GE Industrial Systems

Data Historian

These instructions do not purport to cover all details or variations in equipment, nor to provide every possible contingency to be met during installation, operation, and maintenance. If further information is desired or if particular problems arise that are not covered sufficiently for the purchaser's purpose, the matter should be referred to GE Industrial Systems.

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Safety Symbol Legend

Caution

Indicates a procedure or condition that, if not strictly observed, could result in damage to or destruction of equipment.

Note Indicates an essential or important procedure or statement.

Functional Description

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This document provides instructions for configuring the Data Historian using the GE Control System Toolbox. The Data Historian records control signals from Innovation Series™ drives and controllers, and a personal computer (PC). Data is saved in a Data Collection and Analysis (.dca) file format. The program runs in the background as a service on the PC that is running the Windows NT® operating system.

The Data Historian records the value of the following signals:

- Signals on a drive local area network (DLAN+) to which a controller is connected

- Ethernet Global Data (EGD) signals on any Ethernet™ connected to the PC on which the program is running

- Control Signal Freeway (CSF) signals if the PC has an ARCNET board for CSF

- DLAN+ signals if the PC has an ARCNET board for DLAN+

- SRTP signals if the PC has the Programmable Logic Controller (PLC) Interface

The Data Historian also uploads and saves data that has been captured at high speed in the controller using a Capture Buffer block. It records Drive Capture Buffers for drives connected to controllers on the EGD internet. Once collected in the .dca format, data can be accessed by the Trend Recorder or by other GE data analysis applications.

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Windows NT is a registered trademark of Microsoft Corporation.
Ethernet is a trademark of Xerox Corporation.

Working with Files and Menu Commands

The Data Historian is configured using one of two types of configuration files: Data Historian binary or project. These configuration files generate output files that can be downloaded to the Data Historian service.

The two types of configuration files are:

- **Data Historian binary (.reb)** file is the binary form of the configuration created through the **File \ Save** command. This file can then be exported to a project file.

- **Project (.prj)** file is a text file that holds configuration information.

Output files include:

- **Data Historian build (.rcd)** file contains all of the configuration information and is created by the **Device \ Build** command.

- **DATAHISTORIAN.CFG** is simply a copy of the .rcd file that is placed in the Data Historian's output directory during a download. This file is read by the Data Historian service when it is started or when a message is received that the configuration has been downloaded.

Menu Commands

Data Historian menus, such as File, Edit, and View, are managed just as other toolbox and Windows menu commands.

Device Menu

The **Device** menu contains the following commands:
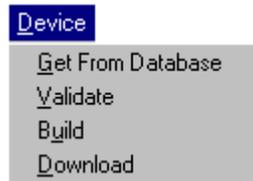
Get From Database retrieves signal information from the database. Each time that a signal is added, you must use this command.

Validate checks the configuration for errors. The results are posted in the Log View. Before you can validate a configuration, you must:

- Specify addressing parameters in the **Addressing Parameters** dialog box (host computer and host IP address).

- Specify collection information in the **Modify Collection** dialog box.

- Add all signals.

Build creates the Data Historian build (.rcd) output file. The .rcd file is a binary file that contains all of the configuration information.

Download sends files to the specified Data Historian. This command attempts to open a connection to the Data Historian service and send a copy of the .rcd file to it. The Data Historian service creates the file DATAHISTORIAN.CFG on the host computer, listed as the Data Historian host name in the configuration.

Data Historian Concepts

The Data Historian is configured in the toolbox as follows:

1. Create a Data Historian configuration. Choose a Data Historian host. (Since there may be different Data Historian services running on different NT Host systems, specify the service by naming the Host NT box and, optionally, its IP address.)

2. Add a collection. A collection is associated with only one network and/or controller with access to the signals on that network.

3. Attach signals to the collection (found on the same network). Signals can be chosen individually from the **Signal Selector** dialog box or from the Signal Database (SDB) browser.

Any errors encountered while issuing commands are posted in the Log View.

