

# DEVICE INTEGRATION STRATEGIES

➤ Simplifying device-level networking with FDT

2015 - 1 Issue

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## Asset Management + Work Procedures = Value for Shell

*Intelligent automation saves millions at frigid oil refinery utilizing real-time daily instrument troubleshooting with a more predictive maintenance strategy.*

Located near Fort Saskatchewan, Alberta, Canada, the Shell Scotford Upgrader facility has refining capacity of 255,000 bpd. This includes the 2011 commissioning of a 100,000 bpd expansion. Because of a tight project schedule and the very cold weather in the region, it was critical that the schedule not



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## Chairman's Corner

### Changing of the Guard

*Retirements, consolidations spur changes in FDT Group*



As you may have noticed by the new byline, the FDT Group has undergone some change at the conclusion of 2014. It is a great honor for me to have been voted as the new Chairman of the Board by the FDT Group Board of Directors during our October Board meeting in Bad Pyrmont, Germany, hosted by Phoenix Contact. The FDT Group is an outstanding organization and I embrace the opportunity to add my leadership to the momentum.

Since joining the FDT Board in 2011, I have always enjoyed the leadership of Chairperson Hartmut Wallraf of Invensys. His rich industry knowledge and his knack for building consensus have been great assets for the FDT Group. But with the recent acquisition of Invensys by Schneider Electric, it was decided that their two FDT Group memberships would be

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## **Changing of the Guard *continued***

consolidated. This caused Mr. Wallraf to announce his retirement from Chairman of the Board position he has held since 2008. The FDT Group has seen steady growth during his tenure, with a crowning achievement of the release of the FDT2 standard in 2012. I wish Hartmut well in his future endeavors.

At the end of 2014 we also saw the retirement of one of the founding members of the FDT Group, Dr. Raimund Sommer of Endress+Hauser. Dr. Sommer has been a driving force of the FDT Group since its earliest days as a loose association of companies that had a concept for accessing device intelligence with an open standard. A glance through the minutes and other records of the FDT Group show his strong guiding hand present for more than ten years. His retirement from Endress+Hauser brings to close a significant number of chapters in the FDT history book. It is hard to imagine an FDT leadership meeting without him present. Congratulations, Raimund on your retirement.

The Board of Directors took action to approve Francois Ichtertz as the new Board member representing Endress+Hauser. Mr. Ichtertz is the Marketing Director of Process Solutions at Endress+Hauser. The Board also appointed Mr. Terry Minns of Schneider Electric as the new Secretary of the Board. My thanks to Shannon Foos of Rockwell Automation for her past service in this role.

The FDT Group membership is in the final member review stage of the new dtmINSPECTOR tool for FDT2 DTM<sub>s</sub>. This critical piece of technology allows developers of FDT2 DTM<sub>s</sub> to confirm that their DTM<sub>s</sub> are in compliance with the FDT2 standard. It is the same tool used by our independent test labs to certify that FDT2 DTM<sub>s</sub> are compliant with the standard prior to issuing a certificate of compliance. If history is any indication, we will see companies jockey for position to be the first to certify an FDT2 DTM. Our Test and Certification Working Group, led by Guenther Grady of Endress+Hauser, has put in countless hours to ensure the organization is ready for the end-to-end process of testing FDT2 DTM<sub>s</sub> and issuing certifications. I look forward to reporting the early results in a future newsletter.

Our marketing committees around the world have prepared another banner year of events and activities for 2015. I hope you have the chance to attend - a snapshot of some of the events are listed in this newsletter. It would my pleasure to meet you in person at an FDT event near you.

**Lee Lane**  
**Chairman of the FDT Board of Directors**

## **New Prowirl 200 is FDT Enabled**



The Prowirl F 200 measuring tube is the first choice in heavy duty applications, offering durability and optional wet steam detection. Prowirl F 200 offers wet steam detection and industry-compliant two-wire technology for seamless integration into existing infrastructures and control systems, as well as high operational safety in hazardous areas thanks to an intrinsically safe design, and a familiar installation procedure.

**Endress+Hauser**

## Asset Management + Work Procedures = Value for Shell *continued*

slip. After the automation / control system supplier was selected – Honeywell DCS with Field Device Manager (FDM) – the team decided to include smart I/O in order to take full advantage of their intelligent field measurement devices.

The DCS and FDM were **FDT**-enabled providing access to smart device information independent of device supplier and field communication protocol – in this case **FF** (Foundation fieldbus) and **HART**. The device **DTM** (**Device Type Manager**) enables easy-to-use, graphical access to smart device process measurements and diagnostics for quick problem identification and resolution. This capability proved to be very valuable when configuring and troubleshooting complex devices like valve positioners, radar level gages and mass flowmeters. FDM is a powerful and flexible tool accepting DTMs and **DDs**.

The existing Shell Scotford facilities had success using HART technology but were using only some of its full capabilities. With an interest in leveraging the full intelligence of their smart devices, the Upgrader Expansion project team got approval to broaden the application of smart devices beyond the use of handheld device configuration. This decision made valuable device information available to staff in operations, maintenance and instrumentation.

There was a concern that the FDM asset management system would not be fully utilized. With the smart device information fully integrated (Figure 2) with the system, the team embraced the opportunity to use the information and took steps to be sure it became part of their work process. According to Andy Bahniuk, Shell Instrument Technologist, procedures were written and training conducted to make certain the techs and other maintenance team members were trained on the technology and the procedures that documented how to benefit from the information available in their smart devices.

