

## **EDDL Makes System Life-Cycle Management Easier**

### **- Keeping system up-to-date**

New types of 4-20 mA/HART, FOUNDATION fieldbus, and PROFIBUS devices become available every month and new device versions are released every week. Installing and upgrading software requires system administrator support. Fortunately, the Electronic Device Description Language (EDDL) technology was designed to keep the system up to date with new types and versions of devices without having to install software. This makes keeping the system up to date with new devices much easier.

### **Life-Cycle Challenge**

Control systems remain operational for 15 years or more. During this period of time new device types and new device versions will arrive in the plant.

### **Driver Program Problem**

Some device management software use driver programs similar to the Microsoft Windows printer driver concept. When new device types or new device versions arrive in the plant, a driver program for the device (or whole device family) is installed on each maintenance station to support it.

Installing the driver software can be a challenge for the person who has to commission a new type or version of device. For instance, at driver software installation the user will have to make decisions about installation folder, license agreements, license key management, computer resources, users, file replacement, and cyber security certificate etc. System administrator support will likely be needed. Mobilizing the system vendor or device manufacturer to make software driver updates for a new device is impractical as a new device in an operating plant need to be commissioned without delay.

A computer reboot may be required after driver program installation, which is disruptive.

This installation procedure is different for each device manufacturer.

Driver program installation requires 'administrator' level access rights which instrument technicians typically do not have. That is, system administrator support is required to commission new types and versions of devices. 'Administrator' level access should be divulged sparingly since it enables other (unwanted) software to be installed.

Frequently upgrading and installing new driver programs is time consuming; and must be repeated at each maintenance station.

Installing many driver programs tend to slow the computer down. Therefore only a bare minimum of driver programs are installed during system integration. This leads to delays at site when other device types unexpectedly show up on package units.

Driver programs are large, taking a long time and many attempts to download on a poor Internet connection at site.

A system may have been supplied with a "basic" software driver, requiring upgrade and license key to support certain device functionality, printing, saving configuration etc.



device manufacturer wants for the device. When a new device type or version arrives in the plant, the EDDL file for the device is simply copied onto the system, not installed. The intelligent device management software renders the graphics for configuration/setup, calibration, and diagnostics pages.

**Table 2 Examples of EDDL tags and attributes (keywords)**

Device Definition	Business Logic	User Interface Description	Attribute
BLOCK VARIABLE	METHOD IF SELECT * / + - FILE	MENU WAVEFORM CHART GAUGE GRAPH GRID	LABEL HELP CLASS HANDLING TYPE VALIDITY

User guidance wizards (EDDL methods) are created by the device manufacturer using a JavaScript-like language part of the EDDL standard. Wizards are interpreted by the device management software.

```
VARIABLE pressureValue
{
  LABEL [pressure_value];
  HELP [digital_value_pressure_help];
  CLASS CORRECTION & DYNAMIC;
  HANDLING READ;
  TYPE FLOAT
  {
    DISPLAY_FORMAT "%.3f";
  }
}

VARIABLE pressureUnits
{
  LABEL [pressure_value_unit];
  HELP [digital_units_pressure_help];
  HANDLING READ & WRITE;
  TYPE ENUMERATED (2)
  {
    // These 16-bit enumerations may be found in Common Tables, Table 2.65 (0x41)
    ( 0x4101, [InH2O], [inches_of_water_68_degrees_F_help] ),
    ( 0x4102, [InHg], [inches_of_mercury_0_degrees_C_help] ),
    ( 0x4103, [FtH2O], [feet_of_water_68_degrees_F_help] ),
    ( 0x4104, [mmH2O], [millimeters_of_water_68_degrees_F_help] )
  }
}
```

**Figure 3 Plain EDDL text will generate a beautiful, easy to use, graphical device page**



**Figure 4 Graphical device page generated from plain text EDDL**

The person that 'surfs' the devices need not understand the EDDL-file language. It just works.

Since EDDL files are compressed text documents, not executable software, they are simply copied and pasted onto the system. There is no installation of software. This makes keeping the system up to date with new device types and versions easy. It is possible to load devices individually, without the rest of the device family.

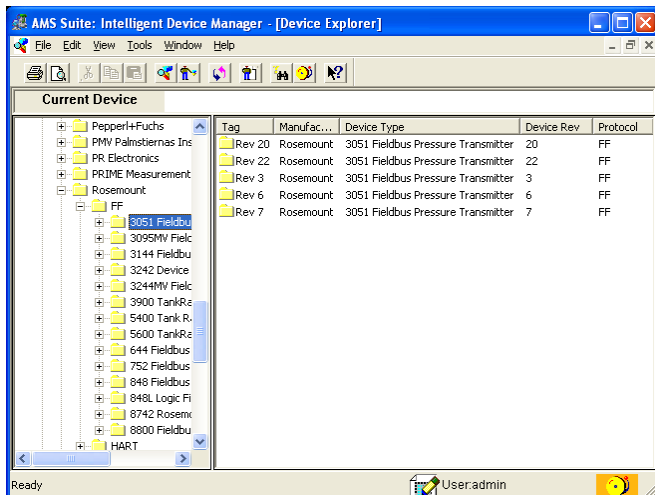
Since EDDL files are compressed text, not software, there is no need to exit programs before loading EDDL files or reboot the computer afterwards. This is less disruptive.

All EDDL files are loaded onto the system the same way regardless of protocol, type of device, or device manufacturer, and for simple as well as sophisticated (complex) devices. This makes integrating new devices consistent and easy.

Since EDDL files are copied, not installed, there is no need not divulge system 'administrator' level password to instrument technicians to commission new types or versions of devices

The EDDL files are loaded once on one computer, guided by a wizard, and then automatically propagate to all computers in the system. There is no need to manually load the files on each and every computer. Lots of time is saved even for just a few computers.

It is easy to overview from the library which device types, and versions, using which protocols, from which manufacturer, have been loaded on the system. Manufacturer and model names appear in plain text.



**Figure 5** The device library gives an overview of all device types and versions for which EDDL files have been loaded

Because EDDL files are not software programs, even hundreds of EDDL files stored on the system does not slow the computers down. Therefore system vendors load all available EDDL files, even for devices not used on the project, onto the system before FAT. This means the system is ready for other kinds of devices if needed. For instance, if unplanned device types or versions unexpectedly show up on site as part of package units, they integrate without a last minute scramble for files. This avoids unnecessary commissioning delays.

Because EDDL files are not software programs, they are small and therefore can be downloaded even if the Internet connection at site is poor. Several EDDL files can even be emailed as attachments. This avoids long delays at commissioning.

There is only one EDDL file for each type and version of a device. There is no need to get a different EDDL file to access certain device functionality, to print, save, export, and to connect through OPC etc.

The EDDL files and folders are identified using the exact same identification codes as the manufacturer, type, and version of the devices. This allows intelligent device management software to automatically pick the correct EDDL file for a device to display the setup information and diagnostics etc. without manually building the hierarchy. This saves lots of time each time a device is added or changed.

## Ease of Use

EDDL is the only device integration technology that works like web browsers. Other device integration technologies cannot achieve comparable results.

Software based purely on EDDL avoids the many problems associated with driver programs. This makes systems based purely on EDDL easier to support.

Enhanced EDDL works just like traditional DD before it. Therefore upgrading a system to EDDL does not require change of skills. Just copy and paste EDDL files like you copy HART and Fieldbus files today, no software installation has to be learnt.

## References

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