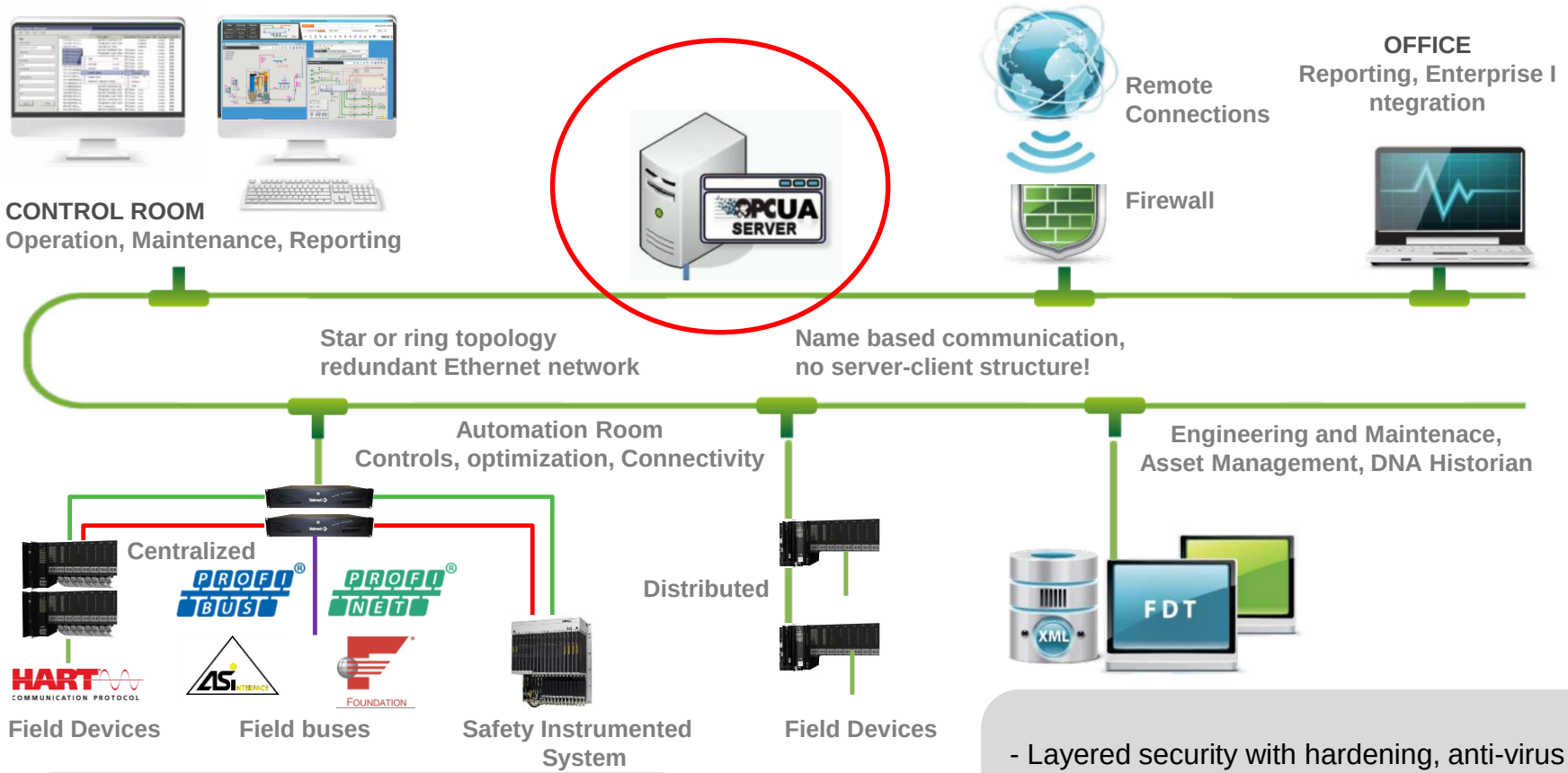
Valmet DNA OPC UA Server & Client

Valmet DNA OPC UA Server Overview



One platform for all control applications
-Valmet DNA I/O's and most common field buses

- Layered security with hardening, anti-virus and DMZ solutions
- Efficient Engineering tools
- Advanced history functions and reports

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Valmet DNA OPC UA Server

- OPC UA Server software in Windows WS or Linux
  - Support for Data Access, Alarms & Events (A&E) and History Access (HA)
  - No configuration needed
  - Capacity : several thousands per server – 5000 tested, max 10000
  - Performance : subscription based ~1sec

DNA OPC UA Components & licenses

- Components
  - DNA OPC UA Server software
    - DNA-OPCUA-Server
    - DNA-OPCUA-Client
    - DNA-OPCUA-AutoConfig
    - DNA-OPCUA-Discovery
  - Diagnostic templates: Server, Session, Subscription
- Licenses:
  - Start
  - Capacity
    - UaVariables (subscription based)
  - Features (on/off):
    - Historical Access (HA)
    - Alarms & Events (AE)

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DNA OPC UA Server

- Provides full Valmet DNA address space:
  - Configuration can be done manually (node + type + DNA tag)
  - Automatic scan will lookup and create all ports into OPC UA Server
- Security can be configured:
  - User & passwd
  - Certificates
- UA Expert used to test & show server address space, views and call server methods (execute them)