On site, Andy and Japan Shah, (formally the lead engineer at Honeywell Process Solutions, Calgary lead on the Upgrader project and now with Williams Energy Canada) found the urgent need to configure 1500 smart devices that were ordered completely configured – or so they thought. Performing a check on the new devices found that many devices were not configured as requested. On a tight project schedule, they used the FDT Technology enabled asset management system to download device configuration information to each device including ranges, engineering units, NAMUR standard val-

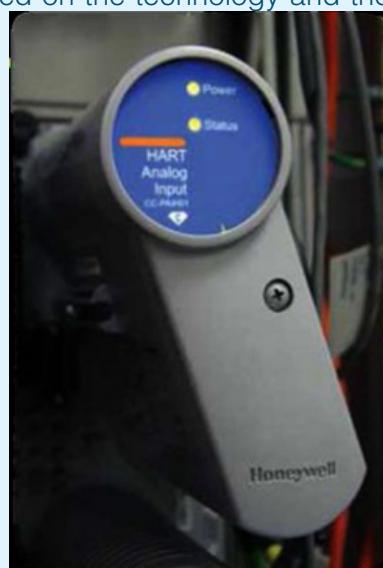


Fig 2: Honeywell smart I/O.  
Smart I/O is the easiest and most seamless way to integrate smart device data with an asset management application.

## Motor Starters Protect Induction Motors



Switching and protecting three-phase induction motors can be much simpler when CONTAC-TRON hybrid motor starters from Phoenix Contact are networked. The starters offer emergency stop function, and easy monitoring through electronic motor management. The CONTAC-TRON line lets customers easily configure stations via a PROF-INET gateway using FDT's powerful DTM concept. The DTMs can be used without additional costs using the FDT framework applications from different providers. Visit us at the Hannover Fair from April 13-17 to get an idea about how easy and simple these systems are – thanks to FDT Technology.

**Phoenix Contact**

## Asset Management + Work Procedures = Value for Shell *continued*

ues and transmitter body temperature alarm set points. This provided a quick, low-cost solution to the problem of needing to configure 1500 non-configured devices and gave the project team a glimpse of the real capability in their new system.

When Japan learned of the need to monitor the temperature in the device instrument enclosures for freeze protection, he suggested using the internal device temperature sensor measurement as a secondary measured variable - a standard feature in smart devices. This solution greatly reduced the need for operators to routinely visit each outdoor enclosure to check the temperature. This has helped improve their efficiency in executing annual preventative maintenance on heater boxes, saving them more than \$200,000 per year. Most importantly, it ensures trouble free operation throughout the frigid Alberta winter.

Japan and Andy knew that their asset management system combined with their documented procedures were a valuable tool that had to be used on a daily basis to provide on-going value to all phases of the plant life cycle – much more than just during device configuration and commissioning but also providing real-time device diagnostic information for improved operations, safety and maintenance.

Once management and the project team learned that there was more information available than just the PV (Primary Variable) communicating on the 4-20mA or on the communication bus from their smart devices, they quickly put the information to work.

Here a few of the other applications that resulted from their use of this technology.

**1. Valve Partial Stroke Test** – Another challenge was to have a higher SIL rating on some critical furnace gas valves to ensure safety and reliability. The **partial stroke test** (PST) function supports testing valves without the need to isolate them from the process. With the PST process, the respective valve is moved by approximately 5% to 15% during normal process operation. This testing supports online diagnosis of the actuators and reduces the probability of failure on demand (PFD). The asset management system with Metso positioners using a DTM driver can execute the PST to provide a sophisticated and quick solution extending the period between plant shutdowns.

**2. NAMUR standard values** – During the initial project phase, Shell decided to use the **NAMUR** settings to prevent spurious trips or unsafe operations caused by faulty transmitters. Devices compliant with NAMUR standard values provided that infrastructure. Risk of instrument failure tends to be higher during the start-up and by setting our device compliance to NAMUR standard values we could ensure that our start-up went smoothly without any major instrument issues.

**3. Empty Pipe Detection** – This is used for magnetic flowmeter to deter-

## Power of Premier Integration from Rockwell Automation: Connectivity to E+H DTM

Rockwell Automation \_ The Power of Premier Integration



Kris Dornan of Rockwell Automation showcases the ease of connecting your computer to devices through DTM. He discusses various ways to manage your assets from your desk, avoiding any adjustments from handhelds utilized in remote locations of a plant.

**Rockwell Automation**

## Asset Management + Work Procedures

### = Value for Shell *continued*

mine if there truly is an **empty pipe** or if they just have an electrode or sensor failure in the flowmeter. This type of remote device diagnostics is very important in Northern Canada since it may reduce trips to the field and identifies the problem so technicians can be better prepared for field work if required.

**4. Device Diagnostics** – Management has become more dependent on the information from their field devices because it has been proven to be reliable. This information is now used to analyze and troubleshoot potential problems before they turn into major problems (Figure 3).

**5. Empower Instrument Technicians** – Techs now embrace the technology and have come to depend on the device diagnostic information. They routinely analyze the device data as their first step – even before they leave the safety of the control room.

**6. New Devices** – as new instruments are added, the techs are quick to look into the device capability to make sure they have a good understanding of the device's full capability. Device suppliers are also consulted to make sure the device DTM is the most current. Procedures are then modified if required to include the most recent device capabilities.



Fig 3: HART device status delivers important information, such as Device Malfunction, Device In-simulation and Device Variable Saturated. Fig 2 and 3 images courtesy of Honeywell Process Solutions.

agement system included an FDT-enabled device management tool that presented device status and diagnostic information from devices from 26 different suppliers communicating using the HART protocol.

As a result, the team executed a safe and efficient start-up and continued safe and reliable plant operation. They now utilize real-time daily instrument troubleshooting with a more predictive maintenance strategy. The overall savings is in excess of an estimated \$7.1 million which includes hardware replacement and ongoing operational and maintenance expenses. Andy believes that an asset management system will pay for itself by being able to quickly and reliably know the status of all devices in the plant.

**Author Chuck Micallef:**  
FDT Group Marketing

## Utthunga DTM Development Framework Saves Time & Money



Utthunga provides FDT DTM development framework that can slash time by 60% while also reducing costs by as much as 55%. The framework supports DTM development from EDD & FDI packages. Components are highly customizable & extendable, making it easy for companies to ensure seamless flexibility along with support for legacy & future devices. The DTMs support both FDT 1.2.x and FDT 2.0. Customers can re-use DTM code to build PC/mobile applications. Utthunga, the only accredited test center in India, provides a mature framework ensuring standards conformance & minimal testing effort.

