ROCKWELL SOFTWARE

RSEnergyMetrix®

Scaleable Web-based Energy Management

Getting Results Guide

Publication ENEMTX-GR001H-EN-P – February 2012
Supersedes Publication ENEMTX-GR001G-EN-P

Rockwell Automation

Contact Rockwell

Customer Support Telephone — 1.440.646.3434
Online Support — http://www.rockwellautomation.com/support/

Copyright Notice

Trademark Notices

Rockwell Automation, Allen-Bradley, Rockwell Software, RSEnergyMetrix, RSLinx, ControlLogix, MicroLogix, PLC-5, PowerMonitor, SLC, FactoryTalk, Encompass, DH+, Data Highway Plus, RSNetWorx, and RSLogix are trademarks of Rockwell Automation, Inc.

Any Rockwell Automation software or hardware not mentioned here is also a trademark, registered or otherwise, of Rockwell Automation, Inc.

Other Trademarks

Trademarks not belonging to Rockwell Automation are property of their respective companies.

Warranty

This product is warranted in accordance with the product license. The product's performance may be affected by system configuration, the application being performed, operator control, maintenance, and other related factors. Rockwell Automation is not responsible for these intervening factors. The instructions in this document do not cover all the details or variations in the equipment, procedure, or process described, nor do they provide directions for meeting every possible contingency during installation, operation, or maintenance. This product's implementation may vary among users.

This document is current as of the time of release of the product; however, the accompanying software may have changed since the release. Rockwell Automation, Inc. reserves the right to change any information contained in this document or the software at anytime without prior notice. It is your responsibility to obtain the most current information available from Rockwell when installing or using this product.

Contents

Notes:

1 Getting Started with RSEnergyMetrix Software

RSEnergyMetrix® software is a modular, scalable, web-enabled, client/server energy information and management application. It connects energy-related data sources to a Microsoft SQL database and presents energy information in ways that enable you to monitor and manage your energy use to maximize the value of your enterprise. RSEnergyMetrix software is built using Microsoft .NET technology, ensuring the highest level of quality, reliability and compatibility now and in the future.

Intended Audience

We assume that you are familiar with the following:

- IBM-compliant personal computers
- Client-server systems
- Ethernet data networking
- Microsoft Windows operating systems
- OLE for Process Control (OPC) communication
- Microsoft SQL Server (2005 or 2008)
- Microsoft Internet Information Services
- Allen-Bradley® power monitors
- Allen-Bradley programmable logic controllers (PLC)

Important User Information

This Rockwell Software® product is warranted in accord with the product license. System configuration, the performing application, operator control, and other related factors affect the product's performance.

The product's implementation can vary among users.

Rockwell Software reserves the right to change any information contained in this Getting Results Guide, the help files, or the software at any time without prior notice.

The instructions in this Getting Results Guide or the help files do not claim to cover all the details or variations in the equipment, procedure, or process described, nor to provide directions for meeting every possible contingency during installation, operation, or maintenance.

What's New in RSEnergyMetrix Software Version 1.9

- Support of the Allen-Bradley PowerMonitor™ 500 and wireless PowerMonitor W250 units, including an integral Modbus driver.
- OPC device, meter and meter tag browsing.
- Regional formatting for number format and currency in Rate Schedules.
- The installation DVD includes FactoryTalk® Activation Manager version 3.40.
- The bundled Microsoft SQL Server has been upgraded to SQL Server 2008.
- The Real Time (RT) and ChartsPlus options now run as Microsoft ClickOnce applications, which require less demanding security configuration than previous versions.
- Internet Explorer WebControls are no longer used.
- A Pareto Chart has been added to standard reports.

RSEnergyMetrix Components

RSEnergyMetrix software consists of modular components that make it easy to scale an energy monitoring and management system to meet your exact needs.

RSEnergyMetrix Manager

RSEnergyMetrix Manager is the core data logging and reporting engine. Use Manager to organize your enterprise's energy architecture, connect to Allen-Bradley power monitors and programmable controllers, log energy data and view energy information. Manager can report your energy usage by department or cost center, display load and demand profiles, and correlate energy costs per unit of manufacturing output. It includes a flexible energy rate schedule that enables you to replicate utility bills or generate internal energy billing. Manager is a server-based, web-enabled application that runs on a Windows 2003 or Windows 2008 server. Microsoft Internet Explorer web browser, version 7 or 8, is the client used to access and configure Manager. RSEnergyMetrix Manager is available in three license options with the capacity for 8, 64, or 10,000 meters. Every RSEnergyMetrix software installation must include a Manager license.

The RSEnergyMetrix Manager license includes the following functional components:

- RSEnergyMetrix database - The database stores the user project configuration and the project data including data logged from meters. The database is hosted on a Microsoft SQL Server and is named EMMA. The database is automatically created when you install RSEnergyMetrix software.
- RSEnergyMetrix Logger Service - The logger is a Windows service that runs on a server and provides the automatic software functionality. The logger service does not have a user interface.
- RSEnergyMetrix web page - The web page provides the user interface for RSEnergyMetrix software.

RSEnergyMetrix RT Option

RSEnergyMetrix RT is an optional extension of RSEnergyMetrix Manager that can be used to configure Allen-Bradley power monitors and display their real-time data and power quality information. RT is a ClickOnce software application installed with RSEnergyMetrix Manager to provide a real-time PowerMonitor connection.

ChartsPlus Option

RSEnergyMetrix ChartsPlus is an optional package available with RSEnergyMetrix Manager that offers extensive custom charting capabilities. ChartsPlus is a ClickOnce application that downloads and runs on the client computer. Its look and feel is that of a traditional Windows application rather than a web application.

ReportsPlus Option

RSEnergyMetrix ReportsPlus provides additional reports in addition to the standard reports included in Manager. ReportsPlus reports are set up and viewed in the same way as standard Manager reports. Like standard reports, ReportsPlus reports can be configured to automatically run on a schedule or triggered by an alarm, and optionally send the report output to one or more email addresses. ReportsPlus reports can be identified by a distinctive icon in the report list. You can choose the report output type among PDF file (the default), Microsoft Excel, HTML, rich text format (RTF), or tagged image file format (TIFF).

The additional reports included in ReportsPlus include the following:

- Custom multi-purpose report
- Efficiency report
- Load factor report
- Power factor report
- Electrical summary report

3PX Option

RSEnergyMetrix 3PX enables RSEnergyMetrix Manager to collect data from third-party energy data sources through an OPC server that you provide. 3PX, like Manager, is offered in 8-, 64- and 10,000-meter licenses. Manager and 3PX meter counts are added when determining the total number of meters allowed.

For more information about third-party OPC drivers, refer to the Rockwell Automation® Encompass™ Program Product Directory.

RSEnergyMetrix Communication

RSEnergyMetrix communicates with a variety of devices using three primary methods:

- RSEnergyMetrix Manager and RT connect to Allen-Bradley devices such as power monitors, PLC controllers, E3 Plus overload relays and others using RSLinx® Classic Lite software, which is included on the RSEnergyMetrix software program CD.
- RSEnergyMetrix software communicates to Allen-Bradley PowerMonitor 500 and wireless PowerMonitor W250 devices using an integral Modbus driver.
- By adding optional RSLinx Classic OEM, Professional or Gateway software, RSEnergyMetrix Manager can also communicate to Allen-Bradley devices using RSLinx OPC, a method that supports native Logix controller tag addressing.
- Adding the optional 3PX package and customer-provided OPC drivers, RSEnergyMetrix software can consolidate energy-related information from a wide variety of third-party power monitors and controllers.

Navigating in RSEnergyMetrix Software

Client Desktop Overview

After you log in, the client desktop appears. At the top is the RSEnergyMetrix page header. On the left is the navigation tree. On the right is the detail pane.

Page Header

The page header contains the RSEnergyMetrix logo, user login information, the My Start Page link, the ChartsPlus option link, and the online Help link.

My Start Page is the first page that appears after you log in. It allows you to set up a tabbed initial RSEnergyMetrix view with tabs and links that let you navigate to your favorite graphs, reports, meters, and custom pages with one or two mouse clicks.

The Welcome screen appears until the My Start Page is configured. To begin configuring the start page, click the Configure My Start Page link. Each time you log in after the My Start Page has been configured, the My Start Page will be displayed instead of the Welcome screen.

Refer to the online Help for more information.

Systems Tab

The System tab in the navigation tree contains a number of subfolders that provide access to RSEnergyMetrix setup such as: Devices, Groups, security settings (Roles and Users), Multi-Purpose Report Scripts, and Rate Schedules. This tab also includes links to the System Status, Alarm Setup, Unit Setup, Configuration, System Configuration Report, My User Settings, and About pages.

The Systems tab contains the following.

System Status

Click the System Status link in the Setup tab to see an overview of alarms, device communication errors, device communication status, and other system information. You can select any one of four tabs in the detail pane. The Alarms tab displays active alarms and an alarm log. You can select filters for the alarms to display. The Device Communication Errors tab displays a list of device communication errors.

Click a Device Name link to drill down to a detailed list of communication errors associated with the device.

You can purge errors for individual devices or click Purge All and confirm to purge errors associated with all devices.

Groups

The Groups area is where you create domains and groups to organize the RSEnergyMetrix project.

Devices

The Devices area is organized according to the domains and groups set up in the Groups area. The Devices area is where you set up devices, test communication connections, and monitor device communication health.

Roles and Users

The Roles and Users area is where you set up security for your RSEnergyMetrix project.

A role is a named collection of privileges assigned to various users to manage security. Roles can be global or assigned to one or more domains.

A User is a named set of security credentials (user name and password) that permit an individual to access the privileges defined in the Role assigned to the User. More than one Role can be assigned to a user.

Refer to online Help for more information.

RATE SCHEDULES

Rate schedules specify the content of billing, cost allocation and efficiency reports using line items written in Visual Basic .NET.

Rate schedules can have a global or domain scope. Global rate schedules can be used in all domains. Domain rate schedules apply to only a single domain.

The RSEnergyMetrix rate schedule model is designed to be very flexible. This lets you accommodate the wide variety of utility tariffs that exists today, and is sure to expand in the future.

Refer to online Help for more information.

MULTI-PURPOSE REPORT SCRIPTS (MPR)

An MPR Script defines what an MPR contains and what it looks like. An MPR script is conceptually similar to a rate schedule. Like a rate schedule, an MPR script is combined with selected meters or groups to form a specific report instance. This allows a script to be reused for different meters and groups.

MPR scripts contain Visual Basic for .NET scripting that uses the MPR object model to select and format the content of the report.

Refer to online Help for more information.

ALARM SETUP

The Alarm Setup shows a grid with the alarms configured in the system and the meter name of the alarm. This also shows the trigger settings.

UNIT SETUP

Permits you to customize RSEnergyMetrix data collection capabilities by adding and editing data value types, base units and units.

CONFIGURATION

The Configuration page provides a means for setting a variety of program options, such as Telnet debugging, Email SMTP server configuration, Logger configuration, and other customizable settings.

SYSTEM CONFIGURATION REPORT

This report can be configured to document the configuration of any or all of the RSEnergyMetrix objects listed in the report setup page.

MY USER SETTINGS

This screen shows the user settings of the currently logged-in user. You can change your personal password from this screen. It also allows you to change other user settings, provided that the role associated with the currently logged-in user has the privilege to edit users.

ABOUT

The About screen tells you which version of RSEnergyMetrix software is currently running. It also displays your registration information, activations, and meter usage.

Meters Tab

The Meters tab in the navigation tree is organized according to the tree structure of domains and groups that you configured in the Groups area of the System tab.

The Meters tab is where you set up Meters as well as observe their data in tabular and graphical displays. Selecting the Meters tab does not change the detail pane content. Select a Group or Domain to view aggregated information from the Meters the group contains.

To access an individual meter, open the desired group or domain and select the desired meter. The detail pane will display the meter data tab.

The Meters tab contains the following.

METER DATA

When you first select a Meter, the Meter Data tab is selected. The screen displays a page of logged data. The data is organized into pages, each page based on the data logging rate.

METER TREND

The Meter Trend display lets you select and view tags as their values vary by time. You can select up to five tags from one or more meters. You can select a time zone for the trend and the start and end dates from the calendars. Or, enter start and end dates into the date fields and click Go. One day is the minimum trend period. If you select an end date earlier than the start date, the system will adjust the start date, and vice versa. Click Export Data to download the data displayed in the trend to a .csv file, which you can open in Microsoft Excel software.

CALENDAR TREND

The Calendar Trend display shows how the value of a meter tag you select varies over a full month. You can select the meter tag to display from the pull-down menu. The Month and Year controls let you select a date range to display. The navigation arrows let you jump forward or back one month at a time.

To zoom in to a day, click on the day in the calendar. You can overlay days by selecting additional days from the small calendar under the zoomed display. Click Export Data to download the data displayed in the trend to a .csv file, which you can open in Microsoft Excel software.

METER SETUP

The Meter Setup screen provides tools to allow you to create, modify, and delete Meters and Meter tags.

Reports Tab

The Reports folder in the navigation tree provides access to standard and optional reports in RSEnergyMetrix software. You can select existing reports for viewing or editing, add a new report or delete an existing report. You can set up auto-run report jobs and view automatically generated reports.

Custom Tab

The Custom tab contains links to web pages or graphics that you select and/or develop using the Manage custom pages link.

Notes:

2 Installing RSEnergyMetrix Software

Server Requirements

We recommend, but do not require, that you install RSEnergyMetrix software on a dedicated server with a local installation of Microsoft SQL Server.

Server Software Requirements for Installing RSEnergyMetrix Software

- Windows 2003 Server or Windows 2008 Server, Application Server role. 32-bit and 64-bit operating systems are supported. RSLinx Classic software version 2.57 or later is required for 64-bit OS support. Windows 2000 Server is no longer supported.

  Separate instructions are provided for installation on Windows Server 2008 R2 64-bit operating system.

