User Manual

Original Instructions



PlantPAx Distributed Control System

Application Configuration

System Release 4.6





Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

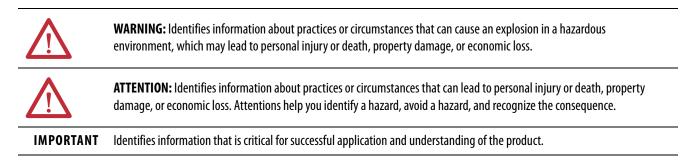
In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



Labels may also be on or inside the equipment to provide specific precautions.



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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Purpose of the User Manual

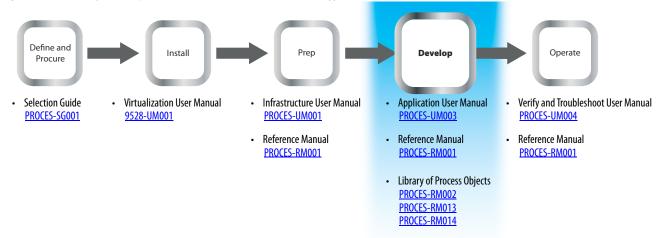
This document describes the steps necessary to start development of your PlantPAx[®] DCS system. Procedures step you through how to take default PlantPAx system attributes and customize them for your specific system requirements.

To receive the maximum benefit from this document, we assume that your infrastructure is configured in accordance with the procedures documented in the PlantPAx DCS Infrastructure Configuration User Manual, publication <u>PROCES-UM001</u>.

We suggest that you perform the tasks in the order that is outlined in each chapter. However, each task has standalone screen facsimiles and step-by-step procedures to let you skip to other chapters if necessary. Each chapter has a flowchart that summaries the topics, similar to a mini Table of Contents.

Figure 1 shows the documents (this manual in the highlighted section) that are available to help design and implement your system requirements.

Figure 1 - PlantPAx System Implementation and Documentation Strategy



- **Define and Procure** Helps you understand the elements of the PlantPAx system to make sure that you buy the proper components.
- Install Provides direction on how to install the PlantPAx system.
- **Prep** Provides guidance on how to get started and learn the best practices to follow before you develop your application.
- **Develop** Describes the actions and libraries necessary to construct your application that resides on the PlantPAx system.
- **Operate** Provides guidance on how to verify and maintain your systems for operation of your plant.

New and Updated Information

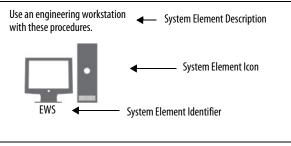
This table contains the changes that are made to this revision.

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Illustration of how to build a PlantPAx application	13
Application Code Manager description and options	14, 16, 17

Manual Conventions

For instructional purposes, this manual uses visual tools to complement the procedures. Icons that represent system elements are shown at the start of a section to help identify the system element that is being configured in the steps.

The element's abbreviation is listed with the icon for identification as shown in the example.



See <u>Table 1</u> for descriptions and abbreviations of the system element icons.

Table 1 - Visual Naming Conventions

lcon	Description	Abbreviation Element Names	Topic Page
	Logix controllers	LGXC01 - Controller LGXC02 - Controller	55, 59, 63
·	PlantPAx workstations	OWS01 ⁽¹⁾ - Operator workstation EWS01 ⁽¹⁾ - Engineering workstation	57, 135, 201, 233
	PlantPAx Application servers	 ASIS01 - AppServ-Info SQL server ASIH01 - AppServ-Info Historian server ASIV01 - AppServ-Info VantagePoint server ASAM01 - AppServ-Asset Management server ASBM01 - AppServ-Batch server ASEWS01 - AppServ-Engineering Workstation server ASOWS01 - AppServ-Operator Workstation server 	61, 201
••	PASS (Process Automation System Server)	 PASS01 - FactoryTalk[®] Directory PASS02A - Primary HMI server PASS02B - Secondary HMI Server 	61

(1) EWS and OWS are used throughout the manual but the same procedures apply for AppServ-EWS and AppServ-OWS.

Action Identifier

Dialog boxes have red boxes to identify areas that require some type of user action, such as to type text or click 'Next'.

