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THINK.  
SOLVE.®

*Emonitor*®



## GETTING RESULTS GUIDE

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Emonitor version 3.70

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# Introduction

Emonitor<sup>®</sup> is a set of Windows<sup>®</sup> programs that provide complete data management for predictive maintenance services. The Windows interface allows you to perform all your predictive maintenance tasks quickly and easily using a convenient graphical format. With Emonitor you can configure the collection and storage of predictive maintenance data. You can then use the powerful Emonitor analysis tools to examine the collected data.

The addition of EmonitorWeb gives you the ability to view data from the Emonitor database at a remote site. You can also use EmonitorWeb to load and unload a data collector at a remote site, and then transfer the data back to the Emonitor database.

## About the documentation set (or, Where do I start?)

<b>This document</b>	<b>comes with</b>
Emonitor Installation Guides Doc ID EMONTR-IN001G-EN-E (Gupta single-user) EMONTR-IN003G-EN-E (Oracle multi-user) EMONTR-IN004G-EN-E (MS SQL multi-user)	Emonitor
Emonitor Getting Results Guide Doc ID EMONTR-GR001G-EN-E  Emonitor Online Getting Results Guide Doc ID EMONTR-GR002C-EN-E  Emonitor Enterprise Online Condition Monitor Getting Results Guide EMONTR-GR003B-EN-E	Emonitor
Emonitor User's Guide Doc ID EMONTR-UM001E-EN-E	Emonitor

In addition to these manuals, each software component has online help.

The documents are intended to be used in the following order:

1. Follow the instructions in the *Emonitor Installation Guide* for your database to install Emonitor and EmonitorWeb.
2. Use this book to familiarize yourself with and begin using Emonitor and EmonitorWeb.

3. If you want to set up an Emonitor Online system, use the *Emonitor Online Getting Results Guides* to familiarize yourself with and begin using online data collection to import data from XM modules and other devices.
4. If you want to view live data from Allen-Bradley® XM® modules, Enwatch® units, OPC servers, and FactoryTalk® LiveData, use the *Emonitor Enterprise Online Condition Monitor Getting Results Guide* to set up live data viewing.
5. Use the *Emonitor User's Guide* and the online help for detailed information on all of the Emonitor features and functions. All the information in the User's Guide is included in the online help.

This book is intended to give a general overview of the software.

## Online help

Emonitor online help is available from the **Help** menu or by pressing F1. EmonitorWeb online help is available by clicking the **Help** button in the main EmonitorWeb window.

## About this book

This book provides you with information on how to get started using your Emonitor system. It is not intended to be a comprehensive user's guide. For complete information on all Emonitor features, tasks, and interface elements, refer to the *Emonitor User's Guide* and the online help.

This book is written for people using Emonitor to collect data and perform analysis for their predictive maintenance programs. We assume you are familiar with:

- Microsoft® Windows® operating systems
- personal computers
- predictive maintenance principles

Please use the feedback form, which you will find packaged with your software, to report errors and/or let us know what information you would like to see added in future editions of this document.

## About Emonitor

There are multiple configurations available for Emonitor. This book describes the main features of the Emonitor software, available in the Emonitor Workstation level of the software. Additional features are available in the Emonitor Factory and Enterprise levels, or can be added to any level of Emonitor.

- Emonitor Workstation includes all the core functions, including database setup; scheduling, loading, and unloading lists and data from data collectors; overall and



narrowband (spectrum) alarms, displaying the results with alarms in plots and reports; OPC Server and Client modules; XM/DYN Online Data for importing data from XM™ modules; and Logix Online Data for importing data from the Logix family of controllers.

- Emonitor Factory includes all the Emonitor Workstation features, and adds defect frequency modeling, bearing fault frequency database, fault frequency identification (in plots and reports), fault frequency downloading to portable data collectors, alarm screening and Intelligent Advisory™ capability, and the Asset Health module with E-mail and Emonitor gateways.
- Emonitor Enterprise includes all the Emonitor Factory features, and adds the Intelligent Advisory Decision module, Emonitor Web (browser-based data viewing, reports, and data collector load/unload), Emonitor CMMS XML Gateway, PDA driver (for selected PDAs running Windows Mobile 5), Plantlink, and work tracking capability.

You can use Emonitor to perform the following:

- Learn about Emonitor and its functions with the demonstration plant and Quick Start steps.
- Set up the database to model your machinery and processes and to hold the data you collect in your Predictive Maintenance program. You can use templates containing information about different types of machinery to quickly set up your database.
- Set up lists for data collection and reports.
- Load one or more lists into a data collector for collection.
- Unload data from a data collector into the database.
- Import data from an external file into the database.
- Create alarms from statistical analysis of the data.
- Generate reports of the data, including reports of measurements that exceed alarms.
- Display plots of the data, including trend, spectrum, frequency trend, time waveform, spectrum map, polar, unit, XY, orbit, and Bode plots.
- Use EmonitorWeb to view data, view reports, and load/unload a data collector from a remote site.

The following features are not described in this *Emonitor Getting Results Guide*; refer to the *Emonitor User's Guide* and the online help for more information.

- Create calculated measurements. These are measurement definitions created by defining mathematical operations on one or more measurement definitions—such as finding a pressure differential by subtracting one pressure from another.
- Create and use spectrum and band alarms.
- Create frequency items for equipment that generates vibration, and then use the frequency outputs to help diagnose vibration problems.
- Create custom reports.
- Create analyses of problems, consisting of a description of the cause of the problem, and advisories describing the work to correct the problem. You can also use the Intelligent Advisory function to automatically create advisories from diagnosis specifications or rule sets.
- Set up one or more gateways. Gateways allow you to create work requests from advisories, send work request by e-mail, and send work requests to an external Computerized Maintenance Management System (CMMS) or Enterprise Asset Maintenance (EAM) system.

Emonitor Online features are not described in this *Emonitor Getting Results Guide*; refer to the *Emonitor Online Getting Results Guide* and the online help for more information.

- Use the Online Data Management Console to manage data acquisition from permanently mounted instruments (Enwatch units, 6600 monitors, XM modules, and the Logix family of controllers), and to collect and serve OPC data.

## Statement of Technical Support

### Technical Support

If you cannot connect to the Internet or cannot find answers to your questions in this help file or on the Technical Support Web site, call Technical Support.

- Phone: 440-646-3434 in North America
- Technical Support hours of operation: 8:00 AM - 5:00 PM

If you are not located in North America and want to contact Rockwell Automation Technical Support by telephone, access the web address <http://www.rockwellautomation.com/support/>, select your region and country under Get Support Now, and then click Get Support for information about contacting your local support organization.

