

Copyright © 2013 GE Multilin Inc. All rights reserved.

Power Management Control System (PMCS) software revision 7.00.

EnerVista, Integrator, Digital Energy, Multilin, and GE Multilin are trademarks or registered trademarks of GE Multilin Inc.

The contents of this manual are the property of GE Multilin Inc. This documentation is furnished on license and may not be reproduced in whole or in part without the permission of GE Multilin. The manual is for informational use only and is subject to change without notice.

Part number: 1601-0268-A1 (May 2013)

PMCS

Quickstart Guide

Introduction

The Power Management Control System (PMCS) accesses GE Multilin™ and third-party devices in a substation and provides graphical representations of status and energy trends, remote control, and automated responses. By optimizing methods used to control both processes and equipment, energy efficiency is realized.

PMCS is intended for installation with CIMPLICITY® HMI. The wizards contained in the PMCS software allow you to quickly build accurate and friendly user interfaces with CIMPLICITY. Installation of PMCS adds PMCS and EnerVista™ Integrator™ functionality to CIMPLICITY.

PMCS typically is installed on one computer, and the option exists to install Remote Viewer capability on other computers. The Remote Viewer provides access to events and waveforms.

Devices supported

PMCS supports GE Multilin and third-party devices, including Modbus-based devices.

The table outlines the devices supported. The numbered products 239, 339, and so on, are also referred to as SR239, SR339, and so on.

Firmware revisions other than those listed may not be compatible. When in doubt, contact your GE Sales Representative or GE Digital Energy as outlined in the [For further assistance](#) section.

Table 1: Devices supported by PMCS

| Device family | Device | Firmware |
|-----------------------|---------------------------------|--------------|
| ATS | MX150 | 5.4x, 6.0x |
| | MX250 | 5.4x, 6.0x |
| | MX350 | 1.2x |
| UPS | UPS, UPS LP, UPS SG | 1.0 |
| Trip Units/Switchgear | Spectra MicroVersa Trip | 5.1x |
| | Enhanced MicroVersa Trip C | 4.1x |
| | Enhanced MicroVersa Trip D | 4.1x |
| | GTU (EntelliGuard TU Trip Unit) | 7.0x |
| | ELVS (Entellisys) | 4.5x |
| | MET | 12.02.02 |
| Meters/Switches | PQM | 3.3x to 3.6x |
| | PQMII | 1.0x to 2.2x |
| | EPM1000 | 3.8x |
| | EPM2000 | 1.0x |
| | EPM2200 | 1.0x |
| | EPM4000 | 3.8x |
| | EPM5000P | 2.4x |
| | EPM5300P | 2.4x |
| | EPM5350P | 2.4x |
| | EPM6000 | 1.0x |
| | EPM9450Q | 2.1x |

QUICKSTART GUIDE

| Device family | Device | Firmware |
|--------------------------------------|---------------------|---------------|
| | EPM9650Q | 2.1x |
| | EPM9800 | 6.1x |
| | ML2400 | 3.0x |
| Distribution Feeder | 350 | 1.2x to 1.4x |
| | F35 | 2.6x to 5.9x |
| | F60 | 2.6x to 5.9x |
| | F650 | 1.6x to 5.4x |
| | MIF 2 | 4.0 |
| | 735/737 | 1.5x |
| | 750/760 | 3.6x to 7.4x |
| | G30 | 4.4x to 5.9x |
| | G60 | 2.6x to 5.9x |
| Generator | 489 | 1.3x to 4.03x |
| | D30 | 5.0x to 5.9x |
| | D60 | 2.6x to 5.9x |
| | D90 ^{Plus} | 1.8x |
| Line Current Differential Protection | L30 | 5.6x to 5.9x |
| | L60 | 2.6x to 5.9x |
| | L90 | 2.6x to 5.9x |
| Transformer | 745 | 2.4x to 5.2x |
| | T35 | 2.6x to 5.9x |
| | T60 | 2.6x to 5.9x |
| | 345 | 1.3x to 1.4x |
| Motor | 239 | 2.3x to 2.7x |
| | 269+ | 6.0x |
| | 339 | 1.3x to 1.4x |
| | 369 | 1.6x to 3.4x |
| | 469 | 2.5x to 5.1x |
| | MM200 | 1.0x to 1.2x |
| | MM300 | 1.2x to 1.5x |

