Master Control Station, Distributed Control System, Interface Standardisation (MDIS)

For subsea development, an Operator or Service Company will utilise the services of many different vendors: one of the areas that has been worked on is the implementation of a "universal translator": imagine the vendors control systems being plug and play through a common interface. This was the vision for MDIS.

MDIS was formed to optimise the MCS to DCS communications of topside systems by defining and establishing a standard for the interface and in order to simplify implementation of data communication links, whilst increasing the data quality.

By implementing the MDIS standard the operator will benefit from simplified implementation and testing of the MCS – DCS interface, a single common interface to all subsea vendors' equipment, reducing the risk of interface failures and delivering reliable control and monitoring via the DCS.

The MDIS standard is based on an OPC UA interface. The initial version of the standard was completed in 2017. The fourth and final release is scheduled for early 2021 and will be submitted to the API for referencing in API 17F. The released version of the standard is available on the OPC website.

The common MDIS standard allows for reduced incompatibility issues and provides the following benefits:

- Reduce project lead and delivery times
- Remove repeated one-time engineering and testing costs
- Improve reliability
- Improve confidence (for operators and vendors) in equipment interoperability

Find out more at the MDIS Webinar Wed 3rd February.

Session 1: 9am CET / 6pm AWST
Session 2: 10am CST / 5pm CET

Click here
Agenda & Registration

MDIS Subsea Projects Today

Interface Documentation

- Interface documentation
- Information currently transmitted in written documentation
- Documentation different for every project
- Tedious to implement resulting in errors

Protocols

- Different vendor preferences
- Use of legacy protocols can cause technical limitations
- No report by exception can cause bandwidth issues

Complex Integration Testing

- Unanticipated ambiguities in project interface specifications requiring rework
- Time consuming integration testing
- Interface issues frequently delay projects, increase costs and lead to 'finger pointing'

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Subsea Projects with MDIS Standardization

1. Vendors common protocol (OPC-UA) and with standardized “subsea specific” objects and architectures.

- Standard Objects:
  - Valve
  - Choke
  - Analog, Digital and Discrete Instruments including Input/Outputs and Arbitration
  - CIMV
  - Motor
- Architectures:
  - Interfaced
  - Integrated
- Ability to implement interlocks designed into the objects
- Ability to ‘build’ aggregate objects and structures, as needed

2. Allow vendors to develop solutions that “plug and play” with other vendors

- Use of product certification to the MDIS standard by the OPC foundation
- Reduces effort and risk to implement MDIS between projects across Subsea and DCS vendors

Solutions provided by MDIS

1. MDIS is developed on the OPC Unified Architecture (OPC UA) for communication between subsea and DCS vendors
2. A standardized MDIS information model for building standard objects that simplify cross vendor configuration
3. MDIS allows OPC client to server browsing of the address space easing configuration on the DCS side and reducing configuration errors
4. MDIS allow exporting subsea configuration in a standard format, that can be consumed DCS tools to simplify configuration
5. MDIS will allow vendors to test the interface prior to the combined Extended FAT (EFAT) to verify no basic interoperability issues and functions
6. MDIS will minimize / simplify interface testing for the EFAT in the long term

MDIS members

ABB, AkerSolutions, bp, Chevron, CSE W-Industries, DRIL-QUIP, EMERSON., equinor, ExxonMobil, TechnipFMC, Baker Hughes, Honeywell THE POWER OF CONNECTED, KONGSBERG, OneSubsea A Schlumberger Company, PETROBRAS, proserv, Schneider Electric, softing, SIEMENS Ingenuity for life, woodside, YOKOGAWA

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