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Application Note

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Connecting Biobrain® Supervise to HyperFlux™ Pro Analyzer via OPC Unified Architecture

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Abstract

Biobrain® Supervise enables real-time data acquisition and monitoring to enhance the performance of the HyperFlux™ analyzer. Communication between the two systems can be established through the OPC Unified Architecture (UA) protocol, providing secure, reliable, and scalable interoperability. This integration supports advanced analytical capabilities, enabling precise spectroscopic analysis and improved decision-making.

This application note outlines the setup process, configuration guidelines, and the benefits of using OPC UA to achieve enhanced connectivity in spectroscopic applications.

Introduction

The OPC UA has been developed by the OPC Foundation as an open standard communication protocol for industrial automation. Various types of data exchange, including machine-to-machine, machine-to-PC, and PC-to-PC communication, are facilitated by this manufacturer-independent protocol.

This study demonstrates the successful connection of the HyperFlux™ analyzer with Biobrain® Supervise — a supervisory control and data acquisition (SCADA) system — through the OPC Unified Architecture (UA) client and the OPC UA server provided by SpectralSoft™. The OPC UA namespace structure is not covered.

Materials

Sartorius software
Biobrain® Supervise

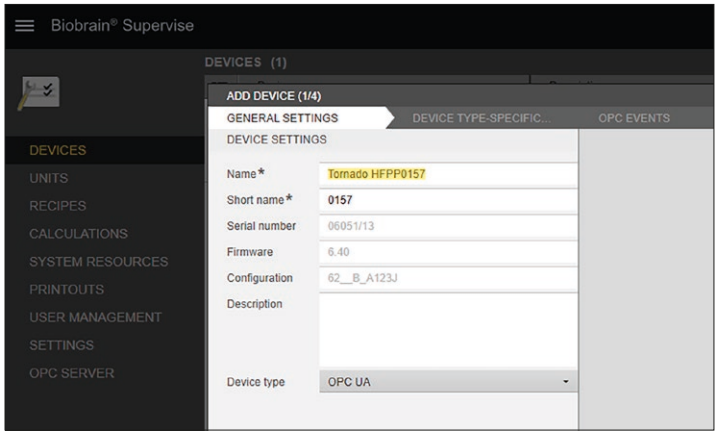
Third-party instruments
HyperFlux™ analyzer with SpectralSoft™

Methods

Prerequisites
The Biobrain® Supervise system used in this setup was running the latest version with a licensed OPC UA client module. The PC running the SpectralSoft™ software was connected to the same network.

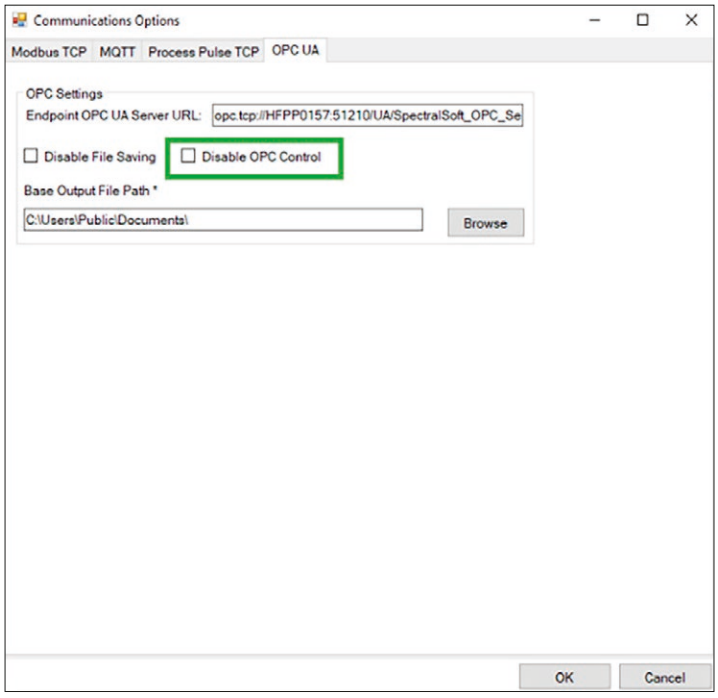
The configuration settings of the SpectralSoft™ OPC UA server, shown in Figure 1, were applied to enable remote access via the OPC UA communications protocol. Additional details for OPC UA operation can be found in the OPC UA User Manual for the HyperFlux™ Raman Analyzer (document number RS-030).