**Utthunga**

## Tapping Plentiful Device Information Improves Plant Reliability, Efficiency



*Intelligent device information provides insight into system and network performance, letting operators maximize efficiency.*

### Information Integration

With an aging workforce ready to retire, a reduction in budget and manpower resources and the need to evaluate much more information before making critical decisions, it is important that you use all of the information available. Today's measurement and control devices typically are an overlooked or underutilized resource that can dramatically aid in your plant's decision making process.

Devices today are not only configurable but also very intelligent. They provide device and process information quickly so users can diagnose both devices and communication networks. Using one of the many available industrial field communication protocols (Foundation fieldbus, HART, Profibus, etc.) and an asset management application, you can facilitate intelligent information integration into the work and decision making process. Once integrated, this information can become part of what ARC Advisory Group calls the Industrial Internet of Things, providing real-time access to information that helps increase plant reliability and efficiency.

Today, plant asset management applications are used to configure, monitor and diagnose devices as well as fieldbuses, digital communication networks and gateways that provide valuable segment and network diagnostics. The application can be a PC-based tool or embedded in a control system. With this application, users have an easy-to-use graphical interface to support all the functions needed for device and asset management.

### The FDT Solution

FDT (Field Device Tool) Technology is an interface specification for the open data exchange between field devices and automation systems. It's been standardized by the international standards IEC 62453, ISA103, and GB/T 29618. FDT is comprised of two important software components: DTM (Device Type Manager, or "device driver") and the Frame Application (i.e. configuration or asset management application). These software components can only function when both are present in an application.

Getting the right information, to the right place, at the right time, using installed devices that use a low-cost, low-risk solution, sounds very appealing. Device DTMs are offered by all major device suppliers on FDT-enabled control system or stand-alone asset application from a systems vendor. They deliver valuable device and process information enabling many cost-saving and operational improvements. Lower maintenance cost, improved re-

## Chemical Supplier Deploys Asset Management Tool and FDT Facilitating Central Device Access



To centrally manage their field devices, chemical supplier SI Group employs FDT and a facility asset management tool. Seamless communication is the building block for centralized management. The SI Group connects its disparate worlds by using an extremely versatile module from Softing Industrial Automation. The basis of this intelligent solution: TH LINK provides both Ethernet-based access for central device access while also serving as a diagnostic unit. It also collects extensive, valuable information on the network and the equipment it connects.

**Softing**

**FDT to be Guest Speaker: Integrating Device Intelligence – Providing a Competitive Advantage**



**Southeast Texas Section**

Date: Feb. 24, 2015  
Time: 5:00PM -7:00PM  
Location: Gig on Crockett Street in Beaumont, TX  
(dinner included)

## Tapping Plentiful Device Information Improves Plant Reliability, Efficiency *continued*

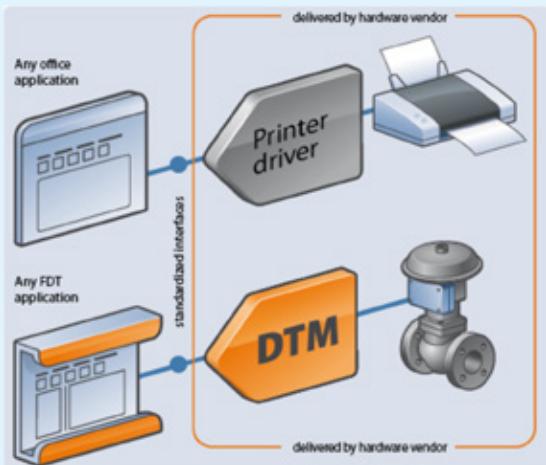


Fig 1: Think of a DTM as Similar to a device driver

measurement device and printer are supplied with a software driver that allows the computer to access all functions of the printer. With FDT, the device driver (DTM) for the field devices is supplied by the device supplier, allowing access to the device functions and parameters via a graphical user interface – independent of the software or application selected. Through the FDT specification, interoperability is ensured via “plug and play” fashion, so DTMs from any manufacturer can run in every FDT enabled control system or application for ease of device configuration and management (Figure 2).

FDT Technology requires no special version of the field devices (for example, firmware or hardware) and can therefore be used universally for any smart device with a communications interface. The communication protocol supported by the device and the device properties are completely mapped by the FDT Technology software on the PC. Not only can greenfield plants be equipped with FDT from the ground up, brownfield plants can implement the technology in a scalable fashion. When retrofitting a system in a brownfield application, no modification or replacement of installed devices is required. The existing communication network or bus system and field devices may be used without change. To enable device configuration and management, DTMs are simply installed in the FDT-enabled system or application.

liability and increased safety are just a few benefits users from around the globe have uncovered.

### The DTM

The FDT concept can be simplistically explained by comparing it to a computer printer. A printer requires a compatible device driver that contains the integrated graphical user interface, which is standardized with the same functions in different applications (Figure 1). Shown in the figure, the

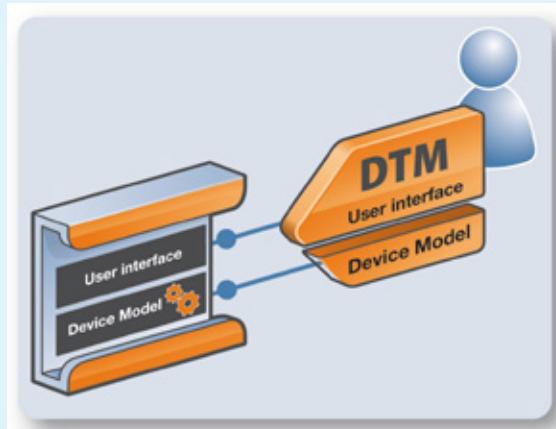


Fig 2: Shows that a DTM plugs into an FDT enabled host/control system.