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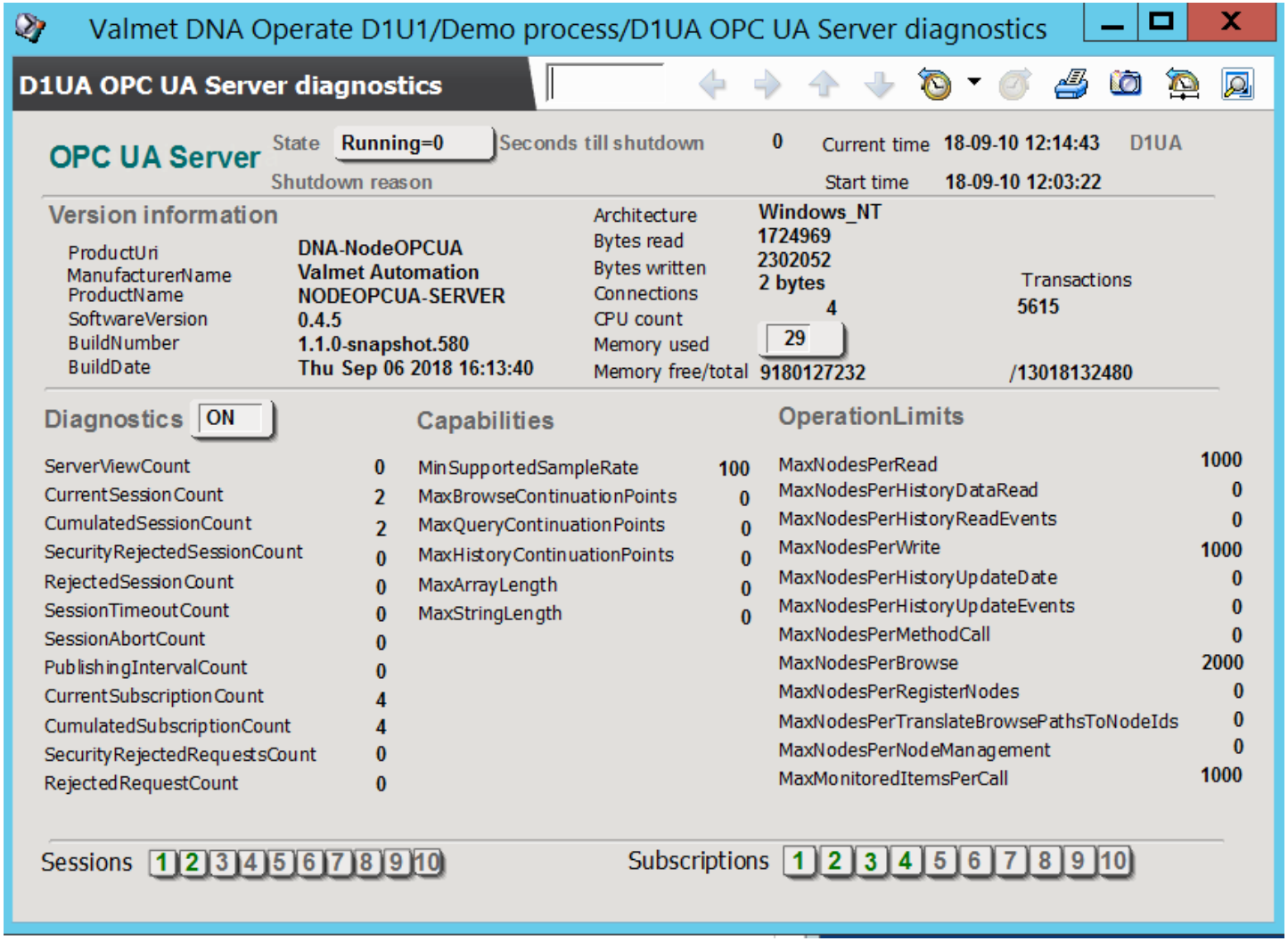
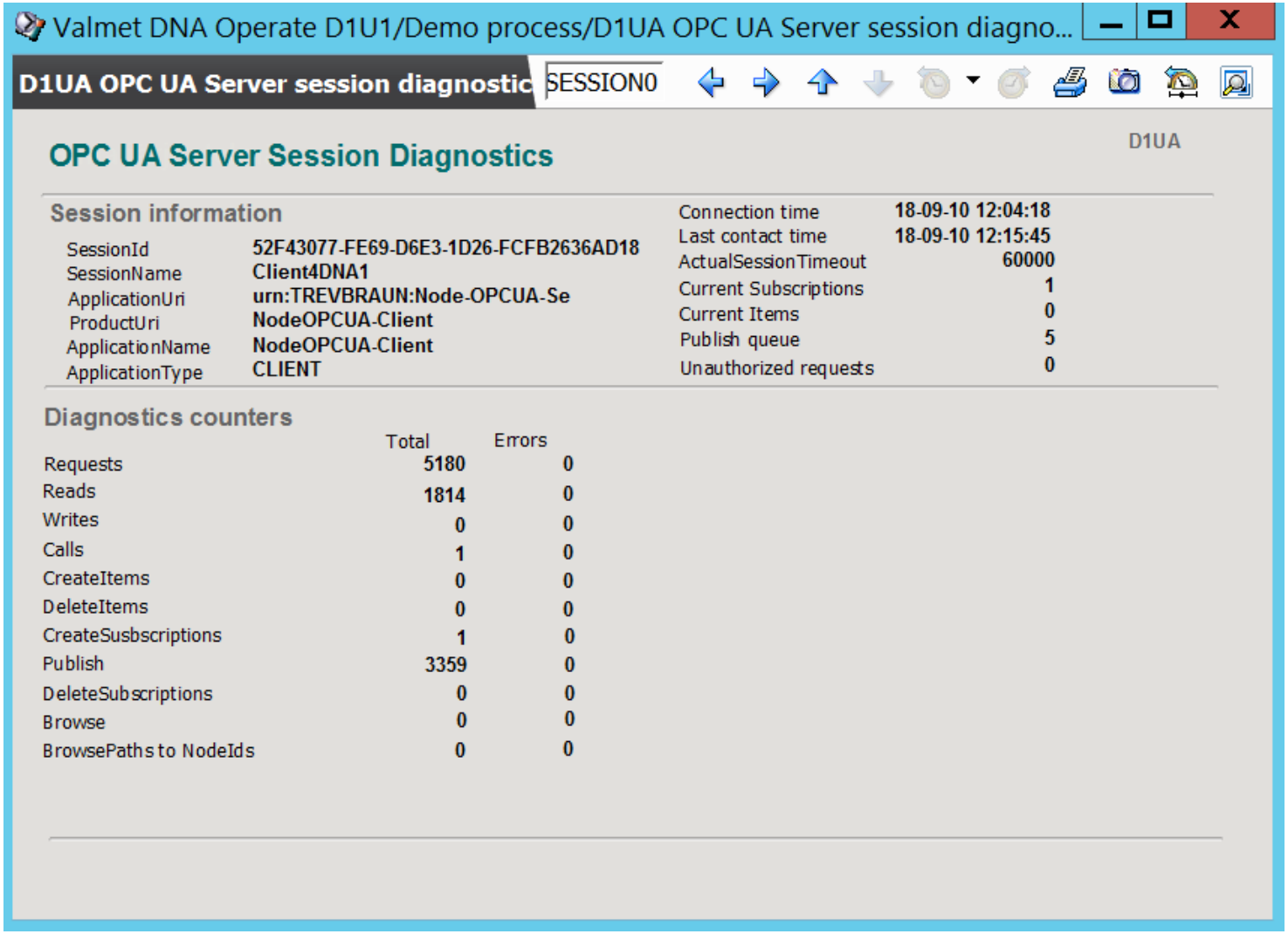
DNA OPC UA Server – Server Diagnostics