Figure 1: General configuration settings of an OPC UA Device in Biobrain® Supervise



SpectralSoft™ OPC UA server
The license for the industrial OPC UA module was installed to configure the SpectralSoft™ OPC UA server. SpectralSoft™ was started, the OPC UA configuration settings were accessed via the Communications Options menu, and the Disable OPC Control setting (Figure 2) was left unselected to allow external control. SpectralSoft™ required a restart for the selection to take effect. The server URL is provided for convenience and can be copied into the remote client.

Figure 2: Communication Options in SpectralSoft™

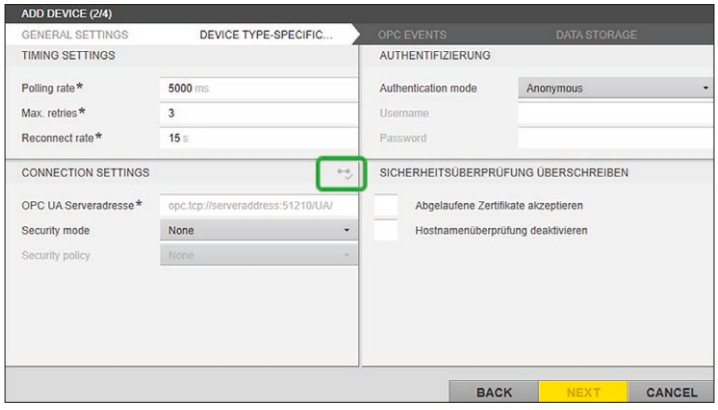


Biobrain® Supervise configuration

Device configuration in Biobrain® Supervise for connection to HyperFlux™ via SpectralSoft™

In the General Settings tab of the Add Device dialog, a Name (e.g., "Tornado HFPP0157") and a Short Name (e.g., "0157") were entered for the new device. The Device Type was selected as "OPC UA" (Figure 3). The process was continued by clicking Next.

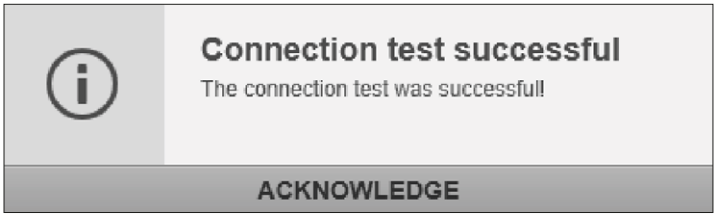
Figure 3: Device type-specific properties during the configuration of an OPC UA device in Biobrain® Supervise, with Test Connection highlighted



Under Device Type Specification, the endpoint OPC UA server URL was entered as shown in the SpectralSoft™ communication options window (Figure 3).

The connection test result (Figure 4) was acknowledged, and the device configuration was continued. Finally, the newly created device was added by clicking Save.

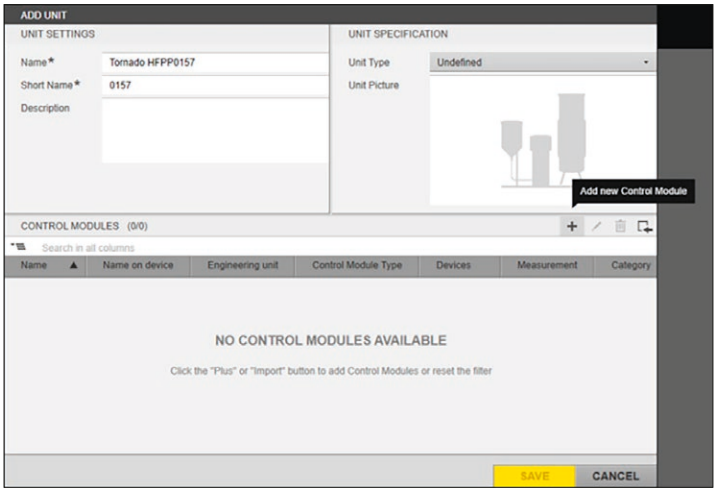
Figure 4: Successful connection test in Biobrain® Supervise



