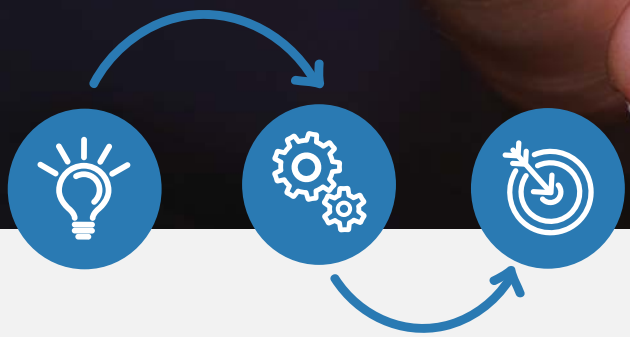
FieldComm Group™
Connecting the World of Process Automation

3 Steps to FDI



IT'S IN YOUR HANDS

WELCOME TO FDI

Ready for the three simple steps?

Ted Masters
President and CEO
FieldComm Group

“FDI is a critical path building block for Digital Transformation as the new standard for communication between field devices and hosts.”

The revolution of Digital Transformation is taking shape all over the automation industry. The need for standards has never been more relevant and both end users and manufacturers must be assured their products meet strict standards to deliver all the capability, system-wide interoperability, security and performance they expect and require. FDI is a critical component of this revolution, with a mission to simplify the integration between devices and hosts of all types: ONE device - ONE package - ALL tools!

Now, regardless of protocol, software language or manufacturer, users who purchase FDI registered hosts and device packages can be assured these standards are met with a common look and feel for their staff to utilize. Sure, it will take time to migrate existing plants and operations to “all FDI”. As we evolve in this direction, backward compatibility is imperative and a requirement for FDI registered hosts, serving to protect the users’ investment in existing assets. The FDI migration is starting now and provides users an opportunity to revolutionize the integration of the digital data from field devices across the systems that need it to run their enterprises better!

This brochure will explain why and how FDI can be implemented. All the tools and training you need to get started exist today and can be delivered through FieldComm Group. I encourage you to get started on the path of evolving your plant in this digital revolution by implementing FDI technology as your future-proof integration standard!

Achim Laubenstein
Director of Integration
FieldComm Group

“FDI is much more than a standardized way of device parameterization. The FDI architecture provides all means to expose field device information to the Internet of Things.“

The FDI development was is an unprecedented level of cooperation of major process automation suppliers and standards organizations listening to end users’ requirements. The result is a device integration technology across protocols for the management of device information throughout all areas of a plant. With one FDI Device Package applicable for all host systems, device integration interoperability issues disappear and all involved parties, end users, device vendors and host vendors benefit from significant operational savings.

Additionally, FDI’s architecture enables standardized access to device information through the OPC-UA Device Information Model for new devices and – even more important - the installed base. This includes semantic information to allow interpretation of device information by computer programs, e.g. cloud applications.

FDI technology is a perfect fit for upcoming system architectures as required by NAMUR Open Architecture, Industrie 4.0, Industrial Internet of Things and similar initiatives. FDI Technology is for end users and manufacturers the enabler to create additional value from device information.

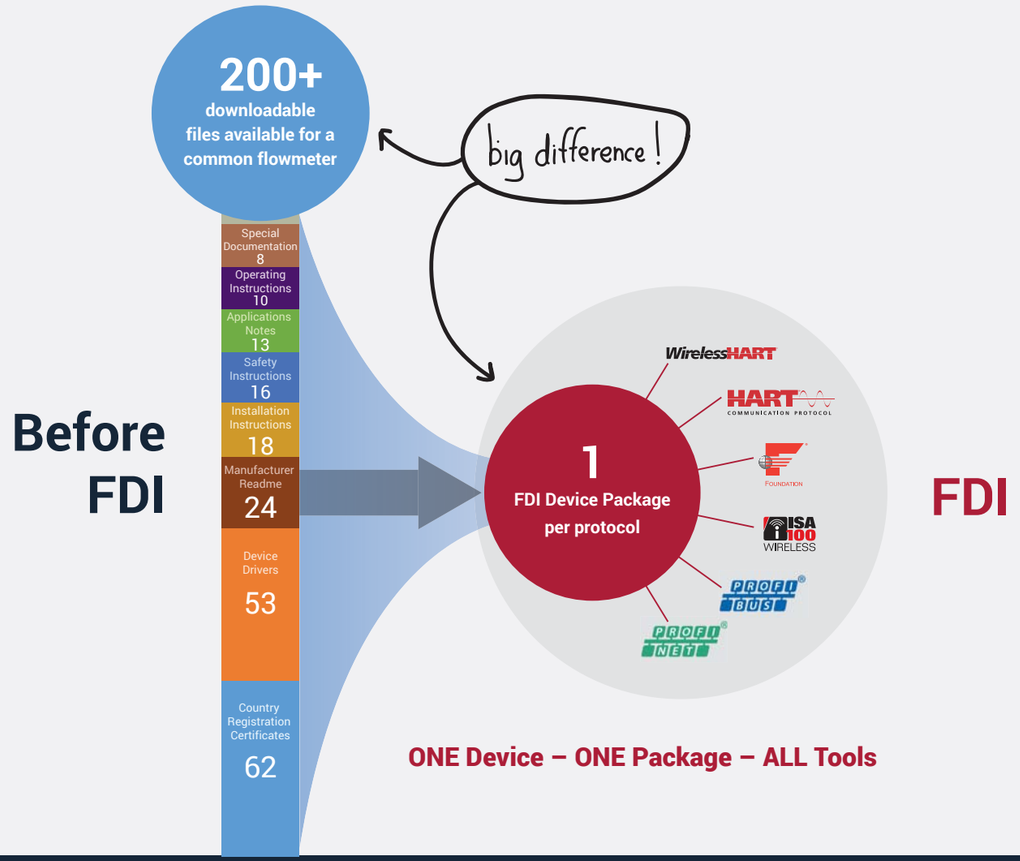
STRESS-FREE INTEGRATION

FDI Device Packages + Hosts + Registration

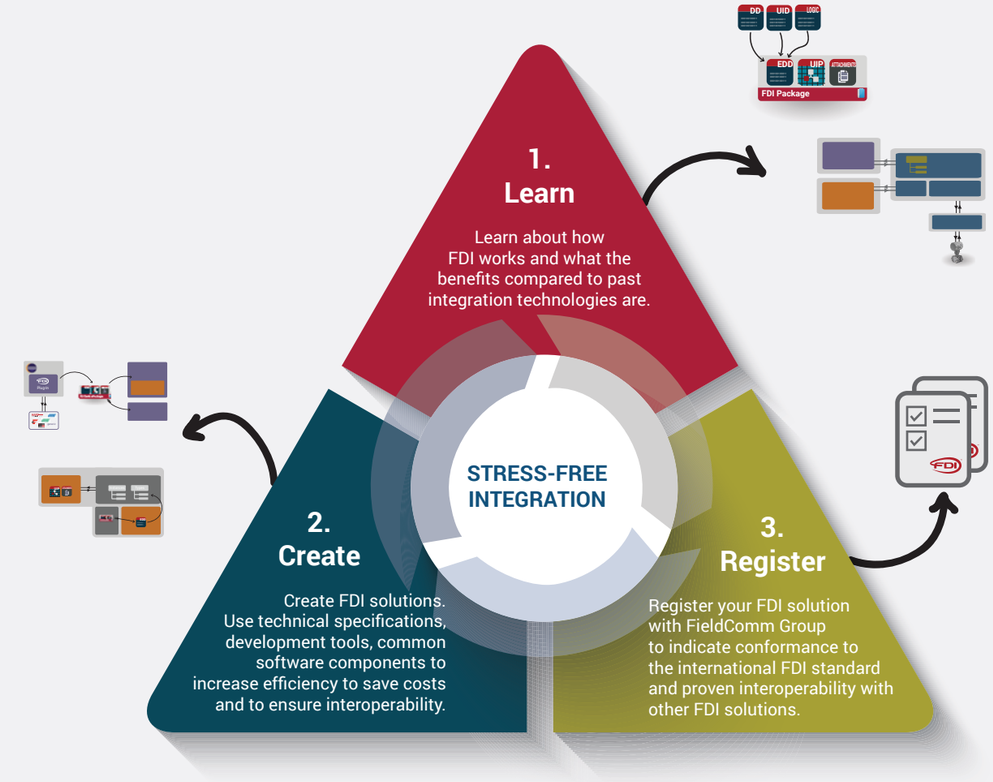
The primary objective of FDI is to dramatically simplify software installation, configuration, maintenance, and integration of field instruments with host systems. Today's field devices often include a device information file such as an EDD or a DTM™ that provides software access to the features and functions of the device, one or more user interface plug-ins that integrate with host system software to enhance usability of the field device with the host, numerous user manuals, installation instructions and data sheets.