When you call you should be at your computer and be prepared to give the following information:





- The product version number
- The type of hardware you are using
- The exact wording of any messages that appeared on your screen
- A description of what happened and what you were doing when the problem occurred
- A description of how you tried to solve the problem

For information about all Rockwell Automation products or for technical support, select one of the following:

<http://www.rockwellautomation.com/rockwellsoftware/>

<http://www.rockwellautomation.com/support/>

<http://rockwellautomation.custhelp.com/>

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•  
• EMONITOR GETTING RESULTS GUIDE  
•  
•

# 2

## Getting started with Emonitor

### Welcome to Emonitor

Emonitor makes it easy to set up, collect, and store predictive maintenance data. This *Getting Results Guide* describes the elements of the Emonitor interface. It then covers the basic Emonitor functions of setting up the database, and then collecting, viewing, and analyzing data.

### Starting Emonitor

After you have installed Emonitor according to the *Installation Guide*, start Emonitor by clicking the **Start** menu, pointing to **Programs**, then **Rockwell Software**, then **Emonitor**, and then clicking **Emonitor**.

### Logging in

If Emonitor is set up to require logging in, the program displays the Log In dialog. Enter your user name and password.

- You can also log in using your own user name by selecting **File > Log In** after Emonitor starts.
- You can change to a different database by clicking **Change DB**.
- For multi-user (network) versions of Emonitor, you may need to perform additional steps to log in to your database. If necessary, contact your System Administrator for more information.



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Do not select the ISLAND database (installed with the Gupta database management software) or the Econfig database. Selecting either of these databases instead of an Emonitor vibration database can cause Emonitor to lock up. The default vibration database name is Entek.

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### Logging off

You can log off Emonitor without exiting the program. Select **File > Log Off**.

### Setting up your database

Before you can use Emonitor to collect, view, and analyze data, you must first set up your machinery in the Emonitor database. You do this through the main Emonitor program window. You set up the plant where the machinery is located, then add the machines. On

each machine, you select the locations for data collection. Finally, you set up the definitions for the measurements you want to collect at each location.

After you set up the first machine, you can use copy and paste to quickly set up similar machines in the database. In addition, you can set up measurements on processes in your plant, for temperature, pressure, flow, or other process data. See *Quick Start steps to set up your database* on page 15.

Emonitor includes a number of other tools to help you set up and manage your database. These are not discussed in this manual, but are described in the *Emonitor User's Guide* and the online help.

- create templates of common machines that you can use to quickly set up similar machines.
- use **Edit > Find** to easily replace parameters for your machinery.
- set alarms on each of the measurements to warn you when your machinery or processes need maintenance.
- use Emonitor categories to manage alarm levels on all the machines in the same category.

## Collecting, viewing, and analyzing data

After you have set up one or more machines or processes in the Emonitor database, you can begin collecting data for that machine or process. The main Emonitor program makes it easy to create a list of the machine or measurements you want to collect. You then download the list of measurements into a data collector. After you collect the data, you unload it back into Emonitor.

You can use the data analysis tools in Emonitor to view your data. These include many different types of plots and reports. See *Quick start steps to collect, view, and analyze data* on page 20.

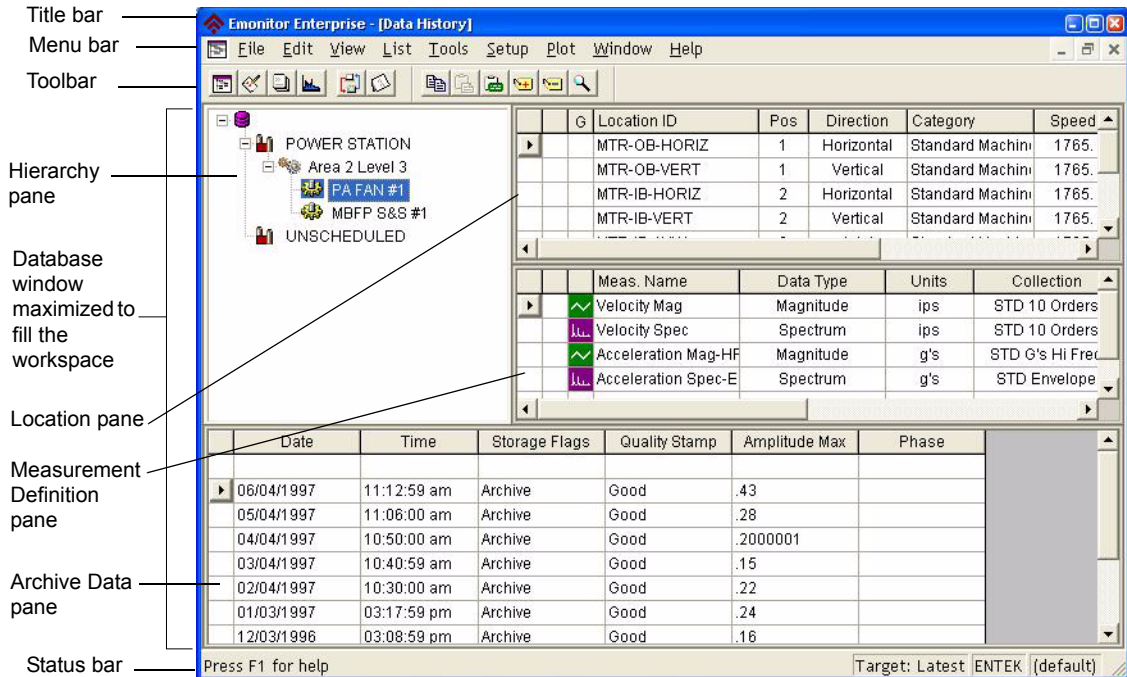
Emonitor includes other tools to help you analyze data and monitor your machinery and processes. See *Advanced Emonitor features* on page 26.

## Main windows

The Emonitor software has the following main program window and panes.



The features that appear in the Emonitor window depend on the particular Emonitor version or modules that you have installed.



## Exploring Emonitor

The following sections discuss navigation through the Emonitor software. The Emonitor software uses a simple navigation scheme.

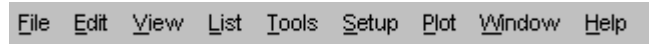
- The program window with a title bar, menu bar, toolbar, workspace, and status bar
- The Database, List, Plot and Report windows
- Right-click shortcut menus

### Title bar

The title bar shows the name of the software (Emonitor). It also contains the name of the current window in the workspace if that window is maximized.



## Menu bar



You can open any menu by holding the Alt key and pressing the underlined letter in the menu name. For example, press Alt-v to display the View menu.

