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Vorgesehen als Ersatz für
DIN EN 62769-4:2016-03**Feldgeräteintegration (FDI) –
Teil 4: FDI-Packages
(IEC 65E/591/CDV:2018);
Englische Fassung prEN 62769-4:2018**Field Device Integration (FDI) –
Part 4: FDI Packages
(IEC 65E/591/CDV:2018);
English version prEN 62769-4:2018Intégration des appareils de terrain (FDI) –
Partie 4: Paquetages FDI
(IEC 65E/591/CDV:2018);
Version anglaise prEN 62769-4:2018**Anwendungswarnvermerk**

Dieser Norm-Entwurf mit Erscheinungsdatum 2019-04-19 wird der Öffentlichkeit zur Prüfung und Stellungnahme vorgelegt.

Weil die beabsichtigte Norm von der vorliegenden Fassung abweichen kann, ist die Anwendung dieses Entwurfs besonders zu vereinbaren.

Stellungnahmen werden erbeten

- vorzugsweise online im Norm-Entwurfs-Portal von DIN unter www.din.de/go/entwuerfe bzw. für Norm-Entwürfe der DKE auch im Norm-Entwurfs-Portal der DKE unter www.entwuerfe.normenbibliothek.de, sofern dort wiedergegeben;
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- oder in Papierform an die DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE, Stresemannallee 15, 60596 Frankfurt am Main.

Die Empfänger dieses Norm-Entwurfs werden gebeten, mit ihren Kommentaren jegliche relevanten Patentrechte, die sie kennen, mitzuteilen und unterstützende Dokumentationen zur Verfügung zu stellen.

Gesamtumfang 81 Seiten

DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE

Nationales Vorwort

Die Englische Fassung des europäischen Dokuments prEN 62769-4:2018 „Feldgeräteintegration (FDI) – Teil 4: FDI-Packages“ (Entwurf in der Umfrage) ist unverändert in diesen Norm-Entwurf übernommen worden.

Die Internationale Elektrotechnische Kommission (IEC) und das Europäische Komitee für Elektrotechnische Normung (CENELEC) haben vereinbart, dass ein auf IEC-Ebene erarbeiteter Entwurf für eine Internationale Norm zeitgleich (parallel) bei IEC und CENELEC zur Umfrage (CDV-Stadium) und Abstimmung als FDIS (en: Final Draft International Standard) bzw. Schluss-Entwurf für eine Europäische Norm gestellt wird, um eine Beschleunigung und Straffung der Normungsarbeit zu erreichen. Dem entsprechend ist das internationale Dokument IEC 65E/591/CDV:2018 „Field Device Integration (FDI) – Part 4: FDI Packages“ unverändert in den Entwurf prEN 62769-4:2018 übernommen worden.

Das internationale Dokument wurde vom SC 65E „Devices and integration in enterprise systems“ der Internationalen Elektrotechnischen Kommission (IEC) erarbeitet.

Bei der Abstimmung zu dem Europäischen Schluss-Entwurf bei CENELEC und dem Internationalen Schluss-Entwurf bei IEC [Final Draft International Standard (FDIS)] sind jeweils nur „JA/NEIN“-Entscheidungen möglich, wobei „NEIN“-Entscheidungen fundiert begründet werden müssen. Dokumente, die bei CENELEC als Europäische Norm angenommen und ratifiziert werden, sind unverändert als Deutsche Normen zu übernehmen.

Für dieses Dokument ist das nationale Arbeitsgremium K 956 „Industrielle Kommunikation“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE (www.dke.de) zuständig.

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Für den Fall einer datierten Verweisung im normativen Text bezieht sich die Verweisung immer auf die in Bezug genommene Ausgabe des Dokuments.

Der Zusammenhang der zitierten Dokumente mit den entsprechenden deutschen Dokumenten ergibt sich, soweit ein Zusammenhang besteht, grundsätzlich über die Nummer der entsprechenden IEC-Publikation. Beispiel: IEC 60068 ist als EN 60068 als Europäische Norm durch CENELEC übernommen und als DIN EN 60068 ins Deutsche Normenwerk aufgenommen.

Das Präsidium des DIN hat mit Präsidialbeschluss 1/2004 festgelegt, dass DIN-Normen, deren Inhalt sich auf internationale Arbeitsergebnisse der Informationsverarbeitung gründet, unter bestimmten Bedingungen allein in englischer Sprache veröffentlicht werden dürfen. Diese Bedingungen sind für den vorliegenden Normentwurf erfüllt.

Da sich die Benutzer der vorliegenden Normentwurfs der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der prEN 62769-4:2018 veröffentlicht. Zu deren Abschnitt 1, der den Anwendungsbereich festlegt, und Abschnitt 3, der die Begriffe festlegt, wurde eine Übersetzung angefertigt und als informativer Nationaler Anhang NA der vorliegenden Normentwurfs hinzugefügt. Für viele der verwendeten Begriffe existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender in der Regel ebenfalls der englischen Benennungen bedienen. Dieser Normentwurf steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen.

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Änderungen

Gegenüber DIN EN 62769-4:2016-03 wurden folgende Änderungen vorgenommen:

- a) Unterstützung der allgemeinen Protokollerweiterung zur schnelleren Einführung anderer Technologien;
- b) Unterstützung von Package-Entwickler bei der Erstellung von EDDs für das heutige EDD-Basissystem mit einem einzigen Entwicklungswerkzeug;
- c) Die Digitale Signatur beinhaltet jetzt einen zuverlässigen Zeitstempel für die langfristige Validierung des FDI-Package;
- d) Laufende Benutzerschnittstellen-Plug-ins in einer Sandbox;
- e) Zeitstempel für die Signatur des Gerätepackage;
- f) Unterstützung neuer Protokolle;
- g) Allgemeine Protokollerweiterung zur Einführung von anderen Kommunikationsprotokollen;
- h) Basierend auf die allgemeine Protokollerweiterung: Modbus RTU.