| Device family | Device | Firmware |
|---------------|---------------------|--------------|
| | MMII | 4.0x to 5.2x |
| | MMIII | 1.0 to 1.2x |
| | RRTD | 1.4x, 1.5x |
| | SPM | 2.0x, 2.1x |
| | M60 | 2.6x to 5.9x |
| Network | N60 | 3.4x to 5.9x |
| Bus | B30 | 2.6x to 5.9x |
| | B90 | 4.8x to 5.9x |
| Specialized | C30 | 2.6x to 5.9x |
| | C60 | 2.6x to 5.9x |
| | C90 ^{Plus} | 1.6x to 1.8x |
| Miscellaneous | MRPO | 1.0 |
| | FIRETRACER | 1.0 |
| | VERSAMAX | 1.0 |

PMCS includes a set of customized wizard screens for the devices listed in the following table.

Table 2: Customized wizard screens

| Device family | Device |
|-----------------------|---------------------------------|
| Trip Units/Switchgear | Spectra MicroVersa Trip |
| | Enhanced MicroVersa Trip C |
| | Enhanced MicroVersa Trip D |
| | GTU (EntelliGuard TU Trip Unit) |
| | ELVS (Entellisys) |
| Meters | PQM |
| | PQMII |
| | EPM9450Q |
| | EPM9650Q |
| Distribution Feeder | 735/737 |
| | 750/760 |

| Device family | Device |
|------------------|--------|
| Generator | 489 |
| Transformer | 745 |
| Motor | 469 |
| Universal Relays | UR |

Unpacking checklist

The following items are included with purchase:

- PMCS software (on CD)
- Quickstart Guide (on CD and printed)
- Instruction Manual (on CD)
- CIMPLICITY HMI (on DVD)

If any of the contents listed are missing or there is physical damage to the product, contact GE Digital Energy immediately using the contact information in the **For further assistance** section.

For product information, document updates, and software updates, visit the GE Multilin website at <http://gedigitalenergy.com/multilin>.

Installation

This section outlines how to setup computers and install PMCS. PMCS is installed typically in a control room or office, not a substation. The process is as follows:

- Check the computer requirements
- Set up the computer system
- Install the PMCS software

System requirements

Use a dedicated computer to run the software. Administrator privileges are required for installation.

Software requirements

PMCS requires the following software to be pre-installed:

- Windows 7 Professional (64 bit) or Windows 2008 Server Standard (64 bit)
- Internet Services Manager (IIS) if using remote workstations
- CIMPLICITY HMI version 8.2 with SIM4 (minimum). The OPC Client option must be installed. CIMPLICITY software may be provided with purchase; follow the instructions outlined here if not already installed.
- .NET framework 4.0 (if not installed, PMCS installs it)

Hardware requirements

The computer requirements are as follows:

- 2.3 GHz (minimum) single processor Dell OptiPlex
- 2 GB (minimum) RAM
- Two 10Base-T Ethernet cards with static IP addresses (no DHCP support)

The following items are recommended:

- Excess hard disk space for increased storage of log and trend data
- Uninterruptible power supply (UPS)
- 17-inch or larger monitor that supports 16:9 aspect ratio

Set up the computer system

Installation requires about an hour. The process is as follows:

- Optimize Windows 7 (if applicable)
- Optimize Windows 2008 (if applicable)
- Install Internet Services Manager (IIS; if not already installed and if remote workstations are required)
- Install CIMPLICITY (if not already installed)