Integrated into Valmet DNA, can be used with other OPC UA Servers



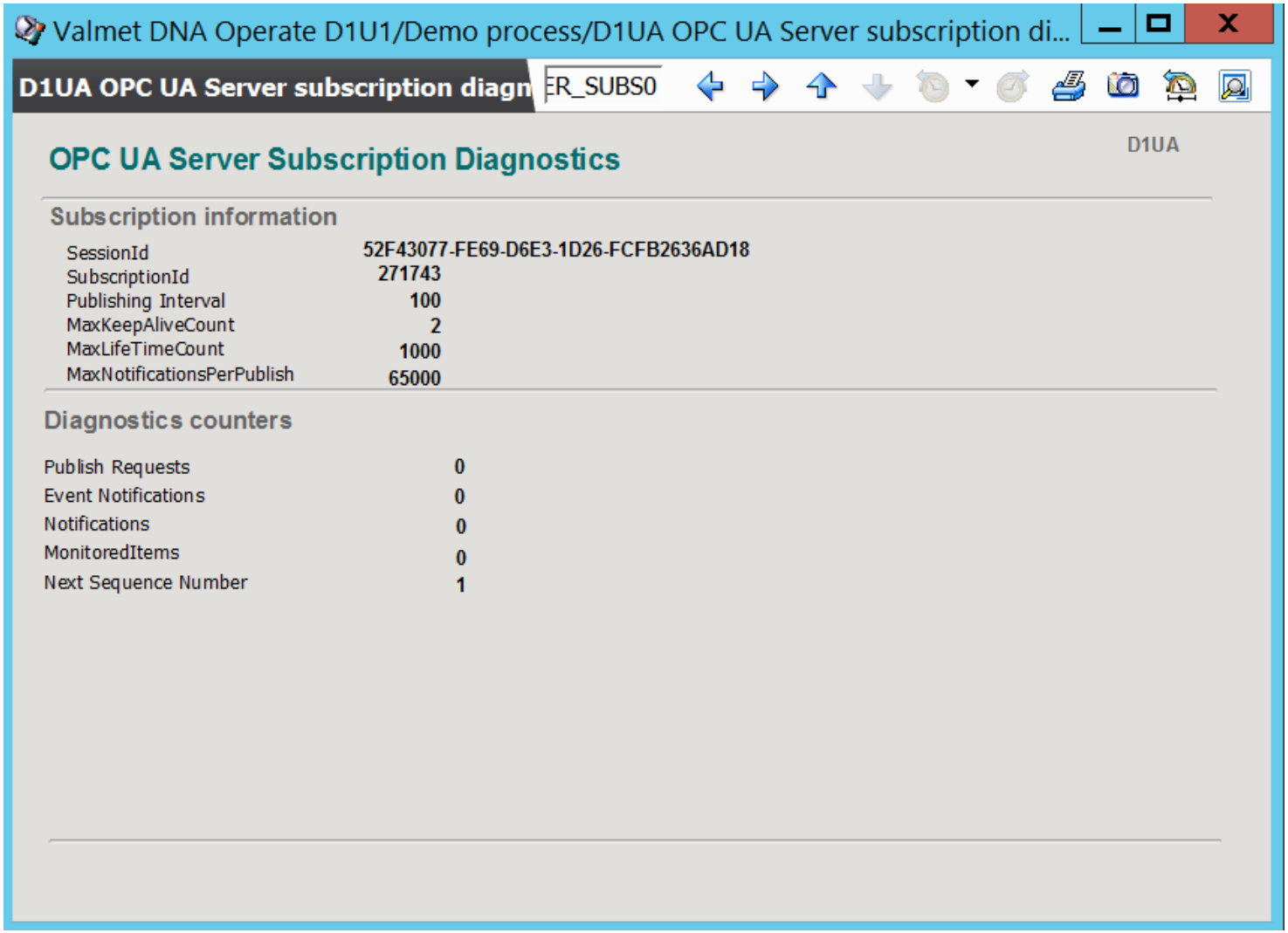
DNA OPC UA Server – Session Diagnostics

As many as open sessions



DNA OPC UA Server – Subscription Diagnostics

As many as open subscriptions



OPC UA DNA objects

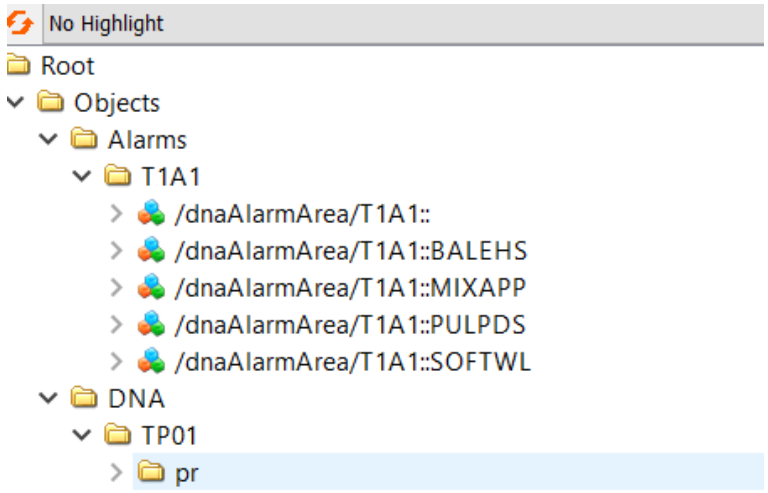
Timestamp from DNA (UTC time)

- Basic types
  - ana -> Float + Quality
  - bin -> Uns16 + Quality
  - ints > Int16 + Quality
  - intl -> INt32 + Quality
  - binev -> Uns16 + SourceTimestamp + Quality (timestamp from the IO-channel)
- Function blocks supported
  - Am, bin, mtrX, mgvX, pid, etc.
- Table types supported
  - 1 / 2 / 3 dimensions
  - QCS profile data & Condition monitoring vibration data
- Diagnostic types
  - Dhart, dpbus, etc.

DNA Alarms

- Automatic DNA ALS -> OPC UA event mapping
- DNAalarmLimit
- DNAdiscreteAlarm

- State synchronized
- Alarm can be “acknowledged” by OPC UA client
- Alarms are in alarm hierarchy
- Timestamp from DNA



