Inmation SimApi User Guide

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SARTORIUS

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1 Introduction

This document is the user guide for the Inmation SimApi from Sartorius Stedim Data Analytics AB.

A SimApi is the connection between the Umetrics® Suite and external data sources.

This SimApi connects to an AspenTech Inmation system.

For a detailed list of changes in different versions of this SimApi, see the **Inmation SimApi Version Info.txt** file that comes with the installation.

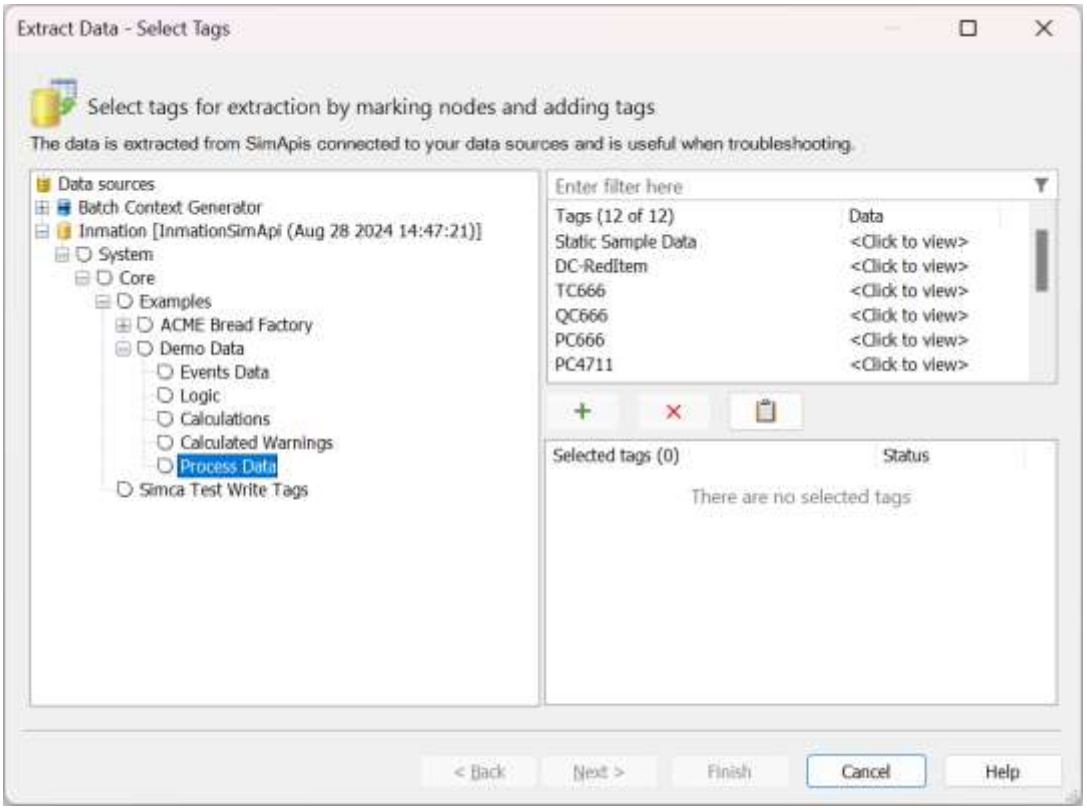
For more information on SimApis, see sartorius.com/umetrics-simapi.

1.1 Features

The SimApi implements the following features: Refer to sartorius.com/umetrics-simapi to learn more about the general SimApi features.

- Connects to an AspenTech Inmation server using its web API over https.
- Exposes configurable parts of the Inmation node tree (exposing the whole tree can take a long time).
    - An Inmation node that has child nodes and can be used to read data for is added both as a SimApi node, but also as a SimApi tag with a the same name but with a '.Value' suffix.
- Current and historical process data. If quality is bad, missing data will be returned through the SimApi.
- Write back of continuous data.
- Batch context node functionality (batch names, start- and end-times) to be able to execute batch project configurations in SIMCA-online and import data for specific batches in SIMCA.
- Multiple instances of the SimApi can be run on the same SIMCA-online server to connect to several Inmation servers or using different credentials.

This is what a server can look like from SIMCA-online:



The remainder of this document will show you how to setup and configure the SimApi.

1.2 Write back of historical data to Inmation

This SimApi supports write-back of historical data from SIMCA-online. The SimApi uses a Inmation library function called WriteHistoricalData which purely writes history and does not set the current value of a tag.