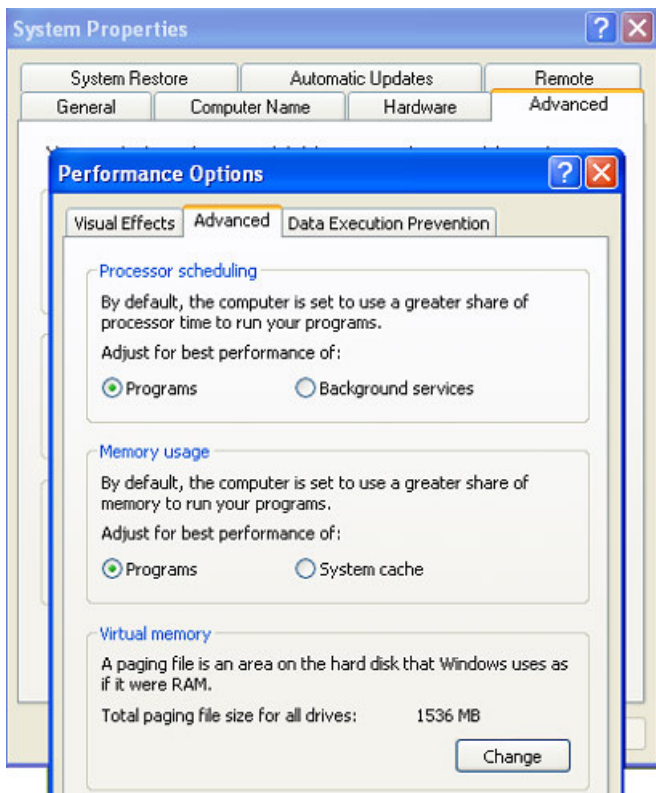
Optimize Windows 7

On a Windows 7 computer, performance can be enhanced by setting a greater share of processing power to the application.

To enhance performance on a Windows 7 computer:

1. Click **Start > Settings > Control Panel**.
2. Access the **System** panel.
3. Click the **Advanced** tab and access the **Performance** panel.
4. Click the **Advanced** tab and verify that the processor and memory are optimized for **Programs**. The virtual memory setting can be left at the default. See the following figure.

Figure 1: Optimize performance on Windows 7

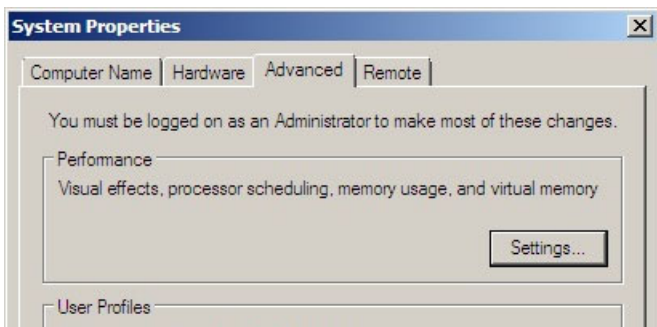


Optimize Windows Server 2008

To install the PMCS software on Windows Server 2008:

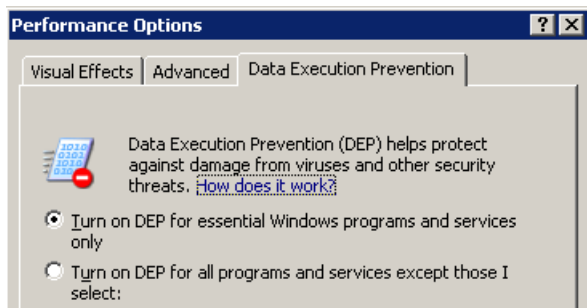
1. Right-click **My Computer** and select **Properties**.
2. Click the **Advanced** tab.

Figure 2: Optimize Windows Server computer



3. Click the **Settings** button in the Performance section.
4. Enable the first option to **Turn on DEP for essential Windows programs and services only**.

Figure 3: Protect the data with the DEP option



5. Click the **Apply** button, then the **OK** button.

- Restart the computer.

Install IIS software

You install Internet Services Manager (IIS) to use Remote Viewer workstations, else continue the installation without this function. Check if IIS is installed in the Control Panel under Add or Remove Programs. Install it from the Windows disc with the options shown in the following figures selected while configuring IIS server for PMCS.