## Webinar



### Integrating Device Intelligence – Providing a Competitive Advantage

March 3, 2015 @ 2PM ET  
March 5, 2015 @ 10:30AM ET

New to FDT and want to learn more about how FDT enables device and networking integration? Attend upcoming webinars scheduled for March 3rd or 5th. Today's business environment is more dynamic and challenging than ever. Intelligent device information in your installed smart measurement device could hold the answer to getting or remaining competitive!

**Registration is free by emailing:**  
[na.marketing@fdtgroup.org](mailto:na.marketing@fdtgroup.org)

## Tapping Plentiful Device Information Improves Plant Reliability, Efficiency *continued*

### Freedom to Choose

To the user, the biggest benefit of FDT Technology is flexibility! The standard has been fully developed to be independent of communication protocols and device / host vendors. No matter the plant infrastructure hierarchy of communications, FDT gives users have the freedom to choose field devices from over 66 different suppliers across process, factory and hybrid applications. With an FDT-enabled control system or stand-alone software application, users have full life-cycle management of devices and networks.

Stated differently, FDT Technology is protocol, product and system independent, giving users the flexibility needed to maximize their automation infrastructure as they strive to improve plant reliability.

Other benefits include

- scalability, letting users monitor a few critical inputs or thousands of inputs;
- the flexibility to work within your established work processes;
- low-risk, letting customers use the standard techniques and procedures used today;
- low cost, because existing smart devices provide cost-effective solutions that let customers access device information using standard communication protocols.

### Increase Plant Reliability and Performance

With more than 8000 device types supported by certified DTM's, and over 17 FDT-enabled control systems and software applications from all major device and system suppliers; you can quickly improve plant reliability. Users report significant savings and process improvements as a result of using valuable information from their smart field devices.

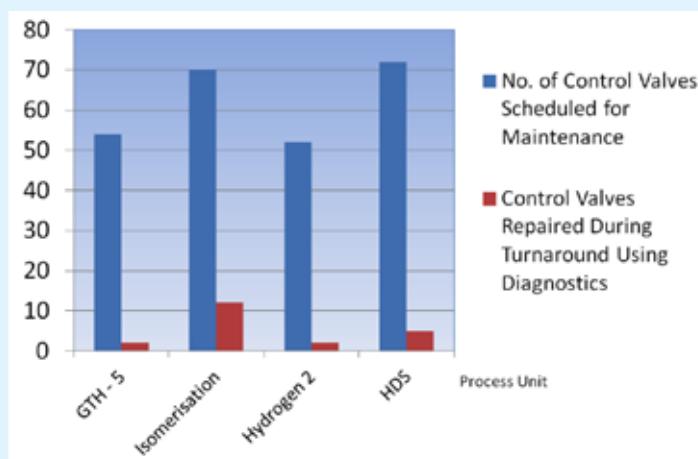


Fig 3: No. of scheduled vs. actual control valves repaired during a turnaround

control valves scheduled for maintenance during a turnaround (Figure 3) was reduced from 50-70 valves (depending on the operating unit) to five or less! This reduction didn't just deliver big benefits with reduced cost, it also reduced the number of required days for the turnaround.

## FDT Workshop at Automatisierungstreff 2015



Automatisierungstreff  
IT & AUTOMATION 2015  
24.-26. März 2015 | Kongresshalle Böblingen

This workshop gives an overview on the basics of the FDT Technology and its application. The possibilities and advantages of the FDT technology will be explained to the audience using examples and scenarios from Factory Automation. A possible integration into Industry 4.0 will be part of the discussion.

The workshop is free of charge and takes place on the 25th of March 2015 at Kongresshalle Böblingen from 10 a.m. to 5 p.m.

Beside the FDT Group the companies M&M Software, Pepperl+Fuchs, Phoenix Contact, Rockwell Automation and Schneider Electric will participate.

More details can be found with the following link:  
[http://www.automatisierungstreff.com/?page\\_id=13326](http://www.automatisierungstreff.com/?page_id=13326)

### FDT Incorporates a New Standard



The MOL Danube Refinery in Hungary is an example of what can happen when you move from a reactive or scheduled maintenance strategy for control valves to a predictive strategy based upon the use of device information.

The number of

## Tapping Plentiful Device Information Improves Plant Reliability, Efficiency *continued*

An asset management application at the Shell Scotford Upgrader facility in Alberta, Canada, demonstrates what can be done using the information from intelligent field devices. Utilizing an FDT-enabled system and DTM's, they were able to quickly configure 1,500 devices from 26 different device suppliers, keeping the project on schedule. After providing team training and updating their work process to include device configuration and diagnostics, they started using secondary variables to monitor remote heated device enclosures. They also initiated valve partial stroke testing, remotely monitored empty pipe detection on flowmeters and did much more.

As a result, the project team executed a safe and efficient start-up and continued safe and reliable plant operation. They now utilize real-time instrument troubleshooting with a more predictive maintenance strategy. The overall savings is in excess of an estimated \$7.1 million which includes hardware replacement and ongoing operational and maintenance expenses. A project leader comments that an asset management system will pay for itself by quickly and reliably providing the status of all devices in the plant. The other capabilities are an added bonus!

### FDT Future Ready

The recent enhancements to the FDT Technology specification deliver benefits today and well into the future. Enhancements include; faster execution for mega installations (thousands of I/O), improved security, utilization

of .NET technology, availability of a variety of development tools to make DTM development faster and many more. The latest FDT standard is FDI (Field Device Integration) ready, protecting your investment into the future!



FDI is an emerging standard that will soon start to gain prominence. It was created to offer greater compatibility of EDDL-based (Electronic Device Description Language) networks for the process industry only (HART, Foundation fieldbus, Profibus & Profinet), and will allow these networks to be more easily integrated with each other. However, there are many other networks that need

to be integrated (see Figure 4) to build a complete solution. A method was needed to bring them all together to create scalable solutions. This is where the FDT standard comes into play, with its ability to standardize the communication and configuration interface between all field devices and host systems – including protocols and application in process, factory or hybrid manufacturing. Via FDT Technology, FDI will allow EDDL-based systems to be integrated into a host of other industrial networks.