Active Directory Domain 9 Directory Services Resto	re Mode Administrator Password	
Administrator account.	estore Mode Administrator account is different from t	
	Administrator account that will be used when this d ctory Services Restore Mode. We recommend that d.	
Password:	•••••	
Confirm password:	•••••	
More about Directory Serv	vices Restore Mode password	
	< <u>B</u> ack <u>N</u> ext>	Cancel

Configure Programs Menu

We strongly suggest that you perform the following procedure in the system computers to group folders under 'Programs' on the taskbar. When complete,

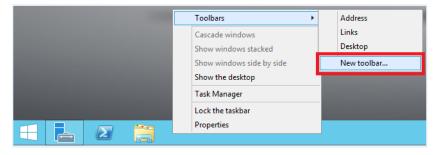
you access Windows and software folders by clicking the Programs symbol.

- 1. Click the Windows 🖽 symbol.
- 2. Click Control Panel and choose Folder Options.

The Folder Options dialog box appears.

Folder Options X
General View Search
Folder views You can apply this view (such as Details or Icons) to all folders of this type. Apply to Folders <u>R</u> eset Folders
Advanced settings:
Files and Folders Aways show icons, never thumbnails Aways show menus Display file icon on thumbnails Display file size information in folder tips Display the full path in the title bar
Hide folder merge conflicts
OK Cancel Apply

- 3. On the View Tab, select 'Show hidden files, folders, and drives' and click OK.
- 4. Right-click in the taskbar, click Toolbars, and choose New Toolbar.



5. On the New Toolbar window, designate a path for your Programs folder.

For example:	
C:\ProgramData\Microsoft\Windows\StartMenu\Programs.	

	New	Toolbar - Choose a fo	lder				
⋲ 💿 🔻 🕇 <u>)</u> « La	ocal Disk (C:) 🔸 ProgramData 🔸 Microsoft 🔸	Windows 🕨 Start Menu	▶ Programs ▶	v Ċ S	earch Programs	لر	Q
Organize 👻 New folder						•	(
🖳 Recent places \land	Name	Date modified	Туре	Size			
	퉬 Accessibility	8/22/2013 11:39 AM	File folder				
F This PC	🌗 Administrative Tools	8/12/2015 9:06 AM	File folder				
Desktop	🐌 CGCM	8/12/2015 8:21 AM	File folder				
Documents	퉬 Embedded Lockdown Manager	11/22/2014 12:06	File folder				
Downloads	퉬 Hiprom Software	8/12/2015 9:41 AM	File folder				
Music	퉬 Maintenance	8/22/2013 11:39 AM	File folder				
Pictures	퉬 Microsoft Office	8/14/2015 2:11 PM	File folder				
Videos	퉬 Microsoft SQL Server 2008	8/11/2015 11:16 PM	File folder				
📥 Local Disk (C:)	퉬 Microsoft SQL Server 2008 R2	8/11/2015 11:16 PM	File folder				
~	Rochwell Automation	₽/12/2015 ₽·21 AM	File folder				
Folde	r: Programs						
				S	elect Folder	Cancel	

6. Click Select Folder.

Additional Resources

These documents contain additional information that concern-related products from Rockwell Automation.

Resource	Description
PlantPAx Distributed Control System Selection Guide, publication <u>PROCES-SG001</u>	Provides basic definitions of system elements and sizing guidelines for procuring a PlantPAx system.
PlantPAx Distributed Control System Reference Manual, publication <u>PROCES-RM001</u>	Provides characterized recommendations for implementing your PlantPAx system.
PlantPAx Distributed Control System Infrastructure Configuration User Manual, publication <u>PROCES-UM001</u>	Provides procedures to configure infrastructure components for your PlantPAx DCS systems.
PlantPAx Distributed Control System Verification and Troubleshooting User Manual, publication <u>PROCES-UM004</u>	Describes how to verify that your system design aligns with PlantPAx system recommendations.
Rockwell Automation Library of Process Objects Reference Manual, publication <u>PROCES-RM002</u>	Provides information on how to use the Rockwell Automation Library of Process Objects.
Rockwell Automation Library of Process Objects: Logic Instructions Reference Manual, publication <u>PROCES-RM013</u>	Describes controller codes and tags for Library objects. The objects are grouped by family and attached as Microsoft Excel files to the manual PDF file.
Rockwell Automation Library of Process Objects: Display Elements Reference Manual, publication <u>PROCES-RM014</u>	Provides common display elements for the Rockwell Automation Library. For improved accessibility, the elements are combined into one manual.
PlantPAx Virtualization User Manual, publication <u>9528-UM001</u>	Describes the catalog numbers and details for using virtual image templates to configure virtual machines.
Application Code Manager User Manual, publication LOGIX-UM003	Provides procedures for installing and creating projects and configuring library objects.
Product Compatibility and Download Center at http://www.rockwellautomation.com/rockwellautoma- tion/support/pcdc.page	Website helps you find product-related downloads including firmware, release notes, associate software, drivers, tools, and utilities.