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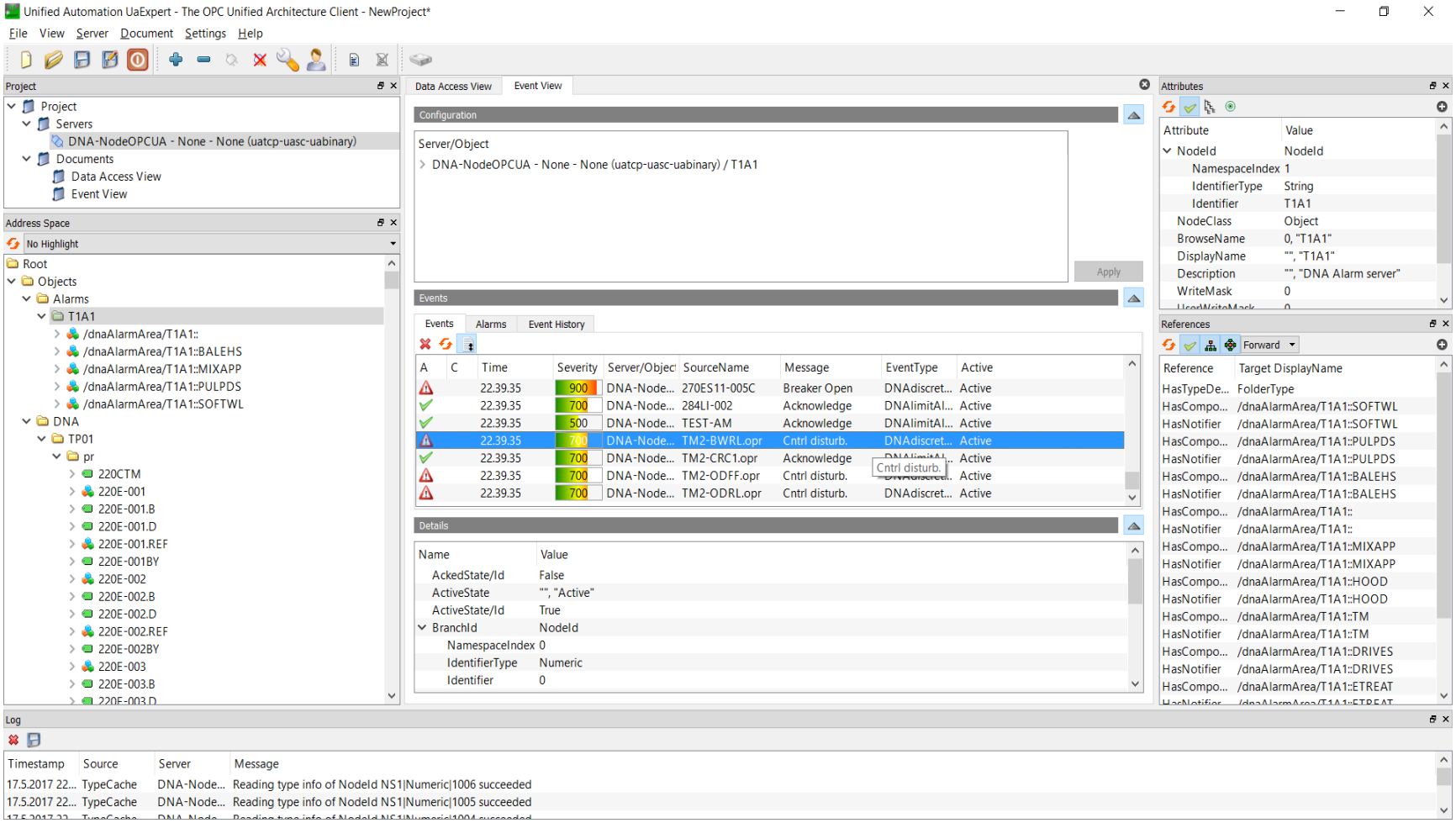
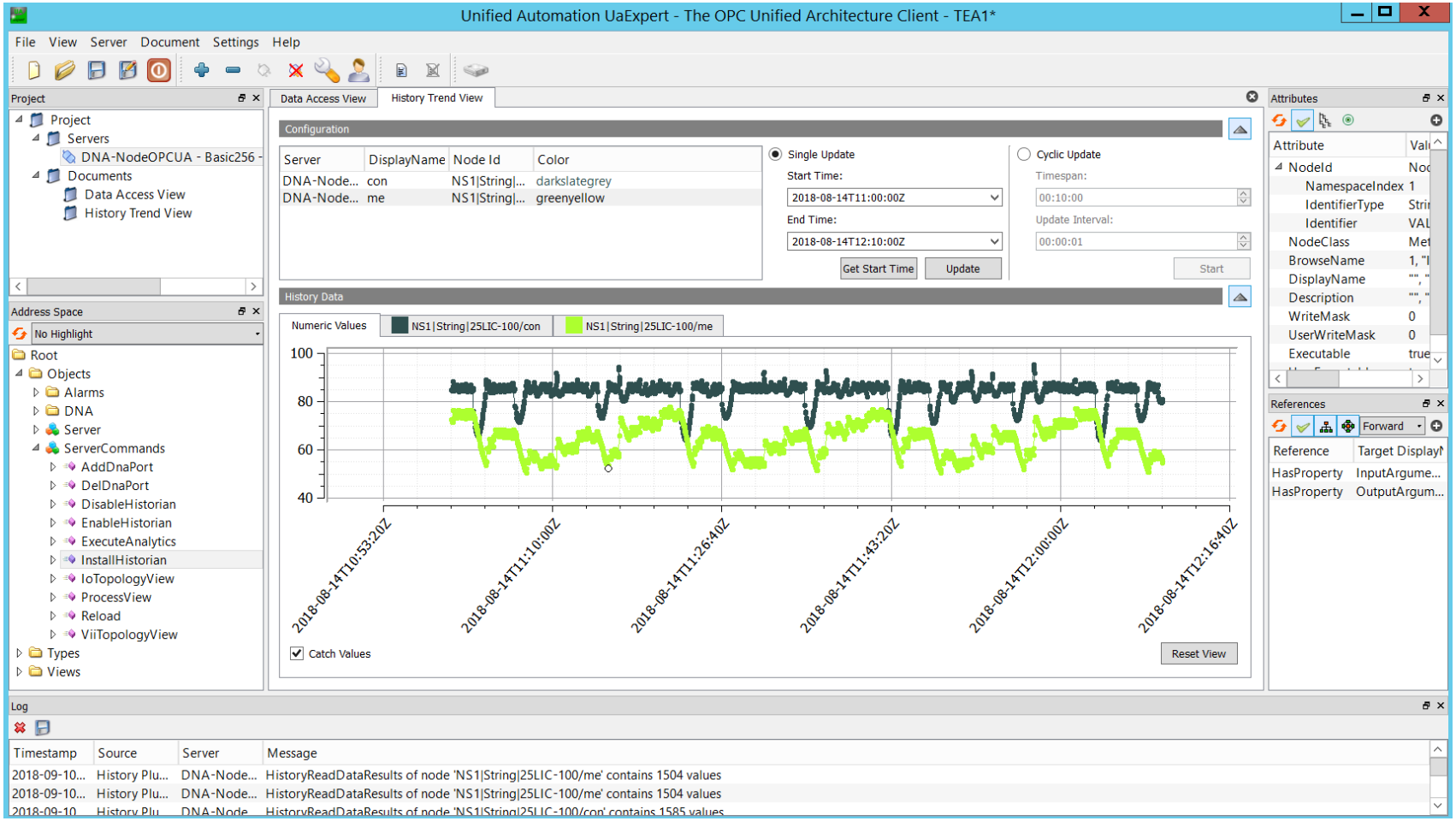
DNA Alarms

