



NSAI
Standards

Standard Recommendation
S.R. CLC/TR 62453-41:2009

Field device tool (FDT) interface
specification -- Part 41: Object model
integration profile - Common object
model (IEC/TR 62453-41:2009 (EQV))

S.R. CLC/TR 62453-41:2009

Incorporating amendments/corrigenda issued since publication:

<i>This document replaces:</i>	<i>This document is based on:</i> CLC/TR 62453-41:2009	<i>Published:</i> 13 November, 2009
This document was published under the authority of the NSAI and comes into effect on: 19 January, 2010		ICS number: 25.040.40 35.100.05 35.110
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		

TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CLC/TR 62453-41

November 2009

ICS 25.040.40; 35.100.05; 35.110

English version

**Field device tool (FDT) interface specification -
Part 41: Object model integration profile -
Common object model
(IEC/TR 62453-41:2009)**

Spécification des interfaces des outils
des dispositifs de terrain (FDT) -
Partie 41: Profil d'intégration
des modèles objet -
Modèle objet commun
(CEI/TR 62453-41:2009)

Field Device Tool (FDT)-
Schnittstellenspezifikation -
Teil 41: Profil zur Integration
des Objektmodells -
Allgemeines Objektmodell (COM)
(IEC/TR 62453-41:2009)

This Technical Report was approved by CENELEC on 2009-10-01.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

S.R. CLC/TR 62453-41:2009

CLC/TR 62453-41:2009

- 2 -

Foreword

The text of document 65E/64/CDV, future edition 1 of IEC/TR 62453-41, prepared by Devices and integration in enterprise systems, of IEC TC 65, Industrial-process measurement, control and automation, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as CLC/TR 62453-41 on 2009-10-01.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the Technical Report IEC/TR 62453-41:2009 was approved by CENELEC as a Technical Report without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61784	series	Industrial communication networks - Profiles	EN 61784	series
IEC 62453-1	2009	Field device tool (FDT) interface specification - Part 1: Overview and guidance	EN 62453-1	2009
IEC 62453-2	2009	Field device tool (FDT) interface specification - Part 2: Concepts and detailed description	EN 62453-2	2009

This page is intentionally left BLANK.

CONTENTS

FOREWORD.....	11
INTRODUCTION.....	13
1 Scope.....	14
2 Normative references	14
3 Terms, definitions, symbols, abbreviated terms and conventions	14
3.1 Terms and definitions	14
3.2 Abbreviations	15
3.3 Conventions	15
4 Implementation concept.....	15
4.1 Technological orientation	15
4.2 Implementation of abstract FDT object model.....	16
4.2.1 General	16
4.2.2 FDT Frame Application (FA)	16
4.2.3 Device Type Manager (DTM)	17
4.2.4 Presentation object.....	17
4.2.5 FDT-Channel object.....	17
4.3 Object interaction	18
4.3.1 Parameter interchange via XML.....	18
4.3.2 Examples of usage	19
4.4 Implementation of DTM data persistence and synchronization.....	21
4.4.1 Persistence overview.....	21
4.4.2 Persistence interfaces	22
4.5 DTM state machine	22
5 General concepts	25
5.1 General.....	25
5.2 Overview of task related FDT interfaces	25
5.3 Return values of interface methods	28
5.4 Dual interfaces	28
5.5 Unicode.....	28
5.6 Asynchronous versus synchronous behavior	28
5.7 ProglDs	29
5.8 Implementation of DTM, DTM device type and hardware identification information	29
5.8.1 Device identification	29
5.8.2 Protocol specific transformation style sheet (xsl)	31
5.8.3 Semantic identification information	31
5.8.4 Device assignment	31
5.8.5 Regular expression specification	32
5.9 Implementation of slave redundancy	32
5.9.1 General	32
5.9.2 Topology import/export.....	32
6 Implementation of FDT services: FDT interfaces.....	33
6.1 Overview of the FDT interfaces	33
6.2 FDT objects.....	33
6.2.1 FDT object model	33
6.2.2 Availability of interface methods	36

