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PAC Change Management for Machine Edition

Getting Started

Version 10.1

EMERSON

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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.

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

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Section 1: Welcome

Congratulations on your purchase of PAC Change Management, the most powerful and flexible automation system management tool available today. With PAC Change Management, you can protect and coordinate all your projects throughout your system's life cycle. Version control, centralized storage, security, automatic backups and more—they are all covered.

PAC Change Management consists of a server and clients.

The server stores PAC Change Management configuration files and the projects that are kept under version and access control.

PAC Change Management has one client:

- **Client:** hosted in the PAC Machine Edition environment. It can be installed from the PAC Change Management CD or from the PAC Machine Edition CD.

PAC Change Management provides the following key features.

- **Centralized Storage & Version Control:** tracks projects and safely stores previous versions. This ensures that everyone uses the correct files and databases, and virtually eliminates lost work.
- **Access Control:** allows only users with approved security to access or modify projects.
- **Audit Trailing:** tracks details of who did what, when, and why.
- **Scheduler:** enables the automatic completion of repetitive tasks such as backups and compares, saving you valuable time.
- **PAC Software support:** PAC Change Management is integrated with other PAC software to provide a comprehensive solution including Machine Edition.
- **Third-party project support:** PAC Change Management is preconfigured to manage a variety of popular automation products from Rockwell, Siemens, Schneider, and others, including Modicon, ProWORX, Logic master 90-30 and 90-70, and Fanuc CNC.
- **Factory Layouts:** allows you to organize your projects to better fit your company's structure, making it easier for users to navigate to a project.
- **Reporting Tools:** allows you to generate detailed reports of audit trails.
- **Electronic Signatures:** designed with the regulated companies in mind, electronic signatures provide an extra level of control by requiring signatures for changes made to projects.

1.1 System Requirements

PAC Change Management is comprised of two parts: a Server and a Client. In a typical system, the Server portion is installed on one networked computer and the Client portion on each computer that needs access to projects on the server. To use PAC Change Management and its tools, you require the following:

1.1.1 PAC Change Management (PCM) Server

Operating system

Because the operating system has continuous updates, you should run the Windows update feature to get the latest software.

- Microsoft® Windows® Server 2016 Standard or Enterprise Edition[2]
- Microsoft® Windows® Server 2019 Standard or Enterprise Edition[3]
- Microsoft® Windows® 10 64-Bit Professional or Ultimate Edition.
- Microsoft® Windows® 10 64-Bit IoT Enterprise Edition.
- Microsoft® Windows® 11 64-Bit Professional or Ultimate Edition.

Note:

Windows regional settings must be set to English.

PAC Change Management is not supported in environments that use Microsoft Terminal Services or Microsoft Cluster Server. Windows XP Tablet PC Edition and Windows XP Embedded are not supported.

Other requirements

- Ethernet Network Adapter and the TCP/IP Network Protocol (100Mbit).
- Internet Explorer 9.0, 8.0, 7.0, or 6.0 with SP1 or later.
- Minimum Processors:
    - Intel® Core™ i5
    - AMD FX™ or Phenom™ II

  See your sales representative for server system recommendations based on your projected number of Manager Clients and the projected size of your project database.
- 20 GB free hard disk space, plus storage space for project files (500 GB recommemded).
- 8 GB RAM minimum; 16 GB RAM recommended.

2 Supported on PCM 9.70 or later
3 Supported on PCM 10.1 or later

- Collabnet Subversion v1.11.1 32-bit Client. For more details, visit Emerson's PAC Change Management Landing Page at https://emerson-mas.force.com/communities/en_US/Article/PAC-Change-Management-Landing-Page
- .NET Framework 4.0 Full. If the Microsoft .NET Framework is not yet installed, it is automatically included during the installation of Change Management, and a reboot may be required to complete the installation.

1.1.2 PAC Change Management (PCM) Client

Operating System

Because the operating system has continuous updates, you should run the Windows update feature to get the latest software.

- Microsoft® Windows® Server 2016 Standard or Enterprise Edition[5]
- Microsoft® Windows® Server 2019 Standard or Enterprise Edition[6]
- Microsoft® Windows® 10 (32-bit, or 64-bit in WoW mode), Professional or Ultimate Edition.
- Microsoft® Windows® 11 64-Bit Professional or Ultimate Edition.

Note:

Windows regional settings must be set to English.

PAC Change Management is not supported in environments that use Microsoft Terminal Services or Microsoft Cluster Server.

Windows XP Tablet PC Edition and Windows XP Embedded are not supported.

Other requirements

- Internet Explorer 9.0, 8.0, 7.0, or 6.0 with SP1 or later.
- 1.5 GHz Pentium-based computer recommended.
- 50 MB hard disk space, plus storage space for project files (2 GB recommended to start with).
- 512 MB RAM (2 GB recommended).
- Ethernet Network Adapter and the TCP/IP Network Protocol (100 Mbit).
- .NET Framework 4.0 Full. If the Microsoft .NET Framework is not yet installed, it is automatically included during the installation of Change Management, and a reboot may be required to complete the installation.

5 Supported on PCM 9.70 or later
6 Supported on PCM 10.1 or later

1.1.3 Scheduler

Operating system

Because the operating system has continuous updates, you should run the Windows update feature to get the latest software.

- Microsoft® Windows® Server 2016 Standard or Enterprise Edition[8]
- Microsoft® Windows® Server 2019 Standard or Enterprise Edition[9]
- Microsoft® Windows® 10 (32-bit, or 64-bit in WoW mode), Professional or Ultimate Edition
- Microsoft® Windows® 11 64-Bit Professional or Ultimate Edition

Note:

Windows regional settings must be set to English.

Windows Vista, Windows XP Tablet PC Edition, and Windows XP Embedded are not supported.

Other requirements

- PAC Change Management Client.
- Internet Explorer 9.0, 8.0, 7.0, 6.0 with SP1 or later, or 5.5 with SP2 Q810847 or later.
- 1.5 GHz Pentium-based computer recommended.
- 50 MB hard disk space (in addition to hard disk space required for the PAC Change Management Client).
- 512 MB RAM (2GB recommended).
- Ethernet network adapter (100 Mbit) and TCP/IP network protocol. (See Section 1.1 System Requirements for the PAC Change Management Client.)
- .NET Framework 4.0 Full. If the Microsoft .NET Framework is not yet installed, it is automatically included during the installation of Change Management, and a reboot may be required to complete the installation.

1.1.4 PAC HMI/SCADA CIMPLICITY

For CIMPLICITY 2022 or higher system requirements, see the CIMPLICITY online help topic Required and Supported Software and Hardware.

Note: *PME 10.1 is not compatible with older versions of CIMPLICITY.*

[8] *Supported on PCM 9.70 or later*

[9] *Supported on PCM 10.1 or later*

1.2 Installation

A typical PAC Change Management system consists of a PAC Change Management Server on a dedicated network computer and a Client on each computer that requires access to projects on the server. (You can also install a Client on the same computer as the Server.)

Important

The following installation procedures are for a fresh, brand-new installation of PAC Change Management. If you are upgrading from a previous version (including versions of CIMPLICITY Manager or fxManager), look in Change Management's "Release Notes" section in the Important Product Information (IPI) document, IPICimME.chm for instructions. A link to this document can be found in the root folder of the PAC Change Management installation CD.

To install the PAC Change Management Server

The Change Management Server stores and manages the project database, which is kept under Version and Access Control. The Server uses Collabnet Subversion (a proven, reliable management program) for its version control system.

1. Before you start:
   - Ensure that you install and authorize the Change Management Server during regular business hours for Product Authorization, between 6 a.m. and 4 p.m. Mountain Time.
   - Ensure that you install of Collabnet's 32-bit Subversion client Version 1.11.1 to be used by PAC Change Management. The installer can be found here: https://emerson-mas.force.com/communities/en_US/Article/PAC-Change-Management-Landing-Page Server .

     Note: PAC Change Management Server only supports Collabnet's 32-bit Subversion client Version 1.11.1. No other Subversion client is supported.
2. Start the Change Management installation process.

   Place the PAC Change Management installation CD in the CD-ROM drive. If you have Autoplay enabled, the installation launcher splash screen should appear. If it does not appear, run PACSetup.EXE on the root directory of the Change Management CD.
3. Click **Install PCM Server/Client**. In the Setup message box that appears, click Yes.
4. On the PAC Change Management splash screen, click Install.

   Follow the on-screen prompts in the PAC Machine Edition Setup dialog box, clicking **Next** each time, until you are asked to select the components to install.

5. Select the appropriate installation options.

   In the PAC Machine Edition Setup dialog box, ensure that the following features are selected to be installed:

   - Change Management Client
   - Under Change Management Client | Product Support Modules, all products you want to use with Change Management
   - Change Management Server
   - Change Management Client | Scheduler

   The icon next to a feature option indicates the install state of that feature. A red X means the feature will not be installed. Click the icon to open a menu that lets you change the install state for that feature. When completed to your satisfaction, click **Next**.

   Note: *The Modicon ProWORX module is automatically included if you have ProWORX NxT installed on the local workstation. This means you will no longer be able to launch ProWORX NxT except from the PAC Change Management environment. If you do not want to use PAC Change Management with ProWORX NxT projects, ensure that you clear the Modicon ProWORX module installation option.*

   If the Windows Firewall is active, then Change Management must be added to the exceptions list before you can use the product.

   Finish the installation. Continue with the rest of the installation, following the instructions on each screen.

6. When the Server Configuration utility dialog box appears, configure the SVN Root by clicking the 'Configure' button under Subversion (SVN) Repository. Leave the SVN Repository Name and SVN Repository Root Path unchanged. Configure the SVN Utility Path by clicking the 'Select' button and navigating to the installation directory for the Collabnet Subversion client (e.g. "C:\Program Files (x86)\CollabNet\Subversion Client"). Press 'OK' to save the SVN configuration settings.
7. Press 'OK' to save the server configuration.
8. If you are using a hardware key, insert the key into an available USB port on the computer. If you are using a software key, look up Product Authorization in the online help for information on how to authorize Change Management by using a software key.
9. Install PAC Machine Edition.
10. Add the Windows device name to the hosts file on your machine. The hosts file is located at "C:\Windows\System32\Drivers\etc\hosts". The device name can be found in the About menu in Settings.
11. Restart your machine after you have successfully installed PAC Change Management, saved the server configuration, and added the device name to your hosts file.

12. Start PAC Machine Edition (Change Management Client). To do so, click the Start button on the Windows taskbar, then Emerson -> PAC Machine Edition.
13. In the Change Management Log On dialog box that appears, the first time you start Change Management, enter the following for each item:
    - For the Username, enter “Administrator”.
    - For Password, enter nothing, leaving it blank,
    - If necessary, for Domain, select the network domain of the PAC Change Management Server. In most cases, this is not needed.
    - For Server, enter the name of the computer with the PAC Change Management Server. This will be the local computer. If you do not know the name of the local computer, click **Browse Network** to browse the available computers on the network.

    When you are done, click **OK.**
14. If you are asked to select a theme, choose **Change Management** and click **OK**.
15. The Machine Edition environment displays the tools for working with PAC Change Management.

Important

It is recommended that you immediately set up a new password for the Administrator user. The Administrator user is a system user who always has full access to PAC Change Management features. Initially, this user’s password is blank. To change the Administrator’s password, check out the Access Control folder, then right-click the Administrator user and choose Change Password. Check in the Access Control folder when you are done. If you intend to use Change Management’s Audit Trailing features (and you are using the default Audit Trail database format), you must share the Audit Trail database folder on the PAC Change Management Server to all Client computers with “read” permissions. This allows users to view audit trail data. The default directory path for the audit database is “C:\Program Files\PAC\PAC Machine Edition\fxManager\Server\Audit Database”. TIP: You can also store audit trail records in an Oracle or Microsoft SQL Server database. For more details, look up “Oracle Audit Trail databases” or “Microsoft SQL Server Audit Trail databases” in the PAC Change Management online help.

What to do next?

Install PAC Change Management Clients.

If you intend to use Audit Trailing, share the Audit Trail database folder on the PAC Change Management Server with “Read” permissions. This allows users to read audit trail data. The default directory path for the PAC Change Management Server is “C:\Program Files\PAC\PAC Machine Edition\fxManager\Server”.

To install the PAC Change Management Client

You must install the Change Management Client on each computer that will access the Change Management Server. The Change Management Client is automatically included when you install a Change Management Server. You do not need to separately install the Client on the Server computer.

To install the Change Management Client, follow the steps below on the Client workstation computer.

1. Before you start:
   Ensure that the Change Management Client workstation has a valid Ethernet network connection to the computer running the Change Management Server.
2. Start the Change Management installation process.
   Place the PAC Change Management installation CD in the CD-ROM drive. If you have Autoplay enabled, the installation launcher splash screen should appear. If it does not appear, run Setup.exe on the root directory of the CD.
3. Click **Install PCM Server/Client.** In the Setup message box that appears, click **Yes.**
4. On the PAC Change Management splash screen, click **Install**.
   Follow the on-screen prompts in the PAC Machine Edition Setup dialog box, clicking **Next** each time, until you are asked to select the components to install. In the PAC Machine Edition Setup dialog box, ensure that the following features are selected to be installed:
   - Change Management Client
   - Under Change Management Client | Product Support Modules, all products you want to use with Change Management

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Important

If you are using either CIMPLICITY for integrated Change Management, do not select that product support module (that is, Cimplicity HMI) to be installed. Make sure a red X appears beside the module name.

   - (Optional) Change Management Client | Scheduler
     The icon next to a feature option indicates the install state of that feature. A red X means the feature will not be installed. Click the icon to open a menu that lets you change the install state for that feature. When completed to your satisfaction, click **Next**.

Note: *Ensure that Change Management Server is not selected to be installed. The Modicon ProWORX module is automatically included if you have ProWORX NxT installed on the local workstation. This means you will no longer be able to launch ProWORX NxT except from the PAC Change Management environment. If you do not want to use PAC Change Management with ProWORX NxT projects, ensure that you clear the Modicon ProWORX module installation option.*
If the Windows Firewall is active, then Change Management must to be added to the exceptions list before you can use the product.

5. Finish the installation.
   Continue with the rest of the installation, following the prompts on each screen until you are done.
6. Reboot the computer when installation is complete.
7. You will need to specify the default Change Management Server for this Client installation. Start Change Management. To do so, click the Start button on the Windows taskbar, then choose Emerson -> PAC Machine Edition.
8. Once the Change Management Log On dialog box appears , enter the following for each item:
   - For the Username, enter the username for your account. To log in as the Administrator, enter “Administrator”.
   - For Password, enter the password for your account.
     Your system administrator should have added a user account for you to the Change Management Server. Contact your system administrator to find out your Username and initial Password. If you do not yet have a user account, your system administrator may have you temporarily log in as the Administrator user.
   - For Server, enter the name of the computer that is hosting the Change Management Server. If you do not know the name of the computer, click **Browse Network** to browse locate the computer on the network, or click **Scan for Servers** to scan the network for valid Change Management Server installations.

     Note: *Scanning for servers may take several minutes.*

     Scanning for servers may take several minutes depending on the speed of your network. If possible, it is recommended that you either enter the Server name or browse to the Server computer.

     When you are done, click **OK.**
     This sets the default Server for the Change Management Client. When the PAC Change Management environment loads, you can exit Machine Edition.

What to do next?

In PAC Change Management’s Access Control folder, add users to the PAC Change Management user list. This should be performed by the PAC Change Management Administrator.

For more details, see Access ControlSection 4: Access Control on page 29, or look up “Access Control: an Overview” in the online help.

To update Internet Security Settings

1. From the Tools menu, click Internet options.
2. In the Internet Options dialog box that appears, click the Security tab.
3. Select the Internet zone.
4. Click Custom Level to open the Security Settings dialog box.
5. In the Settings list box, make sure the “Initialize and script ActiveX controls not marked as safe for scripting” option is set to Prompt or Enabled.

To update Trusted Sites Security Settings

1. From the Tools menu, click Internet Options. The Internet Options dialog box appears.
2. Click the Security tab.
3. Select the Trusted Sites zone.
4. Click Custom Level to open the Security Settings dialog box.
5. In the Settings list box, ensure that the “Initialize and script ActiveX controls not marked as safe for scripting” option is set to Prompt or Enabled.

To update the Trusted Sites list

1. From the Tools menu, click Internet Options.
2. In the Internet Options dialog box that appears, click the Security tab.
3. Select the Trusted Sites zone.
4. Click Sites to open the Trusted Sites dialog box.
5. In the “Add this website to the zone” edit box, enter the name of the PCM IIS web site. For example, use a URL similar to the following:

   http://ComputerName/PCMIIS/default.aspx

   where ComputerName is the actual name of the computer where PCM IIS is installed, and PCMIIS is the name of the virtual directory.
6. Clear the Require Server Verification check box.
7. Click Close.

1.3 Using the Software for the First Time

When you use PAC Change Management for the first time, the PAC Change Management administrator must set up users and assign passwords to allow them to access the PAC Change Management database stored on the Server.

To Start PAC Change Management

1. Click the Start button, point to Programs, then PAC, then PAC Machine Edition, and click PAC Machine Edition.

   The Change Management Log On dialog box appears.