You can view or download publications at

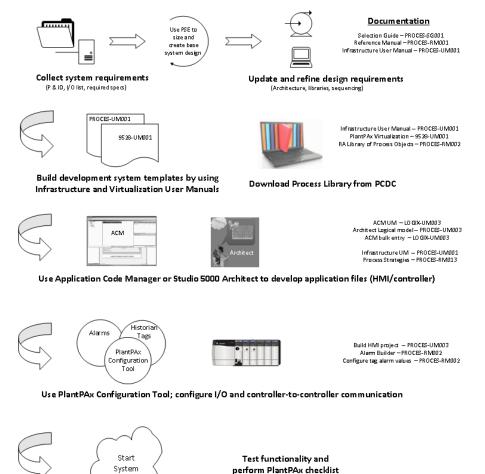
http://www.rockwellautomation.com/global/literature-library/overview.page. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Build a PlantPAx Application

IMPORTANT Before starting the procedures in this manual, the following prerequisites are assumed to be completed:

- System requirements are defined via Piping & Instrumentation drawings (P&ID), Input/Output (I/O) lists, User Requirement and/or Functional Requirement Specifications (URS/FRS), and so on.
- System is properly sized by using the PlantPAx System Estimator (PSE) and in accordance with the PlantPAx Selection Guide, publication <u>PROCES-SG001.</u>
- Infrastructure (equipment, media) is configured per instructions in the PlantPAx DCS Infrastructure Configurations User Manual, publication <u>PROCES-UM001</u>.

The illustration shows the basic steps for building a PlantPAx[®] application.



You can use the Studio 5000° Architect application or the Studio 5000° Application Code Manager (ACM) with a Logix controller. The two software tools are different in form and function:

- Architect A visual tool that helps you design a system with drag-and-drop capability to show equipment on a canvas. Architect contains the Rockwell Automation Library of Process Objects to allow for quicker import of Library objects to start projects. We show step-by-step procedures in this section for how to add process strategies to controllers for control of process devices.
- ACM A tool that lets you bulk engineer code from physical devices on the P&ID to build controller, HMI, and Historian files. There is less programming because you can identify (decorate) reusable tags for bulk production. The Logical Organizer Designer plug-in creates HMI and Historian tags. The Logical Organizer Manager builds an application to create the library. Library objects can be configured to meet the needs of multiple applications.

For more information, see the Application Code Manager User Manual, publication <u>LOGIX-UM003</u>.

We strongly recommend that you decide the software tool to use while you compile the I/O list with the P&ID drawing.

IMPORTANT	The procedures in this chapter focus on the Architect application because its graphical design helps you get started from scratch with the PlantPAx
	Library. The interface also aids system maintenance. ACM users typically have more experience creating bulk core projects.

Considerations

Consider the following suggestions before starting this chapter:

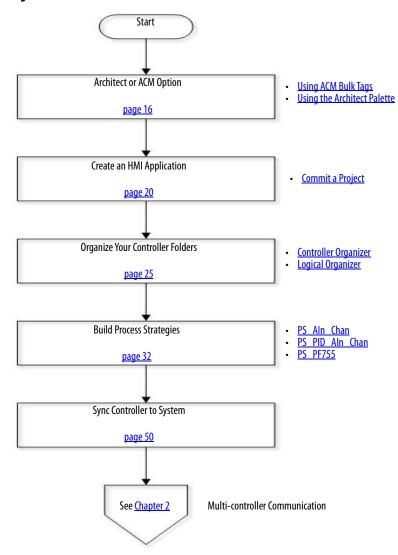
- The Architect or ACM application must be installed on an Engineering workstation.
- Check for the latest version of the Process Library in the Product Compatibility and Download Center (PCDC) before initiating projects.

IMPORTANT You can access the PCDC from the Architect application. See <u>page 19</u> for details.

• We recommend that you perform all I/O configuration inside the Logix Designer application.

Figure 2 shows a list of the topics in this chapter. Click or see the page number for access to a section.

