

# PAC Productivity Suite

## INSTALLATION, OPERATION & MAINTENANCE MANUAL

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## Caution Notes as Used in this Publication

### CAUTION

Caution notices are used where equipment might be damaged if care is not taken.

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**Notes:** Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met during installation, operation, and maintenance. The information is supplied for informational purposes only, and Emerson makes no warranty as to the accuracy of the information included herein. Changes, modifications, and/or improvements to equipment and specifications are made periodically and these changes may or may not be reflected herein. It is understood that Emerson may make changes, modifications, or improvements to the equipment referenced herein or to the document itself at any time. This document is intended for trained personnel familiar with the Emerson products referenced herein.

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# Chapter 1: PAC Productivity Suite

Congratulations on your purchase of PAC Productivity Suite. PAC Productivity Suite is a complete, tightly integrated, seamless process control system with PACSystems Controllers, PAC HMI/SCADA, and PAC change management software to provide control, optimization, and performance management to manage and monitor batch, discrete or continuous manufacturing. It delivers the tools required to design, implement, document, and maintain an automated process. These tools are as follows:

- Engineering Workstations

- Operator Consoles

- Application Servers

PAC Productivity Suite includes these products, optional components, and features:

## Products to install

CIMPLICITY HMI/SCADA

Logic Developer: a software tool for programming the full line of Emerson Controllers. For more information, see Logic Developer: Getting Started (GFK-2485Q).

## Optional Components

Change Management: a version control, security, and audit trail system.

## Other Features

Ethernet Global Data (EGD) tools:

**EGD Configuration Server:** enables you to publish function block data created with Engineering Workstation on an operator console or Application Server. This tool is included with the installation of the Engineering Workstation.

**EGD Management tool:** provides a high-level view of the EGD system published on the EGD Configuration Server. This tool is included with all installations except for HMI/SCADA CIMPLICITY on an operator console

**EGD Management Edition OPC Server:** consumes function block data published on the EGD Configuration Server. This tool is included with all installations except for HMI/SCADA CIMPLICITY on an operator console.

**OPC PowerTool:** browses the EGD Management Edition OPC Server for function block data consumed from the EGD Configuration Server. This device communication protocol is included with the installation of HMI/SCADACIMPLICITY on an operator console.

Advanced, high-precision standard function blocks for use with Logic Developer in Engineering Workstation.

OLE for Process Control (OPC): a data and I/O information transfer protocol providing interoperability among devices from different manufacturers.

Web Access features that access real-time HMI data any time, from anywhere.

## 1.1 Engineering Workstation

Engineering Workstation is an environment with these components:

Logic Developer

An HMI/SCADA product

PAC HMI/SCADA CIMPLICITY (without SQL Express)

- or -

PAC HMI/SCADA CIMPLICITY (with SQL Express)

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**Note:** *Installing SQL Express with CIMPLICITY may take a significant amount of time.*

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EGD Configuration Server

EGD Management tool (EMT)

EGD Management Edition OPC Server

PAC Productivity Suite Notification Service

For more information about working with Engineering Workstation, see “Engineering Workstation” on Page no 13.

## 1.2 Operator consoles

An operator console installation includes an HMI/SCADA product with separate components:

PAC HMI/SCADA CIMPLICITY

EGD Management tool (EMT)

EGD Management Edition OPC Server

PAC Productivity Suite Notification Service

For more information, see “Operator Console” on page 35.

## 1.3 Application Servers

An Application Server installation includes an HMI/SCADA product with separate and common components:

PAC HMI/SCADA CIMPLICITY

EGD Management tool (EMT)

EGD Management Edition OPC Server

PAC Productivity Suite Notification Service


For more information, see “Application Server” on page 37.

## 1.4 Important Product Information

For last-minute information, release notes, and supported hardware for PAC Productivity Suite products, see the Important Product Information (IPI) document on the DVD. There are several ways to view this document:

When installing PAC Productivity Suite, select Important Product Information on the initial Launcher screen.

Browse the root folder of the DVD and double-click IPI\_PPS.chm. On the PAC Productivity Suite Engineering Workstation Help menu, choose Important Product Information.

When running PAC Productivity Suite Engineering Workstation, click the  InfoView tab in the Navigator, expand the PAC Productivity Suite library, and then double-click the Important Product Information page.

When running PAC Productivity Suite Engineering Workstation, click  Home on the InfoViewer toolbar, then to the left, under Get Started, click What's New.

## 1.5 System Requirements

### Operating Systems

The table below is the list of the operating systems that each PAC Productivity Suite product supports:

Product	Version	Engineering Workstation	Operator Console	Application Server	System Server
PME (LD PLC)	9.80	√			
HMI (CIMPLICITY)	10.0	√	√	√	
EGD Driver	7.40k	√	√	√	√
EGD Tools	6.01	√	√	√	√
Product	Version	Engineering Workstation	Operator Console	Application Server	System Server
PME (LD PLC)	9.80	√			
HMI (CIMPLICITY)	10.0	√	√	√	
EGD Driver	7.40k	√	√	√	√
EGD Tools	6.01	√	√	√	√

PPS Product	Windows 7	Windows 10
Engineering Workstation	√	√
Operator Console	√	√
Application Server	√	√