### Getting Started

There is no better time to get started. Take the first step and contact your automation and device suppliers to confirm the number of smart devices and system applications able to access intelligent device information. Using the valuable device and process information available is a key step to improve the decision making process, increasing plant reliability and gaining a competitive advantage – keeping you competitive!

The FDT website contains many White Papers on this topic as well as webinars and videos located at

<http://www.fdtgroup.org/marketing-documents#White%20papers>.

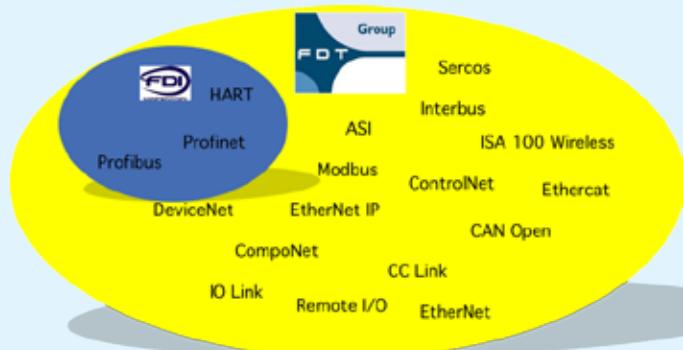


Fig 4 shows that FDT supports both the process and factory communication protocols.

# FDI and FDT: Working Together For Limitless Integration

*Glenn Schulz, managing director of the FDT Group, recently spoke about the emerging FDI standard and explained how it will sit comfortably alongside the existing FDT standard. Suzanne Gill reports.*

**Author** Suzanne Gill, Control Engineering Europe



FDI (Field Device Integration) is an emerging standard that in the near future will start to gain prominence in industry. It was created to offer greater compatibility of EDDL-based (Electronic Device Description Language) networks such as HART, Foundation Fieldbus, Profibus & Profinet, and will allow these networks to be more easily integrated with each other. Via existing FDT technology FDI will also allow EDDL-based systems to be integrated into a host of other industrial networks.

Glenn Schulz explained the reasoning behind the creation of FDI. "On the surface, EDDL appears to be a common language to specify device behavior and device characterization. However, the different EDDL-based networks have each developed a very unique dialogue, to the point where they are not compatible."

"This means that when an instrument manufacturer goes to market with a new instrument, if they are releasing it on multiple buses, they will need to go through a completely different certification processes – with a different EDDL file for each – even though the device is the same for each one of the networks."

## EDDL Harmonization

The different flavors of EDDL has also posed problems for end-users because they need to seek out the right EDDL file for the network onto which they want to deploy a new device.

One of the major requirements of the FDI standard which has been developed by the FDI Cooperation,\* was therefore to harmonize the EDDL language so that each of the automation foundations are able to use exactly the same language, with some allowance for the uniqueness of each of the networks.

"The release of the FDI standard will result in the creation of a single, common, interpreter for all the different EDDL files across the EDDL-based networks. This will significantly simplify the architecture from a host perspective and should dramatically improve interoperability going forward," said Schulz.

The FDI standard will also add improved graphics capabilities for device configuration. "EDDL has been somewhat limited in terms of what it can do graphically," continued Schulz. "You can add graphics, but they are not highly interactive, and you do not get a rich, graphical user interface feeling. FDI, however, will bring this capability to EDDL."

FDI will bundle these capabilities into a device package that will incorporate a collection of files – including the device description, the device definition, business logic and a user interface description. So, FDI-enabled devices will only require the matching FDI device package that holds all the information and software needed to configure that device.

"One of the key considerations in the development of FDI was that, from the ground up, it was designed to be compatible with the FDT standard – and to avoid even more competing industry standards!"

## **FDI and FDT: Working Together For Limitless Integration *continued***

So, FDI is designed to support EDDL-based standards. However, there are many other networks being used in industry today that need to be integrated, in order to build a complete solution. A method was needed to bring them all together, to create scalable solutions. This is where the FDT standard comes into play, with its ability to standardize the communication and configuration interface between all field devices and host systems.

The FDT technology provides a common environment for accessing features of a device via a DTM (Device Type Manager). A DTM, which is supplied by the device vendor, is a software representation of the device and it can offer a host of functions. It can assist with device configuration, diagnostics; it might be able to handle troubleshooting and will also include a device manual. The network communication devices are also represented by a DTM making the standard highly flexible for the end user.

"Although the FDT standard and the FDI standard share many similarities, they are not the same," said Schulz. "An FDI host, for example, is not able to support DTMs. It can only support EDDL-based networks. This is why we talk about integrating FDI into FDT."

### **Integrating FDI into FDT**

Explaining further about how FDI will be integrated into an FDT-based host, Schulz explained that any number of DTMs can be loaded into the FDT host, which is able to talk to any number of industry networks. "When FDI-based devices do start to appear, a special DTM – called an FDI DTM – will be created. Inside this FDI DTM will be the common EDDL interpreter, which is needed for the FDI standard, as well as the other components that support the FDI standard.

"With an FDI DTM solution all the FDI functions will be fully enabled within FDT with no limitations. All FDT DTM features are also fully enabled, making it possible to take DTMs for devices on any of the industrial networks or fieldbuses and use them within this integrated solution."

Earlier this year at the Hannover Fair, CodeWrights, an FDT Group member, was able to demonstrate how FDI packages, inside an FDI DTM are able to communicate with different devices, showing how far the technology has now come.

As field devices gain ever more intelligence, they can provide huge amounts of data, which, if turned into useful information can offer big benefits. The creation of a standardized way to describe automation components and to communicate with them is therefore becoming increasingly important. Without it, the true potential of decentralization, transparency, integration and a central view of all data and functions cannot be fully realized.

\* FDI has been developed by a group of industrial technology foundations and suppliers of process control systems and field instrumentation. Its specification is based on close cooperation with end users and end user organizations, and the requirements of NAMUR and WIB, the process automation users' association, have been included in its specification, enabling it to offer an intelligent migration strategy from the past to the future using state-of-the-art and best-of-breed technologies.

