

Specifying FDT Technology

Putting Your Assets to Work!

Overview

Preventing unplanned shutdowns, reducing downtime, and lowering maintenance costs have been shown to provide significant financial benefits. One way to achieve these results is to make certain that all installed assets are used to the best of their ability.

FDT Technology can be easily used in existing or new plants and can bring significant operational and financial benefits throughout the plant life cycle.

This paper provides an overview of FDT Technology and suggests text to use as part of your proposal or ordering specifications to make sure you are putting your assets to work.

Introduction

A real need for companies in the automation industry today is to become or remain competitive. In our global economy, competition for investments comes from both external and internal entities. Looking at just the internal competition, we see budgets having to be allocated among such activities as; regulatory compliance, safety, quality improvements, energy conservation and other sustainable initiatives. With capital investments in control systems or process upgrades seeming almost impossible to acquire, users are forced to look within their existing operations to discover operational improvements that can positively impact the profitability of the business.

Preventing unplanned shutdowns, reducing downtime, and lowering maintenance costs have been shown to provide significant financial

and operational benefits. One way to achieve these results is to make certain that all installed assets are maximized to the best of their ability. This is particularly true with regard to smart measurement and control instrumentation. Going forward, if suppliers and end users can tie better asset performance to corporate goals, such as improving compliance, plant and workforce safety, sustainability and other critical issues, while increasing plant availability, it would secure the interest of C-level investments. Moving fixed cost to a variable cost using available technology may also be desirable.

For more than 10 years, the majority of instrumentation purchased and installed around the world is smart – meaning that the devices are intelligent and can provide information beyond just the PV (process variable). Likewise, control systems (DCS, PLC and others) have also become more intelligent, being able to access and use the information from these smart field devices.

It's in there!

Over the past several years, FDT Technology has been available in the majority of distributed control systems and smart field devices – often without being utilized by the user. FDT Technology, an IEC international standard (IEC 62453) and an ISA standard (ISA 103), provides a standard means to easily access intelligent device information independent of the field communication protocol or control system supplier.

By being supplier and protocol neutral, FDT Technology is viewed by many companies as one well on its way to becoming a universal, life-cycle management tool that is supported by device and automation systems suppliers around the globe. This level of adoption goes

beyond international or regional standardization because it is quickly becoming a de facto device standard in both the process and factory automation industries.

The most compelling gain is that many facilities can start taking advantage of this technology with little investment and very low risk. Surprisingly, many users are just now learning that most of the devices installed in their facilities over the past few years are FDT Technology enabled – ready to contribute to lower operating cost and improved asset management.

FDT Group (the keeper of the FDT Technology standards) has certified hundreds of DTMs that support over 3,000 different devices from most of the world’s leading measurement and control suppliers. Many more continue to be developed and are in various stages of certification. Additionally, Frame Applications that are a part of a process automation or asset management system are available to help users maximize device intelligence by providing actionable information. Automation professionals are already inundated with data but DTMs provide much more than just data. It displays valuable information that is relevant and timely, improving asset performance.

FDT Basics

So what exactly is FDT Technology? FDT Technology provides a standardized communication interface between field devices and control or monitoring systems used to configure, operate, maintain and diagnose intelligent field instrumentation assets for both factory and process automation applications. The versatility of FDT Technology makes it suitable for communication protocols deployed in all industry segments, and allow users access

to intelligence from a wide variety of process equipment.

The key features of FDT are its independence from any communication protocol and the software environment of the host system. FDT Technology allows any FDT enabled device to be accessed from any compliant host using any field communication protocol.

The technology consists of two main components; the Frame and the DTM. The frame is either an embedded component of the control system suite or a standalone application, whereas the DTM is a device-specific application that launches within the frame itself. Simply put, DTMs give device manufacturers complete control of the attributes displayed for their device in any of more than 15 Host Frame Applications, thus providing the user with access to the full power and capabilities offered in their device. Without FDT Technology, device information access may be restricted by the host / control system supplier and may not offer full access to device capability.