4. From the **Device** menu, select the commands (or associated buttons) **Get from Database** , **Validate** , **Build** , and **Download** .

5. The configuration (the .reb file) can be exported, which produces a .prj file.

Configuration

This section defines the four major areas of interest when configuring the Data Historian as follows:

- Create configuration
- Collections
- Signals
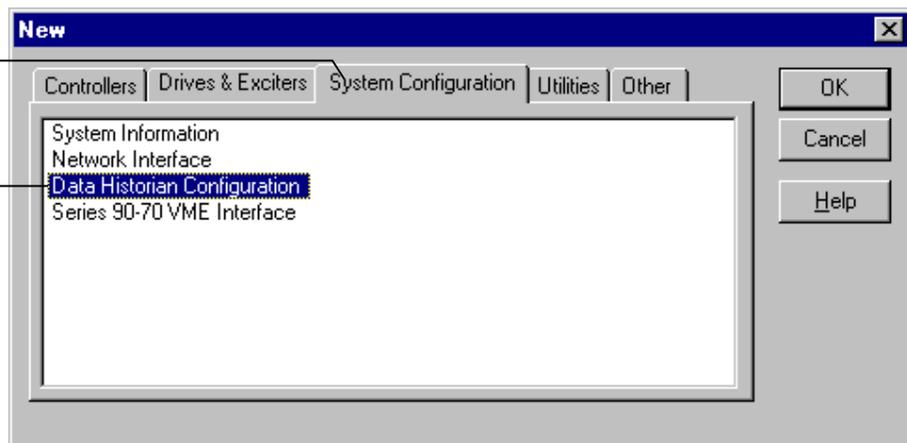- Dead bands

Creating the Data Historian Configuration

➢ **To create a configuration**

Or click

♦ From the **File** menu, select **New**. The **New** dialog box displays.

Click the **System Configuration** tab.

Then click **Data Historian Configuration** to highlight it, and click **OK**.

Modifying the Device Name

The Outline View on the left side of the window displays the following:

The Data Historian is given the default name, *dh1*. You can modify this device name and then enter the Host Name and Host IP Address.

dh1
└─ Collections

> ➤ **To modify a Data Historian device name**

1. From the Outline View, click on the device name to highlight it.

Or double-click on the device name.

2. From the **Edit** menu, select **Modify**. The **Data Historian Addressing Parameters** dialog box displays.

In most cases, the Host Name and Host IP Address are the same name.

3. Enter the desired device name and the correct **Host Name** and **Host IP Address**. Click **OK**.

Host Addressing Parameters

The **Data Historian Device Name** defaults to *dh1*. Enter the new name here.

Enter the name of the PC in the Windows domain that is running the Data Historian service.

Enter the name of the PC in the TCP/IP domain. This can be a text string associated with a server name or four numbers separated by dots, such as 255.255.255.255.
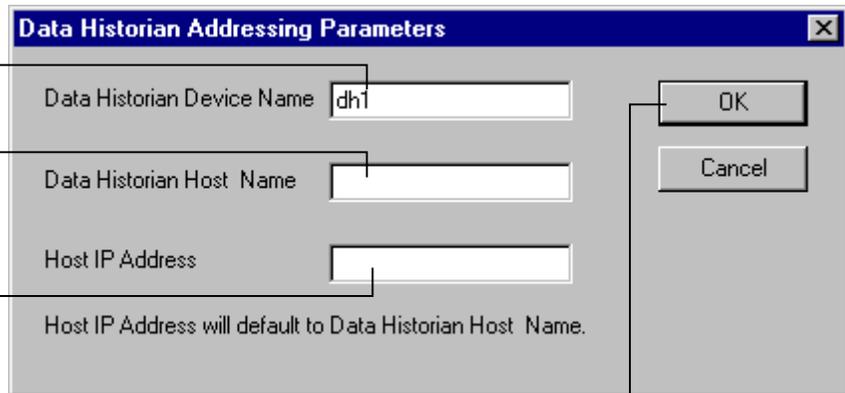
Data Historian Addressing Parameters

Data Historian Device Name dh1

Data Historian Host Name

Host IP Address

Host IP Address will default to Data Historian Host Name.

