

JUNE5 SimApi User Guide



Contents

1	Introduction.....	3
1.1	Terms.....	3
1.2	Features.....	3
1.2.1	Node hierarchy of the selected JUNE5 view model.....	3
1.2.2	Process Variables and current and historical data.....	4
1.2.3	Ignore null values.....	4
1.2.4	Optional synthetic data aggregation nodes: Min and Max.....	4
2	Prerequisites.....	6
2.1	Networking requirements.....	6
3	Installation and setup.....	6
3.1.1	Configuring SimApi settings.....	6
3.2	Example configuration for the VIDEDEC demo JUNE5 server.....	8
4	Support.....	8

1 Introduction

This document is the user guide for the JUNE5 SimApi from Sartorius Stedim Data Analytics.

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

The JUNE SimApi described in this document, is the connector between VIDEc JUNE5 and SIMCA®-online Solution and SIMCA® Multivariate Data Analysis Solution.

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

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

For more information about JUNE5, see <https://www.videc.de/en/products/june5/>.

1.1 Terms

JUNE5 name	SIMCA-online terminology
Process Variable	Tag

1.2 Features

The SimApi implements the following SimApi features. Refer to umetrics.com/downloads/simapi#FeatureMatrix to learn more about the general SimApi features.

- Connect to VIDEc JUNE5 using its v3.1 web API
- JUNE5 credentials are used
- Displays the contents of a specific JUNE5 “view model”. Defaults to show all contents that the user has rights to
- Displays a hierarchical view of JUNE5 nodes with their process variables/tags
- Provides numerical values and text values when reading data
- Silently ignores null values and exposes only valid data. IgnoreNullValues is set to true in all data requests.
- Support for current data and historical data
- Optional synthetic data aggregation nodes to provide minimum or maximum values of raw values over a timespan
- Multiple instances of the SimApi can be run on the same SIMCA-online server
- Connection resiliency – the SimApi reestablishes the connection to the data source automatically after being disconnected

1.2.1 Node hierarchy of the selected JUNE5 view model

When connected to a JUNE5 server, the SimApi will expose the folder structure as nodes with tags corresponding to process variables.

The SimApi can connect to a specific JUNE5 view model. Unless changed this default to the standard view of the server that shows all available data.

Here is how the VIDECA demo JUNE5 server looks inside SIMCA-online when configured using the settings described in 3.2.

Extract Data - Select Tags

Select tags for extraction by marking nodes and adding tags

The data is extracted from SimApi connected to your data sources and is useful when troubleshooting.

Tags (3 of 3)	Data
Energiezähler Geb. 1	20
Raumtemperatur Inn...	18.77
Trinkwasserzähler Ge...	30.196

1.2.2 Process Variables and current and historical data

Process Variables are displayed as tags by the SimApi. Variables that are hidden or excluded in JUNE5 are not displayed.

For these tags the SimApi can read current data and historical data.

For technical reasons, the first query for current data can take longer time than subsequent requests, because the SimApi looks for the most recent value for each tag. If the value is old, the server uses an iterative approach to look further and further back until the value is found.

For historical data, the SimApi returns data between the requested start and end time, with the sampling interval specified in the query. The most recent value at, or before, each sampling time is returned.

1.2.3 Ignore null values

The SimApi does not expose null data from JUNE5. Instead null values are ignored in all request (technical the *IgnoreNullValues* parameter is set to *true* in the web requests). This is by design and tuned to how the first customer of the JUNE5 SimApi wants it to work.

1.2.4 Optional synthetic data aggregation nodes: Min and Max

You can configure the SimApi to provide tags that return minimum or maximum values for process variables over a timespan.

How it works:

- You configure a timespan, *s*, in seconds, for example 3600.
- For each node with tags, the SimApi exposes two additional sub nodes MIN[*s*], MAX[*s*] (for example MIN3600, MAX3600).
- Each such MIN[*s*] or MAX[*s*] node contains the same tags as the parent node.
- For each such tag, for *current* data, the minimum or maximum value for the configured timespan *s* is returned when querying for data. For text data, missing value is returned (min or max of text is not applicable).
- For each such tag, for *historical* data, the minimum or maximum value for the **sampling interval** in the request is returned. The configured timespan *s* is **not** used in this case. This difference between current data and historical data makes these min/max tags not suitable for usage in SIMCA-online as is explained further below.

The following screenshots shows the MAX3600 and MIN3600 nodes configured on the VIDEDEC demo JUNE5 server:

The screenshot displays a software interface for configuring data sources. On the left, a tree view shows the hierarchy: 'Data sources' contains 'JUNE5-debug [JUNE5_SimApi (Mar 2 2020 15:47:40)]' and 'demo [JUNE5_SimApi (Mar 2 2020 15:47:40)]'. Under 'demo', there is a 'root' node, followed by 'CustomObjects', 'Process Variables', and 'JUNE5 Demo A'. Under 'JUNE5 Demo A', there are 'Allgemein' and 'Firma' nodes. Under 'Firma', there is a 'Gebäude 1' node, which contains 'MAX3600' and 'MIN3600' nodes. Below 'Gebäude 1' are 'Gebäude 2' and 'Gebäude 3' nodes. On the right, a table titled 'Tags (3 of 3)' shows the following data:

Tags (3 of 3)	Data
Energiezähler Geb. 1	21.5
Raumtemperatur Inn...	18.77
Trinkwasserzähler Ge...	30.196

Note: This feature is **not** recommended for SIMCA-online usage, because it is likely to work inconsistently when SIMCA-online executes projects in real-time compared to predicting past data or catching up. The only way it can work in SIMCA-online is if you configure the MIN/MAX nodes to use the same setting for the time s as the execution interval used by all phases of SIMCA-online that use MIN/MAX nodes.