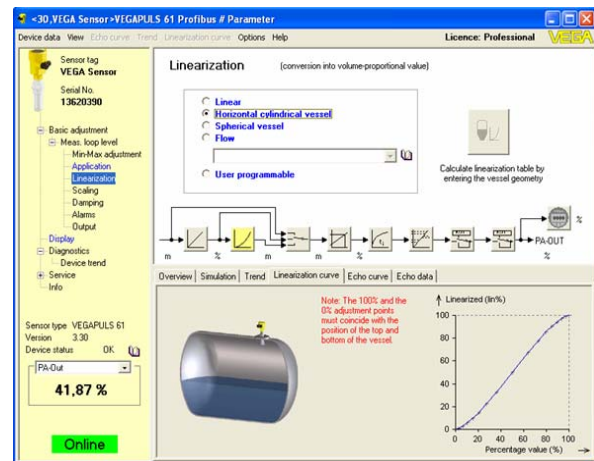


Figure 1. Example of a DTM Graphical Visualization

With FDT, the “heavy lifting” has been done and integration will be seamless between field

devices and the Frame Application, regardless of its manufacturer.

The DTM

A DTM is a software component specific to a device which contains the application software that defines all of the parameters and capabilities included in that device (similar to a device driver for a printer). The DTM provides access and the graphical interfaces needed to easily configure simple or even complex devices. See Figure 1. It further aids the user when commissioning devices preventing costly trips to the field and permitting maintenance of devices with sophisticated diagnostic tools

By using a single Frame Application, you can minimize technician training and avoid mistakes since all DTM's will operate using a similar menu and visualization scheme. Since the device manufacturer is the provider of the DTM, you are granted access to the full device capabilities that best exploit the device capabilities. All DTMs will work in a common Frame Application but not all DTMs are created equal. Astute suppliers will develop innovative DTMs with broader functionality that can help users improve troubleshooting and maintenance allowing the manufacturer to further differentiate their products from their competition.

The Frame Applications

A DTM is displayed or accessed from a Frame Application which is a software window that provides the user interface between the device DTM and various applications such as device configuration tools, engineering work stations, operator consoles or asset management tools. The Frame Application initializes the DTMs and connects it to the correct communication

gateways. A single FDT Frame Application supports more than 15 of the world's most popular field communication protocols including; HART, PROFIBUS, FOUNDATION Fieldbus, Modbus, DeviceNet, Interbus, AS-Interface, PROFINET, IO-Link, CC-Link and more. A mixture of any number of networks is supported by FDT Technology and communications can tunnel through any number of networks to reach the end device.

Host Data Integration

Many of today's control and host applications are enabled to access intelligent device information because they include FDT Technology. This allows easy access to device information from within the host application.

Item	As Applied to the Internet	As Applied to FDT Technology
Internet Connection	Independent of Internet access method - Dial-up, DSL, T1, Ethernet, Wireless, etc.	Independent of automation protocol – HART, FF, Profibus, etc.
Webpage	Created by the owner of the webpage to look the same, independent of the browser or connection method	Created by the owner of the device to look the same, independent of the control or Frame Application - DTM defines device visualization
Browser	Created by a browser supplier, selected by the user to properly display webpage and page functionality – Internet Explorer, Firefox, Netscape, etc.	Created by an application supplier, selected by the user to properly display device capability – Frame Application or Host Application

Think of your computer accessing the Internet and then, think of the information on a particular website. The computer (the host system) using the Internet via dial-up, DSL, etc. (using a field communication protocol like HART, FF, Profibus, etc.) opening a browser like Internet Explorer (a Frame Application) to access the valuable information located on a website (a DTM accessing the device). See table above for more details. The website owner wants the website to be displayed in a certain way, independent of the browser being used by the computer. Likewise, a device supplier wants its device information displayed and presented the same way, independent of the control or asset management system, and independent of the field communication protocol being used to access the device.

The Case for Device Information Access

The information sitting in intelligent field devices is most often stranded – only to be accessed during device configuration or troubleshooting. The full benefit of this information is only realized when devices are regularly scanned to verify the reliability of the process measurement, device health or potential process problems. Users around the world have discovered the significant benefits of improved asset management when they use FDT Technology to help manage their intelligent field assets.

