

[Tech Note 762](#)

HMI Reports: Creating a CSV Driver to Report Device Data

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Introduction

Wonderware HMI Reports allows periodic reporting from any industrial device, such as PLCs, RTUs, etc. This is accomplished with HMI Reports Drivers that link to the CSV/ASCII (text) files generated by the device.

This *Tech Note* explains how to set up and configure the Drivers.

HMI Reports Driver Overview

CSV/Text drivers are HMI Reports communication drivers that transfer data and alarms from CSV/ASCII files. The data is written into the HMI Reports database.

The CSV Driver provides automated browsing of data items and automated periodical data extraction from any type of CSV/Text files. The drivers periodically check for data updates in specified data file(s) and convert this data into an HMI Reports database. The data is then available for fast and efficient reports creation and generation. The data can also be accessed (using an ODBC connection) by any 3rd party application.

Application Versions

- HMI Reports 3.4 SP2 and later

Creating a CSV/Text Data Access Client Driver

HMI Reports contains a rich set of configuration options for reporting from a CSV or Text file.

1. In HMI Reports Studio, click **Logger** in the main menu, then click **Driver Configuration**.
2. Define your **Source Name** then select **CSV/Text data access Client** from the **Data Driver** list (Figure 1 below).

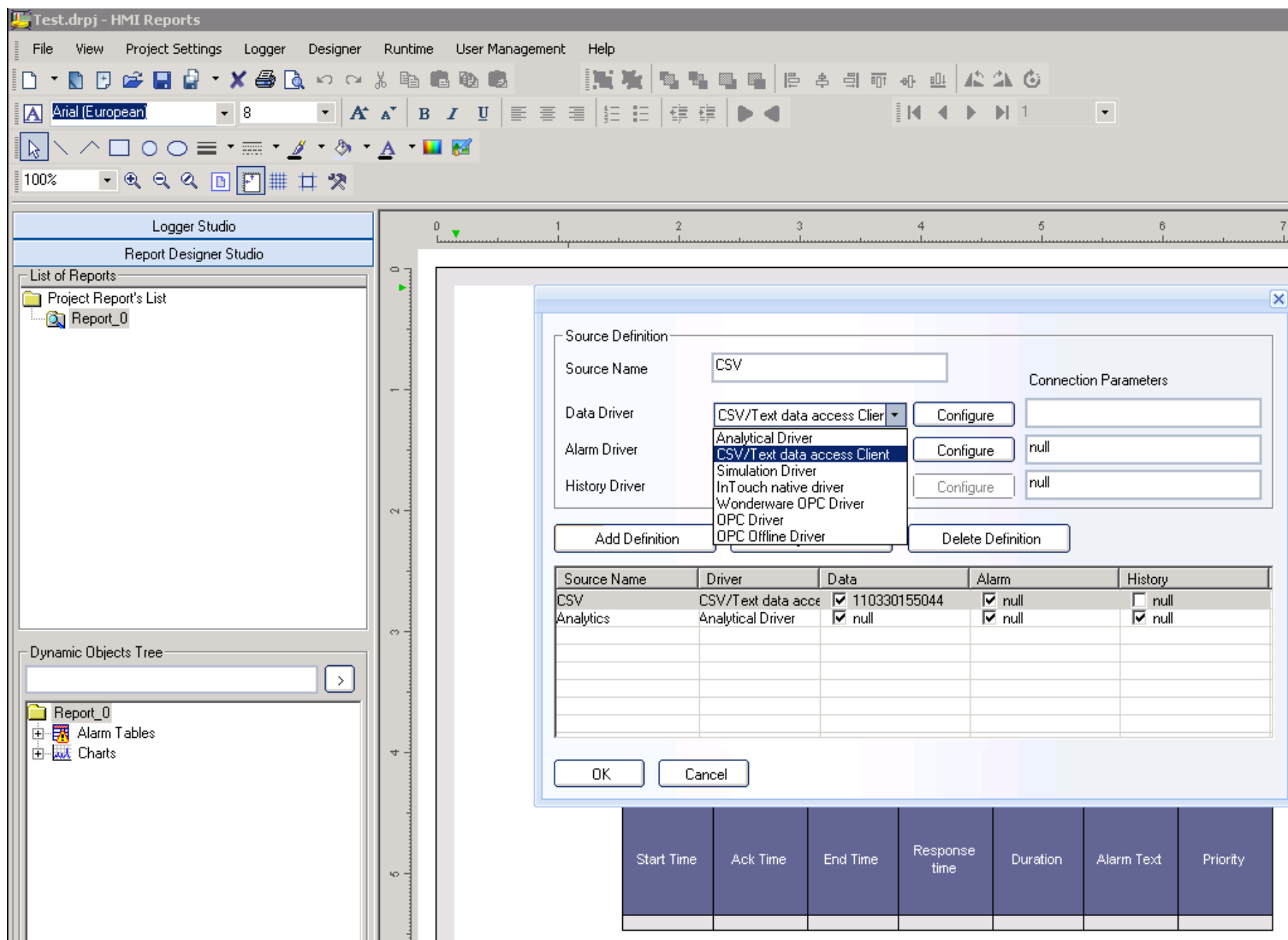


FIGURE 1: CSV/TEXT DRIVER SOURCE DEFINITION

- Click the **Configure** button to the right of the **Data Driver** field to begin configuring the driver. The **CSV/Text Data Access Configuration** window appears (Figure 2 below).

FIGURE 2: CSV/TEXT DATA ACCESS CONFIGURATION WINDOW

Configuring the CSV/Text Driver

When reporting from a CSV or Text file, you must configure the following areas:

- [Source Data](#)
- [File Access](#)
- [Data Access](#)
- [Connection, Update and Timestamp](#)

Configure Source Data File Options

In the **Data File(s) Location** section, provide the **full path** to the CSV/Text files location from where data will be converted into HMI Reports Database (Figure 3 below). This location is on the HMI Reports machine (local).