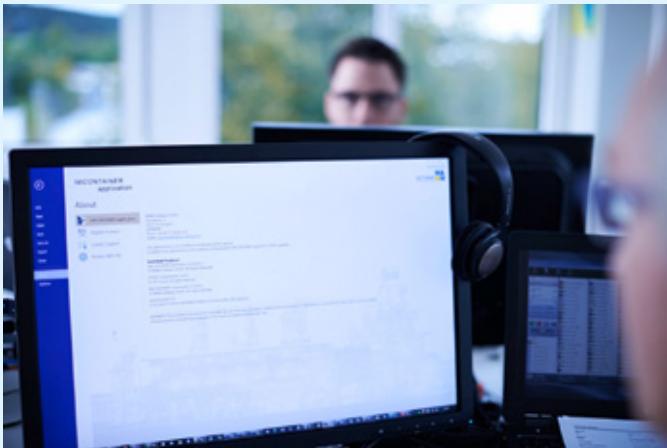
FDI Cooperation members include five major automation foundations - FDT Group, Fieldbus Foundation, HART Communications Foundation, PROFIBUS & PROFINET International, and the OPC Foundation. Major automation vendors supporting the organization include ABB, Endress+Hauser, Emerson Process Management, Honeywell, Siemens, Yokogawa and Invensys (now part of Schneider Electric).

The following FDT Group produced video provides an in-depth look at how FDT incorporates the FDI standard.  
<https://www.youtube.com/watch?v=AiJ48IVjZJ8&list=UUQhg8wlWMgCYjqPgNOGznyA>

A whitepaper, produced by FDI Cooperation LLP provides an in-depth look at FDI technology. This can be downloaded now from the whitepaper section at [www.controlengeurope.com](http://www.controlengeurope.com)

## Alternative Paths for Developing DTMs and Frame Applications

*Developing DTM s and FDT Frames From Scratch or with Toolkits and Common Components.*



The road to a complete FDT/DTM solution can be a fairly time-consuming and costly one. Considering the extensive scope of the FDT specification, developing DTM s or FDT Frame Applications can be a daunting task for most automation-component vendors. Whether companies are developing DTM s or doing FDT Frame development, M&M Software provides a comprehensive set of tools and services for device manufacturers, system vendors, integrators and end-users alike. M&M offers several DTM and FDT Frame development tools, which abstract away any complexities of the FDT specification, helping device manufacturers and system vendors develop their FDT 1.2.x or FDT2 enabled products in no time.

One way is to develop a DTM is from scratch. M&M Software specializes in this particular area, offering a full range of FDT related development services. This includes consulting services, FDT trainings and workshops, software development and test & certification. All development activities aim towards the specific requirements of the project at hand. Any DTM s and Frames developed by M&M use stable and field-proven tools and development libraries such as the *fdtCONTAINER* component and *dtmMANAGER*. The final product is the perfect FDT/DTM solutions for a given device or system.

An alternative solution is to develop DTM s in-house using a toolkit. One such toolkit is the *d tmMANAGER development suite*, which comprises a complete development environment for the development of FDT 1.2.x and FDT2™ DTM s. The included DTM Common Components, documentation and Microsoft Visual Studio wizard to further reduce the amount of development effort needed.

Another alternative to creating a DTM by hand is to generate a device DTM from a HART, PROFIBUS or FF Electronic Device Description (EDD). The M&M basicDTM service uses EDD files to generate native, full-featured and certifiable DTM s quickly and at low cost. The resulting DTM s also double as the perfect basis for advanced DTM s with functionalities that stretch beyond the scope of EDDs such as diagnostics and rich user interfaces.

The final part of the DTM development journey is the certification process. In order to ensure high levels of conformity, stability and interoperability, the FDT Group recommends certifying DTM s using the *d tmINSPECTOR*. M&M Software also offers DTM certifications in its accredited laboratories in Germany and China.

In order to use the finished DTM, the end-user will need an FDT Frame Application. By bundling an FDT Frame Application with DTM s, vendors can provide their customers with a complete FDT/DTM solution. *fdtCONTAINER component* is the certified FDT Frame Common Component. It encapsulates a powerful set of .NET-Interfaces, which can be implemented in your application without having to worry about FDT 1.2.x or FDT2 specific details.

Just like DTM s, developing a new FDT Frame Application from scratch may be unnecessary in some cases. There is a full-featured stand-alone Frame Application - OEM *fdtCONTAINER application*. *fdtCONTAINER application* is a powerful and customizable FDT compliant host application. At its core, the application uses the FDT Common Component and supports both FDT 1.2.x and FDT2.

For more information about M&M Software's products and service, please visit their website:  
<http://mm-software.com>

## Mergers Alter Industrial Landscape

*Some things change for good reasons, some don't. End-users and manufacturers benefit from the new situation.*

The merger of the HART Communication Foundation and the Fieldbus FOUNDATION turned into reality at the start of this year. In mid-2015, the FDI Cooperation Group will be dissolved and the FieldComm Group will undertake the maintenance of the FDI tools and components. All technologies will be maintained and further developed under the same roof. This is true for the HART and FOUND-



TION Fieldbus protocol families as well as for two integration standards, EDDL (Electronic Device Description Language) and the newly developed FDI (Field Device Integration) tools. FDT and PROFIBUS remain independent. Why? FDT and PROFIBUS are widely used in the factory automation. It makes sense that independent organizations maintain the technologies and support the vendors and end users.

The aforementioned mergers directly and indirectly have positive effects for FDI and FDT based products. An obvious aspect is that the communication protocols specifically annexed to the FDT specification will now be maintained centrally by the FieldComm Group, and will offer device and EDD / FDI Device Package registration services along with development and test environments under one roof. Compatibility between FDI and FDT will also be jointly maintained by the FDT Group and the FieldComm Group. This will guarantee reliable and stable solutions.