2. Log on as “Administrator.”

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

   If you are not sure where the Server is located, click **Browse Network** to browse the computers available on the network. You can also click **Scan for Servers** to scan the network for valid PAC Change Management Servers, though this operation may take several minutes.

   When you are done, click **OK**.

3. If asked to select a Theme, choose **Change Management** and click **OK**. Themes are pre-configured sets of tools, toolbars, and other options that are suitable for a specific product or type of user.

4. Check out the Access Control folder.

   To do so, in the Manager tab of the Navigator, right-click the Access Control folder and choose **Check Out Access Control**. You must check out this folder to edit and configure users, groups, and permissions.

5. Set up a password for the Administrator user.

   Set up a unique password for the Administrator user in the Access Control folder, located in the Manager tab of the Navigator. The Administrator user will always have full access to PAC Change Management and its databases. If you do not configure a password for this user, anyone will be able to log in as an Administrator.

   For details on configuring Access Control, see Section 4: on page 29, or look up “Access Control: an Overview” in the PAC Change Management online help.

6. Recommended: Add additional 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're logged on to.

7. Recommended: Set up groups for your users.

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

8. Perform Product and Site-specific Modifications.

   Depending on the custom project modules you installed, you may need to perform some additional site-specific modifications. For details, see the Release Notes tab for the Change Management product in the Important Product Information document (IPI), IPICimME.chm. A link to this document can be found in the root folder of the PAC Change Management installation CD.

Important

After you have performed any site-specific modifications, make sure you check in all changed setting files under the “Custom Project Settings” folder in the Navigator. You need do this only once; other Change Management Clients will automatically acquire updated product type settings when they connect to the Change Management Server.

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9. Check in the Access Control folder when you are done.
10. Exit PAC Change Management.

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

1.4 Product Authorization

A new installation of Logic Developer - PLC comes with a 4-day trial period with full access to all Logic Developer - PLC features. This trial period can be overwritten by installing a license, but it will resume if the added license is revoked or expires during the 4-day trial period.

1.4.1 Automatic License Activation

Customers can license their copy of Logic Developer – PLC using Emerson's Entitlement and License Manager software. There are two methods to initiate the activation wizard: from within the application (PME) or from the Entitlement and License Manager itself.

During or following the trial period of PAC Machine Edition, customers can select the *Activate a License* button to initialize the License Activation screen from the Entitlement and License Manager and follow the activation wizard's prompts. This section will demonstrate how to license PME from within the application.

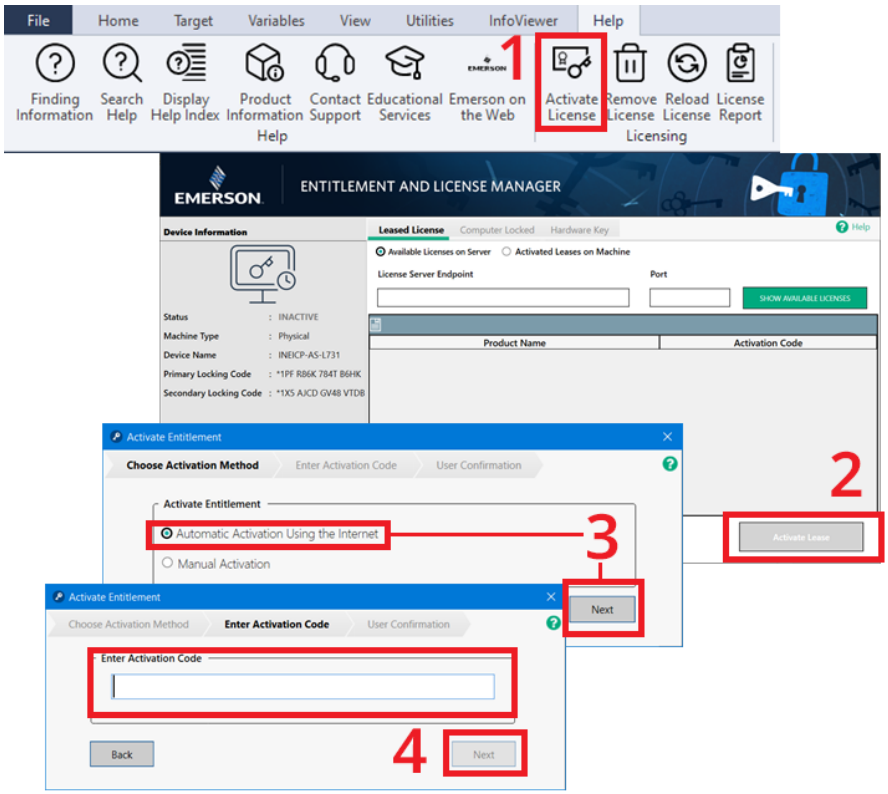
Alternatively, customers can open Entitlement and License Manager directly and activate their copy of PAC Machine Edition. For more information on using Entitlement and License Manager, please refer to GFK-3104.

Automatic Activation Steps:

1. Navigate to the *File* menu on the ribbon bar.
2. Select the *App tab* from the menu.
3. Click the *Activate a License* button located on the upper-right side of the menu (**Figure 1**, Item 1). A new window will open to the Entitlement and License Manager.
4. Click the *Activate* button and select the Activation Method (**Figure 1**, Item2).
5. Select *Automatic Activation Using the Internet* and then *Next* to automatically license your product (**Figure 1**, Item 3).
6. Enter the activation code on the next screen (**Figure 1**, Item 4)

Note: *For more information on the manual or automatic activation of your software, please refer to GFK-3104.*

Figure 1: Activate a License Button



Section 2: PAC Change Management Environment

PAC Change Management uses Change Management technology to offer you a complete automation system management tool.

The first section in this chapter explains the PAC Change Management Server—the heart of a PAC Change Management system. The second section provides an overview of the Change Management Client. The third section provides some key Change Management concepts you'll need to know before you begin. When you are finished, you will have a solid foundation for managing and working with projects under PAC Change Management.

2.1 The PAC Change Management Server

The Server is at the heart of PAC Change Management. All projects and settings, from user passwords to Scheduler events, are stored on the Server.

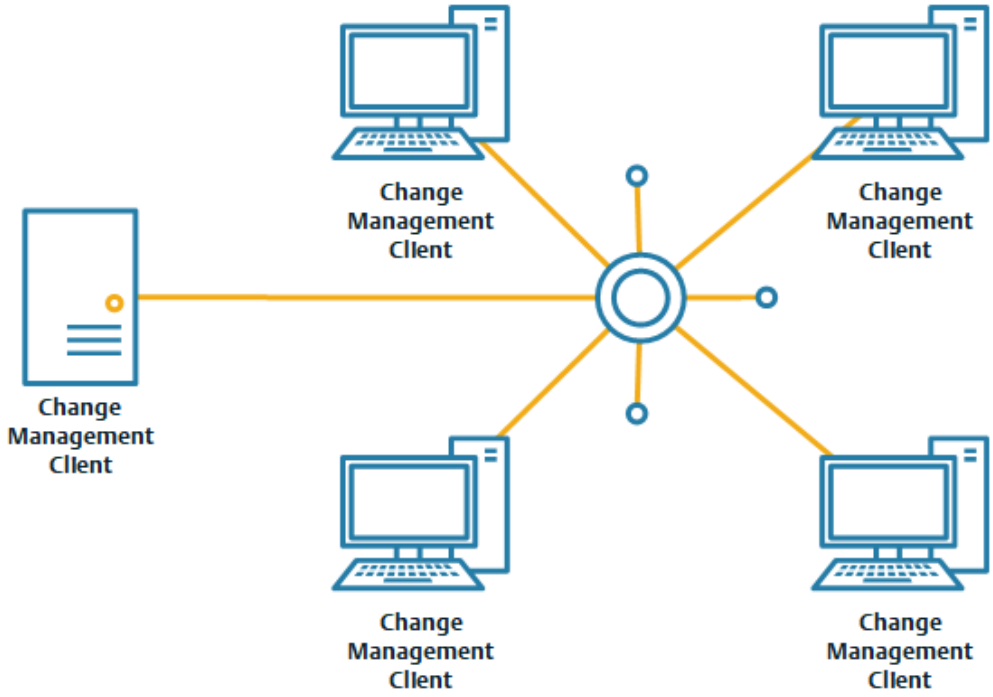
This includes:

- All projects managed by PAC Change Management.
- Lists of users, groups, and permissions.
- Lists of Audit Trail settings.
- The Scheduler event list.
- Custom Project settings and scripts.
- Web-based Factory Layouts.

Most systems have only one Server. Other computers in the system run PAC Change Management as a client. The term client refers to its relationship with the Server: The Server gives (or "serves") data upon requests from the client.

Technically, the term "Server" refers only to the module in the Change Management application that manages databases. However, in a typical automation management system, "Server" refers to the computer that the PAC Change Management Server application is running on. The following illustration depicts a typical Change Management Client/Server system.

Figure 2: Typical PAC Change Management System



The most important role the PAC Change Management Server performs is as a centralized storage place for your projects under Version Control. When users want to work on something stored on the PAC Change Management Server, they check out the item, make their changes, then check it back into the Server. For more information on Version Control, see Section 3: Version Control on page 25.

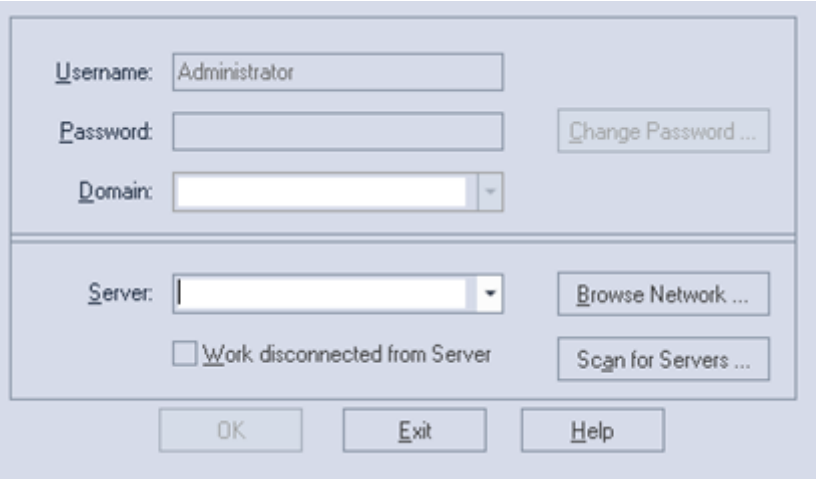
2.1.1 Logging on to PAC Change Management

When you start PAC Change Management, you must choose a Server and log on as one of the users in its user database. (If you have not been added to the PAC Change Management Server, you can log on as a Guest user by entering the username “Guest”.) At this time, you also have the option of working connected or disconnected from the Server.

- If you are logging on to PAC Change Management for the first time, you must log on connected to the Server.

  You can choose a different Server each time you log on, but each Server maintains separate user databases. This means an Administrator must add you as a user to all PAC Change Management Servers you will be working on.

Figure 3: Change Management Log On



If your administrator has configured your system to use an external security provider (such as the Windows NT network's user accounts), this dialog box may not appear. Instead, PAC Change Management will use the user name of the user currently logged on to the local workstation.

Working connected to the Server

If you work connected to the Server, PAC Change Management establishes a communications link with the Server when you log on. It then copies and updates any necessary settings from the Server to the local client computer.

If settings or projects change on the Server while you are connected, you can refresh the display.

Most operations that use the Server—such as checking items in and out—can be performed only while connected to the Server.

Working disconnected from the Server

If you work disconnected from the Server, PAC Change Management does not update any settings or project information in the server's database. The list of projects, Access Control settings, and everything else will be unchanged from the last time someone logged on to the Server from that computer. You can still work on projects and items that are checked out of the Server, or for which a local version exists on the client computer. However, you will not be able to check in anything until you connect to the Server again.

Since PAC Change Management does not have to update information across the network, working disconnected from the Server is usually faster than working connected. However, keep the following in mind:

- If an Administrator gives you a new security permission, this information will not be updated until you connect to the Server again.

- When making changes to Change Management items and folders (such as the Access Control database, which stores security permissions for each user), any changes you make will not take effect for other users until you check in the item. You should occasionally connect to the Server and check in the item so that other users can acquire your changes.

Change Management Server Console

The Manager Console provides Administrators with a summary of the Server status. This includes how much disk space is used, how many projects are stored in the project database (sorted by project type), and other information. To access the console, in the Utilities tab of the Navigator, double-click Server Console.

Want to know more? In the Help Index, look up "Change Management fxServer Console".

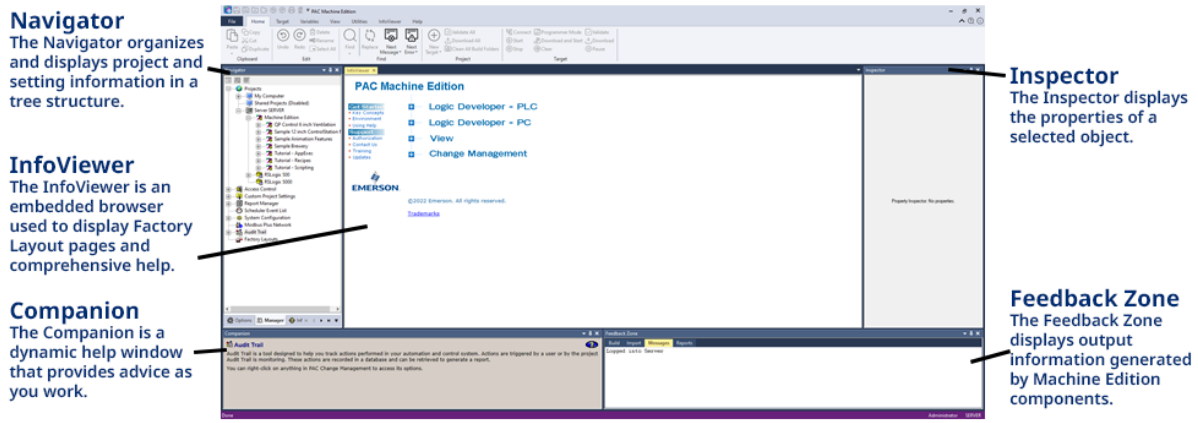
2.2 The Machine Edition Environment

PAC Change Management is part of the Change Management suite of products. As such, it is highly integrated with the Change Management environment. After you log on to PAC Change Management, the main Change Management window appears. All Change Management tools used by the currently-selected Change Management "theme" appear within the Change Management window.

The following illustration shows only one possible tool layout, typically what an Administrator would use. Most of the time, you'll only use a few of these tools at once—you can open and close these tools as you need them.

Want to know more? In the Help Index, look up "Tools".

Figure 4: Machine Edition Tools



2.3 Getting to Know Machine Edition

This section briefly describes some key tools and features of the Change Management environment that are used by PAC Change Management.

2.3.1 Right-Click Menus

While using PAC Change Management, you can right-click any object on your screen to perform operations on it. This is probably the most common way to get things done.

2.3.2 Getting Help

There are many ways to access the Machine Edition online help system.

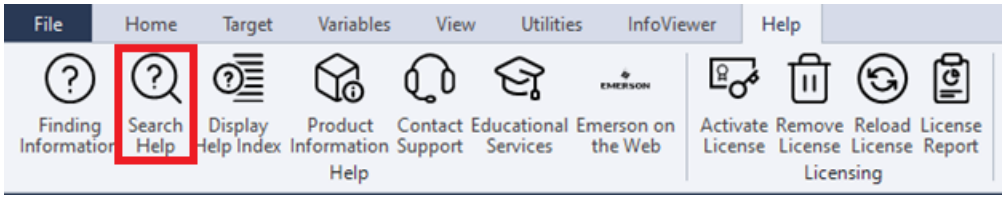
- Press F1 on any selected item for context-sensitive help.
- Browse through the table of contents in the InfoView tab of the Navigator.
- Perform a full-text search of the help in a separate HTML Viewer window: on the Help menu, choose Search.
- Search for keywords using the index: on the Help menu, choose Index.
- Use the Companion to dynamically display a brief description about whatever item you have selected.

You can also access additional help on the web. In Machine Edition on the Help menu, point to Emerson on the Web, and then choose:

- Emerson Support
- Emerson Home Page

Machine Edition provides two kinds of Help windows to display help information: the Companion and the InfoViewer.

Figure 5: Getting Help



Companion — The Companion window displays brief information about whatever item you happen to be working with, anywhere in PAC Change Management. Whether you need the meaning of a property, or the purpose of a node in the Navigator, the Companion is always there for you.

The Companion is open by default, but if it isn't visible, click on the Tools toolbar.

