all device addresses – with user interface.....	108
Figure 43 – Point-to-point communication	109
Figure 44 – Nested communication	110
Figure 45 – Device-initiated data transfer.....	111
Figure 46 – Scanning and DTM assignment.....	112
Figure 47 – Multi-user system.....	113
Figure 48 – General synchronized locking mechanism	114
Figure 49 – General non-synchronized locking mechanism	115
Figure 50 – Parameterization in the case of synchronized locking mechanism	115
Figure 51 – Modifications state machine of instance data	117
Figure 52 – Persistence state machine of instance data.....	118
Figure 53 – Management of redundant topology	121
Figure 54 – Associating data to a dataSetId.....	122
Figure 55 – Loading data for a supported dataSetId.....	123
Table 1 – Description of FDT objects	16
Table 2 – Description of associations between FDT objects	17
Table 3 – Transitions of DTM states.....	39
Table 4 – Transitions of DTM 'communication allowed' substates.....	40
Table 5 – Operation phases	41
Table 6 – Actors	45
Table 7 – Operation use cases	48
Table 8 – Maintenance use cases	51
Table 9 – Planning use cases	54

Table 10 – Administrator use cases	57
Table 11 – Arguments for service PrivateDialogEnabled	66
Table 12 – Arguments for service SetLanguage	67
Table 13 – Arguments for service SetSystemGuiLabel	68
Table 14 – Arguments for service GetTypeInformation (for DTM)	69
Table 15 – Arguments for service GetTypeInformation (for BTM)	69
Table 16 – Arguments for service GetIdentificationInformation (for DTM)	69
Table 17 – Arguments for service GetIdentificationInformation (for BTM)	70
Table 18 – Arguments for service Hardware information (for DTM)	70
Table 19 – Arguments for service GetActiveTypeInfo	70
Table 20 – Arguments for service GetActiveTypeInfo (for BTM)	71
Table 21 – Arguments for service Initialize (for DTM)	71
Table 22 – Arguments for service Initialize (for BTM)	72
Table 23 – Arguments for service SetLinkedCommunicationChannel	72
Table 24 – Arguments for service EnableCommunication	72
Table 25 – Arguments for service ReleaseLinkedCommunicationChannel	73
Table 26 – Arguments for service ClearInstanceData	73
Table 27 – Arguments for service Terminate	74
Table 28 – Arguments for service GetFunctions	74
Table 29 – Arguments for service InvokeFunctions	75
Table 30 – Arguments for service GetGuiInformation	75
Table 31 – Arguments for service OpenPresentation	76
Table 32 – Arguments for service ClosePresentation	76
Table 33 – Arguments for service GetChannels	77
Table 34 – Arguments for service GetDocumentation	77
Table 35 – Arguments for service InstanceDataInformation	78
Table 36 – Arguments for service InstanceDataRead	78
Table 37 – Arguments for service InstanceDataWrite	79
Table 38 – Arguments for service Verify	79
Table 39 – Arguments for service CompareDataValueSets	79
Table 40 – Arguments for service DeviceDataInformation	80
Table 41 – Arguments for service DeviceDataRead	80
Table 42 – Arguments for service DeviceDataWrite	81
Table 43 – Arguments for service NetworkManagementInfoRead	81
Table 44 – Arguments for service NetworkManagementInfoWrite	82
Table 45 – Arguments for service DeviceStatus (for DTM)	82
Table 46 – Arguments for service CompareInstanceDataWithDeviceData (for DTM)	83
Table 47 – Arguments for service WriteDataToDevice (for DTM)	83
Table 48 – Arguments for service ReadDataFromDevice(for DTM)	84
Table 49 – Arguments for service OnLockInstanceData	84
Table 50 – Arguments for service OnUnlockInstanceData	85
Table 51 – Arguments for service OnInstanceDataChanged	85
Table 52 – Arguments for service OnInstanceChildDataChanged	85

Table 53 – Arguments for service Export	86
Table 54 – Arguments for service Import.....	86
Table 55 – Arguments for service ReadChannelInformation	87
Table 56 – Arguments for service WriteChannelInformation	87
Table 57 – Arguments for service ReadChannelData	87
Table 58 – Arguments for service WriteChannelData	88
Table 59 – Arguments for service GetSupportedProtocols.....	88
Table 60 – Arguments for service Connect.....	89
Table 61 – Arguments for service Disconnect	90
Table 62 – Arguments for service AbortRequest	90
Table 63 – Arguments for service AbortIndication	90
Table 64 – Arguments for service Transaction	91
Table 65 – Arguments for service SequenceDefine	92
Table 66 – Arguments for service SequenceStart.....	92
Table 67 – Arguments for service ValidateAddChild.....	92
Table 68 – Arguments for service ChildAdded.....	93
Table 69 – Arguments for service ValidateRemoveChild	93
Table 70 – Arguments for service ChildRemoved	94
Table 71 – Arguments for service SetChildrenAddresses	94
Table 72 – Arguments for service GetChannelFunctions	95
Table 73 – Arguments for service GetGuiInformation	95
Table 74 – Arguments for service Scan.....	95
Table 75 – Arguments for service OnErrorMessage	96
Table 76 – Arguments for service OnProgress	96
Table 77 – Arguments for service OnOnlineStatusChanged	97
Table 78 – Arguments for service OnFunctionsChanged	97
Table 79 – Arguments for service GetDtmInfoList	97
Table 80 – Arguments for service CreateChild (DTM)	98
Table 81 – Arguments for service CreateChild (BTM).....	98
Table 82 – Arguments for service DeleteChild.....	98
Table 83 – Arguments for service MoveChild	99
Table 84 – Arguments for service GetParentNodes.....	99
Table 85 – Arguments for service GetChildNodes	99
Table 86 – Arguments for service GetDtm.....	100
Table 87 – Arguments for service ReleaseDtm.....	100
Table 88 – Arguments for service OnAddedRedundantChild	100
Table 89 – Arguments for service OnRemovedRedundantChild.....	101
Table 90 – Arguments for service SaveInstanceData	101
Table 91 – Arguments for service LoadInstanceData	101
Table 92 – Arguments for service GetPrivateDtmStorageInformation	102
Table 93 – Arguments for service LockInstanceData.....	102
Table 94 – Arguments for service UnlockInstanceData.....	103
Table 95 – Arguments for service OnInstanceDataChanged.....	103

