

Supported Protocols

CANopen

CC-Link

CompoNet

ControlNet

DeviceNet

EtherNet/IP



HART
COMMUNICATION PROTOCOL



IO-Link

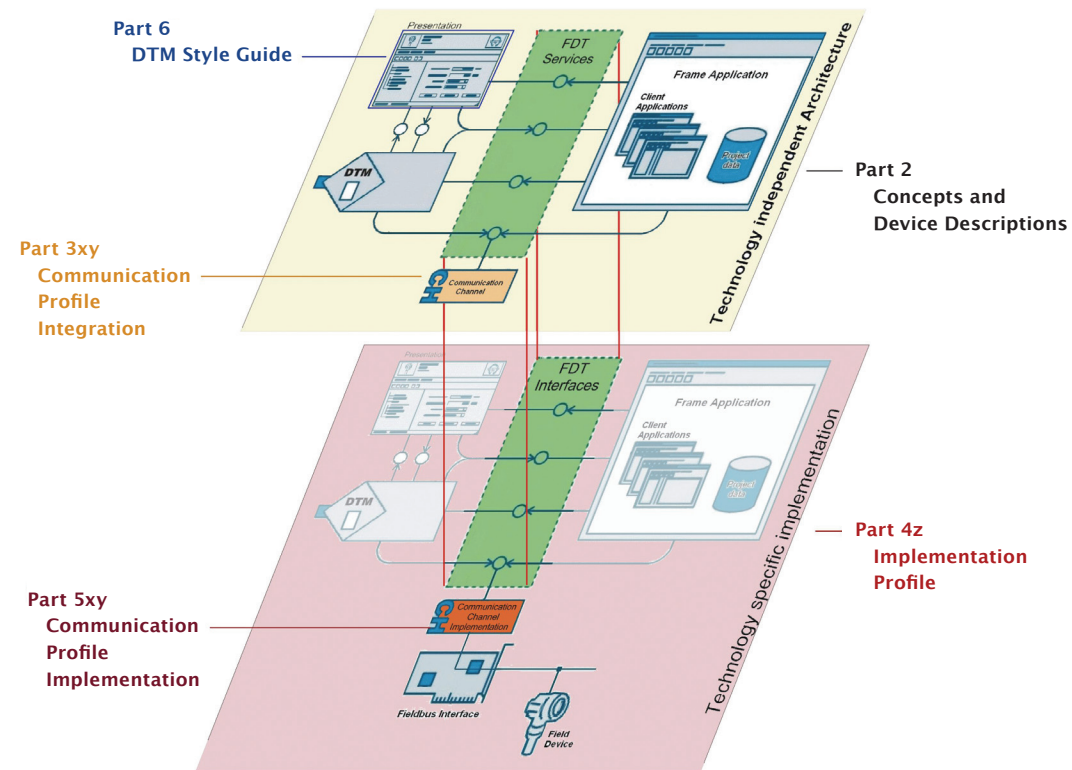
Modbus

PROFIBUS

PROFINET
INDUSTRIAL ETHERNET

SERCOS
interface

Basic Structure: IEC 62453



A Future Look at FDT Technology

The FDT Group is dedicated to providing **Open Access to Device Intelligence** for the automation industry. Like other information technologies, the FDT Group is looking forward to the evolution of the FDT specification in response to feedback from end users.

FDT Technology development programs consisting of industry volunteers are focused on the progression of the future control system architectures, manufacturing automation platforms, plant life-cycle support, testing/certification and interoperability of the automation sphere. Implementing these programs involves and requires close cooperation with complementary technologies and milestone reviews with end users.

For more information about ISA103, please contact Linda Wolffe at lwolffe@isa.org.



