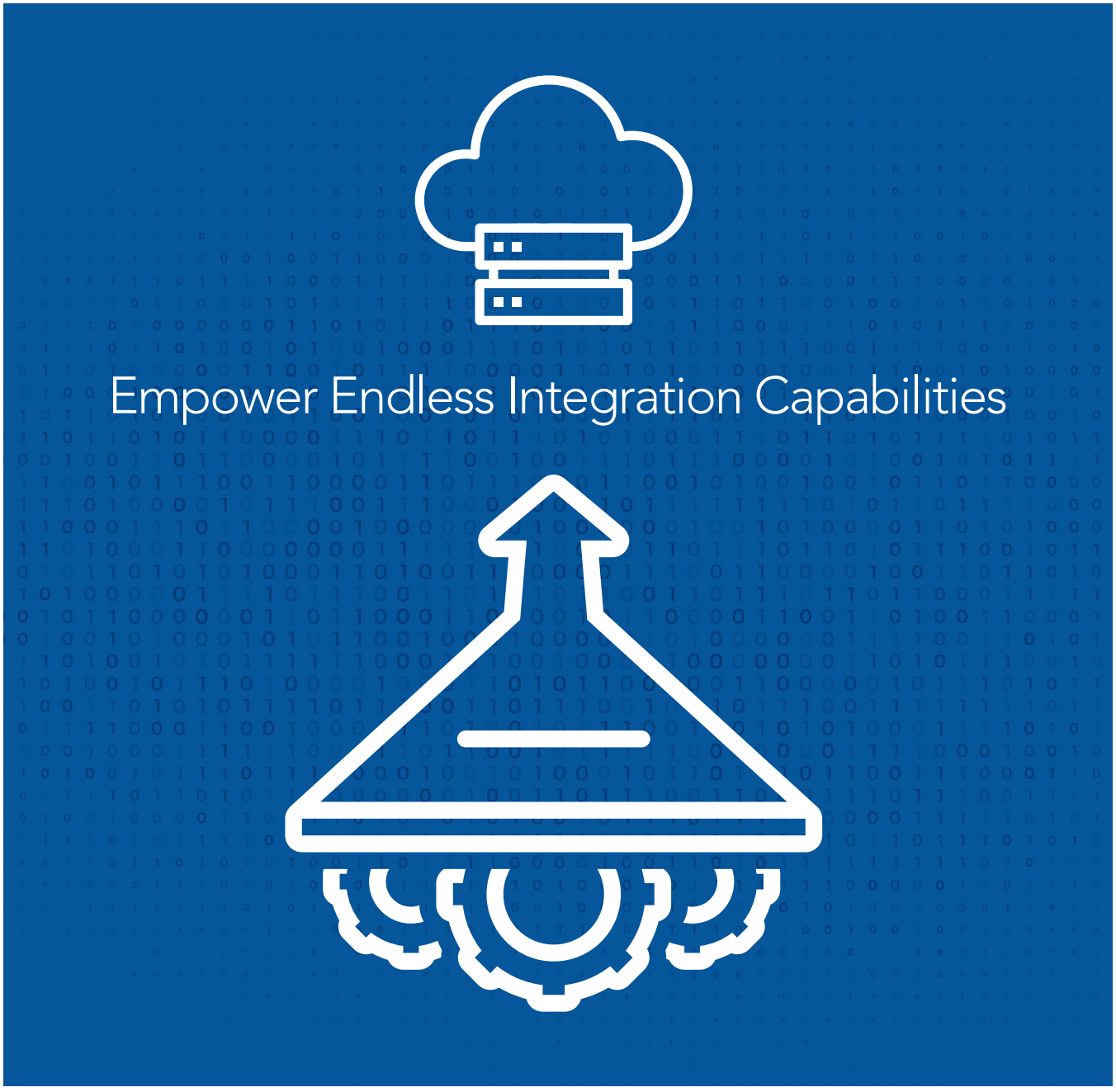
MAY 2021

FDT GROUP

Real-Time Data



FDT 3.0 DTM Certification, IO-Link and OPC UA

Modern, Open Automation Platform Reaches Final Milestones

Lee Lane
Chairman of the FDT
Board of Directors

We are reaching our final milestones in the FDT 3.0 IIoT Server (FITS) project. The most recent piece to come into play is the certification tools and procedures for FDT 3.0 DTMs. As we go to press, our accredited, independent test sites are running the new FDT 3.0 certification tools through their final paces to make sure everything is ready. As before, the test and certification process is highly automated through the use of custom software tooling that the FDT Group has developed. These tools are readily available to DTM developers so that they may pretest their DTM for compliance prior to entering the test site for certification.

In past versions of the FDT standard we highly recommended, but did not require, style guide compliance. Based on the feedback from our end user community, DTMs that are certified to the new FDT 3.0 standard must now pass the style guide tests as part of the certification regime. This is particularly noteworthy as the FDT 3.0 style guide includes elements for responsive design and touch navigation. Having all DTMs operate under the same style principles will help ensure that the end user experience is seamless, even with thousands of DTMs installed.

On behalf of the Board of Directors, I wish to thank our Test and Certification Committee and our Architecture and Specification Committee for their significant body of work to get us to this point. My personal thanks to James Loh Chia Woon of Yokogawa who, as chairperson of Test and Certification, has led this effort. I am sure I may also speak for the FDT Group members that are patiently waiting to have their new FDT 3.0 DTMs certified in saying thank you to the entire team.

