Tech Note 601 HMI Reports: Creating a Historian (InSQL) Driver Configuration

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Introduction

This Tech Note outlines the steps to take to create a Driver connecting to a Wonderware Historian (InSQL).

HMI Reports uses ODBC to connect to any local or remote Historian Runtime database. Therefore, configuring a Historian Driver is a two step process.

- 1. Create an ODBC Data Source Name (DSN).
- 2. Configure the Historian Driver in HMI Reports.

An example using Historian data in the Data Definition Configuration is included.

Application Versions

- HMI Reports 3.4 and later
- Wonderware Historian 10.x

Create an ODBC DSN

1. Go to Start > Control Panel > Administrative Tools > Data Sources (ODBC).

In this example we will create a System DSN; however, you can create a User, System or File DSN.

2. Click the System DSN tab (Figure 1 below).

🕙 ODBC Data Sou	rce Administrator	? ×
User DSN System	n DSN File DSN Drivers Tracing Connection	n Pooling About
<u>S</u> ystem Data Sou	rces:	
Name	Driver	A <u>d</u> d
DR Lexicon We	b Microsoft Access Driver (*.mdb) DBC Sustem SQL Server	Remove
		<u>C</u> onfigure
1		
An OI the in on thi	DBC System data source stores information about h dicated data provider. A System data source is vis is machine, including NT services.	ow to connect to sible to all users
	OK Cancel Apply	Help

FIGURE 1: ODBC ADMIN > SYSTEM DSN TAB

3. Click Add, then select the SQL Native Client as the driver (Figure 2 below).

Create New Data Source	Select a driver for which you want to se Name Microsoft ODBC for Oracle Microsoft Paradox Driver (*.db.) Microsoft Paradox-Treiber (*.db.) Microsoft Text Driver (*.txt; *.csv) Microsoft Text-Treiber (*.txt; *.csv) Microsoft Visual FoxPro Driver Microsoft Visual FoxPro-Treiber SQL Native Client SQL Server	tup a data source. Version 2.576.3959.00 4.00.6305.00 4.00.6305.00 4.00.6305.00 4.00.6305.00 6.00.8167.00 2005.90.3042. 2000.86.3959. ▼
	< Back Finish	Cancel

FIGURE 2: SQL NATIVE CLIENT DATA SOURCE

Note: To access Wonderware Historian 10.0, you might have to install the SQL Server 2008 Native Client. This applies if the (remote) Historian 10.0 is installed on top of the MS SQL Server 2008 version, and no SQL Server 2008 client tools are installed on the HMI Reports machine.

To install the SQL Server 10.0 client, run the **sqIncli.msi** setup file, which is available on your MS SQL Server 2008 CD in the **%CD%\Setup\x86** directory. Once finished, configure your ODBC connection to use the **SQL Native Client 10.0**.

4. Name your DSN and select your server. The description is optional (Figure 3 below).

Microsoft SQL Server DS	in Configuration	x
Selaci a dirver ro- me off Access f off Access f off Access f soft Excel boot Date for the selacity for the	This wizard will help you create an ODBC data source that you can use connect to SQL Server. What name do you want to use to refer to the data source? Name: Local_InSQL_ODBC_System How do you want to describe the data source? Description: localhost InSQL ODBC System DSN Which SQL Server do you want to connect to? Server: [local] ARBABA ABRABA BRIANN3 FS1 NITINK290 NITINK290	
	Finish TSLAB_CHRISBO	-

FIGURE 3: NAME AND SELECT SERVER

Note: It is not required that HMI Reports be installed on the Wonderware Historian node. If it is not on the Historian node, you must select the Server name where the Wonderware Historian is running instead of (local).

5. Click **Next** and use **SQL Server** authentication. Type the Login ID and Password.

Note: Figure 4 (below) shows the default sa/blank Login ID and Password. It is highly recommended you replace the defaults with "strong" Login ID and Passwords, in collaboration with your system administrator.