- Microsoft SQL Server 2005 or 2008, installed with mixed-mode authentication (Windows and SQL). TCP/IP access must be enabled. A system administrator SQL login must be used for RSEnergyMetrix software installation.
- You must have machine administrator privileges to install RSEnergyMetrix software.

Guidelines for Server Sizing

The following rules of thumb are offered as a starting point for determining server sizing for RSEnergyMetrix software. Other factors will affect the required size of a server. A higher number of tags being logged, a faster log rate, a larger number of users and a larger number of reports being run will require a more powerful server than the guidelines specify.

- A low-end server has up to 8 meters and logs up to 40 meter tags at a minimum 15 minute log rate
- A mid-range server has up to 64 meters and logs up to 320 meter tags at a minimum 15 minute log rate

- A high-end server has more than 64 meters and logs more than 500 meter tags at a minimum 15 minute log rate

Database Size Guidelines

RSEnergyMetrix software writes 16 bytes of data to the database for each meter tag logged. Over time, the database can grow to become quite large. These are some examples:

- A low-end server, logging 40 meter tags at 15 minute intervals, will grow the database at a rate of 2.56 KB per hour, or 22 MB per year.
- A mid-level server, logging 320 meter tags at 15 minute intervals, will grow the database at a rate of 20.5 KB per hour, or 180 MB per year.
- A high-end server, logging 4000 meter tags at 15 minute intervals, will grow the database at a rate of 256 KB per hour, or 2.2 GB per year.

Consider these guidelines when determining hard disk requirements for a server as well as database maintenance schedules.

Hardware Requirements

These are general guidelines. RSEnergyMetrix software is capable of running on a variety of Windows/Intel compatible hardware platforms. The main scalability issue is related to processing of logged data (for example, report generation, trending). CPU speed, number of CPUs, RAM, and RAID 5 for the database files are the main scalability factors (in that order).

All hardware platforms require the following:

- Processor, RAM, and hard drive as noted below
- CD or DVD drive
- One or more Ethernet network ports
- Monitor, keyboard, pointing device (mouse)

LOW-END SERVER

- Single 2 GHz Pentium 4
- 1…2 GB RAM
- 80 GB hard disk

MID-RANGE SERVER

- 2 or 4 CPU 2 GHz Pentium 4 or better
- 2 GB RAM or higher
- 160 GB hard disk (with separate disks for operating system and log files and RAID 5 for main database files preferred)

HIGH-END SERVER

A high-end server specification is highly dependent upon the user's requirements. Please contact Rockwell Automation for more information.

Client Requirements

Client requirements for compatibility with RSEnergyMetrix software include the following:

- Microsoft Windows XP, Vista, or Windows 7 operating systems.
- Internet Explorer web browser, version 7.0 or 8.0.
- Adobe Acrobat Reader software, version 7.0 or later is required to view RSEnergyMetrix reports.
- Microsoft .NET Framework software, version 3.5, SP1is required to use RSEnergyMetrix RT and Charts Plus options. It can be installed from the RSEnergyMetrix installation CD or downloaded from the Microsoft Windows Updates website.

Your client workstation must also be permitted Intranet, Internet, or dial-in access to the RSEnergyMetrix server. Contact your IT support personnel for assistance.

If you plan to use the RSEnergyMetrix RT or ChartsPlus options, please follow the steps found in the RSEnergyMetrix online Help topic 'RT and ChartsPlus Security' in the Release Notes folder.

RSEnergyMetrix Manager Installation (Windows 2003 Server, 32-bit)

The installation guide for this release has been updated to include these operating environments:

- Recommended installation: dedicated server, dedicated local SQL server
- Installation with SQL server on a remote computer

Refer to “RSEnergyMetrix Manager Installation (Windows 2008 Server R2, 64-bit)” on page 26 for instructions to install RSEnergyMetrix on a 64-bit operating system.

Pre-installation Checks

1. Check out the server for required customer-provided software:
   - Windows 2003 R2 Server, set up in the Application Server role. Active Scripting must be enabled in Internet Information Services. The server cannot be set up as a Domain Server.
   - SQL 2005 or 2008 Server, installed and set up for mixed mode authentication (SQL Server and Windows). TCP/IP access must be enabled.
   - If the SQL database server is hosted on a remote server, you must download from Microsoft (if necessary) and install Microsoft SQL Server 2005 or 2008 Express Edition on the RSEnergyMetrix server. This installs the osql.exe application RSEnergyMetrix software uses to connect to the remote database.
   - IIS 6, 7, or 7.5 installed and enabled to run.
2. You must use a machine administrator login in Windows and have full administrator rights for SQL.
3. Ping all Ethernet devices (meters and/or controllers) the customer wishes to connect to:
   - Correct communication to any meters that don't respond
   - Verify communication with Allen-Bradley Ethernet power monitors via their built-in web page

Installation

1. Verify the Application Server role configuration in the host Windows Server operating system.

   These are the minimum required components:

   - ASPNET
   - COM+ Services
   - Internet Information Services (IIS), all options

   Make any necessary changes before proceeding with the installation.

2. Using Internet Information Services Manager, verify that ASP.NET version 2.0 is selected in the default web page properties.

   If not, select ASP.NET version 2 and run IISRESET before continuing with the installation.

3. If not already installed, install Microsoft SQL Server 2005 or 2008 (**not** included in RSEnergyMetrix base software but SQL Server 2008 is available as a bundled option).

SQL Server must be set up with mixed-mode authentication (Windows and SQL Server). You can make this selection during initial installation or using Enterprise Manager and editing the server properties, Security tab after installation. We recommend that you do not use the default system administrator login (username = “sa”, password = “”) due to known security issues. Record the system administrator login credentials as you will be prompted to enter them when you install RSEnergyMetrix software.

If the SQL Server is to be hosted on another computer, install SQL Server 2005 or 2008 Express Edition on the RSEnergyMetrix server at this time.

4. Insert the RSEnergyMetrix installation DVD into the server's CD drive.

   If auto-run is enabled, the installation menu will launch. If not enabled, browse to and launch autorun.exe in the root folder of the DVD.

5. From the installation menu, install the FactoryTalk Activation Manager software version 3.40.

   This step is recommended but not required when upgrading an existing installation.

6. Install RSLinx Classic Lite software version 2.57 CPR 9 SR 3.

   This step is recommended but not required when upgrading an existing installation on a 32-bit Windows Server 2003 operating system.

7. Install Microsoft .NET Framework version 3.5 SP1.
8. If not already installed, install Adobe Acrobat Reader.
9. Install RSEnergyMetrix.
   a. Accept the license agreement and enter the serial number of the Manager software when prompted.
   b. When prompted, enter the computer name or IP address of the SQL Server (the default is (local) for a SQL server hosted on the RSEnergyMetrix server). Then, enter the SQL system administrator account login credentials.
   c. Accept the remaining prompts. The installation will proceed. During the installation, the RSEnergyMetrix SQL database is created, populated with stock values, and updated to the current version.
   d. When prompted, reboot the server to complete the installation.
10. After the server restarts, log in as an administrator, and then open Windows Control Panel > Administrative Tools > Computer Management > Local Users and Groups.
    a. Select Users and right-click the ASPNET User Name option.
    b. Select Properties and select the Member Of tab.
    c. If Administrators does not appear in the list, then click Add, click Advanced, and click Find Now.
    d. Select Administrators and click OK.

e. When finished reset IIS (Start > Run > ‘iisreset’ > ok).

11. Using FactoryTalk Activation Manager, install the activations for RSEnergyMetrix Manager and all purchased options (unless installed previously).

    Refer to Chapter 11, “Activation”, for further information.

12. Launch the Internet Explorer web browser on the server.

13. Enter the server url (universal resource locator) into the Internet Explorer address field:

    ```
    http://localhost/rsenergymetrix
    ```

    To use RSEnergyMetrix software from a client workstation, substitute the RSEnergyMetrix server name or IP address for ‘localhost’ in the url.

14. When the login screen appears, log in using the default login credentials (Username = admin, Password = admin).

15. If you plan to use the RSEnergyMetrix RT, Charts Plus and/or Reports Plus options, follow the steps found in the RSEnergyMetrix online Help topic ‘RT and ChartsPlus Security’ in the Release Notes folder.

RSEnergyMetrix Manager Installation (Windows 2008 Server R2, 64-bit)

To install RSEnergyMetrix software on a 64-bit operating system you will need to perform the following steps while logged in as a Machine Administrator:

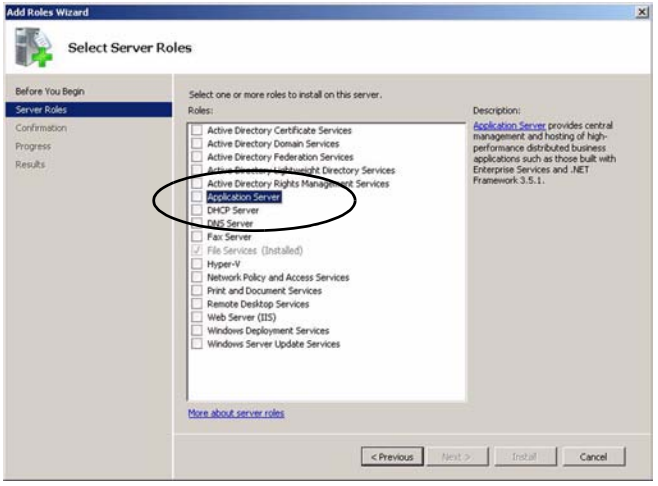
- Configure Windows 2008 Server.
- Install SQL Server 2008 R2.
- Enable 32-bit applications.
- Install software applications and RSEnergyMetrix software version 1.9.

Configure Windows 2008 Server

Start with a clean Windows Server 2008 R2 SP1.

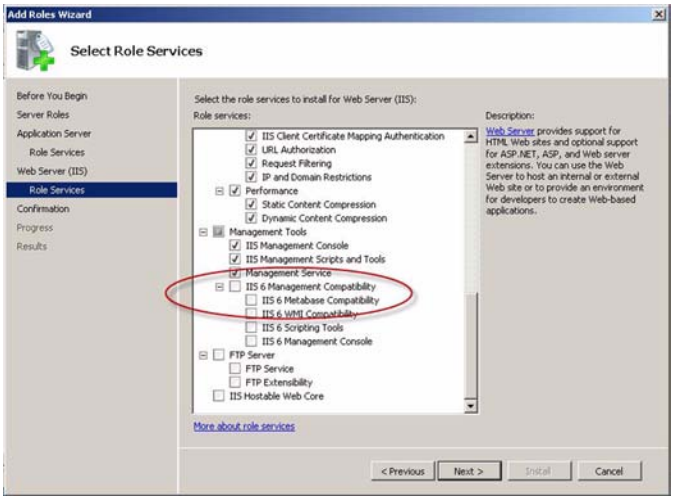
1. Launch Server Manager if it hasn't launched automatically.

   Wait until Server Manager has finished collecting data.
2. Right-click Roles and choose Add Roles.
3. Click Next on the Before You Begin page.



4. Check Application Server.

5. Click Add Required Features.
6. Click Next.
7. Click Next.
8. Click Web Services (IIS) Support.
9. Click Add Required Role Services.
10. Click Next.
11. Click Next.



12. Scroll down in the Role Services window and check IIS 6 Management Compatibility.
13. Click Next then click Install.

    Wait while installation proceeds.
14. Click Close when done.

We recommend that you disable Internet Explorer Enhanced Security Configuration.

15. Locate the Configure IE ESC link in the Security section in the Server Manager.
16. Click the link, turn off IE ESC for Administrators, and then click OK.

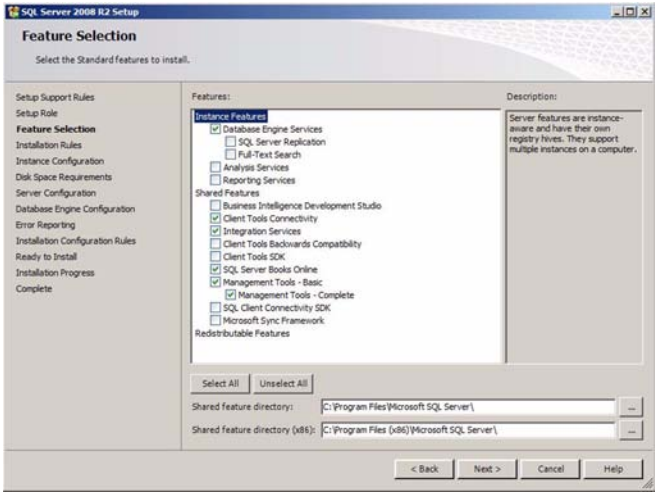
Install SQL Server 2008 R2

Microsoft SQL Server 2008 R2 must be installed on the local server even if the RSEnergyMetrix database is to be hosted on another machine.

1. Insert disk into CD/DVD drive.
2. If necessary, run SETUP.EXE and click Yes to allow SQL Server 2008 R2 to install on the computer.
3. Review the documentation in the SQL Server Installation Center window.
4. Install the upgrade advisor if desired.
5. Click the Installation link in the menu.
6. Click the New installation or add features to an existing installation link.
7. Enter the product key and click Next.
8. Accept the license terms and click Next.
9. On the Setup Support Files page, click Install.

   Wait while installation proceeds.
10. Make note of any issues or warnings listed in the Setup Support Rules page and take action as needed.
11. Click Next.
12. Select SQL Server Feature Installation.

13. Select the features shown as selected in the screen capture.



14. Click Next.
15. Click Next.
16. Leave the Default instance selected and click Next.
17. On the Disk Space Requirements page, click Next.
18. On the Service Account dialog, check Use the same account for all SQL Server services.
19. Select NT AUTHORITY\SYSTEM in the dialog box and click OK.
20. Click Next.
21. On the Database Engine Configuration page, select Mixed Mode and enter a password.

Make sure to record the password in a safe location. You will need to enter the password when you install RSEnergyMetrix software.

22. Click Add Current User and add additional users as administrators as desired.
23. Click Next.
24. Click Next.

25. Click Install.

    Wait until installation completes.