6.3	Device Type Manager.....	40
6.3.1	Interface IDtm.....	40
6.3.2	Interface IDtm2.....	49
6.3.3	Interface IDtmActiveXInformation	51
6.3.4	Interface IDtmApplication.....	52
6.3.5	Interface IDtmChannel.....	54
6.3.6	Interface IDtmDocumentation	55
6.3.7	Interface IDtmDiagnosis	56
6.3.8	Interface IDtmImportExport.....	58
6.3.9	Interface IDtmInformation	60
6.3.10	Interface IDtmInformation2	61
6.3.11	Interface IDtmOnlineDiagnosis	62
6.3.12	Interface IDtmOnlineParameter	63
6.3.13	Interface IDtmParameter	66
6.3.14	Interface IFdtCommunicationEvents	67
6.3.15	Interface IFdtCommunicationEvents2	70
6.3.16	Interface IFdtEvents	71
6.3.17	Interface IDtmHardwareIdentification.....	74
6.3.18	Interface IDtmSingleDeviceDataAccess	76
6.3.19	Interface IDtmSingleInstanceDataAccess	79
6.4	DTM ActiveXControl.....	81
6.4.1	Interface IDtmActiveXControl.....	81
6.4.2	Init.....	81
6.4.3	PrepareToRelease.....	82
6.5	FDT Channel.....	83
6.5.1	Interface IFdtChannel.....	83
6.5.2	Interface IFdtChannelActiveXInformation.....	85
6.5.3	Interface IFdtCommunication	88
6.5.4	Interface IFdtChannelSubTopology.....	95
6.5.5	Interface IFdtChannelSubTopology2.....	99
6.5.6	Interface IFdtChannelScan	99
6.5.7	Interface IFdtFunctionBlockData.....	101
6.6	Channel ActiveXControl	103
6.6.1	Interface IFdtChannelActiveXControl	103
6.6.2	Interface IFdtChannelActiveXControl2	105
6.7	Block Type Manager.....	106
6.7.1	Interface IBtm.....	106
6.7.2	Interface IBtmInformation	107
6.7.3	Interface IBtmParameter.....	107
6.8	BTM ActiveXControl	108
6.8.1	General	108
6.8.2	Interface IBtmActiveXControl.....	108
6.9	Frame Application	109
6.9.1	Interface IDtmEvents	109
6.9.2	Interface IDtmEvents2	118
6.9.3	Interface IDtmScanEvents	119
6.9.4	Interface IDtmAuditTrailEvents	121
6.9.5	Interface IFdtActiveX	123
6.9.6	Interface IFdtActiveX2	124

6.9.7	Interface IFdtBulkData	127
6.9.8	Interface IFdtContainer	129
6.9.9	Interface IFdtDialog	132
6.9.10	Interface IFdtTopology	133
6.9.11	Interface IDtmRedundancyEvents	139
6.9.12	Interface IDtmSingleDeviceDataAccessEvents	140
6.9.13	Interface IDtmSingleInstanceDataAccessEvents	143
6.9.14	Interface IFdtBtmTopology	144
7	FDT sequence charts	145
7.1	DTM peer to peer communication	145
7.1.1	General	145
7.1.2	Establish a peer-to-peer connection between DTM and device	145
7.1.3	Asynchronous connect for a peer-to-peer connection	145
7.1.4	Asynchronous disconnect for a peer-to-peer connection	146
7.1.5	Asynchronous transaction for a peer-to-peer connection	146
7.2	Nested communication	147
7.2.1	General	147
7.2.2	Generate system topology	148
7.2.3	Establish a system connection between DTM and device	150
7.2.4	Asynchronous transaction for a system connection	151
7.3	Topology scan	153
7.3.1	Scan network	153
7.3.2	Cancel topology scan	153
7.3.3	Provisional scan result notifications	154
7.3.4	Scan for communication hardware	155
7.3.5	Manufacturer specific device identification	156
7.4	Registration of protocol specific FDT schemas	158
7.5	Configuration of a fieldbus master	160
7.6	Starting and releasing applications	161
7.7	Channel access	162
7.8	DCS Channel assignment	163
7.9	Printing of DTM specific documents	167
7.10	Printing of Frame Application specific documents	168
7.10.1	General	168
7.10.2	Processing a document	169
7.10.3	Rules for use of DTM specific style sheets	171
7.11	Propagation of changes	172
7.12	Locking	174
7.12.1	Locking for non-synchronized DTMs	174
7.12.2	Locking for synchronized DTMs	175
7.13	Instantiation and release	177
7.13.1	Instantiation of a new DTM	177
7.13.2	Instantiation of an existing DTM	177
7.13.3	Instantiation of a DTM ActiveX user interface	178
7.13.4	Release of a DTM user interface	179
7.14	Persistent storage of a DTM	179
7.14.1	State machine of instance data	179
7.14.2	Saving instance data of a DTM	181
7.14.3	Reload of a DTM object for another instance	182