Configuring new bioreactor units in Biobrain® Supervise

A new unit was created by activating the Add Unit function located under Units in the Administration section. In the Add Unit dialog, a Name (e.g., "Tornado HFPP0157") and a Short Name (e.g., "0157") were entered for the new unit. The Import Control Modules button was then clicked (Figure 5).

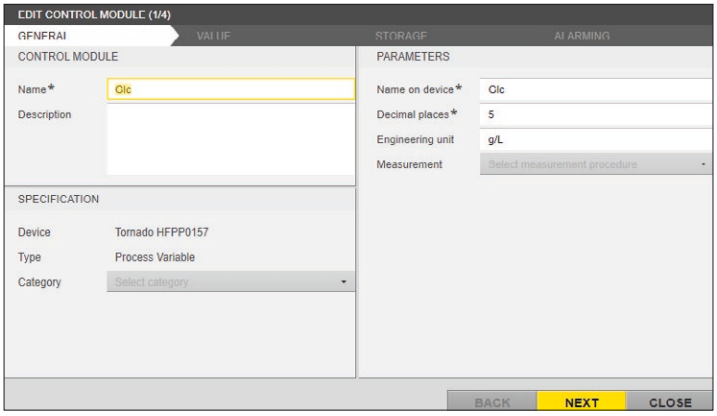
Figure 5: Add Unit dialog in Biobrain® Supervise with Add New Control Modules functionality highlighted



Add New Control Module

In the Add Unit dialog, the Add New Control Module (+) option was clicked (Figure 5). The name of the variable (e.g., Glc) was entered, the correct Device and Type (Process Value) were selected, and Next was clicked (Figure 6).

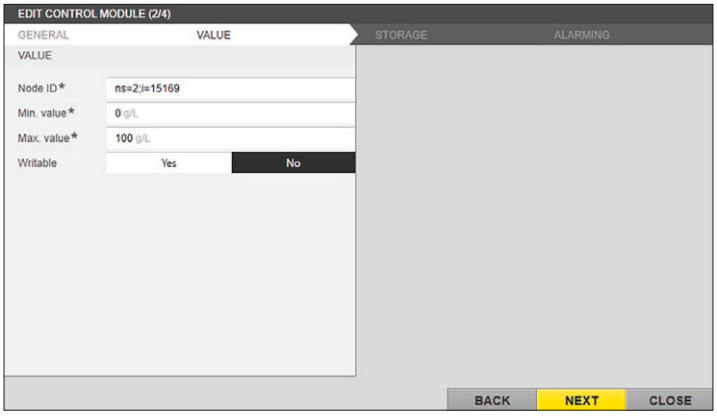
Figure 6: Adding a new control module in Biobrain® Supervise



Edit Control Module

The Node ID, as well as the minimum and maximum values, were entered (Figure 7). Figure 8 shows where the Node ID was identified. Depending on process requirements, process variables and controllers can be associated with a connected device. For the HyperFlux™ analyzer, the required OPC UA Node IDs must be selected. Further information on configuration is provided in the Biobrain® Supervise OPC Client Module manual.

