



EDDL Awareness at ICA 2008

In use for 15 years, EDDL has some recent enhancements of which plants should be aware. Users and EPC were engaged at ICA 2008, The 9th International Exhibition on Instrumentation, Control & Automation Technology held June 10-13, 2008 in the Kuala Lumpur Convention Centre in Malaysia. The purpose of participating was to sort out the many misconceptions that have surfaced about EDDL. A conference presentation complemented live-demonstrations in the booth.

Show Floor Booth

Many of those visiting the booth had heard of EDDL but had been told it had limitations and must be "complemented". Now they could see this does not apply to the new enhanced EDDL. They soon realized they have been using and benefiting from EDDL for 15 years but with the new graphical enhancements they can get a whole new experience. The engineers on the EDDL booth explained the difference between the original EDDL from 1992, not the enhanced standard from 2006 that adds lots of new capabilities. Users responsible for systems were glad to learn they only need to master a single device integration technology to support a device, not grapple with two.



The live demonstration in the booth included multiple bus protocols integrated in the same tool. Devices using HART, FF, PROFIBUS-DP, and PROFIBUS-PA were shown. Interoperability between software and devices from different manufacturers were also demoed. Four different hosts using enhanced EDDL were used: intelligent device management software from Emerson Process Management and Siemens, laptop tool from HART. Device manufacturers include Emerson, Siemens, Endress+Hauser, SMAR, Samson, M-system, and Mettler-Toledo. Device types

shown include everything from simple temperature and pressure transmitters to sophisticated devices such as valve positioners, variable speed drives, machinery health monitors, and radar level transmitters.



Visitors were first shown how device manufacturers control the content & structure for the display of the devices as they appear in device management software. No device features are hidden by the system. Next they got to see how although the content & structure is controlled by the device manufacturer, the look & feel for different types of devices using different protocols is very consistent in spite of them coming from many different manufacturers. This is a unique inherent characteristic of the EDDL standard that other solutions cannot match with any amount of style guides. For example, in one system they got to see how failure diagnostics in any device is pin-pointed in red regardless of type, protocol, or manufacturer. Similarly any parameter change is highlighted in yellow regardless of type, protocol, or manufacturer. Lastly, when device data is compared to database record, any discrepancies are identified in green regardless of type, protocol, or manufacturer.

Demonstration included 'wizards' (aka EDDL methods) for device setup, sensor calibration trim, and loop test. An EDDL method is a procedure scripted by the device manufacturer to make the device easy to use. The wizard takes the technician through complex tasks step-by-step ensuring no steps are missed in the procedure, and that all technicians do it the same way every time.

System engineers were relieved to see how the EDDL files made by the device manufacturers are totally independent of Windows and therefore will not be rendered obsolete by Windows Vista, thus protecting the system and device investment. Conversely those that have systems based on Windows 2000 and XP were glad that EDDL-files for new devices will be compatible even after others adopt Vista.

Technicians were relieved to see that enhanced EDDL itself still works just like the classic EDDL they are already using since 15 years ago. That is, they were relieved to see all the dazzling graphics that has been added to make the devices easier to setup and diagnose, have not made it more complex to add a new device type or version to the system. Specifically, with EDDL there is no need to install or upgrade software or driver to support a new type or version device and the technician will not be confronted with cryptic messages and license agreements associated with software installation. Technicians are after all not IT people. The simplicity of EDDL remains - just copy and paste the file to support the new device.

Some of the visitors got to see device management systems in action for the first time. They now understood how diagnostics work. That is, diagnostics is detected by the field devices by themselves, not by software. Device management software is used to see the status of device diagnostics. Since operators or technicians cannot watch the status of all devices all the time, the status is automatically monitored by the system and the personnel engaged when a failure is detected.

Visitors to the booth got to see how device manufacturers use images and EDDL 'conditionals' to make use of their devices easy. For example, during normal operation a picture of a device is shown, but when a failure occurs the regular picture is replaced by another image where the faulty part is highlighted.

Some had been told that EDDL and FDT/DTM are technologies within the devices themselves and therefore there are "EDDL devices" and "DTM devices" and that a "DTM device" would not be compatible with an EDDL-based system. It was explained to them that EDDL and FDT/DTM does not exist in the devices; EDDL is a compressed text file, a DTM is a software driver component; and exist in the computers. The devices are either HART, FOUNDATION fieldbus, or PROFIBUS. EDDL files are provided for all HART and FOUNDATION fieldbus devices as an interoperability test requirement as well as most PROFIBUS devices. Thus integrating devices to an EDDL-based system is not an issue.