Another less obvious benefit for FDT/DTMs comes from something completely unexpected - EDDL. It provides a standardized way of describing communication protocol specific device without using a DTM. However, some device manufacturers started to use EDDs as a basis for the DTM development. The main benefit of this approach includes a huge time saving aspect for DTM creation during the initial development phase and provides ease of maintenance for updates.

Nevertheless, there is an even simpler way to create a device DTM. An Interpreter DTM (iDTM) from CodeWrights is a full-featured device DTM that carries the standard EDD-Interpreter components to execute your existing EDDs or FDI Device Packages during runtime. Generating from an EDD or integrating the EDD interpretation into the DTM development process is no longer required. For you, the difference is big because it is so easy and cost effective!

On the way to your iDTM, CodeWrights provides a complete set of analytic services for your EDD/FDI Device Package to potentially improve existing solutions (e.g. offline configuration, development of UIPs or Extension Modules) and can also assist with device registration and certification testing. Customized training sessions for knowledge building are available also. CodeWrights uses a solution-oriented approach to meet your objectives - efficient device integration while maximizing the value for your customer. Because software developers are a scarce resource today, we want you to keep your focus on your core business, your devices! Let CodeWrights **simply integrate** your device and communication DTMs.

For more information please visit: [www.codewrights.de/never-simpler](http://www.codewrights.de/never-simpler)

CodeWrights. Simply Integrated.

## Rugged Flowmeter High Precision

*Maintenance-free sensor provides wet steam detection, network compatibility*

The Prowirl F 200 measuring tube is the first choice in heavy duty applications, offering durability and optional wet steam detection. The proven and patented capacitive DSC sensor, which comes in compact or remote versions, ensures high-precision measured values even under the toughest process conditions. Prowirl F 200 offers wet steam detection and industry-compliant two-wire technology for seamless integration into existing infrastructures and control systems, as well as high operational safety in hazardous areas thanks to an intrinsically safe design, and a familiar installation procedure.

### Your benefits

- Integrated temperature measurement for mass/energy flow of steam, gases and liquids (option).
- Pressure or temperature input via 4...20mA input, HART, PROFIBUS PA or FF.
- The Prowirl line supports FDT
- Highest process safety – dualsens version enables redundant measurement to SIL 3
- High availability – proven robustness, resistance to vibration, temperature shocks and water hammer
- No maintenance – lifetime calibration
- Convenient device wiring thanks to a separate connection compartment
- Safe operation – no need to open the device due to display with touch control, background lighting (option)
- Integrated verification – Heartbeat Technology™

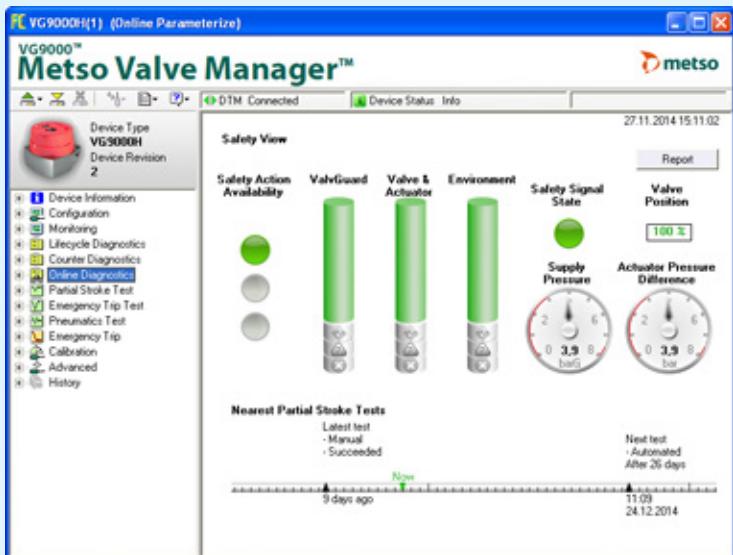
For more information: <http://www.endress.com/en/Tailor-made-field-instrumentation/Flow-measurement-product-overview/Product-Vortex-flowmeter-Prowirl-F-200-7F2B>



**Endress+Hauser** EH  
People for Process Automation

## DTM Boosts Valve Diagnostic Capabilities

*Graphical displays help users predict future conditions*



Metso Corp.'s DTM release 1.16 brings the valve diagnostics to a new level, presenting current valve assembly conditions and predicting future conditions more accurately than ever before.

The Metso Valve Manager combines the valve assembly's diagnostic history and current measurements, combining that with wide field experience. Users can see more focused information displayed so it helps them make correct interpretations.

The Performance View, which has been available for ND9000 intelligent valve controller, is now available as Safety View for ValvGuard VG9000. Safety View graphically displays the indices of the ESD valve. When none of the statuses according to Namur NE107 are indicated, the calculated index is displayed as a green bar. VG9000 Safety View also includes Safety Action Availability, the most important indication of the safety valve condition. It is represented as a traffic indicator with a green, yellow or red light.

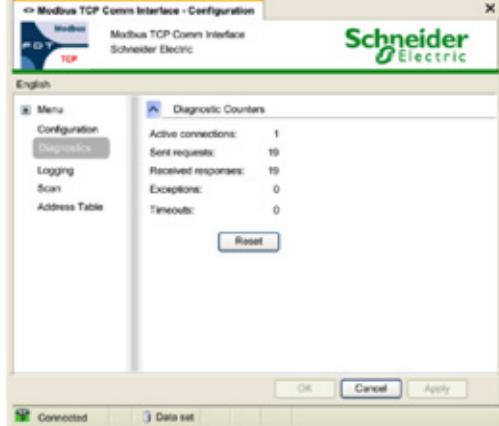
For more information, please visit: [www.metso.com/valvguard](http://www.metso.com/valvguard).



## Free Modbus DTM Connects Via Serial Lines

*Supports FDT2, improves diagnostics*

Schneider Electric has released a Modbus Communication DTM that supports FDT2 while providing connectivity to Modbus devices over serial lines or TCP. Backward compatibility of FDT2 makes the DTM compatible with Device DTMs based on FDT1.2.