Figure 4: IIS settings for Windows 7

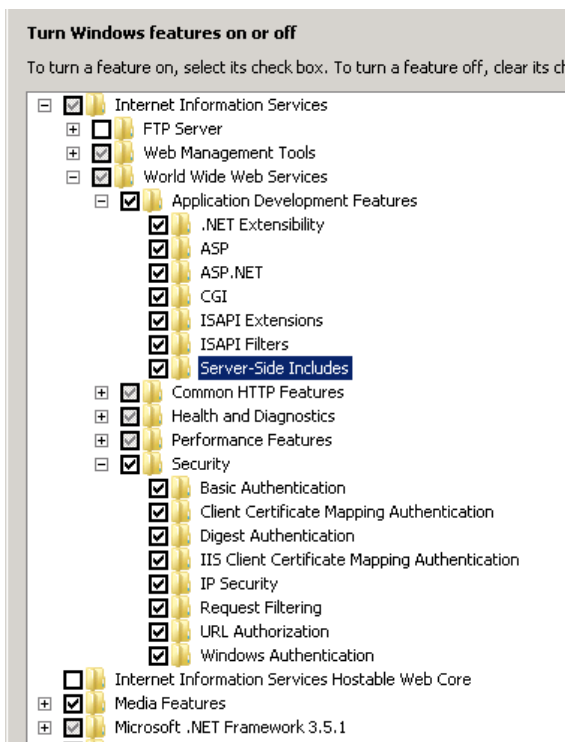
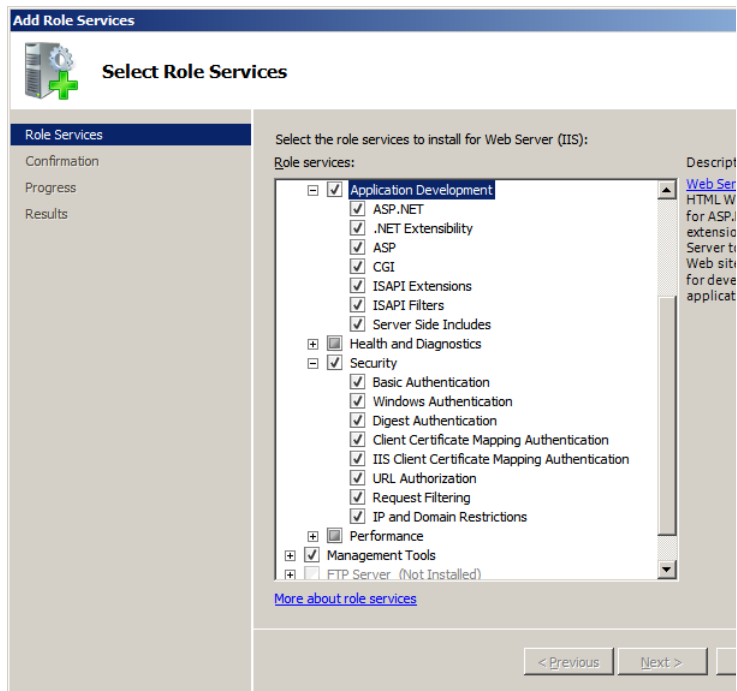


Figure 5: IIS settings for Windows Server 2008



Install CIMPLICITY software

CIMPLICITY HMI for Windows 7/2008 64-bit version 8.2 SIM4 is required. Install it if not already installed.

1. Install CIMPLICITY as outlined with that product, choosing **CIMPLICITY HMI** as the product to install, then selecting either **HMI Server** or **Viewer** as the product option. If you install the Server option, also install the **Server Option - Communications - OPC Client**.
2. After installation, download SIM pack 4 or higher and apply it. To obtain the SIM pack, you need to be registered with GE.

Typically, installed drivers are viewable at **Control Panel > Administrative Tools > Computer Management > System Tools > Device Manager > Network adapters**, as shown in the following figure.