There were queries on who tests the EDDL files. Beyond being the only international standard for device integration, EDDL is a comprehensive interoperability solution - the only solution using independent third-party testing of the files together with the devices. That is, the testing of the EDDL files is performed by the HART Communication Foundation, Fieldbus Foundation, or PROFIBUS user organization together with the interoperability testing of the device.

A variety of EDDL-based tools were demonstrated. For instance, an ultra portable handheld communicator with long battery life ideal for plant floor work such as device commissioning, valve stroking, and field calibration.

There were some questions on the WIB report. The WIB report, if read in its entirety, has some interesting observations. EDDL is unique in supporting Foundation fieldbus block configuration. It several times over mentions EDDL is the technology with no interoperability issues. The EDDL approach has a clear structure for configuration and setup. It also implies EDDL does a better job of commissioning and parameterization with a single tool. It also suggests EDDL has a less manufacturer

specific, more consistent, look and feel. Lastly, it hints EDDL is more attractive for DCS systems because the files are not executable.

Users were shown the various ways in which the device manufacturers' experts pass on their know-how to users. This includes for instance illustrating images that change depending on device status or prior configuration selection, showing how to wire the sensor, where to troubleshoot, or selected tank shape. Examples of pages including text such as actionable instructions were shown. Help text from the manufacturer associated with all parameters and wizards were shown appearing as tooltip at a click of a button.

The demonstration systems had a wide variety of instrumentation including simple pressure and temperature transmitters as well as more advanced devices such as radar level transmitters, valve positioners, machinery health transmitter, and a variable speed drive. It was demonstrated how EDDL-based tools are used to interact with these.

Some device failures, self-diagnostics, alerts, and actions were enacted. For instance simple thermocouple burnout detection, while others displayed advanced diagnostics such as vibration spectrum visualized as a waveform graph. Diagnostics from valve positioners were also shown.

Some visitors had heard that standards could slow down the adoption of new technology, but soon understood that since EDDL is independent of operating system, the EDDL files are unaffected of Windows version meaning that new versions of Windows and service packs can be adopted much sooner as there is no waiting for release of compatible software drivers from every device manufacturer.

There were also questions regarding security as it relates to EDDL. The first question is how a simple text file provides authentication (login and password) and authorization (different access rights for operators, technicians, and managers etc.). The answer is that it is taken care of by the software, not the EDDL file. It was demonstrated how the user logs in to the device management software with user name and password and the system administrator has already pre-assigned view or change rights to control and safety devices. Thus only authorized persons access devices.

The other security aspect is system integrity. An important characteristic of EDDL discussed is that it is a text file which is copied, not software to be installed. This means that whenever a new device type or version comes into the plant its EDDL file is copied, no driver software has to be installed. This not only easier, but it also has a security advantage. Because software installation is not required, there is no need to for 'administrator' level password to integrate the new device. Therefore, there is no need to reveal the 'administrator' level password to everybody that needs to be able to commission a new device. That is, the highest level password can remain exclusive to the system engineer. Technicians and operators can be given more restrictive privileges.

Conference

A technical paper entitled "Benefits of IEC 61804-3 Electronic Device Description Language (EDDL) - Driving Superior Plant Performance" was presented as part of the conference. The first part of the presentation is a tutorial on what device management is and how it is used to improve plant performance, for instance by lowering maintenance cost and increasing plant output. The second part covers how the EDDL technology works. The third part discussed the NAMUR NE 105 user requirements and the unique characteristics that enable EDDL to meet these requirements as well as the [BIS report](#). The last part discussed how predictive diagnostics is incorporated into the daily work practices. A key architectural feature for the system to make use of device diagnostics is that the device management software is integrated with the control system as a single integrated host. Because EDDL is not based on software drivers, it enables an integrated host solution where device diagnostics can be delivered to those that are paying attention - operators stationed at the operator console.

Reference

Benefits of IEC61804-3 Electronic Device Description Language (EDDL)
- [Paper](#) - [Presentation](#)

For more information go to www.eddl.org