FIGURE 4: SQL SERVER AUTHENTICATION > CONNECT TO SQL SERVER

- 6. Click Next.
- 7. Click the **Change the default database to** option and select **Runtime** from the dropdown list as shown in Figure 5 (below). If necessary click the ANSI options shown in Figure 5.



FIGURE 5: CHANGE THE DEFAULT DATABASE TO RUNTIME

8. Click Next, then Finish.



FIGURE 6: CLICK FINISH

9. Click Test Data Source to make sure its been configured correctly (Figure 7 below).

ODBC Microsoft SQL Server Setup	×
A new ODBC data source will be created with the following configuration:	
Microsoft SQL Server ODBC Driver Version 03.86.3959 Data Source Name: Local_INSQL_ODBC_System Data Source Description: localhost InSQL ODBC System DSN Server: (local) Database: Runtime Language: (Default) Translate Character Data: Yes Log Long Running Queries: No Log Driver Statistics: No Use Integrated Security: No Use Regional Settings: No Prepared Statements Option: Drop temporary procedures on disconnect Use Failover Server: No Use ANSI Quoted Identifiers: Yes Use ANSI Quoted Identifiers: Yes Data Encryption: No	
Test Data Source OK Cance	el

FIGURE 7: TEST THE DATA SOURCE

10. When the test completes successfully, click **OK** to close the dialog.



FIGURE 8: TESTS COMPLETED SUCCESSFULLY!

If the test completes unsuccessfully, repeat the previous steps and check for correctness.

Configure the Historian Driver in HMI Reports

Now that you've created a DSN, you can configure the Historian Driver in HMI Reports.

1. Open HMI Reports Studio and select Logger/Driver Configuration from the main menu.



FIGURE 9: HMI REPORTS LOGGER/DRIVER CONFIGURATION

To create a Historian (InSQL) Driver use the History Driver dropdown list (Figure 9 below) and select ODBC History Access.

2. Click the **Configure** button next to the History Driver field. The Database Definition panel opens.

nTouchTest Inalytics	In l'ouch native drivé Analytical Driver	IM ww=C:\A IM null	pps\InTou	I∟ null ▼ null	I_ null I null	
Add Definition	OPC Driver	Data	Dele	Alarm	History	
History Driver	Simulation Driver	-	Confi	gure		
Alarm Driver		٠	Confi	gure		
Data Driver		٠	Confi	gure		
Jource Name				Connec	tion Parameters	

FIGURE 10: HISTORY DRIVER CONFIGURE

3. Select the DSN created earlier from the DSN File list and enter the User Name and Password (SQL).

	×
🗖 Database Definition	
DSN File User Name Password DR Lexicon Web Excel Files Password DCal InSQL ODBC System MS Access Database ODS DreamBeport DB	Select database type Column-Item structure
	Connect
Alarm History Data	Item History Data
Table Name For Alarm History	Table Field For Item Names
Table Field For Alarm ID	
Table Field For Alarm Text	Table Field For Item Values
Table Field For Alarm Priority	Table Field For Date
Table Field For Start Time	Table Field For Time
Table Field For Ack Time	□ <u>U</u> se text file to save item list
Table Field For End Time	Timestamp properties Date format Date only
Done Cancel	Database uses <u>U</u> TC time format

FIGURE 11: DSN FILE SELECTION

4. In the Select database type section, select InSQL database using the dropdown list (Figure 12 below).

🗆 Database [Definition	
DSN File	Local_InSQL_ODBC_System	Select database type
User Name	sa	Column-Item structure
Password	*****	Column-Item structure AnyDB structure InSQL database PcVue HDS database
- Alarm Histo	ry Data	Item History Data
Tabla Fiel		Table Field For Item Names
Table Fiel	d For Alarm Text	Table Field For Item Values
Table Fiel	▼ Id For Alarm Briatiku	Table Field For Date
		-
Table Fiel	d For Start Time	Table Field For Time
Table Fiel	d For Ack Time	Use text file to save item list
Table Fiel	▼ Id For End Time ▼	Timestamp properties Date format Date only
Done	Cancel	Database uses <u>U</u> TC time format

FIGURE 12: SELECT DATABASE TYPE > INSQL DATABASE

5. Click the **Connect** button to make sure the connection is successful. The **Alarm History Data** and **Item History Data** fields are populated automatically.