This means that data can be re-read as historical data, but not as current data which makes such Inmation tags unsuitable for use with SIMCA-online in a project configuration.

2 Prerequisites

To use the SimApi on a computer, it must have the following software installed:

- The Microsoft Visual C++ Redistributable for Visual Studio 2015-2022. This is already available on all computers with SIMCA or SIMCA-online. To run the SimApi in other contexts, the latest version is found at https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads

2.1 AspenTech Inmation Requirements

- Inmation server 1.110 or later, or an earlier version that has been patched with the necessary backend code.
- The Inmation server needs to have the backend code for the **syslib.api-simca** library. It contains business logic needed to transform Inmation data to the SimApi. Contact AspenTech to obtain this library. It will be included in the 1.110 release of Inmation.
- A user in Inmation with strong password should be used that have access rights to only the parts of the node tree that need to be exposed by the SimApi. Read-only access through the API is recommended unless write-back is going to be used in SIMCA-online.
- To work with batch projects, the process data needs a tag for the batch identifier (name). This tag must hold the id of the batch for **all observations** that belong to the batch. The batch id must match the id in the batch node used in the project configuration.
- To use the batch node functionality of the SimApi, this needs to be configured in Inmation for the node that should expose batch node functionality through the SimApi. This means ensuring I/O is configured to read tags from the source and that batch trackers have been configured to generate production records based on the available tags.

2.2 Verify Network Connectivity Between SimApi and Inmation

A networking firewall between the SimApi running in SIMCA, or SIMCA-online server, and the Inmation server can restrict network traffic so that the SimApi doesn't work.

The TCP port used by the server, 8002 by default, needs to be open on the Inmation server computer so that traffic from the SimApi can reach it.

Test connectivity *on the computer running the SimApi* in a browser by pasting the URL to the Inmation server. Your browser should be able to connect and display a web page.

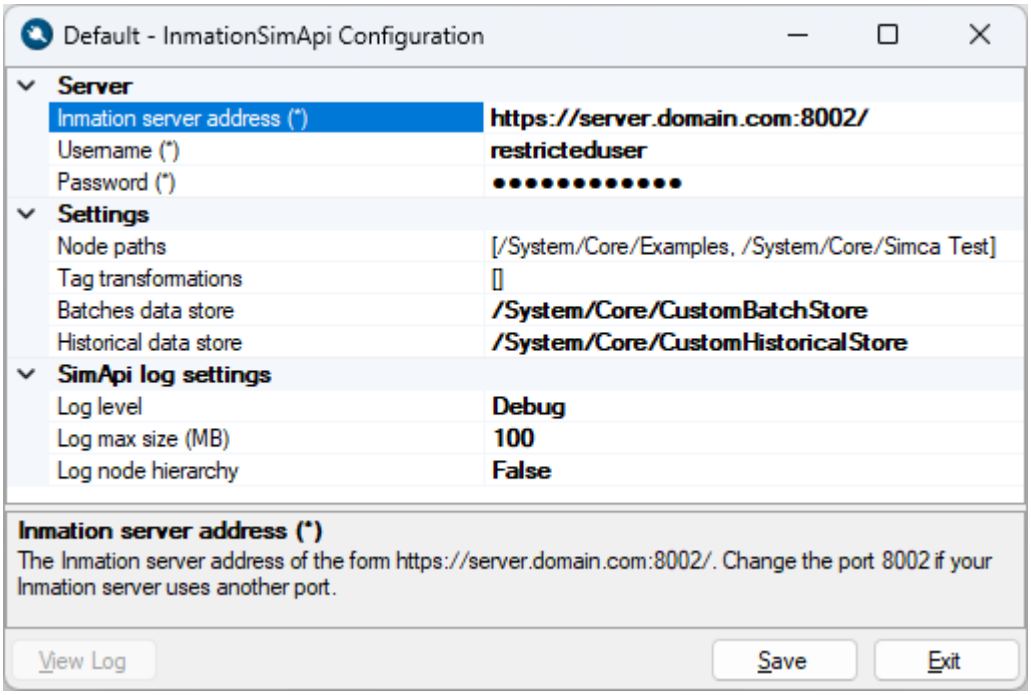
3 Installation and Setup

Refer to the **SimApi Guide** located at sartorius.com/umetrics-simapi for general step-by-step instructions that apply when installing a SimApi. Specifically, chapter 5 on how to install the SimApi.