## Toolbars

The Emonitor toolbars contain the toolbar buttons. Each button is a shortcut to a feature, which is also available from the Emonitor menus. There is a toolbar for each type of window in Emonitor.







The buttons that appear in the Emonitor toolbars depend on the particular Emonitor version and modules that are activated. The toolbars that appear depend on the current active window within Emonitor.

- You can “undock” the toolbar and move it to any place on your computer screen. To move a toolbar, click on the empty border of the toolbar, and drag it to another location.
- You can also “dock” the toolbar back under the menu bar by double-clicking the toolbar title bar.

### MAIN TOOLBAR



The following table lists the Main toolbar buttons and provides you with a brief description of the function of the button and its corresponding menu bar selection.

Button	Description
	Open the Database window. This performs the same function as <b>Window &gt; Database</b> from the Menu bar.
	Open the List window. This performs the same function as <b>Window &gt; List</b> from the Menu bar.
	Open a Report window. This performs the same function as <b>Window &gt; Reports</b> from the Menu bar.
	Open a Plot window. This performs the same function as <b>Window &gt; Plots</b> from the Menu bar.



Button	Description
--------	-------------



Load or unload a data collector. This performs the same function as **Tools > Load / Unload** from the Menu bar.



Open the Hierarchy Notebook. This performs the same function as **Tools > Notebook** from the Menu bar.

### DATABASE WINDOW TOOLBAR



The following table lists the Database window toolbar buttons.

Button	Description
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Copy the current selection in the Database window to the Clipboard. This performs the same function as **Edit > Copy** from the Menu bar.



Paste the contents of the Clipboard into the Database window at the cursor. This performs the same function as **Edit > Paste** from the Menu bar.



Select and paste a template at the current cursor location in the Database window. This performs the same function as **Edit > Paste Template** from the Menu bar.



Tag the currently selected item in the Database window. This adds the item's measurement definitions to the current list. This performs the same function as **List > Tag Current Item** from the Menu bar.



Untag the currently selected item in the Database window. This removes the item's measurement definitions from the current list. This performs the same function as **List > Untag Current Item** from the Menu bar.





Maximize (zoom) the active Database pane to the size of the window (pushed in). Restore a zoomed pane to its original size. This performs the same function as **View > Zoom** from the Menu bar.

### LIST WINDOW TOOLBAR





The following table lists the List window toolbar buttons.

Button	Description
	Cut the currently selected locations from the List window to the Clipboard. This performs the same function as <b>Edit &gt; Cut</b> from the Menu bar.
	Paste the contents of the Clipboard into the List window at the cursor. This performs the same function as <b>Edit &gt; Paste</b> from the Menu bar.

### REPORT WINDOW TOOLBAR




The following table lists the Report window toolbar buttons.

Button	Description
	Copy the contents of the Report window to the Clipboard. This performs the same function as <b>Edit &gt; Copy</b> from the Menu bar. You can then paste the copied report into another application.
	Print the contents of the Report window to the current printer. This performs the same function as <b>File &gt; Print &gt; To Printer</b> from the Menu bar.

### PLOT TOOLBAR



The following table lists the Plot window toolbar buttons.

Button	Description
	Maximize (zoom) the active Plot pane to the size of the window (pushed in). Restore a zoomed pane to its original size. This performs the same function as <b>View &gt; Zoom</b> from the Menu bar.





### Button Description



Copy the contents of the Plot window to the Clipboard. This performs the same function as **Edit > Copy** from the Menu bar.



Print the contents of the Plot window to the current printer. This performs the same function as **File > Print > To Printer** from the Menu bar.



Link (pushed in) or unlink the active plot window to the Database and List windows. This performs the same function as **Plot > Linked** from the Menu bar.



Lock the current plot pane to the displayed unit/filter combination. This performs the same function as **Plot > Unit Filter Lock** from the Menu bar.



Label the closest frequency output at the cursor in a spectrum plot. This performs the same function as **Plot > Label Closest Frequency** from the Menu bar.



Label all the frequency outputs in a spectrum plot, according to the data options for the plot. This performs the same function as **Plot > Show Frequencies** from the Menu bar.

## CUSTOM TOOLBARS

Emonitor allows you to create custom toolbars with buttons for frequently-used programs and Emonitor saved views.

- The Programs toolbar contains buttons for other programs associated with Emonitor, such as the Storage Limit Updater, and the Scheduler.
- The Saved Views toolbar contains buttons for Emonitor views (Database, List, and Plot window views). A view is a named arrangement of panes in either a Database window or a Plot window, or a named arrangement of columns in the List window. Clicking a Saved Views button displays that view in the appropriate Emonitor window.
- The Saved Reports toolbar contains buttons for Emonitor report descriptions. Clicking a Saved Reports button creates a report by applying the report description to the current list of selected locations and measurement definitions.

## Workspace

This is the area used for the Database window, List window, Plot windows, and Report windows.



To access the online help for any pane or window, click in that pane or window, and then press F1.

## Database window

The Database window contains one or more displays of information from the database. The Database window can be split into two or more parts, called panes. The different panes in the Database window are: Hierarchy, Location, Measurement Definition, Alarms, Frequency Items, Frequency Outputs, Advisory, Intelligent Advisory Assignment, Alarm Event Log, System Event Log, and Archive data. See *Main windows* on page 8 for a picture of the Database window. For more information on using the Database window, see *Quick Start steps to set up your database* on page 15. You can also press F1 when a Database pane is active to display the help topic for that pane.



For more information on the database and the panes in the Database window, read the online help topics under the *Understanding the Database* book in the Contents tab. To access the online help, press F1 or select **Help > Contents and Index**.

## List window

The List window contains a display of locations in the current list. A list is a set of measurement definitions that you select for a purpose (such as collecting data or creating a report). Emonitor has only one List window, and the List window cannot be split into panes. For more information on using the List window, see *Quick start steps to collect, view, and analyze data* on page 20. You can also press F1 when the List window is active to display the help topic for that window.

## PLOT WINDOWS

A plot window contains one or more graphical displays of data. Plot formats include trend, spectrum, time waveform, spectrum map, and many others. For more information on plots, see *Quick start steps to collect, view, and analyze data* on page 20. You can also press F1 when a Plot window is active to display the help topic for that plot.

## REPORT WINDOW

A window that contains a report of information from the database. You can send a report in a window to the printer if you want a hard copy of the report. For more information on reports, see *Quick start steps to collect, view, and analyze data* on page 20. You can also press F1 when a Report window is active to display the help topic for that window.