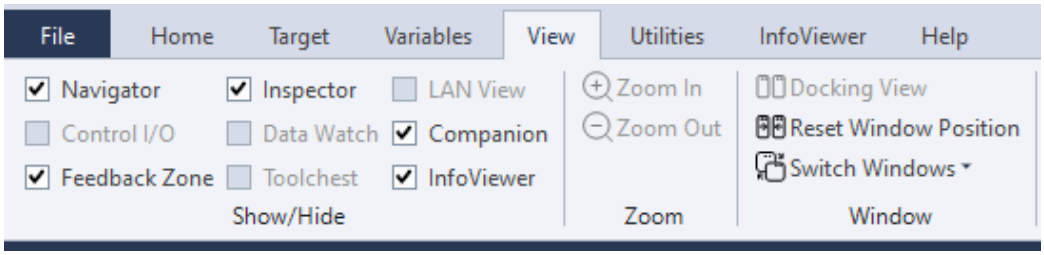
InfoViewer — The InfoViewer window is an embedded HTML browser that provides more detailed and procedural help. It is launched whenever you access help topics from the InfoView Tab, the help index, or by pressing F1 on a selected item. Click on the Tools toolbar to open the InfoViewer.

2.3.3 Accessing the Right Tool

Often, Change Management help will direct you to a specific tool window. If the tool isn't visible, there are two ways to open it:

- Under the **Tools** menu, select the tool's name.
- On the Tools toolbar, click the tool's icon. To display the Tools toolbar, in the Options tab of the Navigator, under the Change Management folder, select Toolbars. In the Inspector, set Tools to True.

Figure 6: Tools Ribbon



If you are not sure of the name of a tool within a toolbar, hover the mouse over the tool to display its name in a tool tip. (Note that if you installed other Change Management products, you may have more available tools than those pictured.)

2.3.4 Projects and the Navigator

Navigator

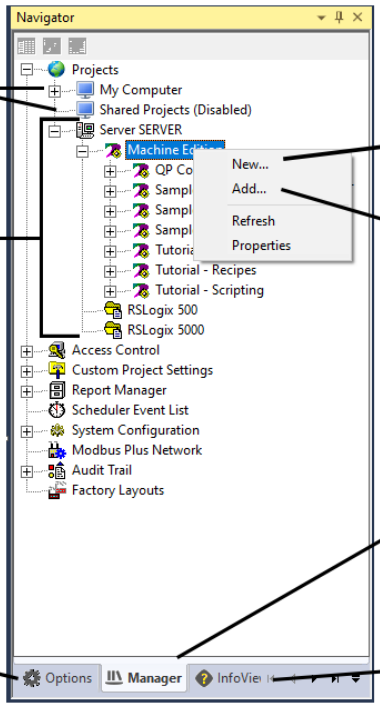
The Navigator window organizes projects, project settings, and manages your project database.

- Use the Navigator to manage projects, set your environment preferences, create scripts for third-party support, print reports, and more.
- The Navigator is organized into several tabs. The available tabs depend on which Change Management products are installed.
- Within each tab, items are displayed in a tree structure of nodes or folders. You can expand and collapse the tree, similar to drives and directories in Windows Explorer™.
- The following picture illustrates the Navigator. All the files listed under My Computer are projects that you have access to on your computer.
- To open a project in the Navigator, you need the proper Access Control permission. For more information, see page 29.

Figure 7: Navigator Window

If you have any local Change Managemetn Projects on your Computer (created with products like View or Logic Developer - PC), they can be found under the **My Computer** or **Shared Projects** folders.

Projects stored and managed on the PAC Change Managment Server can be found in the **Server** folder. These projects are further divided into application or project types - such as Modicon ProWORKX or Logic Master 90-30 (LM9030)



To create a new project on the Server, right-click the appropriate project type and select **New**. You need the proper Access Control permissions to perform these funcitons.
-or-
Select **Add** to add an existing (local) project to the Server. You may have to browse to the directory where the project is stored.

The **Manager** tab lists all projects on the PAC Change Management system. Use it to create and open projects and to manage projects on the Server. It is also where you work with features like Access Control and the Scheduler.

The **Options** tab contains option and preference settings for the Change Management environment.

The **InfoView** tab contains the table of contents for the help.

2.3.5 Properties and the Inspector

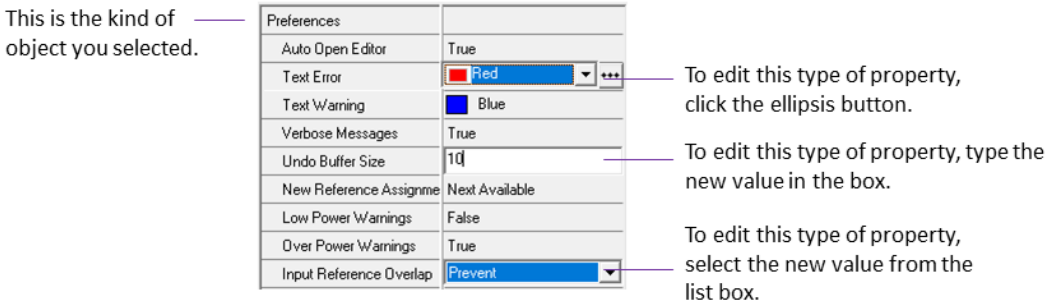
Inspector

In Change Management, almost all objects have properties. Properties are attributes and information about that object. For example, the properties of a user under the Access Control folder include password, email address, and title, to name a few.

Properties of an object are edited in the Inspector window.

- When a property changes an object's appearance, you'll see the results of the change immediately in the object's editor.
- A read-only property, which cannot be changed, appears greyed out.

Figure 8: Inspector Window



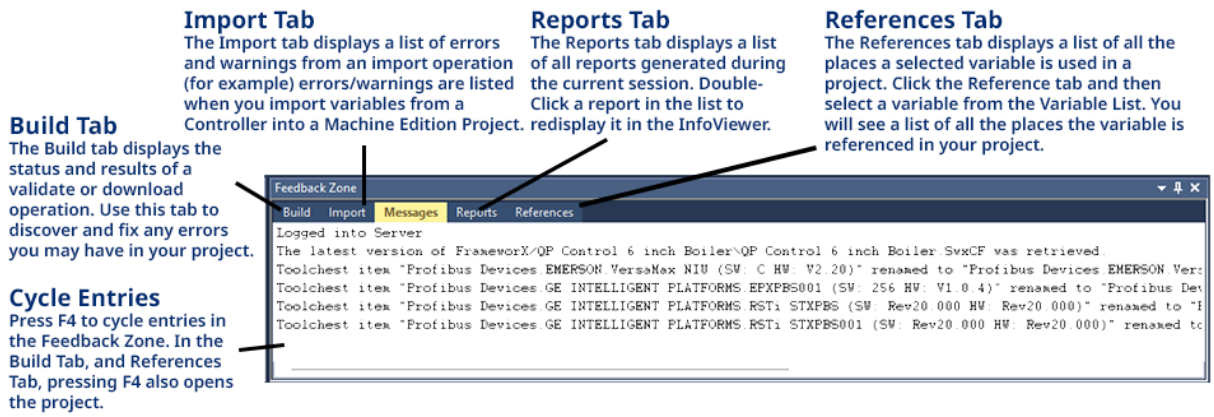
As you select the various properties within the Inspector, the Companion displays a brief description about the selected property. If you are unsure of the valid range for a property, hover the mouse over its current value and look in the status bar.

2.3.6 The Feedback Zone

Feedback Zone

The Feedback Zone is an interactive window that displays output information generated by Change Management products. Using the Feedback Zone, you can keep track of project information, display generated reports, and more. It is organized into several tabs.

Figure 9: Feedback Zone



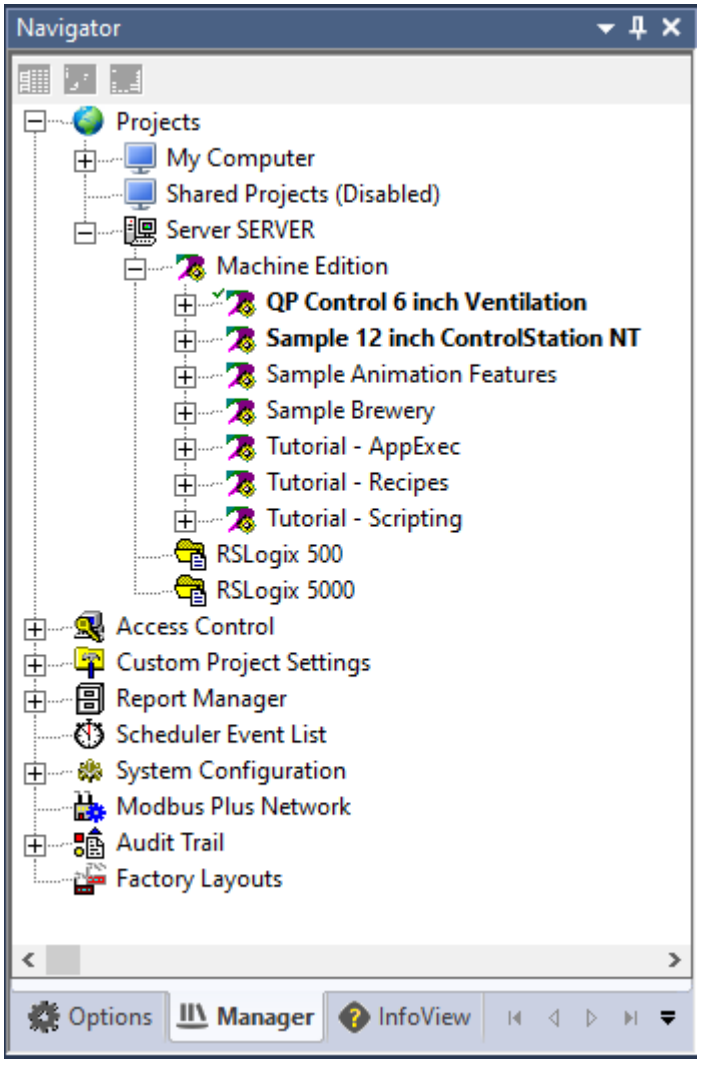
Section 3: Version Control

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. It also allows you to:

- Ensure that only one user can make changes to an item or project at a time.
- Keep track of who is currently working on an item or project.
- Safely store previous versions of projects.
- Return a project to a previously-archived version.

Want to know more? In the Help Index, look up version and choose "How PAC Change Management handles Version Control".

Figure 10: Navigator: Manager tab Project nodes



3.1 How Version Control Works

As described in chapter 2, all projects and settings are stored in a master database on The PAC Change Management Server(see page 15). When you want to work on something stored on the PAC Change Management Server—whether it is a project, Access Control settings, or something else— use the following steps:

1. Check out the project or item.

   The PAC Change Management Server copies the item to your local computer (the “client” computer) and marks the item as “checked out”. As long as the item is checked out, no other user can make changes to that item.

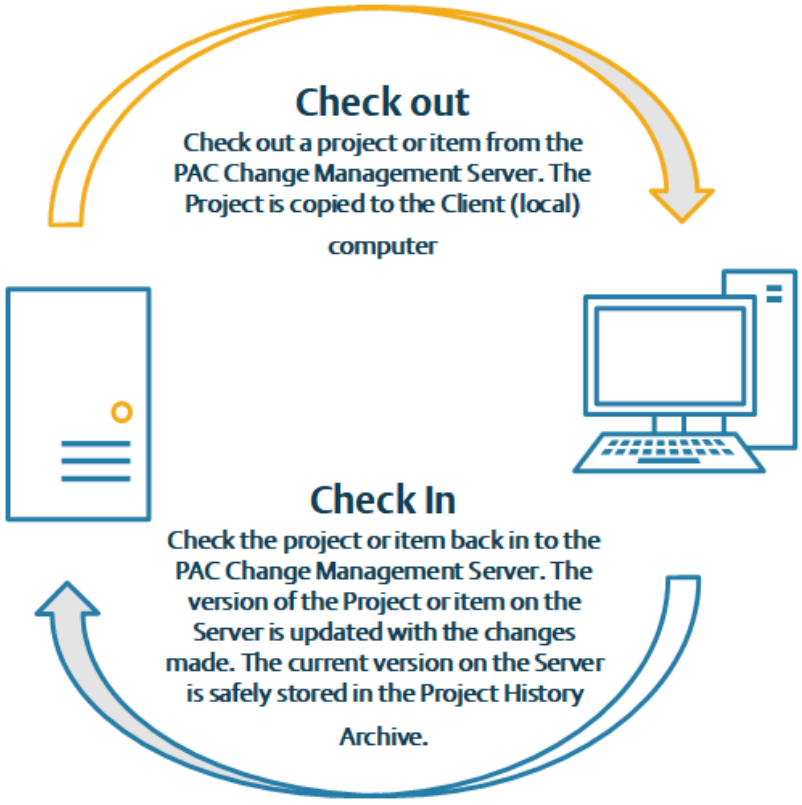
2. Make changes to the item on your computer.

   At this point, the version stored on the Server is unchanged.

3. Check in the item.

   PAC Change Management copies the updated version from the client computer to the PAC Change Management Server and removes the “checked out” flag. Other users can now check the item out to make more changes themselves.

Figure 11: Version Control



Security for Version Control

Security in PAC Change Management is called Access Control and is explained in detail in Chapter 4. Briefly, each user that is created in PAC Change Management is a member of one or more groups that have security permissions assigned to them. These permissions allow users belonging to that group to perform certain actions. In addition, each project has one or more groups assigned to it. Users can work with a project only if they are a member of a group assigned to that project.

Want to know more? In the Help Index, look up "Access Control Permissions".

Project and drawer history

When you check in a project or drawer to the Server, PAC Change Management automatically archives the old version. You can get a report of all archived versions of a project or drawer by right-clicking the project and selecting History Report. History reports appear in the Reports tab of the Feedback Zone.

Want to know more? In the Help Index, look up project history and choose "Project History Reports".

Checking out other items

Projects aren't the only thing you can check out of the Server. PAC Change Management also places the following under Version Control:

- Access Control databases (see Section 4: Access Control on page 29)
- Audit Trail settings (see Section 5: Audit Trailing on page 33)
- Scheduler event lists (see Section 6: The Scheduler on page 3737)
- Custom Project Settings (see Section 7: Custom Project Support on page 4141)
- Factory Layouts (see Section 8: Factory Layouts on page 5454)
- Modbus Plus Network (available only when using the Modicon ProWORX custom project support module; see the online help for details)
- Toolchest drawers (used by other Machine Edition products installed with Change Management, such as Logic Developer - PC or View.)

Want to know more? In the Help Index, look up "Using the Toolchest with Machine Edition".

3.1.1 Creating and Adding Projects to the Server

There are two ways to add a project to the PAC Change Management Server:

- You can add existing (local) projects to the Server.
- You can create a new project on the Server.

After you add a project to the Server, it is recommended that you add groups to the project to allow users access to it. For more information see Section 4: Access Control on page 29.

Local projects

Local projects are projects that exist on the local (client) computer but not on the PAC Change Management Server. The term “local project” can refer to several different kinds of projects.

- Projects created in Change Management while disconnected from the Server.
- Machine Edition projects created before you installed Change Management.
- Third-party projects created outside the Machine Edition environment.

The project folder

The Projects folder is divided into three subfolders.

- The My Computer folder contains local Machine Edition projects that have not been added to the PAC Change Management Server.
- The Shared Projects folder contains projects in the shared projects directory.
- The Server folder contains all projects that have been added to the PAC Change Management Server.

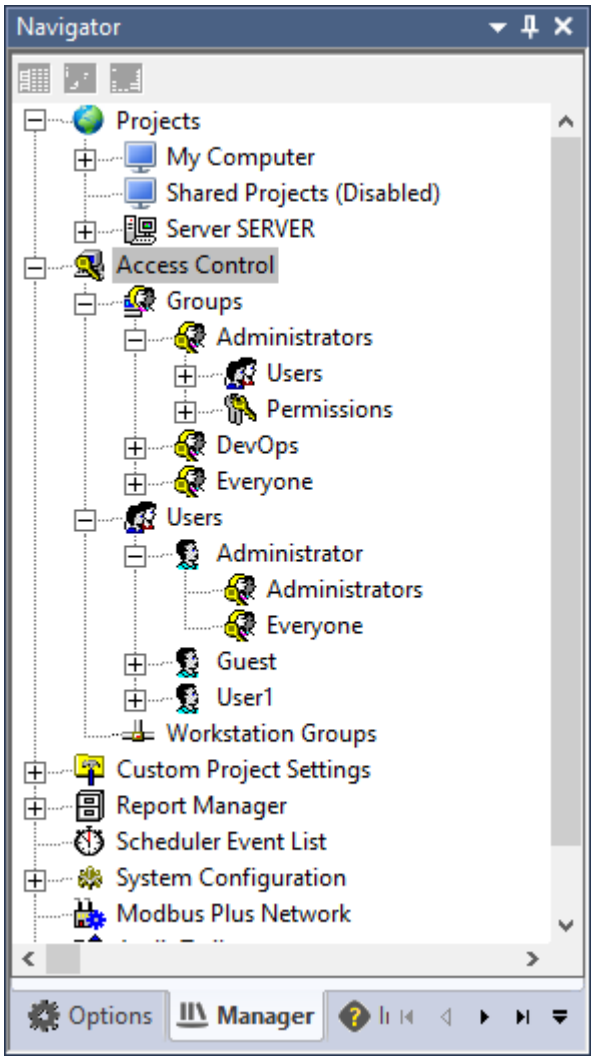
Want to know more? In the Help Index, look up “Creating a new project under a Change Management system”, “Adding a project to the PAC Change Management Server”, “Checking in a project”, “Checking out a project”, and “Undoing a check out”.