Controller pid control disturbance



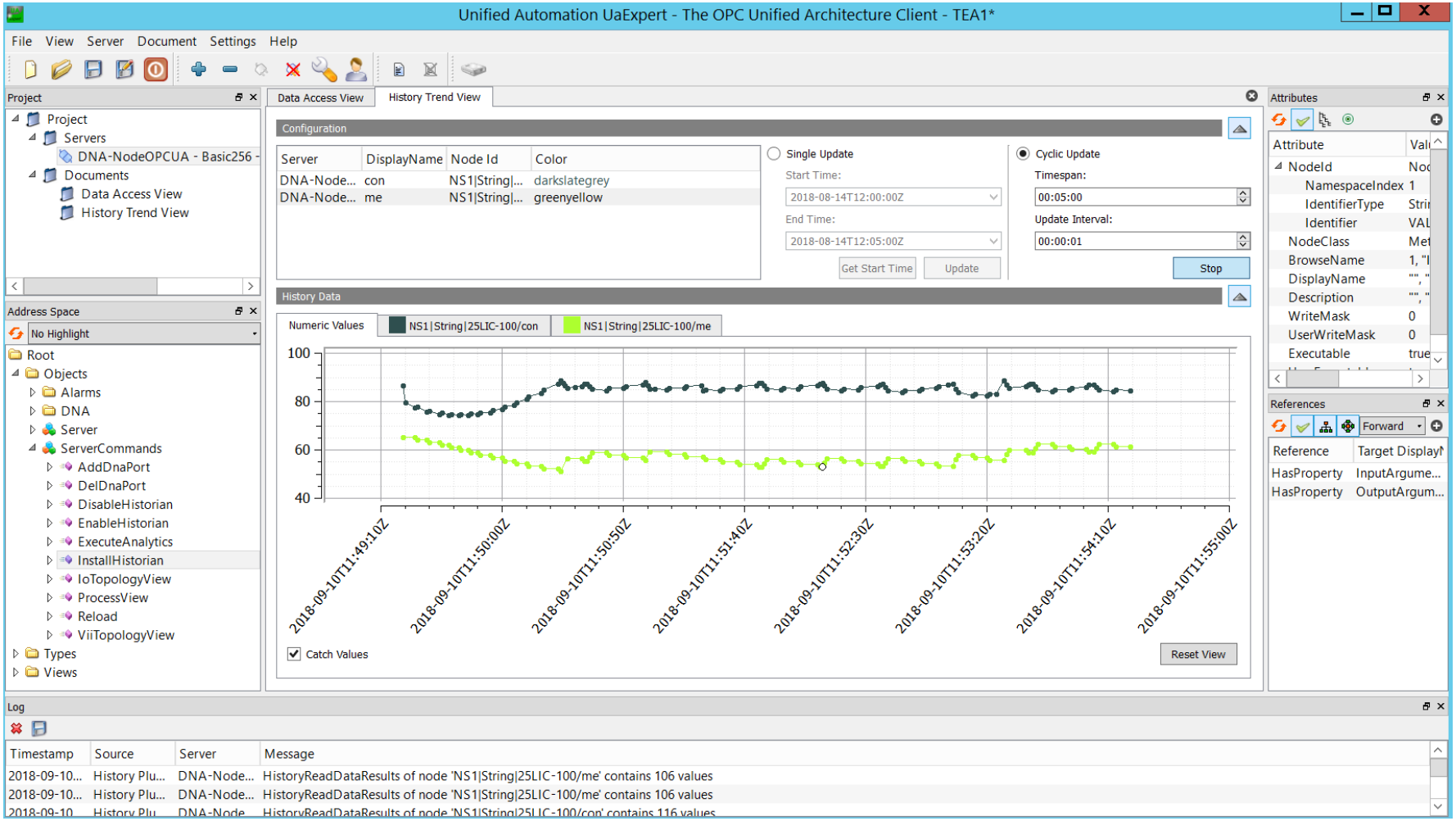
DNA INFO

Access to historical data through OPC UA



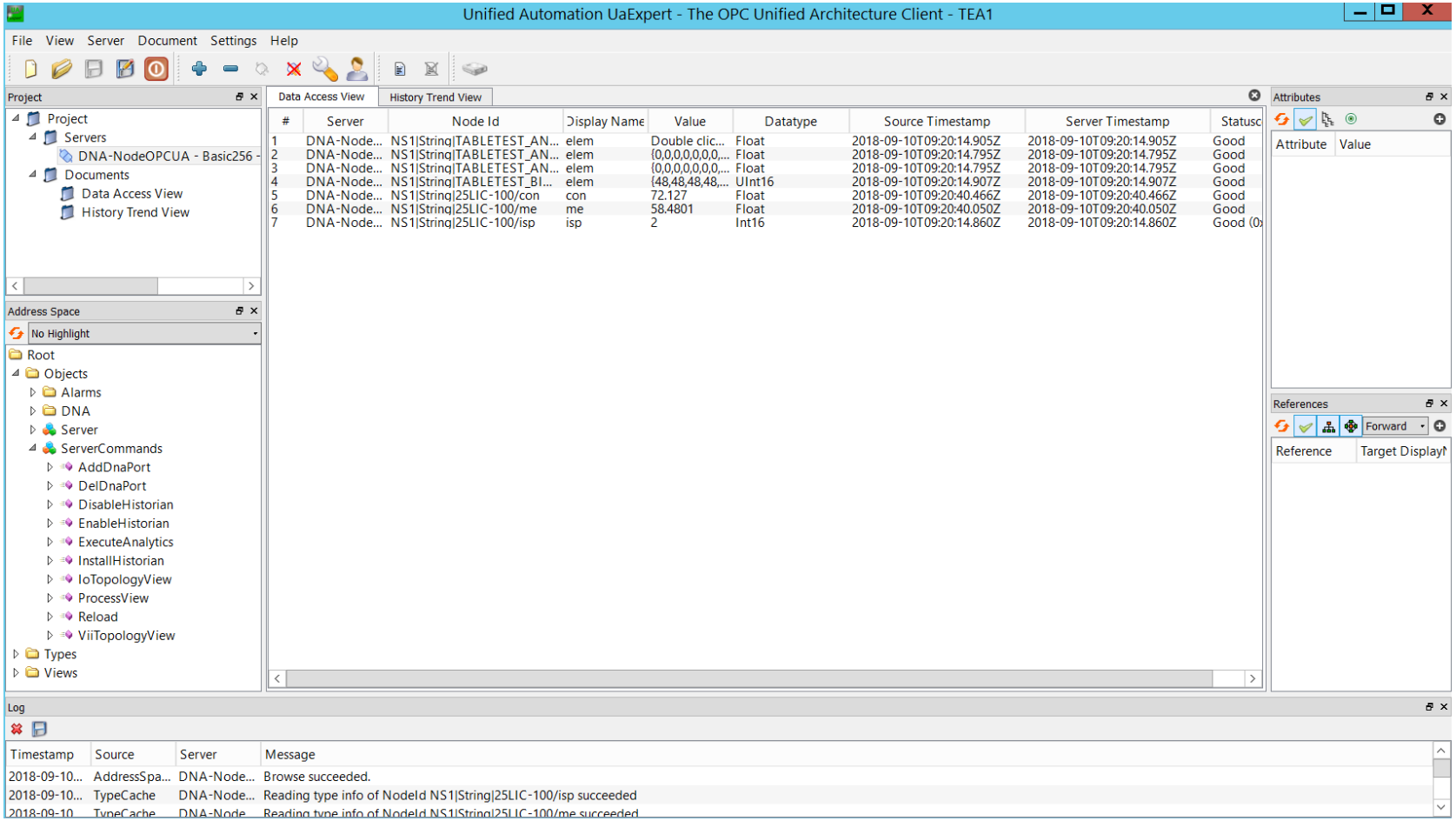
DNA INFO

Access to historical data through OPC UA



DNA OPC UA Server methods

Can be used to update address space and other new features



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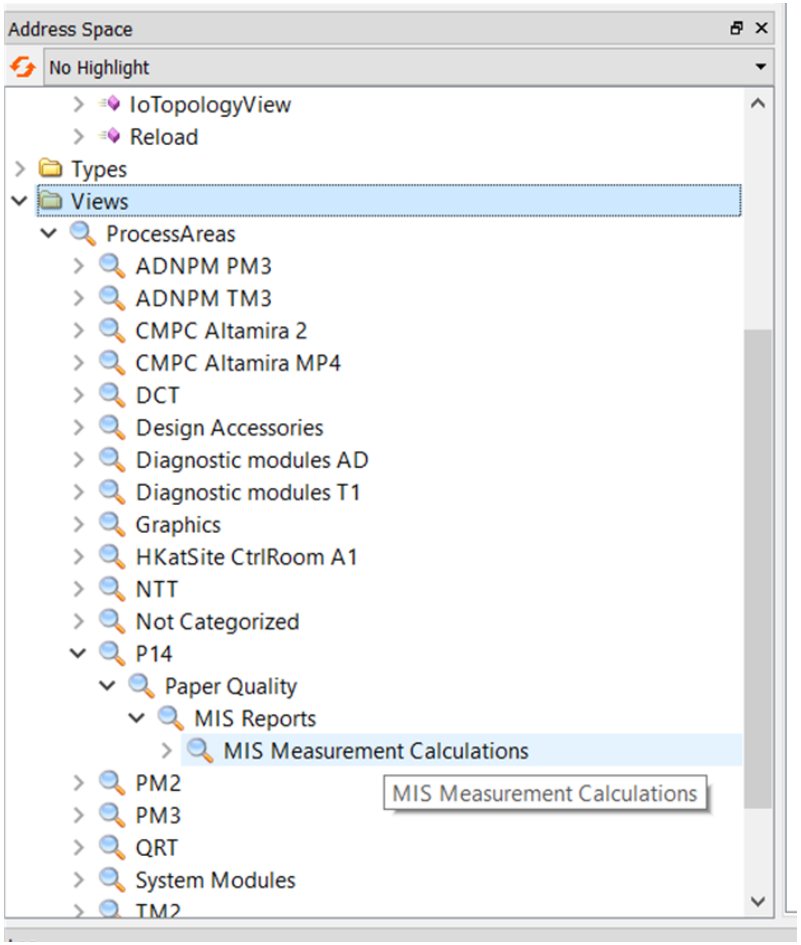
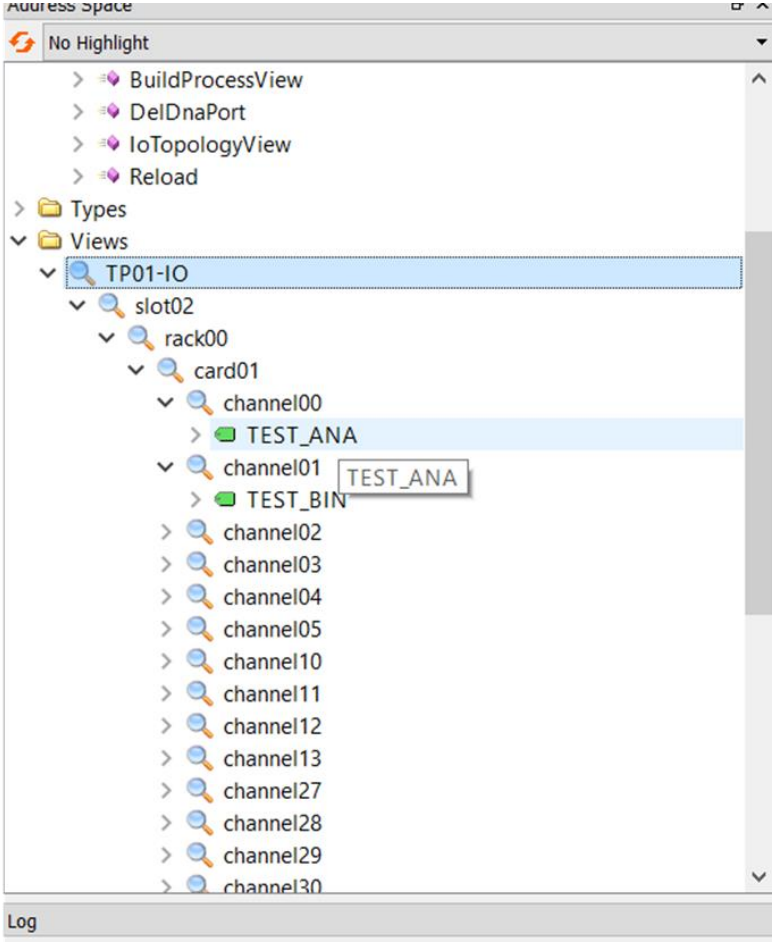
OPC UA - Views