3.1 Configuring SimApi Settings

To change settings for the SimApi in SIMCA-online; launch the **Server Options** utility, and on the SimApi tab, click **Configure...** for the SimApi instance you want to configure. The same guidelines apply to SIMCA, although all screenshots and examples below are for SIMCA-online.

The following dialog is displayed. The settings are described below.



After saving and exiting, you can apply the changes to the running server if you run SIMCA-online 17 or later or restart the service to apply the changes.

Setting	Explanation
Inmation server address	The Inmation server address of the form https://server.domain.com:8002/. Change the port 8002 if your Inmation server uses another port.
Username and password	Used to connect to the Inmation server
Node paths	Specify which parts of the node tree to expose to shorten the startup time. Leave blank for the entire server, or specify one or more full paths, one on each row. Only the nodes you select, including all their children will be visible through the SimApi. Tip: Use Inmation DataStudio software to see the paths to the nodes. Learn more in the Inmation docs at Paths (inmation.com). Example path: /System/Core/Examples Click the ... button to edit the node paths.
Batches data store	Specify which data store to retrieve batches from, use either the data store ID (0 or greater) or the path to a data store eg. /System/Core/CustomStore[1]. 0 is the default data store.

Historical data store	Specify which data store to retrieve historical data from, use either the data store ID (0 or greater) or the path to a data store eg. /System/Core/CustomStore[1]. 0 is the default data store.
Log Level	Controls how much information is written to the log file. (Debug, Information, Warning, Error, Critical). Debug helps troubleshoot issues with the SimApi.
Log Max Size (MB)	Controls the max size of the log file before creating a new one. Setting this to 0 means infinite size.

1) You can find the path and ID to your store in the Inmation DataStudio application.

3.2 Logging

The SimApi outputs a log file that is useful for debugging connection setup issues and problems during regular use.

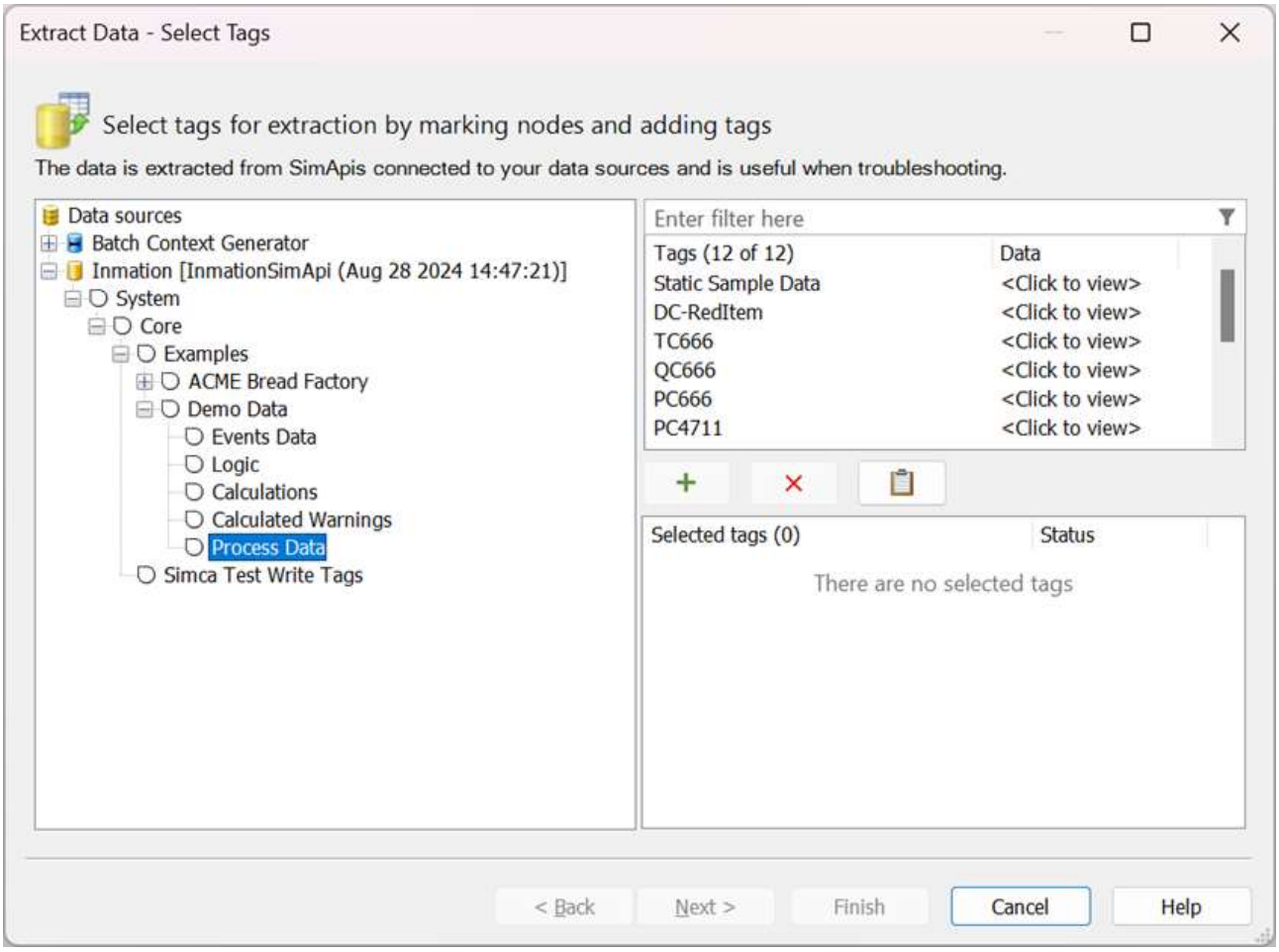
You can find the log file in C:\ProgramData\Umetrics\SimApi.