Nationaler Anhang NA (informativ)

Auszugsweise Übersetzung

Reihenfolge und Inhalt der folgenden Abschnitte sind identisch mit denen in den jeweiligen Abschnitten der Englischen Fassung.

1 Anwendungsbereich

Dieser Teil von IEC 62769 legt die FDI-Package fest. Die gesamtheitliche FDI-Architektur ist in Bild 1 dargestellt. Die im Anwendungsbereich dieses Dokuments liegenden Architekturkomponenten sind in Bild 1 hervorgehoben.

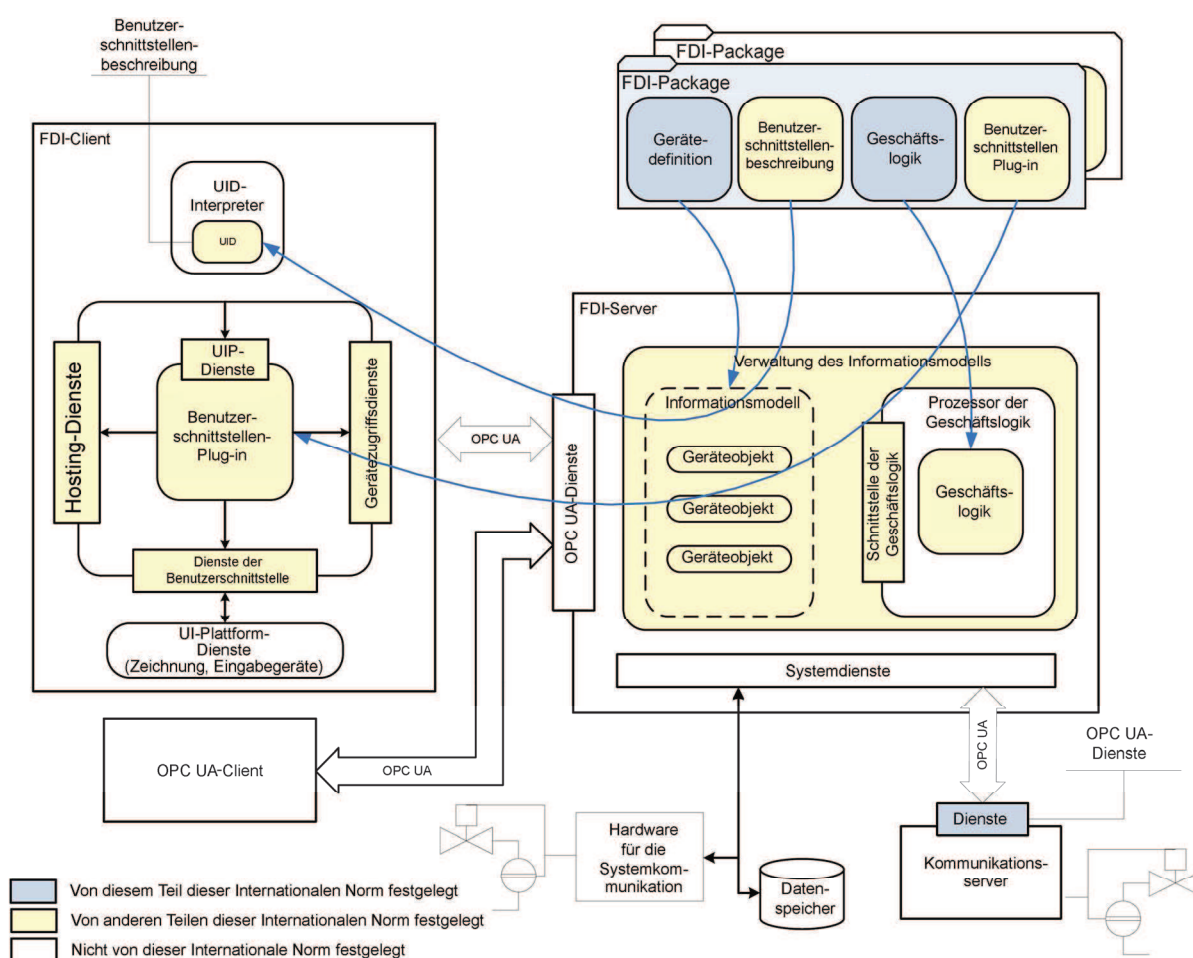


Bild 1 – FDI-Architektur

3 Begriffe, Abkürzungen und Konventionen

Für die Anwendung dieses Dokuments gelten die Begriffe nach IEC 62769-1, ISO/IEC 29500-2 und die folgenden Begriffe.