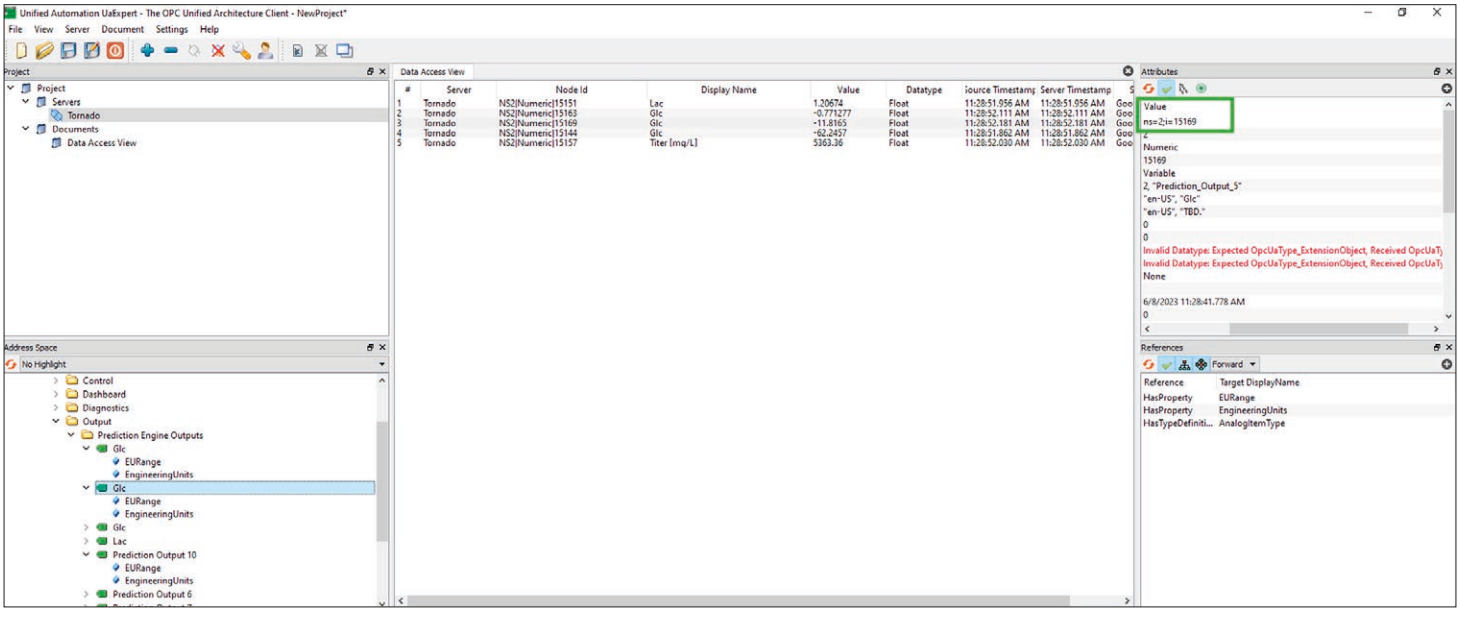
Figure 7: Edit Control Module



Defining Node IDs for Control Modules

Figure 8 shows how the Node ID was defined using an OPC Client (UA Expert) in SpectralSoft™.