I am pleased to announce that our IO-Link Annex for FDT 3.0 is now underway. The committee has been formed and they are now planning their work package through virtual meetings. This will be an exciting development as we already have an IO-Link Interpreter DTM waiting in the wings. This Interpreter DTM will make all IO-Link devices immediately compatible with the FDT 3.0 standard without the need to write a bespoke DTM for each device. This is particularly attractive for the IO-Link community as most IO-Link devices are by their nature quite simple devices and as such do not require extensive business logic or custom graphics to support their operation. If you would like to add your expertise to this IO-Link committee work, please send a note to our managing director at md@fdtgroup.org.

The FDT 3.0 standard sits at a peer level with the PLC or DCS in the control architecture and makes real-time operations and device data available to higher level applications without the need to pass through the controller. The primary means of accessing this data is through OPC UA using the OPC UA server that is natively integrated into the FDT Server. The FDT Group and the OPC Foundation have collaborated on this capability to enable a data-centric architecture available throughout the customer enterprise. One of the resulting documents is an OPC UA companion specification. I am pleased to announce that the work is underway to finalize the approval and publication of this joint specification through the OPC Foundation processes. Meanwhile, end users may already take advantage of this capability that is built into every FDT 3.0 Server. As with the entire FDT 3.0 architecture, the built-in OPC UA server is also platform independent.


testing

Changes to DTM™ Certification with FDT 3.0

Modern developer tools, comprehensive testing and new online DTM repository streamlines certification process for manufacturers and improves DTM access for end users

As an independent, international, not-for-profit industry association, FDT Group has developed and maintained an open standard for enterprise-wide network and asset integration in the process, hybrid and factory automation markets.

The organization's new, forward-looking FDT 3.0 standard is accelerating its evolutionary journey into the Fourth Industrial Revolution. The technology's FDT IIoT Server platform holds the key to unlocking universal device integration.

As a core component of the FDT standard, Device Type Managers™ (DTMs™) contain the user interface and the application software that defines all the parameters and capabilities included in field instruments. DTMs encapsulate all device-specific data, functions and business rules such as the device structure, its communication capabilities, internal dependencies, and its human-machine interface (HMI) structure.

As part of FDT Group's comprehensive DTM testing process, accredited test sites test DTMs against the current FDT specifications. DTMs that are compliant with the specifications allow open access to intelligent devices and the myriad of information available from those devices, networks, and plant and factory processes.

Recent updates to FDT Group's test tools and certification procedures are aimed at optimizing the efforts of DTM developers and helping them bring new products to market, while at the same time improving the experience of automation end users around the world. As the technology evolves so do the test and certification procedures enabling the process to be more automated and secure. The new steps in FDT 3.0 DTM certification are streamlined for a better overall experience.

Understanding DTM testing and certification

Certification to the FDT specification is a process whereby rigorous compliance testing ensures the viability of the states of the DTM; its correct installation, de-installation and multi-user environment capability; mandatory and optional interface functionality and robustness; network scanning communication performance and the ability to import and export the topology; and the audit trail capability.

Once an FDT-accredited test site determines that a DTM has passed the necessary testing, it submits all Declaration Files to the FDT Group Certification Office. The DTM then receives the official DTM certificate that is sent to the vendor along with the FDT Certified logo acknowledging compliance.

Key to the development of FDT-compliant DTMs is the use of FDT Group's Common Components toolkit, which provides a fast way for development teams to view DTMs in an FDT hosting (Desktop or Server) application and understand the communication flow between them. The toolkit's Web User Interface (UI) allows them to see how different DTMs work together across various machines and operating systems.

With FDT 3.0, DTMs are now OPC UA-ready and offer data through the natively-integrated FDT OPC Unified server. This feature eliminates a significant amount of effort on the part of developers, who can implement FDT 3.0 using the Common Components and then rely on the toolkit's clear guidance to support interfaces within the standard.

Device suppliers can also use a tool known as dtmINSPECTOR to automate and streamline DTM certification procedures. This tool ensures that any new script for DTM development is compliant with the FDT specifications. It enables developers to run internal tests to identify technical issues prior to submitting their DTM to an independent test site for certification. The test site uses the same version of the tool to run conformance test cases and generate a report on their results.

The dtmINSPECTOR software aligns with the DTM Common Components toolkit, providing developers with pre-written and pre-tested FDT specification requirements to speed the product development, testing and certification process. This approach simplifies DTM testing since the Common Components inherently meet many of the required test cases.

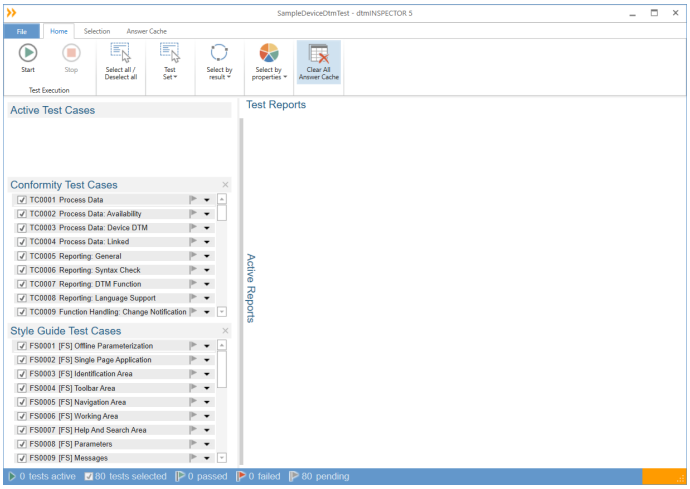


Figure 2: dtmINSPECTOR5 main window with all the Conformance and Style Guide Test Cases