ISO und IEC stellen terminologische Datenbanken für die Anwendung in der Normung unter den folgenden Adressen bereit:

- IEC Electropedia: verfügbar unter <http://www.electropedia.org/>
- ISO Online Browsing Platform: verfügbar unter <http://www.iso.org/obp>

3.1 Begriffe

3.1.1

Anlage

(en: attachment)

geräte- und protokollspezifische Unterstützungsdateien, die nicht direkt zur Integration des Gerätes in das System verwendet werden

3.1.2

FDI-Kommunikationspackage

(en: FDI Communication Package)

FDI-Package, das Informationen zur Integration eines FDI-Kommunikationsservers in einen FDI-Server bereitstellt

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.1.3

FDI-Gerätepackage

(en: FDI Device Package)

FDI-Package, das einem FDI-Server einen oder mehrere Gerätetypen bereitstellt

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.1.4

FDI-Packagemodell

(en: FDI Package Model)

Beschreibung der Struktur und Elemente eines FDI-Packages

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.1.5

FDI-Profilpackage

(en: FDI Profile Package)

FDI-Package, das Informationen für die Erstellung eines Gerätetypknotens bereitstellt, der einer Klasse von Geräten zugeordnet werden kann

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.1.6

FDI-Registrierungsinstanz

(en: FDI Registration Authority)

Einheit, die das Recht und die Möglichkeit hat, Konformitätsprüfungen an FDI-Packages durchzuführen und Registrierungszertifikate auszugeben

3.1.7

FDI-UIP-Package

(en: FDI UIP Package)

FDI-Package, das einem FDI-Server ein oder mehrere UIPs bereitstellt

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.1.8**Packagekatalog**

(en: Package Catalog)

Datei, die die Inhalte eines FDI-Packages beschreibt

3.1.9**UIP-Katalog**

(en: UIP Catalog)

Datei, die die Eigenschaften eines UIP beschreibt

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.1.10**UIP-Variante**

(en: UIP Variant)

plattformspezifisches Element eines Benutzerschnittstellen-Plug-ins

Anmerkung 1 zum Begriff: Ein UIP besteht aus einer oder mehreren Varianten. Es kann z.B. eine Variante für tragbare Geräte optimiert sein, eine andere Variante ist möglicherweise für Geräte mit Großbildschirm optimiert.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprachfassung.

3.2 Abkürzungen

Für die Anwendung dieses Dokuments gelten die Abkürzungen nach IEC 62769-1 und die folgenden Abkürzungen.

CFF	Eigenschaftendatei für FOUNDATION Fieldbus (en: Capabilities File for FOUNDATION Fieldbus)
ID	Bezeichner (en: Identifier)
IDE	Integrierte Entwicklungsumgebung (en: Integrated Development Environment)
IM	Informationsmodell (en: Information Model)
PNG	Portable Netzwerkgrafik (en: Portable network graphics)
ZIP	Zipper (Format für die Archivdatei) (en: Zipper)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE INTEGRATION (FDI) –

Part 4: FDI Packages

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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- International Standard IEC 62769 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in: 2015. This edition constitutes a technical revision.

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

- a) Support for generic protocol extension for faster adoption of other technologies
- b) Support for Package Developers to build EDDs targeted for today's EDD bases system under a single development tool.
- c) Digital signature now include trusted timestamping for long term validation of FDI Package

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- 58 d) Running UIs in a sandbox
59 e) Time stamp for device package signature
60 f) Support of new protocols
61 g) Generic protocol extension to allow adoption of other communication protocols
62 h) Based on generic protocol extension: Modbus RTU;
63

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

FDIS	Report on voting
65E/XXX/FDIS	65E/XXX/RVD

65

66 Full information on the voting for the approval of this International Standard can be found in
67 the report on voting indicated in the above table.

68 This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

69 The committee has decided that the contents of this document will remain unchanged until the
70 stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to
71 the specific document. At this date, the document will be

- 72 • reconfirmed,
73 • withdrawn,
74 • replaced by a revised edition, or
75 • amended.
76

77 The National Committees are requested to note that for this document the stability date
78 is 2022.

79 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE
80 DELETED AT THE PUBLICATION STAGE.

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81

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INTRODUCTION

83

84 The IEC 62769 series has the general title "Field Device Integration (FDI)" and the following
85 parts:

- 86 – Part 1: Overview
- 87 – Part 2: FDI Client
- 88 – Part 3: FDI Server
- 89 – Part 4: FDI Packages
- 90 – Part 5: FDI Information Model
- 91 – Part 6: FDI Technology Mapping
- 92 – Part 7: FDI Communication Devices
- 93 – Part 100: Profiles – Generic Protocol Extensions
- 94 – Part 101-1: Profiles – Foundation Fieldbus H1
- 95 – Part 101-2: Profiles – Foundation Fieldbus HSE
- 96 – Part 103-1: Profiles – PROFIBUS
- 97 – Part 103-4: Profiles – PROFINET
- 98 – Part 109-1: Profiles – HART and WirelessHART
- 99 – Part 115-2: Profiles – Protocol-specific Definitions for Modbus RTU
- 100 – Part 150-1: Profiles – ISA 100.11a

101

FIELD DEVICE INTEGRATION (FDI) –

Part 4: FDI Packages

1 Scope

This part of IEC 62769 specifies the FDI Packages. The overall FDI architecture is illustrated in Figure 1. The architectural components that are within the scope of this document have been highlighted in Figure 1.