	Local InSQL_ODBC_System	Select database type
		InSQL database
User Name	sa	
Password	****	
Connected	to the database successfully!	Connect
- Alarm Histo	ory Data	Item History Data
Table Na	ame For Alarm History	Tables For Item History
aaAreaD	ata Mi	aaAreaData aaAreaXMI
aaAttribu	teData	aaAttributeData
aaAttribu	teDataPending	aaAttributeDataPending
aaHistCli aaHistCli	entReport entReportsFolder	aaHistClientReport
aaHistCli	entReportSite	aaHistClientReportSite
aaObject	Data	aaObjectData
aaUbject	DataPending	aaUbjectDataPending
Table Fiel		Table Field For Item Names
i adie Fiel	ia Pol Alam ID	
Table Fiel	ld For Alarm Text	Table Field For Item Values
		•
Table Fiel	ld For Alarm Priority	Table Field For Date
		-
Table Fiel	ld For Start Time	Table Field For Time
		•
Table Fiel	ld For Ack Time	Use text file to save item list
		Timestamp properties
Table Fiel	ld For End Time	Date format

FIGURE 13: ALARM AND ITEM HISTORY DATA FOR INSQL DATABASE CONNECTION

6. Type a **Source Name** in the Source Definition area (any name).

C Source Definition		_		
Source Name	Historian		Connection	n Parameters
Data Driver		▼ Cor	figure null	
Alarm Driver		▼ Cor	figure null	
History Driver	ODBC History Ac	cess 🔹 Cor	figure odbc_cfg_	0002.xml
Add Definition	Modify D	efinition De	lete Definition	
Source Name Add De	finition	Data	Alarm	History
Source Name Add De InTouchTest	finition InTouch native drive	Data ☑ ww=C:\Apps\InTe	Alarm	History
Source Name Add De InTouchTest Analytics	finition InTouch native drive Analytical Driver	Data ✓ ww=C:\Apps\InTo ✓ null	Alarm pu null I null	History null rull
Source Name Add De InTouchTest Analytics	finition InTouch native drive Analytical Driver	Data ▼ ww=C:\Apps\InTo ▼ null	Alarm Du D null I null	History
Source Name Add De InTouchTest Analytics	finition InTouch native drive Analytical Driver	Data	Alarm Du null I null	History null null
Source Name Add De InTouchTest Analytics	finition InTouch native drive Analytical Driver	Data	Alarm	History null rull
Source Name Add De InTouchTest Analytics	finition InTouch native drive Analytical Driver	Data ✓ ww=C:\Apps\InTo ✓ null	Alarm	History null rull
Source Name Add De InTouchTest Analytics	finition InTouch native drive Analytical Driver	Data	Alarm	History null r null



7. Click the Add Definition button. The new Definition appears in the Source Name column (Figure 15 below).

Source Definition-	Historian			Connection F	Parameters
Data Driver		•	Configure	null	
Alarm Driver		•	Configure	null	
History Driver	ODBC History Ac	cess 🔹	Configure	odbc_cfg_0	002.xml
Add Definition	n Modify De	efinition	Delete De	efinition	
Source Name	Driver	Data	Alar	rm	History
o o o o o o o o o o o o o o o o o o o	Driver				Thistory
InTouchTest	InTouch native drive	ww=C:\Ap	ps\InTou	null	
InTouchTest Analytics	InTouch native drive Analytical Driver	✓ ww=C:\Ap	ps\InTol 🔽	null	null
InTouchTest Analytics Historian	InTouch native drive Analytical Driver ODBC History Acces	vw=C:\Ap null □ null	ps\InToL □ ▼	null null null	Instaly □ null ☑ null ☑ odbc_cfg_0002.xml
InTouchTest Analytics Historian	InTouch native drive Analytical Driver ODBC History Acces	vw=C:\Ap null □ null	pps\InToL □ ▼	null null null	Instary □ null ▼ null ▼ odbc_cfg_0002.xml
InTouchTest Analytics Historian	InTouch native drive Analytical Driver ODBC History Acces	ww=C:\Ap null null	ps\InTou ☐	null null null	Instary □ null ▼ null ▼ odbc_cfg_0002.xml

FIGURE 15: ADD DEFINITION

Note: Be sure to click the Add Definition button after configuring your Source Definition or the definition will not be saved.

