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***Field device tool (FDT) interface specification –  
Part 1: Overview and guidance***

**Approved 31 May 2011**

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## INTRODUCTION

Enterprise automation requires two main data flows: a “vertical” data flow from enterprise level down to the field devices including signals and configuration data, and a “horizontal” communication between field devices operating on the same or different communication technologies.

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.

Several different manufacturer specific tools have to be used. The data in these tools are often invisible data islands from the viewpoint of system life-cycle management and plant-wide automation.

To ensure the consistent management of a plant-wide control and automation technology, it is necessary to fully integrate fieldbuses, devices and sub-systems as a seamless part of a wide range of automation tasks covering the whole automation life-cycle.

IEC ISA-62453 provides an interface specification for developers of FDT (Field Device Tool) components to support function control and data access within a client/server architecture. The availability of this standard interface facilitates development of servers and clients by multiple manufacturers and supports open interoperation.

A device or module-specific software component, called a DTM (Device Type Manager) is supplied by a manufacturer with the related device type or software entity type. Each DTM can be integrated into engineering tools via defined FDT interfaces. This approach to integration is in general open for all fieldbuses and thus supports integration of different devices and software modules into heterogeneous control systems.

The IEC ISA-62453 common application interface supports the interests of application developers, system integrators, and manufacturers of field devices and network components. It also simplifies procurement, reduces system costs and helps manage the lifecycle. Significant savings are available in operating, engineering and maintaining the control systems.

The objectives of IEC ISA-62453 series are to support:

- universal plant-wide tools for life-cycle management of heterogeneous fieldbus environments, multi-manufacturer devices, function blocks and modular sub-systems for all automation domains (e.g. process automation, factory automation and similar monitoring and control applications);
- integrated and consistent life-cycle data exchange within a control system including its fieldbuses, devices, function blocks and modular sub-systems;
- simple and powerful manufacturer-independent integration of different automation devices, function blocks and modular sub-systems into the life-cycle management tools of a control system.

The FDT concept supports planning and integration of monitoring and control applications, it does not provide a solution for other engineering tasks such as "electrical wiring planning", "mechanical planning". Plant management subjects such as "maintenance planning", "control optimization", "data archiving", are not part of this FDT standard. Some of these aspects may be included in future editions of FDT publications.

## Field Device tool (FDT) interface specification -

### Part 1: Overview and guidance

#### 1 Scope

This part of IEC ISA-62453 presents an overview and guidance for the IEC ISA-62453 series. It

- explains the structure and content of the IEC ISA-62453 series (see Clause 5);
- provides explanations of some aspects of the IEC ISA-62453 series that are common to many of the parts of the series;
- describes the relationship to some other standards.

#### 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 61158 (all parts), *Industrial communication networks – Fieldbus specifications*

IEC 61784 (all parts), *Industrial communication networks – Profiles*

ISO/IEC 19501:2005, *Information technology – Open Distributed Processing – Unified Modeling Language (UML) Version 1.4.2*

#### 3 Terms, definitions, symbols, abbreviations and conventions

For the purposes of this document the following terms, definitions and abbreviations apply.

##### 3.1 Terms and definitions

###### 3.1.1

###### **actor**

coherent set of roles that users of use cases play when interacting with these use cases [based on ISO/IEC 19501]

NOTE An actor has one role for each use case with which it communicates.

###### 3.1.2

###### **address**

communication protocol specific access identifier

###### 3.1.3

###### **application**

software functional unit that is specific to the solution of a problem in industrial-process measurement and control