Before FDI - multiple integration products had to be implemented and maintained by the device manufacturers, supportive documents had to be searched and collected by the users, and several integration standards had to be supported by the system vendors.

FDI brings standardization to the packaging and distribution of all the software and tools necessary to integrate a device with a host system regardless of protocol. All registered FDI devices will have one single FDI Device Package consisting of all the host needs to optimize the capabilities of each device.



Learn about FDI + Create solutions + Register products = Stress Free Integration



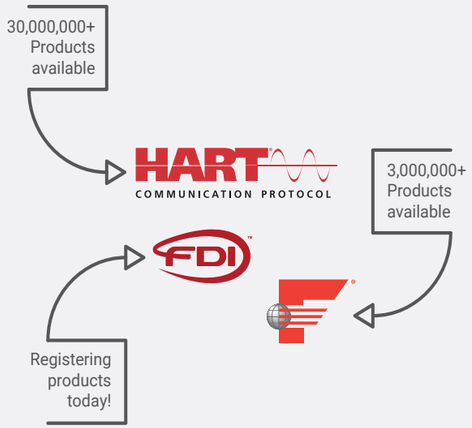
FDI is a system-wide solution. Host systems, like asset management systems, configurators, and device managers must support the FDI client-server architecture. Field device suppliers encapsulate device specific software and documentation into an FDI Device Package. Finally, product registration service providers, like FieldComm Group, deliver high quality conformance testing, registration, and FDI Device Package distribution services.

When host systems, FDI Device Packages, and high-quality registration are combined, end users can take advantage of a truly stress free device integration solution.

THE HOME OF FDI

We are the FieldComm Group

FieldComm Group is a global standards-based non-profit member organization consisting of leading process end users, manufacturers, universities and research organizations. FieldComm Group develops, manages and promotes global standards for industrial communication protocols (HART® and FOUNDATION™ Fieldbus) and for the integration of intelligent devices into automation system architectures (EDDL and FDI). FieldComm Group was founded in 2015 when the assets of HART Communication Foundation and Fieldbus Foundation were combined. In 2016, FDI technology was added to the extensive IP portfolio of FieldComm Group. While being based in Austin, TX in the USA FieldComm Group has representatives all over the world, providing members with the latest on integration and communication technologies for products mainly used in the process automation industry.



Become a FieldComm Group member:
go.fieldcommgroup.org/becomeamember

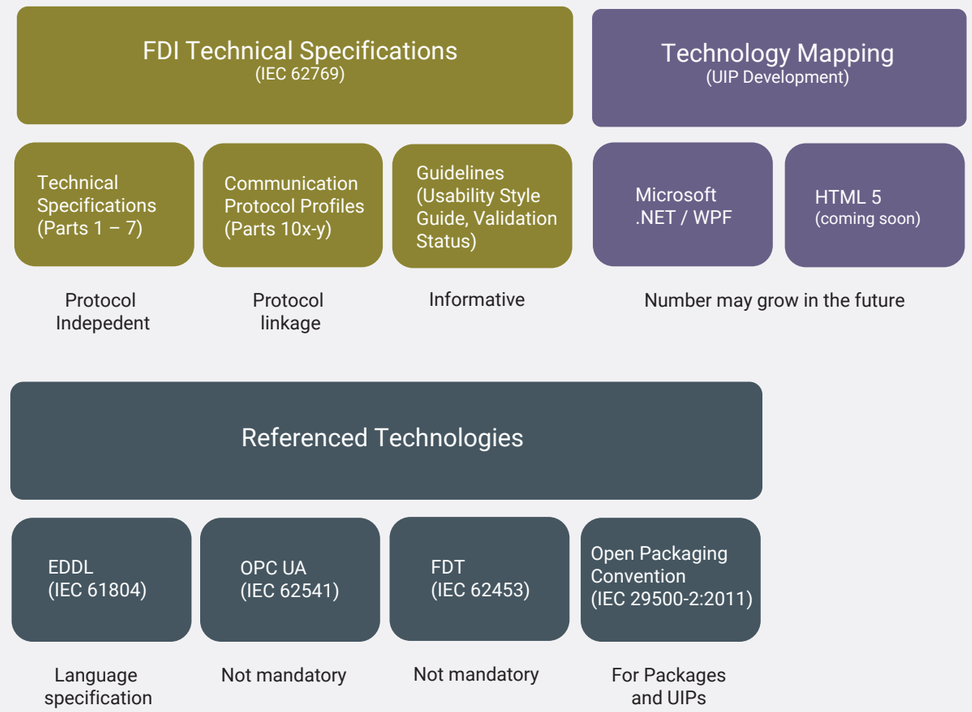
The FieldComm Group not only manages the standardization and maintenance of different technologies but also provides extensive product testing and registration services, product development services, design consulting services and technical support for the several development software products.

These services can be used by the growing community of member companies (350+ global members) to ensure reliable and interoperable HART, FOUNDATION Fieldbus and FDI products.

The development of international technology standards requires real experts. These experts are member company volunteers who come together in working groups several times a year or meet up in online conferences to collect knowledge, discuss technical aspects and to write technical specifications - creating technologies that target the needs of the end users. All activities are organized, supported and managed by FieldComm Group.

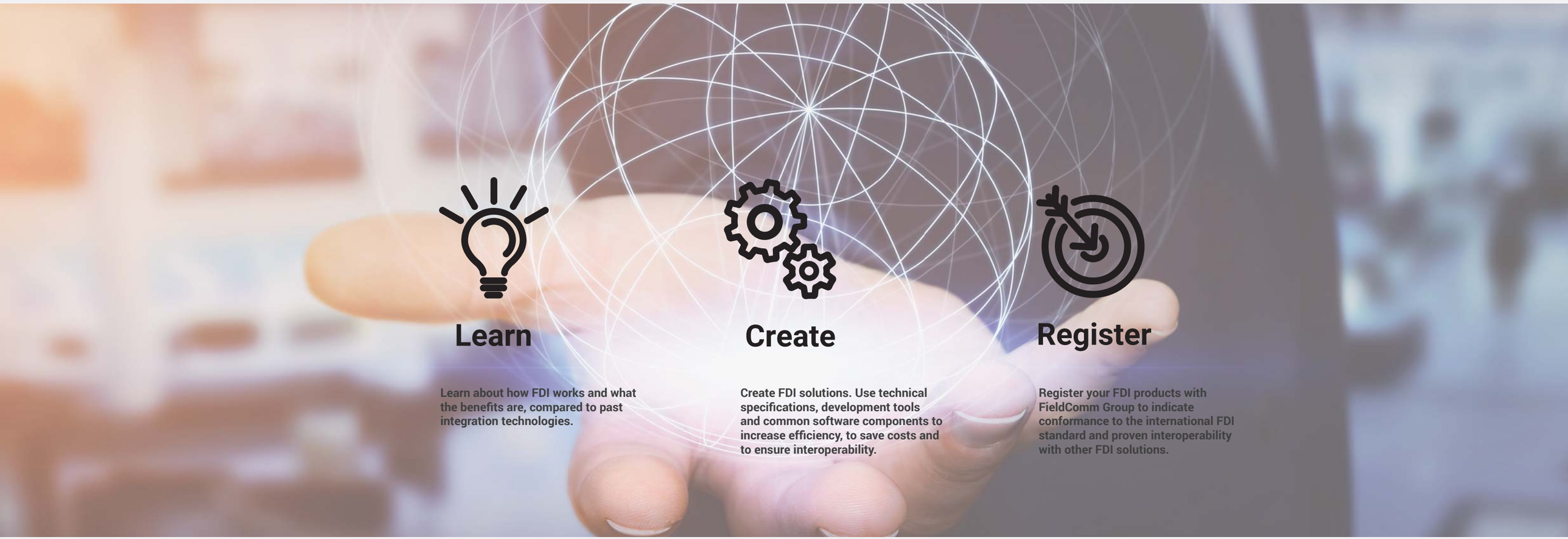
For the development of FDI, not only member companies but also different technology organizations cooperated and still cooperate. FieldComm Group, PROFIBUS and PROFINET International (PI), OPC Foundation and FDT Group share knowledge and jointly invest into the development and maintenance of FDI.