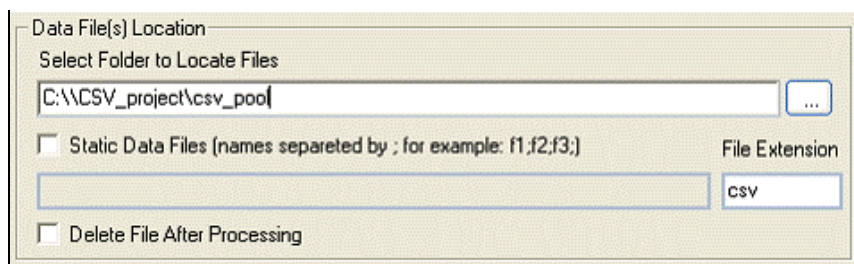


FIGURE 3: DATA FILES LOCATION

- Type or copy the full path into the **Select folder to locate files** field. This field provides the location of the file from where data is going to be exported into HMI Reports db. This is a dynamically scanned folder from which the data from *all* files located in it will be exported.
 - When you want one or more *specific* files to be scanned for data export, click the **Static Data Files** option. You can specify multiple static files by using the semi-colon as a separator.
 - You must provide the File Extension in either case. By default its configured for CSV file types, but you can change it to .txt or other extension.
 - Click the **Delete File After Processing** option if you wish to to have the processed CSV/Text file(s) automatically removed.

Configure File Access Options

You specify the file structure in the **File Access Configuration** area.

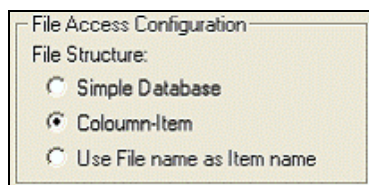


FIGURE 4: FILE ACCESS CONFIGURATION OPTIONS

HMI Reports 3.4 supports the following file structures:

- **Column – Item**: When you select this option, specify the column name corresponding to the Timestamp value.
- **Simple Database**: When you select this option, specify the column corresponding to **Item Name**, **Item Value** and **Timestamp**.
- **File Name is Item Name**: When you select this option, specify the column corresponding to **Timestamp** and to **Item Value**.

2) Click the **Connect** button (Figure 2 above).

Configure Data Access Options

Use the Data Access Configuration section to read structure and retrieve appropriate information from CSV/Text files, and to specify which field in the CSV/Text driver Data Access Configuration corresponds to which column in CSV/Text files:

The screenshot shows a dialog box titled "Data Access Configuration". It contains the following fields from top to bottom:

- Item Name: A dropdown menu.
- Item Value: A dropdown menu.
- Date: A dropdown menu.
- Time: A dropdown menu.
- Milliseconds: A dropdown menu.