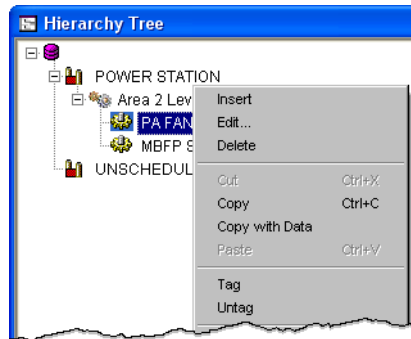
## Status bar

This contains the status bar help, the current database name, and the current user name. The status bar help contains a brief description of an item under the pointer, such as a toolbar button or a plot region. It also shows the Target date time, which is the time of the currently selected measurement.

## Right-click shortcut menus

To open a shortcut menu with tasks specific to the current selection, simply right-click the selection. Each window in Emonitor has its own right-click menus.

Right-click an item in the Hierarchy Tree with the right mouse button.



## Quick Start steps to set up your database

The following Quick Start steps show you how to add a machine to the database, how to set up locations for measurements, and how to set up the measurement definitions. For more detailed information on setting up the database including important planning considerations, see *Setting up the Database* in the online help.





You can substitute a machine from your plant for the one in the example. When you are done, you can delete or keep the machine that you added to the database.


To use the Quick Start steps, select a function then perform all of the quick start steps for that function. For detailed information on tasks or on using specific dialog boxes in Emonitor, refer to the online help.

### Step 1 Add a machine to the database

Emonitor uses a hierarchy to represent the organization of your plant. You can assign up to six levels however you like, but in this guide we will use the following three levels: plant, train, and machine. Each has their own icon in the Hierarchy pane of the Database window. For information on setting the hierarchy levels, see the online help topic *Edit the Number and Names of Hierarchy Levels*.


 Plant is the highest level. In the default database (see the illustration under step 2 on page 16), the items at the plant level are POWER STATION and UNSCHEDULED. Some companies may be divided into different plants in the same complex. For example, a paper mill may have a pulp plant which is separate from the paper mill, yet both are included in the same database.

 Train is the second level. This is a logical grouping of machines that have common characteristics or functions. In the default database, Area 2 Level 3 is at the train level.

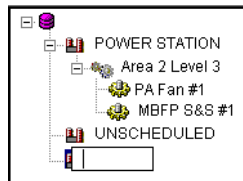
 Machine is the third of three levels. It represents the components of a train. In the default database, the Area 2 Level 3 train consists of two machines, PA FAN #1 and MBFP S&S #1.

This step shows you how to add a new plant, train, and machine to the database.

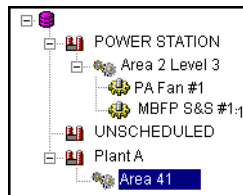
1. Open the Database window by selecting **Window > Database** and selecting the **Database Setup** view in the Select View dialog. The view shows the Hierarchy pane on the left and the Location pane on the right.

 You can click in a pane, then press F1 for a description of the pane.

2. To add a new plant, select the disk icon in the Hierarchy pane, and press Insert. The cursor appears in a box next to a new hierarchy item at the bottom of the Hierarchy tree.

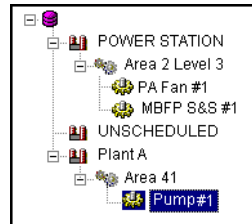


3. Type in the name of your new plant. For example, type `Plant A`, and press Enter.
4. Press Insert again to add a new hierarchy item. Type in the name of your new train. For example, type `Area 41`, and press Enter.
5. Press **Ctrl+Right Arrow** to move the new train under the plant.



6. Press Insert again to add a new machine under the new train, and type in the name of your new machine. For a motor-pump combination, type `Pump #1`, and press Enter.

7. Press Ctrl+Right Arrow to move the new machine under the new train. You now have the hierarchy set up for your new machine.



## Step 2 Set up locations for a machine

This step shows you how to add measurement locations for the new machine. A location can be a physical point in a plant, in an area, on an equipment train, or on a machine. Each location is attached to an item in the Hierarchy Tree. At each location you can collect different kinds of measurements.

1. Select the Pump #1 machine in the Hierarchy pane. You may have to click the + icon to expand the plant or train so you can see the machine.
2. In the Location pane (next to the Hierarchy pane) there are several columns that describe the measurement. Double-click in the **Location ID** column and type `Motor-OB-Vert` (for motor-outboard in the vertical direction).
3. Press Tab or double-click in the **Pos** (position) column, and enter 1.
4. Press Tab or double-click in the **Direction** column, and select Vertical.
5. Press Tab or double-click in the **Category** column, and select the Standard Machine category. Notice that Emonitor puts default values in some of the other fields.
6. Press Tab or click in the **Speed** column, and type the default running speed of the motor. For this example, type 1800.



Many data collectors can collect the machine speed along with a vibration or other measurement. Emonitor stores the collected machine speed with the measurement. Emonitor can use the collected speed when analyzing the data.

7. Press Tab or double-click in the **Description** column and type a short description if desired.

## Step 3 Set up measurements for the location

This step shows you how to add measurement definitions for the new machine. A measurement definition is a set of parameters that controls the collection of a measurement. It defines the type of measurement (numeric, magnitude, spectrum, image,

and so on). It also includes the collection and storage specifications. Each measurement definition is attached to a location.

1. Select **View > Measurement** to change to the Measurement view of the database. This view shows the Hierarchy, Location, and Measurement Definition panes.
2. Select the Pump #1 machine in the Hierarchy pane. You may have to click the + signs to expand the Plant or Train so you can see the Machine level.
3. Double-click in the **Data Type** column in the Measurement Definition pane. Select Magnitude for the Data Type.
4. Emonitor automatically names the measurement definition “None Mag” meaning a magnitude measurement with no units. You can edit the Name now or later if desired—double-click the name to edit it.
5. Press Tab or double-click in the **Units** column. Select g’s (acceleration) for the Units.
6. Press Tab or double-click in the **Collection** column. Select STD 50 Orders for the collection specification. You can right-click the STD 50 Orders collection specification and select **Edit Collection** to see the parameters for the collection specification.
7. Press Tab or double-click in the **Filter** column. Select Smart HP for the measurement filter. This allows Emonitor to select the appropriate high pass filter for your particular data collector, saving you collection time.



For more information on the Smart HP and other filters, refer to your *Emonitor data collector User's Guide*.

8. Press Tab or double-click in the **Storage** column. Select Always/2 Year for the storage specification. Again, you can right-click and select **Edit Storage** to see that this saves this measurement on any condition (alarm or not) for two years.

The **Active** column is set to Yes, which means the measurement definition is active, and can be loaded and unloaded using a data collector.

#### Step 4 Fill in all locations for a machine

This step shows you how to add additional locations and measurement definitions for the new machine. The easiest way to add measurement definitions to the rest of the locations on your machine is to copy and paste the completed location.