Install other software

If you have other software to install on the computer, such as Microsoft Office, Excel, or COMTRADE, do so. (COMTRADE file browsers are used for analyzing waveform files.) Restart the computer when done.

Install PMCS software

After setting up the computer and installing any third-party software, install the PMCS software.

PMCS typically is installed on one computer, and the option exists to install the PMCS database on one computer and install Remote Viewer functions (waveform and event viewer functions) on other computers. The software license allows for installation on one computer. To install the software on multiple computers, including the Remote Viewer function, you need the appropriate license key for each computer. These activation codes are supplied upon purchase and can be ordered separately.

This section outlines how to install PMCS version 7.x.

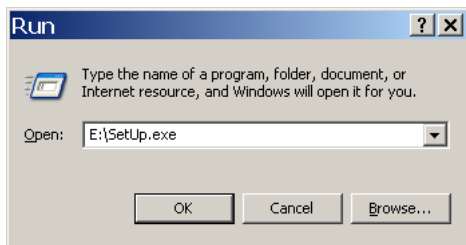
Install PMCS software

Install PMCS from the CD. You select in the wizard if the installation is the full PMCS server application or a Remote Viewer workstation.

To install PMCS software:

1. Close any open applications.
2. Insert the PMCS CD into the drive.
3. Click **Start > Run**.
4. In the Run window, enter `E:\SetUp.exe`, where E is the CD drive. The installation wizard launches.

Figure 6: Enter the path to the PMCS setup file



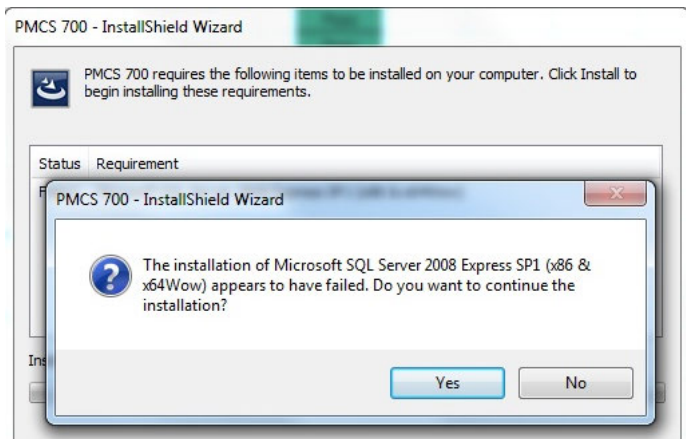
- To install requisite software, click the **Install** button. When not already installed, .NET framework 4 installs. When a database server is not already installed, PMCS installs Microsoft SQL Server 2008 Express with Service Pack 1.

Figure 7: Installing SQL Server Express



If the following failed installation message displays for the SQL server installation, click the **No** button to end the installation, restart the computer, and run the PMCS installation again.

Figure 8: Installation error for SQL Server Express



6. Complete the rest of the PMCS wizard. The following figures show the panels for customer information and full installation versus Remote Viewer installation. The PMCS software, documentation, and online help are installed.

Figure 9: Entering customer information during installation

GE Power Management Control System Setup

Customer Information
Please enter your information.

Please enter your name and the name of the company for which you work.

User Name:
admin

Company Name:
GE

Figure 10: Selecting full PMCS install or remote computer install

GE Power Management Control System Setup

Setup Type
Select the setup type that best suits your needs.

Click the type of setup you prefer.

| | Description |
|--------------|---|
| PMCS | PMCS Server and Cimplicity HMI Components |
| Remoteviewer | |

- When installation completes, restart the computer at the prompt.
- Enter the activation code as outlined in the next section.

A typical installation is to install the full PMCS server software on one computer, then the Remote Viewer application on other computers. Finish such installations now.