Section 4: Access Control

Access Control is PAC Change Management's security tool. With Access Control, you can:

- Organize users into groups.
- Allow or disallow groups access to projects stored on the PAC Change Management Server.
- Allow or disallow groups access to Toolchest drawers (useful only when other Machine Edition products are installed)
- Allow or disallow groups from performing operations in PAC Change Management.

Figure 12: Navigator: Manager tab Access Control nodes



4.1 How Access Control Works

The Access Control folder in the Manager tab of the Navigator contains these items:

- **Users** represent individual users of PAC Change Management Clients (not to be confused with Windows NT users). When you log on to a PAC Change Management Server, you must identify which User you are.
- **Groups** are groups of Users. Each group is assigned a set of permissions. Users in a group inherit the group's permissions.
- **Permissions** are security settings assigned to groups. In general, a permission allows or disallows a particular action or set of actions.

Casually, we say that a user "has" a permission if they are a member of a group for which that permission is set to True. Most permissions are True/False settings; the exceptions are documented in the online help.

Administrators cannot assign permissions to individual users. Instead, they assign permissions to groups, then add users to those groups. This lets an administrator assign permissions to an entire group of users with similar roles and responsibilities.

Under a group node, permissions are organized based on the feature or application they are associated with. You configure the actual permissions in the Inspector. For example, if you select a group's Manager permissions node, permissions that control access to PAC Change Management features appear in the Inspector. By setting the appropriate permission in the Inspector, you can allow or disallow access to specific PAC Change Management features for that group.

- For more details on specific permissions, select a permission node in the Navigator and press F1. Or, for a short description, open the Companion window and click the permission in the Inspector.

Users can be members of more than one group. If this is the case, the group permissions are combined and the user gets the most advantageous set of permissions for all groups they are a member of. For example, if you are a member of both the "Executives" and "Technicians" groups, and Executives have the Manager Edit Project List permission but the Technicians do not, you are considered to have the Edit Project List permission.

4.1.1 The Access Control Database

A list of users and groups is stored in the Access Control database. To make any changes to users, groups, or permission settings (including adding new users or groups), you must first check out the Access Control database. The changes you make do not take effect until the Access Control database is checked back in to the PAC Change Management Server.

Each PAC Change Management Server maintains its own Access Control database. If you need to work on projects from more than one Server, you must be added as a user to all the applicable servers.

4.1.2 Access Control of Projects and Toolchest drawers

Access Control for projects depend on which groups are assigned to the project. The users or members of a group that are assigned to a project—and that have the Manager CheckInOut permission—can check the project in and out of the Server. Since users can edit a project only when it is checked out of the Server, this lets the administrator control who can make changes to a given project.

If you have another Machine Edition product installed, you can configure Access Control for Toolchest drawers in much the same way. That is, you assign groups to drawers, and only those groups can make changes to fxClasses within those drawers. For details, look up “Using the Toolchest with Machine Edition” in the online help index.

4.1.3 Access Control of Layouts

PAC Change Management’s Factory Layout feature lets you organize your projects into a web page for ease of access to users (for more information on Factory Layouts, see Section 8:). You control who has access to particular layouts by assigning groups to an individual layout. Unlike projects, however, only members of those groups can view the layout in the InfoViewer.

If a user is a member of a group assigned to a layout, that user can view it in the InfoViewer and use it to navigate to the projects they need to work with. If the user has the Edit Layouts permission, they can also edit that layout.

4.1.4 Security Providers

Administrators have the option of using an external security provider (such as the Windows NT network user account list) that Change Management uses when logging users on to the network. Each Change Management user is associated with a user account from the security provider's list. When Change Management is started, the logon dialog box does not appear—the user is assumed to be the user currently logged on the local workstation.

Want to know more? In the Help Index, look up "Selecting a Security Provider".

4.1.5 System Groups and Users

There are two system groups and two system users that cannot be deleted. The system groups are:

- **Administrators group:** This group has every available permission and is automatically assigned to every project managed by PAC Change Management. As the name implies, it is really only designed for system administrators.
- **Everyone group:** All users on a Server are members of the Everyone group, and have minimal permissions. By assigning a permission to the Everyone group, you can assign that permission to every user in the Access Control database.

The two system users are:

- **Administrator user:** As the name implies, the Administrator user is a member of the Administrators group. When you start PAC Change Management for the very first time, you must log in as the Administrator.
- **Guest user:** The Guest user can be assigned to any group and inherits that group's permissions. The Guest user is useful for people who need temporary or limited access to the PAC Change Management Server.

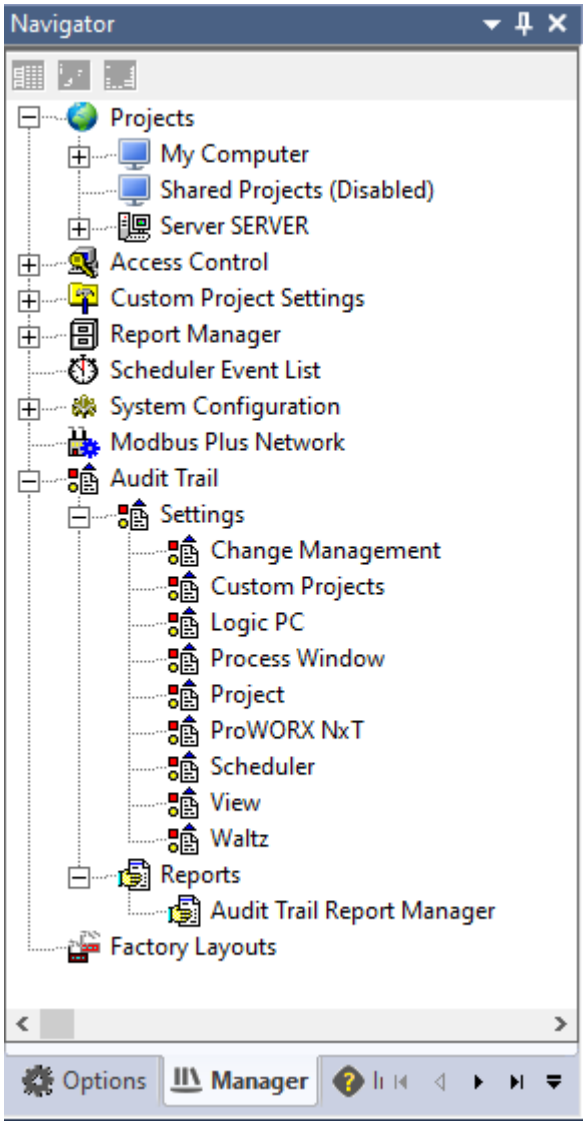
Want to know more? In the Help Index, look up "Creating a New User", "Working with Groups", and "Working with Permissions".

Section 5: Audit Trailing

Audit Trailing is a tool designed to help you track actions performed in your automation and control system. Audit Trailing lets you:

- Add a record to the audit trail database when certain actions occur.
- Generate audit trail reports to get a history of changes and actions in PAC Change Management.
- View the audit trail database in a compatible database application.

Figure 13: Navigator: Project tab Audit Trail nodes



5.1 How Audit Trailing Works

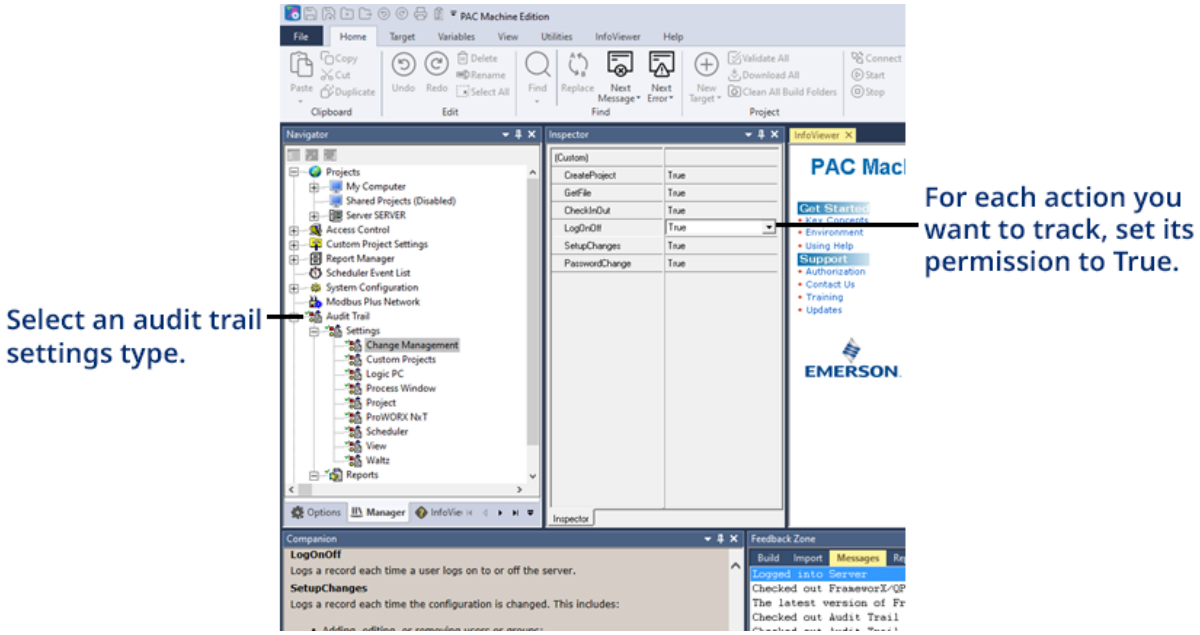
PAC Change Management can track and record actions performed by its users. If a user performs an action and the administrator has flagged that type of action to be audited, a record is logged in the audit trail database.

You specify which actions to track by configuring the Server's audit trail settings. Audit trail settings are located under the Audit Trail folder in the Navigator, and are grouped by feature or product type.

The settings are configured in the Inspector. If an audit trail setting is set to True, PAC Change Management tracks and records all actions of that type. For example, if the Manager audit trail setting Password Change is set to True,

PAC Change Management logs a record every time a user's password is changed.

Figure 14: Audit Trail Settings for Custom Projects



Audit trail settings for Custom Projects—including custom project modules included on the installation CD—work differently. First, Custom Project audit trail settings are integers, not discrete True/False values. (Custom Project Permissions that represent discrete values use the values 1 and 0 instead.) Second, PAC Change Management does not use Custom Project audit trail settings directly—this is done with scripts that check audit trail settings and create audit trail records.

Want to know more? In the Help Index, look up "Custom Project Audit Trail Settings" and "Archiving the Audit Trail Database".

5.1.1 The Audit Trail Database

Audit trail records are added to the PAC Change Management Server's audit trail database. By default, these records are stored in Microsoft Access™ format. You can use Microsoft Access (or another application capable of reading Microsoft Access databases) to view, sort, and generate custom reports on audit trail records. Though not as simple to use as the Audit Trail Report Manager, this gives you the most flexibility in searching the audit trail database.

You can find the audit trail database in two places:

- The main audit trail database file is located on the PAC Change Management Server computer under "...\"PAC Change Management\fxManager\Server\Audit Database\Audit.mdb", where "...\PAC Change Management" is the Change Management installation directory.
- When in disconnected mode, audit trails are temporarily added to a file named "...\PAC Change Management\SecurWorX\ServerName.mdb" on the client computer, where "...\PAC Change Management" is the Change Management installation directory, and "ServerName" is the name of the PAC Change Management Server computer. The next time you connect to the PAC Change Management Server, records in this database are automatically added to Audit.mdb on the Server computer, and the local copy from the client computer is removed.

Since audit trail records are constantly being logged to the Server, the audit trail database file can get very large. It is a good idea to occasionally archive the database file to another computer to free space on the Server computer. You can simply move the database file to another computer or, if you are using the Scheduler, you can create an event that archives the database file automatically.

- It is recommended that you archive the audit trail database only when no one is connected to the Server.

For more information on using the Scheduler see Section 6: The Scheduler on page 3737.

Alternate Audit Trail Database Types

If your network system already has an Oracle™ or Microsoft SQL Server™ database, you can save audit trail records in that database. Before doing so, you must configure special tables and users in the database and ensure that an appropriate ODBC driver is installed on the Change Management Server computer.

Want to know more? In the Help Index, look up "Setting up an Oracle Audit Trail database" and "Setting up a Microsoft SQL Server Audit Trail database".

5.1.2 Audit Trail Reports

The easiest way to view records in the audit trail database is through the Audit Trail Report Manager, located under the Reports folder in the Audit Trail folder. To open the Report Manager, right-click the Audit Trail Report Manager node and choose Open.

Generated Audit Trail Reports can be displayed on screen and, if desired, sent to a printer.

- If you have an application that can read Microsoft Access databases, you can use it to view and sort audit trail records.

The Audit Trail Report Manager supports only Microsoft Access audit trail databases. If you are storing audit trail records in another database type (such as Oracle or Microsoft SQL Server), you must use an appropriate third-party application to view them.

Want to know more? In the Help Index, look up reports and choose "Generating reports from the Audit Trail Report Manager".

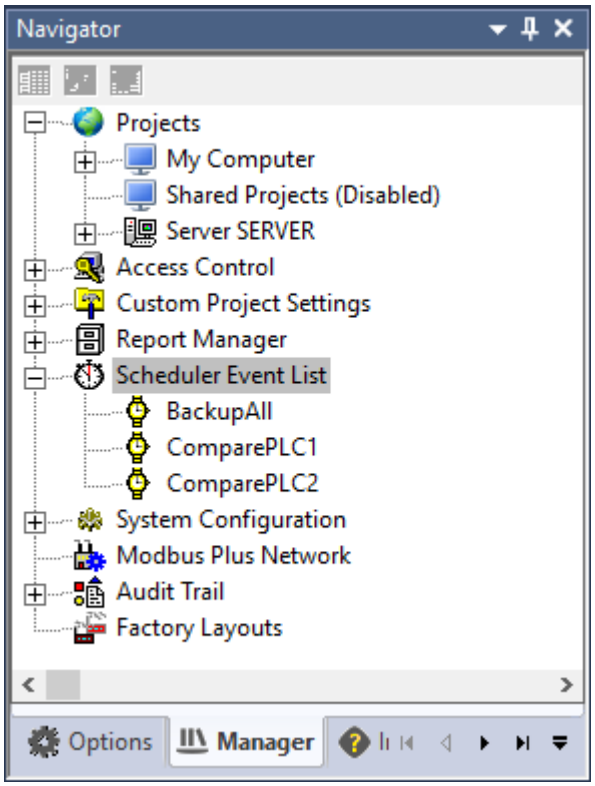
Section 6: The Scheduler

The Scheduler is a tool designed to help you automate repetitive tasks associated with maintaining industrial projects. For example, you can automate Controller backups and logic compares.

Scheduler tasks are referred to as “events”. Events are edited in PAC Change Management and are executed in the Scheduler Engine. The Scheduler Engine runs as a separate application outside the Machine Edition environment, though it can only be installed on the same computer as a PAC Change Management Client.

- Only members of groups with the Manager permission Edit Event List can edit Scheduler events or configure the Scheduler. For more information on configuring users, groups, and Access Control permissions, see Section 4:, “Access Control” on page 29.

Figure 15: Navigator: Project tab Scheduler nodes



6.1 How the Scheduler Works

You configure tasks for the Scheduler by creating a list of events in PAC Change Management. An event consists of an event script and a trigger. The trigger indicates when the event occurs, and the event script determines the actions that occur. Actions also have an associated project list, which indicates the specific projects on which the event should be run.

Events are stored on the PAC Change Management Server in a database called the Scheduler Event List. The Scheduler Engine itself is a separate application (that is, you run the Scheduler from outside the Machine Edition environment). When you start the Scheduler Engine, it gets a copy of the scheduler event list from the Server. When the Scheduler is started for the first time, you must specify the location of the Server that contains the Scheduler Event List.

For more information see Section 6.2 Running the Scheduler.

6.1.1 Configuring Events

Events can be edited:

- By changing an event's properties directly in the Inspector.
- By opening the Event Properties dialog box. To do so, right-click an event and choose **Edit.**

Events consist of a Trigger and an action script.

- **Event Triggers** are configured by an event's EventTrigger (Once, Weekly, or Hourly), Date, and Time properties.
- **Event actions** are scripts written in either VBScript or JScript. The Scheduler includes predefined event scripts for common tasks.

6.1.2 Event Scripts

Event scripts can be written in VBScript or JScript. PAC Change Management provides many additional script functions that you can use in scripts, including several that perform PAC Change Management operations. Other useful script functions let you add or remove projects from the list associated with an event.

Want to know more? In the Help Index, look up "Change Management Script Function summary".