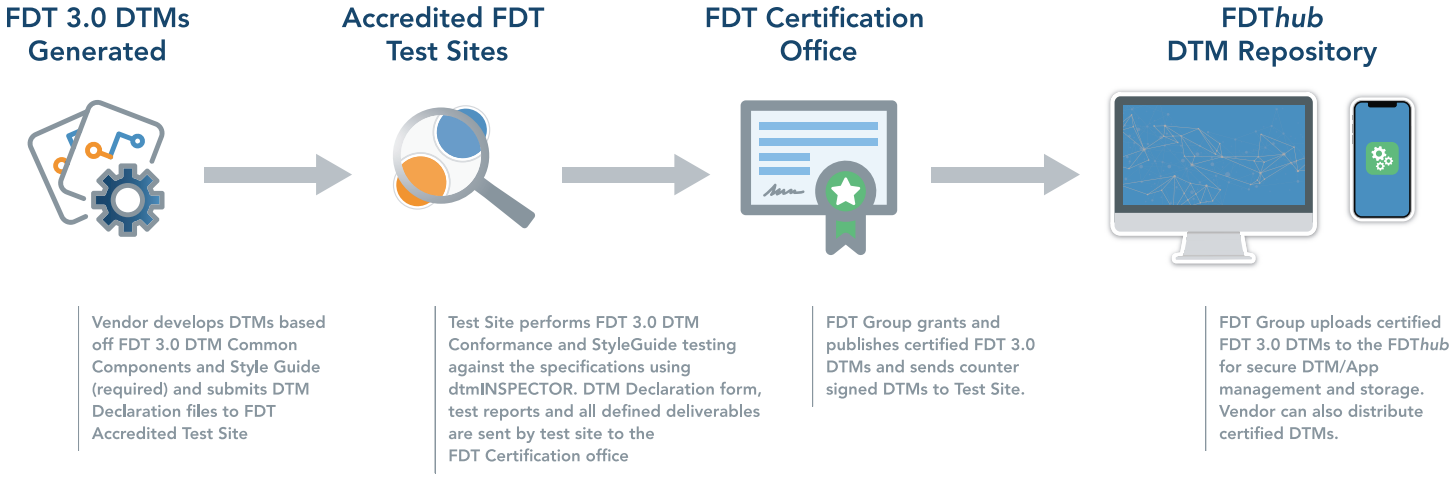


Figure 1: Updated FDT 3.0 DTM Certification Process

Besides the necessary functionalities for certification, dtmINSPECTOR delivers all the properties to effectively ensure DTM development compliance. The tool's scripting engine enables developers to write their own functional test cases for a device. In doing so, they can create a powerful test environment providing optimal support throughout the DTM development process.

The new test tool for FDT 3.0 is called dtmINSPECTOR5, which builds upon the test tool for FDT 2.0 known as dtmINSPECTOR4. For the independent test sites responsible for DTM certification, the upgrades with dtmINSPECTOR5 offer greater convenience and will help to reduce the time and effort required for testing vendor-supplied DTMs.

Because a significant portion of the business logic for DTMs from FDT 2.0 specifications has been retained in the FDT 3.0 standard, only minor changes have been made to the architecture of the dtmINSPECTOR software. Most of the FDT 2.0 test cases are ported into this new tool, with the necessary changes made to adapt them for FDT 3.0.

Making UI Style Guide compliance mandatory

The FDT 3.0 Industrial Internet of Things (IIoT) ecosystem development environment, intended to simplify the journey to innovative IIoT and Industry 4.0 solutions, includes an updated FDT 3.0 Style Guide empowering a standardized, responsive-by-design Web UI for new solutions developed by the supplier community. No other standard offers a more comprehensive, template-based approach for the industrial UI.

With the FDT 3.0 standard, DTM testing and certification has been broadened to include compliance with the FDT 3.0 DTM Style Guide. This requirement was not in effect with FDT 2.0, which allowed instrumentation suppliers to make their own decision regarding style guide compliance. FDT 3.0 DTMs must now pass both Conformance and Style Guide tests to receive certification.

The FDT 3.0 DTM Style Guide stipulates a uniform approach to the DTM user interface that employs a responsive design focused on mobilizing secure remote access independent of the device, system, browser, operating system, etc. The Style Guide describes elements of the automation interface in the HTML5 JavaScript world, so it is based on a state-of-the-art approach. The FDT 3.0 Web UI is suited to a new generation of workers who are digital natives and expect to use web-oriented technologies.

A critical aspect of the FDT 3.0 DTM Style Guide is ensuring a uniform UI with the same look and feel, presenting information in a consistent fashion across different vendors, devices and applications. This is especially important with new mobile solutions being deployed in industrial facilities. As such, compliance with NAMUR NE-107 recommendation is now required within the FDT 3.0 Style Guide. NAMUR NE-107 stipulates that plant operators need to view the process, including the status of the instrumentation, in a simple and uniform way—regardless of the source device—to support predictive maintenance strategies. DTMs are a crucial enabler for apps intended to view the health of field devices, and subsequently improve maintenance workflows.

Whereas developers did not receive the DTM Style Guide test tool as part of FDT 2.0 certification—this functionality was only available to the test center—the style guide tool has been embedded in the FDT 3.0 dtmINSPECTOR5 tool version. This enhancement reduces the burden on developers and provides them with additional test coverage before submitting their DTM for certification.