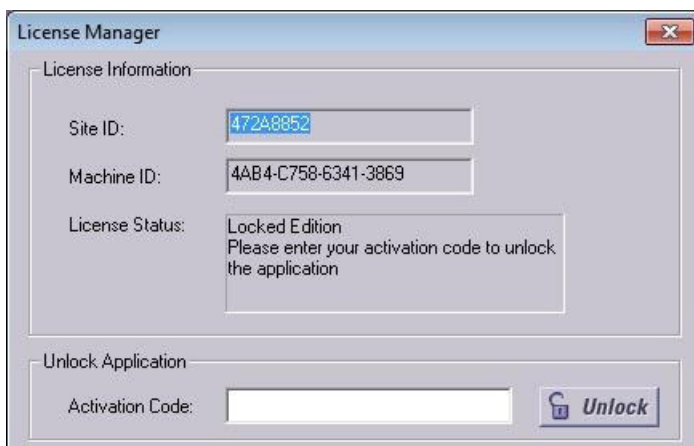
Enter the activation code

The software license allows for installation on one computer. Activation codes are specific to full installation or Remote Viewer. After installing PMCS on a computer, use the procedure here to generate an activation code and enter it.

To unlock an installation:

1. Launch the Configurator application by clicking **Start > All Programs > EnerVista Integrator > EnerVista Configurator**.
2. Click **Help > License Manager**. The License Manager window opens, shown as follows.

Figure 11: Activating a PMCS software license



3. Obtain the **Site ID** and **Machine ID** from the window.
4. Generate an activation code as follows. Log in to <http://apps.gedigitalenergy.com/swmgr> using the following credentials:
Order number: nnnnnnnn
Password: nnnnnnnn

Enter the **Site ID** and **Machine ID**, and generate the CD activation code. Record the number.

5. Enter the code in the **Activation Code** field, and click the **Unlock** button. This unlocks both PMCS and EnerVista Integrator.

More license management procedures are contained in the PMCS Instruction Manual.

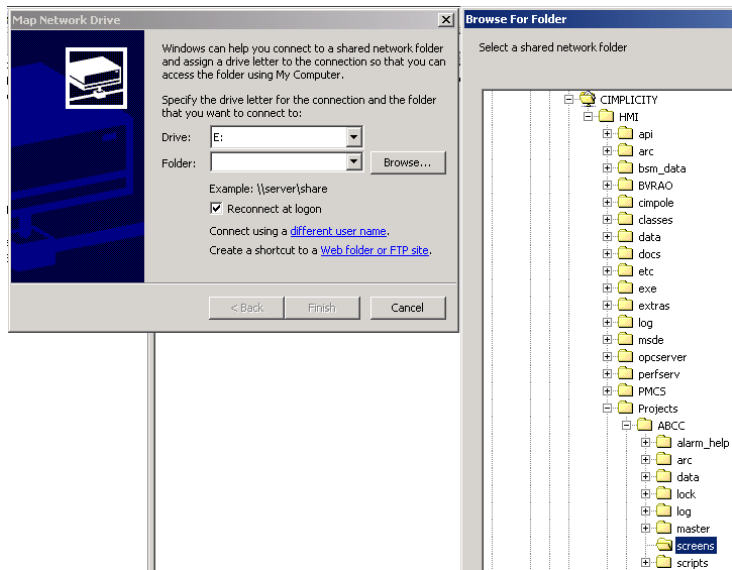
Install CIMPLICITY remote viewer

If you installed the Remote Viewer of PMCS on one or more secondary computers, you can also install the CIMPLICITY remote viewer functions on those computers.

To install the CIMPLICITY remote viewer on a remote client and view the screens:

1. Install the Viewer Runtime option of CIMPLICITY HMI 8.2 SIM 4.
2. If not already installed, install the Remote Viewer option of PMCS.
3. Create a project in HMI Server node, with the **Enable Project Broadcast** option. Configure the wizards using PowerBuilder.
4. In the viewer node, map the drive (preferably CIMPLICITY Directory) of HMI server node. See the following figure.
5. Open the MainMenu.cim file, which is on the HMI server node from the viewer node. Or, in the viewer node, go to **Start > All Programs > Proficy HMI SCADA - CIMPLICITY 8.2 > Cimview**. In the window that appears, select MainMenu.cim file on the HMI server node.
6. Open the folders to get the configured screens.