26. Click Close.

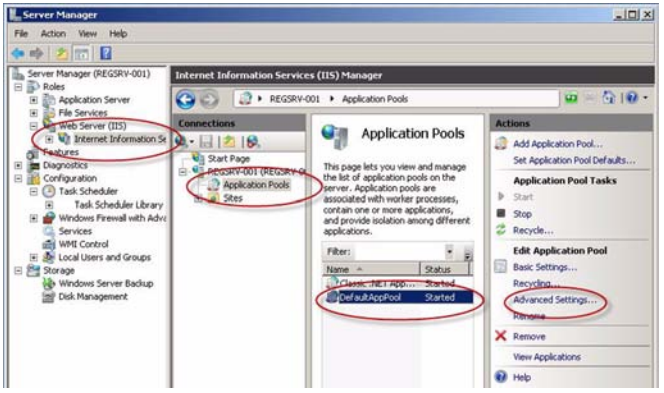
27. Close the SQL Server Installation Center window.

28. Remove the SQL Server 2008 R2 installation DVD.

In SQL Server 2008 R2, TCP/IP network access is enabled by default.

Enable 32-bit Applications

1. Using Internet Information Services (IIS) Manager -> Application Pools -> DefautlAppPool -> Advanced Settings, set Enable 32-Bit Applications to True.
2. Click OK.



Install RSEnergyMetrix Software Version 1.9

1. Insert the RSEnergyMetrix version 1.9 installation DVD into the CD/DVD drive.

If needed, browse the DVD and launch Autorun.exe to access the installation menu. Perform the following steps from the installation menu.

2. If needed, install Adobe Acrobat Reader (required for viewing reports on the server).
   a. Click the Adobe Acrobat Reader link under Install Optional Software.
   b. Select all defaults for a typical installation.
3. Install FactoryTalk Activation Manager 3.40.
   a. Click the FactoryTalk Activation Manager link under Install Required Software.
   b. Click Continue on the InstallShield Wizard screen.
   c. When prompted, select No to installing the HASP USB dongle drivers.

      Wait while prerequisite packages are installed.
   d. On the FactoryTalk Activation Manager InstallShield Wizard, click Next.
   e. Accept the terms of the license agreement and click Next.
   f. Click Install.
   g. When prompted, reboot the server.
4. Install RSLinx Classic Lite software, version 2.57.
   a. From the RSEnergyMetrix installation menu, click RSLinx Lite 2.57.00.
   b. Complete the steps to install RSLinx Classic Lite software.
   c. After installation, RSLinx Classic software starts as an application.

      Refer to the RSLinx application notes section below for tips on using RSLinx Classic software on Windows 2008 Server R2.

Do not install Microsoft .NET Framework 3.5 SP1 on Windows Server 2008 R2 SP1. It is already installed with the operating system.

RSEnergyMetrix software version 1.9 no longer requires the installation of Internet Explorer WebControls 1.0.

5. Install RSEnergyMetrix version 1.9.
   a. From the RSEnergyMetrix installation menu, click RSEnergyMetrix 1.90.00.
   b. Locate the InstallShield Wizard and click Next.

   The InstallShield Wizard might be behind other windows on the desktop.

   c. Click Yes to accept the EULA.
   d. Enter the customer information and click Next.
   e. Click Next.
   f. Click Next.
   g. Presuming a local installation of the SQL database, enter the server SQL login username and password that you entered in step 21 on page 29.

      If the SQL server is hosted on a remote machine, enter the database server name and SQL authentication credentials. Click Next.
   h. Click Next.
   i. Wait while RSEnergyMetrix software is installed.
   j. When complete, click Finish to reboot the server.
6. Install activations using the FactoryTalk Activation Manager.
7. Add local machine user IIS_IUSRS with read and modify rights to the **`C:\Program Files (x86)\Rockwell Software\RSEnergyMetrix\ChartFXNet`** folder.
8. Open Internet Explorer.
   a. Browse to **`http://localhost/rsenergymetrix`**.
   b. Log in (Username = admin, Password = admin).

The RT and ChartsPlus options do not require specific security configuration in RSEnergyMetrix software version 1.9. They run as Microsoft ClickOnce applications by default. You will need to grant permission for the options to run, but only one time on each computer.

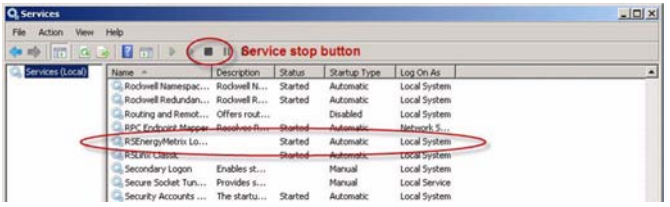
TIPS FOR USING RSLINX CLASSIC SOFTWARE ON WINDOWS 2008 SERVER

When you set up devices such as power monitors and PLCs in RSEnergyMetrix software, you will need to access RSLinx Classic software running on the server to configure drivers and network addresses of devices. You access the RSLinx Classic user interface to do tasks such as configure drivers, monitor devices in RSWho, and set up OPC topics.

RSEnergyMetrix software requires RSLinx Classic software to run as a Windows service. In Windows 2008 Server, when RSLinx software runs as a service the user interface is not available to the user. The user interface is only available when RSLinx software runs as an application.

In Windows 2008 Server, these steps are necessary to access the user interface of RSLinx Classic software.

1. Open the Windows Services control panel.



2. Shut down the RSEM logger service.
3. Open the RSLinx Classic Launch Control Panel.

4. Stop the RSLinx Classic service.

5. Uncheck the ‘Always Run As Service’ box.
6. Start RSLinx Classic software as an application.
7. Click the RSLinx Classic icon in the systray to open the user interface.
8. Make the changes that require use of the RSLinx Classic user interface.
9. When done, use the RSLinx Classic Launch Control Panel to stop RSLinx Classic software as application.
10. Check the ‘Always Run As Service’ box.
11. Start the RSLinx Classic service.
12. Using the Windows Services control panel, start the RSEM logger service.

This final step must be done to continue logging data.

ADDING SHORTCUT ICONS

The following optional steps will add shortcut icons to the server desktop. The shortcuts will make it easier to access the RSLinx Classic software user interface.

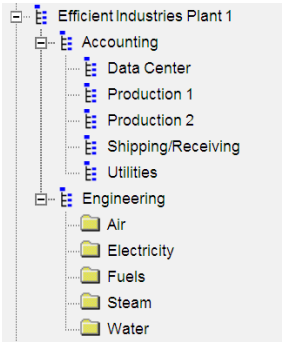
1. Copy a shortcut to the RSLinx Classic Launch Control Panel to the server desktop.
2. Right-click the server desktop, choose New > Shortcut.
3. Type **`c:\Windows\SysWOW64\services.msc /s`** in the item location.
4. Click Next.
5. Click Finish.

3 Organizing Your RSEnergyMetrix Project

RSEnergyMetrix Project Organization

RSEnergyMetrix Manager software lets you to set up a system configuration that helps you visualize and understand the energy use patterns of your plant or enterprise.

An RSEnergyMetrix project is organized in a familiar tree-structured fashion. You construct a tree made up of domains and groups in a hierarchy. A typical and popular way to organize a project tree is shown below.



At the root of the tree is a top-level domain that represents a plant named ‘Efficient Industries Plant 1’.

Under the top-level domain are two sub-domains, Accounting and Engineering. These are set up to address two groups of system users, those interested in energy usage by department or process (Accounting), and those interested in usage by utility type (Engineering).

Before we move on, let's define some terms:

- A Group, shown as a folder in the tree, is simply a collection of devices and meters (we'll define these later).
- A Domain is a special group with security assigned. Domains may contain other objects, such as reports, rate schedules, and multi-purpose report scripts.

The main reason you would create a Domain rather than a Group is to control user access to the meters and other objects in the group.

RSEnergyMetrix software offers flexibility in setting up the project structure. For instance, a corporate user with multiple locations can create a top-level domain for corporate, and sub-domains for each plant. The security configuration might permit plant users access only to the plant domains, while corporate users would have access to the corporate domain and all sub-domains.

You can assign a number of meters to a Group or domain, which represents a department, division or process. Meters can be assigned to multiple groups and domains, letting you create different views of meter data. Groups and domains can be nested.

You will encounter the project tree in several places as you navigate around the web interface:

- In the System tab, the entire tree is found in the Groups folder. This is where you build the tree by adding groups and domains. This is the only place the tree can be edited.
- Also in the System tab, a copy of the complete tree (domains and groups) is found in the Devices folder. This is where you create and maintain RSEnergyMetrix devices.
- A copy of the tree that includes only Domains is found in the Roles and Users, Rate Schedules, and Multi-purpose Report Script folders in the System tab.
- The Meters tab is arranged with a complete copy of the tree.
- The Reports and Custom tabs are organized with copies of the tree with only Domains.

The tree is refreshed whenever you click Save in an object that resides in the tree, raising a database change event. For instance, it refreshes when a Device, Meter, Group, Rate Schedule or Report is saved. The tree does not refresh when a Meter Tag is saved.

To begin to use RSEnergyMetrix software, you must create at least one domain. Although roles, users, reports, rate schedules, and multi-purpose report scripts can be global in scope, devices and meters must be assigned to domains or groups.

Set Up a New Group in RSEnergyMetrix Manager

1. Select up the System tab in the navigation tree.
2. Click the Groups folder in the tree.
3. Click Add.
4. Enter the appropriate information into the data fields:
   - Parent group - Required. Select a parent group from the pull-down menu. Select 'None' if the new group is to be a top-level group or domain.
   - This group is a domain checkbox - Checked by default. Clear this checkbox if the new group is simply a group. Leave checked if it is to be a domain with security (roles and users) assigned.
   - Name - Required. Enter a name for this group. A group name can be up to 50 characters in length and cannot contain period(.), single quote (') or pound (#) characters.
   - Notes - Optional. Enter any additional information you desire in the Notes field.
   - Default log rate - Required, range 1…60 minutes. Default is 15 minutes. Enter the interval in minutes that you want to log data from your meters. The log rate can be adjusted for individual meters in the group.
   - Reports title - Optional. Type in the first and second line of the report title that will be used for all reports assigned to this group
5. Click Save.

   Your new group now appears in the Groups folder in the System tree.

Notes:

4 Set up Devices, Meters, and Alarms

Overview of Devices

Devices are physical entities that RSEnergyMetrix software communicates with over a network.

Setting up a device in RSEnergyMetrix software establishes communication and creates database definitions for the device, and enables device configuration and data monitoring using the optional RSEnergyMetrix RT package.

You must set up at least one Domain before you can set up devices and meters. You should set up devices before you set up device-based meters.

Devices can be directly connected to the server over a network. Ethernet, EtherNet/IP, ControlNet, serial and DeviceNet devices can be directly connected provided that the RSEnergyMetrix server is also on the network through an appropriate network interface and you have configured the appropriate RSLinx Classic direct device drivers. Devices routed through a ControlLogix® gateway or RSLinx Classic gateway are also considered directly connected devices.

You must work on the RSEnergyMetrix server to set up drivers and verify communication in RSLinx Classic software. This requires access through a local console or remote access using a remote desktop admin session or remote control software such as VNC, PC AnyWhere, and Dameware.

Refer to Chapter 2 for tips on using RSLinx Classic software on Windows 2008 Server.

Devices can also be set up in a parent/child, or pass-thru configuration. Remote I/O devices must be set up as children of a parent device such as a programmable controller. DeviceNet devices can also be used as Child devices.

Device Classes

RSEnergyMetrix software uses Device Classes to determine how to interact with a particular device. The device class includes the device family, communication type, and whether the device has a clock that can be synchronized.

The following device classes (listed in alphabetical order) are supported in RSEnergyMetrix software.

Allen-Bradley E1 Plus Overload Relay on (comm. type)

Connects to an E1 Plus overload relay. The following communication types are supported:

- DeviceNet
- EtherNet/IP

Allen-Bradley E3 and E3 Plus Overload Relay on DeviceNet Network

Connects to an E3 or E3 Plus overload relay on a DeviceNet network.

Allen-Bradley 825-P Modular Protection System on DeviceNet

Connects to a 825-P Modular Protection System on a DeviceNet network.

ControlLogix Controller on (comm. type)

Connects to a ControlLogix (or Logix family) controller. With this device class, RSEnergyMetrix software can log only PLC/SLC™ mapped tags. You can log Logix family native tags using RSLinx Classic OPC:

- ControlNet
- Ethernet - EtherNet/IP
- Serial - DF1 full duplex
- DH+™ - Data Highway Plus™

Ethernet Energy Module (model) on Ethernet

Connects to a legacy 1803-EEM controller designed for totalizing pulse and analog legacy meters. The 1803-EEM as such is no longer available as a product. The following models are supported:

- SLC 500
- MicroLogix™ - can also be used to connect to non-EEM MicroLogix 1100 controllers directly and MicroLogix 1200 and 1500 controllers via a 1761-NET-ENI or NET-ENIW module
- ControlLogix

MicroLogix on the Ethernet Network

Connects to a MicroLogix 1000, 1100, 1200, or 1400 controller on an Ethernet network.

OPC Server on the Ethernet Network

Connects to the RSLinx Classic OPC server or a third-party OPC server such as Kepware. OPC devices and meters allow RSEnergyMetrix software to communicate with a wide variety of Rockwell Automation and third-party devices using OPC. The RSLinx Classic OPC server is supported in Manager. Connection to third-party OPC servers such as Kepware require activation of the 3PX third-party communication option.

An important use for OPC meters is to log data from Allen-Bradley Logix family controller native tags using the RSLinx Classic OPC server. To support OPC, RSLinx Classic software must be activated at the OEM level or higher, for example, Professional or Gateway.