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### Notes

1. *If the EGD OPC Server needs to run as a regular server, follow these directions:*
  - a. *Go to the command prompt, and change directory to c:\Program Files\PAC\EGD OPC Server*
  - b. *On the c:\Program Files\PAC\EGD OPC Server> command prompt, enter EGDDrv regserver*
  - c. *Restart your system and ensure that the EGDDrv Server is not listed as a service in Services.*
    - i. *Some components of the PAC Productivity Suite products may not be supported on some operating systems. For detailed information, refer to the product's installation guide.*
    - ii. *As a system, PAC Productivity Suite no longer supports Windows Vista. Individual components of PAC Productivity Suite may still support Windows Vista.*
    - iii. *As a system, PAC Productivity Suite no longer supports Windows 2003. Individual components of PAC Productivity Suite may still support Windows 2003.*
    - iv. *As a system, PAC Productivity Suite no longer supports Windows 2000. This includes the Windows 2000 Advanced Server. Individual components of PAC Productivity Suite may still support Windows 2000.*
    - v. *Install a full version of .Net Framework v1.1, v3.5 SP1, v4.0 and Windows installer 4.5 on Windows operating systems.*
    - vi. *Enable .Net Framework v3.5 SP1 and Desktop Experience in the Server- Manager features list on Windows 2008.Internet Explorer*

*The table below is an overview of the regional settings on localized operating systems that each PAC Productivity Suite product is supported on.*

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		Operating system language			
PAC Productivity Suite Product	Regional Settings <sup>1</sup>	English	German or French (single-byte)	Simplified Chinese (double-byte)	Russian (Cyrillic)
Engineering	U. S.	Yes	Yes	Yes	Yes
Workstation	Local				
Operator console	U. S.	Yes	Yes	Yes	Yes
	Local		Yes	Yes	Yes
Application Server	U. S.	Yes	Yes	Yes	Yes
	Local		Yes	Yes	Yes
System Server	U. S.	Yes	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>
	Local				

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**Note:** Regional settings include numbers, currency, time, and date settings.  
The Historian component in System Server is not supported on Windows 2008 SP2. For detailed information, refer to known issues.

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## Internet Explorer

Internet Explorer 6.0 or later

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**Note:** Install Internet Explorer before installing PAC Productivity Suite.

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## Hardware

**Minimum:** Intel Core Duo or AMD Athlon 64 X2 with 3 GB RAM

**Recommended:** When running multiple PAC Productivity Suite software elements on one computer—Engineering WorkStation, and Application Server—we recommend 2.6 GHz Intel Core i series with 4 GB RAM.

3 GB hard disk space. This includes:

2 GB hard disk space for Logic Developer

## ⚠ CAUTION

After installing PAC Productivity Suite and the .NET Framework, do not install an older or beta version of the .NET Framework, otherwise the newest version of .NET Framework fails, and either

- 800 MB hard disk space for CIMPLICITY

Additional hard disk space for sample projects, temporary files, and growth TCP/IP-compatible network interface adapter

Ethernet adapter

DVD drive

Device communication interfaces for your HMI product

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**Note:** *The EGD Management Edition OPC Server is automatically installed with Engineering Workstation installations, with CIMPLICITY on Application Server installations, and with iFIX on all installation types. If you install CIMPLICITY on an Operator Console, it uses its native OPC Client to communicate.*

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If relational database software is used with CIMPLICITY, one of these must be installed:

- Microsoft SQL Server 2000 (Service Pack 4)
- Oracle 9i or greater

One parallel port or free direct-connect USB port for licence keys. Some touch screens, pointing devices, and I/O drivers require a serial port. Additional ports for I/O hardware should be ordered with the computer.

SVGA or better color graphics monitor and a 100% IBM-compatible, 24-bit graphics card capable of 800x600 resolution and at least 65,535 colors Two-button mouse or compatible pointing device (such as a touch screen)

## 1.5.1 Requirements for Optional Components

Consider these system requirements if you install any of these optional components.

### Data Collector node hardware requirements

- Pentium 4-based 2.0 GHz or better computer with 512 MB RAM
- 40 GB free hard drive space to store buffered data
- CD-ROM drive
- TCP/IP-compatible network interface adapter for network communication and certain I/O drivers

### Microsoft Cluster service hardware requirements

- Pentium 4-based 2.0 GHz or better computer with 1 GB RAM
- 80 GB of local free hard drive space
- 40 GB shared SCSI hard drive (RAID preferred)
- Two 100 Mbit TCP/IP-compatible network interface adapters for network communication and certain I/O drivers (one for public network, another for private network)

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**Note:** *The configuration of each server added to the cluster must be identical to the other servers in the cluster.*

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### 1.5.1.1 EGD Management Edition OPC Server

- Windows Vista, Windows XP Professional (Service Pack 3 or greater), or Windows Server 2003
- Software installed with the EGD Management Edition OPC Server:
- EGD Management tool (EMT)
- EGD generic editor
- EGD Configuration Server
- Hardware key driver if using a keyed Emerson product

### 1.5.1.2 PAC Change Management Server

Windows 7, Windows 10, Server 2008 SP2, Server 2008 R2, Server 2012, Server 2012 R2, Server 2016

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**Note:** *PAC Change Management is not supported in environments with Microsoft Terminal Services or Microsoft Cluster Server. Windows Vista, Windows XP Tablet PC Edition, and Windows XP Embedded are not supported.*

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Ethernet Network Adapter and the TCP/IP Network Protocol (100 Mbit) Internet Explorer v7.0, Internet Explorer v6.0 Service Pack 1 or greater, or Internet Explorer v5.5 with Service Pack 2 Q810847 or greater

#### Hardware Requirements

- 2.0 GHz Pentium-based computer recommended

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**Note:** *See your sales representative for server system recommendations based on your projected number of Manager clients and the projected size of your project database.*

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- 20 GB free hard disk space, plus storage space for project files
- 512 MB RAM (1 GB recommended)
- Microsoft Visual SourceSafe 6.0d Build 31222 or greater, or Visual
- SourceSafe 2005