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Open access to device intelligence



ISA103 FDT Technology

The ISA103 Field Device Tool Interface Committee was formed in 2006 to consider the adoption of IEC 62453 Standard as an ISA Standard. In May 2009, the FDT Group achieved a significant milestone when the IEC 62453 Standards were unanimously accepted by the international standardization community. In June 2011, the American National Standards Institute (ANSI) formally approved Field Device Tools (FDT) Technology standards — as previously adopted internationally as IEC 62453 and approved in the United States by the ISA103 Field Device Tools (FDT) Interface committee. “We are very pleased that this exciting technology is now part of the suite of ANSI/ISA standards, so that it can be effectively used by U.S. industry. The ISA103 committee worked hard to reach this point, and we look forward to coordinating our efforts with forthcoming IEC maintenance activities on these documents during the next round of updates,” said Ian Verhappen, chairman of the ISA103 committee.

This effort by the ISA103 committee brings to the U.S. marketplace technology that allows any fieldbus, device or sub-system-specific software tool to be integrated as part of a universal lifecycle management tool in a plant automation system. Adoption of these FDT standards supports the most commonly used protocols implemented in the process and factory automation industries today. “We view the device integration technology of FDT essential for our instrumentation engineers and technicians to easily and directly access the benefits of our FOUNDATION™ fieldbus intelligent equipment,” says James Sprague, Saudi Aramco. Users can confidently deploy FDT Technology with confirmation that it has achieved endorsement not only internationally with IEC, but also with the ISA103 committee and ANSI.

As a result of this effort, end users will have the freedom to choose best-in-class FDT-based products allowing engineers access to their smart instruments in a rich graphical environment that will provide users with the tools to make better use of diagnostic information, improve ability to perform maintenance, and much more.

“ARC is a firm supporter of open standards that promote interoperability providing easy plug-and-play implementation such as FDT. The formal approval as an IEC standard is spurring interest in FDT technology supplier development and end user adoption worldwide.”

— Wil Chin,
Research Director,
ARC Advisory Group

Purpose

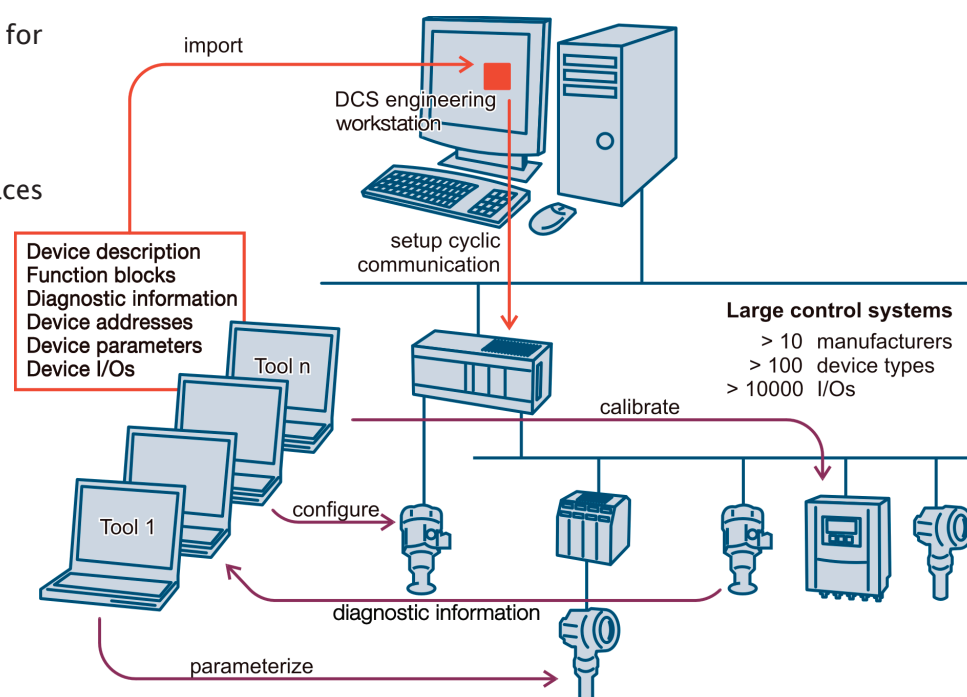
- 1 To ensure the consistent management of a plant-wide control and automation technology, it is necessary to fully integrate often multiple fieldbuses, devices and sub-systems as a seamless part of a whole, over a wide range of automation tasks covering the full automation life-cycle. This requires:
 - Universal and central plant-wide tooling for the life-cycle management independent of the automation domain (e.g. process, manufacturing)
 - Simple but still powerful vendor-independent integration of different automation devices and sub-systems into the life-cycle management tools of a control system
- 2 The main application domains are industrial process control and manufacturing execution systems.
- 3 The benefits are savings in operations, engineering and maintenance of the control systems.