1. Select the Pump #1 machine in the Hierarchy pane.
2. In the Location pane, select a cell by clicking in it. You do not have to select all the cells to copy the entire row.

3. Select **Edit > Copy**.
4. Select **Edit > Paste**. The new location is pasted in the row directly below the current row. All the measurement definitions for the location are pasted into the Measurement Definition pane.
5. Double-click in the **Location ID** column and change the name of the measurement location to `Mtr-IB-Vert` (for motor-inboard, measurement in the vertical direction).
6. Select **Edit > Paste** again.
7. Double-click in the **Location ID** column and change the name of the measurement location to `TANK` (for a condition inside the tank). Change the **Direction** column to `None`.

You have now created three locations, each with a single vibration measurement definition. For the motor locations, the vibration measurement is correct. For the TANK location, however, the measurements should be for pressure and temperature.

8. Select the TANK location in the Location pane.
9. In the Measurement Definition pane, change the first measurement definition to make it a pressure measurement. Set **Filter** to `None`, **Data Type** to `Numeric`, **Collection** to `Manual Entry`, **Units** to `PSI`, and. Finally, change the **Name** to `PSI Numeric`.



You must change the Filter before you can select Numeric for the Data Type. You must change the Data type and Collection before you can select PSI for the Units. The selections for the Units are filtered by the other parameters you select for the measurement definition.

10. Select a cell in the PSI Numeric measurement definition by clicking in it.
11. Select **Edit > Copy**.
12. Select **Edit > Paste**. This pastes a copy of the PSI Numeric measurement definition.
13. Change the pasted measurement definition. Set **Name** to `Deg F Numeric`, and **Units** to `deg. F`.

You now have two measurement locations with one measurement definition each, and a third location with two measurement definitions. This means you have four measurement definitions for that machine. If you want to continue adding to your database you can simply copy and paste locations, bringing the measurement definitions with them. For example, you might want to add a location and measurement definitions to measure vibration on the gearbox. Then, if you have other similar motors and pumps, you can copy and paste the entire machine. This method is a quick and easy way to fill in your machines and your database.

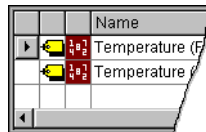
## Quick start steps to collect, view, and analyze data

The following quick start steps show you how to create one or more lists of measurement definitions, load and unload the list from a data collector, and view the data after unloading.

### Step 1 Create a list by tagging measurements definitions

Once you have added several machines in your database, you can create a list of the measurements you want to collect with your portable data collector. You can later use this same list for collecting data, creating reports, and viewing data.

1. Select **List > Clear Current List**. You probably want to get in the habit of using this command before working on any new list so you know the current list is empty. The current list is the most recently recalled or created set of measurement definitions held in the computer's memory or saved on the computer's hard disk.
2. Open the Database window by selecting **Window > Database**. Select **View > Measurement** to select the Measurement view.
3. Select (click) the machine in the Hierarchy pane that you want to include in the list.
4. Select **List > Tag Current Item** to tag all locations and measurement definitions in the current machine.
5. If you want to add additional measurements from another machine, simply select the measurement definition or location and tag it using the same method. A small tag icon appears next to the tagged items. Notice that the measurement definitions for each location have tags beside them as well.



You can tag calculated measurement definitions, but you cannot load them to a data collector. For more on calculated measurements, see the topic *Adding Calculated Measurements* in the online help.

6. You can view the list in the List window. Select **Window > List**. Select **View > Standard List**. This view shows the information for each location in the current list.
7. Select **List > Save** to save the current list.





8. Enter a list name in the Save List dialog and select a list type. Also, set the due date and the interval for collection if you want to schedule it for collection. If you plan to use this list for data collection, select one or more data collectors from the list under **Create Quickload files**. Quickload files save time in loading the list. Click OK to save the list when all the settings are correct.

For more information about lists, see the *Working with Lists* topic in the online help.

## Step 2 Load a list to a portable data collector

Load a list to your data collector before collecting data. For more information on using Emonitor with your particular data collector, click the **Help** menu and then click the data collector name to display the online help.

1. Connect the data collector to the computer and prepare the data collector for loading if necessary.
2. Select **Tools > Load / Unload**.
3. If you have not yet set up the communications port/type, click the large **Set up computer** button in the Load/Unload dialog. Select the serial port on your computer that you attach to your data collector. Click **OK**.
4. Click the large **Set up collector** button to select the current data collector if the picture does not show your data collector. Double-click on the **Current** column next to your data collector name to change it to Yes, then click **OK**.
5. After properly connecting and setting up the data collector, the cable connect icon appears.



You can click the **Load Options** button to select other options, such as initializing the data collector prior to loading. Only those options supported by the current data collector are available.

6. Select the list you want to load under **Name** in the Load / Unload dialog. You can change which lists appear by clicking **Filter**.



Some lists may not appear in the Load/Unload dialog if a filter is applied. To see all lists, click the **Filter** button and make sure all items are selected in the **Type** and **Assigned to** boxes. (Ctrl-click to select multiple items.)

7. Click the red arrow button in the Load / Unload dialog to load the list to the data collector. This button points from the computer button to the data collector button.

8. Emonitor automatically builds the load file, updates the statistics, and loads the list to the data collector. If you are using Quickload lists, it simply loads the Quickload file if previously built.
9. After loading is complete, disconnect the data collector from the computer and collect your data. Refer to your data collector documentation for more information.

### Step 3 Unload a list from a portable data collector

After collecting your data, unload it to your Emonitor database.

1. Connect the data collector to the computer and prepare the data collector for unloading if necessary.
2. Select **Tools > Load/Unload**.
3. Set up the data collector using the same settings as when you loaded the list. The cable connect icon appears in the Load/Unload dialog.



You can click the **Unload Options** button to select some options, such as clearing the list after unloading. Only those options supported by your data collector are available.

4. Select the list you want to unload under **Name**. You can change which lists appear by clicking the **Filter** button.
5. Click the blue arrow button to unload the list from the data collector. This button points from the data collector button to the computer button.
6. Emonitor automatically transfers the data and updates the database.

After unloading is complete, disconnect the data collector from the computer.

### Step 4 View alarms

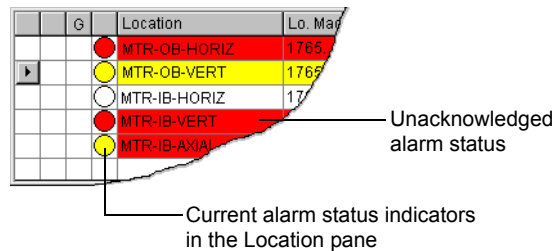
An alarm alerts you to a change in a measurement. For example, an alarm can notify you when the temperature for a process exceeds a pre-defined value. You can create one or more alarms for each measurement definition.