PLC-5 on (comm. type)

Connects to a PLC-5® programmable controller. The following communication types are supported:

- ControlNet
- Ethernet - CSP/PCCC addressing
- Serial - DF1 full duplex
- DH+ - Data Highway Plus

Wireless PowerMonitor W250 Unit

Connects to an Allen-Bradley Wireless PowerMonitor W250. RSEnergyMetrix software uses an integral Modbus RTU master driver to communicate with this class of device. The device must be installed in a properly configured wireless mesh communication network with routers as necessary and using a wireless PC Receiver connected with the RSEnergyMetrix server using serial or Ethernet communication (using a serial to Ethernet gateway).

PowerMonitor 500 Unit

Connects to an Allen-Bradley PowerMonitor 500 panel-mounted meter using the Modbus RTU master driver integral to RSEnergyMetrix software. PowerMonitor 500 units can connect to the RSEnergyMetrix server using serial multidrop (RS-485) or Ethernet communications (using a serial to Ethernet gateway).

PowerMonitor Unit on Remote I/O Network

Connects to an Allen-Bradley Bulletin 1400 PowerMonitor with Remote I/O communication. You must have a parent device (Remote I/O scanner) such as an Allen-Bradley PLC-5, SLC 500 or ControlLogix controller.

PowerMonitor 1000 Unit (model) on (comm. type)

Connects to an Allen-Bradley Bulletin 1408 PowerMonitor 1000 unit. The following are supported:

MODELS

- TR1 - Voltage, current and, power factor transducer
- TR2 - Voltage, current, power factor, and power transducer
- EM1 - Basic real energy monitor for sub-metering applications
- EM2 - Energy and demand monitor for main metering applications
- EM3 - Full-function power and energy monitor

COMMUNICATION TYPES

- EtherNet/IP
- Serial - Allen-Bradley DF1 Half-duplex (slave), DF1 Full-duplex

PowerMonitor 3000 Unit (model) on (comm. type)

Connects to an Allen-Bradley Bulletin 1404 PowerMonitor 3000 unit. The following are supported:

MODELS

- M4 and M5 - basic power and energy metering
- M6 - basic power quality metering
- M8 - advanced power quality metering

COMMUNICATION TYPES

- ControlNet
- DeviceNet
- Ethernet - an Ethernet protocol, also known as CSP or PCCC, used by the Series A Ethernet PowerMonitor 3000 unit and PLC-5 controller.
- EtherNet/IP - also known as CIP (Common Industrial Protocol), used by the Series B Ethernet PowerMonitor 3000 and Logix controllers. Uses DeviceNet-style addressing.
- Remote I/O - Must have a parent device scanner such as a PLC-5, SLC 500 or ControlLogix controller.
- Serial - Allen-Bradley DF1 half duplex master/slave

Serial communication will not provide adequate performance in most cases. Please contact Rockwell Automation technical support for more information.

PowerMonitor II (model) on (comm. type)

Connects to a 1403 PowerMonitor II unit. Model LM specifies the limited metering model; Model MM specifies the full metering model. The following communication types are supported:

- DeviceNet (RT option is not supported for DeviceNet)
- Ethernet - CSP/PCCC addressing
- Remote I/O - Must have a parent device (scanner) such as a PLC-5, SLC 500 or ControlLogix controller.

- Serial - DF1 half duplex master/slave

Serial communication will not provide adequate performance in most cases. Please contact Rockwell Automation technical support for more information.

RSEnergyMetrix Server on the Ethernet Network

Connects to a remote RSEnergyMetrix server to obtain logged data as a roll-up server. RSEnergyMetrix software version 1.4 or higher includes roll-up server functionality. A roll-up server device is used to establish a connection to a remote RSEnergyMetrix server.

When roll-up meters and meter tags are configured, their data will be transferred from the remote server at a default rate of 60 minutes. You can change the roll-up server refresh rate in the Configuration page (System tab).

SLC 500 Controller on (comm. type)

Connects to an SLC 500 programmable controller. The following communication types are supported:

- Ethernet - CSP/PCCC addressing
- Serial - DF1 full-duplex
- DH+ - Data Highway Plus

How to Set Up a Device

Follow these general steps to set up a device. If you have already performed a step then skip to the next.

1. Configure the data source as applicable:
   - Set up a RSLinx Classic driver to communicate with the device. Verify communication using RSWho. For EtherNet/IP devices, you should open RSWho, drill down to and select each device with the mouse. If the device is a Logix controller, drill into the device and select the controller module.

Refer to Chapter 2 for tips on using RSLinx Classic software on Windows 2008 Server.

- Configure the ControlNet or DeviceNet network by using RSNetWorx™ software.
- Set up a parent device for Remote I/O devices.
- Install and configure an OPC driver.

2. In the navigation tree, select the System tab and open the Devices folder.
3. Select the Group or Domain for the new device.
4. Click Add a device.
5. Enter information into the Device Information fields.

   Details of the device setup page can change when you select a Device Class.
6. Enter information into the Device Communication fields.
7. Click Save to create the new device, or Cancel to discard your device settings.

Device Setup Page Elements

The Device Setup page provides a user interface for entering the information RSEnergyMetrix software requires you to establish communication with a Device. The device setup page contains some common elements. In addition, the setup page includes Device Information Setup and Device Communication Setup parameters that vary depending on the Device Class and the type of network used to communicate with it.

Your login Role must be assigned Edit Devices privilege to add or edit Devices. Without this privilege, many of the device setup page elements will be hidden.

You must set up at least one Domain before setting up any Devices.

Device Editing Control Buttons

The Edit, Add, Copy and Delete buttons appear when viewing the device setup.

The Save and Cancel buttons appear when adding a new device or editing an existing device setup.

EDIT

Opens the device setup screen in edit mode.

ADD

Opens a new device setup screen in edit mode.

COPY

Creates a duplicate of the existing device and opens the copy's device setup screen. The new device is named 'Copy of <existing device name>'. If the new name is longer than 50 characters, an error occurs and the new device is not created.

DELETE

Deletes the device and all meters attached to it. Requires confirmation.

SAVE

Records edits to the database and exits edit mode. Triggers a database change event.

CANCEL

Discards changes made to the device setup and exits edit mode. Does not delete a new device created by clicking Add.

RT (Real Time) Option Links

If a device supports RT functionality, the links to the optional RT device configuration and device viewer screens appear in view mode.

If the RT option is not installed, clicking an RT link opens a page which indicates that the activation for RT is not present.

Device Information Setup

Enable Checkboxes

The enable checkboxes appear in both view and edit modes. In edit mode they can be selected and de-selected. In view mode they are grayed out.

ENABLE DEVICE

Turns on and off communication between RSEnergyMetrix software and the device. A device must be enabled for any of the other enables to be effective.

ENABLE REAL-TIME LOGGING

Turns on and off logging of meter tags in meters attached to the device. Does not appear on setup page for roll-up servers.

ENABLE AUTO DATA REPOPULATION (ADR)

Turns on and off ADR. Supported in only certain devices such as A-B power monitors and PLC controllers. Does not appear on device setup screen for OPC devices.

ENABLE PQ EVENTS LOGGING

Turns on and off power quality event logging. Applies only to Allen-Bradley PowerMonitor 3000 model M6 and M8 devices.

Device Identification

These parameters establish some general and some device-class specific details.

PARENT GROUP

Applies to all devices. Specifies the group or domain the device to which the device is assigned. A device can only be assigned to one group or domain.

DEVICE CLASS

Applies to all devices. A device class is a set of properties that informs RSEnergyMetrix software how to interact with the device.

NAME

Every device must have a Name. The name should uniquely identify the device, since the following is true:

- The device name without group affiliation will be picked from a pull-down menu during meter setup.
- The overall device status page identifies devices by name without group affiliation.

A device name can be up to 50 characters in length, and cannot contain period (.), single quote (') or pound (#) characters.

If copying a device creates a name longer than 50 characters, an error occurs and the new device is not created.

NOTES

A field is provided for entering notes or comments for all devices.

TIME ZONE

Applies to all devices except for roll-up servers.

TIME SYNC.

Applies to devices with internal clocks that can be synchronized to the RSEnergyMetrix server. Establishes how often the server synchronizes the device clock. If the device time is synchronized by another method, set to 'Never' to avoid conflicts. Examples of devices that RSEnergyMetrix software can time-sync are Allen-Bradley power monitors and programmable controllers.

DEVICE PASSWORD

Applies only to Allen-Bradley power monitors. Default of zero matches the default power monitor password. The password entered here must match the power monitor password to enable time sync and device configuration download using the RT option.

Device Communication Setup

This area of the device setup page defines how RSEnergyMetrix software communicates with the device. Its content depends on the device class and type of network connecting RSEnergyMetrix software to the device. RSEnergyMetrix software features very flexible device communication.

Communication Path to Rockwell Automation Devices using the RSEnergyMetrix Integral Modbus Driver

RSEnergyMetrix communicates with Allen-Bradley Wireless PowerMonitor W250 and PowerMonitor 500 products using an integral Modbus RTU master driver.

COMMUNICATIONS PATH SYNTAX

The communications path is written in the following syntax:

<COM port ID>\x

or

<IP address>\x

where 'COM port ID' is the physical COM port in the RSEnergyMetrix server; 'IP address' is the IP address of a serial to Ethernet protocol converter (for example, Digi-One IA); and x is the Modbus node number of the device.

Communication Paths to Rockwell Automation Devices using RSLinx Classic Software

RSEnergyMetrix software communicates with Allen-Bradley devices such as PowerMonitors and programmable controllers using RSLinx Classic communication drivers. You must configure drivers in RSLinx Classic software on the RSEnergyMetrix server prior to configuring devices that communicate with the server using the drivers, and enter the device addresses into the driver address lists.

COMMUNICATION PATH SYNTAX

The communication path is written in the following syntax:

[ComputerName!]RSLinxDriverName\PathSegment1\PathSegment2\… \PathSegmentN

ComputerName is optional but if used must be the RSEnergyMetrix server name. RSLinxDriverName corresponds to the name in RSLinx Classic software for the driver used to communicate with the device. Examples of default RSLinx Classic driver names are:

- AB_ETH-1, Ethernet TCP/IP driver
- AB_ETHIP-1, EtherNet/IP driver
- AB_DF1-1, Serial full-duplex DF1 driver
- AB_MASTR-1, Serial half-duplex DF1 master driver
- AB_TCP-1, RSLinx Classic Gateway remote driver
- 1747-SDNPT-1, DeviceNet pass-thru driver for a 1747-SDN card
- AB_PCC-1, ControlNet driver for the 1784-PCC card

PathSegment1 through PathSegmentN indicate items such as, node numbers, channels, addresses, and slot numbers that make up the ‘hops’ that a message takes. Communication paths can vary from very simple to quite complex.

EXAMPLES OF COMMUNICATION PATHS

- AB_ETH-1\128.1.100.201, a direct connection to an Ethernet device on the same network as the RSEnergyMetrix server
- AB_ETH-1\128.1.100.134\Backplane\4, the path for a ControlLogix controller with a 1756-DHRIO module in slot 4. The controller will be used as a parent device to a PowerMonitor on Remote I/O configured in the 1756-DHRIO module.

- AB_ETH-1\128.1.100.82\Backplane\2\A\10\Port2\6, path from the RSEnergyMetrix server, via Ethernet to a ControlLogix Gateway with IP address 128.1.100.82, via ControlNet (175-CNB module in slot 2) to a 1788-CN2DN bridge module (MAC ID 10), via DeviceNet to a PowerMonitor 3000 with node address (MAC ID) 6
- AB_ETH-1\128.1.100.82\Backplane\2\A\5, path from the RSEnergyMetrix server, via Ethernet to the same ControlLogix gateway as in the previous example, via ControlNet (1756-CNB, slot 2) to a PowerMonitor 3000 with node address (MAC ID) 5

COMMUNICATION PATH RULES

All communication paths begin at the RSEnergyMetrix server. Select the end point of the communication paths according to these rules:

- For PLC-5 and SLC 500 controllers used as Remote I/O parent devices, the communication path extends to the network address of the PLC-5 or SLC 500 processor (see first example above).
- For ControlLogix controllers used as Remote I/O parent devices, the communication path extends to the slot number of the 1756-DHRIO module (see second example above). The DHRIO module must be configured and owned by a ControlLogix processor and the RIO devices must be properly configured in the processor's I/O tree under that DHRIO module.
- For direct connect devices, the communication path extends through all communication hops to the device's communication port (see third example above). DeviceNet PowerMonitor units are always configured as direct connect whether using an RSLinx Classic direct or pass-thru driver.
- For 1803-EEM Ethernet Energy Module, the following applies:
  - If the 1803-EEM is based on a SLC 500 controller, the path extends to the network (IP) address of the SLC 5/05.
  - If the 1803-EEM is based on a ControlLogix controller, the path extends through the ControlLogix processor module. For example: AB_ETH-1\128.1.100.134\Backplane\0, where 0 is the processor slot.

USE RSLINX CLASSIC SOFTWARE TO DETERMINE COMMUNICATION PATH

To use RSLinx Classic software to help determine the correct path, following these steps.

1. From the RSEnergyMetrix server, open RSLinx Classic software.

Refer to Chapter 2 for tips on using RSLinx Classic software on Windows 2008 Server.

2. From the RSLinx Classic main menu, select Communications > Configure Shortcuts.
3. Using RSWho, drill down to the network or parent device as applicable. Note the path shown at the top of the window.
4. Copy the entire path and paste it into the Communication path field in the device configuration screen in RSEnergyMetrix software.

   You can optionally omit the computer name at the beginning of the path (up to and including the exclamation point delimiter).

5. If the path ends on a network, add a '\' delimiter and the device address at the end of the shortcut path.

OPC COMMUNICATION PATH

Enter the OPC server name in the device setup screen. RSLinx Classic software must be activated at the OEM or higher level to support OPC.

In order to communicate with third-party devices such as power monitors from other vendors, the optional 3PX OPC connectivity software package must be installed as well as one or more customer-furnished OPC drivers.

Click the OPC Browser button to browse and select among the available OPC servers.

Refer to the online Help for more information on setting up OPC devices, meters, and meter tags.