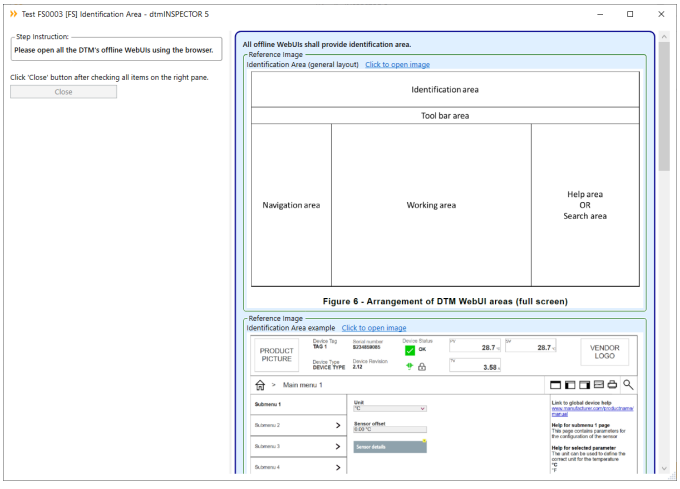


Figure 3: dtmINSPECTOR5 screenshot of one of the Style Guide test cases: FS0003_IdentificationArea. Left side pane provides user with the instruction about this test case. Right side pane provides all check items of this test case. Each check item is surrounded by a blue border. Some check items may include sample reference images for user. User needs to check (select option) each item to proceed with next tests.

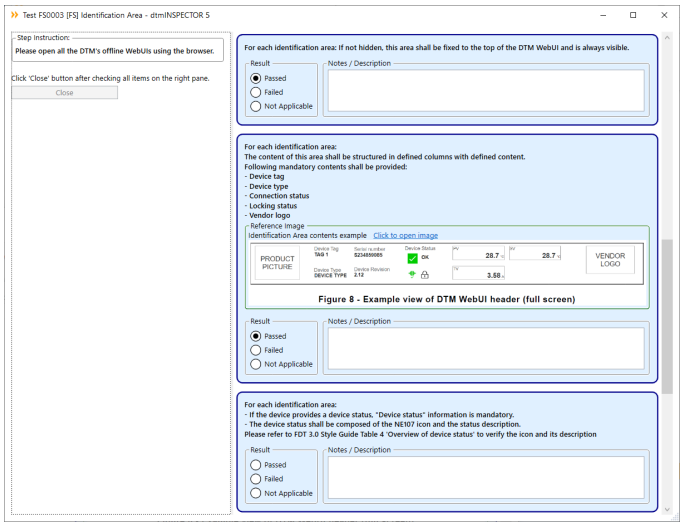


Figure 4: dtmINSPECTOR5 screenshot from the same Style Guide test case FS0003_IdentificationArea. Because this test case contains several check items, user needs to use scrollbar to go through all check items. In this screenshot, you can see user has three options (Passed, Failed, Not Applicable) to select. User can also write down notes in the "Notes / Description" text box.

Strengthening the official certification process

Upon release of the FDT 3.0 standard, FDT Group instituted a mandatory certification process for all new FDT 3.0 DTMs entering the market. This development was spurred by requests from leading end user organizations such as NAMUR for greater consistency and interoperability across the industrial device installed base.

Within the FDT 3.0 environment, certified DTMs are built using platform-independent tools and therefore are interchangeable with cross-platform functionality. Vendors will now be required to declare the platform independence of their DTM as part of the certification process.

FDT Group has also fortified the security measures related to the FDT 3.0 DTM certification process. Once a DTM has met all the mandatory testing and compliance requirements, the certification files are compressed, digitally signed and submitted via a private channel to the FDT Group Certification Office. This procedure ensures the certification process isn't spoofed or tampered with in any way.

Finally, FDT Group has established the FDT*hub* for convenient storage and management of all certified DTMs. This repository, which can be hosted in the cloud or on premise, is the result of user-driven demand for a single location to find certified DTMs and updates. The FDT*hub* leverages the workflow from independent test centers to the FDT Group certification office so that all certified DTMs are automatically uploaded to the repository and made readily available to the end user community. This solution eliminates work for the vendor and is a key benefit stemming from the mandatory DTM certification process.

Benefits to automation industry stakeholders

FDT is the most widely recognized and accepted data-centric integration standard for network and device information and asset management in the industrial market. As such, automation stakeholders expect ongoing improvements to the standard to enhance their user experience, security and performance outcomes.

FDT Group has taken important steps to improve the maturity of its testing procedures and strengthen the practices of accredited tests centers responsible for DTM certification. Recent upgrades to the organization's multi-faceted DTM certification process will help to increase the confidence of end users in vendor solutions employing FDT technology.

The combination of the DTM Common Components tool kit, which has undergone rigorous testing to ensure compatibility with the FDT 3.0 standard and interoperability with the FDT Server Common Components, and the additional test coverage and certification processes provided by dtmINSPECTOR5, will result in a more robust and secure solution for the end user.

Industrial organizations will now benefit from optimized visualization across any mobile device, browser or host-based HMI utilized by the leading automation supplier platforms. They can employ a similar interface from device to device, which, in turn, will simplify navigation and ensure consistent notifications and warnings. All data and events will be presented in a standardized manner. This uniform approach will make training of engineers and technicians much easier while simplifying a wide range of operational tasks.

Thanks to the new FDT*hub* repository, end users will no longer be required to search for certified DTMs for their application. The FDT*hub* allows for automatic device discovery and notifications when new DTM updates are available, and vendors can manage their DTMs with user role access privileges.