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**Note:** *6.0d is acquired by installing the Microsoft Visual Studio 6 SP6 update. For details, see Microsoft's web site at [www.microsoft.com](http://www.microsoft.com).*

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#### PAC Change Management client

- Windows XP Professional (Service Pack 3) or Windows 2003 Server (SP2 R2)

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**Note:** *PAC Change Management is not supported in environments with Microsoft Terminal Services or Microsoft Cluster Server. Windows XP Tablet PC Edition, and Windows XP Embedded not supported.*

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- Internet Explorer v7.0, Internet Explorer v6.0 Service Pack 1 or greater, or
- Internet Explorer v5.5 with Service Pack 2 Q810847 or greater

### Hardware Requirements

- GHz Pentium-based computer
- 50 MB hard disk space, plus storage space for project files (start with 500 MB)
- 512 MB RAM (1 GB recommended)
- Ethernet Network Adapter and the TCP/IP Network Protocol (100 Mbit)

### 1.5.1.3 PAC Change Management Scheduler Engine

- Windows XP Professional (Service Pack 3) or Windows 2003 Server (SP2 R2)
- PAC Change Management client
- Internet Explorer v5.5 with Service Pack 2 Q810847 or greater, or Internet Explorer 6.0 with Service Pack 1 or greater

### Hardware Requirements

- GHz Pentium-based computer
- 50 MB hard disk space in addition to hard disk space for PAC Change Management client
- 512 MB RAM (1 GB recommended)
- Ethernet Network Adapter and the TCP/IP Network Protocol (100 Mbit)

## 1.6 Installation

If you have problems installing PAC Productivity Suite, please contact Technical Support (see page 20).

### To install PAC Productivity Suite Engineering Workstation

1. Start the PAC Productivity Suite installation process.

Place the PAC Productivity Suite installation DVD in the DVD drive. If you have Autoplay enabled, the installation launcher splash screen appears. If it does not appear, run Setup.exe on the root directory of the DVD.

2. Click **Engineering Workstation** to start the installation process.

Follow the on-screen prompts in the PAC Productivity Suite Setup dialog, clicking **Next** until you are asked to select the components to install.

If a previous version of PAC Productivity Suite is installed on your computer, you are prompted to uninstall it during the upgrade process. Do so only when asked to by the installation process. Do not delete files left behind during uninstallation; these are used by the new version.

3. Select the appropriate installation options.

In the PAC Productivity Suite Setup dialog, choose one of the HMI/SCADA products.

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**Note:** If installing HMI/SCADA CIMPLICITY, you can choose whether to install it with SQL Express.

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Logic Developer

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**Note:** By default, Logic Developer is selected for installation. Engineering Workstation cannot run without Logic Developer.

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4. Finish the installation.

Continue with the installation, following the prompts on each screen until done.

**Important:** By default, the EGD Configuration Server, EGD Management tool, EGD Management Edition OPC Server, and PAC Notification Layer are installed with Engineering Workstation regardless of the HMI product you installed.

## To install PAC Productivity Suite operator console

1. Start the PAC Productivity Suite installation process.

Place the PAC Productivity Suite installation DVD in the DVD drive. If you have Autoplay enabled, the installation launcher splash screen appears. If it does not appear, run Setup.exe on the root directory of the DVD.

2. Click **Operator Console** to start the installation process.

Follow the on-screen prompts in the PAC Productivity Suite Setup dialog, clicking **Next** until you are asked to select the components to install.

3. Select the appropriate installation options.

In the PAC Productivity Suite Setup dialog, install one of the HMI\SCADA products.

4. Finish the installation.

Continue with the installation, following the prompts on each screen until done.

## To install PAC Productivity Suite Application Server

1. Start the PAC Productivity Suite installation process.

Place the PAC Productivity Suite installation DVD in the DVD drive. If you have Autoplay enabled, the installation launcher splash screen appears. If it does not appear, run Setup.exe on the root directory of the DVD.

2. Click Application Server to start the installation process.

Follow the on-screen prompts in the PAC Productivity Suite Setup dialog, clicking **Next** until you are asked to select the components to install.

3. Select the appropriate installation options.

In the PAC Productivity Suite Setup dialog, install one of the HMI/SCADA products.

4. Finish the installation.

Continue with the installation, following the prompts on each screen until done.

**Important:** By default, the EGD Configuration Server, EGD Management tool, EGD Management Edition OPC Server, and PAC Nonfiction Layer are installed with Engineering Workstation regardless of the HMI product you installed.

## 1.7 Subversion Repository

The migration of PAC Change Management Visual SourceSafe (VSS) repository data to Subversion is NOT supported. If you want to migrate your data and retain the revision/history information, please contact Emerson.

Microsoft retired Visual SourceSafe from mainstream support on July 10, 2012 with extended support ending on July 11, 2017. If you are currently using VSS, you can continue to do so, and can use this DVD to install the latest SIMs for PAC Change Management. Support of Subversion (SVN) as a repository is new to this version of PAC Change Management. Below is a set of steps detailing a sample install and setup of SVN as the PAC Change Management repository.

### 1.7.1 Example SVN Installation

The following procedure outlines the steps required to implement SVN as the PAC Change Management repository. SVN is the Apache Subversion package for Windows. This procedure is a guideline for demonstration purposes only and may differ from the steps required when using other server packages.

Install 32-bit SVN version 1.8.3 (or greater).