FDI Technical Specifications available here:
go.fieldcommgroup.org/fdispecification



READY?

Here are the three steps to FDI



Learn

Learn about how FDI works and what the benefits are, compared to past integration technologies.

Create

Create FDI solutions. Use technical specifications, development tools and common software components to increase efficiency, to save costs and to ensure interoperability.

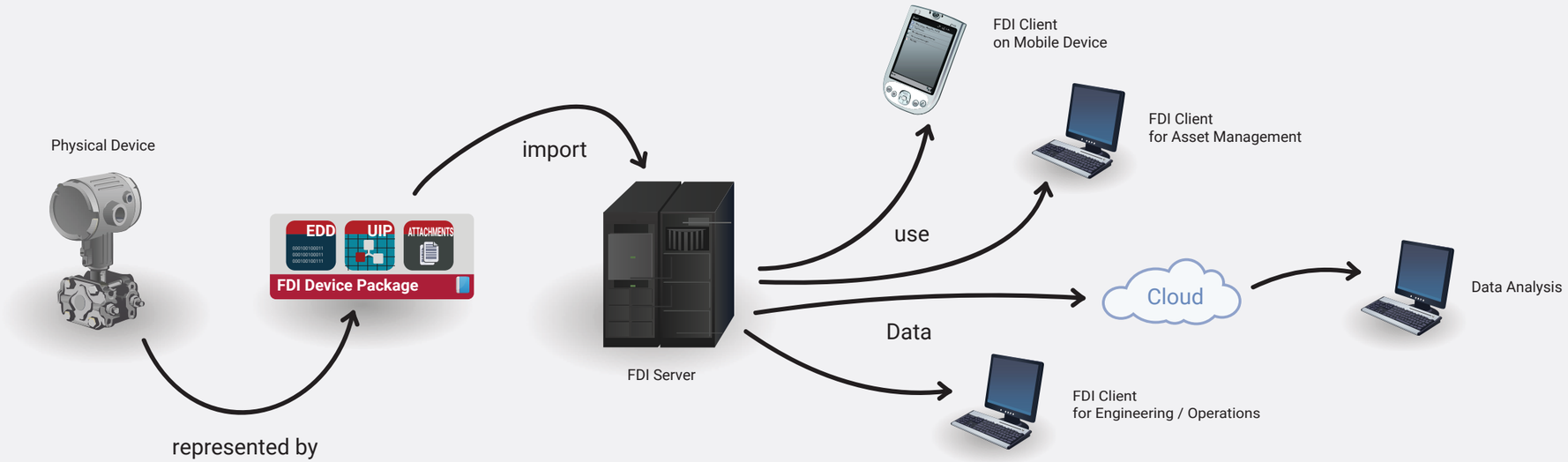
Register

Register your FDI products with FieldComm Group to indicate conformance to the international FDI standard and proven interoperability with other FDI solutions.

STEP 1: LEARN

How does FDI work and generate value for everybody?

ONE package for ALL tools = value



Today's intelligent field devices can be configured to perfectly meet process requirements. They furthermore provide data and functions to visualize the current operation or to analyze device failures. In FDI, knowledge about a device type is encapsulated into a single file, the FDI Device Package. This package can simply be imported into any FDI Server, no real installation procedure is required. The device's parameters, its functions and user interfaces, are kept in the server's information model and can be accessed by any FDI Client application (the execution of all package parts including UIPs must be supported by the FDI Client).

Clients can run under different operating systems and platforms, can be mobile or stationary - It's one package for all tools. In a digitalized industrial environment of the IIoT, device data can furthermore be published into a cloud and accessed by client and software applications in order to generate even more value for the plant operators.

Learn more about the training program:
go.fieldcommgroup.org/fditraining

FDI will provide a reduction of tools, cost savings, consistent interfaces, and ease of use for both manufacturers and end users.

Peter Zornio
Chief Strategic Officer, Emerson

More options to learn more...

There are many ways to get a more in-depth knowledge about FDI and learn about the benefits the technology brings to different interest groups. Furthermore best practices and hands-on can be experienced as well as classic training sessions.

FieldComm Group provides:
- Training Programs
- Webinars
- FDI PlugFest experience

Also available:
- Technology Roadshows
- Seminars / Trainings
- Book / eBook:

"FDI - Field Device Integration Handbook for the unified Device Integration Technology"
ISBN 978-3-8007-3630-0

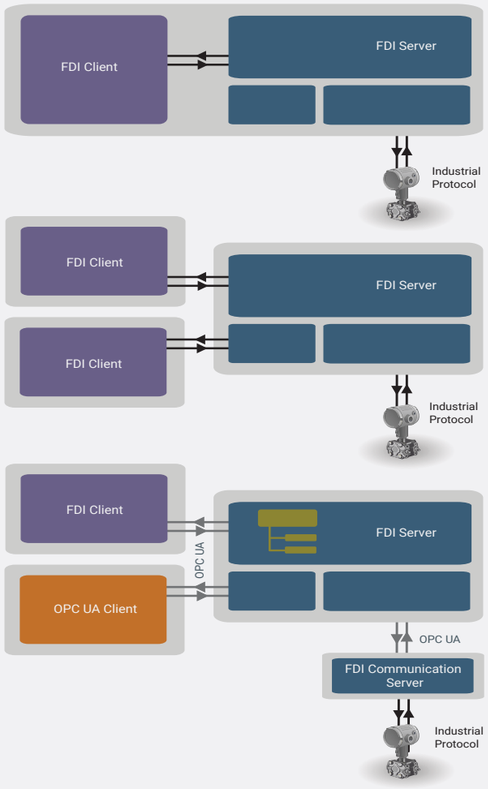
STEP 1: LEARN

FDI Hosts - the device data control centers

The FDI Host consists of two major entities, the FDI Server and the FDI Client. The server provides means to import and manage FDI Packages and also to read and interpret the content. The device data is held in the information model created by the server and based on the FDI Package content. An FDI Client is able to access this information model, to manipulate device parameters, to read measurement data and to render user interfaces to access this information.

FDI Hosts are capable of working with all FDI Package types (depending on the available Facet, see below) and the complete defined content without exceptions. The different architectures shown below are possible to meet the requirements of the users in the process industry.

Your benefits:
Harmonized, single integration technology with standardized, open data model, full support of different host architectures and powerful optional facets; prepared for connection to the IIoT.