The Alarms view in the Database window shows you the measurement definitions and locations in alarm. It also displays the alarm severity based on the colors you choose for the severity. Before you can show or hide alarm indicators you must select the correct pane. Remember, if you change views, the panes may not have the same options as previously selected. You can save a view with the alarm display options and recall it later. See the online help topic *Saving and Recalling Panes in a View* for more information on views.



These steps show how to display the alarm status indicators for a particular Database window pane.

1. Select the pane where you want to display the alarm indicators. In this example, select the Location pane (in the Database window).
2. Select **View > Pane Options**.
3. Select **Show current alarm severity** in the Pane Options dialog to display the alarm status indicators. Select **Show unacknowledged alarm severity** to show unacknowledged alarm severity. Select both options if you want both indicators displayed.



4. Click **OK** to close the Pane Options dialog. The alarm status indicators you chose are displayed in the Location pane if any measurements for those locations are in alarm.
5. To refresh the alarm status indicators in the Database window select **Tools > Alarm Severities > Refresh Display**.

## Step 5 Acknowledge alarms

You can acknowledge an alarm to indicate that the alarm has been seen. Emonitor shows a colored circle next to the item that is in alarm. The circle indicates that the item is in alarm, and the color indicates the current severity of the alarm. The item also shows a highlighting color, called a severity bar. The bar can be the same color as the circle, or different if the alarm has been acknowledged.

1. Click the desired pane in the Database window (Hierarchy, Location, or Measurement Definition).
2. Right-click the desired row or item and select **Acknowledge Status**. The row returns to the normal background/foreground colors of the pane.

## Step 6 Change the refresh rate

The refresh rate is the rate at which Emonitor redraws the screen with new information from the database. This is particularly important for online systems that are continually collecting new data.

1. Select **Setup > Options > General**.
2. Select the **General** tab on the General Options dialog.
3. Select **Enable automatic screen refresh**. Next to **Refresh rate**, enter a refresh rate number and select a unit of time.
4. Click **OK**.



You can also manually refresh the screen by pressing F5 or clicking the Refresh button on the Main toolbar.

## Step 7 Display reports

After collecting and unloading your data, you can generate reports of the data.

1. Select **Window > Reports**.
2. Select a list as the source for the report under **Report from** in the Print Reports dialog.
3. Under **Report description** select the desired report.



You can select multiple reports by Ctrl-clicking more than one report description.

4. Click **Preview** to view the reports on screen, or click **Print** to send the reports directly to the printer. You may want to use the **Window** menu commands (**Tile** or **Cascade**) to display all the open Emonitor windows.
5. If you have a Database window open when you preview a report on screen, you can tile the windows to see them side by side. Then you can click data in the report to select that measurement in the Database window. The cursor turns into a hand to indicate where you can click in the Report window. Clicking data in the report selects that measurement in List and Plot windows as well.

## Step 8 Display trend plots

Plots provide a powerful, graphical method for examining and analyzing your data. There are many different types of plots in Emonitor, and each type of plot has a specific use. For example, a trend plot of a magnitude or process measurement definition displays the trend of that measurement over time.



1. Select a magnitude or process measurement definition in the Database window. Make sure you have collected some data for the measurement definition, or use a measurement definition from the default database.
2. Select **Window > Plots**.
3. Select Trend in the Select Plot View dialog, then click **OK**.
4. You can use the remote control to move through locations, measurement definitions, and data in the database. Select **View > Toolbars > Remote Control**. Click the [

You can also right-click a measurement definition in the Database window and select **Show Data** to quickly display an Active Measurement plot of the data. Emonitor chooses the correct plot type for you.



Select **Open a window for each location in list** in the Select Plot View dialog to display multiple trend plots, one for each location in the current list. This allows you to compare data at different locations. You must have a list loaded (**List > Recall**) for this option to be available.

## Step 9 Display spectrum plots

You can display a spectrum plot for further analysis. A spectrum plot is a graph of amplitude versus frequency. Usually the amplitude is a measure of the acceleration, velocity, or displacement at that frequency.

1. Select a spectrum measurement definition in the Database window that you want to view in a plot.
2. Select **Window > Plots**.
3. Select Spectrum in the **Views** field in the Select Plot View dialog, then click **OK**.
4. You can use the remote control to move through locations in the database. Select **View > Toolbars > Remote Control**.

Click the [

5. You can change most aspects of the plot using the controls on the Plot window. Click the plot to select it, then press F1 to display the help topic for the plot. To show alarms, select **Plot > Options** and click the **Alarms** tab. You can also double-click on the X or Y axis to open the Plot Options dialog.

## Advanced Emonitor features

Emonitor includes other tools to help you analyze data and monitor your machinery and processes. These are not discussed in this manual, but are described in the Emonitor online help. You may also be able to find these topics discussed in *Application Notes* on the ESAFE web site. Go to <https://rockwellautomation.custhelp.com/> and click the **ESAFE** link.



Some of the advanced features described below are only available in the Factory or the Enterprise levels of Emonitor.

### Frequency analysis

You can use frequency analysis to identify the frequencies generated by individual components in your machinery. For example, this allows you to match peaks in a spectrum plot with the frequencies generated by a specific part of a machine. For more information, see *Identifying Diagnostic Frequencies* in the online help.

### Calculated measurements

Calculated measurements allow you to combine multiple data values into a single value. This creates new types of data, such as the ratio of pressure to temperature, overall vibration to speed, or the difference between the 1X and 2X vibration magnitude. You can set alarms on calculated measurement definitions, and use calculated data in the same ways you would use any other data in Emonitor. See *Adding Calculated Measurements* (under *Setting up the Database*) in the online help.

### Asset health management with decision support

Asset health management allows you to manually or automatically analyze problems with your machines and processes.

- With manual analysis, you use the tools in Emonitor to review and examine the data from your machinery and processes. These tools include alarms, reports, and plots. You then manually create one or more advisories that describe the actions to take to fix the problem.
- With automated analysis, you use the Intelligent Advisory feature. This feature automatically creates the analyses and advisories for you when a measurement goes into an alarm severity range. The Intelligent Advisory feature allows for unattended operation of the Emonitor system, especially for faults that are relatively simple to identify and diagnose.

After the advisories are created, Emonitor can send them out as work requests through your E-mail system or to an external Computerized Maintenance Management System



(CMMS) or Enterprise Asset Maintenance (EAM) system. You can track the progress of the work requests in Emonitor. Finally, you can verify the solution to the problem by analyzing data in Emonitor after the work request is completed. See *Asset Health Management* in the online help or *Emonitor User's Guide*.