**NOTE:** The *svnadmin* and *svnserve* utilities are required.

1. Install the PAC Change Management Server with SVN as your repository. For more information, see "To install the PAC Change Management Server" in the Getting Started Guide.
2. Create a new SVN repository by opening a Windows command prompt, and then

running `svnadmin create [chosen path]`; where [chosen path] is the location of the SVN repository. We recommend:

```
C:\Program Files (x86)\Emerson\PAC Machine  
Edition\fxManager\Server\SVN.
```

**NOTE:** When you try to use an MS-DOS command that contains a path statement, you may receive an error message if you use a path statement that contains spaces. To resolve this issue, place quotation marks around each path parameter that contains a space. For example, `svnadmin create "c:\Program Files (x86)\TestDirectory"`.

1. Perform the following steps to configure the newly created SVN repository. For example, please see the `Example_Config_SVN.zip` file.

- a. Configure the `authz` file to add a user account with the following entry:

`fxMgrServer = rw.` This file is located in the `C:\Program Files (x86)\Emerson\PAC Machine Edition\fxManager\Server\SVN\conf` folder.

---

**Note:** Make sure the `conf` folder has read/write privileges. Ensure to include the `[/]` syntax to designate a new section.

---

- b. Configure the `passwd` file to add a password for the account you just created with the entry, `fxMgrServer = fxMgr`. This file is located in the `C:\Program Files (x86)\Emerson\PAC Machine Edition\fxManager\Server\SVN\conf` folder.
    - c. To set the SVN system location for username and password information, configure the `svnserve.conf` file to specify the location of the authorization and password files. The `svnserve.conf` file is located in the `C:\Program Files (x86)\Emerson\PAC Machine Edition\fxManager\Server\SVN\conf` folder. Under the `[general]` section, remove the comments marker from the following lines:

```
anon-access = none
password-db = passwd
authz-db = authz
```

- d. Create a batch file named `pre-revprop-change.bat` containing the text `exit 0`, and then add the batch file to the `C:\Program Files (x86)\Emerson\PAC Machine Edition\fxManager\Server\SVN\hooks` folder.
2. In the Windows command prompt, create a Windows service for `svnserve` with the following command line:

```
sc create SVNserve binPath= "\"C:\Program
Files (x86)\Subversion\bin\svnserve.exe\"
--service --listen-port 9999 --
compression 0 --memory-cache-size 1024 --
cache-txdeltas yes -r

"C:\Program Files (x86)\Emerson\PAC
Machine Edition\fxManager\Server\"
start= auto DisplayName= "SVNServer
Service"
```

---

**Note:** This path depends on where subversion was installed.

The escaped `\` characters found in the command line are required to delimit the path as a parameter to the `svnserve` tool and `svnserve` itself. If you copy and paste this command line to the Windows command prompt, you may need to change the `"` characters to real double quotes if they are curled quotes in these instructions.

---

3. Run the PAC Change Management `ServerConfig.exe` file, which is located in the `C:\Program Files (x86)\Emerson\PAC Machine Edition\fxManager\Server` folder, and then confirm or configure the following information.

- a. In the **Server Description** field, enter the hostname of the computer.
- b. In the **User Name** field, confirm or enter `fxMgrServer`.
- c. In the **Password** field, confirm or enter `fxMgr`.

**NOTE:** The user name and password can be changed in the SVN repository. They are located in the `conf/authz` and `conf/passwd` files.

- d. In the **SVN Repository** field, enter `svn://<servername>:9999`, where `<servername>` is the name of the server.

**IMPORTANT:** Make sure that the `<servername>` is lower case.

- e. In the **Root Project** field, enter `/SVN`. (This is the last directory of the chosen path in step 3.)
- f. In the **Working Folder** field, select `c:\.`. The working directory will be `c:\FX`. If this directory already exists, remove it first.

4. Configure the PAC Change Management Server service to depend on the SVN Server service, in addition to the standard RPCSS service using the following command.

```
sc config fxServer depend= RPCSS/SVNSERVE
```



## Chapter 2:Engineering Workstation

PAC Productivity Suite Engineering Workstation enables you to develop and configure your process system. An Engineering Workstation installation includes the following:

Logic Developer

PAC Productivity Suite Notification Service

HMI/SCADA CIMPLICITY (with or without SQL Server)

When you install an HMI product with Engineering Workstation, you are installing an operator console. This enables you to monitor and control the process. For more information, see “Operator Console” on page 35.

### 2.1 Logic Developer

PAC Logic Developer is next-generation software for programming Emerson Controllers. Logic Developer provides all tools to create powerful process applications. You can configure your Controller hardware, create and edit logic, upload and download projects, and monitor and debug process program execution.