Process Areas and IO-Topology





DNA – OPC UA Client

Valmet DNA OPC UA Client

- OPC UA Client is software in Windows WS or Linux
  - Support for Data Access and OPC A&E
  - Capacity : several thousands per server -TBD
  - Performance : With DNA ~1500/sec, depends on the other side server PLC / Smaller CPU & memory, slower performance

DNA OPC UA Client

Communicate with 3rd party OPC UA Server

- Configuration:
  - OPC UA Server variable address + type
  - DNA tag + type
- Read -> Write
- Parameters for tuning communication and logging in client_cpu.json
- Call server / object methods
  - Method parameters can be introduced as variables, read from DNA

DNA OPC UA Client

Configuration file example

- ReadName1 Type1 WriteName2 Type2
- // Server CurrentTime
- ns=0;i=2258 UtcTime ua:D1UA-STATUS.TIME binev // Watchdog if client if not updated do set fail bits
- // Typical 01, Single Analog Measurement
- ns=2;s=”OPC.OPC.Program.DCS.40017” Float ua:T3000-TYPICAL01.XQ60 ana // Value
- ns=2;s=”OPC.OPC.Program.DCS.40019” Boolean[16] ua:T3000-TYPICAL01.XQ61 bin_5 // Status
- // End of example

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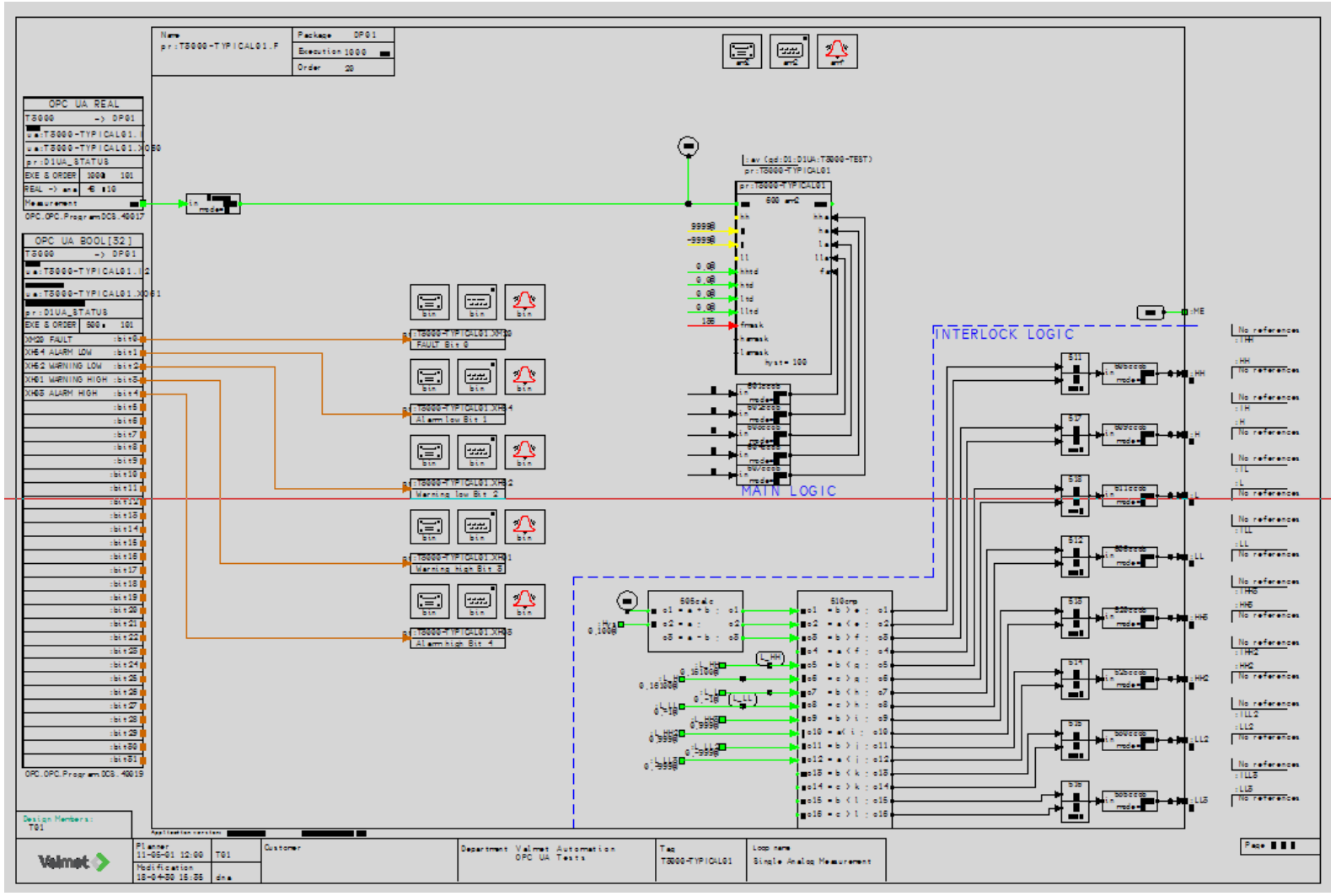
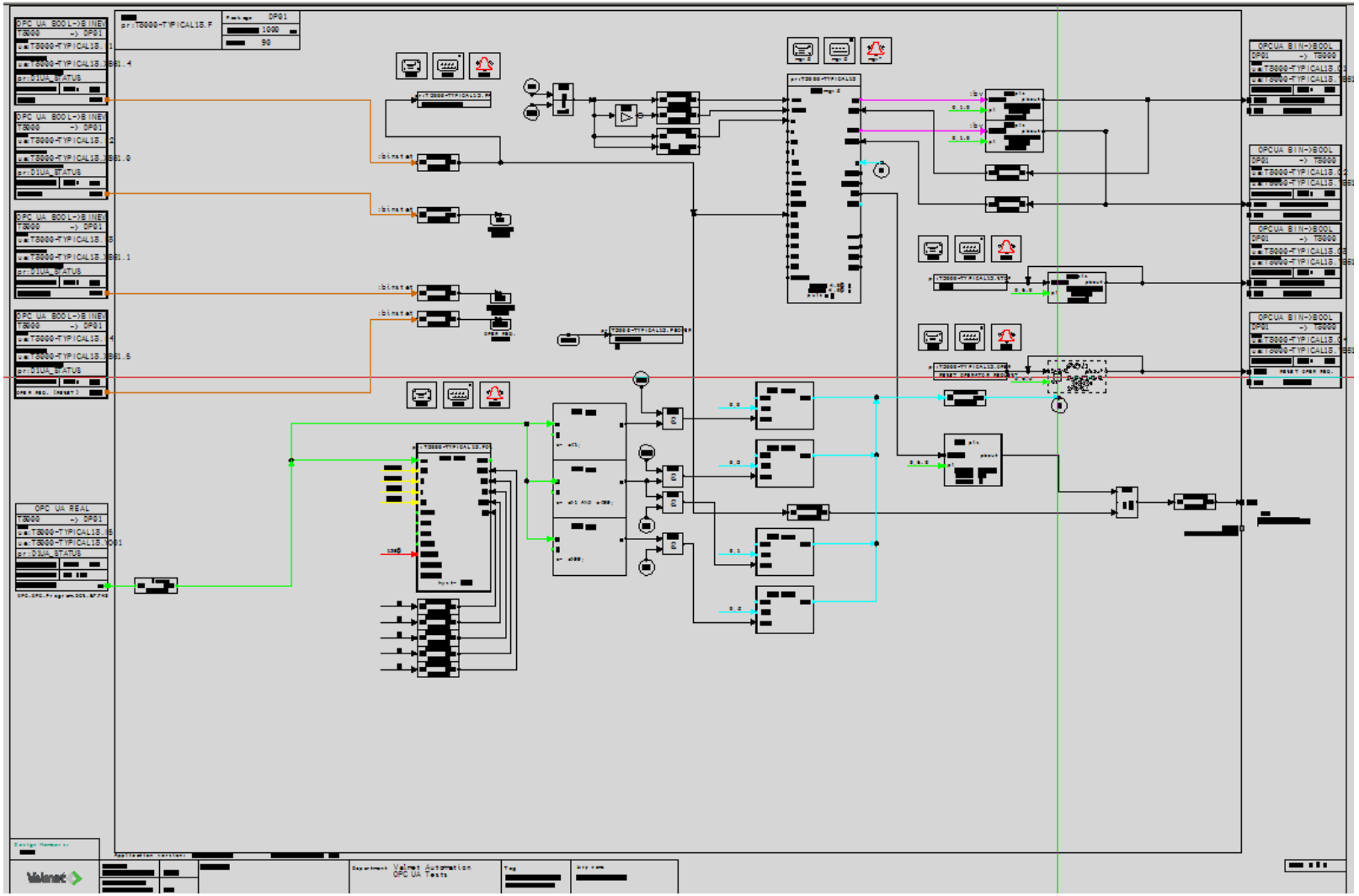
DNA OPC UA Client – DNA application