7.14.4	Copy and versioning of a DTM instance.....	182
7.15	Audit trail.....	183
7.16	Comparison of two instance data sets	185
7.16.1	Comparison without user interface.....	185
7.16.2	Comparison with user interface	185
7.17	Failsafe data access.....	186
7.18	Set or modify device address with user interface	187
7.19	Set or modify known device addresses without user interface.....	188
7.20	Display or modify all child device addresses with user interface	189
7.21	Device initiated data transfer	190
7.22	Starting and releasing DTM user interface in modal dialog	191
7.23	Parent component handling redundant slave	193
7.24	Initialization of a Channel ActiveX control.....	194
7.24.1	General	194
7.24.2	Supports IFdtChannelActiveXcontrol2.....	195
7.24.3	Does not support IFdtChannelActiveXControl2	195
7.25	DTM upgrade	196
7.25.1	General	196
7.25.2	Saving data from a DTM to be upgraded.....	196
7.25.3	Loading data in the replacement DTM	197
7.26	Usage of IDtmSingleDeviceDataAccess::ReadRequest / Write Request	198
7.27	Instantiation of DTM and BTM	199
8	Installation issues.....	201
8.1	Registry and device information	201
8.1.1	Visibility of business objects of a DTM.....	201
8.1.2	Component categories.....	201
8.1.3	Registry entries	202
8.1.4	Installation issues	202
8.1.5	Microsoft's standard component categories manager.....	203
8.1.6	Building a Frame Application-database of supported devices.....	203
8.1.7	DTM registration.....	203
8.2	Paths and file information	204
8.2.1	Path information provided by a DTM.....	204
8.2.2	Paths and persistency	204
8.2.3	Multi-user systems	205
9	Description of data types, parameters and structures	205
9.1	Ids.....	205
9.2	Data type definitions.....	205
Annex A (normative)	FDT IDL	207
Annex B (normative)	Mapping of services to interface methods.....	223
Annex C (normative)	FDT XML schemas.....	231
Annex D (informative)	FDT XML styles – Documentation	310
Annex E (informative)	FDT XSL Transformation	314
Annex F (normative)	Channel schema	316
Annex G (normative)	FDT version interoperability guide	318
Annex H (informative)	Implementation with .Net technology.....	323
Annex I (informative)	Trade names	325

