

Wonderware Historian SimApi User Guide

1. Introduction

This document is the user guide for the Wonderware Historian SimApi from MKS Data Analytics Solutions.

This SimApi connects to a *Wonderware Historian* data source.

This SimApi can be used by SIMCA-online, SIMCA-Batch On-Line, SIMCA-4000, or SIMCA.

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 www.umetrics.com/simapi.

1.1 Features

The SimApi implements the following features;

- Connect to a Wonderware Historian database with support for numerical (analog or discrete) and text values.
- Current data
- Historical continuous data
- Write back – continuous data
- 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

For more information about each feature see <http://umetrics.com/downloads/simapi#FeatureMatrix>.

1.2 Prerequisites

Wonderware Historian uses Microsoft SQL server to store its data. The SimApi connects to this database using ODBC. For the SimApi to work the ODBC drivers for SQL Server needs to be installed on the computer where the SimApi is used.

Most computer already have the ODBC drivers named 'SQL Server' which can be used, or you can use the client drivers for the SQL Server version used by the Wonderware Historian (refer to its documentation).

1.3 Installation

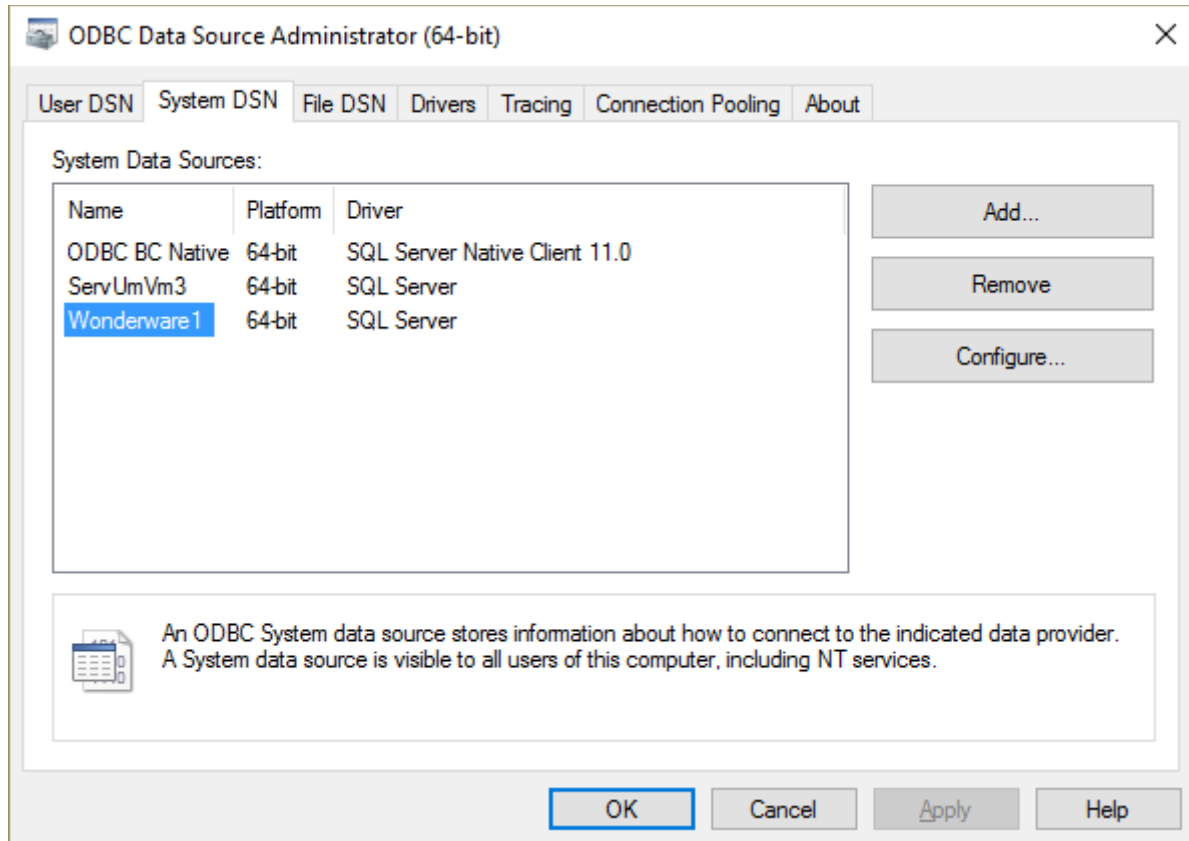
Here is an outline of the installation steps:

1. Run the SimApi setup program to install the SimApi. The SimApi comes in a 64-bit (x64) and 32-bit (x86) version. Use the one that matches the program (for example SIMCA-online or SIMCA) you will use the SimApi in
2. Configure an ODBC data source in Windows that maps to your Wonderware Historian server as described in 1.4.
3. Set up the SimApi in SIMCA-online or SIMCA as described in chapter 2.