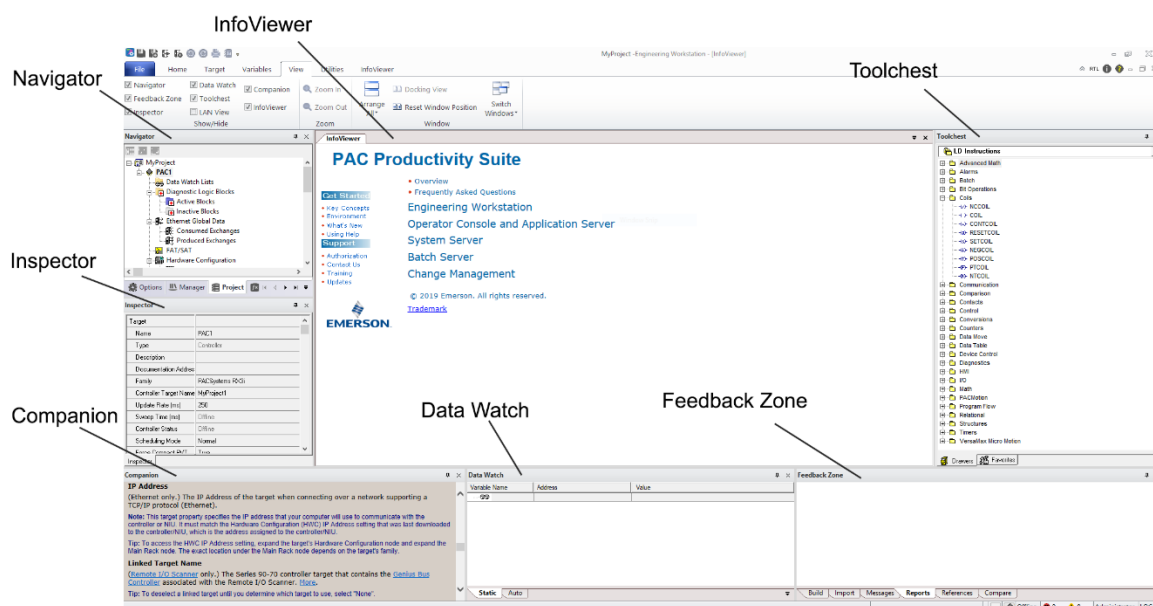
Features:

- Function Block Diagram (FBD) editor
- Hardware Configuration
- Ladder Diagram (LD) editor
- Structured Text (ST) editor

Logic Developer is a complete solution for automation application development in one package. Logic Developer has an integrated development environment and tools. You spend more time building applications; less time learning the software.

The following illustrates a Logic Developer project:

Figure 1: PPS Interface



## 2.1.1 Projects

Before creating a Logic Developer project, consider:

- The primary components your project will contain.
- The Emerson Controller your project will run on.

With Logic Developer, you can build multiple projects for your requirements.

**? Want to know more?** See the *Projects* section in the *PAC Logic Developer: Getting Started* manual (GFK-2485Q) or, in the *Engineering Workstation* online help index, look up “projects” and choose “Projects: an Overview”.

## 2.1.2 Tools

Project development is supported by various tools, each of which is opened with a button on the Tools toolbar.

Tool descriptions:

- **Navigator:** A docking tool window with a set of tabs displaying information about your development system in a hierarchical tree structure, similar to Windows Explorer.
- **Feedback Zone:** A docking window displays several types of output information generated by Logic Developer.
- **Inspector:** Lists properties and current settings for a selected object or element.
- **Data Watch:** A run-time debugging tool to monitor and edit variable values.
- **Toolchest:** A powerful storehouse of objects you can add to your project. You can drag most items directly from the Toolchest into Logic Developer editors.
- **Companion:** Provides useful tips and information while you work.
- **InfoViewer:** An embedded Web browser that displays online help, reports, and documentation associated with a project or target.

---

**Want to know more?** See the Tools section in the PAC Logic Developer: Getting Started manual (GFK-2485Q) or, in the Engineering Workstation online help index, look up “tools” and choose “Tools Toolbar”.

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## 2.1.3 Variables

The Variables tab of the Navigator contain variables. A variable is a named data storage space. A variable name represents a memory location in the target Controller with the variable’s Ref Address property value.

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**Want to know more?** See the Variables section in the PAC Logic Developer: Getting Started manual (GFK-2485Q) or, in the Engineering Workstation online help index, look up “variables” and choose “Variables: an Overview”.

---

## 2.1.4 Options

The Options tab of the Navigator contains option and preference settings. Options are organized into folders and pages.

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**Want to know more?** See the Options section in the PAC Logic Developer: Getting Started manual (GFK-2485Q) or, in the Engineering Workstation online help index, look up “options” and choose “Options tab (Navigator)”.

---

## 2.1.5 Targets

A target represents a run-time destination of the program(s) developed with Logic Developer. Each target contains all components for that target. PAC Productivity Suite Logic Developer supports the following Emerson families of Controllers:

- PACSystems RX7i
- PACSystems RX3i

A target is present in a project when you use a template to create the project. A project can contain multiple targets.

One target is required for each Controller in your project, except with CPU redundancy. In this case, one target contains a Primary Hardware Configuration and a Secondary Hardware Configuration, which correspond to the primary Controller and secondary Controller.

---

**? Want to know more?** See the *Targets* section in the *PAC Logic Developer: Getting Started manual* (GFK-2485Q) or, in the *Engineering Workstation online help index*, look up “targets” and choose “Targets: an Overview”.

---

Communications with a PACSystems is required for storing and loading programs or monitoring data values and Controller Status. Connect to a Controller from Logic Developer over a serial, Ethernet, or modem connection, depending on the Controller’s capabilities.

Target Controller:

- Validates your targets
- Works offline or online with a Controller.
- Uploads from or downloads to a Controller.
- Sets a Controller to Run or Stop mode while online in programmer mode.

---

**? Want to know more?** See the *Interacting with a Controller* section in the *PAC Logic Developer Getting Started manual* (GFK-2485Q) or, in the *Engineering Workstation online help index*, look up “interacting” and choose “Working with Targets”.

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## 2.1.6 Hardware Configuration

Logic Developer supports PACSystems Controllers with their respective CPUs, racks, and modules. The Logic Developer Hardware Configuration (HWC) enables you to configure target equipment.

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**? Want to know more?** See the *Hardware Configuration* section in the *PAC Logic Developer: Getting Started manual* (GFK-2485Q) or, in the *Engineering Workstation online help index*, look up “Hardware Configuration: an Overview”.

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## 2.1.7 Engineering Workstation Help

Engineering Workstation includes detailed online help to access specific help topics while working. Use the InfoViewer or Companion to access help.