Single user / single node
Typically monolithic architecture with one user at a time working with the Information Model.
> Device Tools, handhelds, stand alone device applications

Multi user / client server
Multiple users access the device data at a time. Client server architectures are frequent.
> Distributed host systems, asset management systems

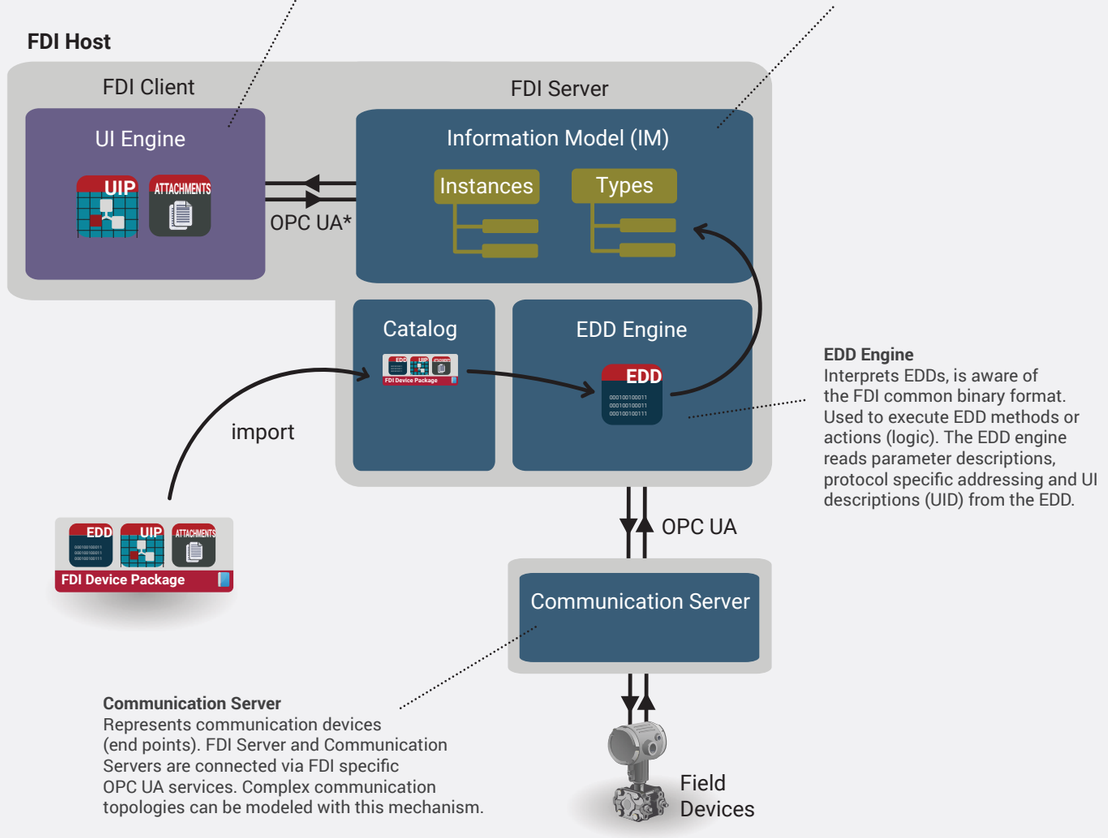
FDI Host Facets (optional)

Information Model Facet
Allows FDI Clients with OPC UA interface or native OPC UA Clients to connect to FDI Servers in order to access the defined Information Model. Selective and safe transmission of device data to IIoT applications is possible.

FDI Communication Server Facet
Allows the use of FDI Communication Packages / Servers to add any communication device to the FDI Server. Any kind of complex communication topology can be modeled with this facet being implemented.

UI Engine
For rendering of descriptive UI (XML representation generated by FDI Server) and for hosting and execution of User Interface Plug-Ins (UIPs). The UI Engine is not aware of the EDDL.

Information Model (IM)
Structured and standardized representation of device models (parameters and addressing) and User Interfaces (Menus). The IM contains type information and knows specific instances derived from those types.



EDD Engine
Interprets EDDs, is aware of the FDI common binary format. Used to execute EDD methods or actions (logic). The EDD engine reads parameter descriptions, protocol specific addressing and UI descriptions (UID) from the EDD.

Communication Server
Represents communication devices (end points). FDI Server and Communication Servers are connected via FDI specific OPC UA services. Complex communication topologies can be modeled with this mechanism.

* Optional: OPC UA Facet allows access to the IM via OPC UA services. IIoT enabler. Otherwise private interface.

STEP 1: LEARN

Get ready for the IIoT with FDI

The revolution in our industry referred to as the Digital Transformation, the Industrial Internet of Things (IIoT), the Industrie 4.0 refers to unleashing the power of data that's available in industrial plants, but remains largely unused and to the creating of additional value using this powerful intelligent data.

In FDI technology the 'Things' are represented by the different field devices (e.g. smart sensors, actuators, communication devices). With the FDI Package these devices are integrated into the operational infrastructure of the industrial plant, the FDI Host. FDI Clients are then able to access the data, to render user interfaces and to access device functions directly.

The FDI Hosts Information Model Facet with OPC UA is the key to the IIoT
An FDI Host implementing the Information Model Facet exposes a standardized OPC UA Information Model containing the complete device data, accessible via FDI Clients and standard OPC UA Clients / Servers. As part of the OPC UA infrastructure, the data collected from the 'Things' can be used by Asset Management Systems or can be published into IIoT platforms and processors to generate even more value for the plant operators.

FDI + OPC UA = IIoT connected

Digital Transformation

Digital transformation is the act of leveraging digital connectivity, scalability, analytics and re-imagined business processes to dramatically improve operational efficiency, safety and value creation.

Your benefits:
FDI has a built in IIoT connector - the Information Model Facet (OPC UA). Devices are integrated once into the IT infrastructure with the FDI Package.

IIoT Services*
Can be available on premise or in the cloud. Provide additional value (e.g. through big data analysis, specified user interfaces, multi-node condition monitoring, ...). Read only access to device parameters (recommended).

publish

OPC UA Clients
Have access to the parameter set of the Information Model. Read only access to device parameters (recommended).

OPC UA Clients

FDI Client (full featured)
Have access to the entire Information Model, render UID and host UIPs. Can read from and write to device parameter nodes. Execute logic.

FDI Clients

expose

OPC UA

FDI Host with Information Model Facet
Has knowledge about the device data, functions and how to access this data (knowledge about the communication protocol) through the imported FDI Device Package. This knowledge is available in the FDI Host Information Model (IM)

OPC UA Information Model
Instances
Types
Catalog
EDD Engine
EDD

FDI Server

EDD UIP ICONS
FDI Device Package

Communication Infrastructure

Smart device represented by FDI Device Package
All device data and functions have been described by the device manufacturer and encapsulated in an FDI Device Package.

'Things' in the field

* List of services not complete. Represents example services.

STEP 1: LEARN

FDI Packages - the key to device data

User Interface Description (UID)
Description of user interfaces written in EDDL. UID supports basic parts such as windows, tabs, input fields, buttons as well as complex elements such as trends, gauges and bar graphs. Part of binary EDD.

> Mandatory element

Logic
Source code written in EDDL with a syntax comparable with C. Allows the implementation of logic, e.g. describing parameter dependencies or algorithms for value calculation. Part of binary EDD.

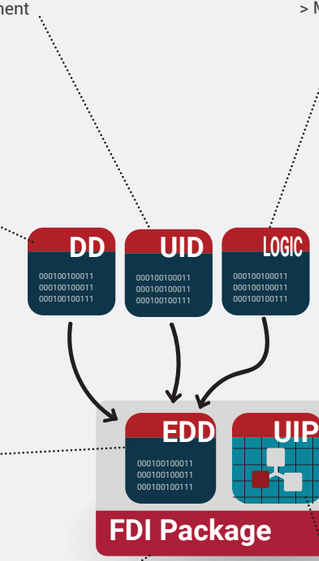
> Mandatory Element

Device Definition
Description of the device model, written in the Electronic Device Description Language (EDDL), e.g. Parameters, Variables, Addressing principles. Part of binary EDD.