The update rate of OPC devices can be adjusted in the configuration page.
OPC devices utilize the Max Messages setting in the device setup. There is no field for this on the device setup web page so it must be changed manually in the database. If the field in the database is null then it defaults to 10.

ROLL-UP SERVER COMMUNICATION PATH

The communication path is simply the remote server's IP address or network name.

Other Communication Settings

COMM. TIMEOUT (SECONDS), COMM. RETRIES, MAX. MESSAGES

These parameters can be adjusted to improve communication on less than optimal networks.

REMOTE I/O RACK, REMOTE I/O GROUP, REMOTE I/O SCANNER SLOT

These parameters are used to configure pass-thru communication with child devices on a Remote I/O network with a PLC-5 or SLC 500 parent device. The child devices must be properly configured in the Remote I/O configuration of the parent device and the parent device must be in 'run' mode for communication to occur.

RSEnergyMetrix software uses Remote I/O pass-thru communication to connect to power monitor devices. If the parent controller is communicating with the power monitor via block transfer, care must be taken to schedule the programmed block transfers to permit sufficient Remote I/O buffers and bandwidth to support the pass-thru communication. If communication errors occur with Remote I/O devices, check to ensure that scheduled block transfers are not programmed to occur continuously.

ENABLE COMM. LOSS ALARM CHECKBOX

Check this checkbox to have RSEnergyMetrix software treat communication loss to a device as an alarm condition.

TEST COMMUNICATION BUTTON

Visible only in view mode. Click this button to check the connection between RSEnergyMetrix software and the device. Does not apply to OPC server devices.

When a new device is created, it can be necessary to click the button more than once to receive a 'Connection successful' response. In some cases it can be necessary to access the RSEnergyMetrix server, open RSLinx Classic software, open RSWho and 'drill down' to the non-responding device. This is necessary for ControlLogix controllers when RSEnergyMetrix software is logging PLC/SLC mapped tags.

Refer to Chapter 2 for tips on using RSLinx Classic software on Windows 2008 Server.

Copy or Delete a Device

Devices can be deleted or copied using the buttons in the Device Setup screen.

Copy a Device

Copying Devices can increase productivity during initial setup of RSEnergyMetrix software or when adding power monitors to an existing system. To copy a Device, follow these steps.

1. Select the device you wish to copy in the System tab, Devices folder.
2. Click Copy in the Device Setup screen.
3. A new device is created of the same type, with the name 'Copy of <selected device name>'. If the new name is longer than 50 characters the name is truncated.
4. Rename the new device as desired.
5. Change the Device Class if necessary.
6. Edit the communication path as desired.
7. You can also change any other Device Setup parameters, including Parent Group, and Time Zone.
8. Click Save when finished.

   The Cancel button will not delete the new device, only cancel edits made in steps 4 and 5.

Delete a Device

To delete a Device, follow these steps.

Deleting a device also deletes all Meters associated with the device and purges all data associated with those meters in the RSEnergyMetrix database. When a large quantity of data is purged, it is possible that a timeout error will occur in Microsoft SQL server, requiring a server restart.

1. Select the device you wish to delete in the System tab, Devices folder.
2. Click Delete in the Device Setup screen.
3. Click OK when prompted, or Cancel if you decide not to delete the Device.

Device Status Display

The Device Status display provides a color-coded summary of the communication status of all devices in a group or domain at a glance. With the global Devices folder selected, the Device Status page includes all devices in the project. Click Refresh to refresh the display. Click 'Show all child devices' to display devices in descendent branches of the tree.

This screen shows the device communication status as of the most recent poll of meter tags for each device. After a database change event. devices will display 'Not scanned' status until their tags are logged.

If an error message 'Error getting status data: Cannot connect to the remote host 'gshmem://Logger.' appears, this is an indication that the logger service has stopped. Refer to the chapter on troubleshooting and support.

Click any device link to open a new browser window with detailed information on the device and its associated meters and meter tags.

Overview of Meters

A Meter is a logical source of data to RSEnergyMetrix software and is the unit used for licensing RSEnergyMetrix Manager software. From a licensing perspective, there are two types of meters.

- RSLinx meters include meters based on any Allen-Bradley device class (including PowerMonitor 500 and wireless PowerMonitor W250 devices), an RSLinx OPC server, or no device. The meter count in the Manager license applies to these meters.
- Non-RSLinx OPC Meters include meters based on third-party OPC server devices. The meter count in the 3PX option applies to these meters.

The 'About' link in the System tab lists the number of each type of meter used, as well as the number of each type licensed.

Device meters are data sources associated with Devices. Tags in device meters are typically polled automatically. You can also set up manual meters, used for manual entry of data. Meters are assigned to Groups and Domains and can be apportioned among more than one Group or Domain.

Meter Tags

A Meter can be considered a collection of related Meter tags. A meter tag is the basic unit of data collection in RSEnergyMetrix software. A tag can be a Device tag, an Manual tag or a Derived tag.

DEVICE TAGS

Device tags are associated with data values polled from a Device. Device tags are polled in real time.

MANUAL TAGS

Manual tags are placeholders in the database that allow a user to manually input values that are used in reports but are not available as device tags.

DERIVED TAGS

Derived tags are the result of calculations performed on combinations of other meter tags.

VALUE TYPES

Most meter tags are associated with a Value type. The value type is used by the billing and reporting functions to aggregate data of a certain type from one or more meters or groups. RSEnergyMetrix software includes a number of default Value types. You can easily add custom Value types from the Unit Setup screen in the System tab.

Value types can be assigned as Consumption or Demand types. Data assigned as Consumption value type will be displayed in Consumption reports. Data assigned as Demand value type will appear in Demand Analysis reports. Value types can also be assigned as neither consumption nor demand.

Navigating to a Meter

To navigate to a meter, select the Meters tab. Then drill down through the group or domain to the desired Meter.

The detail pane display for a meter provides a number associated displays:

- The Meter Data tab provides a tabular display of the meter Tags and values of each Tag.
- The Trend tab provides a graphical time trend or profile of user selected Tags over a user selected time scale.

- The Calendar Trend tab allows you to chart user selected Tags in a calendar format.
- The Meter Setup tab lets you add and delete Meters; and view and edit Meter and Tag configuration.

You can also select a Group or Domain in the Meters tab. The detail pane displays are slightly different than they are when a meter is selected:

- The Meter Data tab displays aggregated data organized by value type from the meters assigned to the Group. Meter tags without an assigned value type are not included in the group meter data page.
- The Meters tab lists the meters assigned to the group, and provides a link to set up a new meter.
- The Trend and Calendar Trend tabs display aggregated meter data, selected by value type.

Notes on Meters

It is important to understand the difference between a Meter and a Device. A Device is a physical piece of hardware such as a PowerMonitor or programmable controller, or a software application such as an OPC server. A Meter is a logical, or virtual, device that functions as a collection of data Tags. Three examples illustrating the importance of this distinction are:

- An 1803-EEM is a single Device that contains multiple (up to 48) Meters.

The 1803-EEM is a legacy product made up of a programmable controller with pre-designed logic, and is no longer offered as a product.

- A PowerMonitor 3000 unit is a single Device. Each of its status inputs can be used as a Meter by connecting a pulse type meter and counting pulses.
- A Programmable Controller is a single Device which can include a number of Meters, each configured as a User Defined Data Source. Some of these Meters can also be Devices, as where a PLC controller concentrates data from multiple power monitors for data logging yet each power monitor is also accessible from

RSEnergyMetrix RT for viewing all information including data, logs, and oscillographs.

When assigning meter tags to Meters, do not attempt to economize on Meter counts by combining different metering points from the same device into one Meter. Doing so will make it difficult or impossible to distinguish between metering points in trends and reports and can lead to erroneous data.

Set Up a Device-based Meter

Follow these steps to create a device-based Meter.

1. Select the Meters tab in the navigation tree. Select a group or domain for the meter location. If you need to, create a new group.
2. Select the Meters tab in the detail pane. Click the Add a new meter link.
3. The Add a Meter dialog appears.
4. Select a Parent Group.

   The default is the group selected when you began to configure the meter.
5. Select a meter Type from the pull-down menu.

   For information on adding meter types, refer to the chapter Administering RSEnergyMetrix Software.
6. Select a Device from the drop-down list.

   If you need to, configure a new Device.
7. Enter a name for the new meter and any notes you wish to record.

   Meter names can be up to 50 characters in length and cannot contain period (.), single quote (’), or pound (#) characters.
8. Select a time zone for the meter from the pull-down menu.

   A new meter is automatically configured to contribute 100% of its value to its parent group.
9. To adjust the contribution factor, select the parent group and edit the Group Setup screen.
10. Click Save.

Set up a PowerMonitor 500, Wireless PowerMonitor W250, PowerMonitor, PowerMonitor II, PowerMonitor 1000, or PowerMonitor 3000 Tag

RSEnergyMetrix software makes setup of Allen-Bradley power monitor tags easy and straightforward. Follow these steps.

1. In the Meter Setup page, click the Add a new meter tag link.
2. In the Add a Meter Tag window, leave the Meter tag type as Device.
3. Select a tag from the Select device tag to load data pull-down menu.

   For example, select Real Energy Net.
4. Note that the remaining fields in the page are automatically filled in.

   Do not change any of the remaining fields from the values that RSEnergyMetrix software fills in automatically. Changing the address, data format, scaling, value type and other parameters can prevent logging of the tag or can cause the tag to be logged with erroneous data.
5. Set the Log rate to the polling interval, in minutes, you desire.

   For electric meters, the log rate is usually the same as the demand period specified by the electric utility supplier. The default logging interval is 15 minutes or the group default log rate if different than 15 minutes.

   The time that RSEnergyMetrix software takes to log data during each polling interval is dependent on the number of devices, meters and tags set up in RSEnergyMetrix software; the performance of the local area network; and the characteristics of the server hardware, for example, the number of processors, clock rate, and amount of RAM. Setting a Logging Rate faster that the system can complete each polling interval can result in lost data and poor system performance.
6. Click Save to save the new tag, or Cancel to exit without saving.
7. Click the ‘Return to meter screens’ link at the top of the page when done.

   Or, if you want to add more tags, click Add.

8. When you have added all the tags you want, return to the Meter Setup page, click Edit, and then click Save.

   This triggers a database change event and refreshes the logger's copy of the configuration.

9. The Read Device Tag link causes the meter tags to read data and display it without logging the retrieved values.

Set Up a Derived Tag

You can use derived tags to log values that are calculated from other meter tags. A derived tag script defines the source tags and mathematical operations that return the desired value. Derived tag scripts are written in Visual Basic .NET. To create a derived tag, follow these steps.

1. In the Add a Meter Tag window, select Derived as the Meter tag type
2. Enter a Derived tag script in the entry field. Note the following:
   - The output variable of the script must be `Result.`
   - Meter tags can be specified using fully qualified tag names or the shortcut method.
   - Scripts can include any functions in the .NET system.math namespace. The online Help topics include information on additional special functions you can use in derived tags.
3. Set the Log rate to the polling interval you desire.

   The derived tag script will run at the polling interval specified. Derived tag scripts run five minutes after the normal polling time, so that all referenced meter tags have been updated.

   Derived tags can be used to roll-up data at intervals. Use the following log rates for the desired interval:
   - 1 day = 1440 minutes
   - 1 week = 10080 minutes
   - 1 month = 43200 minutes
   - 1 year = 518400 minutes

4. Click Save to save the new tag, or Cancel to exit without saving.

Refer to the online Help for more information.

Automatic Data Repopulation

Automatic data repopulation (ADR) is a standard function of RSEnergyMetrix Manager. ADR gathers selected data from device data logs rather than real-time data registers. ADR is used to repopulate database gaps caused by network or server outages. ADR will not repopulate gaps in the database that are caused by loss of power to or failure of the metering devices.

ADR periodically reads data logs from the device and, inserts records in the RSEnergyMetrix database where no corresponding data exists. It will not overwrite existing database records.

ADR is designed to help assure the integrity of data for billing, cost allocation, demand analysis and consumption reporting, such as real energy, reactive energy and demand real power. Data which is not contained in the device snapshot or trend logs is not available for data repopulation.
It is important that the device clock and the server clock remain synchronized or time offsets between logged and re-populated data can occur.

Devices Supporting ADR

ALLEN-BRADLEY POWERMONITOR UNIT

The power monitor snapshot log holds up to 50 records. Remote I/O communication is supported.

ALLEN-BRADLEY POWERMONITOR II UNIT

Remote I/O, Ethernet and serial communication are supported. The PowerMonitor II unit must be at firmware revision 3.00 or later and set up to use either the 16 parameter or 3 and 7 parameter snapshot log.

Snapshot log energy data is expressed with 7 digit precision while real-time energy data is expressed with 15 digit precision. ADR used with the PowerMonitor II unit can result in inaccuracies in energy consumption and billing reports, especially if the value of the energy registers is greater than 10,000,000 and repopulated data occurs at the beginning or end of the reporting period.

ALLEN-BRADLEY POWERMONITOR 1000 UNIT

The PowerMonitor 1000 energy log contains a predefined collection of energy, status input, and demand parameters (depending on the model) logged at a user-configurable interval.

ALLEN-BRADLEY POWERMONITOR 3000 UNIT

All communication networks are supported. The trend log is user configurable and holds a variable number of records depending on the user configuration.

Trend log energy data is expressed with 7 digit precision while real-time energy data is expressed with 15 digit precision. For accurate reporting results when using ADR, configure the PowerMonitor 3000 energy counters to roll-over at 7 or 8 digits depending on your accuracy requirements. This option is available with master module firmware revision 1.12 or later.

ALLEN-BRADLEY MICROLOGIX ETHERNET ENERGY MODULE (1803-EEM)

The EEM trend log contains an accumulated energy counter and a demand value for each configured meter.

The 1803-EEM is a legacy product made up of a programmable controller with pre-designed logic, and is no longer offered as a product.

ADR FOR PROGRAMMABLE CONTROLLERS

Automatic data repopulation also works with programmable controllers. Three steps are needed to set up ADR for programmable controllers in RSEnergyMetrix software. Controller ADR is supported in versions 1.5 SP1 and later.