FbCAD with OPC UA IO-symbols: Analog measurement



DNA OPC UA Client – DNA application

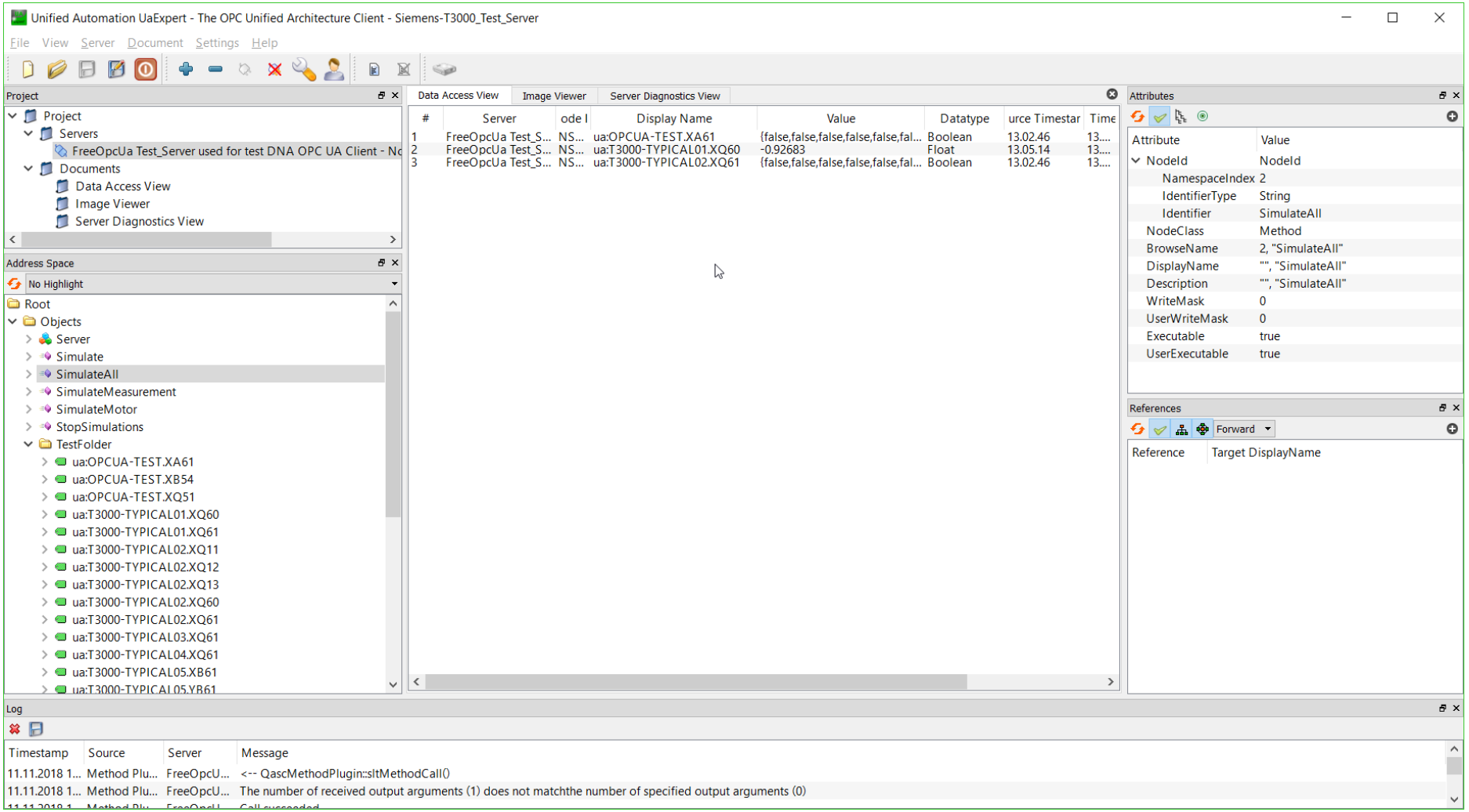
FbCAD with OPC UA IO-symbols: Valve actuator