> Mandatory element

Attachments
Device pictures, documentation, registration certificates but also protocol integration files are bundled into the FDI Package. The file formats are defined.

> Optional element
(can be mandatory for selected protocols)
> Allowed number = 1..n



Electronic Device Description (EDD)
Tokenized binary containing Device Definition, UID and Logic written in EDDL.

> Mandatory element
> Allowed number = 1

Catalog File
Contains information about the device type (identification, versioning, protocol details), the device manufacturer (name, contact information) as well as compatibility information (e.g. supported device revisions, supported UIP versions)

> Mandatory element
> Allowed number = 1

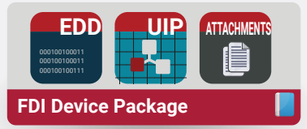
Packaging (*.fdix)
FDI Packages use the Open Packaging Convention (OPC) to bundle all package parts (mandatory and optional) into a single file with the ending *.fdix. A specified naming convention has to be followed.

User Interface Plug-In (UIP)
Programmed user interfaces. Consists of UIP Variants for different platforms, implemented by using different technologies (e.g. Workstation platform requires .NET / WPF UIP implementations). Bundled by using the OPC Technology into a single file with the ending *.uip.

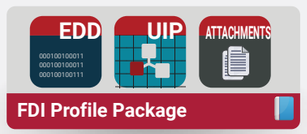
> Optional element
> Allowed number = 0..n

In the FDI world not only field devices, but also communication devices and gateways are all represented by FDI Packages. Different package types make sure that the different specialties of the device groups are considered. Device descriptions or programmed user interfaces, documentation and protocol integration files can be delivered with a package. Everything the user needs is bundled in a single file. FDI Packages are typically created and delivered with the hardware product by the device manufacturers, who seal the package to protect the content. If this seal is broken the FDI Host informs the user about the security breach. To ensure interoperability the package should be registered with FieldComm Group. The signed registration certificate is included in the package and will be checked by the FDI Host.

Your benefits:
Harmonized, authenticated, single integration technology with all possibilities to perfectly represent the device type and all required artifacts encapsulated in a single file.

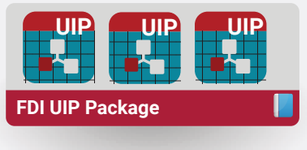


FDI Device Package
Represents sensors, actuators and other intelligent devices in the plant. Can be used with a specific device type and its specified versions.
Mandatory > Catalog, EDD, Attachments (e.g. CFF for FOUNDATION Fieldbus)
Optional > UIPs, Attachments (e.g. Manual, Certificates)



FDI Profile Package
Can be used with all device types for view and manipulation of profile parameters and functions of a single profile (e.g. HART Universal and Common Practice Commands).
Mandatory > Catalog, EDD, Attachments (e.g. CFF for FOUNDATION Fieldbus)
Optional > UIPs, Attachments (e.g. Manual)

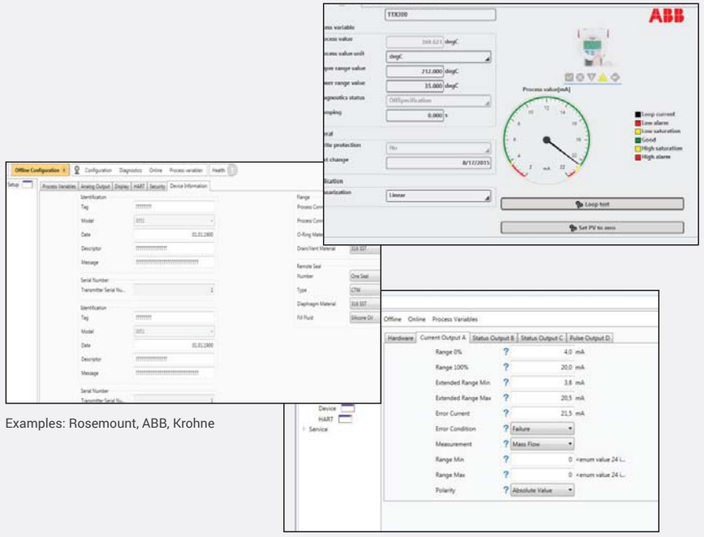
FDI Communication Package
Represents communication devices (e.g. HART Modems, Gateways) and also provides translation knowledge between different protocols. Communication end points, directly connected to the PC additionally require an
FDI Communication Server.
Mandatory > Catalog, EDD
Optional > UIPs, Attachments (e.g. Manual)



FDI UIP Package
Container for UIPs. Only allowed to be used to deliver UIPs, not required for device parameterization but to provide added value for the users.
Mandatory > Catalog, UIPs
Optional > None

STEP 1: LEARN

UID and UIP - What is the difference?



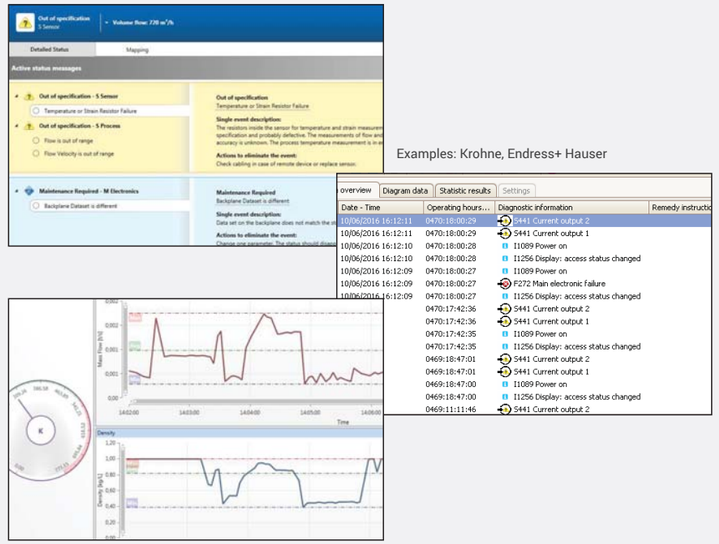
Examples: Rosemount, ABB, Krohne

UID

000100100011
000100100011
000100100111

&

UIP



Examples: Krohne, Endress+ Hauser

Your benefits:
Easy to use and fast to implement. Full efficiency and platform independence with simple descriptive user interfaces and the implementation of basic logic.

The User Interface Description (UID) is part of the Electronic Device Description Language EDDL and allows the efficient development of user interfaces to access device parameters and functions. Typical UI parts used are windows, tabs and input fields. For more sophisticated user interfaces special UI parts pictures, trends or gauges can be used.

The user interface can be structured by using menus. FDI defines standard menus which are used as main entry points (e.g. Diagnostics, Maintenance, Process Variables). In addition, the UID allows the implementation of dynamic user interfaces. The visibility of parameters or input options can for example be based on conditionals.

The majority of the user interface should be implemented as UID since it is not bound to a specific platform or operating system and part of FieldComm Group managed EDDL technology. User Interface Descriptions can be implemented very efficiently. However UID is limited to the UI parts defined in EDDL and the basic logic capabilities of the descriptive programming language.

User Interface Plug-Ins (UIP) extend the capabilities of UID. High-level programming languages and state of the art implementation technologies such as .NET or HTML5 (coming soon) can be used to implement impressive, complex UI and algorithms. Complex device functions can be exposed in an understandable and usable way to the users (e.g. tank geometry, valve signatures, NE107 status configurations). This increases the work efficiency on site. A UIP consists of platform / operating system specific variants. The different variants consider the specialties of the platforms such as screen sizes, touchability or even different use cases. The FDI Technology clearly defines how the UIP interacts with the FDI Client and the Information Model as well as with the hosting PC. They are executed in a sandbox to protect the FDI Host.

Currently FDI defines two platforms: WORKSTATION and MOBILE. The platform specific implementation technologies for UIPs are constantly monitored to ensure interoperability and to secure the life cycle.

Your benefits:
Unlimited possibilities for visualization of complex device functions, implementation of complex algorithms and unique selling points. Support of different platforms and their specialties.