## Importing and exporting data

You can import and export data using Emonitor.

- The **List > Export to Microsoft Excel Spreadsheet** command allows you to export data for the measurement definitions in the current list to a Microsoft Excel Spreadsheet. Microsoft Excel must be installed on the computer.
- MIMOSA™ import and export gives you an easy way to move data from your Emonitor database into any other application that supports the same MIMOSA interfaces. You can also import data into Emonitor from any other application that supports the same interfaces. MIMOSA stands for the Machinery Information Management Open Systems Alliance, which is a non-profit corporation. See *MIMOSA Import and Export* in the online help.
- The Data Mover program allows you to export part or all of your Emonitor database to a binary file. You can also re-import the data to the same or another Emonitor database, including an Emonitor database on a different database platform.

This allows you to perform these tasks:

- back up just a part of the database, instead of the entire database.
- create an export file containing your machinery setup information that you can use in several plants.
- import data from a remote plant into a centralized database.

See *Data Mover* (under *System Management*) in the online help.

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- EMONITOR GETTING RESULTS GUIDE
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# 3

## Getting started with EmonitorWeb

### Welcome to EmonitorWeb

EmonitorWeb makes it possible for you to work from a remote location, and perform the following tasks at the remote location:

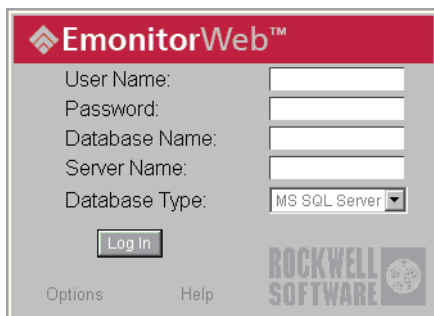
- View and analyze data from the Emonitor database using trend, spectrum, spectrum map, and time waveform plots
- View reports of data from the Emonitor database
- Load a WebLoad list (route) into a data collector, unload the collected data, and transfer the data back to the Emonitor database

### Starting EmonitorWeb

You do not need to install anything on the remote computer to use EmonitorWeb. To start EmonitorWeb, enter the Internet address for the EmonitorWeb server into Microsoft Internet Explorer.

### Logging in

After the EmonitorWeb login page loads, enter your User Name, Password, and other database information. In many cases the Database Name is the same as your User Name.



The screenshot shows the EmonitorWeb login interface. It features a red header bar with the EmonitorWeb logo. Below the header, there are five input fields for login information: User Name, Password, Database Name, Server Name, and Database Type (which is a dropdown menu currently showing 'MS SQL Server'). A 'Log In' button is positioned below these fields. At the bottom left of the page, there are links for 'Options' and 'Help'. At the bottom right, the 'ROCKWELL SOFTWARE' logo is displayed.

### Logging off

You can log off from EmonitorWeb by clicking **Log Out** in the main EmonitorWeb window.

## Viewing data

After you have logged in to EmonitorWeb, you can view data in the Archive pane, in plots, and in reports. See *Quick Start steps to view data in EmonitorWeb* on page 31.

## Loading and unloading a data collector

You can use EmonitorWeb to download routes from the Emonitor database. you can then load one or more routes into a data collector. After you have collected data, you can unload the data back into EmonitorWeb. finally, you can upload the data from the remote computer to the EmonitorWeb server. See *Quick Start steps to collect data with EmonitorWeb* on page 33.

## Main windows

The EmonitorWeb software has the following main program window and panes.

Hierarchy pane

Location pane

Measurement Definition pane

Archive Data pane

Location ID	Pos	Direction	Category	RPM	Des
MTR-OB-HORIZ	1	Horizontal	Standard Machine Category	1765	
MTR-OB-VERT	1	Vertical	Standard Machine Category	1765	
MTR-IB-HORIZ	2	Horizontal	Standard Machine Category	1765	
MTR-IB-VERT	2	Vertical	Standard Machine Category	1765	
MTR-IB-AXIAL	2	Axial	Standard Machine Category	1765	

Meas. Name	Data Type	Units	Collection	Filter
Velocity Mag	Magnitude	ips	STD 10 Orders	None
Velocity Spec	Spectrum	ips	STD 10 Orders	None
Acceleration Mag-HF	Magnitude	g's	STD G's Hi Freq	High Freq
Acceleration Spec-Erv	Spectrum	g's	STD Envelope	Envelop

Date	Time	Storage Flags	Quality Flags	Amplitude Max	Machine Speed
08/16/2005	10:48:58 AM	Archive	Good	0.0003662	1765
06/04/1997	11:13:00 AM	Archive	Good	0.552502	1765
05/04/1997	11:06:00 AM	Archive	Good	0.69166	1765
04/04/1997	10:50:00 AM	Archive	Good	0.5695	1765
03/04/1997	10:41:00 AM	Archive	Good	0.3639401	1765

## Exploring EmonitorWeb

The following sections discuss navigation through the Emonitor software. The Emonitor software uses a simple navigation scheme.



- To view a different window, click one of the buttons in the main window
- To view a plot, double-click on the colored graphic in the third column of the Measurement Definition pane

### **OPTIONS WINDOW**

A window that lets you choose the program options. This includes the options to display the Archive Data pane, to display alarm severity information, and to set the number of rows of archive data to display. Click **Options** from the main program window.

### **PLOT WINDOWS**

A window that lets you view a trend, spectrum, spectrum map, or time waveform plot of data. EmonitorWeb plots are each displayed in a separate browser window. For more information, see *Viewing data* on page 30. To display a plot, double-click a colored icon in the third column of the Measurement Definition pane in the main program window.

### **REPORT WINDOWS**

A window that lets you select a list and a report description to create a report. EmonitorWeb reports are each displayed in a separate browser window. For more information, see *Viewing data* on page 30. Click **Report** in the main program window.

### **LOAD/UNLOAD WINDOW**

A window that lets you download routes (WebLoad files) from the EmonitorWeb server, load routes into a data collector, unload collected data, and then upload the collected data to the EmonitorWeb server. For more information, see *Loading and unloading a data collector* on page 30. Click **Web Load/Unload** in the main program window.

### **HELP WINDOW**

A window that displays the EmonitorWeb online help file. Click **Help** in the main program window.

## **Quick Start steps to view data in EmonitorWeb**

The following Quick Start steps show you how to view and analyze data in EmonitorWeb.

To use the Quick Start steps, select a function and then perform all of the Quick Start steps for that function. For detailed information on tasks or on using specific dialog boxes in EmonitorWeb, refer to the online help for more information and troubleshooting tips.