- For more information on these scripting languages, go to **msdn.microsoft.com** and search for **vbscript** or **jscript.**

6.2 Running the Scheduler

The Scheduler Engine is run outside of the Machine Edition environment; however, PAC Change Management Client must still be installed on the same computer. The Scheduler connects to the Change Management Server to get the Scheduler event list, so the Scheduler computer must have access to the Server computer over the network.

zNote: *Normally, the Scheduler operates in the background. To work with the Scheduler directly, right-click on the clock icon in the Windows Taskbar, point to Scheduler and choose Start.The Change Management Client and all other instances of Machine Edition must be closed while the Scheduler is running.*

Note: *Normally, the Scheduler operates in the background. To work with the Scheduler directly, right-click on the clock icon in the Windows Taskbar, point to* ***Scheduler*** *and choose* ***Start.z***

Some things to keep in mind while running the Scheduler:

- A clock appears in the Windows Taskbar to indicate that the Scheduler is active. The appearance of the icon indicates the current status of the Scheduler. A red clock indicates that the Scheduler is stopped—that is, even though the Scheduler Engine application is running, the Scheduler is not checking for triggers or executing events.
- If the Windows screen saver on the local computer is configured with password protection, Scheduler scripts will stop working. If you need password protection for a screen saver on a computer running the Scheduler, use the Machine Edition Screen Saver. For more information, look up “Machine Edition Screen Saver” in the online help index.

If you lose the Start menu’s shortcut for the Scheduler Engine, the Scheduler program file (“SchedulerEngine.exe”) is found in the “fxManager\Client\” subdirectory under the location where PAC Change Management was installed.

6.2.1 Starting the Scheduler

When you set up a list of events in PAC Change Management, you can execute them by running the Scheduler Engine.

If you want the Scheduler application to run automatically when Windows starts, copy the Scheduler shortcut to your Windows Startup group.

- If you want the Scheduler to automatically start executing events when it begins running, set its AutoStart property to **True** in PAC Change Management. This also ensures that the Scheduler restarts automatically should a power failure occur.

The first time you start the Scheduler Engine, you must select a PAC Change Management Server. The Scheduler remembers the Server you last connected to and automatically connects to that Server the next time you start the Scheduler.

If the Scheduler can't log in to the selected Server, check to see if the PAC Change Management Server is installed on that computer. In particular, check the following:

- Ensure that the PAC Change Management Server computer is running.
- Ensure that the PAC Change Management Server computer has SourceSafe installed.

You can perform most actions through the right-click menu of the Scheduler taskbar icon. To perform more advanced actions, right-click the Scheduler icon in the Windows Taskbar and select View Scheduler. From there, you can view a list of events, execute specific events, log on to the Server, and perform several other Scheduler Engine actions.

- Some operations require you to be logged on to Windows as a specific user (that is, as someone other than "Guest").
- Other operations require you to first log on to the Change Management Server from the Scheduler Engine. You must be a member of a Group with the Manager permission Edit Event List to log on to the Scheduler.
- For more information on specific Scheduler operations, see the Scheduler Engine's online help.

Section 7: Custom Project Support

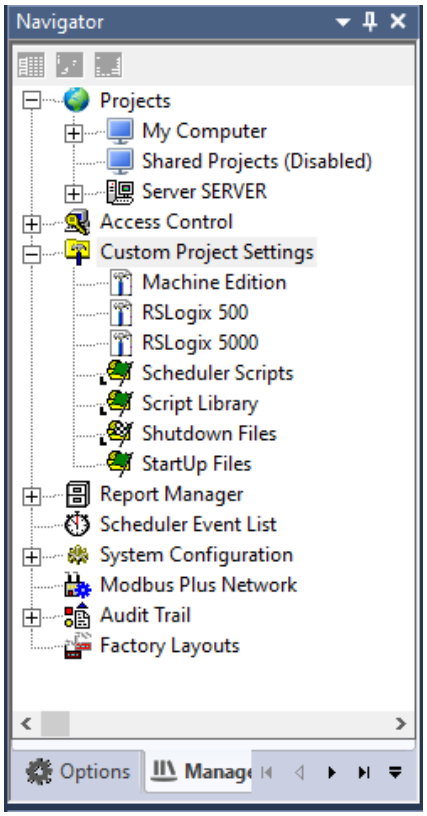
PAC Change Management provides built-in support for projects created with several different applications, such as Waltz*, Process Window, and native Change Management applications. If you have another application that you want PAC Change Management to manage for you, you can add the application as a custom product type.

This chapter describes how to set up support for custom (or third party) projects in PAC Change Management.

Several pre-designed 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 from the CD. Otherwise, you can use the Add Custom Product Type Wizard to create a basic support module for a new third-party application.

Normally, it is the system administrator or a project manager who adds or reconfigures a custom product type to PAC Change Management. Configuration files for different custom product types can also be added to the PAC Change Management Server; when users log on to the Server, these product types are automatically copied to their local computers.

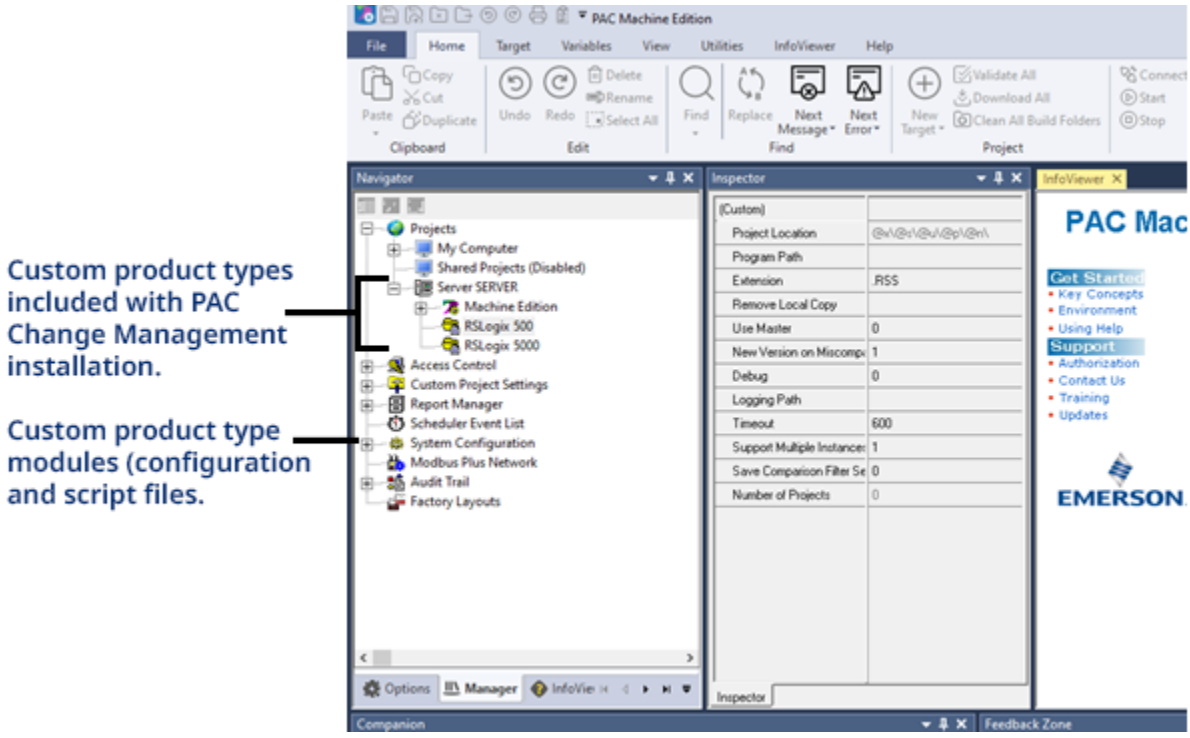
Figure 16: Navigator: Project tab Custom Project nodes



7.1 How Custom Project Support Works

Once support for a custom product type has been set up in PAC Change Management, custom projects appear under the Projects folder in the Navigator. Custom projects are located under the Server folder, similar to other project types.

Figure 17: Custom Projects Display



Custom project nodes appear in two places in the Navigator:

- **Custom projects** themselves appear under the Server folder and are organized into different Project folders for each custom product type. Both the Custom Projects and Projects folders often have properties specific to the Product Type.
- **Settings** for each custom product type appear under the Custom Project Settings folder. The Custom Project Settings node represents the configuration and script files that define the characteristics and behaviors of the custom product type. A set of files and scripts for a single product type is often referred to as a module. All custom product type modules installed on your system appear in the Custom Project Settings folder.

  You must check out the Custom Project Settings node to make changes to the properties of a project in the Projects folder.

If you are not responsible for adding or setting up support for custom product types, you will not need to look in the Settings folders at all.

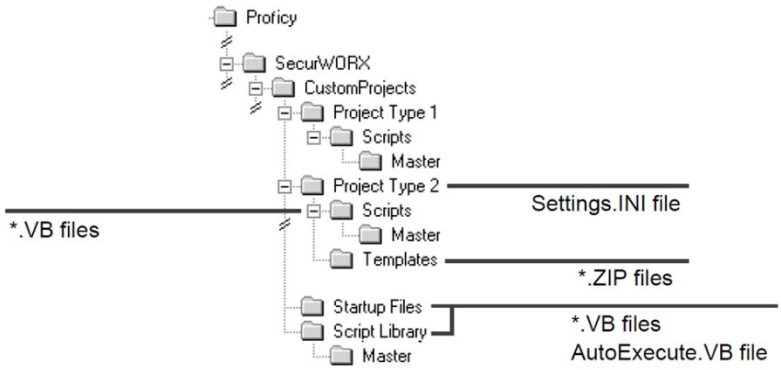
You can set up the following PAC Change Management features for custom projects:

- **Version Control:** You can store custom projects on the PAC Change Management Server, checking them in and out and so on, just like any other product type.
- **Access Control:** The custom product type can be set up such that certain permissions are required to access and use its projects.
- **Audit Trails:** The custom product type can be configured to create audit trail records. These records can then be viewed along with other audit trail records, depending on the selected audit trail database format.
- **User-created Help:** You can specify special help topics for each custom product type, to be displayed in the InfoViewer or Companion windows. In addition, you can set up Companion help for custom project permissions, audit trail settings, and arguments.
- **Right-click menu commands:** You can specify special behavior for standard Project and Projects folder right-click commands (such as “Check In” or “Open”). In addition, you can add special commands specific to a particular Custom Product Type.

7.1.1 Custom Product Type Files

Configuration Files for custom product types are stored on the PAC Change Management Server. When users log on to the Server, any setting files or scripts for product types added to the Server are automatically copied to their local computer. For more information, see Section 7.2 *Managing Custom Product Types* on page 50, or look up Custom Project Settings Folder in the online help index. On the local (client) computer, all configuration files relating to custom product types are stored in the “SecurWORX\CustomProjects” directory under the Change Management installation directory. The directory structure looks something like this:

Figure 18: Custom Project Directory Structure



Custom Product Type directory

Each custom product type has its own subdirectory with the name of that custom project. For example, if you were managing Microsoft Word™ documents with PAC Change Management, you might have a directory named "...\PAC Change Management\SecurWORX\CustomProjects\Microsoft Word".

Each product type directory contains the following:

- **A Project Type Settings file ("Settings.INI"): Settings** in the Settings.INI file determine the location of the custom product type's application; where its projects are stored; the properties for its custom projects and Projects folder; the names of its arguments; its right-click menu options; and context sensitive help for the projects, project types, and arguments.

Want to know more? In the Help Index, look up custom and choose "Custom Project Settings File".

- **A "Scripts" subdirectory:** This directory contains all menu scripts for the project type. These scripts implement commands found on the right-click menus of the custom project type and its projects.
- **(Optional.) A "Templates" subdirectory:** This directory contains project templates (in .ZIP files) for the project type. These templates can be used by a menu script that creates new projects.

Startup Files directory

The "Startup Files" subdirectory contains the following:

- A global settings file for custom project types, called **GlobalSettings.INI.** This file contains settings pertinent to all custom project types added to the Change Management system. Settings in GlobalSettings.INI determine the names of custom project permissions and context-sensitive help for permissions and audit trail settings.
- **Startup scripts** for controlling how and where custom project type configuration files are retrieved from the Change Management Server. Startup scripts (which must be VBScript files) retrieve custom product types from the Server when a user logs on to Change Management. The system administrator can specify different Startup scripts for different users or computers.

  The main Startup script is named "Startup.vb" and should not be modified. Rather, if you have script actions you want performed during the startup, create a new script named "UserName.vb" (for a specific user), "ComputerName.vb" (for a specific computer), or "CustomStartup.vb". Since these scripts are executed while Change Management builds the project tree, function calls in these scripts cannot perform operations on specific,

individual projects, or project types. Rather, they should enable or disable installed project types as needed.

You can also add a third type of startup script, named “PostStartup.vb”. If a PostStartup.vb script exists, it is executed after the project tree is built. This means function calls in PostStartup.vb can perform operations on specific projects and product types.

The two kinds of .INI files (“Settings.INI” and “GlobalSettings.INI”) use a standard Windows Initialization file format. Related settings are grouped into sections. Section headings are enclosed in square brackets (“[“and “]”). Each setting is written in the format:

<Setting Name>=<Setting Value>

Where <Setting Name> is the name of the setting and <Setting Value> is the value assigned to that setting.

Want to know more about the GlobalSettings.ini file? In the Help index, look up global and choose “Custom Project Global Settings File”.

Want to know more about the Startup Files directory? In the Help Index, look up startup and choose “Custom Project Startup Files Folder”.

Script Library directory

The custom projects “Script Library” subdirectory contains scripts that are used by several product types. If you need to update the functionality of a particular script, it only has to be changed in one place. You can run a Script Library script from another custom project script with the fxIncludeGlobalScript function.

Master scripts

Scripts in “Master” subdirectories let you provide default functionality for a custom project script, allowing you to override specific scripts on a site-by-site basis. Master scripts are used by custom product modules included with the PAC Change Management installation CD. Nearly all subdirectories that contain scripts can have a Master subdirectory.

Master scripts are used whenever PAC Change Management needs to access a script from a folder with a Master subdirectory, such as scripts used to implement commands from custom project right-click menus. Master scripts themselves should not be edited or modified. Instead, you should override a specific Master script by including a script with the same name in the Master directory’s parent directory.

Master scripts work as follows:

- In general, when looking for a script with a certain name, PAC Change Management first looks in the expected directory. if a script with the needed name exists in that directory, it runs that copy of the script. The Master copy is ignored.
- Otherwise, Change Management looks for the required script in the appropriate “Master” subdirectory. If the named script exists in the Master directory, it runs that script instead.

Directories with this functionality are the Script Library directory, the Startup Files directory, and each project type’s Scripts directory. In general, Master scripts themselves should not be edited or modified.

Want to know more? In the Help Index, look up sample and choose “Master script directories for custom projects”.

Menu Script precedence

The directory structure for script files lets an administrator create generic scripts for a Change Management system, overriding specific scripts on a site-by-site as is. When Change Management needs to invoke a menu script, it looks for a script with the appropriate name in the following locations, in this order:

1. The “Scripts” subdirectory under the custom project type’s settings directory.
2. The “Scripts\Master” subdirectory under the custom project type’s settings directory.
3. The “Scripts” subdirectory under the “Script Library” directory.
4. The “Scripts\Master” subdirectory under the “Script Library” directory.

   Change Management stops as soon as it finds a script with the required name. For example, if a script with the name “Compare.vb” is needed and one is found in the “Scripts\Master” subdirectory for the custom project type, any scriptsnamed “Compare.vb” in the Script Library directory are ignored.

7.1.2 Custom Project Access Control and Audit Trail settings

PAC Change Management provides one master set of user-defined Access Control permissions and Audit Trail settings for all custom project types. Custom product types draw from a single, common list of Permissions and Audit Trail settings. PAC Change Management does not use these settings automatically. Instead, it is up to the Custom Project Implementor to:

- Decide which permissions and audit trail settings apply to which custom product types;
- Set up the menu scripts so they check the appropriate permissions before performing an action; and
- Set up the menu scripts to check the audit trail settings and, if the setting is high enough, add a record to the Audit Trail database.

Many script functions are available to help implement these tasks. Names for custom project permissions are specified in the [Permissions] section of GlobalSettings.INI.

Regardless of the customized scripts and permissions used, PAC Change Management always enforces the “standard” Manager permissions. For example, you always need the Manager CheckInOut permission to check custom projects in and out of the Server.

Want to know more? In the Help Index, look up define and choose “Defining Custom Project Permissions” and “Defining Custom Project Audit Trail Settings”.

7.1.3 User- defined Custom Project Help

You can create your own context-sensitive help for the following items:

- Custom projects (Companion and InfoViewer help)
- Custom project types (Companion and InfoViewer help)
- Arguments (properites) of custom product type “Projects” folders (Companion help)
- Custom Project permissions (Companion help)
- Custom project audit trail settings (Companion help)

InfoViewer help is displayed in the InfoViewer when you select an item and press F1. Companion help appears in the Companion when you select the item. Typically, Companion help is quite short; that is, a quick summary of what the item is and what it does. InfoViewer help describes the item in greater detail.

When PAC Change Management needs to find a custom help topic, it looks for a URL in the Settings.INI or GlobalSettings.INI file. If the appropriate settings are left blank, Change Management displays default help for the item; otherwise, it opens the document specified by the URL.