The SimApi also supports structured logging in JSON Lines format, which enables the use of log monitoring tools. To enable structured logging, set the environment variable **UM3_SIMAPI_LOGGER_TRANSFORM** to **JSON**. When enabled, any SimApis that support structured logging will use this format.

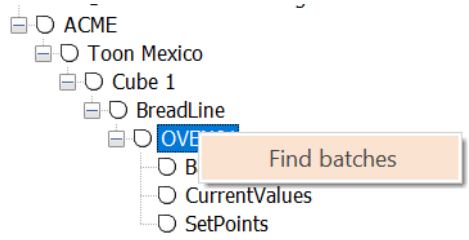
3.3 Testing the SimApi in SIMCA-online

Here is some information on how to test the SimApi, borrowed from the SimApi Guide, chapter 6.
sartorius.com/umetrics-simapi

Log in to the server in the SIMCA-online client, and navigate to **Extract** on the **File** tab. Extract helps you test the SimApi by obtaining data through it:



- The nodes ("folders") of the SimApi are displayed in the top-left box. Tags for the selected node are displayed top-right.
- **Current data** can be tested quickly simply by clicking **<Click to view>** on tags that provide continuous process data (see the screenshot)
- Right-click on a batch node and do **Find batches** for a time range. This shows batches in that node. Note that not all nodes have batches, but that this must be configured in Inmation:



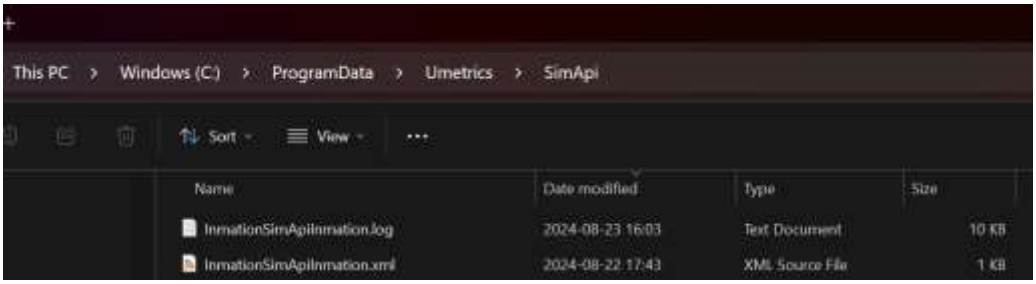


- Select tags in Extract and click **Next** and then finish the wizard to obtain data using the different modes of data retrieval that are supported: current data and **historical data**.

Compare the extracted data with what you see in Inmation.

3.4 Troubleshoot SimApi Problems Using the SimApi Log

If the server does not start, the SimApi doesn't work as expected or extract fails, you need to consult the SimApi log file which tells you what the problem is. Navigate to **%programdata%\Umetrics\SimApi** to Windows File Explorer to find the log file.



Tip: Enable debug-level logging in the SimApi configuration (if not already set) log to get full details.

4 Support

This SimApi is developed by Sartorius Data Analytics. For support, please visit sartorius.com/umetrics-support.

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Masculine or feminine forms are used to facilitate legibility in these instructions and always simultaneously denote all genders.

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