“UIP is a great enhancement offering the functionality not available with EDDs. It enables smooth parametrization and sophisticated display options.”

Dr. Christian Brehm
Product Manager Device Interfaces, Krohne

STEP 2: CREATE

How to implement an FDI Host?

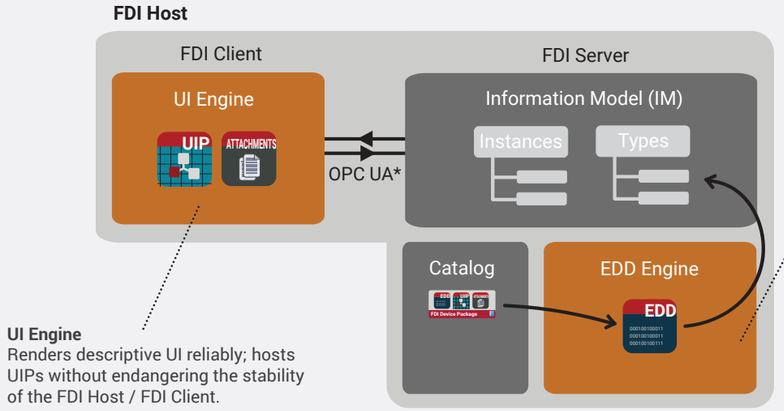
Before creating an FDI Host, the following important questions must be answered:

- What shall be the FDI platform (WORKSTATION or MOBILE)?
- Will it be a single or multi user application?
- Single node or client / server?
- Which FDI Host facet will be supported (Information Model, Communication Server)?
- Should the interoperability be ensured by using standard software components (FDI Common Host Components)?

"We see the use of the Common Host Components as a major factor in minimizing integration issues that occurred in the past as a result of manufacturer-specific solutions. This is underlined by the requirement, documented in the annex of the NE105 (Device Integration), to have a consistent use of FDI standard software components. This requirement is valid for both host systems and development environments for FDI Device Packages. Goal is the 'Plug and Produce' device integration in all host systems through a single Device Package per device type."

Michael Pelz, Sven Seintsch
Namur

key interoperability elements



UI Engine
Renders descriptive UI reliably; hosts UIPs without endangering the stability of the FDI Host / FDI Client.

EDD Engine
Encapsulates knowledge and expertise of the EDDL and every detail shows how to deal with specialties implemented by using this proven device description language. Knowledge collected from hundreds of registered EDDs.

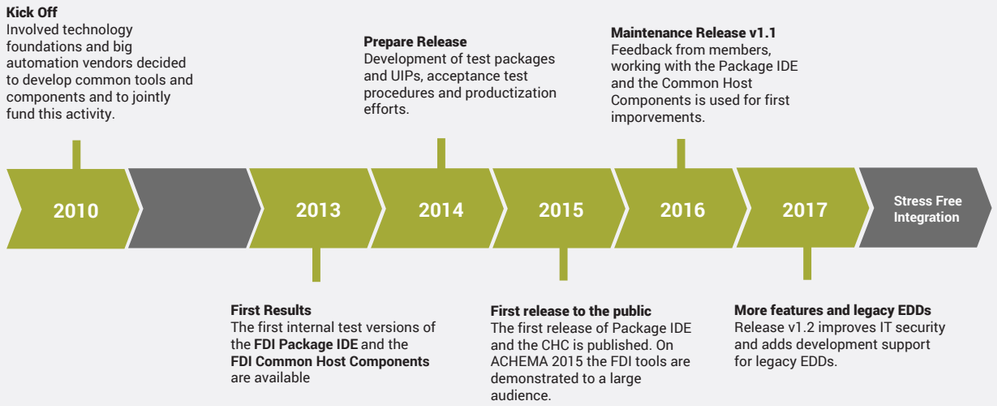
FDI Common Host Components (CHC)

The FDI Common Host Components (CHC) ease the development of a reliable and interoperable FDI Host by providing the core for an FDI Host implementation. The Reference Runtime Environment, included into the FDI Package IDE is also based on the CHC. FDI Packages are also implemented against this reference - The CHC facilitate the creation of a fully compliant, interoperable FDI Host. FieldComm Group and industry partners are collaboratively working on the development, maintenance and improvement of the CHC since 2010 and will continue this commitment in the future.

Where can I get the FDI Common Host Components?
The components can be licensed from FieldComm Group or PI (PROFIBUS & PROFINET International). The initial license includes one year of maintenance under the Product Service Program.

What about the legacy EDDs in the market?
EDD technology was and still is a wide spread, proven technology. EDDs have been implemented and work reliably in numerous EDD Host. In order to allow backward compatibility even with a brand new FDI Hosts, the FDI Common Host Components support the interpretation and execution of EDD files tokenized with legacy tokenizers for HART (*.fm6, *.fm8) and FOUNDATION Fieldbus (*.ff5, *.ffo).

Learn more about the FDI Common Host Components:
go.fieldcommgroup.org/fdichc



Your benefits:
The FDI Common Host Components are a reliable and interoperable technology enabler for FDI as well as for existing EDDs. Neither knowledge about EDDL interpretation and execution, nor expertise on FDI user interfaces rendering or UIP hosting is required in order to successfully build an FDI Host when FDI Common Host Components are used. FieldComm Group continues to improve the CHC for a Stress Free Integration.

STEP 2: CREATE

How to implement an FDI Package?

Before creating an FDI Package, the following important questions must be answered:

- Which Package Type is required for the device to be described (Device, Profile, Communication)?
- Can EDDL source code be reused?
- Which Attachments are required and what documents should be included in the package?
- What needs to be implemented in UID? Which function should be implemented in a UIP?
- For which platforms should the UIPs be built for (WORKSTATION and / or MOBILE)?

Learn more about the FDI Package IDE:
go.fieldcommgroup.org/fdipackageide

tool suite for full efficiency

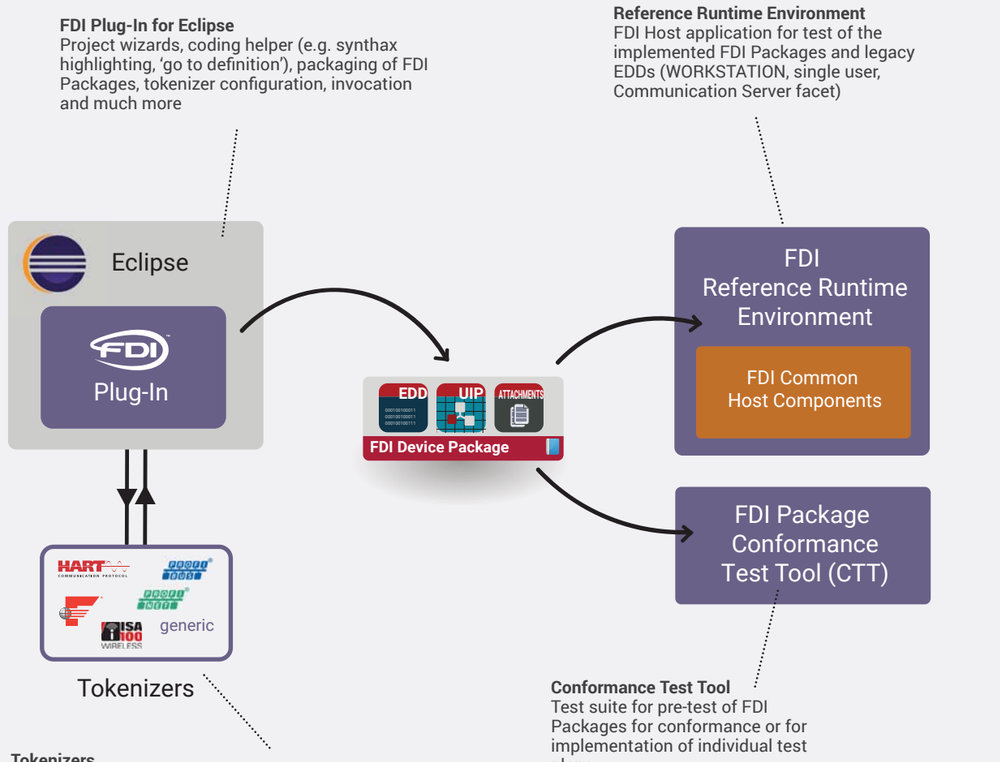
Your benefits:
The FDI Package IDE is a full featured tool suite for the efficient development of EDD and FDI Package solutions.