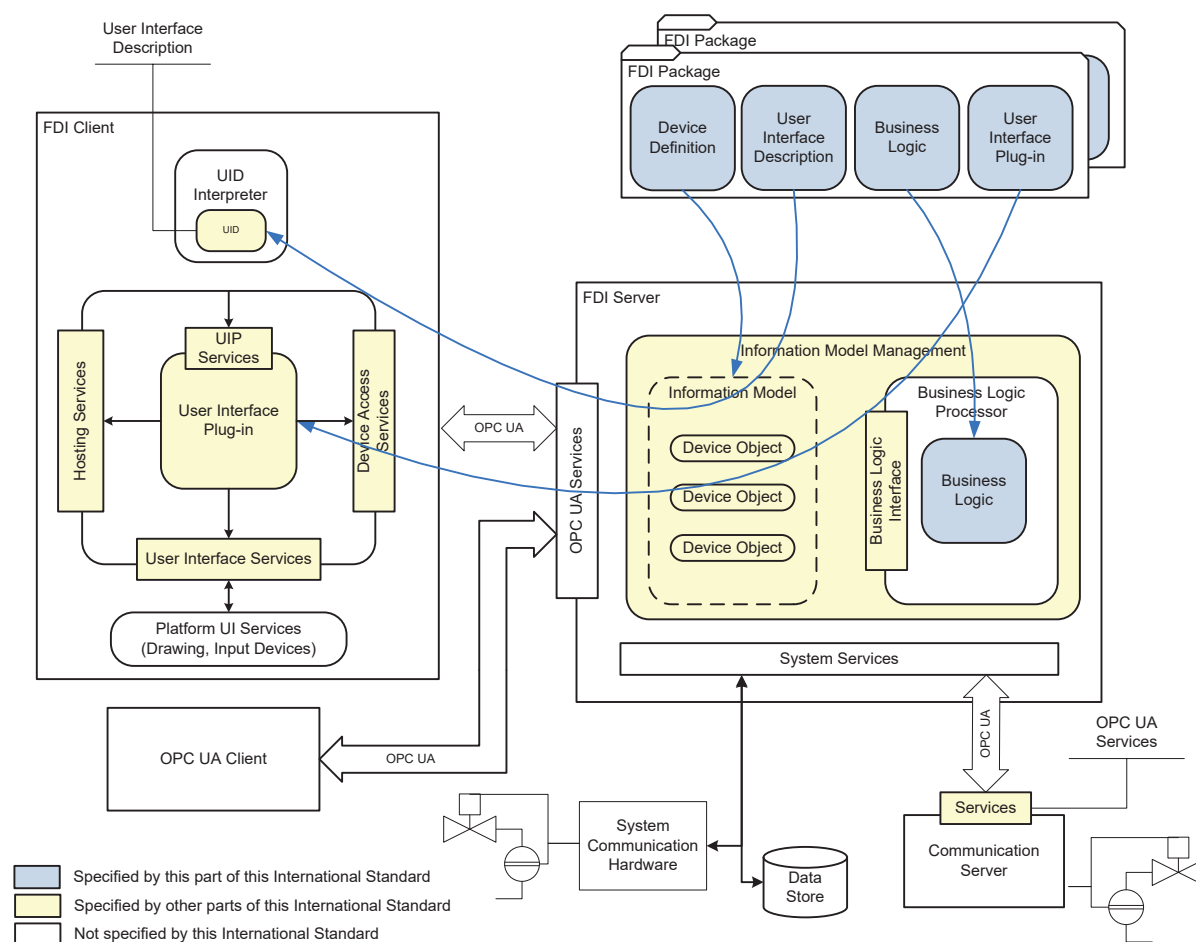


Figure 1 – FDI architecture diagram

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 61804 (all parts), *Function blocks (FB) for process control and Electronic Device Description Language (EDDL)*

IEC 61804-3, *Function blocks (FB) for process control and Electronic Device Description Language (EDDL) – Part 3: EDDL syntax and semantics*

IEC 61804-4, *Function blocks (FB) for process control and Electronic device description language (EDDL) – Part 4: EDD interpretation*

IEC 62769-1, *Field Device Integration (FDI) – Part 1: Overview*

- 124 IEC 62769-5, *Field Device Integration (FDI) – Part 5: FDI Information Model*
- 125 IEC 62769-6, *Field Device Integration (FDI) – Part 6: FDI Technology Mapping*
- 126 IEC 62769-7, *Field Device Integration (FDI) – Part 7: FDI Communication Devices*
- 127 ISO/IEC 11578, *Information technology – Open Systems Interconnection – Remote Procedure*
128 *Call (RPC)*
- 129 ISO/IEC 29500-2:2011, *Information technology – Document description and processing*
130 *languages – Office Open XML File Formats – Part 2: Open Packaging Conventions*
- 131 ISO 639-1, *Codes for the representation of names of languages – Part 1: Alpha-2 code*
- 132 ISO 32000-1, *Document management – Portable document format – Part 1: PDF 1.7*
- 133 *Extensible Markup Language (XML) 1.0, W3C Recommendation, available at*
134 *<<http://www.w3.org/TR/REC-xml/>>*
- 135 *XML Schema Definition Language (XSD) 1.1, W3C Recommendation, available at*
136 *<<http://www.w3.org/TR/xmlschema11-1/>>*

137 **3 Terms, definitions, abbreviated terms and acronyms**

138 For the purposes of this document, the terms and definitions given in IEC 62769-1,
139 ISO/IEC 29500-2, and the following apply.

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

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

144 **3.1 Terms and definitions**

145 **3.1.1**

146 **attachment**

147 device and protocol specific support files that are not directly used to integrate the Device into
148 the system

149 **3.1.2**

150 **FDI Communication Package**

151 FDI Package that provides information to integrate an FDI Communication Server to an FDI
152 Server

153 Note 1 to entry: This note applies to the French language only.

154

155 **3.1.3**

156 **FDI Device Package**

157 FDI Package that provides one or more device types to an FDI Server

158 Note 1 to entry: This note applies to the French language only.

159 **3.1.4**

160 **FDI Package Model**

161 description of the structure and elements of an FDI Package

162 Note 1 to entry: This note applies to the French language only.

163 **3.1.5**

164 **FDI Profile Package**

165 FDI Package that provides information for creating a device type node that can be associated
166 with a class of devices

167 Note 1 to entry: This note applies to the French language only.

3.1.6**FDI Registration Authority**

entity, which has the right and the ability to perform FDI conformance tests on FDI Packages and to issue registration certificate documents

3.1.7**FDI UIP Package**

FDI Package that provides one or more UIPs to an FDI Server

Note 1 to entry: This note applies to the French language only.