Figure 12: Mapping the drive and opening the screens folder



Configuration

This section outlines how to configure the system. The process is as follows:

- Configure the ports
- Configure the host computer
- Configure any Remote Viewer computer(s)
- Configure CIMPLICITY for PMCS by adding a project in CIMPLICITY

Configure the ports

See the Configure the Ports section in the EnerVista Integrator Quickstart Guide (GEK-119527).

Configure the host computer

To configure the host computer running the PMCS software:

1. Configure the DDE/OPC Server. Your host computer likely has several versions of the DDE/OPC Server installed (RS485 Modbus, TCP/IP Modbus, TCP/IP encapsulated Modbus, and Ethernet TCP/IP). Configure only the server appropriate for your PMCS network interface (GE32MODB or GE32MTCP). See the document [PMCS Network and Device Configurator](#) (document number GEH-6510) for details.
2. Configure the user interface. If your system was provided with a generic HMI software application, either load or create the custom HMI using the Interface Toolkit wizards, if appropriate. See the [PMCS for CIMPLICITY HMI Interface Toolkit](#) (document number DEH-210) or refer to the HMI software documentation.
3. Configure the applications. Configure the following application modules:
 - Waveform Capture — Use the [PMCS Waveform Capture User's Guide](#) (GEH-6511)
 - Event Logger — Use the [PMCS Event Logger User's Guide](#) (GEH-6512)
4. Test the applications. Test the host computer to ensure that PMCS operates correctly.

Configure Remote Viewer computers

Any secondary computers with the Remote Viewer functions installed need to be configured for network architecture and tested for waveform capture and event logger.

To configure the remote computer for architecture:

1. Add a copy of the network architecture list outlined in the [Configure the ports](#) section. See the document [PMCS Network and Device Configurator](#) (document number GEH-6510) for details.

Test the remote computer:

1. Verify that the PMCS waveform and event viewers function.
2. If you have the CIMPLICITY remote viewer installed, verify operation.

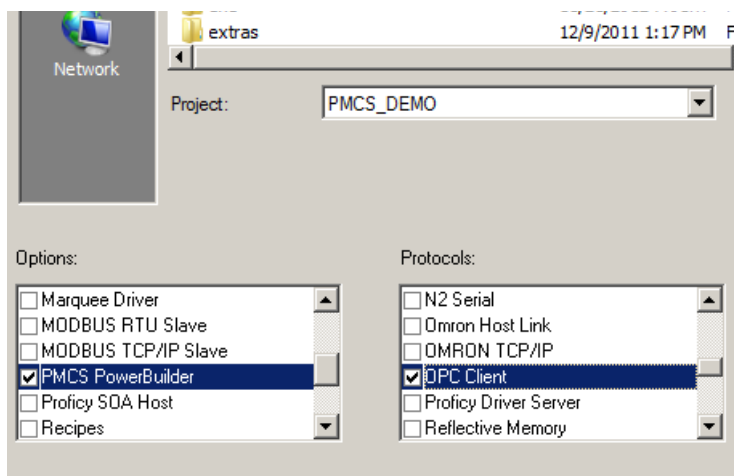
Configure CIMPLICITY for a PMCS project

See the PMCS Instruction Manual for a detailed procedure.

To add a PMCS project in CIMPLICITY:

1. In CIMPLICITY HMI, create a new project by clicking the **New Project** button or selecting **File > New Project**. A window opens.
2. Enter a **Project Name** and select a folder in which to store the project (usually in the `cimplicity\hmi\projects\` folder). Under **Options**, select **PMCS PowerBuilder** and under **Protocols**, select **OPC Client**. Click the **Create** button to write the project file to disk and open the Project Properties window.