The FDI Package IDE speeds up the development of reliable and interoperable FDI Packages. The development environment supports the coding and tokenization of EDDL source code for use in FDI Packages or in EDD Hosts. A reference runtime environment which contains the FDI Common Host Components allows the test of the solution in a real FDI Host. A configurable and extensible conformance test tool completes the tool suite - The FDI Package IDE facilitates the creation of fully compliant FDI Packages.

Can existing EDDs be reused in FDI Packages?
Most device manufacturers have EDDs available for their existing products. This EDDL source code can easily be used as a basis for the FDI Device Package development. Just a few adjustments and extensions are required to make the EDD ready for FDI (more details on page 24/25).

Where can I get the FDI Package IDE?
The development environment can be licensed from FieldComm Group or PROFIBUS and PROFINET International (PI). The FDI Package IDE can be licensed for certain communication protocols, e.g. HART, FOUNDATION Fieldbus, PROFIBUS/PROFINET, ISA 100 or for other protocols with the 'Generic Protocol Annex' license.

What about the legacy EDDs for the market?
EDD Technology was and still is a wide spread, proven technology. Numerous EDD Hosts are in the market and still require EDDs for device integration. With the FDI Package IDE a single development environment can be used by the integration software developer, to implement reliable and interoperable EDD and FDI solutions. The FDI Package IDE supports the development and test of legacy HART (*.fm6, *.fm8) and FOUNDATION Fieldbus (*.ff5, *.ffo) EDDs - ***One single tool suite for FDI Packages and EDDs***.



FDI Plug-In for Eclipse
Project wizards, coding helper (e.g. synthax highlighting, 'go to definition'), packaging of FDI Packages, tokenizer configuration, invocation and much more

Reference Runtime Environment
FDI Host application for test of the implemented FDI Packages and legacy EDDs (WORKSTATION, single user, Communication Server facet)

Tokenizers
For creation of binary EDD files used in FDI Packages or directly in EDD Hosts. (protocols available depends on license). The license option 'Generic Protocol Annex' allows the development of packages for any additional protocol.

Conformance Test Tool
Test suite for pre-test of FDI Packages for conformance or for implementation of individual test plans.

FDI Package IDE
Create FDI Packages AND EDDs with a single tool

"The FDI Package IDE provides efficient means to develop both EDDs and FDI Packages in a single development environment. The developed packages can conveniently be checked directly in the Reference Runtime Environment."

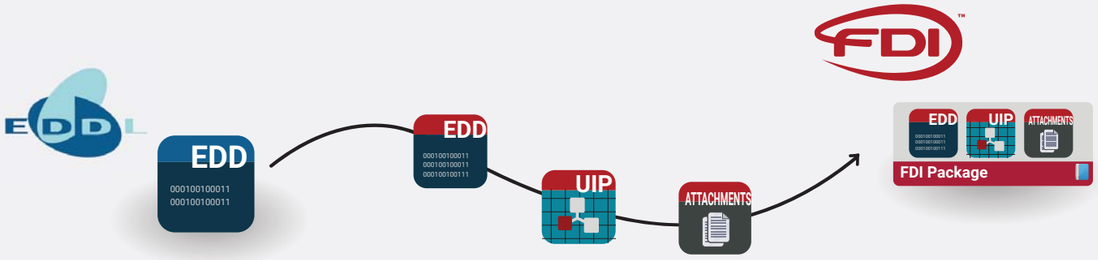
Frank Fengler
Head of Device Integration and Cyber Security , ABB

STEP 2: MIGRATE

How to migrate from existing EDD to FDI?

FDI is the next generation, unified device integration technology. In order to protect the current investment into EDD based solutions and to effectively extend their life cycle a migration of those products to FDI Device Packages should be considered. The process is quite simple, fully supported by the FDI Package IDE and allows the device manufacturers to clean up the existing EDD and to move implementations of complex UI or algorithms to UIPs. This eases the maintainability of the EDDL source code and potentially increases the usability of the respective features. Furthermore, the harmonized and extended EDDL allows the device experts to also add value through offline configuration or the communication protocol independent, cumulated device health status (NE107).

The FDI Device Package is the next logical, evolutionary step for every EDD solution, with better maintainability, improved usability, more features, more value and improved interoperability.

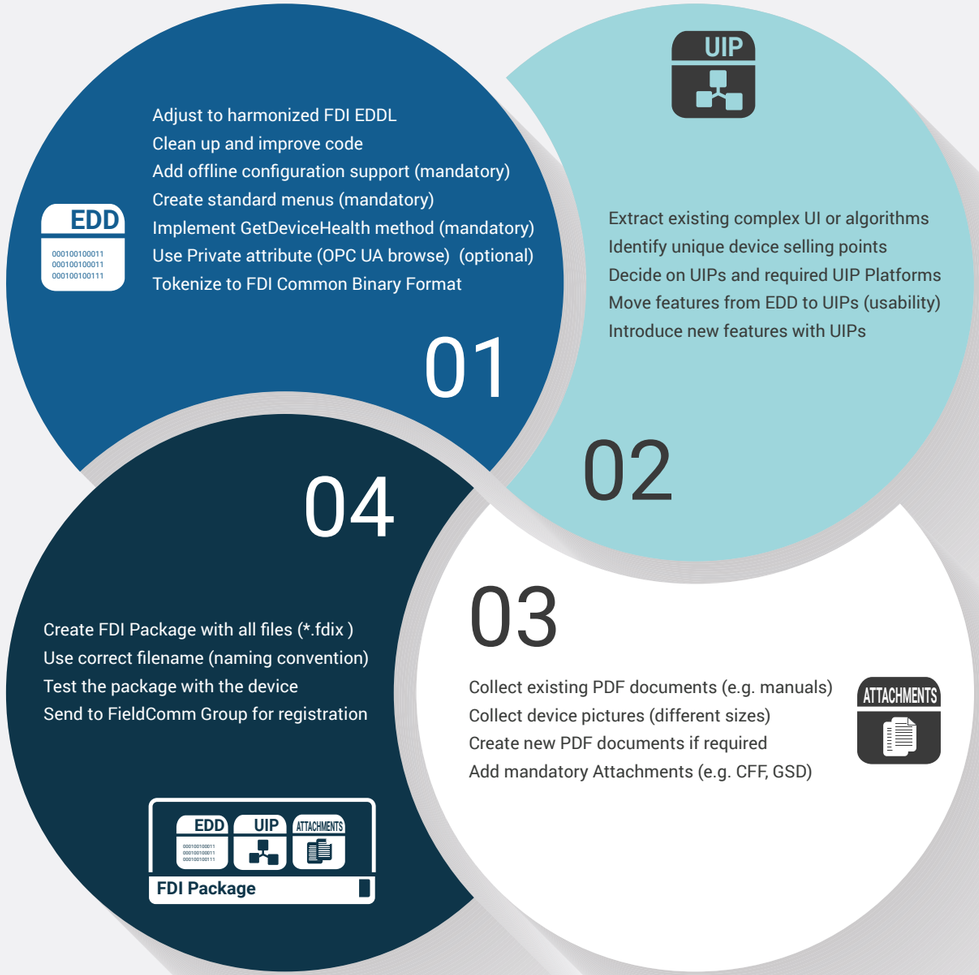


User benefits (examples):

Offline configuration
The offline configuration is a mandatory feature in FDI EDDs. The preparation of the device configuration without having a real device available is possible with this feature. Users simply prepare device datasets and download those to the device when it is available.