FIGURE 5: DATA ACCESS CONFIGURATION

Note: CSV/Text files can include 2 or 3 separate columns for Date, Time and Milliseconds. If such columns are not used, keep those columns empty.

Alarms CSV/Text Columns Mapping

Columns from CSV/Text files that include information about alarms must be mapped according to the HMI Reports structure.

You specify columns corresponding to start time of alarm, acknowledge time of alarm, end time of alarm, alarm description and priority. The **Start Time** and **Description** columns are mandatory. Other columns can be kept empty in cases where they do not exist in CSV/Text files structure.

The screenshot shows a dialog box titled "File Format Configuration". It contains the following fields:

- Start Date Column: A dropdown menu.
- Start Time Column: A dropdown menu.
- Ack Date Column: A dropdown menu.
- Ack Time Column: A dropdown menu.
- End Date Column: A dropdown menu.
- End Time Column: A dropdown menu.
- Description Column: A dropdown menu.
- Priority Column: A dropdown menu.

FIGURE 6: MAPPING ALARM COLUMNS

Note: CSV/Text files can include 2 separate columns for Date and Time. If it is not the case with your file, keep the Time column empty.

Configure Connection Options

In the **Connection to Data File(s)** section, configure the following (Figure 2 below):

- Update checkup rate: indicates how often HMI Reports runtime is checking for new updates in above specified directory or if static data files are renewed.

- Data delimiter: provides indication of text to column separation.
- Text qualifiers.

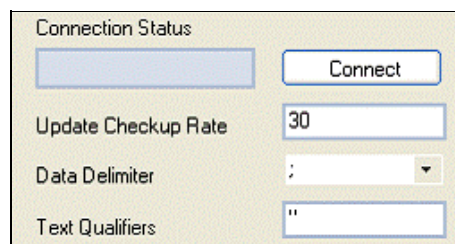


FIGURE 7: UPDATE RATE, DELIMITER AND QUALIFIER SETTINGS

About Timestamp Format Settings

You can configure Custom or pre-configured HMI Reports timestamp formats to match with the device(s) timestamp CSV outputs.

Specify one of the HMI Reports CSV driver preset timestamp formats for your CSV files' corresponding format (Figure 3 below).

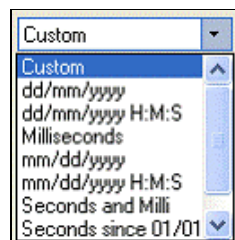


FIGURE 8: TIMESTAMP PRESET FORMATS

- Custom ([following section](#))
- dd/mm/YYYY
- dd/mm/YYYY H:M:S
- Milliseconds: Similar format to **Seconds and Milli** without delimiter: **1196858560968**
- mm/dd/yyyy
- mm/dd/yyyy H:M:S
- Seconds and Milli: Returns Seconds and milliseconds separated by delimiter. For example: **1196858560,968**
- Seconds since 01/01/1970: Returns number of seconds since 01 January 1970.

Working with Custom Date and Time Formats

Use the TimeStamp Format section to configure Custom formats, or select one from a range of pre-configured options.

If your timestamp format does not exist in the predefined list, use the **Custom** option to create a format that corresponds with the one delivered to the devices CSV file output. You type the separator values into the **Specify Custom Timestamp Format** field (Figure 9 below).

FIGURE 9: CUSTOM TIMESTAMP FORMAT OPTIONS

UTC Time in use: Click this option when timestamps in CSV files are defined as UTC.

The format does not need to be human-recognizable. For example, a date passed as **02:1999:9** is acceptable. The function will succeed as long as the format string matches the input string.

However, make sure that the input can be parsed in an unambiguous way. For example, the string **1999112** can be parsed using the format **%Y%m%d** as

- 1999-1-12
- 1999-11-2
- 19991-1-2

It is necessary to add appropriate separators to get reliable results. The following matrix describes the separators and their outputs.