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**? Want to know more?** See the *Engineering Workstation Help* section in the *PAC Logic Developer Getting Started manual (GFK-2485Q)* or, in the *Engineering Workstation online help index*, look up “help” and choose “Finding information in the Help”.

---

## 2.2 CIMPLICITY™

Windows-based HMI/SCADA component of GE's family of software automation products

Scalable from a Human Machine Interface (HMI) to a fully networked

Supervisory Control and Data Acquisition (SCADA) system

The networking capabilities achieves integration levels that virtually eliminate redundant configuration in a network.

Based on a client–server architecture with Servers and Viewers.

Flexibility to build a larger system with multiple smaller nodes without having to purchase expensive server hardware.

### 2.2.1 Servers

Collect, distribute data

Licensed to collect data from 75, 150, 300, 700, 1500 or unlimited number of device points. Exempted from the point count are:

Virtual points: they reside only in the computer

Points collected by another server. This I/O count architecture satisfies customers with small single node systems, and leverages CIMPLICITY's strong client-server architecture for multi-node systems.

### 2.2.2 Viewers

Connect to Servers

Full access to collected data to view and control actions

### 2.2.3 Servers, Viewers

Servers and Viewers are easily networked together to seamlessly share data without replicating your point database from node to node. For example, points are configured on a server only once. Screens are developed and stored in one location on the network and accessed by any other CIMPLICITY display on the network.

For detailed information, see CIMPLICITY online help.

## Chapter 3: EGD

Ethernet Global Data (EGD) is the primary Ethernet-based peer-to-peer communications protocol for data and command exchanges for Emerson IP Controllers. EGD enables repeated transmission of data exchanges from a Controller (producer) to other devices such as HMIs (consumers). A producer supports several exchanges, and any of these can be configured to be sent to a specific consumer (unicast), to multiple consumers in a group (multicast), or to all consumers on a network (broadcast).

The primary advantages of EGD are in distributed control applications that consist of multiple Controllers with a supervisory layer consisting of HMI/SCADA nodes sharing a common Ethernet network. Controllers produce data that interested consumers (like an HMI) collect in configurable sets of transmitted data packets.

PAC Productivity Suite has three EGD tools to communicate between

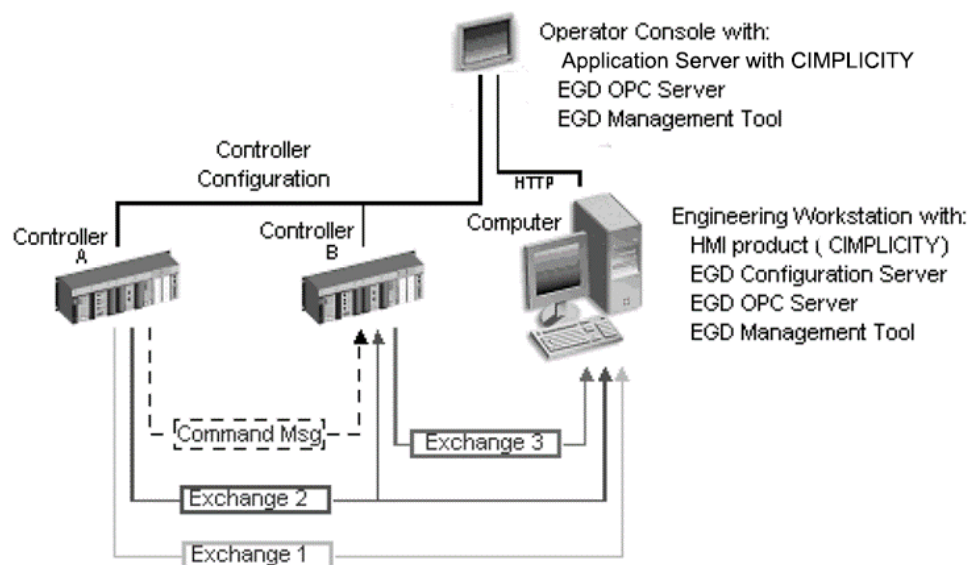
Engineering Workstation and your HMI products:

- EGD Configuration Server
- EGD Management Tool
- EGD Management Edition OPC Server

### Distributed Control

The following diagram demonstrates how EGD works. There are four devices in the Ethernet Global Data exchange: two PACSystems Controllers, a computer running Engineering Workstation, and an operator console with iFIX.

**Figure 2: Distributed Control System**



Controller A produces Exchanges 1 and 2 and consumes none. Controller A's logic triggers an event to generate a Command message to Controller B.

Controller B produces Exchange 3 and consumes Exchange 2.

The computer produces no exchanges and consumes Exchanges 1 through 3. Exchange 1 is unicast. Exchange 2 multicast, where a single produced

exchange is subscribed to by more than one consumer.

The configuration of each device is available in the Configuration Server on the computer (can be located on any computer on the network). The EGD Management tool generates EGD status and communication statistics.

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**Note:** *PAC Productivity Suite supports redundant supervisory networks and Run Mode Store (RMS). Redundant supervisory networks enable a redundancy connection between operator console(s) and Logic Developer. RMS automatically synchronizes all EGD exchanges in the EGD Configuration Server*

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**? Want to know more?** *In the EGD Management Edition OPC Server online help, search for “Supporting Redundant Supervisory Networks for PAC Productivity Suite”. In the Engineering Workstation online help index, look up “Run Mode Store (RMS)”.*

---

## 3.1 EGD CONFIGURATION SERVER

Central repository for all EGD nodes on a network to expose their producer and consumer configuration files.