Conclusion

FDT Group has served as a global standards association for more than 20 years. The organization has listened to automation suppliers and end users around the world to continuously evolve its technology and strengthen its DTM testing and certification procedures

For more information about developer tools and certification, visit fdtgroup.org/development

case study

LEVERAGING IT TECHNOLOGY INTO FDT 3.0 SPECIFICATION REALIZES FITS™ ARCHITECTURE

Accelerating the evolutionary journey into the Fourth Industrial Revolution

Summary

FDT (IEC62453) is a technology which allows integration of devices and networks to engineering tools, e.g. for industrial control systems (ICS) and asset management systems. This paper introduces the latest FDT 3.0 technical specification which enables the FDT IIoT Server™ (FITS™) architecture concept. FDT 3.0 addresses end user requirements (total platform independence, support of fieldbus protocols, centralized DTM repository, and NAMUR Open Architecture). Additionally, this paper provides an overview of the FDT Server and its components, including a natively integrated OPC UA Server and a Web Server, and how to get started with FDT 3.0 development with FDT Server Common Components.

Challenge

Smart Manufacturing and Next Gen IIoT and Industry 4.0 technology solutions are rapidly growing and so is the industry's need for standardized, data-centric and mobile platforms for brownfield and new greenfield applications in the process, hybrid and discrete markets.

Solution

The FDT 3.0 IIoT Server (FITS™) platform, is accelerating the evolutionary journey of the organization and its technology into the Fourth Industrial Revolution. Developed from industry-driven feedback and providing a bridge between the currently installed FDT-base and next generation solutions, the updated standard empowers an FDT-based IIoT ecosystem to meet the demands for digitalization and Industry 4.0 applications.

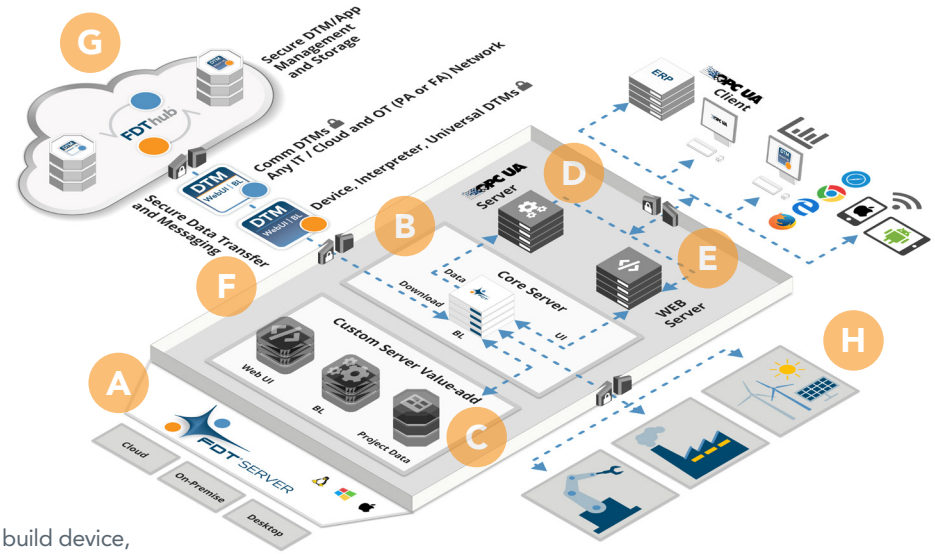
Result

The latest advancements in FDT® 3.0 technology will drive a wider range of worker mobility applications in the Information Technology (IT)/Operational Technology (IT) environment. They help standardized and optimize industrial organizations and their operations and maintenance departments by enabling cloud-based enterprise data access, device diagnostics and mobility applications; modernizing asset management practices; and improving predictive maintenance programs.

Download the Paper at IEEE Explore

This paper was presented in 2020 at the 59th Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE) and is now recognized and published with IEEE and available for purchase. Please click the download button that takes you to the IEEE site for more information.

How the FDT IIoT Server Solution Works



A

FDT Server

- Utilizes .NETCore open source software to build device, cloud and IIoT applications.
- Compatible with a choice of operating systems, including iOS, Linux and Windows.
- Offers a variety of deployment options, including cloud, edge, on-premise and air-gapped.
- Employs Server Common Components relieving the developer of integrating the standard into products, allowing them to focus on value-added capabilities.

B

Core Server

- Functions as IIoT data hub for the FDT Server.
- Included in Server Common Components.
- Incorporates DTM user interfaces and business logic.
- Stores, instantiates and executes DTMs, which are always kept up to date via the FDT*hub* repository.
- Provides the FDT topology information.

C

Custom Server Value-add

- Integrates into a larger system for enhanced functionality, including higher level, complex systems such as asset management applications, PLC tools and DCS/engineering applications.
- Utilizes Server Common Components with all the basic coding groundwork for business logic, project data and Web UI, which system vendors can customize by adding their own wrapper for branding purposes.

D

OPC UA Server

- Leverages a client-based environment.
- Enables IT/OT integration and gateway to data and health information.
- Allows developers to leverage industry-standard OPC UA Server included in the Server Common Components, or easily exchange it for their preferred OPC UA Server.
- Supports ERP/MES to optimize enterprise-level connectivity, plant availability and quality yield production.
- Offers OPC UA client/server-authenticated access to plant application data.
- Utilizes Publish-Subscribe environment for real-time data exchange.

E

Web Server

- Leverages a browser-based environment.
- Mobilizes field device management.
- Transforms OT access for improved asset management and maintenance.
- Enables browser-based access to physical plant/facility assets using authenticated computer, tablet or phone, or via DCS, PLC, asset management application, etc.
- Programmed into Server Common Components however, system vendors may replace the preprogrammed Web Server with their server of choice.

F

Security

- Provides encrypted communications using Transport Layer Security (TLS).
- Utilizes on-the-wire-security for enabled industrial automation protocols.
- Implements role-based user security.
- Supports 509v3 certificates for authentication.

G

FDT*hub*™

- Enables convenient access to all certified Device and Communication DTMs in a single repository.
- Supports cloud-based deployment with automatic device discovery.
- Available as a local server for on-premise, air-gapped deployment.
- Supports machine-to-machine communications with 509 certificates for machines with authorized access.