Separator	Description
%a or %A	The weekday name in English, in abbreviated form or the full name.
%b or %B or %h	The month name in English, in abbreviated form or the full name.
%C	The century of the year. It makes sense to use this format only if the format string also contains the %y format.
%d or %e	The day of the month as a decimal number (range 1 through 31). Leading zeroes are permitted but not required.
%D	Equivalent to %m/%d/%y.
%F	Equivalent to %Y-%m-%d, which is the ISO 8601 date format.
%H or %k	The hour as a decimal number, using a 24-hour clock (00 through 23).
%I	The hour as a decimal number, using a 12-hour clock (01 through 12).
%j	The day of the year as a decimal number (range 1 through 366). Leading zeroes are permitted but not required.
%m	The month as a decimal number (range 1 through 12). Leading zeroes are permitted but not required.
%M	The minute as a decimal number (range 0 through 59). Leading zeroes are permitted but not required.
%n or %t	Matches any white space.
%p	The `AM' or `PM'.
%r	The complete time using the AM/PM format of the current locale. The same as %I:%M:%S %p
%R	The hour and minute in decimal numbers using the format %H:%M.
%S	The seconds as a decimal number (range 0 through 60). Leading zeroes are permitted but not required.
%T or %X	Equivalent to the use of %H:%M:%S in this place.
%u	The day of the week as a decimal number (range 1 through 7). Monday = 1. Leading zeroes are permitted but not required.
%U	The week number of the current year as a decimal number (1-52).
%V	The ISO 8601:1988 week number as a decimal number (1-52).
%w	The day of the week as a decimal number (0 - 6), Sunday being 0. Leading zeroes are permitted but not required.
%W	The week numbers (1-52).
%x	The same as %Y:%m:%d.
%y	The year without a century as a decimal number (range 0 - 99). Leading zeroes are permitted but not required. It is best to avoid %y completely and use %Y instead.
%Y	The year as a decimal number, using the Gregorian calendar.

%%	A literal '%' character.
----	--------------------------

All other characters in the format string must have a matching character in the input string. Exceptions are white spaces in the input string which can match zero or more whitespace characters in the format string.

Custom Formats and Usage Mask Examples for CSV Driver Definition

Custom Format	Returns
%d/%m/%Y %H:%M:%S	12/09/2007 10:11:29
%Y-%m-%d %H:%M:%S	2007-09-13 23:12:30
%d-%m-%y %H:%M:%S	12-09-07 10:11:29
%Y-%m-%d %I:%M:%S %p	2007-09-13 11:59:01 PM
%H:%M:%S %d/%b/%Y Where %b correspond to 3 first letters of the month	11:59:01 11/SEP/2007

Working with Millisecond Output Options

The HMI Reports CSV driver includes the following options with milliseconds that are available in a CSV file:

- Milliseconds since 01 January 1970.
- Seconds and milliseconds separated by delimiter: 1196858560,968
- Standard Date & Time format with milliseconds: **12/09/2007 10:11:29.493**
- Milliseconds in separate column.

For the **Standard Date & Time...** and **Milliseconds in separate column** options, select the **Custom** timestamp format and adjust the format manually.

The following example shows how to configure CSV configuration when milliseconds are exist in CSV files:

Custom Format	Returns
%d/%m/%Y %H:%M:%S:%Z	12/09/2007 10:11:29:493
%d/%m/%Y %H:%M:%S:%Z	12/09/2007 10:11:29 and 493. Here you must also specify the column name where milliseconds are to appear (See below).

Transferring a Project Using a CSV/Text Driver to Another Computer

To successfully transfer/move an HMI Reports project configured with a CSV/Text driver, follow these simple steps:

1. Copy the HMI Reports project to destination computer.
2. Copy subfolder **CSVCFG** from the **<Program Files>\Wonderware\HMI Reports\System** directory. This directory includes configuration XML files that were defined in your project.
3. Ensure the path location of CSV/Text files is the same as it was defined on computer where project had been developed.

Restrictions and CSV/Text File Requirements for Proper CSV/Text Driver Configuration

- The Header must be included.
- The Column delimiter must be different than the full colon character. Use a semi-colon. It is also recommended to avoid the comma delimiter due to the fact that in some locales it corresponds to a decimal point separator.
- Strings that do not include Time Stamp are not allowed. For example, original files cannot include the following lines: **Coolant Temp 20 - 40 Deg**

C: 0:00:38.

Replace with **00:00:58 1 Sep 2007; Coolant Temp 20 - 40 Deg C: 0:00:38.**

- While defining an instance of HMI Reports CSV/Text driver, all CSV files corresponding to this instance must be located in same folder.

A. Rantos

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