1.4 Configure an ODBC data source

The data source should be configured as a System DSN in the ODBC Data Sources control panel in Windows. Note that there are two versions of this tool on 64-bit Windows: one for 32-bit applications and one for 64-bit¹.

Click *Add* to add a new System Data Source, and give it a name. You'll point to this name later when you configure the SimApi in SIMCA or SIMCA-online (see chapter 2).



In the ODBC configuration wizard for SQL Server you can select how to authenticate users (log in):

- *SQL Server Authentication* which means that the database is authenticating users using a user name and password. This username and password can be given in the ODBC wizard, or in the configuration file by filling in the credentials dialog as part of the configuration (see below).
- *Windows authentication*. Windows authentication means that the user account (typically in Active Directory) of the program using the SimApi is used to connect to the database. This user account or a group it is a member of needs to have appropriate rights in SQL Server.

Windows authentication with a SIMCA-online server means that the service account of the SIMCA-online Server service is used (LocalSystem by default, but can be changed to a specific account by the administrator, see the SIMCA-online Technical Guide for more information).

Windows authentication with SIMCA means the user account of the person that is running SIMCA will be used.

¹ In Windows 8 and later you simply use Start search to find both the 32- and 64-bit ODBC Data Sources tools. On 64-bit Windows 7 the start menu only lists the 64-bit version, but you can start the 32-bit ODBC Data Sources program by launching it manually from the SysWow64-folder, typically C:\Windows\SysWOW64

Verify the connection to the database with the Test Data Source button at the end of the ODBC configuration wizard. As noted above, for Window Authentication this tests with your own user account, and not necessarily with the SIMCA-online service account.

1.5 Configuration file and log file locations

The SimApi stores its settings in a XML settings file named WonderwareHistorianConfiguration.xml in the Program Data folder². This folder is located in the following folder:

C:\ProgramData\Umetrics\SimApi

This folder also contains the log file that the SimApi writes. This log file is named WonderwareSimApiLog.log and is useful for troubleshooting.

1.5.1 File names when named instances are used with SIMCA-online 13.1 or later

With SIMCA-online 13.1 or later, each SimApi instance get its own configuration file and log file in order to support multiple instances of each SimApi. The names of these files are prefixed by the name of the instance as given on the SimApi tab in the SIMCA-online server options dialog. The following example shows the naming of these files.

Configuration name given when the instance is added: Wonderware1

Configuration file name: WonderwareHistorian_Wonderware1Configuration.xml

Log file name: WonderwareHistorian_Wonderware1SimApiLog.log

Note that the generic file WonderwareHistorianSimApi.log file still is used. This log file contains entries that for technical reasons cannot be directed to the log file of the instances.

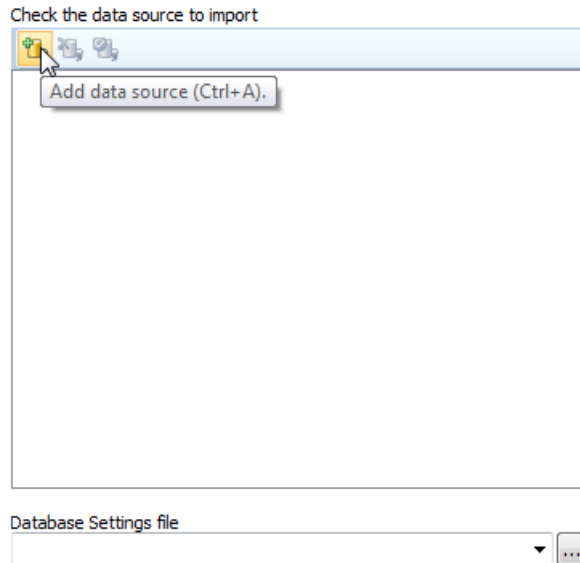
2. Setting up

In order for SIMCA or SIMCA-online to be able to use the SimApi you need to do as follows:

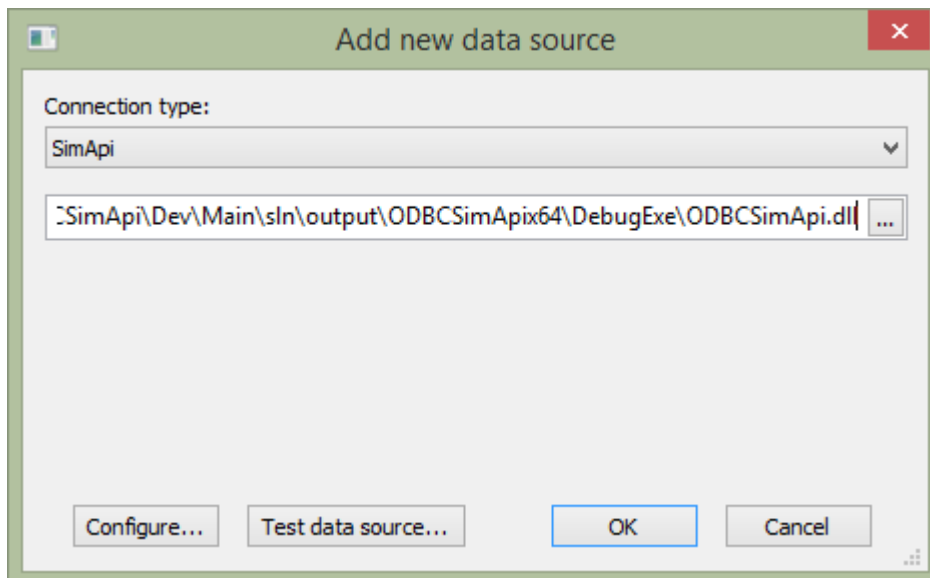
2.1 Setting up the SimApi for use in SIMCA

1. Start the database import in SIMCA with either:
 - *File->New Regular Project or New Batch Project*. If the database import wizard is not opened automatically, open it from *File->New Spreadsheet->From Database*.
 - Import Dataset on the Data tab of an open SIMCA project.
2. Click on *Add data source*:

² This folder is normally hidden in Windows so in order to see it in Windows Explorer you should configure Windows Explorer to show hidden files. Note that you still can navigate to a hidden folder by copying and pasting the folder path to Explorer's address bar.



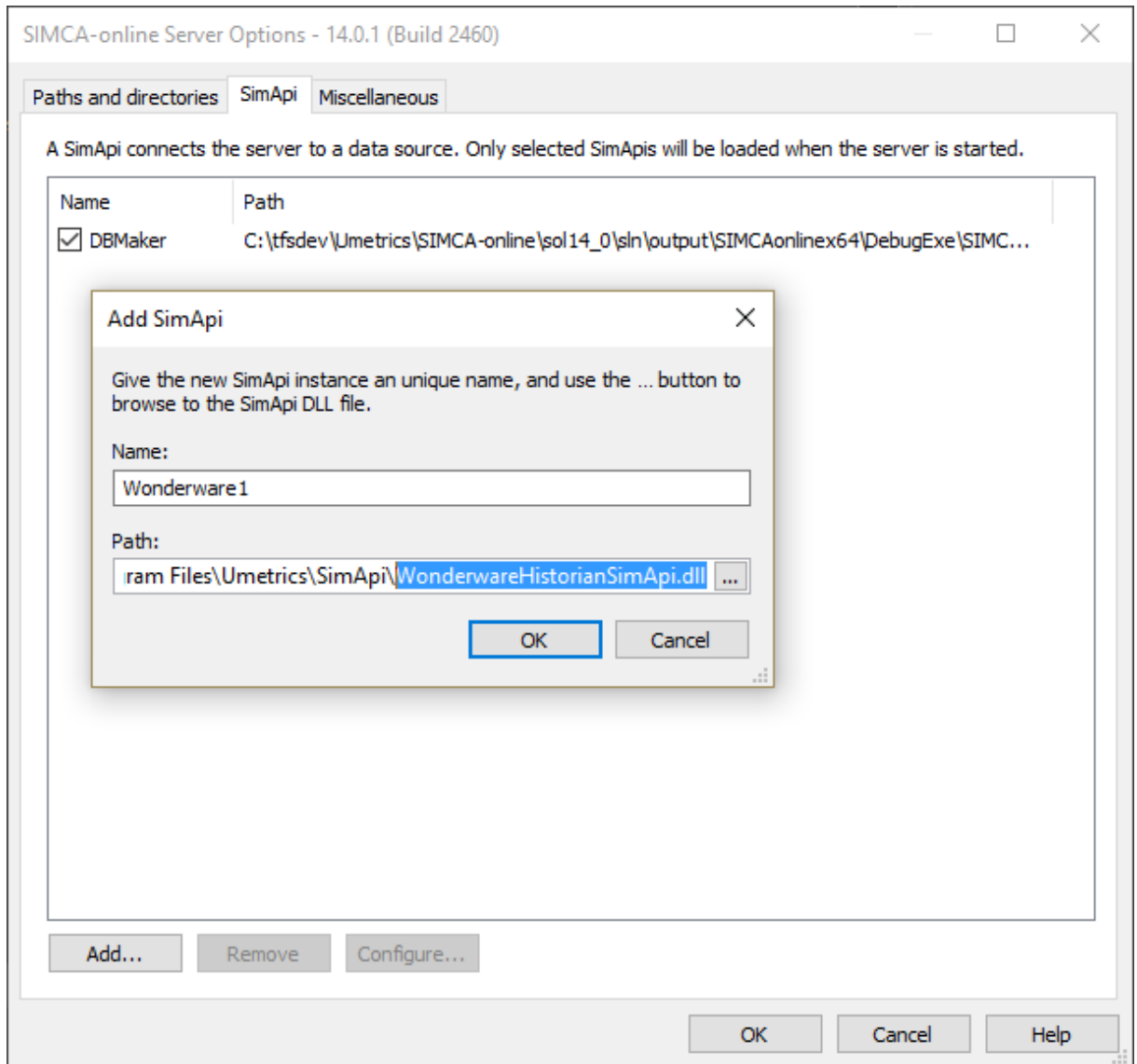
3. Select *SimApi* as the connection type, click the ...-button and located the WonderwareSimApi.dll, and click Open.