Enables each device configuration tool to store EGD configuration information, which can be shared with other information-requesting tools. Configuration information is shared in a file repository with an XML schema, representing EGD configuration.

Can be installed on the same computer with configuration tools or different computer.

### 3.1.1 Device Configuration tool

Configures entire device and EGD

Transfers EGD configuration information to or from the Configuration Server following its workflow, but adhering to the EGD configuration style

Validates the device configuration and EGD Reports inconsistencies

---

**Note:** *If EGD Configuration Server is removed or is no longer accessed by the EGD Management Edition OPC server, all configuration to run the EGD OPC server can be saved as a binary file (.EGD extension), or a .CSV file, regardless of whether the configuration source is manual or extracted from ProducedData.xml files. In both file types, structure variable information is also saved.*

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For more information, refer to the EGD Management Edition OPC Server online help.

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**? Want to know more?** *See the Ethernet Global Data (EGD) section in the PAC Logic Developer: Getting Started manual (GFK-2485Q) or, in the Engineering Workstation online help index, look up “EGD Configuration Server: Integration with Logic Developer”.*

---

## 3.2 EGD MANAGEMENT TOOL


The EGD Management tool (EMT) is optional and has these features:

Presents graphical view of the hierarchical and topological view of the EGD network with animation for data flow, and health monitoring exceptions Provides offline reporting of configuration conflicts and statistics to analyze the EGD network

Monitors online transmission errors health

Launches device configuration tool to edit device EGD configuration Provides online mode for EGD health overview. In this mode, EGD command messages gather statistics and health information from each capable EGD device.

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 *Want to know more? See the Ethernet Global Data (EGD) section in the PAC Logic Developer: Getting Started manual (GFK-2485Q) or, in the Engineering Workstation online help index, look up “EGD Management tool”.*

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## 3.3 EGD MANAGEMENT EDITION OPC SERVER

Also named EGD OPC Server v7.40 or greater

Provides interface and communications protocol between the EGD service and your process control software

Enables HMI products to collaborate with other EGD-enabled products

Exposes EGD data to third-party OPC clients

Acts as an EGD data consumer: it can receive, process, and make use of all EGD samples sent to the host computer with unicast, multicast, or broadcast Automates its configuration with information stored on the common EGD

Configuration Server. For more information, see “EGD Configuration Server” on page 33.

The EGD Configuration PowerTool configures how the OPC Server consumes data from the target producers. The EGD Management tool can be accessed from the PowerTool. For more information, see “EGD Management Tool” on page 34.

For more information about the EGD OPC Server, see the EGD Management Edition OPC Server online help.



## Chapter 4: Operator Console

PAC Productivity Suite operator consoles monitor and control a process at run time. Operator consoles include:

- EGD Management Edition OPC Server
- EGD Management tool (EMT)
- EGD Configuration Server
- Alarms and alarm messages
- PAC Productivity Suite Notification Service

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**? Want to know more?** In the Engineering Workstation online help index, look up “EGD Management Edition OPC Server connection” and “EGD Management tool.” For alarms and alarm messages, see the HMI/SCADA (CIMPLICITY) online Help.

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### 4.1 CIMPLICITY

- A PAC Productivity Suite operator console with HMI/SCADA CIMPLICITY
- includes:
- HMI/SCADA CIMPLICITY with faceplates
- CIMPLICITY object builder

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**? Want to know more?** See the HMI/SCADA CIMPLICITY online Help.

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### 4.2 RUNNING AND ONLINE SYSTEM MONITORING

1. Enable and test PAC Productivity Suite Engineering Workstation.
2. On a PAC Productivity Suite operator console, enable and test your system as follows:
  - a. Start the HMI run time to monitor the overall process control system:
  - b. Start the Alarm Viewer for alarm monitoring.
  - c. Verify the validity of the HMI faceplates and graphics.
  - d. Verify that alarms are being reported to the Alarm Viewer and that alarm acknowledgments are being received by the Controllers.
  - e. Verify that Historian is capturing the correct historical data.
  - f. Test the validity of the Controller, network, and I/O bus redundancy.

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**? Want to know more?** In the Engineering Workstation online help index, look up “Engineering Workstation”. See the HMI/SCADA (CIMPLICITY) online Help.

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# 4.3 SUPPORTED CONFIGURATIONS

PAC Productivity Suite can be configured in one of the following ways:

<u>Complete Configuration</u>	<u>Basic Configuration</u>
Engineering Workstation	Engineering Workstation
One or more operator consoles	N/A

# Chapter 5: Application Server

The PAC Productivity Suite Application Server provides a client/server architecture. PAC Productivity Suite HMI/SCADA CIMPLICITY enables your process system to integrate with a CIMPLICITY application.


## 5.1 CIMPLICITY

A PAC Productivity Suite Application Server with HMI/SCADA CIMPLICITY

includes:

- HMI/SCADA CIMPLICITY with faceplates
- EGD Management Edition OPC Server
- EGD Management tool (EMT)
- EGD Configuration Server
- OPC Alarm and Event (AE) Server
- PAC Productivity Suite Notification Server

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 **Want to know more?** See the HMI/SCADA (iFIX or CIMPLICITY) online Help. Also, in the Engineering Workstation online help index, look up “EGD Management Edition OPC Server connection” and “EGD Management tool.”

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## 5.2 SUPPORTED CONFIGURATIONS

PAC Productivity Suite can be configured in one of the following ways:

<u>Complete Configuration</u>	<u>Basic Configuration</u>
Engineering Workstation	Engineering Workstation
One or more operator consoles	N/A

# Chapter 6: Change Management

PAC Change Management is a powerful, flexible automation system management tool to protect and coordinate all your projects throughout your system's life cycle. Version control, centralized storage, security, automatic backups and more are all included.