ISA103 Standards Scope

- 1 To form the core of the U.S. Technical Advisory Group (TAG) to IEC SC65E WG4 and to assist TAG to select experts from the U.S.
- 2 To define the interfaces for both the vertical and the horizontal data flow, called Function Control and Data Access, in the framework of a client-server architecture. It shall allow application software and configuration tools to interact with field devices in a unified way, while hiding the manufacturer-specific interaction with devices or sub-systems in a software module.
- 3 To allow any fieldbus, device or sub-system-specific software tool, to be integrated as part of a universal life-cycle management tool of a plant automation system.

FDT Specification — Key Points

- The FDT is an interface specification for integrating device-specific software components
- The FDT specification defines interfaces to satisfy stand-alone tools and control systems requirements
- The FDT specification covers use cases:
 - Configuration
 - Parameterization
 - Commissioning
 - Diagnostics
 - Audit trail
 - Product documentation, application documentation



What is FDT Technology?

FDT, known as IEC 62453, standardizes the communication and configuration interface between intelligent field devices and host systems, and provides a common visual environment for accessing the devices' most sophisticated features. Smart devices can be configured, operated, and maintained through the standardized user interface — regardless of supplier, type or communication protocol.

Benefits with FDT Technology

Best-in-Class Choices

- Choose the best solution for your application without restrictions from system integration requirements
- Independent of device type (e.g. sensors, actuators, remote I/Os, drives, motor starters, etc.)
- Leading control system and field device suppliers support FDT Technology
- Reduce/harmonize the number of software tools in your control and asset management systems
- FDT Technology fits all complex requirements, today and in the future!

Investment Protection

- Full support for existing smart devices and communication protocols of your installed base
- Best-in-class advanced diagnostics available at your fingertips

Single Access to All Device Data

- One window for all phases of the device's life cycle: engineering, operations, maintenance, and asset management
- For all industries in process and factory automation (e.g. chemical, pharmaceutical, oil & gas, automotive, etc.)

Ease of Use

- Easy access to the best features of your device for engineering, commissioning, operation, maintenance, and diagnostics
- Common DTM Style Guide provides a consistent "look and feel" for all similar devices regardless of manufacturer or protocol
- Full support of all native device functionalities

Lower Total Cost of Ownership by Reducing:

- Number of software tools in your plant
- Complexity of diagnostic tools needed to analyze the cause of a failure in your plant
- Engineering and training because only one tool is required for all devices

Milestones and Future Activities

The ISA103 committee will now focus on keeping pace with FDT specification updates and the forthcoming maintenance cycle of the IEC 62453 standard. As FDT Technology moves along its future development path with additional enhancements, such as FDT 2.0 and new annexes to incorporate additional communication protocols, the ISA103 committee will ensure the ISA and American National Standards are maintained to support the automation industry and the U.S. market.

**PUBLICLY
AVAILABLE
STANDARD
(PAS 62453)**
2006

**IEC 62453
INTERNATIONAL
STANDARD
APPROVAL**
2009

**ANSI
FINAL
APPROVAL**
**JUNE
2011**

**IEC 62453
MAINTENANCE
CYCLE**
**APPROVED BY
2014**

About the ISA103 Standards Committee

The working group consists of volunteers from device manufacturers, system providers, academia and end users/customers.

Ian Verhappen,
Committee Chairman
Industrial Automation
Networks, Inc.