Note 2 to entry: This note applies to the French language only.

3.1.8**Package Catalog**

file that describes the contents of an FDI Package

3.1.9**UIP Catalog**

file that describes the properties of a UIP

Note 1 to entry: This note applies to the French language only.

3.1.10**UIP Variant**

platform specific element of a User Interface Plug-in

Note 1 to entry: A UIP is composed of one or more variants. For example, one variant may be optimized for portable devices while another variant is optimized for large screen devices.

Note to entry: This note applies to the French language only.

3.2 Abbreviated terms and acronyms

For the purposes of this document, the abbreviated terms and acronyms given in IEC 62769-1 as well as the following apply.

CFF	Capabilities File for FOUNDATION Fieldbus
ID	Identifier
IDE	Integrated Development Environment
IM	Information Model
PNG	Portable network graphics
ZIP	Zipper (archive file format)

4 FDI Package Model

4.1 Overview

The FDI Package Model (see Figure 2) provides all of the elements necessary to integrate devices, network components and FDI Communication Servers into a system.

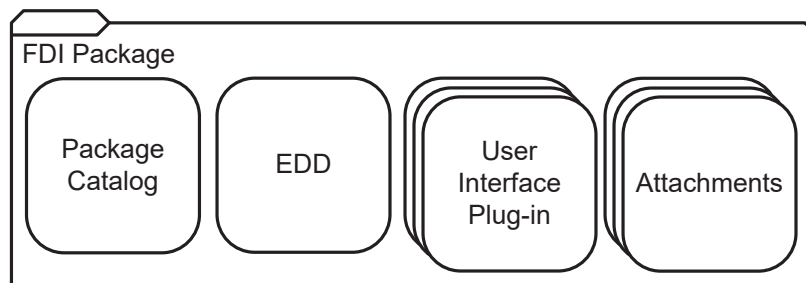


Figure 2 – FDI Package Model

Figure 3 shows the mapping of the FDI Package functional elements, as specified in IEC 62769-1, to the physical elements in an actual FDI Package, as specified in this standard.

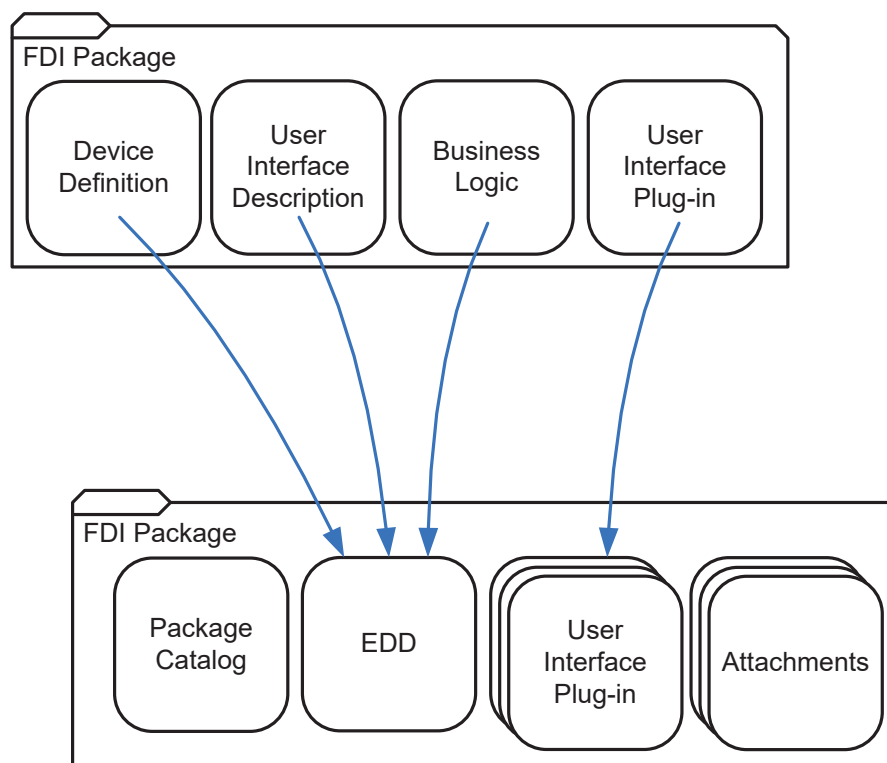


Figure 3 – Architectural mapping

The Electronic Device Description (EDD) corresponds to the Device Definition, the User Interface Description, and the Business Logic functional elements. A set of physical User Interface Plug-ins corresponds to the User Interface Plug-in functional element.

The other physical elements in the FDI Package, the Package Catalog and Attachments, provide support for basic mechanisms such as identification, versioning and deployment, and distribution of manufacturer and/or protocol specific information about the device and/or the User Interface Plug-ins.

4.2 FDI Package Elements

4.2.1 Package Catalog

The Package Catalog is a required element that provides information about the contents of the FDI Package including, but not limited to, identification and version information, device type information, hardware and input/output device requirements, FDI Technology Version, and protocol specific characteristics.

The Package Catalog is used by an FDI Server to create a catalog of device types and to create DeviceType Nodes in the Information Model.

4.2.2 Electronic Device Description

The EDD is an element that provides Device Definition, User Interface Descriptions, and Business Logic to an FDI Server.