PAC Change Management provides:

- **Centralized Storage & Version Control:** Tracks projects and safely stores previous versions. This ensures that everyone uses the correct files and databases, and virtually eliminates work loss.
- **Access Control:** Allows only users with approved security to access, modify projects
- **Audit Trailing:** Tracks who did what, when, and why
- **Scheduler:** Enables automatic completion of repetitive tasks such as backups and compares
- **PAC Software support:** Integrated with other PAC software to provide a complete solution with Logic Developer, CIMPLICITY, iFIX
- **Third-party project support:** Configured for variety of popular automation products from Rockwell, Siemens, Schneider, Modicon ProWORX, Logicmaster 90-30 and 90-70, and Fanuc CNC
- **Factory Layouts:** Organize your projects to better fit your company's structure, making it easier for users to navigate to a project.
- **Reporting Tools:** Generate detailed audit trail reports
- **Electronic Signatures:** For regulated companies. Provides an extra level of control by requiring signatures for changes made to projects.

## 6.1 USING PAC CHANGE MANAGEMENT FOR THE FIRST TIME

When using PAC Change Management for the first time, the administrator must set up users and assign passwords to enable them to access the PAC Change Management database on the server.

For detailed information, see sections *To install the PAC Change Management Server* and *To install the PAC Change Management Client*.

## Using PAC Productivity Suite with Change Management

1. Launch **PAC Productivity Suite**. The Change Management Log On dialog appears.
2. Log on as “Administrator”.

Leave the password blank. For Domain, select the network domain of the PAC Change Management Server, if required. For Server, enter the PAC Change Management Server computer name.

Not sure where server is located? Click **Browse Network** to see available computers or click **Scan for Servers** to scan the network (may take several minutes).

Click **OK**.

3. If asked to select a Theme, choose **Change Management**, then click OK.

Themes are pre-configured sets of tools, toolbars, and other options for a specific product or type of user.

4. Check out the Access Control folder.

In the Manager tab of the Navigator, right-click the Access Control folder, and choose **Check Out Access Control**. Check out this folder to edit and configure users, groups, permissions.

5. Set up a password for the Administrator user.

Create a unique password for the Administrator user in the Access Control folder. This user always has full access to PAC Change Management and databases.

If you do not create a password for this user, anyone can log in as an Administrator.

For details on configuring Access Control, see Chapter 4 in PAC Change Management for PAC Productivity Suite Getting Started (GFK-2486Q), or look up “Access Control: an Overview” in the PAC Change Management online help.

6. Recommended: Add users.

Add users to the Access Control folder and assign them unique names and passwords. The users you configure are associated with the Server you are logged on to.

7. Recommended: Set up groups for your users.

After creating groups, configure their access permissions, then assign users to groups.

8. Perform Product and Site-specific Modifications.

Depending on installed custom project modules, you may need to perform site-specific modifications. See the Release Notes tab for the Change Management product in Important Product Information document (IPI), PME\_IPI\_for\_PPS.chm. A link to this document is in the root folder of the installation CD.

**IMPORTANT:** After performing site-specific modifications, check in all changed setting files under the “Custom Project Settings” folder in the Navigator. Do this only once; other Change Management Clients automatically acquire updated product type settings when connecting to the Change Management Server.

9. Check in the Access Control folder.
10. Exit PAC Change Management.

Users added to the Change Management Server can log in from any client. When site-specific modifications are complete, check in all changed setting files under “Custom Project Settings” folder in Manager tab of the Navigator. You can do this from only one PAC Change Management client.

## 6.2 CENTRALIZED STORAGE & VERSION CONTROL

Version control is PAC Change Management’s most important feature. With version control, all project and PAC Change Management data is stored in a central location. You can:

- Ensure that only one user makes changes to an item or project at a time. Track who is currently working on an item or project.
- Safely store previous project versions.
- Roll back a project to a previous version.

## 6.3 ACCESS CONTROL

Access Control is PAC Change Management’s security tool. You can: Organize groups of users.

- Allow or disallow group access to projects stored on the PAC Change Management Server.
- Allow or disallow group Toolchest drawer access.
- Allow or disallow groups from performing operations in PAC Change Management.

## 6.4 AUDIT TRAILING

Audit trailing enables you to:

- Track actions performed in your process system.
- Add a record to audit trail database when specific actions occur. Generate audit trail reports for history of changes, actions.
- View audit trail database in a compatible database application.

## 6.5 CUSTOM PROJECT SUPPORT

PAC Change Management supports Waltz\*, Process Window\*, native PAC Productivity Suite applications, and other applications. To manage other applications, add them as custom products.

Predesigned custom product modules are available with PAC Change Management. You can select individual modules in the “Support Product Modules” item under the “Manager Client” item when installing PAC Change Management. Otherwise, create a basic support module for a new third-party application with the Add Custom Product Type Wizard.

## 6.6 FACTORY LAYOUTS

Factory Layouts organize your projects to fit your company’s structure as opposed to how the Navigator organizes projects. This provides easy project navigation. For example, you can lay out projects based on the structure of a factory, a plant’s process, or any other way that makes sense to users who access projects through PAC Change Management. Engineers, technicians, and others can use layouts to quickly access projects.

# General Contact Information

Home link: <http://www.emerson.com/industrial-automation-controls>

Knowledge Base: <https://www.emerson.com/industrial-automation-controls/support>

## Technical Support

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Any escalation request should be sent to: [mas.sfdcescalation@emerson.com](mailto:mas.sfdcescalation@emerson.com)

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