4. Continue to 2.2 and follow the steps 3 to 5 (configuring the settings in the SimApi) before clicking OK (to avoid an error message).
5. Click the Test data source connection to verify that you can connect to the database.

2.2 Setting up the SimApi for use in SIMCA-online

1. Start the SIMCA-online Server Options utility from the start menu. Go to the SimApi tab and click *Add...*
2. Give this instance of the SimApi a name and then click the ...-button to browse to and select the WonderwareHistorianSimApi.dll.



3. Click OK to add the new SimApi and answer Yes to the question to launch the SimApi configuration, or in versions before SIMCA-online 14.0 click the Configure-button. This results in the following dialog:

Wonderware Historian Configuration

The System Data Source name should match the name in the System DSN tab in the ODBC Data Source control panel.

System Data Source name:

Wonderware1

Provide the user name and password to use in the ODBC connection string used to connect to the database. Leave blank if you are using Windows authentication.

User name:

Password:

OK Cancel

Provide the Data Source Name (from the System tab of the ODBC Data Sources Windows control panel as you defined in 1.4 above), and the name and password if your server is using SQL Server authentication. The user name and password are stored encrypted in the configuration file.

4. When you click OK the SimApi creates the default XML configuration file (if it already existed, all settings remain, and only the username and password is updated if you changed it).
5. Start the SIMCA-online server service, verify it starts (if not look for errors in the SimApi log files and update the XML configuration file to correct any errors, see the next section for information about those settings). Use a SIMCA-online client and use Extract on the File-tab to test that the SimApi works as expected.
6. If you want to configure multiple instance of this SimApi, then repeat the above steps and use unique names for each instance. Read more about the different log and configuration files for the instances in 1.5.1.

2.3 Configuration XML file settings

Use a text editor, such as Notepad, and open the file WonderwareHistorianSimApi.xml file (its location is listed in 1.5).

The only settings that is required is a value for the *DSN* setting pointing to your ODBC Data Source Name.

The following settings are available in the XML-file:

- DSN – The Data Source Name you set up in the Windows *ODBC Administrator* control panel as described in 1.4.
- Credentials – Stored the ODBC user name and password in an encrypted form. Use the Configure button to specify the user name and password (see 2.2 above).
- QueryTimeout – The time before a query or connection to the database will time out and fail.
- LogFileSize – The maximum allowed size of the log file before the file is truncated and restarted.

- LogLevel – The higher the value the more information is printed to the log file. Maximum value is 4 and minimum value is 0. (0=Critical, 1=Error, 2=Warning, 3=Information, 4=Debug).

3. Support

See <http://www.umatrics.com/support>