Standard menus
All FDI EDDs have to provide a specified set of root menus as standard entry points. The basic menu structure is therefore the same across all device manufacturers. This eases the use of packages and reduces training and documentation overhead.

GetDeviceHealth method
The health of an entire device can be indicated by the NE107 status. This value is usually calculated by the device from different states and parameter values and exposed via communication protocol specific mechanisms. FDI allows an FDI Host to easily read the value by executing the GetDeviceHealth method independently of any protocol specifics for all device instances available in the topology.



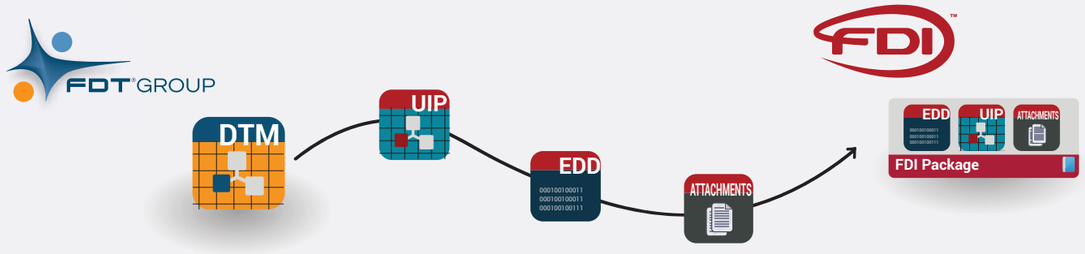
STEP 2: MIGRATE

How to migrate from existing FDT®/DTM™ to FDI?

Millions of devices currently installed worldwide are configured, operated and maintained by control systems and tools that support either the EDDL or FDT® standards. In order to protect the current investment into FDT®/DTM™ based solutions and to effectively extend their life-cycle a migration of those products to FDI Device Packages should be considered. The FDI Package IDE fully supports this migration process.

UIPs for Workstations reuse Microsoft implementation technologies which are also used for DTM developments. As a starting point, complex user interfaces and algorithms can be transferred into UIPs. This is also true for special user interfaces underlining the device's unique selling points. Even the reuse of existing Microsoft .NET source code in UIPs is possible. The remaining parts of the DTM can simply be described by using EDDL which is most likely already available for most of the device types.

With UIPs, the FDI Device Package is a perfect replacement for existing DTMs with improved interoperability, reduced maintenance effort and all of the benefits of FDI.



Your benefits (examples):

Reduced operating system dependency
The major part of an FDI Device Package consists of the operating and platform independent descriptive EDD. Special UIs and algorithms can be encapsulated into UIPs which have a certain platform and operating system dependency due to the implementation technology used (e.g. Microsoft .NET). This reduced number however already eases the life cycle management for both, device manufacturers and users.

Improved usability
EDDL has been extended over time with quite rich UI capabilities, but standard paradigms like drag & drop, multi media or other state of the art user interface mechanisms are not supported. UIPs close this gap. Powerful technologies like Microsoft .NET/WPF or HTML5 can be used to create rich and usable user interfaces for any operating system and platform.

STEP 3: REGISTER

Register your FDI products = ensure interoperability

Registration steps

01 Access Support Portal

- Go to http://support.fieldcommgroup.org
- Login or register a new account

02 Submit a Ticket

- Begin Product Registration by submitting a ticket - choose "Product Registration" from the available options
- Receive an automated instructional email

03 Reserve Test Slot

- Submit payment information See Testing and Registration Fees posted in the Portal
- Receive a confirmed scheduled test date within 2 business days

04 Submit Required Materials

- Submit required registration documentation
- Ship hardware to arrive 2 weeks prior to scheduled test date

Testing fee applies

05 Testing

- Members have visibility to the process through the Support Portal
- If an issue arises, notification is sent to the ticket submitter

06 Test Report

- Test results issued to supplier
- Products meeting all requirements granted registration
- Non-compliant products are returned and invoiced for testing services. New ticket and fee required for retest

07 Registered Product Packet

- Manufacturer receives a Certificate Report, Registered logo(s) and may label products as officially "Registered"

08 Product Registry

- Product added to the official Product Registry

Testing and registration is key to interoperability. It ensures specific devices and systems conform to the same standard. FieldComm Group is one of the only automation industry organizations with a registration program requiring mandatory testing of critical elements of its technologies. Today, our testing and registration effort encompasses FDI, FOUNDATION Fieldbus, and HART host systems and field devices, as well as physical layer components such as power supplies, cables, and device couplers. One of the founding principles of FieldComm Group is the support of interoperability – the ability to operate multiple devices from multiple manufacturers, in the same system, without loss of functionality.

Products bearing the FOUNDATION Fieldbus, HART Product Registration and FDI symbols have undergone a series of rigorous tests administered by FieldComm Group. End users can select any registered product and be assured that the product will provide a consistent level of functionality and interoperability regardless of the host system or other devices used. Testing and registration enables a user to achieve the best return on their investment. FDI-enabled products further ensure that products can be integrated in a consistent and familiar way across varying systems, thus enabling enterprise-wide support and efficiency.

There are two levels of testing and registration within FieldComm Group:

1. Field Level - testing of FDI and FDI-based H1 FOUNDATION Fieldbus and HART & WirelessHART devices
2. Integration Level - testing of FDI-based Host Profile Testing for FOUNDATION Fieldbus and HART-IP & Host Testing for HART Protocol

FieldComm Group has test kits available for each level of testing so that manufacturers can ensure robust product offerings and strong pre-testing before submission for official registration.

Hundreds of global companies are already supporting the above mentioned leading industry standards today! As plants are built and modernized, they're joining an ever growing digital workforce supporting smarter systems and sensors designed to help run plants more efficiently and safely. Smart instrumentation is the key to the digital transformation of industry and the Industrial Internet of Things, so don't wait - take initiatives to transform your instrumentation and systems today!

Learn more about the FDI Product registration:
go.fieldcommgroup.org/productregistration

Notes

Notes

Attend an Event!

FieldComm Group participates in many global seminars, exhibitions and user group events covering all our technologies and applications.

Whether you are located in North or South America, Europe, Middle East, Africa or Asia, you can always find an event near you.

Visit fieldcommgroup.org/events to see where we will be next!

Become a Member!

Membership with FieldComm: Gain the Competitive Edge

FieldComm Group offers a significant number of benefits through membership. Whether you are a manufacturer, systems integrator, educational institution, end user or other professional in the business, FieldComm Group helps you gain the competitive edge through open interoperable standards supporting the digital transformation of industry. Learn more by visiting go.fieldcommgroup.org/membership

FIELDCOMM GROUP™
Connecting the World of Process Automation

FieldComm Group
9430 Research Blvd., Ste 1-120
Austin, TX 78759 USA
info@fieldcommgroup.org • +1 512.792.2300
fieldcommgroup.org

Get Trained!

For organizations desiring to position themselves as leaders in their competitive field, their personnel must be trained to take advantage of the latest technology capabilities. Certified end user training is offered at prestigious training facilities around the world to ensure your staff are trained on the leading edge of the technologies. Through this program, training facilities, curriculum, and instructors are audited to ensure they meet stringent program requirements for vendor neutrality and up-to-date competency. Learn more by visiting the Education section of fieldcommgroup.org.

Global Communication Standards

FDI™ unifies device drivers, configuration tools, diagnostics and documentation regardless of operating system with an independent and downloadable software package compatible with any FDI registered host system.

FOUNDATION™ Fieldbus provides an all-digital infrastructure, with powerful multivariable measurement capabilities, robust device diagnostics, and the ability to integrate wireless devices across multiple networks.

With over 40 million supported field instruments installed worldwide, HART technology offers a reliable, long-term solution for leveraging benefits of intelligent devices through digital communication.