Bibliography.....	326
Figure 1 – Part 41 of the IEC 62453 series	13
Figure 2 – Frame Application interfaces.....	16
Figure 3 – DTM interfaces	17
Figure 4 – FDT Client/server relationship via XML	18
Figure 5 – Data access and storage.....	20
Figure 6 – Communication	20
Figure 7 – Documentation.....	21
Figure 8 – Parameter verification in case of failsafe devices	21
Figure 9 – State machine of a DTM.....	23
Figure 10 – Device identification.....	29
Figure 11 – Structural overview	30
Figure 12 – Interfaces of FDT objects – DTM and DtmActiveXControl.....	34
Figure 13 – Interfaces of FDT object – Frame Application.....	35
Figure 14 – FDT objects – FDT-Channel.....	35
Figure 15 – FDT objects – BTM and BtmActiveXControl	36
Figure 16 – Peer to peer connection between DTM and device	145
Figure 17 – Asynchronous connect (peer to peer).....	146
Figure 18 – Asynchronous disconnect (peer to peer)	146
Figure 19 – Asynchronous transaction (peer to peer).....	147
Figure 20 – System-topology	148
Figure 21 – Generation of system topology by Frame Application	149
Figure 22 – Generation of system topology – Participation of DTM	150
Figure 23 – System connection (across communication hierarchy).....	151
Figure 24 – Asynchronous transactions (system connection)	152
Figure 25 – Scan network topology.....	153
Figure 26 – Cancel topology scan.....	154
Figure 27 – Provisional topology scan.....	155
Figure 28 – Scan for communication hardware	156
Figure 29 – Manufacturer specific device identification	158
Figure 30 – Add protocol specific schemas to Frame Applications schema sub path.....	159
Figure 31 – Frame Application reads protocol specific device identification information of DTMDeviceTypes.....	160
Figure 32 – Bus master configuration.....	161
Figure 33 – Starting and releasing applications.....	162
Figure 34 – Channel access	163
Figure 35 – DCS channel assignment single DTM.....	164
Figure 36 – Sequence of channel assignment for a single DTM	165
Figure 37 – Modular DTM structure.....	166
Figure 38 – Channel assignment for modular DTMs.....	167
Figure 39 – Printing of DTM specific documents	168
Figure 40 – Printing of Frame Application specific documents.....	169

Figure 41 – Report generation (Frame Application style).....	170
Figure 42 – Report generation (device vendor specific style)	171
Figure 43 – Propagation of changes	173
Figure 44 – Locking for non-synchronized DTMs.....	175
Figure 45 – Locking for synchronized DTMs	177
Figure 46 – Instantiation of a new DTM.....	177
Figure 47 – Instantiation of an existing DTM	178
Figure 48 – Instantiation of a DTM user interface.....	178
Figure 49 – Release of a DTM user interface	179
Figure 50 – State machine of instance data set.....	180
Figure 51 – Persistence states of a data set	181
Figure 52 – Saving instance data of a DTM.....	182
Figure 53 – Copy and versioning of a DTM instance	183
Figure 54 – Audit trail	184
Figure 55 – Comparison without user interface	185
Figure 56 – Comparison with user interface	186
Figure 57 – Failsafe data access	187
Figure 58 – Set or modify device address with user interface.....	188
Figure 59 – Set or modify known device addresses without user interface	189
Figure 60 – Display or modify all child device addresses with user interface	190
Figure 61 – Device initiated data transfer.....	191
Figure 62 – Modal DTM user interface	192
Figure 63 – Handling of a redundant slave.....	194
Figure 64 – Init of Channel ActiveX with IFdtChannelActiveXControl2.....	195
Figure 65 – Init of Channel ActiveX® without IFdtChannelActiveXControl2	196
Figure 66 – Saving data from a DTM to be upgraded	197
Figure 67 – Loading data in the replacement DTM	198
Figure 68 – Usage of IDtmSingleDeviceDataAccess	199
Figure 69 – General sequence of creation and instantiation of blocks	200
Figure E.1 – XSLT role	315
Table 1 – Definition of DTM state machine.....	23
Table 2 – Task related DTM interfaces	25
Table 3 – Task related DTM ActiveX® interfaces	26
Table 4 – Task related FDT-Channel interfaces	26
Table 5 – Task related Channel ActiveX interfaces	26
Table 6 – Task related BTM interfaces.....	26
Table 7 – Task related BTM ActiveX interfaces	27
Table 8 – Task related Frame Application interfaces.....	27
Table 9 – Semantic identification information	31
Table 10 – Regular expressions.....	32
Table 11 – Availability of DTM methods in different states	36
Table 12 – Availability of Frame Application interfaces	39