H

Remote Facility Connections

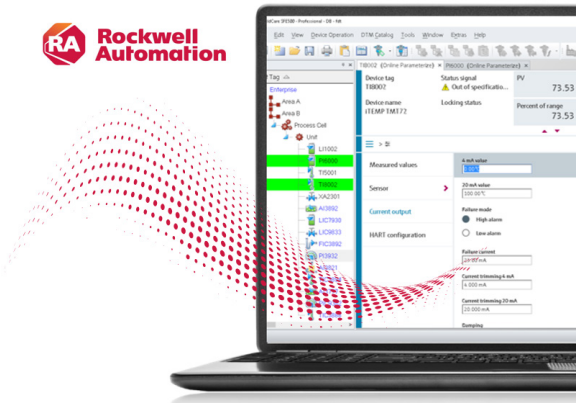
- Allows a single server to support multiple facilities.
- Provides access to FDT*hub* DTM repository.
- Optimizes security and connectivity via TLS, 509v3 certificates, authentication, authorization, and encryption.
- Compatible with VPN for IT environments, edge with a gateway for a specific protocol such as MQTT or AMQP and Intranet — ensuring communication stays within the secure enterprise network.

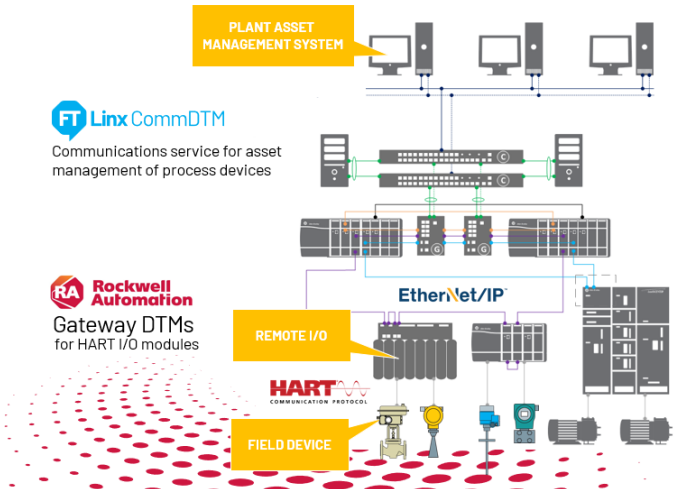
case study

Rockwell Automation

REMOTE CONNECTIVITY TO FIELD DEVICES, CONFIGURATION AND MONITORING FEATURES

Improve Plant Operations with Enhanced Gateway DTMs for HART I/O Modules





Process maintenance teams have long been challenged with gaining access and connectivity to service their field devices, like temperature sensors and valve actuators. To enhance plant operational efficiency, modern facilities want a fully enabled IIoT architecture that connects those devices to packaged automation solutions, plant-wide automation solutions and industry specific applications across the enterprise. To access plant floor data, Rockwell Automation® supports HART process devices in an FDT architecture with a variety of Gateway DTMs for the following HART protocol enabled I/O Modules: 1756, 1794, 1718, 1719, 1734 and 1769. Our latest additions include 1715, FLEX 5000™ and the AADvance® family.

Rockwell Automation, a leading provider of HART I/O solutions, is committed to providing access to HART device data with updated DTMs for all existing I/O platforms. The DTM enhancements provide users more visibility into the I/O platform performance, while enabling remote connectivity to HART field devices to manage configuration and monitor the diagnostic information according to recommendation NE 107 from NAMUR, a global association of process automation end users.

Inconsistencies in the availability of information to the teams of plant operators and technicians lead to different perspectives on how to optimize the facility. HART enabled I/O platforms can provide information that originates on the plant floor to both the real-time control system and the information-rich business and analytical systems. Using this standardized device health information in both communication channels allows both teams to make informed decisions based on historical performance and performance trends.

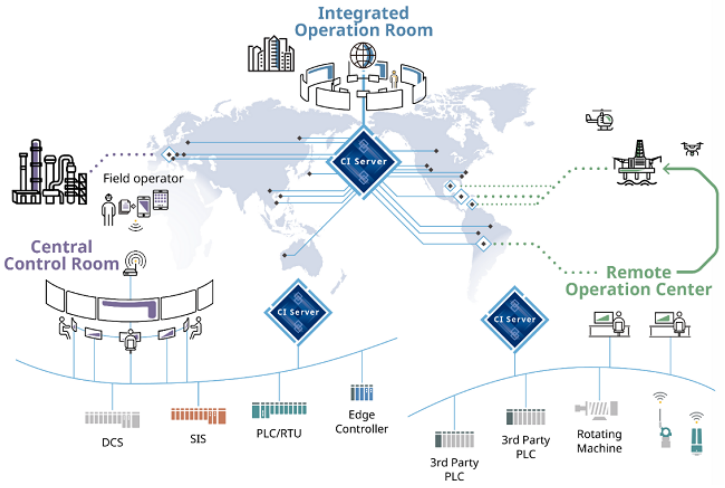
To download the latest FactoryTalk® Linx Comm DTM and the latest Gateway DTMs, visit our Product Compatibility and Download Center (PCDC) click on "Find downloads" and search for "DTM".