1. Run the ADR Wizard to generate the RSLogix™ library import file.
2. Import the library file into the RSLogix ladder program for the controller.
3. Enable ADR on the controller Device in the Device Setup page.
4. Configure meter tags, specifying the ADR buffer index for each tag using the Trend log parameter value.

The ADR Wizard is a Windows program named ADRWizardForRSLogix.exe, located in the ADR Wizard for RSLogix folder under the RSEnergyMetrix program folder. The wizard requires Microsoft .NET Framework 3.5 SP1 to be installed on the computer the wizard will run on. The Framework is installed by default on Windows XP and 2003 Server operating systems. Users with access to the RSEnergyMetrix server can run the ADR Wizard on the server. The program file can be copied to and run on any computer with the .NET Framework 3.5 SP1 installed. See the help files for more information on how to use this tool.

Devices without ADR Support

ADR is not supported for OPC devices and meters, nor for the PowerMonitor 500 or wireless PowerMonitor W250 units.

Setting up ADR

1. Configure the power monitor or EEM snapshot or trend log to log the desired parameters at a rate equal to the fastest log rate of any meter tag.

   For example, if your PowerMonitor 3000 logs parameters into the trend log at 15 minute intervals, and one meter tag is logged at a 5 minute log rate, then only one out of three parameters will be logged into that meter tag in RSEnergyMetrix software. Ensure that the clock in the device is set to within one minute of the server clock.

2. During device setup in RSEnergyMetrix software, enable ADR by checking the checkbox.

3. During meter tag setup, RSEnergyMetrix software automatically selects the correct snapshot or trend log parameter value based on the value type you select for the meter type.

When a meter is first set-up attached to a device with ADR enabled, RSEnergyMetrix software populates data from the new device as far back as the trend/snapshot log exists.

Alarming

Alarming Overview

RSEnergyMetrix software is able to generate email alarms to users based on a number of conditions. When alarms occur, they are entered into an alarm queue in the database. Users are notified by email of alarms according to user-configured alarm subscriptions.

Types of Alarms

ALARMING ON VALUE

You can define one or more alarms per meter tag. Alarms can be set for any tag type which can be triggered when a tag value goes beyond the threshold. If value is equal to threshold, it does not trigger the alarm.

A new Alarms grid on the Meter Setup tab is displayed below the meter tags grid. The grid lists the configured alarms for meter tags which belong to the meter. The grid also contains links to the Alarm Setup page that allows you to create a new alarm or modify an existing one.

The new Alarm page has the following:

- 'Email me' checkbox - if checked and user is subscribed to receive alarms from this group, the alarm is emailed.
- 'High threshold' textbox.
- 'Low threshold' textbox.
- Inside/Outside interval radio buttons - if both thresholds are set, alarm is triggered on value between the thresholds or on value outside the thresholds interval.
- Send alarm when triggered or released - radio buttons.

The Alarms tab on the System Status page contains two sub-tabs, Alarm Log and Active Alarms that have been triggered, but haven't been released.

COMMUNICATION ALARMS

A communication alarm is generated when a device fails to respond to four consecutive polls. To enable a communication alarm, select the Enable comm. loss alarm checkbox on the Device Setup screen.

Alarm Subscriptions

ABOUT ALARM SUBSCRIPTIONS

Each user can configure one or more alarm subscriptions. Each alarm subscription can be assigned to an individual Domain or to 'none' which is a global subscription to all domains. A subscription consists of up to three email addresses along with a schedule that determines when each email address is active.

SETTING UP AN ALARM SUBSCRIPTION

Navigate to the My user settings link in the System tab. Click the Add a new alarm subscription link at the bottom of the screen. In the Add Alarm Subscription screen, select the group or domain you wish to subscribe to (or 'none' for all domains), and enter up to three email addresses. Click the Add new notification period link to set up schedules when each email address is active.

Automatic Report Generation - Alarms

In the bottom of Alarm Setup page there is a grid listing alarm jobs configured for the current alarm, similarly to report jobs grid on Report Setup page.

The report Job Setup page has an additional radio button ‘By Alarm’ in the Report Job Schedule section. Users can pick an alarm from the pull-down menu. There is also a link to the Alarm Setup Page from alarm report jobs. The naming of all generated reports includes the time/date of the report in the report name and email header.

5 Visualizing Your Energy Data

Viewing Meter Data

When you first select a Meter, the Meter Data tab is selected. The screen consists of a paged display of all data logged for the selected meter. You can use the controls in the Meter Data page to select information including data arranged by log rate, page forward and backward in time, and select a time zone for the display. The Meter Data page also provides the ability to enter manual data and edit data records by users with the Edit Meter data privilege.

Viewing Standard Charts

RSEnergyMetrix Manager provides two simple charting tools to help you understand your energy usage.

Trend Chart

This chart displays a trend of one or more logged parameters from one or mote meters over a time period that you select. You can select up to five parameters on the same chart. Parameters can be selected from the same or different meters.

Calendar Trend

This chart displays a trend line of one logged parameter in a calendar format. This chart is typically used to display real or reactive power demand over time to pinpoint peaks that vary by day, week or month. You can 'zoom in' on a day's chart by clicking on the day in the calendar view. Selecting multiple days overlays one trend line on top of another, allowing you to compare, for instance, all the Mondays in a month.

Viewing a Trend Chart

To view a Trend chart, follow these steps.

1. Navigate to and select a meter, or meter group, in the Meters tab of the navigation tree.
2. Select the Trend tab in the detail pane.
3. A blank chart appears labeled 'No meter tags selected'.

4. If necessary, select a time zone for the chart.
5. Select a meter tag to display from the pull-down menu.
6. Select a start and end date for the trend using the calendars.

   Or, you can enter the start and end dates into the data entry fields and click Go.
7. To add another meter tag, select another tag from the pull-down menu.
8. To add a tag from another meter, navigate to and select the other meter in the meters tab of the navigation tree and select a tag from its list.

   You can view up to 5 tags in a standard Trend chart.
9. If you hover the mouse cursor over the trend chart for a moment, a menu bar appears.

   From this menu bar, you can Save, Print, or Email the chart image.
10. Click Hide to temporarily not display a meter tag on the trend chart.

    The tag will still be selected, just not displayed. To show the tag again, click Show.
11. Click Bar to display the trend in a bar chart format.

    You can combine bar and trend selections in the same trend chart.
12. To permanently remove a tag from the trend chart, click Remove.
13. Click Export to save the trend data to a .csv file.

    This file is viewed in Excel software and displays all the numerical values for the tags and dates which you have selected.

To print the trend chart including the tag list, and calendars, ensure that 'Print background colors and images' is enabled in Internet Options, Advanced tab. Select Print from the Internet Explorer File menu.

VIEWING A CALENDAR TREND

To view a calendar trend of a meter's or group's data, follow these steps.

1. Navigate to and select the meter or group in the Meters tab of the navigation tree.
2. Select the Calendar trend tab in the detail pane.

3. Select the meter tag or value type you wish to trend from the pull-down menu.

   The Calendar trend is most commonly used to display real or reactive demand tags.

4. Select a month and year from the respective pull-down menu.

   You can also move forward and back a month at a time by clicking the arrows.

5. Use the scroll bars as needed to view the entire calendar display.

6. To zoom-in, click on a day in the calendar. You can select up to five days by clicking on each one at a time.

7. Click Export to save the trend data to a .csv file.

   This file is viewed in Excel software and displays all the numerical values for the tags and dates which you have selected.

Viewing Real-time Meter Data Using RT

You can also view real-time metering data, data logs, harmonics, oscillography and other meter attributes using the optional RSEnergyMetrix RT program. Please refer to ‘Using RSEnergyMetrix Options’ for more information.

Notes:

6 Setting Up Billing Reports

Overview of Rate Schedules

RSEnergyMetrix Manager provides you with powerful, flexible tools to create energy cost and billing reports. You can use billing reports for the following:

- Shadow billing - replicating the monthly bill from your energy provider
- Cost allocation - reporting the real cost of energy for each process or cost center in your enterprise
- Tenant billing - generating energy bills for use of your manufacturing or commercial facilities by others
- What-if analysis - Comparing costs of energy from different energy providers for the same usage

Rate schedules can have global or domain scope. Global rate schedules can be used in all domains. Domain rate schedules apply to only a single domain.

The RSEnergyMetrix rate schedule model is designed to be very flexible so you can accommodate the wide variety of utility tariffs that exists today and is sure to be expanded in the future. Rate schedules are also used with Efficiency Reports, part of the ReportsPlus option.

Rate Schedule Elements

A rate schedule comprises a set of rules and formulas that tell RSEnergyMetrix software how to transform energy usage data into cost allocation or billing data. Rate schedules include the following elements:

- General Information - identity of the rate schedule owner, the rate schedule scope (global or local to a domain) and effective dates. You can also select an effective date range for the rate schedule and regional formatting for numbers and currency.
- Runtime parameters - allow you to define and manually enter report parameters that are not automatically logged into the database. For example, a fuel charge rider that changes from month to month can be set up as a run-time parameter.
- Seasons - support utility tariffs that charge different amounts for things such as energy, and demand, depending on the season of the year.

- Day types - days can be classified as working, non-working, holiday, or as a day of the week (Sunday through Saturday). Each day type can be used in line item calculations.
- Times of Use - a simple menu allows you to configure time-of-use billing periods down to the minute to replicate your energy supplier's rate tariff.
- Line items - flexible Visual Basic .NET scripting combined with specialized functions easily support a variety of utility tariff charges, such as facility, meter or service charges, energy and demand time-of-use charges, "ratchet" demand penalties, transitional competitive charges, sales and use taxes and many others.
- Global variables - allow line items to interact by sharing data.

Rate Schedule Options

EXPORT LINK

Allows you to export a rate schedule from RSEnergyMetrix software to an xml file.

IMPORT LINK

Allows you to import a rate schedule xml file. If the file is not in the correct format, RSEnergyMetrix software will not import it.

PRINT LINK

Generates a printable pdf file containing a full listing of the rate schedule general information, seasons, non-working days, holidays, time-of-use periods, global variables and line items.

In the ExportedRateSchedules folder under the RSEnergyMetrix folder in the install CD, you will find a rate schedule file called Simple time-of-use template v 1.1, which you use as a starting point for rate schedule development.

Line Item Scripting

The billing report executes rate schedule line item scripts at report generation time. The scripts control the calculation of quantities, units and charges shown on the billing report output. Line items execute in the order they are listed in the rate schedule.

FUNCTIONS

You create line item scripts using Microsoft Visual Basic .NET. RSEnergyMetrix software provides pre-defined functions that assist you in calculating billing report charges, for example, total consumption, peak, average and ratcheted demand. Each function includes one or more arguments that allow you to pass logged metering parameters from the database, seasons, day types, time-of-use information and other variable to the function.

Rate schedule functions and their usage syntax are documented in the online Help.

Your script can also call functions in the .NET System.Math namespace. Refer to the .NET Framework documentation from Microsoft for details on these functions.

VARIABLES

RSEnergyMetrix software has several pre-defined input and output variables that can be used in the line item script.

Input variables have pre-set values:

- TotalCharges: Passes the sum of the charges in lower-numbered line items to the script. Provided for sales tax calculations. Returns a Double value
- RatePerUnit: This variable passes to the script the Rate per Unit value that you enter when you create or edit the line item. Returns a Double value
- BillingPeriodDayCount: Passes the number of days in the current billing period to the script. Returns an Integer value

Output variables control the line item properties on the billing report output:

- Quantity: determines the value shown in the quantity column of the billing report
- Unit: displays suitable units in the line item, for example, kWh
- Charge: the monetary line item value shown on the billing report
- Visible: local variable of type BOOL that determines if the line item is shown on the billing report or not. Default = True
- SuppressGrandTotal: global variable of type BOOL that controls the visibility of the Total Charge field in Billing and Cost Allocation reports. default = False
- SuppressGroupSubtotals: Global variable of type BOOL that controls the visibility of group subtotals in the Billing report. Default = false

You can also declare local or global variables (or constants) using the Dim (or Const) statement. Use the following syntax:

```
Dim MyVariable [As <Type>] [= <value>]
Const MyVariable [As <Type>] = <value>
```

You can use local variables to structure and simplify scripts that represent complex charges. Local variables do not appear in the report output but can be used to calculate Quantity, Unit, Charge or Visible.

Declare local variables in each line item script. Declare global variables in the Global Variables tab.

There are special naming conventions for parameters and variables used in line item scripts

Scripting Functions

RSEnergyMetrix software provides the following pre-defined functions for use in rate schedule scripting. Except as noted, each function operates on logged values between the report start and end dates which occur within the defined season, day and time-of-use periods. Please refer to the online help files for more information.

Scripting Function	Description
Average	Calculates the average value of a tag
Band	Calculates stepped or banded charges, such as, ‘first 1000, next 2000’ units of a tag
CostAllocateCharge	Used in Cost Allocation rate schedule to apportion a fixed or demand charge
GetData	Retrieves a specific logged value from the database
GetUnit	Reads the units from the database for use in a report
Lowest	Calculates the minimum value of a tag
LowestTimestamp	Determines when a minimum value occurred
NLowest	Calculates the 'n' lowest values of a tag
NLowestTimestamps	Determines when the 'n' minimum values occurred

Scripting Function	Description
NPeaks	Calculates the 'n' highest values of a tag
NPeakTimestamps	Determines when the 'n' maximum values occurred
Peak	Calculated the maximum value of a tag
PeakTimestamp	Determines the date and time a peak occurred for a tag
Ratchet	Used for calculating demand penalties for peaks which occur within a defined period prior to the report period
SeasonDayCount	Returns the number of days in the billing period in the specified season
SetDateRange	Used to obtain reports that compare usage over two different reporting periods
Sum	Calculates the arithmetic sum of a non-cumulative tag
Total	Calculates consumption of a consumption tag such as energy
TotalRTPCharge	Calculates the total charge for a consumption tag such as kWh, using real time pricing data
Future functions	Contact Rockwell Automation for availability of future and custom functions

Notes:

7 Running RSEnergyMetrix Reports

Overview

RSEnergyMetrix software standard reporting converts the energy and production data logged in the database into information you can use to manage your business, improve efficiency and reduce costs.