Table 13 – Description of instance data set states	180
Table 14 – Description of persistent states	181
Table 15 – Component categories.....	201
Table 16 – Combinations of categories	202
Table 17 – Example for DTM registration	202
Table 18 – FDT specific Ids	205
Table 19 – Basic data types.....	205
Table 20 – Helper objects for documentation	206
Table B.1 – General services.....	223
Table B.2 – DTM service related to installation	223
Table B.3 – DTM service related to DTM Information	223
Table B.4 – DTM services related to DTM state machine	224
Table B.5 – DTM services related to function.....	224
Table B.6 – DTM services related to documentation	225
Table B.7 – DTM services to access the instance data	225
Table B.8 – DTM services to access diagnosis	225
Table B.9 – DTM services to access to device data	225
Table B.10 – DTM services related to network management information.....	226
Table B.11 – DTM services related to online operation	226
Table B.12 – DTM services related to FDT-Channel objects	226
Table B.13 – DTM services related to import and export.....	226
Table B.14 – DTM services related to data synchronization	226
Table B.15 – General channel service	227
Table B.16 – Channel services for IO related information.....	227
Table B.17 – Channel services related to communication	227
Table B.18 – Channel services related sub-topology management.....	228
Table B.19 – Channel services related to functions.....	228
Table B.20 – Channel services related to scan	228
Table B.21 – FA services related to general event	228
Table B.22 – FA services related to topology management	229
Table B.23 – FA services related to redundancy	229
Table B.24 – FA services related to storage of DTM data	229
Table B.25 – FA services related to DTM data synchronization.....	229
Table B.26 – FA related to Presentation	230
Table B.27 – FA services related to audit trail.....	230
Table C.1 – Description of general XML attributes	231
Table C.2 – Description of general XML elements.....	236
Table C.3 – Device classification ID	238
Table C.4 – Device classification according to IEC 60947 Annex G.....	239
Table C.5 – Description of applicationId attribute	247
Table C.6 – Description of applicationId elements.....	247
Table C.7 – Description of user information attributes	248
Table C.8 – Description of user information elements	248

Table C.9 – Description of DTM information attributes	249
Table C.10 – Description of DTM information elements.....	249
Table C.11 – Description of function call attributes	253
Table C.12 – Description of parameter document attributes	253
Table C.13 – Description of parameter document elements.....	254
Table C.14 – Description of documentation attributes	262
Table C.15 – Description of documentation elements.....	262
Table C.16 – Description of protocols element.....	264
Table C.17 – Description of system tag attributes	265
Table C.18 – Description of system tag elements.....	265
Table C.19 – Description of audit trail attributes.....	266
Table C.20 – Description of audit trail elements	266
Table C.21 – Description of device status attribute	267
Table C.22 – Description of device status elements	267
Table C.23 – Description of function attributes	269
Table C.24 – Description of function elements	269
Table C.25 – Description of channel functions attributes.....	273
Table C.26 – Description of channel function elements.....	273
Table C.27 – Description of comparison attribute.....	275
Table C.28 – Description of comparison elements.....	275
Table C.29 – Description of fail safe attributes.....	276
Table C.30 – Description of fail safe elements	276
Table C.31 – Description of topology scan elements	277
Table C.32 – Description of operation phase attribute.....	278
Table C.33 – Description of operation phase element	278
Table C.34 – Description of DTM init element	278
Table C.35 – Description of user message attributes	279
Table C.36 – Description of user message elements.....	279
Table C.37 – Description of DTM info list elements	280
Table C.38 – Description of topology attributes	281
Table C.39 – Description of topology elements	282
Table C.40 – Description of device list attributes.....	286
Table C.41 – Description of device list elements	286
Table C.42 – Description of gui label element	288
Table C.43 – Description of DTM state element	288
Table C.44 – Description of frame version element.....	289
Table C.45 – Description of connect response element.....	289
Table C.46 – Description of type request element	290
Table C.47 – Description of scan request attributes	290
Table C.48 – Description of scan request elements.....	291
Table C.49 – Description of common identification attributes	293
Table C.50 – Description of common identification element	293
Table C.51 – Description of scan identification attributes	293