OK

Cancel

When finished entering information, click **OK**.
Then add a collection (refer to the section, *Collections*).

Collections

The Data Historian is configured by adding *collections*. A collection is a group of signals found on the same network. Collections have a data management feature that automatically deletes old files and also limits the amount of disk space the files can use.

➢ To insert a collection

1. From the Outline View, click on **Collections**.

*Or click the right mouse button and select **Insert First**.*

2. From the **Edit** menu, select **Insert First**. The **Modify Collection** dialog box displays.

3. Enter the fields as described in the next section, *Modify Collection*.

Modify Collection

Enter the maximum **size** (in MB) for the directory holding the collected data.

Enter the name of the collection (also is the name of the Data Historian subdirectory for the data that the Data Historian collects).

Enter the maximum **time** (in hrs.) that the data will remain on the disk before being automatically deleted.

Data Source defines where the Data Historian collects data. Select one of the following:

- **Controller Live Data** to collect live data from the controller over DLAN+ or **Controller Capture Buffer** to collect data recorded by a capture buffer block in the controller. The Capture Buffer complete signal can be on DLAN+ or EGD and is the only signal defined in the collection. Both options must select the name of the controller.

- **Data Historian PC Live Data** to collect either DLAN+, CSF, SRTP, or EGD from the Data Historian PC. Collection from DLAN+ or CSF requires the appropriate hardware board in the PC running the Data Historian.

- **Drive Capture Buffer** to collect data recorded by the capture buffer block in the Drive. The Capture Buffer complete signal must be on EGD and is the only signal defined in the collection. This option must select the drive name.

Modify Collection

Collection Name:

Data Source
- ○ Controller Live Data
- ○ Controller Capture Buffer
- ● Data Historian PC Live Data
- ○ Drive Capture Buffer

Controller Name
Controller IP Address :
Drive Name

Net Name:
Sample Rate (ms) 256
Collection File Space (MB) 64
Storage Time (h) 24

Description:

OK   Cancel

Enter up to 50 characters describing the collection.

Enter the **rate** (ms) that the data is collected from the data source.

Select the **name** of the network where the signals are collected. All the signals in one collection are from the same network, but the Data Historian can be configured to collect multiple collections associated with different networks.

Signals

Once the collection is created, signals can be added. Select the desired signals from the collection's network signals.

➢ **To add signals to the collection**

1. From the Outline View, click on the collection name.

2. From the **Edit** menu, select **Insert First**.

   To add the next signal, click on the signal you just inserted and select Insert Next.

   Or, click the right mouse button and select **Insert First**. The **Signal Selector** dialog box displays.

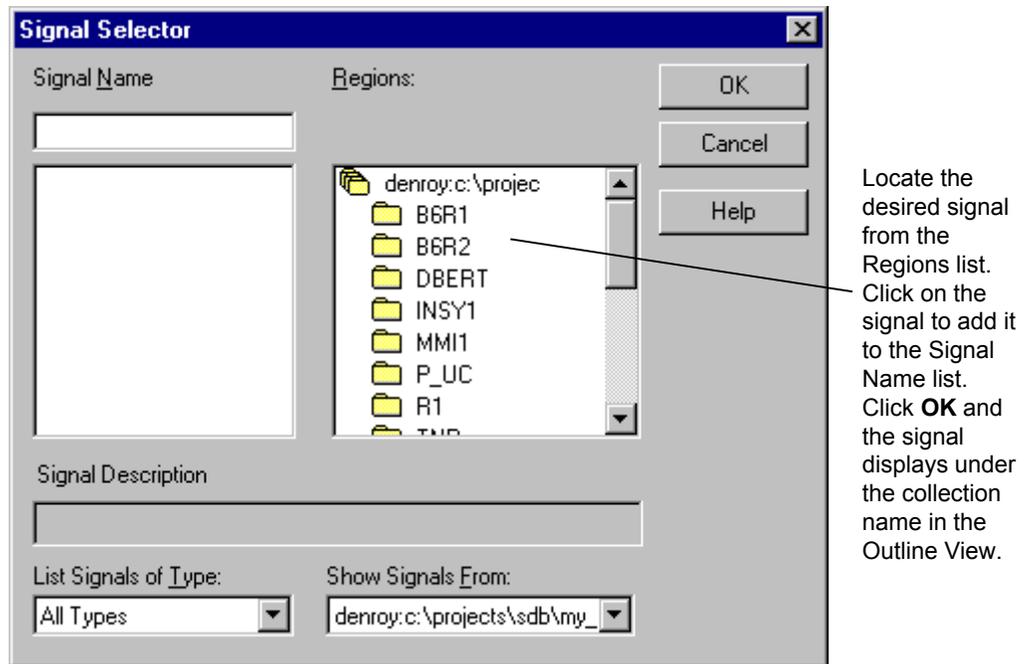**Note** The signal must be on the network chosen for collection or the *get* will fail.