You can select the output format for RSEnergyMetrix reports. By default, reports are generated in standard Adobe Acrobat .pdf format. They are launched in a separate browser window.

Consumption Reports

Reports consumption values (for example, kWH and kVARh) for selected meters or groups for a specified date/time range.

Demand Analysis Reports

Reports real and reactive demand values for selected meters or groups for a specified date/time range. Reports ‘worst case scenario’ peak demand that would have occurred if each meter or group's peak demand had occurred in the same demand interval.

You can show or hide meter details on consumption and demand analysis reports by clicking the Suppress Meter Details radio button.

Billing Reports

Runs billing reports for selected meters for a specified date/time range. The report outputs a list of line items and a total charge amount. Each line item consists of a description, quantity, rate and charge.

Billing reports create their output based on rate schedules that you configure.

Power Quality Reports

Runs a report that combines a graph and a grid display of power quality (sag and swell) events detected by your PowerMonitor 3000 M6 or M8 meters.

Pareto Reports

Runs a report that generates a Pareto analysis of energy usage by the selected meters or groups.

Setting Up and Viewing a Standard Report

To set up a report, follow these steps.

1. Navigate to the Reports tab in the navigation tree.
2. Select the Global Reports folder or another Domain.
3. Click Add.
4. Enter a name for the report. Names can be up to 50 characters in length and cannot contain period (.), single quote (’), or pound (#) characters.
5. Select a Report template from the pull-down menu.

   Do not change the selected Report file.
6. Select a Report parent domain, or select ‘None’ for a global report. If you select a domain, only users with ‘view reports’ privileges in that domain will be permitted to view the report.
7. In the meter selection tree, navigate to and select meters to include in the report.

   Select a meter by clicking the selection box. A check mark appears when the meter is selected. You can also select by groups. To select groups, click the Select by Groups link at the top of the tree.
8. For billing reports, select a rate schedule from the pull-down menu.
9. When you have finished setting up the report, click Save, or click Cancel to discard any changes you have made.

Once you have a report configured, you can use the Copy button to make a similar report. The Copy button copies the selected meters or groups along with the rate schedule. It does not copy report jobs.

Viewing, Printing and Saving Report Output

1. Navigate to and select a report.
2. Select an output format. The default is set to .PDF (selectable choices are PDF, Excel, HTML, RTF, and TIFF).
3. Select a report time zone from the pull-down menu.
4. Enter a report time span. The default report time span is the previous whole month.
5. Click View.

   A new Internet Explorer web browser window appears while the report is being generated and then closes automatically. The report opens in a second new window.

   Pop-up blockers can prevent reports from appearing on your desktop. Disable pop-up blockers for the RSEnergyMetrix web site to view reports.

6. To print or save the report output use the menu controls in the report output window.

Editing an Existing Report

To change selections in an existing report, navigate to and select the report. Click Edit. You can modify any report parameters. When you have completed, click Save to record your changes or Cancel to discard them.

Viewing Existing Reports

If you are a user with ‘view reports’ but not ‘edit reports’ privileges, you can view reports, select output format, and change the report period.

Notes:

8 Administering RSEnergyMetrix Software

Overview of Security: Roles and Users

A Role is a named collection of privileges assigned to various users to manage security.

A User is a named set of security credentials (user name and password) that permit an individual to access the privileges defined in the Role assigned to the User. More than one Role can be assigned to a User.

Roles with Global scope control access to the entire RSEnergyMetrix system and permit access to all domains, groups, devices, meters, reports, and custom pages.

Roles assigned to a specific Domain control access to an individual domain and its sub-groups, devices, meters, and reports. Users assigned to Domain roles are not allowed access to Global objects such as reports, custom pages and rate schedules.

The default Global roles are Admin, User and Guest, with passwords admin, user and guest respectively. The Admin role includes all privileges. User and Guest roles provide limited view-only access to the system.

To configure Roles and Users, navigate to the Roles and Users subfolder under the System folder in the navigation tree.

Create a Role and Assign Privileges

RSEnergyMetrix software utilizes Roles and Users to manage security. To create a Role, navigate to the Roles and Users folder under the System tab in the navigation tree.

1. Click Add on the Role Setup screen.
2. Required. Select a Parent Group from the pull-down menu.

   If the Role is to be assigned Global scope, select None. Otherwise, select the desired Group (only groups that are Domains appear in the list).
3. Required. Enter a Name for the Role along with any Notes you wish to add.

4. To assign Privileges, select an individual privilege from the right-hand list and click the single-arrow to assign it to the role.

   You can also click the double-arrow to assign all the privileges to the Role. This should only be done with caution since this gives any Users assigned this role administrative privileges. You can also use buttons to un-assign privileges.

Set Up a User and Assign Roles

To create a new user, follow these steps.

1. From the Role Setup screen, click the Add User link.
2. Fill in the User Setup information fields.
   - Required. Enter the User name to be used to log in to RSEnergyMetrix software. User names must be unique. If using Windows Domain Security (LDAP, see below), the user name syntax is WindowsDomain\WindowsLoginName.
   - Optional. Enter additional information such as first and last names, email address, telephone, fax and pager numbers.
   - Required. Enter a Password. Note that the password is case sensitive. If using Windows Domain Security, you still must enter a token password, however, the Windows password will be used.
   - Select a home time zone from the pull-down menu.
   - Enter a language preference (future functionality)
3. Select User Roles by checking the applicable checkboxes. More than one Role can be assigned to a User. Roles with broader scope (higher up the tree) and/or greater privileges will override more limited roles.

Windows Active Directory Security

RSEnergyMetrix software supports Windows Active Directory security. No configuration is required to utilize Active Directory / LDAP (Lightweight Directory Access Protocol), simply creating a User name in the format WindowsDomainName\WindowsLoginName used to log in to Windows.

The password fields and password button are displayed for Active Directory users, however, the password entered into the user setup will only be used if the user cannot be authenticated with the Active Directory server. When the user is authenticated against the Active Directory server, RSEnergyMetrix software updates the password stored in the database to keep the passwords synchronized.

Set Up System Configuration

To make changes to the System Configuration, follow these steps.

1. From the System tab, click the configuration link.
2. Click Edit to fill in the System Configuration fields.
   - Enable or disable Logger Telnet Debugging and assign a Telnet password if desired.
   - Assign an Email SMTP server.
   - Change the Logger Configuration defaults if desired.
   - Change Miscellaneous Settings defaults if desired.
   - Enable or disable the New Meter Data Page, New Consumption Calculation, Fiscal Calendar, and On-demand Tree Loading settings.
3. Click Save to make the changes take effect.

Administering the RSEnergyMetrix Database

Database administration is performed using the functions and features of Microsoft SQL Server Management Studio. Please refer to the SQL Server documentation for information on database management and administration.

It is strongly recommended that you setup your database for daily backup and shrink. This keeps your database backup recent in the event an anomaly occurs with the database, and also keeps the transaction log from using too much hard drive space.

Database Name

RSEnergyMetrix software creates a new database with the name 'EMMA' when it is installed. It is strongly recommended that do not change the default database name. If you believe that you must change the database name, please contact Rockwell Automation technical support.

Obtaining Updates

From time to time updated versions of RSEnergyMetrix software can become available. For customers who have purchased software support agreements, these updates are available at no charge.

There are three classes of product updates. In a major revision, the first number of the software version changes, for example 1.7 to 2.0. In minor revisions, the second number changes, for example 1.7 to 1.8. If your software is in support, you can download major and minor releases from the Rockwell Automation software updates web page. You are required to submit registration information to download an update. You can also contact Rockwell Software customer service for an update CD.

The third class of update is a service pack. Service packs are used for making minor functionality changes, correcting issues required by operating system changes or other changes. Contact Rockwell Automation Technical Support for information on downloading service packs. When you download a service pack, you will have the option of downloading the CD contents in full or just the core RsEnergyMetrix program installer.

Download the update to a convenient temporary folder on the server.

If your installation of RSEnergyMetrix software has been customized by a solution provider (Rockwell Automation or a system integrator), contact the solution provider before attempting any software update. Updating a customized installation without the necessary precautions can disable custom additions to the basic software.

Follow these steps to upgrade your installation of RSEnergyMetrix software to a new version.

If you are updating from an RSEnergyMetrix software version earlier than 1.7 SP5, then you must install the .NET Framework 3.5 SP1 before updating the RSEnergyMetrix software. You can download the .NET Framework 3.5 SP1 installer from the Microsoft download center.

Installation on Windows 2000 Server is no longer supported.

1. Back up the RSEnergyMetrix ‘EMMA’ database.

   See Troubleshooting and Support for information on performing a database backup.

2. Collect and record the following information.
   - Serial number of RSEnergyMetrix Manager from the master disk or activation packet
   - Server operating system version
   - RSLinx Classic software version
   - Login credentials for a system administrator account on the server computer
   - Original Microsoft SQL Server administrator login credentials used to initially install RSEnergyMetrix software
   - RSEnergyMetrix administrator login credentials
3. Browse to the temporary folder where you saved the downloaded update, or insert the RSEnergyMetrix program CD into the server's CD drive and browse to the RSEnergyMetrix folder. Locate the setup.exe file.
4. Launch setup.exe by double-clicking the file icon. Setup will launch and prompt you to remove the installed software.Select Remove and click Next.
5. The existing installation of RSEnergyMetrix software is removed. The database is not removed.
6. When the uninstaller completes, launch setup.exe again.
7. Confirm the installation prompts. When prompted, enter the serial number of the Manager you wrote down earlier.
8. When prompted, enter the SQL system administrator account login credentials. If the SQL server is installed on another computer, enter the name of that computer. Click Next.
9. In most cases, you will see a message that the existing RSEnergyMetrix database has been found.
10. After the installation completes, you are prompted to restart the server. Select ‘Yes’.

Upgrading Meter Limits or Adding Options

You can purchase RSEnergyMetrix Manager software with capacity for 8, 64 or 10,000 meters. You can increase the meter limit on your server at any time by purchasing and installing an upgrade from Rockwell Automation.

You can also add options such as RT, 3PX, ChartsPlus and ReportsPlus in the same manner. Check with your local Rockwell Automation representative for option pricing and availability.

RSEnergyMetrix software is one software package with multiple options that are enabled by installing activations. The Manager software available on the software updates download page also includes the options such as RT, ChartsPlus, ReportsPlus, 3PX, and others. The software update site does not contain updates to Microsoft SQL server. To add options or upgrade meter limits, you need to install activations for the options you have purchased. Please refer to the Activations chapter.

9 Using RSEnergyMetrix Software Options

RT Real-Time Option

Overview

RSEnergyMetrix RT is an optional extension of RSEnergyMetrix software that can be used to configure Allen-Bradley power monitors and display their real-time data and power quality information. RT is a Smart-client application using Microsoft ClickOnce technology that is a separately activated component of RSEnergyMetrix Manager to provide a real-time power monitor connection.

Use Microsoft Internet Explorer (7.0 or later) to interact with RT.

RSLinx Classic Lite software provides communication between RSEnergyMetrix software and the power monitor hardware. RSLinx Classic Lite software is included with your RSEnergyMetrix software.

RT complements Manager's data logging, cost allocation, profiling and reporting functions by allowing you to configure power monitors and to view, print, and save data from power monitors. With RT, you can do the following:

- Download and upload power monitor configurations and save the configurations to the RSEnergyMetrix database.
- View all of the real-time parameters in the power monitors.
- Manually capture oscillographs and view, print and save automatically captured oscillographs.
- View, save, and print all of the data logs in the power monitors.

Overview of the RSEnergyMetrix RT User Interface

The RSEnergyMetrix RT user interface consists of two parts.

DEVICE CONFIGURATION WINDOW

The Device Configuration Window is the window that allows the user to change or view the configuration of a power monitor. The link to launch the Device Configuration window is found at the top of the Device Setup page in the System tab of the RSEnergyMetrix web page.

DEVICE VIEWER WINDOW

This window is the real-time viewer for all of the power monitor data. Its link can be found immediately underneath the Device Configuration link in the Device Setup page. Another way to launch the device viewer is by clicking the device class link (for example, PowerMonitor 1000 (EM3)) found at the top of the Meter Setup page.

The Device Configuration window and the Device Viewer are separate windows which appear 'on top' of the RSEnergyMetrix Internet Explorer desktop. You can move, resize, maximize or minimize the windows. If you maximize a window, it can overlap and hide the other windows. To display a hidden or minimized window again, click its name on the Windows Task Bar.

Refer to the online help for more detailed information on using RT to configure and view Allen-Bradley PowerMonitor, PowerMonitor II, PowerMonitor 1000, and PowerMonitor 3000 units.

Set Up Power Monitors Using RT

You must use RSEnergyMetrix Manager to configure groups and power monitors as devices so that you can work with the power monitors in RT.

To launch the device configuration window, select a power monitor device in the navigation tree Setup tab, and click Device Configuration in the device setup screen in the detail pane. If the power monitor is already configured, you can upload its settings to RT. Or you can enter new configuration data in RT and download the settings to the power monitor.

It is good practice to upload first, then make desired changes, then download. This helps avoid unintended changes to a power monitor configuration.

TO SET OR CHANGE POWER MONITOR PROPERTIES

1. Navigate to the power monitor device in the Setup tab > Devices folder.

2. Select the power monitor.
3. Open the Device Configuration window by clicking Device Configuration.
4. Upload the configuration from the power monitor, then make desired changes to configuration data in any of the tabs, as appropriate.
5. Click Accept to accept the changes and save them to the database, or click Cancel to discard changes.
6. Click Download to download the new settings from RSEnergyMetrix RT to the PowerMonitor unit.
7. Click Close to close the Device Configuration window.