Table C.52 – Description of scan identification elements	294
Table C.53 – Description of device type identification element	296
Table C.54 – Description of item list attributes	297
Table C.55 – Description of item list elements	299
Table C.56 – Description of BTM data type attributes	303
Table C.57 – Description of BTM data type elements	303
Table C.58 – Description of BTM information elements	305
Table C.59 – Description of BTM parameter elements	306
Table C.60 – Description of BTM init element	308
Table C.61 – Description of BTM info list element	308
Table F.1 – Description of basic channel attribute	316
Table F.2 – Description of basic channel elements	316
Table F.3 – Description of xxx channel parameter attribute	317
Table F.4 – Description of xxx channel parameter attribute	317
Table G.1 – Interoperability between components of different versions	319

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

**Part 41: Object model integration profile –
Common object model**

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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 62453-41, 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:

This part, in conjunction with the other parts of the first edition of the IEC 62453 series cancels and replaces IEC/PAS 62453-1, IEC/PAS 62453-2, IEC/PAS 62453-3, IEC/PAS 62453-4 and IEC/PAS 62453-5 published in 2006, and constitutes a technical revision.

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

Enquiry draft	Report on voting
65E/64/DTR	65E/113/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication 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 publication using a colour printer.

INTRODUCTION

This part of IEC 62453 is an interface specification for developers of FDT (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, 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 kind of fieldbuses and thus meets the requirements for integrating different kinds of devices into heterogeneous control systems.

Figure 1 shows how IEC/TR 62453-41 is incorporated in the structure of the IEC 62453 series.

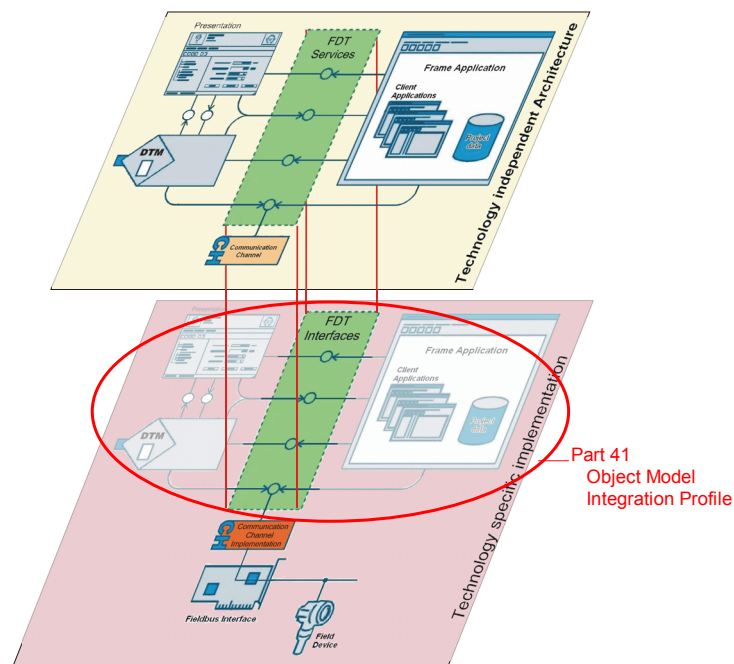


Figure 1 – Part 41 of the IEC 62453 series

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 41: Object model integration profile – Common object model

1 Scope

This part of IEC 62453, which is a Technical report, defines how the common FDT principles are implemented based on the MS COM technology, including the object behavior and object interaction via COM interfaces.

This part specifies the technology specific implementation of the protocol specific functionality and communication services.

This part of IEC 62453 is informative, however when this part is applied its requirements shall be implemented as specified.

This part specifies FDT version 1.2.1.

2 Normative references

The following referenced documents are indispensable for the application 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 (all parts), *Industrial communication networks – Profiles*

IEC 62453-1:2009, *Field Device Tool (FDT) interface specification – Part 1: Overview and guidance*

IEC 62453-2:2009, *Field Device Tool (FDT) interface specification – Part 2: Concepts and detailed description*

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, MSDN® and the following apply.

3.1.1

ActiveX®

GUI component technology based on the Microsoft Component Object Model (COM/DCOM)

NOTE Former standard was OLE controls (OCX).

3.1.2

asynchronous function

a non-blocking function, the calling process continues execution while the function is executed in the background

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-