Instead of routinely checking the health of devices manually, using FDT Technology, you can put your assets to work and better manage them to increase workforce availability to allow them to focus on the “real” critical issues. Allowing FDT enabled asset management to help identify and assist the user to effectively schedule appropriate work orders, can increase reliability of assets while reducing labor and maintenance costs.

Here are a few of the many benefits that have been realized by users:

- Faster device configuration and commissioning
- Reduced -
 - maintenance cost by only repairing devices such as control valves and transmitters that need repair rather than based upon a pre-determined maintenance schedule
 - down-time
 - commissioning time
 - change management
 - training and development cost
- Avoid unscheduled shut-downs
- Reduced number of trips into the field – improving safety
- Improved product quality
- Superior scheduling of the operation

In many cases, these benefits can be realized with little investment and little risk. As mentioned, FDT Technology may already be included with the systems or devices you currently have. If not, new applications can be added without requiring a complete replacement of your existing control system or field devices. There are many well documented case studies that identify significant benefits from using FDT Technology – see www.fdtgroup.org.

Specifying FDT Technology - Getting the Real Thing

Now that you better understand the use and application of FDT Technology, how do you specify it to make sure you are getting the real thing? There are just a few basic requirements that can be included in your purchasing specifications to ensure you are getting FDT certified and tested equipment. By including these requirements as part of your purchasing

specifications, you can protect your assets and provide the foundation for improved asset management – putting your assets to work.

- Supplier shall support FDT Technology and shall be an FDT Group Member
- All DTMs shall be certified by the FDT Group
- Frame Application shall be certified by the FDT Group
- Product shall comply with IEC 62453 and ISA 103 standards
- Device DTMs shall be latest revision available
- Frame Application shall include the current DTM library
- DTM's shall be available for download from the supplier's website or the FDT Group website
- Control systems and host applications shall be DTM-enabled (preferred) or support a platform independent Frame Application
- Asset Management and configuration applications shall be DTM-enabled

By specifying the above requirements, the project will be assured of getting the real thing. The devices currently on the projects approved product lists will most likely not change since most devices are provided with DTMs. However, don't automatically assume that the products are compliant. Be sure to articulate the specific project requirements to ensure that your project is successful.

Here is suggested text for your specification:

- All required functionality shall be presented via the Human Machine Interface utilizing FDT/DTM Technology in its current form and shall be maintained upwardly compatible. Example: Laptop and Tablet based systems, Maintenance consoles / systems etc.

- All required instrument/device interaction and configuration shall be presented via an integrated Human Machine Interface utilizing FDT/DTM Technology in its current form and shall be maintained upwardly compatible. Example: Applications(s) - Visual Process Configuration, Resource Managers, Builders, Configurators, etc.

Getting Started

There are a few recommended steps to getting started with FDT Technology.

First, review your current suppliers to see if they are members of the FDT Group. If so, ask them if DTMs have been developed for your currently installed devices and ask for a copy of each DTM. You can also search the Certified DTM catalog on the FDT Group website (see References for link).

Likewise, speak with your control or asset management system supplier to see if your system is FDT enabled. If so, find out what it will take to access the FDT enabled tools. If not enabled, ask for a solution to upgrade your application.

Next, identify a process problem or application that could be improved. Start small! You can upgrade your work processes to include the entire plant all at once, but that might not be realistic. Get a Frame Application if needed (some are available at no charge), and start to access the information from your intelligent field devices.

Then, get educated! Ask your suppliers to help you learn more about their devices using FDT Technology. Also check the FDT Group website for seminars, newsletters and other educational opportunities.

Lastly, share this new information with others in order to quickly learn how improved asset management can help you lower operating costs to help you become or remain competitive by putting your assets to work.

References

For more information about the FDT technology, please visit: www.fdtgroup.org

To see if your suppliers are members of the FDT Group, please visit:
<http://www.fdtgroup.org/members-directory>.

For a listing of FDT enabled products visit:
<http://www.fdtgroup.org/product-catalog/certified-dtms>

Contact Information

For more information on FDT Technology please contact:

FDT Group AISBL
info@fdtgroup.com

FDT Group North America
na.marketing@fdtgroup.org

www.fdtgroup.org