Table 96 – Arguments for service ValidateProcessImage	103
Table 97 – Arguments for service OpenPresentationRequest	104
Table 98 – Arguments for service ClosePresentationRequest	104
Table 99 – Arguments for service UserDialog	105
Table 100 – Arguments for service RecordAuditTrailEvent	105
Table 101 – Modifications state machine of instance data	117
Table 102 – Persistence state machine of instance data	118
Table 103 – Example life cycle of a DTM	119
Table A.1 – Basic data types	125
Table A.2 – Simple general data types	125
Table A.3 – Definition of classificationId enumeration values	132
Table A.4 – General structured data types	134
Table A.5 – Simple user information data types	141
Table A.6 – Structured user information data type	142
Table A.7 – Structured DTM information data type	142
Table A.8 – Simple BTM data types	143
Table A.9 – Structured BTM data types	144
Table A.10 – Simple device identification data types	145
Table A.11 – Structured device identification data types	146
Table A.12 – Simple function data types	149
Table A.13 – Structured function data types	150
Table A.14 – Simple auditTrail data types	151
Table A.15 – Structured auditTrail data types	152
Table A.16 – Simple documentation data types	152
Table A.17 – Structured documentation data types	153
Table A.18 – Simple deviceList data type	154
Table A.19 – Structured deviceList data type	154
Table A.20 – Simple network management data types	155
Table A.21 – Structured network management data types	156
Table A.22 – Simple instance data types	157
Table A.23 – Structured instance data types	159
Table A.24 – Simple device status data types	161
Table A.25 – Structured device status data types	161
Table A.26 – Simple online compare data types	161
Table A.27 – Structured online compare data types	162
Table A.28 – Simple user interface data types	162
Table A.29 – Structured user interface data types	163
Table A.30 – Fieldbus data types	164

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 2: Concepts and detailed description

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.

IEC 62453-2 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 third edition cancels and replaces the second edition published in 2016. This edition constitutes a technical revision.

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

- a) clarification for Static Function,
- b) clarification regarding system GUI label,
- c) clarification regarding loss of connection.

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

Draft	Report on voting
65E/906/FDIS	65E/933/RVD

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/standardsdev/publications.

A 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 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.

IMPORTANT – The "colour inside" logo on the cover page of this document 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 part of IEC 62453 is an interface specification for developers of FDT¹ (Field Device Tool) 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 created according to this document is called Device Type Manager (DTM). It integrates all device-specific data, functions and business rules into the system via the FDT services defined herein.

The FDT/DTM approach is open for all kind of fieldbuses and enables integration variety of devices into heterogeneous systems.

Figure 1 shows how this document is aligned in the structure of the IEC 62453 series.

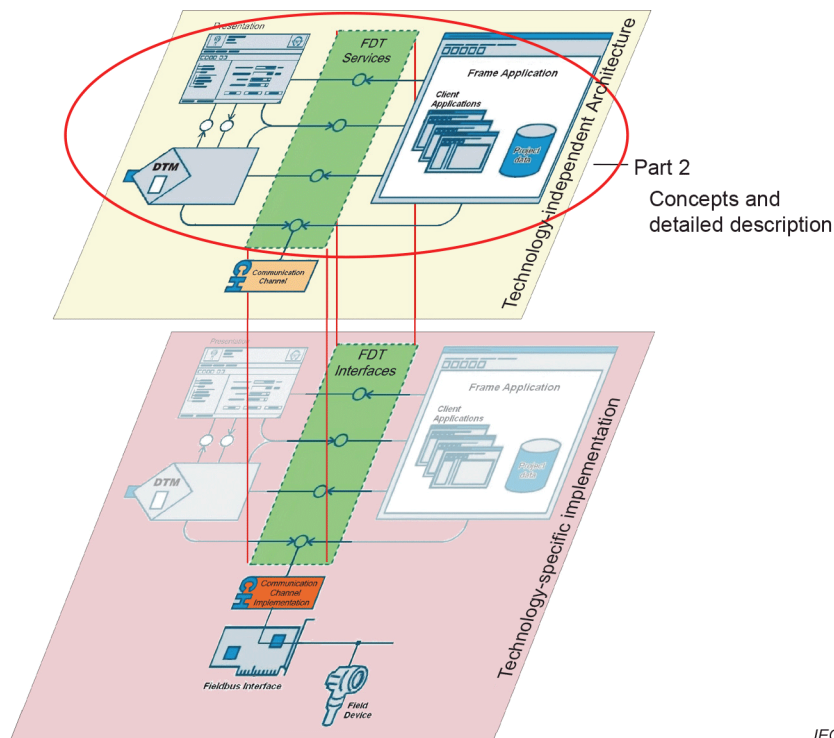


Figure 1 – Part 2 of the IEC 62453 series

¹ FDT® is a trademark of products supplied by FDT Group AISBL. 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.