Figure 13: Creating a new project in CIMPLICITY

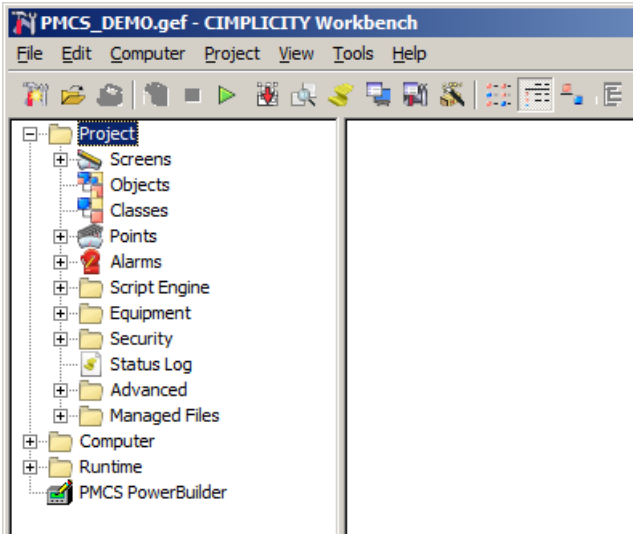


3. In the Project Properties window, click the **Options** tab, and select the **Enable project broadcast** checkbox if you want to use CIMPLICITY HMI remote view nodes. Ensure that the **Computer**

name field matches the name of the host machine. Disregard the **Startup timeout** field and the **General** tab. Click **OK** to open the CIMPLICITY HMI Project Wizard.

4. Complete the CIMPLICITY Project Wizard. At the end, click **Finish** to complete the setup.
5. Access the CIMPLICITY Workbench view for the project.

Figure 14: CIMPLICITY Workbench window



6. With CIMPLICITY Project no longer running, double-click the **PMCS PowerBuilder** item. When CIMPLICITY Project is still running, the following error message displays; close the project window. Once PMCS PowerBuilder has launched, you can view device data.

Congratulations. PMCS has been installed and configured for use. To launch the application, access it from within CIMPLICITY. To continue, see the PMCS Instruction Manual.

For further assistance

For product support, contact the information and call center as follows.
Have your software key(s) ready.

GE Digital Energy

650 Markland Street

Markham, Ontario

Canada L6C 0M1

Worldwide telephone: +1 905 927 7070

Europe/Middle East/Africa telephone: +34 94 4854 88 54

North America toll-free: 1 877 547 8630

Fax: +1 905 927 5098

E-mail: multilin.tech@ge.com

Website: <http://gedigitalenergy.com/multilin>

Comments about new features or modifications for specific requirements are welcome.

PMCS Power Management Control System

integrated energy management solution

1601-0268-A1 (GEK-119547)

Unlock the Full Potential of Power Networks Through Integration

PMCS is a highly customizable, fully integrated end-to-end Energy Management Solution providing industry specific functional solutions for Monitoring, Power Quality, Control and Automation and Cost Allocation.

- **Centralized, Comprehensive and Accurate Perspective** – Monitoring Screens (One-line, Alarms, Events) provide a clear centralized facility perspective to make informed decisions
- **Faster Problem Determination** – Quickly pinpoint the root cause of problems using tools such as time-tagged alarms, sequence of events logs and triggered waveform capture
- **Increased Uptime and Reliability** – Identify power quality issues and take corrective action to avoid damage to critical production equipment leading to loss of power and production uptime
- **Increased Scalability** - Open, comprehensive protocol and device support to easily integrate and expand existing systems and/or include a multitude of third-party devices in the system solution
- **Resource Optimization** – Centralized data collection and analysis to optimize energy usage through conservation, error correction and peak usage reduction

System Requirements

Windows 7 (64 bit)
Windows Server 2008 R2 (64 bit)
2GB RAM (minimum)
2.3 GHz (minimum)

Technical Support

1-877-574-8630 North America
905-294-6222 Worldwide
+34 94 485-8854 Europe, Middle East & Africa
+55 11 3614-1700 Latin America



Digital Energy

GEDigitalEnergy.com