2 Prerequisites

The SimApi was developed and tested for JUNE5 v3.1 SP4. We have not tested earlier or later versions.

The SimApi was tested using an internal server at a customer site and using the VIDEc demo server at <https://portal.videc.info/>. There is technical documentation for this demo site available at https://portal.videc.info/CustomFiles/FirstSteps_en.pdf.

2.1 Networking requirements

The SimApi uses a https connection (or http) to connect to the JUNE5 server. For this to work networking firewalls must allow this traffic between the SimApi and the JUNE5 server.

3 Installation and setup

Refer to the **SimApi Guide** located at umetrics.com/simapi for general step by step instructions that apply when installing a SimApi.

After installing the SimApi you need to configure it to connect to the JUNE5 server. We recommend that you involve people from your company that knows your JUNE5 infrastructure when you configure this SimApi.

3.1.1 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.

The following dialog is displayed. Configure the settings you require for you environment. After saving and exiting, the SIMCA-online server service needs to be restarted for the changes to be effective.

JUNE5 server	
Server URL	
User name	
Password	
Server time zone (UTC)	0
Start time query padding (seconds)	360
API version	v3.1
Root view model uid	00000000-0000-0000-0000-000000000000
Root node name	root
Synthetic data aggregation nodes	
MAX nodes	
MIN nodes	
SimApi log settings	
Log Level	Debug
Log Max Size (MB)	10

Server URL
The URL to the JUNE5 server to connect to. For example, the demo server of VIDEc:
<https://portal.videc.info>

View Log Save Exit

As you can see there are default values for many settings.

However, the following settings you must provide or change to the values that apply at your site:

Setting	Explanation
---------	-------------

Server URL	The URL to the JUNE5 server to connect to. For example, the demo server of VIDEDEC: https://portal.videc.info
User name	The user name for connecting to the JUNE5 server
Password	The password for connecting to the JUNE5 server
Server time zone (UTC)	The JUNE5 server computer time zone is required to be able to interpret the timestamps (in local time) returned by the JUNE5 server. Valid numbers are -12 to 12 corresponding to UTC-12 to UTC+12. For example, for a German server the setting should be 1 because the Central European time zone is UTC +1.
Start time query padding (s)	For historical data requests, the SimApi must look for values before the start time of the request in order to find initial values for the tags. This setting defines how far back to look for a previous value. If no value is found, missing value is returned.

The following optional synthetic data aggregation nodes can be configured if needed:

Synthetic data aggregation nodes setting	Explanation
MAX nodes	A semicolon-separated list of natural numbers representing seconds. For each number, a MAX[s] node will be created. Tags in that node returns the maximum value over the supplied time s.
MIN nodes	A semicolon-separated list of natural numbers representing seconds. Or leave empty to not use min/max nodes. For each number, a MIN[s] node will be created. Tags in that node returns the minimum value over the supplied time s.

The remaining settings can be changed when needed:

Setting	Explanation
API Version	The API version of the server. Must match the version of the JUNE5 server web API of the server.
Root view model uid	The GUID of the node to make available through the SimApi (including sub-nodes and tags). The default empty GUID (all zeros) corresponds to the root view with all sub-nodes and tags ('SV' - the standard view).
Root node name	An arbitrary name of the root node to display in the SimApi.
Log Max Size (MB)	Controls the max size of the logfile before creating a new. Setting this to 0 means infinite size.
Log Level	How much Information will be written in the Log file

3.2 Example configuration for the VIDEDEC demo JUNE5 server

This screenshot shows how to connect to VIDEDEC's demo JUNE5 server at <https://portal.videc.info> (with user name gast with password gast which is a good way to test the SimApi).

The screenshot shows a configuration window titled "demo - JUNE5_SimApi Configuration". It contains three main sections:

- JUNE5 server**:

Server URL	https://portal.videc.info
User name	gast
Password	••••
Server time zone (UTC)	1
Start time query padding (seconds)	360
API version	v3.1
Root view model uid	00000000-0000-0000-0000-000000000000
Root node name	root
- Synthetic data aggregation nodes**:

MAX nodes	3600
MIN nodes	3600
- SimApi log settings**:

Log Level	Debug
Log Max Size (MB)	10

Below the configuration table, there is a section for "Server URL" with a description: "The URL to the JUNE5 server to connect to. For example, the demo server of VIDEDEC: https://portal.videc.info". At the bottom of the window, there are three buttons: "View Log", "Save", and "Exit".

4 Support

This SimApi is developed by Sartorius Stedim Data Analytics. For support, please visit <https://umetrics.com/support>