Signal Selector

Locate the desired signal from the Regions list. Click on the signal to add it to the Signal Name list. Click **OK** and the signal displays under the collection name in the Outline View.

Tip ✍ *The SDB Browser can be used to add multiple signals. The query used for the find should include the network chosen in the **Modify Collection** dialog box. Using the list of signals returned from the query, you can perform a multiple select, and then drag-and-drop from the Browser to the collection.*

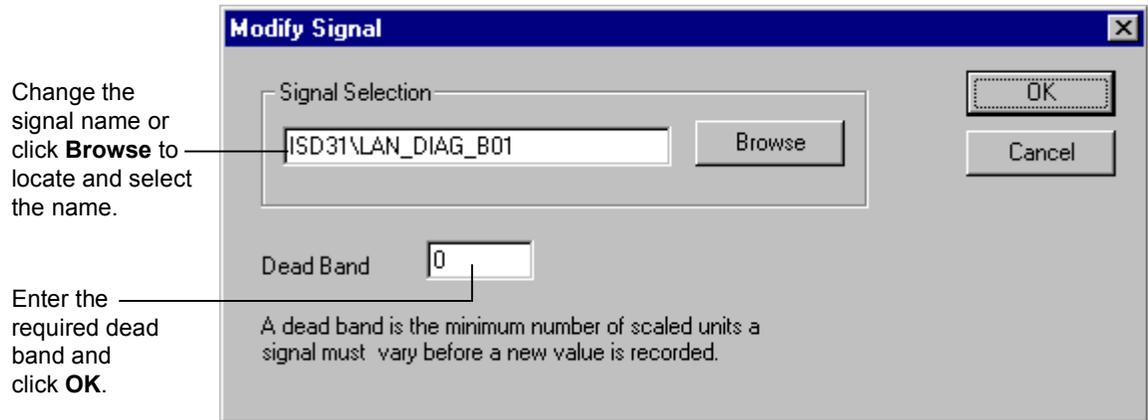A completed device configuration displays in the Outline View as follows:

Dead Bands

Every signal has a parameter called a *dead band*. The dead band establishes a range that the signal can vary before a new signal value is recorded. This function prevents quantities of insignificant data from being collected. For example, a variable can vary between $0 - 12$ V, but set at or drift near zero.

Also, if only changes of 0.1 V or more is desired, a dead band range of 0.1 can be set to prevent a file of meaningless drift values from being created. A dead band of zero indicates that all value changes, no matter how small, are recorded.

➢ **To set the dead band for a signal**

◆ From the Outline View, double-click on the signal name. The **Modify Signal** dialog box displays.

Change the signal name or click **Browse** to locate and select the name.

Enter the required dead band and click **OK**.

Modify Signal

Signal Selection

ISD31\LAN_DIAG_B01   Browse

OK
Cancel

Dead Band   0

A dead band is the minimum number of scaled units a signal must vary before a new value is recorded.

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