- Help URLs for a custom product type's **Projects** folder and **Project** nodes are specified in the [Help] section of the project type's Settings.INI file.
- Help URLs for **properties** of a custom product type's Projects folder and Project nodes are specified in the [ArgumentsHelp] and [CustomPropertiesHelp] sections, respectively.
- Help URLs for **custom project permissions** and **audit trail settings** for custom product types are specified in the [PermissionsHelp] and [AuditHelp] sections of the GlobalSettings.INI file, respectively.

URL stands for "Universal Resource Locator". This can be a document's file name (with the drive and path, if necessary) or an HTTP web address.

Want to know more? In the Help Index, look up help and choose "Setting up Help for Custom Projects".

7.1.4 Scripts for Custom Project right -click menus

When you right-click a custom product type's Projects folder or Project node in the Navigator, a shortcut menu appears. The commands in these menus are based on lists in the project type's Settings.INI file.

Menu commands are implemented with scripts written in VBScript. The Settings.INI file specifies two sets of scripts for each menu command:

- First, PAC Change Management runs the **UI scripts** to see if the menu command should be disabled (dimmed). If the UI script fails—or if it calls the fxDisableMenuItem function—the appropriate command is dimmed and the user cannot select it. UI Scripts are specified in the [ProjectTypeMenuUI] and [ProjectMenuUI] sections.
- Second, PAC Change Management runs the **Action scripts** to perform the actual function of the menu command. The action scripts for an "Open" command opens the selected project; the action scripts for a "New" command creates a new project of that product type, and so on. Action scripts are specified in the [ProjectTypeMenu] and [ProjectMenu] sections.

  You can specify multiple scripts for each menu entry by separating their names with semicolons. For example, if you specify two scripts as UI scripts for the "Open" command, both scripts must complete successfully before PAC Change Management enables the Open command.

Basic Menu Actions

If the name of a menu item (as set in the Settings.INI file) fits any of the basic menu actions, PAC Change Management performs some additional checks before enabling the command. These checks are the same as those it performs for its built-in project types and are performed before running the UI script. For example, if a menu command is named “Checkout”, PAC Change Management automatically checks to see if the current user is connected to the Server, is assigned to the project, and has the CheckInOut permission.

- The Basic Menu Actions are: **Add, Check-In, Checkout, Delete Local Copy, Destroy, Get Latest Version, Label, New,** and **Undo Check Out**.

All menu scripts must be written in VBScript format. PAC Change Management supplies many additional script functions for use with custom projects. These functions perform operations like checking projects in and out of the Server, retrieving the values of permissions for the current user, and so on.

A complete list of available script functions can be found in the following places in the online help:

- For an alphabetical list of script functions, in the InfoView tab of the Navigator, under the PAC Change Management book, look in Script Functions A to Z.
- For lists of script functions grouped by purpose or type, in the InfoView tab of the Navigator, under the PAC Change Management book, look in Script Functions by Category.

Want to know more? In the Help Index, look up shortcut and choose “Setting up Shortcut Menus for Custom Projects”.

Most script functions can also be used with custom event scripts in the Scheduler. For more details, see Section 6.1.2 *Event Scripts* on page 3838.

7.2 Managing Custom Product Types

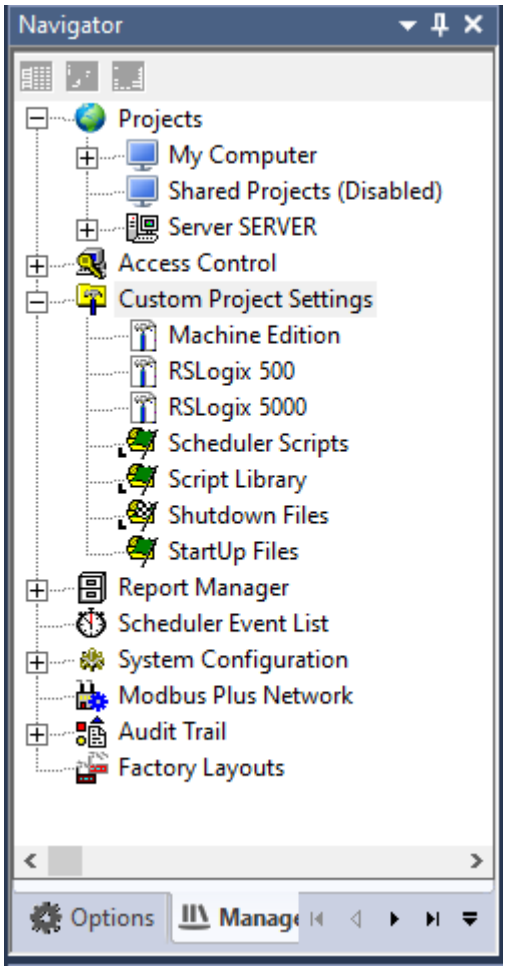
The Custom Project Settings folder lets you easily manage your custom product type files.

- You can check configuration files for custom product types in and out of the Server; and
- You can automatically update configuration files for a custom product type on all PAC Change Management Client computers connected to the PAC Change Management Server.

Within the Custom Project Settings folders are the following:

- **Custom Project Settings** nodes, which represent setting files for the custom product types currently available on the local computer. If the custom product type exists on the local computer but not on the Server, it is flagged with an “L.”
- The Startup Files node, which represents Startup scripts and the GlobalSettings.INI file for custom project types.

Figure 19: Navigator: Project tab Custom Project setting nodes



Before you can edit setting files or scripts for a non-local custom product type, you must check out the appropriate Settings from the Server. Similarly, to edit Startup scripts or the GlobalSettings.INI file, you must check out the Startup Files from the Server.

You can add a local custom product type to the Server by checking in its settings. If you check in a custom product type that does not already exist on the Server, it becomes a Server custom product type.

Want to know more? In the Help Index, look up global and choose "Custom Project Global Settings File", "Sample GlobalSettings.INI file", and "How PAC Change Management Handles Custom Product Types".

7.2.1 Checking out a Custom Product Type from the Server

You can only check out custom project settings (or Custom Project Startup Files) if you are logged on and connected to the PAC Change Management Server and you have the Manager Edit Custom Settings permission.

When a custom product type is checked out, its configuration files on your computer are made writable (except for master scripts, which you should override rather than edit). After making changes, you can check the custom product type back in to the Server.

- Files for a product type are located in the

  "...\[PCM]\SecurWORX\CustomProjects\[ProductType]" directory (where "[PCM]" is the PAC Change Management installation directory and "[ProductType]" is the name of the custom product type).
- Custom Project Startup files are located in the "...\PAC Change Management\SecurWORX\CustomProjects\Startup Files" directory.
- Script Library files are located in the "...\PAC Change Management\SecurWORX\CustomProjects\Script Library" directory.

Want to know more? In the Help Index, look up "Configuring Custom Product Types".

7.2.2 Checking in or adding a Custom Product Type to the Server

You can only check in a custom product type (or Custom Project Startup Files) if you are logged on and connected to the PAC Change Management Server and either the particular settings folder checked out on the local computer, or the settings folder is for a local custom product type that does not yet exist on the Server.

When you check settings back into the Server, all the changes you made on the local computer are copied to the Server. The configuration files on the local computer are also marked as read-only.

To check in the product type without updating the changes you made, right-click the product type's Settings folder and select Undo Checkout.

7.2.3 Opening a Custom Product Type's settings directory in Windows Explorer

Windows Explorer opens to the "...\PAC Change Management\SecurWORX\CustomProjects\ProductType" directory, where "...\PAC Change Management" is the PAC Change Management installation directory and "ProductType" is the name of the custom product type. All settings files for the product type are stored in this directory. (Custom product modules included with the PAC Change Management installation CD will also include a "Master" subdirectory, whose script should not be edited.)

You can only open the settings directory (or the Startup Files directory) if you have those settings checked out or if it is a local custom product type.

7.2.4 Copying (cloning) a custom Project Type

You can only clone a custom product type if you have the Edit Custom Settings Manager permission.

The name of the custom product type cannot be the same as an existing one. Custom product type names can include only the characters 0 through 9, A through Z, "-" (hyphen), and "_" (underscore). The first character must be a letter and names are not case-sensitive. The maximum number of characters is 18.

When you clone a custom product type, the new version is created as a local custom product type. If you want to make it available to other users, you must add it to the Server by checking it in.

If you ever want to get rid of a custom product type, right-click its Settings folder and choose Destroy.

7.3 The Add Custom Product Type Wizard

The Custom Product Type Module wizard lets you easily create a Change Management support module for a third-party product. A module contains scripts and configuration files that let you work with projects of a specific product under a Change Management system, using its Version Control, Access Control, and Audit Trail features.

Several preconfigured modules are available on the PAC Change Management installation CD. Before creating a new Product Type Module, you may want to see if an appropriate module already exists.

Want to know more? In the Help Index, look up "Custom Product Type Module Wizard".

7.3.1 Universal Directory Compare event support

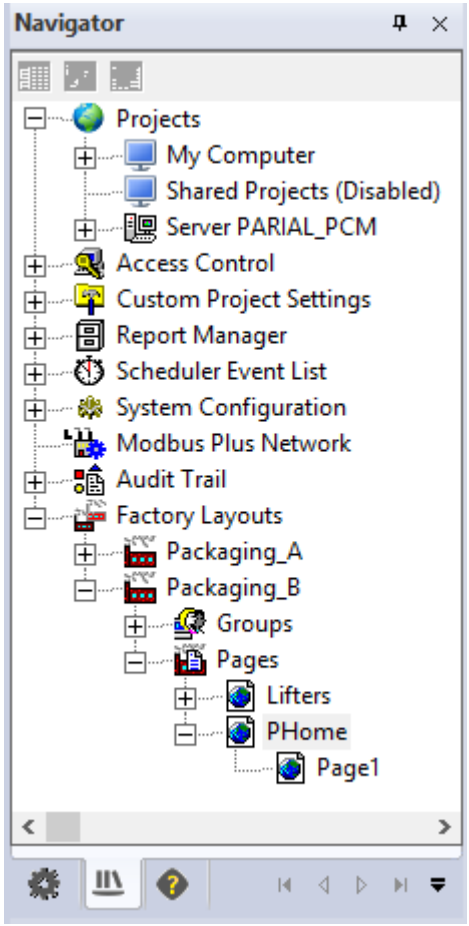
Projects of the new product type can be used with the Universal Directory Compare event in the Scheduler. This event lets you schedule regular comparisons of projects, generating reports that list a project's new, deleted, and changed files. The product type's Projects folder's Use Master and New Version on Miscompare properties configure the general behavior of the Scheduler event.

Want to know more? In the Help Index, look up "Universal Directory Compare (Scheduler script)".

Section 8: Factory Layouts

Factory Layouts allows you to organize your projects to fit your company's structure as opposed to how the Navigator organizes projects. This results in easier navigation to your projects. For example, you may want to layout 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 other users can use layouts to quickly get to the project they need to work with.

Figure 20: Navigator Project tab Factory Layout nodes



- From the layout user's point of view, Factory Layouts are a series of HTML pages displayed in the InfoViewer. Users click on hypertext links to navigate to the project they want to work with. When the proper project is found, users can perform the same PAC Change Management operations on the project as those from the Navigator—all the right-click menu commands for the project can be made available from the InfoViewer.

- From the layout developer or administrator's point of view, a layout's pages are organized in the Navigator. The administrator also writes HTML templates for each layout page. When complete, the layout is published to a shared directory. This tells PAC Change Management to generate the layout's finished files, based on the properties of the layout, its pages, and how the pages are organized in the Navigator.

8.1 Using Layouts

In the Navigator, all Layouts appear in the Manager tab under the Factory Layouts folder. A layout's pages and the groups assigned to the layout are organized under individual Layout folders. Users access layouts from these folders.

When you want to use a layout to navigate to a project, right-click the desired layout page and choose Open. You may have to log on connected to a PAC Change Management Server first to get the latest available layouts.

You can only see layouts to which groups have been assigned that have you as a member. Other layouts do not appear.

The **Administrators** group is automatically assigned to every layout. For example, if a manager assigns only the Sector1 group to the BottlingArea layout, only users in the Sector1 and Administrators groups will see the BottlingArea layout in the Navigator.

When opened, a layout's pages appear in the InfoViewer as a series of web pages. You can use these web pages to navigate to the project you want to work on. After navigating to the desired project, you can perform PAC Change Management actions on the project using links in the InfoViewer. Typically, most actions that can be performed on a project from the Navigator can also be done through a layout page, but this depends on the layout's creator.

Tips for using factory layouts:

- You can set Machine Edition's default home page to the currently displayed page in the InfoViewer by clicking This can be any page or URL, including a layout page. For more information, see Section 2.3.2 *Getting Help* on page 19.
- To hide or minimize other Machine Edition tool windows (to make it easier to view a layout page), click the tool buttons in the Tools toolbar. For more information, see Section 2.3.3 *Accessing the Right Tool* on page 21.

8.2 How Layouts Work

(This section is intended for administrators and other users who need to create layouts. If you just want to use layouts to get to projects you need to work on, see Section 8.1 *Using Layouts* on page 55.)

Factory Layout files exist in two places:

- The source and configuration files for the layout are stored on the PAC Change Management Server. You check these files in and out of the Server just like a project.
- A finished layout is published to a directory on the Server computer, which must be shared to other computers as “fxPublish”. Publishing a layout creates a complete web site, accessible through the InfoViewer. The published files consist of a series of HTML and XML files, plus any image or other supplemental files used by the layout.

8.2.1 The fxPublish Directory

Though the source layout files are stored in a Server database, the final web pages are accessed through a shared directory on the Server computer. Before you can publish layouts, you or the system administrator must set up this shared directory. (Shared directories are simply directories on a local computer made available to other computers on the network.) This directory must be set up as follows:

- The directory must reside on the same computer running the PAC Change Management Server.
- The directory must be shared with the name “fxPublish”.
- All users of PAC Change Management who will edit Factory Layouts must have “Full Control” network access permissions. That is, they must have read/write capabilities to all files in fxPublish, and must be able to create and delete subdirectories of fxPublish.
- If you are not using a web server (see below), all users of PAC Change Management who will open Factory Layouts in the InfoViewer must have “Read” network access permissions. See your network administrator for assistance.

8.2.2 Using a Web Server

By default, the InfoViewer accesses the fxPublish directory directly. This means that a Server's fxPublish directory must be shared to all PAC Change Management users on the network who connect to that Server. If security is a concern, you can get PAC Change Management to acquire the layout files from a web server on your network instead. PAC Change Management Clients can connect to that web server to display a previously-created factory layout.

Even when using a web server, PAC Change Management uses the fxPublish shared directory to publish layouts. When developing a factory layout, you must still give factory layout developers full read/write access to the shared fxPublish directory.

To use a web server to distribute the final layout files, you must do the following:

- Set up the web server so that a specific HTTP address resolves to the fxPublish directory. For more information, see the documentation for your web server.
- In the Inspector, set the layout's **Use a Webserver** property to True.
- In the Inspector, set the layout's **HTML Location** property to that HTTP address.

8.2.3 Backing Up Layouts

You can back up your layouts or transfer them to a different PAC Change Management system with the Export and Import commands. PAC Change Management saves an exported layout in a file with a .LAY file name extension. Exported layouts include everything in its supplemental files directory.

It is recommended that you back up your layouts before performing major operations on the Change Management Server, such as upgrading the Server or moving the Server to a different computer.

The PAC Change Management CD contains a sample layout, exported as "Sample.LAY". This layout contains several HTML page templates that can be adapted for your own layouts.

8.3 Creating Layouts

(This section is designed for administrators and other users who need to create layouts. If you just want to use layouts to get to projects you need to work on, see Section 8.1 *Using Layouts* on page 55.)

You can create a new layout only if you are:

- Connected to the PAC Change Management Server, and
- A member of the Administrators group.

A new layout has only the Administrator group assigned to it. If you want other groups to have access to the layout (both for editing and viewing), you must add the desired groups to the layout.

A layout can be edited by users who are not members of the Administrator group; however, these users must have the Edit Layouts Manager permission and need to be a member of a group assigned to that layout.

After a layout has been created, you can edit it.

When you need to edit a layout, you first check it out from the PAC Change Management Server. You can then add or delete pages, edit page templates, preview and test pages, and add or edit files to be included with the layout's web pages.

When the changes are complete and the layout is ready to be used by its target users (that is, users who use the layout to navigate through projects on your system), you publish the layout. Publishing creates the final layout files in a shared directory on the PAC Change Management Server. These files comprise a web site of HTML (and XML) pages based on the page nodes under the Layout's Pages folder.

Before a factory layout can be published, the system administrator must share this directory as "fxPublish". For more details, see Section 8.2.1 *The fxPublish Directory* on page 56.

Whether or not the layout is published, when the user is finished editing the layout, he or she checks it back into the PAC Change Management Server.

Want to know more? In the Help Index, look up layouts and choose "Creating and Editing Layouts: an Overview".