Subclause 4.3 specifies for which FDI Package types an EDD is required.

To maximize interoperability, the initial setup of a device shall be achievable solely with the User Interface Descriptions, Device Definition and Business Logic that are part of the EDD in the FDI Device Package. The use of User Interface Plug-ins is optional and targeted in particular for the complete setup of complex devices.

4.2.3 User Interface Plug-in

A User Interface Plug-in (UIP) is an element that enables an FDI Client to present a programmed user interface. The FDI Server only stores the UIP from a consumed package; it does not execute or interpret the UIP.

A UIP is referenced from a User Interface Description. Those references are reflected in the Information Model through functional groups (see IEC 62769-5). References to UIPs in the Information Model are logical through a unique reference. The physical structure of the UIP is not at the Information Model level. Physically, a single UIP may consist of one or more UIP Variants, each targeted at a specific platform and run-time environment.

Figure 4 illustrates the logical reference to a UIP in the EDD and the physical structure of that UIP. The EDD of the FDI Package references a globally unique identifier of the UIP. In addition, the Package Catalog also lists the UIPs required by the device type along with the versions of the UIP supported by the package.

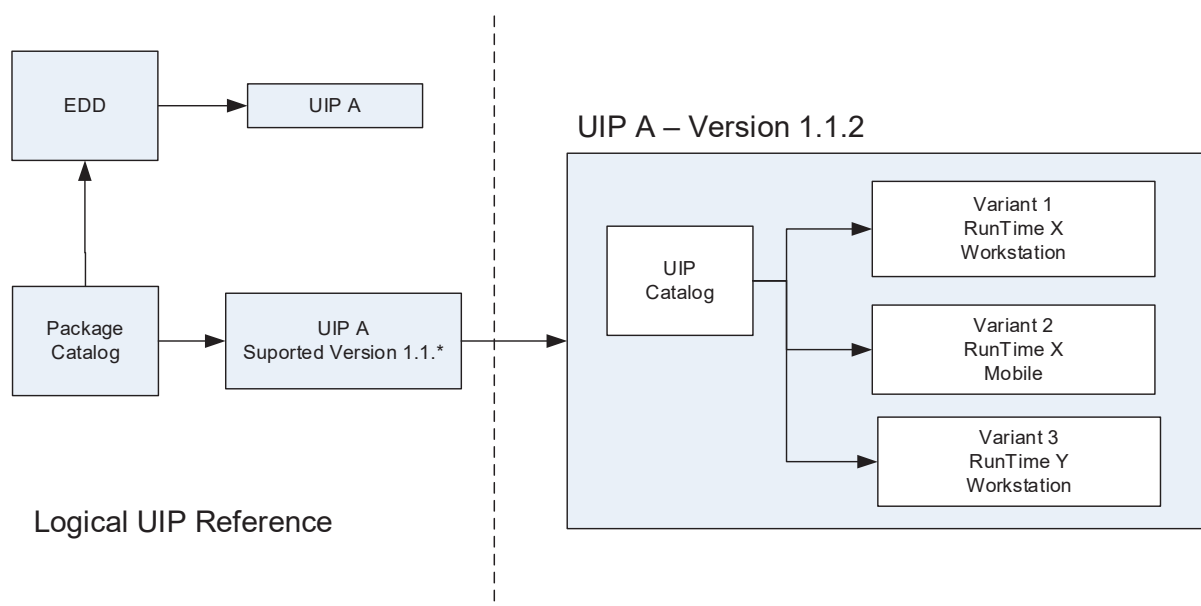


Figure 4 – User Interface Plug-in Reference Model

A UIP can be designed to meet different platform requirements since not all platforms support the same screen sizes and input devices.

When an FDI Client requests a UIP specifying the platform type, the deployment mechanism in the FDI Server looks for a UIP Variant that meets the platform type specified and returns it to the FDI Client.

The target platform defines specific screen resolutions and input devices that shall be supported by the UIP Variant. Available target platforms are described in Table 1.

Table 1 – UIP Platform

Platform	Characteristics
Workstation	A full client typically with a larger display, full keyboard and mouse input.
Mobile	A limited client typically with a smaller display and limited input capabilities.

Detailed platform requirements are technology dependent and specified in IEC 62769-6.

A UIP can be delivered internally (self-contained) or the UIP can be delivered through an FDI UIP Package. An EDD of one package shall not reference any UIP delivered self-contained with another package. Figure 5 illustrates two FDI Device Packages referencing UIPs from an FDI UIP Package. In this example, the EDD from Device Package A and Device Package B references UIP B delivered by UIP Package C.