Now you are ready to connect to Historian (InSQL) Data for use in your reports.

Historian Driver Data Definition Configuration

Here is a simple example using a Historian Driver in your Data Definition Configuration.

- 1. In the Report Designer Studio, create a Report and add the **Item Table** graphical element to the page.
- 2. Double-click on the table and select External History Server in the Get Data From section (Figure 16 below).

Da	ta Definition	
Get Data From HMI Reports History	External History Server	
elected List		1
Source	Data Item Name	
Historian	Tank1001Filling	_
Historian	Tank1001Level	
Historian	Tank1001Volume	
Historian	Tank1002Filling	-
•		١
Value Range	Moving Average	
Minimum Value:	Maximum Value	
Minimum Value:	Maximum Value	
Minimum Value: Define time period Absolute or relative period definition	Maximum Value	•
Minimum Value: Define time period Absolute or relative period definition Start of report period	Maximum Value	•
Minimum Value: Define time period Absolute or relative period definition Start of report period Relative Date/Time	Maximum Value	•
Minimum Value: Define time period Absolute or relative period definition Start of report period Relative Date/Time 0 Days	Maximum Value	•
Minimum Value: Define time period Absolute or relative period definition Start of report period Relative Date/Time 0 0 0 0 0 0 0 0 0 0 0 0 0	Maximum Value End of report period Relative Date/Time Days 0:00:00 hh:mm:ss	
Minimum Value: Define time period Absolute or relative period definition Start of report period Relative Date/Time 0 0 0 0 0 0 0 0 0 0 0 0 0	Maximum Value End of report period Relative Date/Time O O Days O0:00:00 hh:mm:ss	
Minimum Value: Define time period Absolute or relative period definition Start of report period Relative Date/Time 0 0 00:30:00 hh:mm:ss Advance	Maximum Value	

FIGURE 16: EXTERNAL HISTORY SERVER DATA DEFINITION

- 3. Click the Edit List button. The Select Data Items window appears (Figure 17 below).
 - Select Data Source from the drop down list which will contain all History Drivers you've configured (configured above).

• Select specific items from the Available Data Items and click the Add/Remove buttons to complete your desired <u>Added Data Items</u> list for this specific instance of the item table. Select Ok then <u>Save</u> your report.

• You can use the Item Filter to efficiently locate your data items.

Select Data Source Historian	•	Manual Item Entry	
Item Filter			Add Manual Item
Available Data Items Image: SysConfigStatus Image: SysConfigUration Image: SysTector	▲ Add >> Remove Remove All	Added Data Items Historian Tank1001Filling Historian Tank1001Level Historian Tank1001Volume Historian Tank1002Filling Historian Tank1002Volume Historian Tank1003Filling Historian Tank1003Volume Historian Tank1004Filling Historian Tank1004Filling Historian Tank1004Filling Historian Tank1005Filling Historian Tank1005Filling Historian Tank1005Level Historian Tank1005Level Historian Tank1005Volume Historian Tank1006Filling Historian Tank1006Filling Historian Tank1007Volume Historian Tank1007Volume Historian Tank1007Volume Historian Tank1007Volume Historian Tank1007Volume Historian Tank1007Volume Historian Tank1008Level Historian Tank1008Filling Historian Tank1009Volume Historian Tank1009Volume	

FIGURE 17: SELECT DATA ITEMS WINDOW

Note: Although the Item table is used as an example, you can use Historical Data in all types of graphical elements.

Now you're ready to open HMI Reports Runtime, load your Project and generate your report.

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