8.3.1 Supplemental Files directory

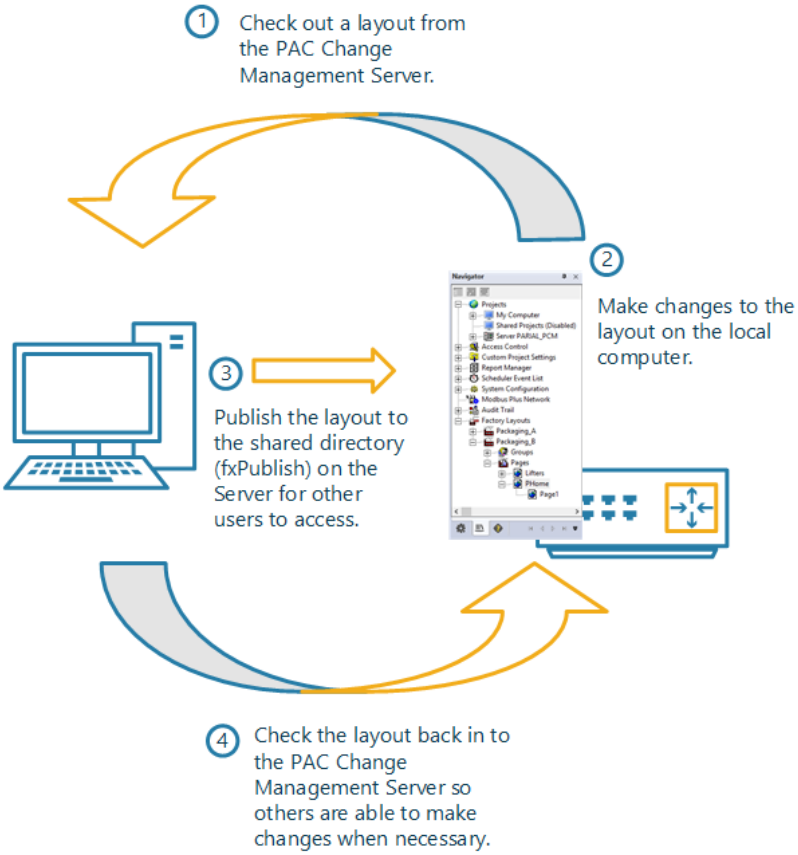
Each layout has a Supplemental Files directory, whose fixed location on the local computer is shown as its Supplemental Files property. Any files in this directory are checked in and out of the Server with the rest of the layout and included with the final published layout files.

Files you must place in this directory include:

- Any image files referenced by the layout pages.
- The image file with the company's logo, specified by the **Company Logo** property.
- Any image files specified by the **Background Image** properties of the layout's pages.
- All HTML templates for the layout's pages, specified by the pages' **Template File** properties.
- Any HTML files specified by a layout's **Header HTML File** or **Footer HTML File** properties.

You can copy files to the Supplemental Files directory with Windows Explorer. To open a Windows Explorer window at the Supplemental Files directory, select the Supplemental Files property in the Inspector and click ⋯.

Figure 21: Creating Factory Layouts



8.3.2 How Change Management generates the published layout files

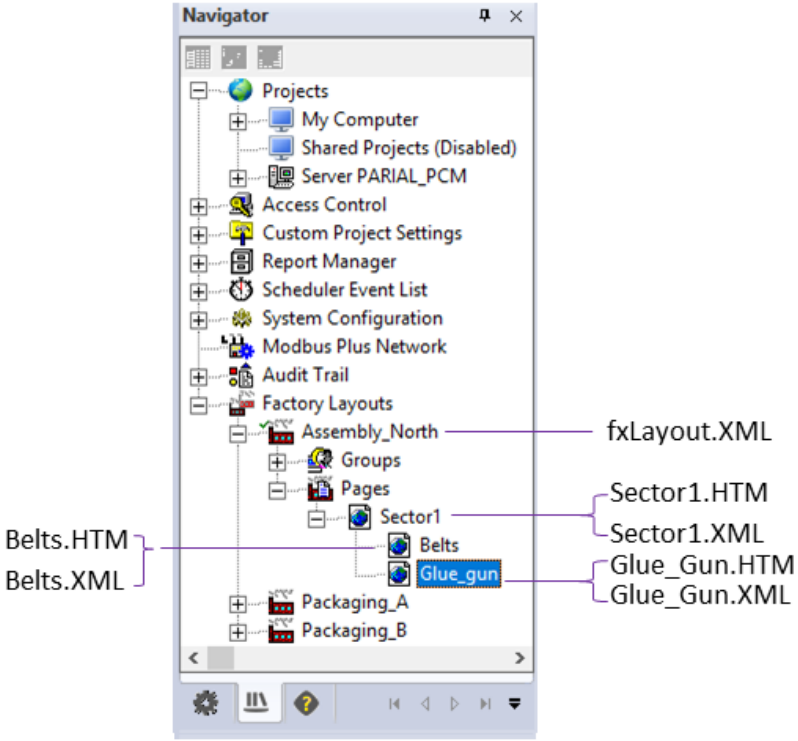
When creating layouts, it helps to understand the steps PAC Change Management performs when a layout is published. This information is especially useful when creating HTML page templates for layout pages (see Section 8.4).

When a layout is published, PAC Change Management creates several files in a subdirectory under the fxPublish directory (or, if a preview is being generated, on the local computer).

- It copies all files from the directory specified by the layout's Supplemental Files Directory property.
- It creates a file called "fxLayout.XML", containing an XML object called FXLAYOUT. This object contains information about the layout in general, including the values of many of its properties.
- For each page in the layout, it creates a copy of the page's HTML template (specified by the page's Template File property) with a filename based on the layout page node. So, for a page node called "MyPage", it creates a copy of the page template as "MyPage.HTM".
- Similarly, for each page in the layout, it creates an XML file with a filename based on the layout page node (that is, the file has an extension of ".XML"). For example, for a page node called "MyPage", PAC Change Management creates an XML file called "MyPage.XML". This XML file contains an XML object called FXPAGE. This object contains information about the page, including many of its properties.

All files are created in the same directory, regardless of the "tree" configuration of the layout's pages. For example, a layout called "Packing_A" has three pages, "Sector1", "Belts", and "Glue_Gun", with "Belts" and "Glue_Gun" children of "Sector1". The following diagram illustrates the files PAC Change Management creates for the Packing_A factory layout:

Figure 22: Generated Factory Layout files



PAC Change Management “remembers” the organization of the page tree in each FXPAGE object's <CHILDREN> and <PARENT> tags.

PAC Change Management also copies the files in Packing_A’s Supplemental Files directory.

Want to know more? In the Help Index, look up layouts and choose “Factory Layout XML Objects and Tags”.

8.3.3 Checking out Layouts from the Server

You can check out layouts only if you:

- Are connected to the PAC Change Management Server,
- Are a member of a group assigned to the Layout, and
- Have the Edit Layouts Manager permission.

Want to know more? In the Help Index, look up "Checking out layouts from the Server".

8.3.4 Publishing Layouts on the Server

You can publish a layout only if:

- You have the Manager Edit Layouts permission.
- You have the layout checked out on the local computer.
- The local computer (or the user logged into the local computer) has read/write access to The fxPublish (see page 56).
- PAC Change Management generates files for the final web site for the layout and places them in the fxPublish directory. Users can now open the layout in the InfoViewer.

Want to know more? In the Help Index, look up layouts and choose "Publishing Layouts".

8.4 Creating Layout Page Templates in HTML

(This section is intended for administrators and other users who need to create layouts. If you just want to use layouts to get to projects you need to work on, see Section 8.1 *Using Layouts* on page 55.)

When PAC Change Management publishes a factory layout to the PAC Change Management Server, it creates HTML pages (.HTM files) based on a generic HTML page template. You specify which template to use in the page's Template File property.

An HTML template for a page should contain VBScript routines that access the XML files created when the layout is published. This makes the published HTML pages "dynamic"—what gets displayed in the InfoViewer is based on the contents of the page's associated XML file.

You can create page templates in any standard text or HTML editor. These page templates must be stored in the directory specified by the layout's Supplemental Files property. Any graphic or other files used by the HTML page must also be placed in this directory.

When you install PAC Change Management, sample page templates are included in a sample factory layout. The sample layout is stored in the .LAY file called "...\PAC Machine Edition\SecurWORX\Samples\Layouts\Generic.LAY", where "...\PAC Machine Edition" is the PAC Change Management installation directory. To use this layout (or the files that make up this layout), you must import the Generic.LAY layout into PAC Change Management. For more information, see Section 8.2.3 *Backing Up Layouts* on page 57.

8.4.1 Performing Change Management Actions from Layout Pages

To let users perform actions on projects from layouts (such as "check out" or "open"), you do the following.

- Somewhere in the HTML document (preferably close to the beginning), include the fxLinkWizard object. This ActiveX object contains several script functions (or "methods") that perform various actions in the PAC Change Management environment.
- Set up a script tag that performs the desired operations when the user clicks on the appropriate hypertext link.

For a list of the functions and commands supplied with the fxLinkWizard object, look up "fxLinkWizard Script Functions" in the online help.

8.4.2 Generalizing Page Templates with XML

In a factory layout, each layout page uses an HTML page template, specified by the page's Template File property. When PAC Change Management publishes each page, it creates an XML file and a copy of the HTML template file, both named after the layout page node. In addition, PAC Change Management creates a single XML file for the layout itself called "fxLayout.XML".

For more details on layout file generation, see Section 8.3.2 *How Change Management generates the published layout files* on page 60.

The XML files contain values of layout and page node properties as appropriate, stored as XML objects. By acquiring information from the appropriately-named XML objects, you can refer to names and data specific to that page or layout.

For example, you have 10 pages in your layout and you want to display a different title at the top of each page. Without using XML you'd have to write 10 different page templates. However, pages have a Title property, the value of which (when published) is stored in its FXPAGE object as a <TITLE> tag. To retrieve a page's title, you would:

- Determine the name of the page's associated XML file. For a given page, the XML file name will be the same as the current HTML file name, with an ".XML" file name extension.
- From the page's associated XML file, extract the value of its "<TITLE>" tag.
- Then, instead of displaying specific text at the top of the page, you would display the value of the <TITLE> tag.

Within an HTML page, one way to acquire data from XML objects is through VBScripts. For more information on VBScript and XML, search for "VBScript" and "XML" on Microsoft's web site at www.microsoft.com.

- For sample VBscript functions that use a layout's XML objects, look up HTML Script Examples for Page Templates in the online Help.
- For a list of information stored in each XML object, look up Factory Layout XML Objects and Tags in the online Help.

8.4.3 Creating page templates

Here are some things to keep in mind when writing HTML page template files:

- When PAC Change Management publishes the layout, the template is simply copied to the published directory with a name based on the layout page node. If you refer to a specific project or set of projects in this HTML file, those references will appear in all pages that use that template.

  To circumvent this, instead of referring to specific projects in your HTML file, first set the page's **Project Name** and **Project Type** properties to the project you want this topic to refer to. Then, in the template's HTML code, use the values of the <PROJECT_NAME> and <PROJECT_TYPE> tags from the page's XML file. For more details, see Section 8.4.2 Generalizing Page Templates with XML on page 63.
- To perform PAC Change Management operations from a page displayed in the InfoViewer (like checking projects in and out of the PAC Change Management Server), use fxLinkWizard script functions within a <SCRIPT> tag. For more information, see Using the fxLinkWizard ActiveX Object in the online help.

Appendix A Change Management and CIMPLICITY HMI

If you develop CIMPLICITY projects, you can use PAC Change Management to help you manage your CIMPLICITY project files, and track changes to these files.

This chapter describes how to use Change Management features in the CIMPLICITY Workbench and includes the following sections:

- Introduction
- Quick Tour: Using Change Management Features in CIMPLICITY

For more information on using Change Management outside of CIMPLICITY, refer to the PAC Change Management online help.

A-1 Introduction

Version controlled files provide fast recovery and reduce the cost and risk of downtime. The PAC Change Management add-on for the CIMPLICITY product enables you to manage and maintain programs and projects in a manufacturing environment to improve plant up time, enforce good engineering practice and reduce risk.

CIMPLICITY integrates the Change Management client into the Workbench so you can directly manage your CIMPLICITY projects from the Workbench using the right-click menu on the Workbench system tree.

Change Management with PAC Machine Edition also provides audit trails for tracking changes, security for preventing unauthorized changes, and scheduled backups to ensure you always have the latest files.

Several versions of projects and files that apply to a single CIMPLICITY project or computer level configuration can be stored on and retrieved from a PAC Change Management Server.

A-1.1 Features

When you use PAC Change Management with CIMPLICITY, you can do the following:

- Manage all CIMPLICITY project files, including configuration files, and non-CIMPLICITY project files (such as .OCXs, .DLLs, and .EXE files) from the CIMPLICITY Workbench.
- Use all Change Management features from the right-click Manage menu from the CIMPLICITY Workbench tree and from the Project or Computer menus.

- Use the PAC Change Management Client to run scheduled backups of your CIMPLICITY project files and report the changes.
- Capture historical information on who, when, and why CIMPLICITY project files were modified. The audit trail displays in the PAC Change Management (PCM) History window (also available from the right-click Manage menu).
- Identify changes between versions using the PCM History window.
- Automatically log in to the Change Management Server from the CIMPLICITY Workbench, when you synchronize your user names and passwords across the products.
- Label CIMPLICITY files, folders, or projects with specific text string identifiers.

A-1.2 Limitations

- In order to use the integrated Change Management features within CIMPLICITY, you must have PAC Change Management 5.6 or higher installed.

A-1.3 Overview

There are two types of Change Management projects available in CIMPLICITY:

- CIMPLICITY project
- Computer project

There are two classes of entities that can be added to Change Management for each project type:

- **Base Configuration:** A collection of interrelated files that must remain interrelated and must be managed as a single unit.
- **Individually managed files:** Files that can be managed as individual units.

CIMPLICITY Project

All user-configurable configuration files can be added to Change Management. Project configuration files include base configuration and individually managed files.

Base configuration files make up the project's basic configuration; for example, point and alarm configuration files, which are required for the project processes to run. Base configuration files are automatically added to Change Management the next time the base configuration (or project) is checked in. They are also checked in whenever any base configuration entity is selected to be checked in.

Important

A base configuration must be added once in order to be managed.

Individual files that are listed in the CIMPLICITY project's Managed Files folder (for example, CIMView screens and scripts) can be added separately to the Change Management Server.

Individually managed files are added to the Change Management Server when the project is added, or can be added individually.

Note: *A project can be added more than once; therefore, each time the project is added, any individually managed files that were not already added are added to the Change Management Server.*

Individual files must be added in order to be managed; they are not automatically added when the project is checked in.

Want to know more? In the CIMPLICITY Help, look up "CIMPLICITY Project in the Workbench: Managed Files Overview".

Computer Project

All files in a computer project can be added to Change Management. Computer files include computer base configuration and managed files.

Base configuration files make up the computer project's basic configuration; for example, globals.ini and cimhosts.txt, which are required for the computer project system's processes to run.

Individual files that are listed in the Computer project's Managed Files folder (for example, WebView screens, CimView screens, and scripts) can be added separately to the Change Management Server.

Individually managed files are added to the Change Management Server when the project is added, or can be added individually.

Note: *A Computer project can be added more than once; therefore, each time the project is added, any individually managed files that were not already added are added to the Change Management Server.*

Individual files must be added in order to be managed; they are not automatically added when the project is checked in.

Want to know more? In the CIMPLICITY Help, look up "Computer Project in the Workbench: Managed Files Overview".

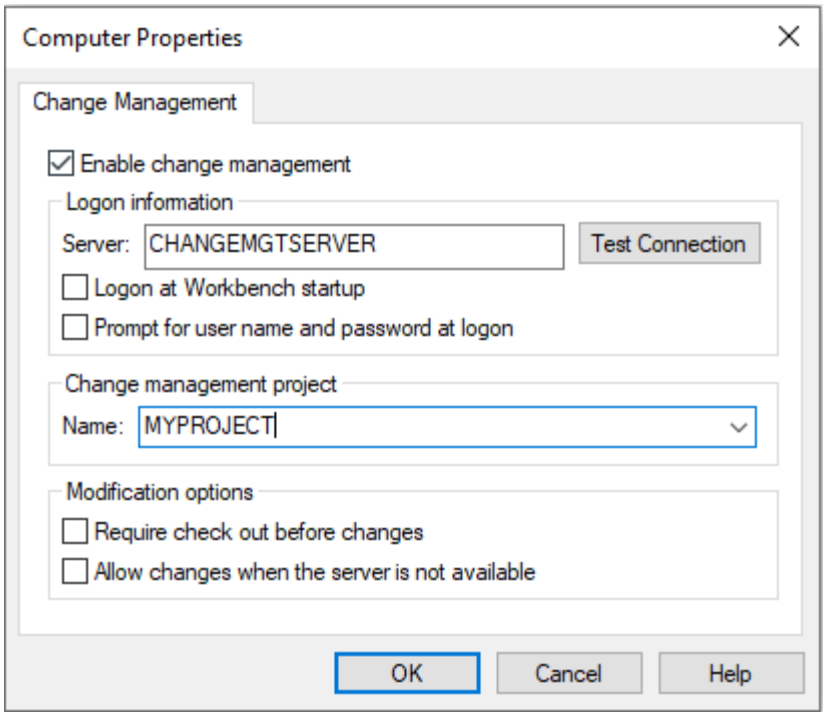
A-1.4 Setting Up CIMPLICITY for use with Change Management

In order to use integrated Change Management features in the CIMPLICITY Workbench, you must have both CIMPLICITY 2022 or higher and PAC Change Management 5.6 or higher. Additionally, you need to configure a few items on both CIMPLICITY and the Change Management Server, as described below.