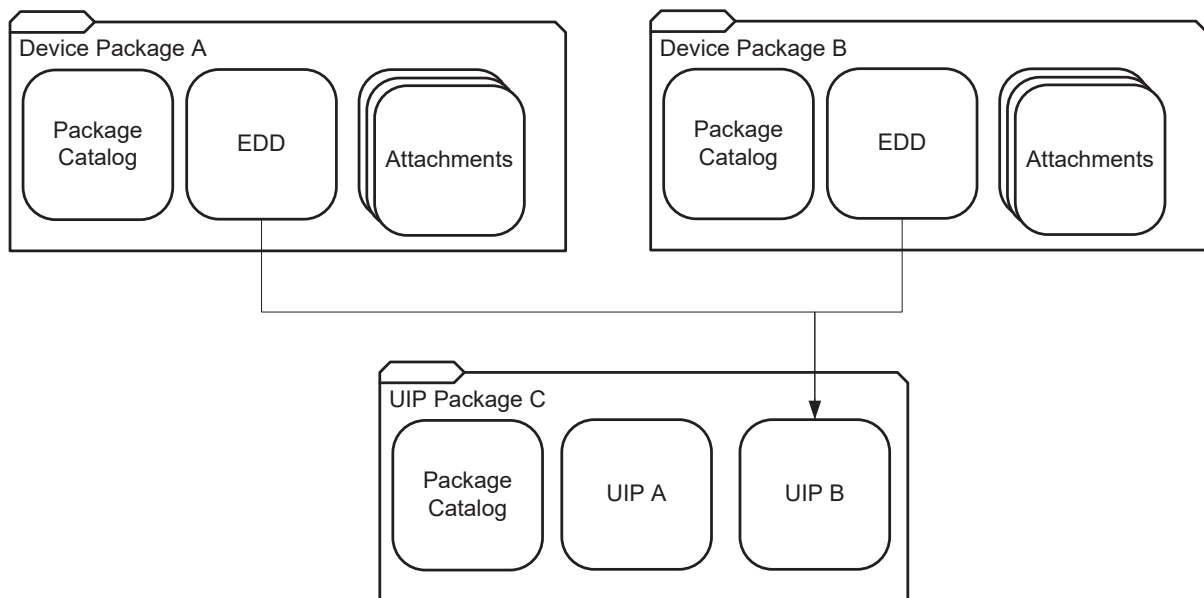


Figure 5 – Multiple FDI Packages referencing a common UIP

4.2.4 Attachment

Attachments provide device and protocol specific support files, along with other files that are not directly used to integrate the device into the system, for example, product manuals.

The following types of Attachments are defined and reflected in the Package Catalog:

- Protocol specific files (see 5.3.4.3).
- Documentation (see 5.3.4.2).
- Device pictures (see 5.3.4.1).

Some protocol specific files are mandatory (see Annex F).

4.3 FDI Package Types

4.3.1 FDI Device Package

The FDI Device Package is intended to provide information about a device to a system. An FDI Device Package describes a single device type. Figure 6 shows the physical structure of

an FDI Device Package describing a single device type. Details about how to create a package for a modular device is described in Annex I.

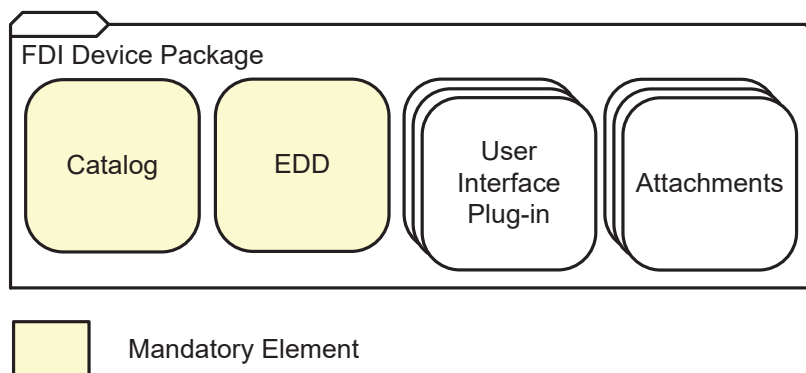


Figure 6 – FDI Device Package

The FDI Device Package shall have a single Package Catalog.

An FDI Package for simple Devices contains one EDD. For modular Devices multiple EDDs may exist (see Annex I).

The FDI Device Package may include one or more User Interface Plug-ins.

The FDI Device Package may include Attachments.

4.3.2 FDI Communication Package

The FDI Communication Package is intended to provide information about a single FDI Communication Device. The group of FDI Communication Devices splits into two sub-groups.

- FDI Communication Packages for Gateways – Contain everything required to describe all device functions and logic required to bridge between different communication protocol networks, including the bridging algorithms (details are described in IEC 62769-7).
- FDI Communication Packages for FDI Communication Servers – Contain basic information to describe the communication device and to integrate it into the FDI Host but also to create a valid reference to the external FDI Communication Server application. This application shall not be delivered as part of the FDI Communication Package. The FDI Communication Server provides access to single field devices or field device networks (details are described in IEC 62769-7).

Requirements to the FDI Communication Package content that are specific for FDI Communication Servers are defined in Annex J.

However, representatives of both groups are integrated into FDI Hosts by using FDI Communication Packages. Their physical structure is shown in Figure 7. Binary components necessary to communicate to the communication hardware shall be provided outside the scope of this FDI Communication Package.

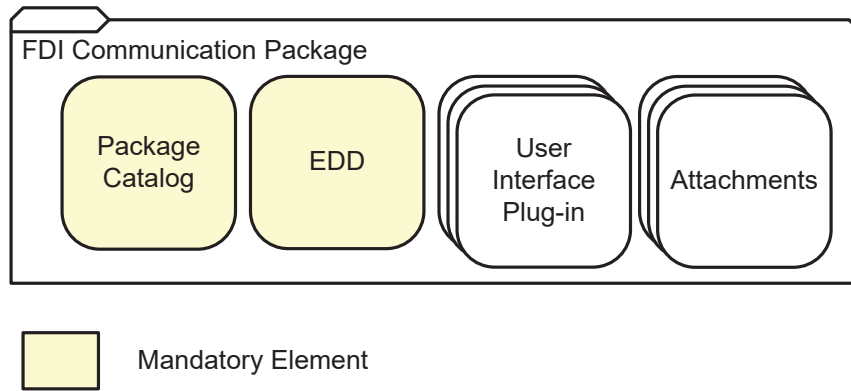


Figure 7 – FDI Communication Package

4.3.3 FDI UIP Package

The FDI UIP Package delivers User Interface Plug-ins to an FDI Server. It is used to distribute one or more UIPs that are intended to be shared by several device types. Its physical structure is illustrated in Figure 8.

