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Author and Contact Information

- Mohit Agarwal mohit.agarwal@atlascopco.com
 - Technical Editor of VDMA OPC UA Industrial Joining Technologies Working Group.
- Contact for any questions/updates/support on using the demo and extending it.

Prerequisites

- Windows 10 or later (Built using Windows SDK Version: 10.0.22000)
- Download Visual Studio 2022 Redistributable (Platform Toolset: Visual Studio 2022 (v143) for x64)
- https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170
- Download and install any OPC UA Client.
 - o **Example**: https://www.unified-automation.com/downloads/opc-ua-clients.html

Installation of Application Files

- Download and copy the following files in the <u>same directory (Installation Directory)</u>.
 - o opcua_ijt_demo_application.exe
 - o Opc.Ua.AMB.NodeSet2.xml
 - o Opc.Ua.Di.NodeSet2.xml
 - o Opc.Ua.ljt.Base.NodeSet2.xml
 - o Opc.Ua.ljt.Tightening.NodeSet2.xml
 - o Opc.Ua.Machinery.NodeSet2.xml
 - o Opc.Ua.Machinery.Result.NodeSet2.xml
 - Opc.Ua.NodeSet2.xml
 - o Opc.Ua.Ijt.Tightening.Server.xml

Information

- This OPC UA Server Simulator exposes Assets, Results, and Events as per the following Companion Specifications:
 - OPC 40450-1 UA CS for Joining Systems Part 1 Base RC 1.00.0.
 - OPC 40451-1 UA CS for Tightening Systems Part 1 General RC 2.00.0.
- Note:
 - It does **not** simulate all the models yet. It is a preliminary application based on the Release Candidate version and more details would be available at a later stage once the Formal Release of the Companion Specification is published.

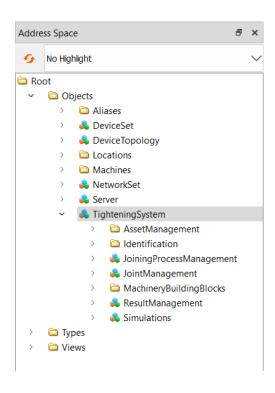
Running the application

- Ensure that the user has **Read/Write access** to the **Installation Directory**.
- Launch the binary file (opcua_ijt_demo_application.exe).
 - o Run as Administrator or at least with **Read/Write** access.
- The **EndpointUrl** of the OPC UA Server is:
 - o opc.tcp://localhost:40451 or
 - o opc.tcp://YourComputerName:40451.

Access data from OPC UA Client

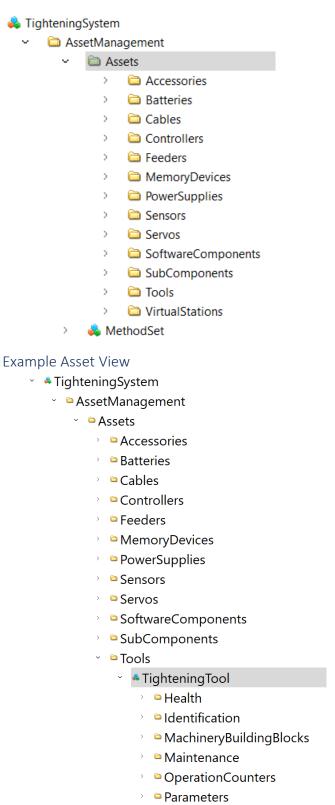
- Launch the OPC UA Client and connect to the given **EndpointUrl**.
- It will show the primary entry point: TighteningSystem.
- All the Nodes shown below are as per the Companion Specification.
- The **Simulations** node is the Application Node.

Tightening System Entry Point - AddressSpace View



Asset Simulation

Browse the respective Asset Nodes from the address space and subscribe/read the respective data.



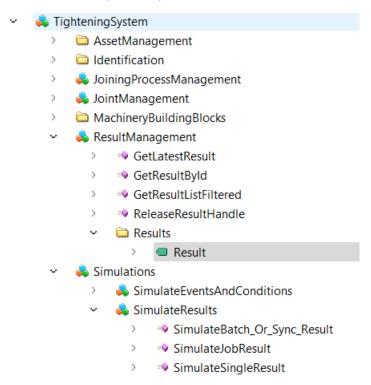
Result Simulation

• Result Access Options:

- Subscribe to the Result variable shown below.
- Subscribe to events by subscribing the Server node in the Event View.
- o Result Management Methods are NOT IMPLEMENTED in the simulator.

• Simulation Options

- Use the following three methods to simulate different types of Results. A new Result is generated upon the execution of the following methods.
 - SimulateBatch_or_Sync_Result
 - SimulateJobResult
 - SimulateSingleResult
- The simulated data is similar to the examples defined in the Annexure sections of the Companion Specification.



- To generate a new Result, execute the **SimulateSingleResult method** shown above.
- The outcome can be view in the **Data Access View** or **Event View** if the respective **Result** variable or **Event** is subscribed.

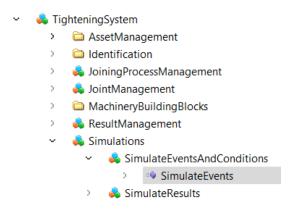
Example Result View

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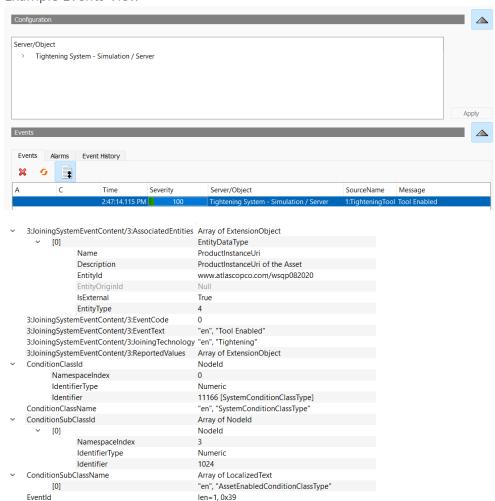
Event Simulation

Only a few events are added to the simulator. Execute the **SimulateEvents method** as shown below to generate few types of events.

Note: Additional types of events would be added to the simulator in the future. The **content** of the Events would be similar for any type of event from a joining system.



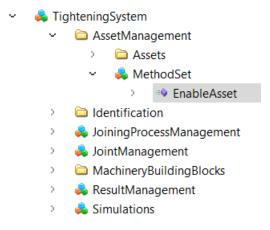
Example Events View



Command Simulation

An example simulation of **EnableAsset** is provided. It takes the input of the ProductInstanceUri of the Tool.

Few error cases can be simulated when input argument is empty or invalid. A respective error is shown in the output arguments.



Example Command View