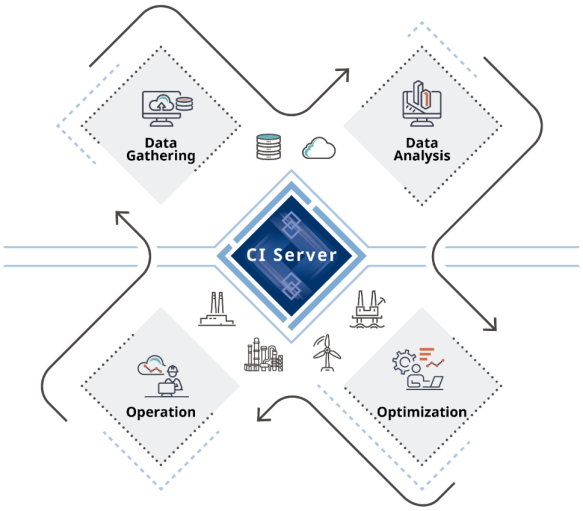
case study

YOKOGAWA

AN OPREX CONTROL AND SAFETY SYSTEM SOLUTION FOR INTEGRATED MANAGEMENT OF PLANT OPERATIONS FROM ANY LOCATION.

Yokogawa's Collaborative Information Server





Yokogawa Electric Corporation has developed Collaborative Information Server (CI Server) as part of the OpreX™ Control and Safety System family. The solution will integrate the handling of all kinds of data from plant facilities and systems to enable the optimized management of production activities across an entire enterprise, and provide the environment needed to remotely monitor and control operations from any location. By reducing the need for travel, this also helps to lessen the risk of infection with COVID-19.

As supply chains stretch across the globe and customer needs grow ever more diverse, many companies today are having to deal with increasing complexity in the supply of raw materials and in their operations. At the same time, they are experiencing labor shortages as their most experienced operators age and retire. Under these circumstances, companies must pursue efficiency in their operations and make decisions quickly in response to market changes if they are to remain profitable. And to streamline operations and ensure the safety of their workforce, there is a rapidly growing need for remote solutions that will enable personnel to work together without having to be on site.

To meet these needs, Yokogawa has developed CI Server, a solution that automatically aggregates the data that has been acquired from plant facilities and systems so that personnel in any location can monitor and operate them and have access to all the information needed to make swift and effective decisions. The features are:

The streamlining of operations and assurance of safety through an operating environment that can be accessed anywhere

A plant operates most effectively when there is full collaboration between plant operators, experts in areas such as maintenance and quality management, and decision makers at headquarters, as well as with other plants. CI Server provides a remote operation environment that supports wide-area communications and allows plant operations to be monitored and controlled from remote locations such as integrated operations centers. CI Server can be used from any PC or mobile device with a web browser to monitor and control a plant's operations. Efficient operation from any location is facilitated by creating a suitable dashboard for an organization and granting the necessary access permissions.

As well as helping to facilitate smooth collaboration among decision makers and other experts who are not at plant sites, CI Server also aids in the efficient operation and management of power plants that are often spread out over a wide area and situated in harsh environments, offshore installations, and other facilities. Furthermore, by eliminating the need for travel to plant sites, CI Server reduces the need for interpersonal contact and thereby leads to a lower risk of COVID-19 transmission for individuals, companies, and the community.

Smooth data integration and centralized management of the information needed for swift decision making

Facilities and systems often differ in the data formats and the communications protocols that they employ, and this complicates the aggregation of information and the management of data in a unified format. CI Server supports a range of communications protocols and can not only acquire process data from control systems, but also aggregate data such as the operational status of facilities and equipment, raw material and finished product inventory, and energy consumption. Data on equipment maintenance, product quality, and other items are all gathered automatically in real time, converted to a unified format, and linked and associated. Data from a wide variety of systems and devices made by different vendors can also be gathered and integrated, both on an individual and multiple plant basis.

The collection and organization of the required data using a unified format previously had to be done manually. The automation of these tasks by CI Server saves time and ensures that the right information is delivered in real time to the right persons, for swift and effective decision making. CI Server enables a quick response to market changes and aids in the optimization of costs and enhancement of operational efficiency not only at individual plants but across an entire company's manufacturing operations.

Use of data in operational improvement activities and in applications

Not only is CI Server's integration of data useful in managing plants, it also helps to improve production efficiency and quality. CI Server enables the linkage of data in a unified format so that it can be used across the board in information systems, quality improvement systems, data analysis applications, and other such systems, and the data collected over long time periods can be automatically incorporated into and utilized by such systems and applications.

For example, in process industries where the quality of raw materials and the soundness of production equipment is closely linked to the quality of finished products, the analysis of data with the assistance of artificial intelligence (AI) software can identify new correlations and important key performance indicators that can help to reduce failures and improve overall operations. Furthermore, by constructing a digital twin for a plant using data that has been integrated by CI Server, it is possible to verify new solutions, new parameter settings, and other such operational improvements in advance.

CI Server supports the IEC 61850 communication standard, and achieves measurement field (continuous control, DCS) and electric field (sequence control, PLC) integration. Through such EI (electric-instrument) integration, both electronics and measurement can be centrally run and operated simultaneously at all manufacturing sites, which advances the integration and construction of a comprehensive system for running and operating facilities and equipment.

Supported communication standards, protocols and technologies.

- OPC UA
- ODBC
- IEC 60870-5
- IEC 61850
- MQTT
- TCP/IP
- DNP 3
- Modbus
- HART
- EDDL
- FDT

Available communication drivers

- Yokogawa Electric Vnet/IP driver (CENTUM VP, ProSafe-RS connection)
- STARDOM FCN driver
- FA-M3 driver
- Rockwell Automation driver
- Siemens driver
- Emerson driver
- RTU protocol driver
- MELSEC driver
- Omron FINS driver, etc.