EmonitorWeb uses ActiveX controls to display plots and communicate with data collectors and the EmonitorWeb server. The first time you run EmonitorWeb, the EmonitorWeb client downloads the appropriate ActiveX controls. Microsoft Internet Explorer may display various security warnings related to ActiveX, depending on the Security settings in Internet Explorer. As long as you are working in EmonitorWeb, you can click **Yes** or **OK** to continue. See the troubleshooting tips in the EmonitorWeb online help for more information.

## Step 1 Browse to a measurement

Browsing to a measurement is the first step in displaying the measurement data.

1. Click the desired item in the Hierarchy Tree. You can also expand a Hierarchy branch by clicking the icon next to an item in the Tree.
2. Click the desired location in the Location pane.
3. Click the desired measurement definition in the Measurement Definition pane.

The Archive Data pane shows the archive data for the selected measurement definition.



If the Archive Data pane is not visible, click **Options** in the main program window, and then click **Archive View** on the **Layout** tab.

## Step 2 Display plots



The first time you try to display a plot, the EmonitorWeb client downloads the appropriate ActiveX control. This can take some time, depending on the speed of your internet connection and the EmonitorWeb server.

After the ActiveX control is downloaded, a Security Warning dialog may appear:

**Internet Explorer Security Warning:** Do you want to install this software?

**Name:** Rockwell Automation Plot

**Publisher:** Rockwell Software Inc.

To install the ActiveX control, click **Install**.

1. Click the desired item in the Hierarchy Tree. You can also expand a Hierarchy branch by clicking the icon next to an item in the Tree.
2. Click the desired location in the Location pane.
3. Click the desired measurement definition in the Measurement Definition pane.
4. Double-click a colored icon in the third column of the Measurement Definition pane. EmonitorWeb displays the data in a Plot window.



5. For a spectrum measurement definition, EmonitorWeb opens a spectrum plot. You can change the data for the spectrum plot by clicking the drop-down list at the top of the spectrum plot window. You can also select Spectrum Map from the list to display a spectrum map plot.

For a time waveform measurement definition, EmonitorWeb opens a time waveform plot. For all other measurement definitions, EmonitorWeb opens a trend plot.



The plot windows in EmonitorWeb are interactive. You can display and move cursors, change the axis scaling, and more. See the EmonitorWeb online help for more information.

### Step 3 Display Reports



We recommend that you display a plot in EmonitorWeb before you display any reports for the first time. This ensures that the plot ActiveX control is downloaded and installed. The plot ActiveX control is required for displaying plots in reports.

1. Click **Report** in the main program window. This opens the Report window in a new browser window.
2. Select the list to use for the report (**Report from:**) and the **Report description**, and then click **Preview**. You can use any list in the Emonitor database, not just WebLoad lists. The report appears in a new browser window.
3. To print the report, select **File > Print** in the browser window.
4. When finished with the report, close the browser window containing the report.
5. When finished viewing reports, close the EmonitorWeb Report Information browser window to return to the main EmonitorWeb window.

Some alarm-based reports may not show the data you expect (Exception, Exception with/Plots, Magnitude Exception) until alarm severities are updated on the Emonitor database. Updating alarm severities can only be done in Emonitor, not at the remote site in EmonitorWeb. See the Emonitor online help for more information.

### Quick Start steps to collect data with EmonitorWeb

The following Quick Start steps show you how to download WebLoad files from the EmonitorWeb server, load a data collector, unload collected data, and upload the data to the EmonitorWeb server.

## Step 1 Set up the Web User and WebLoad files

In **Emonitor**, perform the following steps. For assistance, refer to the online help in Emonitor.



These steps must be done in Emonitor, not at the remote site in EmonitorWeb.

1. Set up one or more EmonitorWeb Load/Unload users (select **Setup > Web Load/Unload Users**).
2. Create one or more WebLoad lists (select **Lists > Save**).
3. Create one or more WebLoad files from the WebLoad lists (select **Tools > Update WebLoad Files**).

## Step 2 Load the data collector

In **EmonitorWeb**, perform the following steps. You must be logged into your computer with the same user name and domain as that set up for an EmonitorWeb Load/Unload user in Emonitor.



The first time you try to open the Web Load/Unload window, the EmonitorWeb client downloads the appropriate ActiveX control. This can take some time, depending on the speed of your internet connection and the EmonitorWeb server.

After the ActiveX control is downloaded, a Security Warning dialog may appear:

**Internet Explorer Security Warning:** Do you want to install this software?

**Name:** Rockwell Automation Web Load/Unload

**Publisher:** Rockwell Software Inc.

To install the ActiveX control, click Install.

1. Log into EmonitorWeb.
2. Click **Web Load/Unload** in the main EmonitorWeb window. EmonitorWeb downloads any new or changed WebLoad files (routes) from the EmonitorWeb server through FTP.
3. Click **DC Setup** to select the data collector and verify the communication settings between your computer and the data collector.
4. Connect the data collector and select one or more routes.
5. Click **Load** to load the selected routes into the data collector.
6. Click **Return to Database View**, and then disconnect the data collector.



7. Collect the data for the loaded route(s).



EmonitorWeb does not support unscheduled or off-route data. You can collect and analyze unscheduled data in the data collector, but EmonitorWeb does not unload it from the data collector.

### Step 3 Unload the data collector

**In EmonitorWeb**, perform the following steps after you have collected the data.

1. Click **Web Load/Unload** in the main EmonitorWeb window to open the Web Load/Unload window.
2. Click **DC Setup** to select the data collector and verify the communication settings between your computer and the data collector.
3. Connect the data collector, and then click **Unload** to unload the collected data.

### Step 4 Upload the collected data

**In EmonitorWeb**, perform the following steps after you have unloaded the data.

1. Select one or more of the collected routes to upload to the EmonitorWeb server.
2. You can upload the selected WebUnload files using FTP or e-mail.

**For FTP**, select the WebUnload files and click **FTP**.

**For e-mail**, select the WebUnload files and click **EMAIL**. An empty e-mail message appears with the selected Web Unload files as attachments. When you have added any missing information, you can send the e-mail.



You can set the default Recipient and Subject for the e-mail by clicking **Options** in the Web Load/Unload window.

### Step 5 Process the WebUnload files

**In Emonitor**, perform the following steps. For assistance, refer to the online help in Emonitor.



These steps must be done in Emonitor, not at the remote site in EmonitorWeb.

1. Select **Tools > Process WebUnload Files**.
2. In the **Process WebUnload Files** dialog, select the correct data collector and unload options.

3. Select the WebUnload files to process, and then click **Unload**. Emonitor moves the data from the selected WebUnload files into the Emonitor database.



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