Other OPC UA stuff

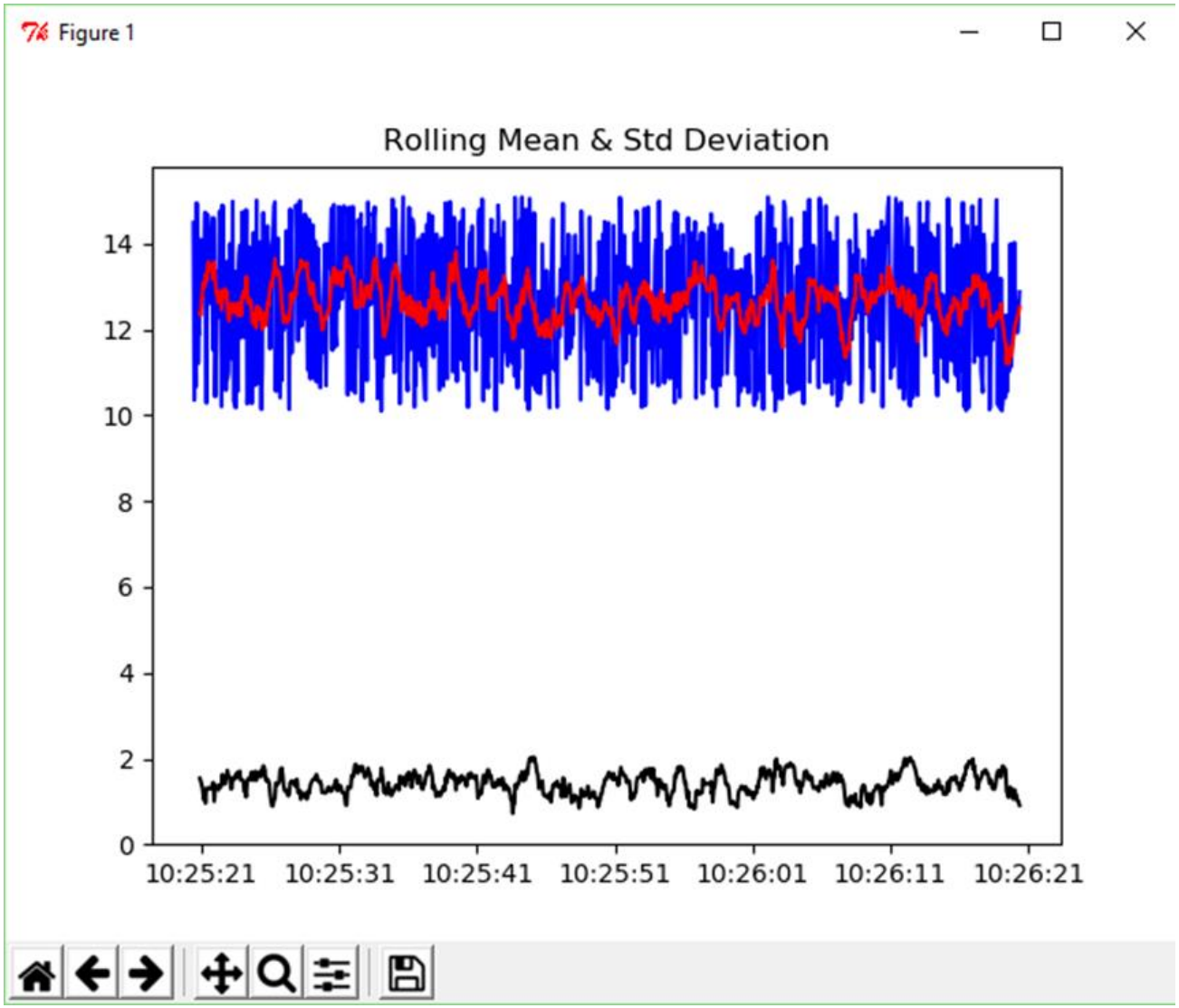
OPC UA - Test Server

FAT application testing without actual PLC



OPC UA – Edge level Machine Learning

Analysis through OPC UA HA



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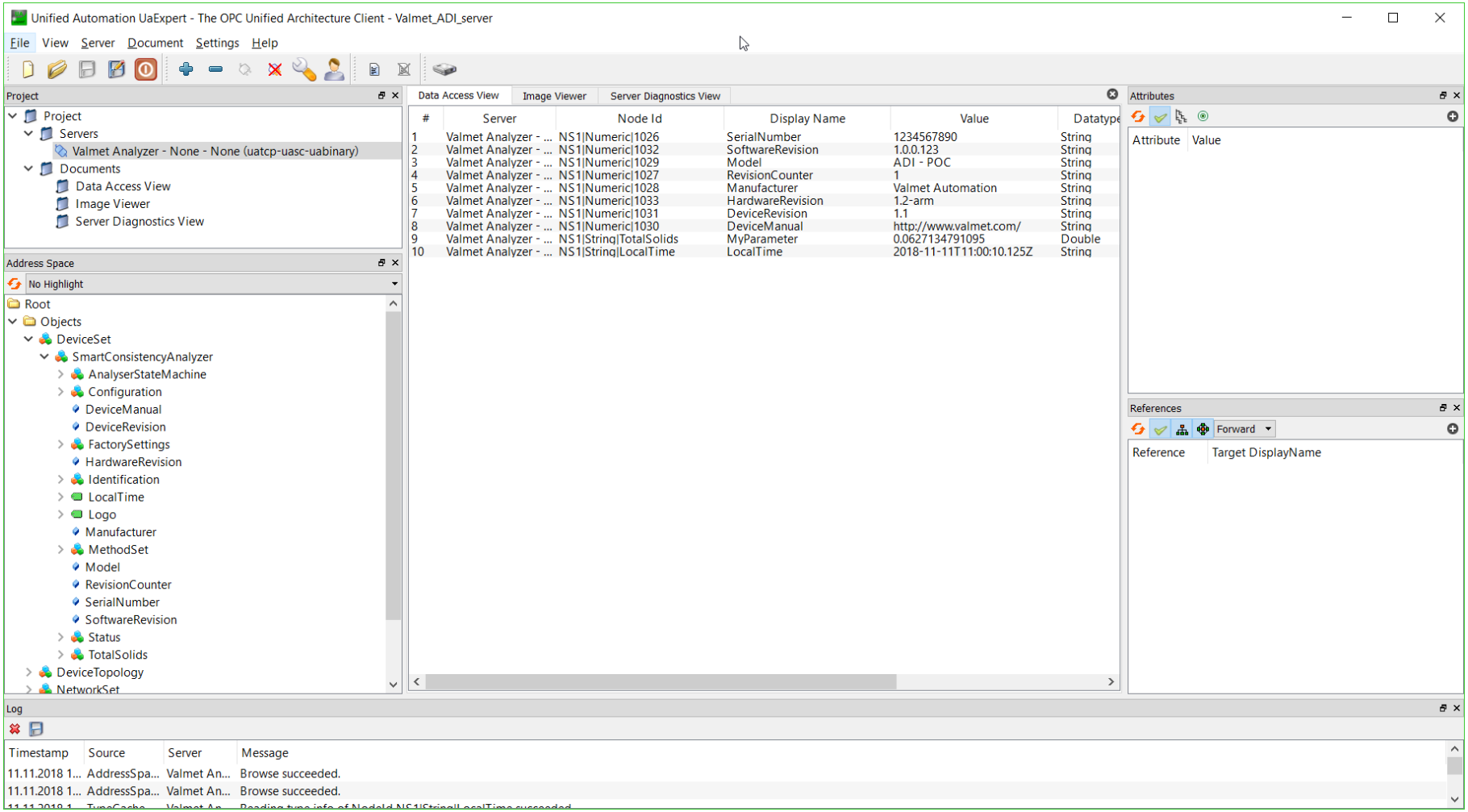
Valmet ADI Server – Smart Consistency meter

Prototype to provide data through OPC UA

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FORWARD