To configure Computer Projects for integrated Change Management:

1. On the Workbench menu bar, from the Computer menu, choose Properties. The Computer Properties dialog box appears.

Figure 23: Configuring Computer Projects for Change Management



2. In the Computer Properties dialog box, do the following:
   - Enable the Change Management Server connection and enter the name of the server you want to connect to.
   - Configure logon options.
   - Enter or select a project name.
   - Configure modification options.
3. Click OK.

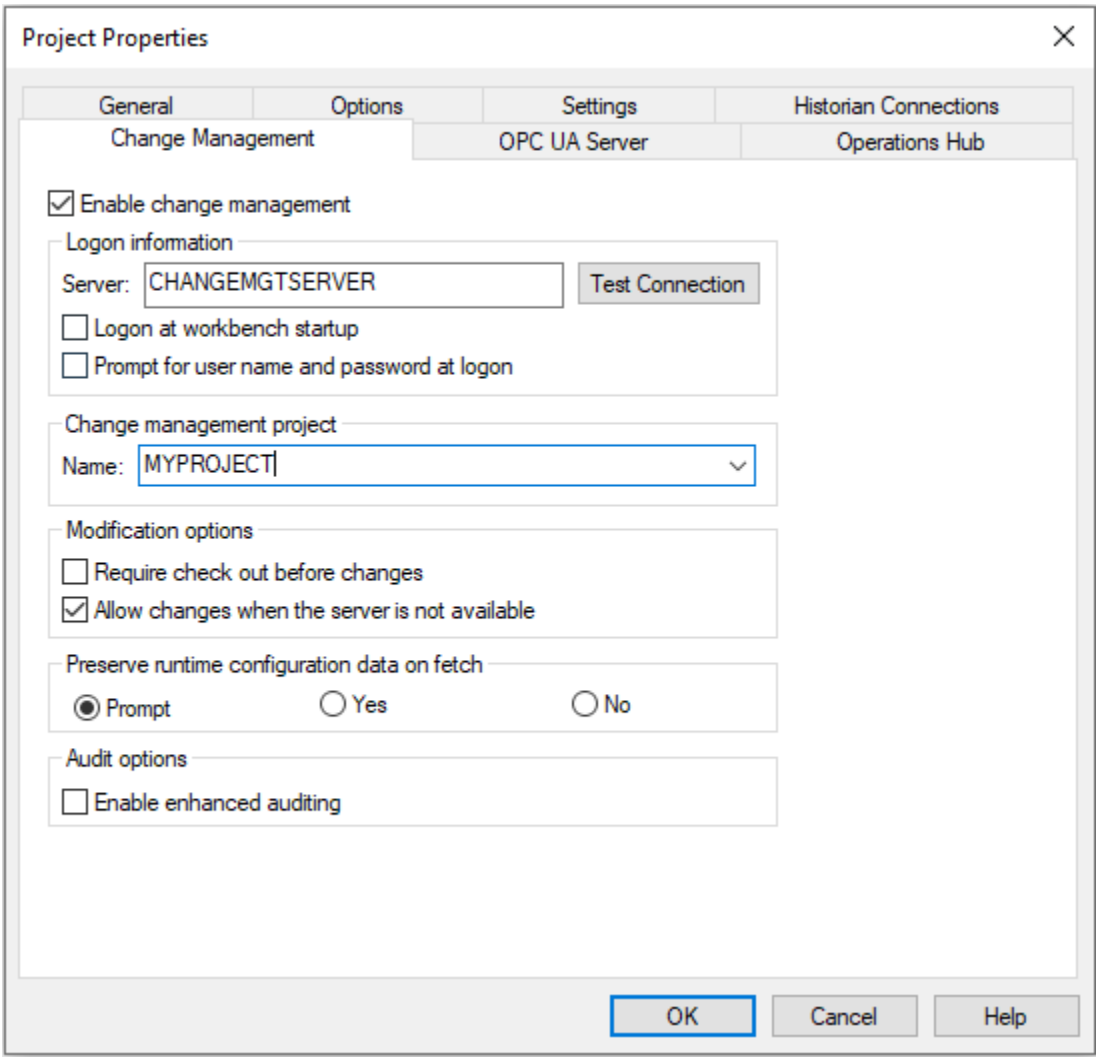
Want to know more? In the CIMPLICITY Help, look up "Enable Computer Management".

To configure CIMPLICITY Projects for integrated Change Management:

1. From the Project menu, choose Properties.

   The Project Properties dialog box appears.

Figure 24: Configuring CIMPLICITY Projects for Change Management



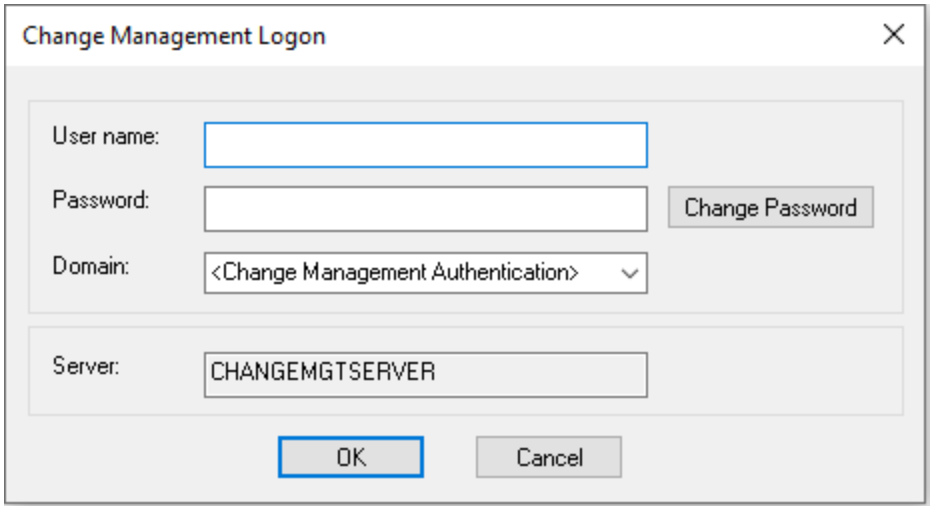
2. In the Project Properties dialog box's Change Management tab, do the following:
   - Enable the Change Management Server connection and enter the name of the server you want to connect to.
   - Configure logon options.
   - Enter or select a project name.
   - Configure modification options.
   - Select a runtime configuration data preservation option.
3. Click **OK.**

Want to know more? In the CIMPLICITY Help, look up "Enable Project Management".

Testing the Connection to the Change Management Server

When you configure the computer or project properties, you can test the connection to the Change Management Server you want to log on to.

Figure 25: Test Change Management Server



To perform the connection test, click the Test connection button and then log on to the Change Management Server. A message displays informing you whether the connection test was successful or not, depending on the status of the Change Management Server.

If the test connection succeeds, you can log on to Change Management and begin using its features in the CIMPLICITY Workbench.

Want to know more? In the CIMPLICITY Help, look up Enable Project Management or Enable Computer Management

A-2 Quick Tour: Using Change Management Features in CIMPLICITY

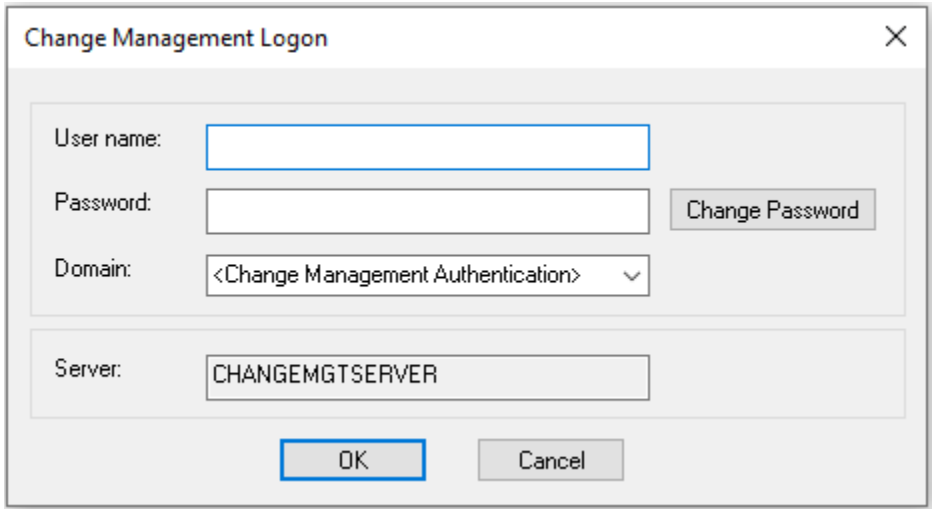
The following sections describe how to get started with Change Management features in CIMPLICITY, after you configure the CIMPLICITY Workbench and PAC Change Management Server. It provides information on the following functions:

- Logging In
- Testing the Connection to the Change Management Server
- Using Change Management Features in CIMPLICITY

A-2.1 Logging In

To log in to the Change Management Server from CIMPLICITY, you do so at startup, or by simply right-clicking the project or computer folder in the left pane, pointing to Manage, and selecting Logon. If the Logon dialog is configured to display, it appears as shown in the following figure.

Figure 26: Change Management Logon Dialog Box from the CIMPLICITY Workbench

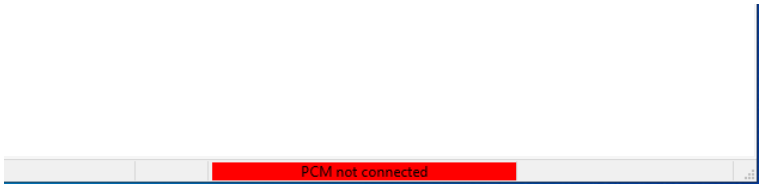


Want to know more? In the CIMPLICITY Help, look up Logon.

Viewing the Connection to the Change Management Server

If you are not logged into the Change Management Server, the CIMPLICITY Workbench displays: PCM Not Connected. The status area displays in red, as shown in the following figure.

Figure 27: Change Management Server Not Connected



After you successfully log into the Change Management Server, the CIMPLICITY Workbench displays: Connected to PCM Server ServerName. ServerName is the actual PAC Change Management Server's name. The status area changes to green, as shown in the following figure.

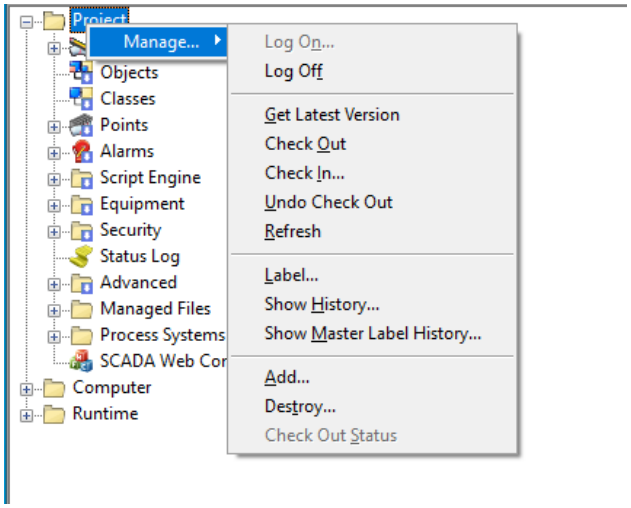
Figure 28: Change Management Server Connected

When the status area changes to green, you can begin using Change Management features in the CIMPLICITY Workbench.

A-2.2 Using Change Management Features in CIMPLICITY

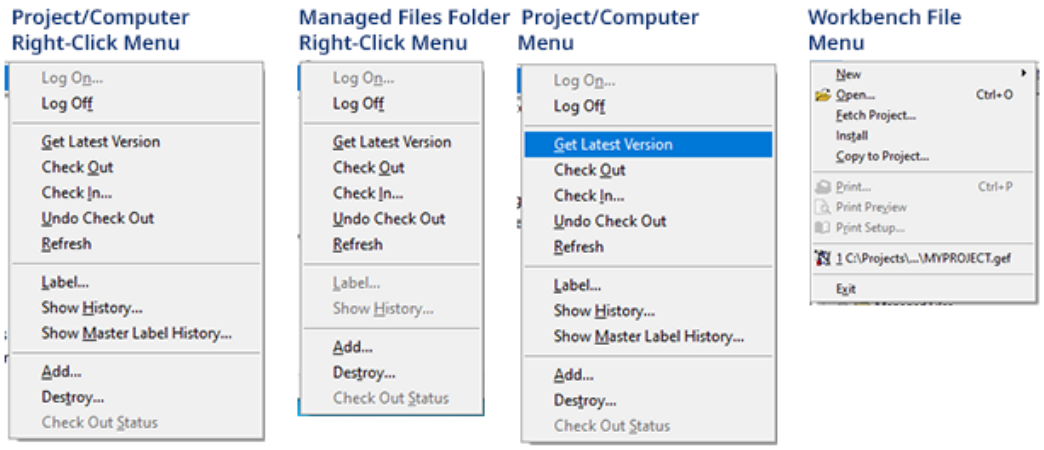
To access Change Management features in the CIMPLICITY Workbench environment, you use the right-click menu on the Workbench left pane, as illustrated in the following figure.

Figure 29: Using Change Management Functions in the CIMPLICITY Workbench



There are multiple ways to view the Change Management command menus and each menu differs slightly depending on where you access it from.

Figure 30: CIMPLICITY Workbench Right-click Menu options



You must be logged into the PAC Change Management Server in order to view the Change Management commands from the right-click menus.

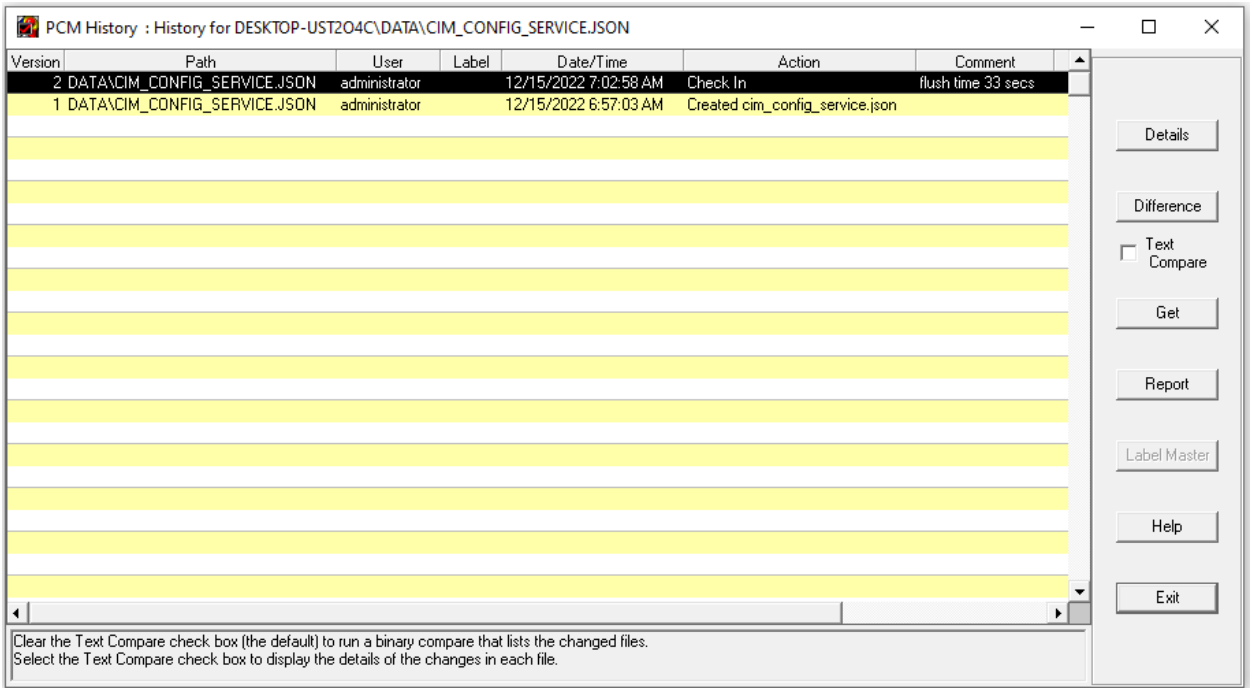
Want to know more? In the CIMPLICITY Help, look up PAC Change Management Procedures.

A-2.3 Using the Change Management History Window

The PAC Change Management (PCM) History window allows you to view the revision history of a file, folder, or project. You can also compare different versions of the same file or folder in the Change Management Server, or even compare versions on the Server with the ones stored on your local computer.

You open the PCM History window by right-clicking a file, folder or project in the CIMPLICITY Workbench left pane, pointing to Manage, and then clicking History Report. The following figure is an example of the window that appears.

Figure 31: PCM History Window



Want to know more? In the CIMPLICITY Help, look up Show History.

General Contact Information

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Any escalation request should be sent to: mas.sfdcescalation@emerson.com

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