Figure 8: Browsing Node ID in SpectralSoft™

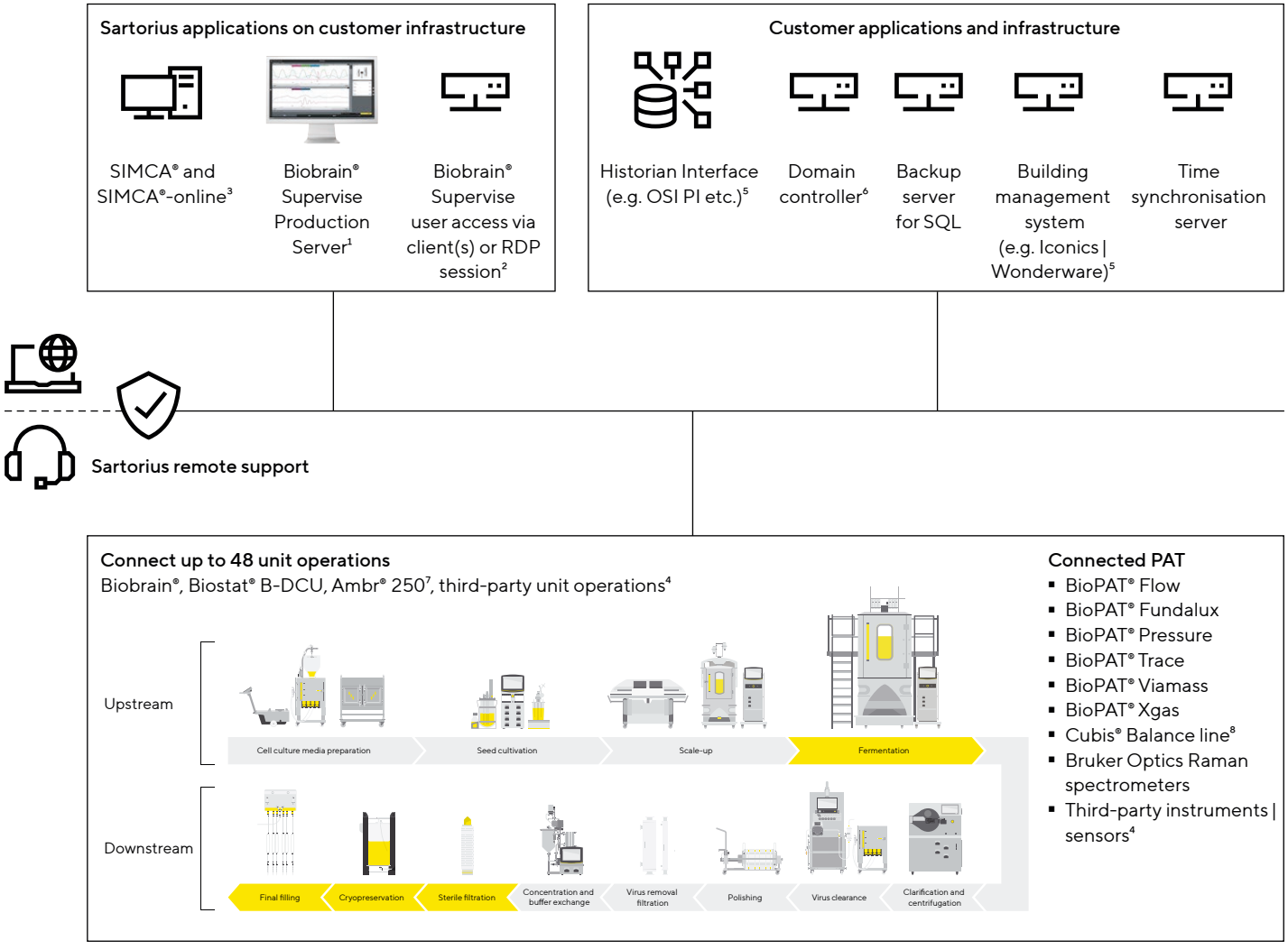


Results

Biobrain® Supervise can connect to multiple PAT analyzers supporting different connection protocols. In this application note, the HyperFlux™ analyzer was treated as an OPC UA device in Biobrain® Supervise. Figure 9 provides an overview of the Sartorius ecosystem and its integration framework.

Figure 9: Biobrain® Supervise integrates PAT analyzers via OPC UA without proprietary protocols

Simplifying your process — the Sartorius ecosystem



[1] Biobrain® Supervise server application deployed on a customer hosted virtual server
[2] Biobrain® Supervise client deployed on customer PCs or accessed via Remote Desktop on a central server
[3] SIMCA® | SIMCA®-online connected using SimApi (part of Biobrain® Supervise core)
[4] Biobrain® Supervise needs OPC UA client module
[5] Biobrain® Supervise needs OPC UA server module
[6] Biobrain® Supervise needs user management module
[7] Ambr® 250 needs Kepware OPC UA server
[8] Cubis® balance line via OPC DA server (part number VF4844)

Conclusion

This application note outlines the connection of the HyperFlux™ to Biobrain® Supervise via OPC UA. The OPC UA client functionality of Biobrain® Supervise was used to provide a flexible and standardized method for integrating analyzers without the use of proprietary communication protocols.

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