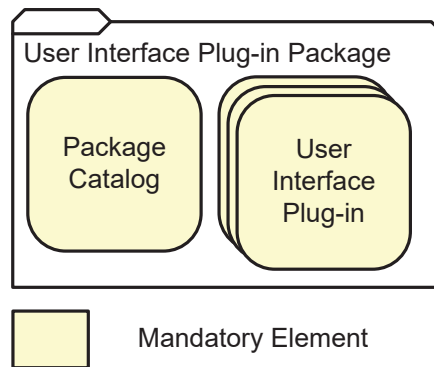


Figure 8 – FDI UIP Package

The FDI UIP Package shall have a Package Catalog and one or more User Interface Plug-ins.

4.3.4 FDI Profile Package

An FDI Profile Package provides information for creating a device type node that can be associated with a class of devices implementing a common set of parameters and functions (described in profiles or profile like definitions created by, for example, communication foundations or similar interest groups).

Conceptually, an FDI Profile Package provides information that is a super class of an FDI Device Package. The FDI Profile Package is represented in Figure 9.

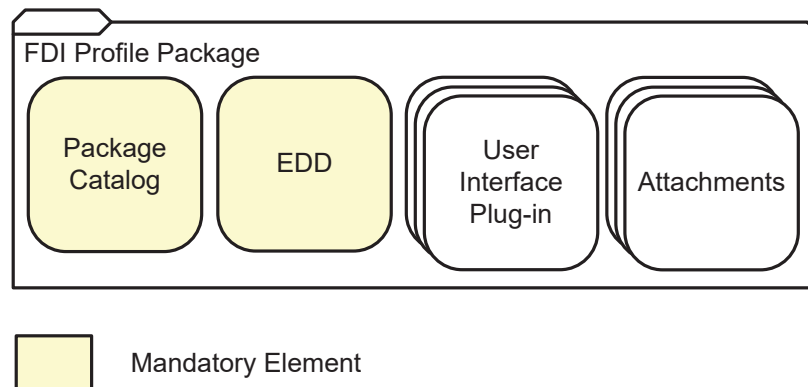


Figure 9 – FDI Profile Package

316 These packages enable integration of devices without having a specific FDI Device Package.
317 FDI Profile Packages only support standard functionalities as defined by the corresponding
318 communication protocol and application profiles (Annex F).

319 An FDI Profile Package shall be self-contained. For example, if a Profile B extends the
320 definition of a Profile A, then the FDI Profile Package for the Profile B shall include a
321 complete definition of Profile B, including the elements from Profile A.

322 **Figure 10 – Device Function and Parameter sets (type and profile specific)**

323 Figure 10 represents the entire functionality of a device. Some of the functionality conforms to
324 a specific communication profile, which may be accessed by using an FDI Profile Package. If
325 there is a need to access Device Type specific functionality, in addition to the common
326 functionality, then an FDI Device Package is required.

327 The detailed description of the communication protocol specific requirements is not part of
328 this standard.

329 An automatic FDI Package selection implementation (launching FDI Packages matching a
330 connected physical device) typically would search first for available Device Type specific FDI
331 Device Packages. If the specific package is not available the profile specific FDI Profile
332 Package is loaded (if available). This behavior however is system specific.

5 FDI Package implementation

5.1 Packaging technology

The FDI Package's format complies with the Open Packaging Convention as specified by ISO/IEC 29500-2. The Open Packaging Convention specification is designed to represent a broad range of applications. The technology was designed to provide a mechanism for delivering, deploying, and utilizing a set of logically and physically related components in a flexible, extensible, efficient, and open manner.

Subclause 5.2 clarifies the use of specific elements of the Open Packaging Conventions specification.

Note: *fdi-cooperation.com* was used when the FDI Cooperation LLC existed. The URL has not been changed to not endanger consistency. The URL does not indicate the current technology ownership and may not point to a valid address.

5.2 Use of Open Packaging Conventions

5.2.1 Unknown Parts

Unknown parts are all parts not defined in this document or ISO/IEC 29500-2. Unknown parts may exist as the FDI specification is updated and legacy FDI Server may not have knowledge of these additional parts. Unknown parts shall be ignored by the FDI Server to enable forward compatibility.

5.2.2 Invalid Parts

Invalid parts are those parts that do not conform to the naming guidelines or that do not associate with content types specified in this document or ISO/IEC 29500-2. Invalid parts shall not be used in an FDI Package.

5.2.3 Unknown Relationships

Unknown relationships are those relationships that are not defined in this document or ISO/IEC 29500-2. Unknown relationships shall be ignored by an FDI Package consumer.

5.2.4 Interleaving

All parts of the FDI Package shall be laid out using simple ordering. The package producer shall not interleave parts.

5.2.5 Core Properties

The core properties are not used in the FDI Package Model and shall be ignored by all FDI Package consumers.

5.2.6 Thumbnails

The thumbnail is an optional part of an FDI Package.

5.2.7 Digital Signatures

The use of digital signatures as specified in ISO/IEC 29500-2 is a mandatory part of an FDI Package. For more details see Clause 7.

5.3 FDI Package Parts

5.3.1 Package Catalog

5.3.1.1 Format

The Package Catalog part is an XML file whose schema is defined in Annex E. An FDI Package shall have only one Package Catalog. The Package Catalog shall be identified by a single package relationship. The root element of the file is Catalog. The structure of a Catalog element is illustrated in Figure 11.