The new Collaborative Information Server solution provides the requisite data management infrastructure for customers to carry out their digital transformation (DX). Yokogawa calls the future of the manufacturing industry IA2IA, industrial automation to industrial autonomy, and we will help industries with this migration from being automated to being autonomous. Yokogawa possesses solutions to improve operational efficiency, energy efficiency, quality, and other aspects through data utilization, and with CI Server will provide support to customers for improved production activities and for sustainable business growth.

case study

Endress+Hauser

THE FIELDPORT SWA50 BY ENDRESS+HAUSER CAN UPGRADE INSTRUMENTS TO WIRELESS COMMUNICATION MAKING THEM IIOT READY

From HART Device to Smart Device

The HART devices in your plant are no longer bound to transmit information only via cable. Endress+Hauser has introduced a small but powerful adapter for retrofitting HART instruments: the FieldPort SWA50 connects the field devices to wireless communication. It enables them to communication via Bluetooth and /or WirelessHART. The user has more options to access the field device data — even a cloud connection is possible which unlocks the potential of IIoT.

The FieldPort SWA50 converts the HART signal of the connected HART field device to a reliable and encrypted Bluetooth® or WirelessHART signal. The Endress+Hauser SmartBlue app or the Endress+Hauser Field Xpert can be used to configure the FieldPort SWA50. Remote configuration via the DTM using WirelessHART network is also possible.

HART field devices can be connected to the Endress+Hauser IIoT ecosystem called Netilion. The edge devices FieldEdge SGC200 or FieldEdge SGC500 are needed for this scenario. An IIoT connection gives you digital access to the retrofitted field instruments. Using a

smartphone, tablet or desktop PC, you can view measuring data, instrument diagnostics and life cycle data. It is even possible to transfer the data into your own systems or clouds by using an API.

The FieldPort SWA50 opens up to new possibilities of digitalization — a powerful adapter for retrofitting HART field devices.

Learn more about our FieldPort upgrade.

case study

DIGITAL MULTIFUNCTIONAL LOAD MANAGEMENT SOLUTION UP TO 80A

TeSys™ island by Schneider Electric

TeSys™ island is a digital load management solution that makes machines smarter and reliable. TeSys island is a fully digitized and object-oriented load management system and an Industry 4.0 compliant data provider. It is reducing machine time to market enabling OEMs to move forward in their Industry 4.0 journey. TeSys island is designed to switch, protect, and manage motors and other electrical loads up to 80 Amps (AC3).

Thanks to TeSys island's object-oriented approach, application selection, and system configuration is simplified, and engineering tasks are reduced, which enables a faster machine installation phase. TeSys island gives users access to device-related data for system diagnostics. In addition, TeSys island can be easily integrated into 3rd party automation systems and supports several fieldbuses like EtherNet/IP, Modbus TCP, Profinet & Profibus.

TeSys island configuration tools are built upon FDT/DTM technology enabling easy integration in Schneider Electric's FDT-based EcoStruxure platform tools as SoMove & Machine Expert tool as well as 3rd party FDT hosting solutions such as PACTware or fdtCONTAINER by M&M Software.

Learn more about TeSys island.

Download the latest DTM here.

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case study

LIMITLESS AUTOMATION

PLCnext as the Ideal Platform for IIoT Integration

Challenge

IIoT or IT/OT integration is quite popular these days, but how can these modern approaches and ideas be put into practice? This requires hardware that features the necessary openness and ability to meet the demanding requirements of the process industry, for example.

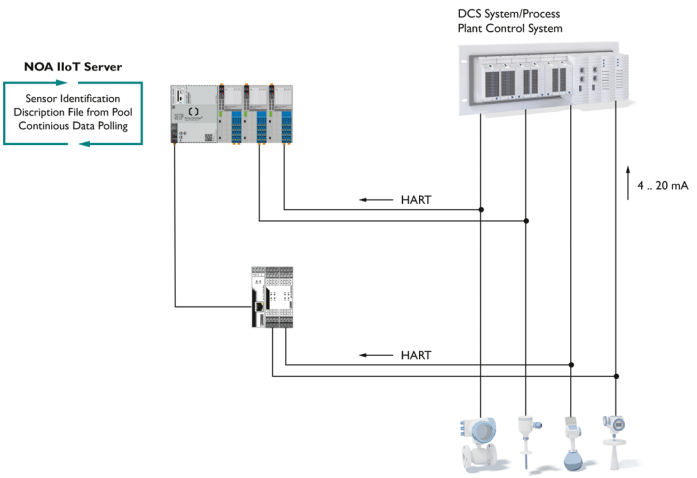
Solution

The controllers of Phoenix Contact's PLCnext product family feature an open Linux system and are entirely suitable for industrial use. They enable easy integration of existing high-level language applications like databases or IIoT servers. Transferring the code into a real-time system customary for process technology is not necessary anymore. This is a real advantage in the age of IT/OT integration where complex high-level language applications meet the OT real-time environment. The possibility to use existing code from the IT world on a field controller can save a considerable amount of time and money. In terms of IT security, the open Linux system has no disadvantages as the controllers feature firewalls as well as user and password protection.

Thanks to Docker Engine integration on the PLCnext controller, handling of theses applications within Linux is simplified. By means of Docker, it is much easier to get Node Red or an IIoT server to the controller. Within so-called containers and with all the necessary software periphery, high-level language application programs are loaded to the controller. Loading, starting, and stopping those containers is quite simple and even possible without any Linux knowledge. For the installation of the different containers, the PLCnext Store is available, where you can get the containers, load them directly on the controller, or save them on a laptop for later offline installation in the field. Installation of the "app" or containers is performed via the web interface of the PLCnext controller.

Result

The PLCnext Controller is the ideal IIoT platform for limitless automation, suitable for harsh industrial environments.



Learn more about our PLCnext Controller.

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