- Before configuring PowerMonitors in RT, first establish hardware communication by using RSLinx Classic software and then RSEnergyMetrix communication to the device.
- The password entered in the Device Setup screen must match the power monitor password to enable downloads.

View Power Monitor Data Using RT

To launch the device viewer for a meter, select a meter in the navigation tree meters tab, and click the Device Class link, (for example, PowerMonitor 3000 unit on the EtherNET/IP network) in the Meter Setup tab in the detail pane.

The Device Viewer window is a tabbed dialog. Select from the tabs to view real-time voltage and current, power, or energy data; oscillograms, transients, or harmonics; input/output data and setpoint status; or data logs.

Refer to the online help for more detailed information on the RT option.

ReportsPlus Option

Overview

RSEnergyMetrix ReportsPlus provides you a package additional reports in addition to the standard reports included in Manager.

ReportsPlus reports are set up and viewed in the same way as standard Manager reports. Like standard reports, ReportsPlus reports can be configured to automatically run on a schedule and optionally send the report output to one or more email addresses.

ReportsPlus reports can be identified by a distinctive icon in the report list.

The additional reports included in ReportsPlus include the following.

Efficiency

This report gives you information on the 'energy efficiency' of part or all of your process, plant or enterprise. You will be able to define an efficiency equation and then execute the equation over a period of time and a group of meters. These are examples of how this report can be used:

- Calculating efficiency of a boiler system based on BTU of gas consumed versus steam produced
- Calculating production efficiency of a batch manufacturing line by calculating tons of product versus energy consumed

The efficiency report will calculate not only average efficiency over the selected time range, but also snapshots of the efficiency during the range at user-specified intervals. Report output will be graphical and tabular, with a graph of efficiency versus time.

The calculation used in an efficiency report is stored in a simple rate schedule. An efficiency rate schedule typically contains only one line item, which totalizes and normalizes the quantities used in the report, guards against division by zero, and assigns the calculation result to the Quantity variable. It is good practice to include the units of efficiency in the report title, for example, 'Air compressor efficiency ccf per MWh'.

Load Factor

The Load Factor report lists minimum, average and peak real power demand, load factor and time of peak demand during each selected calculation interval. You can select Groups or Meters to include in the report, as well as the report date range and calculation intervals (days or months). The report sums the demand of all selected groups or meters. Its output contains a tabular report and a graphical chart.

Power Factor

The Power Factor report lists real energy net, reactive energy net, and power factor (which is calculated from the real energy and reactive energy values) for selected meters for a selected date range divided into specified calculation intervals (hours, days, or months). Report output is tabular with a chart of power factor on the first page.

For this report to function, the selected meters or groups must be logging Real Energy Net and Reactive Energy Net.

Electrical Summary Report

The Electrical Summary report lists various electrical summary values for selected meters for the selected date and time period. These are summaries:

- Total Energy kWh, kVARh and kVAh
- Average Demand for kW, kVAR and kVA
- Load Factor for kW and kVA
- Min and Max values for kW, kVAR, kVA and Power Factor and the date/time they occurred along with the coincident values for the other parameters

The selected meters must be logging the relevant data in order for it to show up on the report (for example, if Real Power Demand is not logged then there will be no kW figures on the report). Power Factor is calculated from any two of the other three parameters (kW, kVAR, kVA).

Multi-purpose Report

The Multi-Purpose Report supports a free-form type of report output that is driven by script code stored in a Multi-Purpose Report Script.

A Multi-Purpose Report Script defines what a Multi-Purpose Report looks like. Multi-Purpose Report Scripts are conceptually similar to rate schedules in that they are a separate entity within RSEnergyMetrix software that is combined with selected meters or groups to form a specific report instance. This allows Multi-Purpose Report Scripts to be reused for different meters and groups.

Refer to online help.

ChartsPlus Option

Overview

RSEnergyMetrix ChartsPlus is an optional extension of RSEnergyMetrix Manager that offers extensive custom charting capabilities. ChartsPlus is a Smart client application that uses Microsoft ClickOnce technology to download and run on the client computer. Its look and feel is that of a traditional Windows application rather than a web application.

ChartsPlus provides formatting and annotations toolbars that provide you with tools for customizing the appearance of your charts.

ChartsPlus provides you with the ability to create customized graphical views of your energy data. Some of the possibilities include the following.

ENHANCED TREND

ChartsPlus allows to plot up to 8 variables. Different time ranges can be selected for each variable and you can select various summary methods for each variable (for example, you can plot the average Monday for one variable vs. a specific Monday for the same variable or another variable). Also, the chart control itself has many built-in functions such as zoom, scroll, print, export, and user customization.

ENHANCED CALENDAR TREND

Same as standard Calendar Trend but can overlay different months and multiple variables.

LOAD FACTOR CHART

Plot a trend of load factor over a one-month period as well as daily min, max, and average demand.

X-Y TREND CHART

The X-Y Trend Chart provides graphical tools to help analyze energy usage and identify areas for reducing cost. The X-Y chart plots one dependent (Y) variable against up to 3 independent (X) variables. It performs statistical analysis methods including linear regression, targeting and CUSUM (cumulative sum) analysis.

OVERLAY CHART

The new area chart for version 1.5 and greater displays tag values with user-definable overlay. There is a configuration screen to set up to 10 time periods which can also be saved. Users are able to reuse preconfigured periods from already saved overlay charts. High and low percentage deadbands can be configured by users and displayed on the chart.

Refer to the online help for more detailed information on using the ChartsPlus option.

3PX Third-party Connectivity Option

RSEnergyMetrix software enables RSEnergyMetrix Manager to collect data from third-party energy data sources through an OPC server that you provide. 3PX, like Manager, is offered in 8-, 64- and 10,000-meter licenses.

ClickOnce operation of RT and ChartsPlus

RT and ChartsPlus options run as ClickOnce applications by default. The first time these applications run on a client, the user is prompted with a security message.

In the Application Run dialog box, click Run to enable RT or ChartsPlus to run. After the first time, this warning will no longer appear.

ClickOnce applications run on Windows 32- and 64-bit operating systems with .NET Framework 3.5 SP1 installed.

Notes:

10 Troubleshooting and Support

Troubleshooting FAQ

Please refer to the online Help topics for troubleshooting information.

System Status Display

The System Status display provides diagnostic information to help you locate potential causes of logging issues in RSEnergyMetrix software.

1. The system status screen is the default screen to appear when you log in to RSEnergyMetrix Manager. You can also click on the System Status link in the RSEnergyMetrix software header to access the system status display.
2. You can select one of the List errors options for display.
3. Only devices with errors appear in the list, arranged by the number of device errors in descending order. Click a device name for a list of specific device errors.
4. Ten errors at a time are listed with time stamps and error codes. Click a page number to select the next page of device errors.
5. You can purge errors from individual devices by clicking the Purge link in the device list or purge all errors by clicking Purge All (see above).

Microsoft SQL Server

It is important to backup your database from time to time.

1. From the Windows Start button, select Programs, Microsoft SQL Server, SQL Server Management Studio. (SQL Server Management Studio shows different databases under ‘local’ account.)
2. Right click on ‘EMMA’, select All Tasks, Backup Database.
3. Click ‘Add’ to select the destination to store the backup file. Choose the radio button ‘File name:’ and enter the name and path for your database.
4. Click OK twice and the database backup begins.

To view current database size and available space, right click the database in SQL Server Management Studio and select Properties.

To view log file size and percentage used run this command in a new SQL query: DBCC SQLPERF (LOGSPACE).

If you are having problems connecting to the database when launching RSEnergyMetrix software, make sure that the SQL name and password reflect the same name and password when you installed RSEnergyMetrix software.

Telnet

You can connect to the RSEnergyMetrix server using Telnet to perform a number of diagnostic tasks. To use Telnet, follow these steps.

1. From the Windows Start button, select Run... and enter “Telnet” in the Open field.
2. Click OK, then in the Telnet window that appears, type the following.

   ```
   open [server name]
   ```

   ‘Server name’ is the name or IP address of the RSEnergyMetrix server.

   The RSEnergyMetrix logger debug console window appears.
3. Enter a question mark followed by the <enter> key to list the available commands.

In addition to processing the commands you enter, the console will display a running record of logging activity which is useful in troubleshooting logging issues.

4. To end your Telnet session, press <ctrl>], then type “quit” in the command window to exit.

Telnet is disabled by default. Please contact Rockwell Automation for assistance with enabling Telnet.

Time Zone Issues

Time zones in the RSEnergyMetrix system are independently set for meters, devices, rate schedules, reports, and the RSEnergyMetrix server. The time zone you select will affect the following:

- Time stamps during data logging
- Database logging intervals
- Synchronization of device clocks with RSEnergyMetrix server clock
- Consumption and Billing reports
- Trend graphs
- Calendar trend graphs

Daylight saving time is accounted for during data logging and data retrieval.

Obtaining Support

To obtain support, please point your browser to
http://www.rockwellautomation.com/support

11 Activation

Activation

Rockwell Software products no longer ship with a physical master disk for activating software. Instead, these software products use activation files generated by Rockwell Automation and distributed over the Internet. All Rockwell Software products use the new electronic process, called FactoryTalk Activation. check the Activation Certificate document enclosed with your software CD to find out which type of FactoryTalk Activation to use.

The newest version of the activation manager software has important updates. Re-install the activation manager software if you have previously installed it.

What You Need to Activate Your Product

Have these items before you begin:

- Internet connection at your site

  One computer with a web browser or e-mail at each site. If you do not have an Internet connection at your site, you can still get the activation information by telephone or fax (see Need More Help?)

- FactoryTalk Activation Manager software

  The FactoryTalk Activation Manager software is included on your software product CD.

- Activation Certificate

  This document is enclosed in a red envelope with the software CD. It contains the Serial Number and Product Key of your software product, as well as the Activation Type you have purchased.

Locate the Activation Certificate in Your Box

RSEnergyMetrix software and its options utilize concurrent activation.

How to Activate Your Software

Follow these instructions to download an activation file and activate your RSEnergyMetrix software.

1. Install the FactoryTalk Activation Manager software.
2. Open the FactoryTalk Activation Manager software and click the Get Activations button.
3. Follow the instructions to select an activation method, enter activation information, validate the activation and download the activation to your computer.
4. Refer to the Activation Manager Help topics for additional information.

Do not lock activations to virtual network adapters, such as those used for virtual private networks (VPN) or virtual machines. Instead, lock activations to the Host IDs of fixed hardware devices, such as hardware network adapters or hard disk serial numbers.

5. After you download the activation file, your new software will activate when you install your software, open Internet Explorer, and log in to the RSEnergyMetrix web portal.

Activating RSEnergyMetrix Manager and Options

RSEnergyMetrix Manager is a server-based application. Activation files are installed on the server computer's hard disk during normal installation of the software. The installed activations determine the Manager meter limit and which options are enabled. One activation enables Manager, one activation enables the Real Time (RT) options, one activation enables the ChartsPlus option, and one activation enables the ReportsPlus option. There is no limit on the number of users that can access the RSEnergyMetrix server.

Your Microsoft SQL Server license can place limits on the number of concurrent users. It is the customer's responsibility to observe the requirements of all software licenses.

Upgrading Meter Limits or Adding Options

You can purchase RSEnergyMetrix Manager software with capacity for 8, 64 and 10,000 meters. You can increase the meter limit on your server at any time by purchasing and installing an upgrade from Rockwell Automation. A meter limit upgrade adds the number of meters in the upgrade to the previously installed meter limit. For example, adding a 64 meter Manager activation to an existing 8 meter Manager package provides a limit of 72 meters.

You can also add options such as RT, 3PX, ChartsPlus and ReportsPlus in the same manner. Check with your local Rockwell Automation representative for option pricing and availability.

Connection to the RSLinx Classic OPC server is supported in Manager. Connection to customer-provided third-party OPC servers such as Kepware requires installation of the 3PX third-party communication option.

An important use for RSLinx Classic OPC meters is to log data from Allen-Bradley Logix family controller native tags.

How to Upgrade From Master Disk to FactoryTalk Activation and Receive Product Key for My Software

Refer to the Rockwell Automation knowledgebase instructions on upgrading to FactoryTalk activations from legacy (master disk) activations (knowledgebase answer 56477). You need to upgrade activations for each individual product (for example, Manager 8, 64, or 10,000 meter, RT, or 3PX). In order to upgrade, your software must be covered by a current TechConnect support agreement.

Notes:

Glossary

Device: A physical source of data. A Device is an external hardware device or software application that supplies data either directly to RSEnergyMetrix software or indirectly to RSEnergyMetrix software through another Device. Device examples include power monitors, and PLCs. A software application example is an OPC server.

Domain: A domain is a Group that Roles, Users, Rate Schedules, Multi-purpose Report Scripts, and Reports can be assigned to. Essentially, a Group with security.

Group: A named collection of Devices and Meters. Groups can be nested to any arbitrary level.

Meter: A logical source of data related to a specific measurement point. Meters can contain zero or more Tags. Meters can be of type Device or Manual.

Power Monitor: A device that measures the characteristics of the electricity in a circuit.

Privilege: A specific security access flag. Examples of Privileges are: 'Edit Users', 'View Rate schedules', 'Run Billing Reports'. A number of pre-defined Privileges are defined 'out of the box' in the default Roles of 'Admin,' 'User' and 'Guest'.

Role: A named collection of security attributes (Privileges). Roles are assigned as Global or assigned to Domains.

Tag: A specific value type and addressing information on how to read a value from a Device. Tags are assigned to Meters. Tags can be of type Device, Manual or Derived.

User: A named set of login credentials. Users are assigned to Roles.

OPC: A standardized method of communication between devices from disparate manufacturers. In order to communicate with third-party devices such as power monitors from other vendors, the optional RSEnergyMetrix 3PX OPC connectivity software package must be installed as well as one or more customer-furnished OPC server software packages.

Notes:

Index

S

T

W

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication ENEMTX-GR001H-EN-P - February 2012
Supersedes Publication ENEMTX-GR001G-EN-P -