The screenshot shows the 'Modbus TCP Comm Interface - Configuration' dialog box. At the top, there's a toolbar with icons for Modbus, Ethernet, and TCP. Below the toolbar, the title bar reads 'Modbus TCP Comm Interface' and 'Schneider Electric'. The main area is titled 'Diagnostics Page'. Under this, there's an 'Introduction' section with text about the Modbus TCP Comm Interface providing diagnostic information. Below that is another 'Diagnostics Page' section with text about monitoring communications. A list of steps to access the diagnostics page via FDT is provided. At the bottom, a table titled 'Diagnostic Counters' shows statistics: Active connections: 1, Sent requests: 19, Received responses: 19, Exceptions: 0, and Timeouts: 0. There are 'OK', 'Cancel', and 'Apply' buttons at the bottom right, and a 'Reset' button in the center of the table area.

The DTM supports the following features:

- Network configuration
- Advanced diagnostics
- Logging with different levels (warnings, errors, message details)
- Configurable scanning
- Address table with information of connected Device DTMs
- Language support: Chinese, English, French, German, Italian, Spanish

The DTM ships with a comprehensive user manual containing a guideline for cyber security.

For FDT Group members, Schneider Electric offers its Modbus Communication DTM with a free license for usage. In addition, a Modbus Test-DTM can support the implementation of a Device DTM.

For more information, please contact Manfred Brill at [manfred.brill@schneider-electric.com](mailto:manfred.brill@schneider-electric.com).



## Acquisition Broadens Industrial Communication Line



*Softing's portfolio now includes PACTware software, PROFIBUS gateway*

Softing Industrial Automation broadened its product offerings with the 2014 acquisition of Trebing + Himstedt's industrial communication product and service portfolio. Softing added the TH LINK PROFIBUS gateway, the certified DTM Library and the PACTware plant asset management software, which provides centralized access to field devices in process industry plants.

Softing also replaces Trebing + Himstedt as member of the PACTware Consortium.

The TH LINK PROFIBUS allows the centralized and time-saving parameterization of PROFIBUS and HART field devices. A streamlined design and small physical footprint make TH LINK easy to fit even in small control cabinets. When coupled with the certified Device Type Manager (DTM) Library, it forms the basis for very efficient device management.

The TH LINK gateway can also be combined with the clever diagnostics software to give users a manufacturer-independent tool for operating and monitoring field devices. It also allows constant monitoring of the state of all nodes on the network.

Softing is committed to further developing and enhancing these products to give customers the best possible service and further strengthen its position as market leader in network diagnostics and plant asset management.

For more information visit: [http://industrial.softing.com/en/products/plant-asset-management.html?wm=mc=FDT\\_%20201502\\_NL](http://industrial.softing.com/en/products/plant-asset-management.html?wm=mc=FDT_%20201502_NL)

The softing logo, consisting of the word "softing" in a lowercase, sans-serif font, with the letter "o" slightly larger than the others.

## FieldMate Device Management Tool Runs on Tablets

*Field devices on multiple networks can be managed with a compact handheld computer.*

Yokogawa's FieldMate multilingual device management tool supports EDDL and FDT device integration concepts, so users can configure, maintain, and manage all field devices using a tablet computer. FieldMate features integrated communication paths for process automation protocols such as HART, FOUNDATION fieldbus, PROFIBUS, Modbus, ISA100.11a wireless, and Yokogawa's proprietary protocol BRAIN.

With a user interface designed for use on tablet computers, FieldMate R3.01 is the ideal tool for device patrol and maintenance tasks. New functions include the automatic generation of device configuration reports and the centralized management of various types of device related information.

FieldMate automatically scans the bus and reports the devices found including status of the device(s) and basic device parameters. From there, the user can intuitively navigate to device details such as: diagnostics, configuration parameters, maintenance information, etc. An audit trail function is one of many standard features. Other protocols are handled through setting up FDT projects using the appropriate communication DTM's. FieldMate is compliant with both FDT2 and FDT 1.2.x DTM's.

The FieldMate "one tool for all" concept allows users to efficiently configure, maintain, and manage all field devices no matter the make or protocol used to communicate, helping trim operational expenditures. FieldMate synchronises seamlessly with Yokogawa's PRM (Plant Asset Management) tool to provide a clear path to asset excellence.

For more details go to: <http://www.yokogawa.com/fbs/fbs-maintenance-en.htm?nid=left>



**YOKOGAWA** 



# FDT Events

>> February 24 ISA Beaumont Section Meeting - FDT Guest Speaker  
Beaumont, TX

>> March 3 and March 5 Integrating Device Intelligence – Providing a Competitive Advantage  
Online Webinar

>> March 25 FDT Workshop at Automatisierungstreff 2015 Böblingen, Germany

>> March 30 ISA Edmonton Section Meeting – FDT Guest Speaker  
Edmonton, AB

>> April 13-17 Hanover Fair Hannover, Germany

>> April 22 Meorga Fair Halle Halle, Germany

>> May 12-14 SPS/IPC/ Drives Parma Parma, Italy

>> June 10 Meorga Fair Hamburg Hamburg, Germany

>> June 15-19 Achema Division 2014 Annual Conference Frankfurt, Germany

>> June 4-5 FDT 2.0/FDI Developer Workshop Bangalore, India

>> July 7 Industrial open networks Fair 2015

Seminar and demonstration of Industrial open networks Senri Life Science Center, Osaka, Japan

>> July 9 Industrial open networks Fair 2015

Seminar and demonstration of Industrial open networks Ota ku Sangyo Plaza "PiO", Kamata, Tokyo

>> July 9-10 ARC India Forum Bangalore, India

## FDT Resource Links

- » Contact Us
- » Certified Product Catalog
- » Frequently Asked Questions
- » Membership
- » News and Events
- » Newsletter Registration
- » Newsletter Archive
- » Press Releases
- » Technical Brochure

## Solid Technology, Strong Membership



For further information please visit [www.fdtgroup.org](http://www.fdtgroup.org) or contact the FDT Group Business Office:

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