utthunga
Engineering Transformation

Normalizing and Standardizing the Field Instrument Data to Unlock the Potential of Industry 4.0

Know more about Utthunga's Device Integration services and solutions

uDDx Suite by Utthunga

A typical process industry can have numerous field instruments deployed on the plant floor. These can be diverse measurement and control devices from heterogeneous manufacturers. In order to configure, diagnose, and calibrate these field instruments, process industries use IAMS applications, automation systems, and communication protocols like HART, FOUNDATION Fieldbus, and PROFIBUS PA and others.

The field device manufacturers adopt EDD/FDI and/or FDT/DTM standard. Due to a variety of underlying connectivity protocols, the acquired process data has inherent inconsistencies leading to the data becoming unusable for the IT layer applications. If a user with access to the plant network wishes to retrieve field instrument data, the inconsistent data pattern from the IAMS and DCS applications makes it challenging. If a process plant wishes to adopt newer technologies like NAMUR Open Architecture (NOA) and others to be Industry 4.0-ready, unlocking the field data to the IT applications is very important.

Challenges

The lack of access to normalized data from the plant floor leads to several challenges:

- Lack of standardized data hinders analytical operations

- Remote monitoring and diagnostics become a huge challenge

- Configuring and maintaining the field devices require instrumentation experts

- Inconsistency in naming conventions lead to mapping of the parameters manually, which is time-consuming, expensive, and is possible only by the technical experts

Solution

Utthunga has come up with a robust solution to resolve this challenge with its uDDx Suite. uDDx Suite integrates with the field instrument and maps the field device classes to standardized device parameters as defined in PA-DIM (Process Automation Device Information Model).

It supports all the device integration standards like EDD, FDI package, and DTM. It integrates the IT and OT layers of the process plants by standardizing the instrument parameters as mentioned in PA-DIM. uDTM DxSuite is installed in the IAMS application and uses the DD library of the system and interprets them as DTMs.
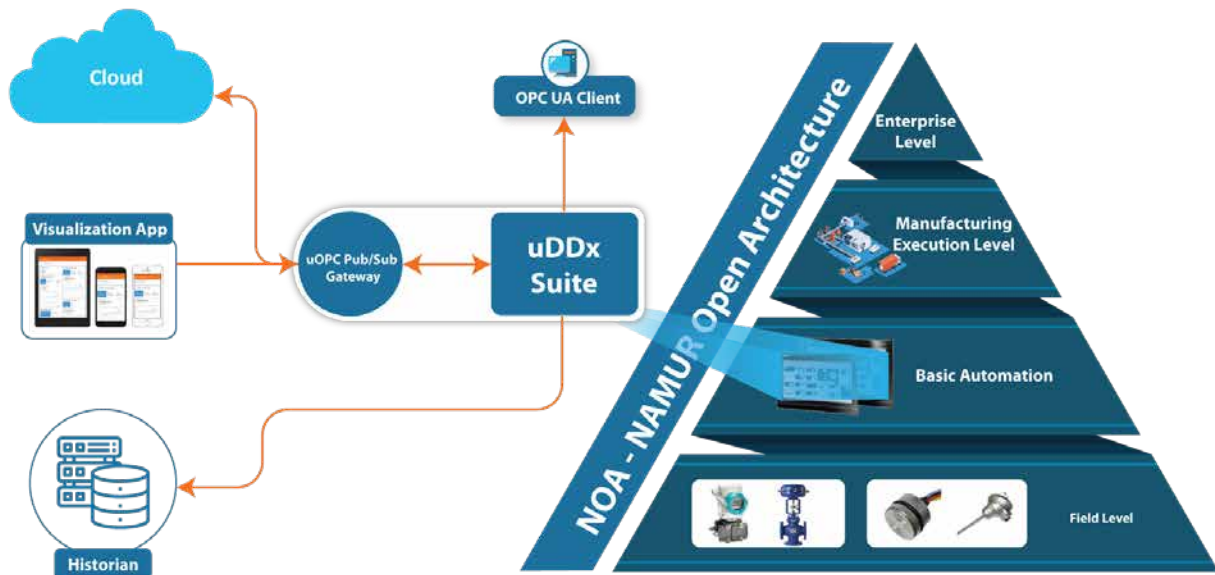
uDDx Suite polls the network topology of automation systems and reads the Device Identification, Device Diagnostics, Process Values, and Device Core Parameters using uDDx Suite's interpreter DTM component. The OPC UA component of uDDx Suite uses this data to construct OPC UA information model according to the PA-DIM standard.

This solution lets users access any instrument's critical information in a standardized, protocol-agnostic, and manufacturer-agnostic manner.

Benefits

- The protocol-agnostic unified information model will allow software applications to access device information without additional mapping or protocol-specific knowledge

- Fulfills the requirements for an Asset Administration Shell (standardizes sub-models of the Administration Shell)

- No changes required in existing plant network infrastructure and DCS

- It is secure by design
  - End-to-End signed and encrypted data stream

  - Port configuration and forwarding rules on the firewall

  - Encrypted EDD/Signed FDI Device Package

- Tested with a variety of IAMS applications

Know more about Utthunga's Device Integration Services

Know more about Utthunga's Device Integration Solutions