Figure 2 - Studio 5000 Architect Workflow



Architect or ACM Option

Whether you are a novice or experienced user, we suggest that you review the Architect palette (see <u>page 17</u>) or the ACM quick steps (depending on which is being used) before proceeding.

Using ACM Bulk Tags

As stated in the overview, ACM execution is a matter of registering, adding, and configuring bulk Library objects. Projects can be completed without requiring high-end programming support. In the project work flow, engineers configure the object parameters to meet the requirements of the current application. The project is then created to ACD controller code.

Control strategies contain pre-engineered code in the form of Add-On Instructions. The HMI Library provides the faceplates for the Add-On Instruction display elements.

The decorated ACD file and library objects are published directly to the ACM database or to a file in HSL4 format. HSL4 files comprise a library of application code with control strategies.

You can add non-Logix user interface features, such as HMI (FactoryTalk View SE/ME software) and Historian (FactoryTalk Historian SE software) components, to the Library object in the Library Object Manager application. This can be done only after the Library object has been published from the ACD file to a folder or ACM database repository.

ACM Quick Start

The following procedures are basic steps to register a Library and start a project. For details, see the Application Code Manager User Manual, publication LOGIX-UM003.

Register a Library

To extract a self-contained library, complete these steps.

- 1. From the directory where the ACM download folder is stored, right-click the .zip folder and choose Extract All.
- 2. Click Start Menu and choose Rockwell Automation>Application Code Manager.
- 3. Right-click and choose Register.
- 4. Select all extracted library files and click Open.
- 5. Click Finish.

Start a Project

To create a new project, complete these steps.

- 1. From the main menu, select File>New and choose Project.
- 2. From the Object Configuration Wizard, select Basic_Project (2,1) and click Next.
- 3. Type a project name and click Finish.
- 4. To add a project to a controller, right-click Controllers in the left pane, and choose Add New.
- 5. From the ControlLogix Library, select a controller and click Next.
- 6. Type a name for the controller.
- 7. Select controller parameters and click Finish.

For parameter descriptions and more information, see the ACM User Manual, publication <u>LOGIX-UM003</u>.

Using the Architect Palette

If you are using the Architect application, complete these steps to review the palette.

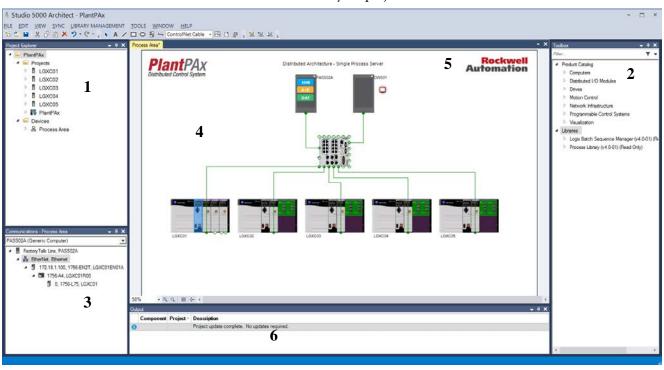
1. To open the Studio 5000 Architect application, click the Programs symbol and choose Rockwell Software[®]>Studio 5000[®].

The Studio 5000 Common Launcher appears.



2. Open a PlantPAx project.

Wait a few minutes while the ACD files and project data load.



The Architect canvas appears with a wire diagram of the application hardware for your project.

Table 2 - Studio 5000 Architect Palette Example

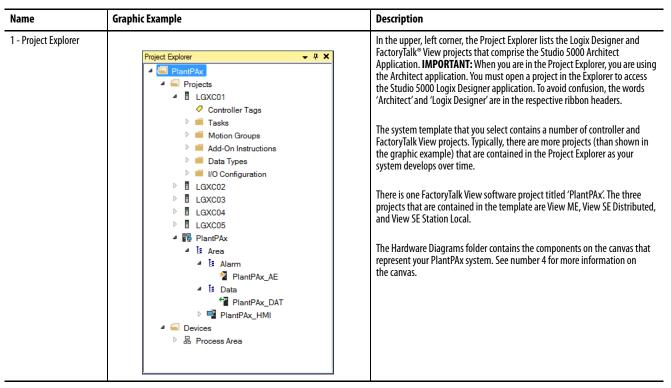


Table 2 - Studio 5000 Architect Palette Example

Name	Graphic Example	Description
2 - Toolbox	Toolbox 4 X Filter Y Product Catalog Computers Distributed I/O Modules Drives Motion Control Network Infrastructure Programmable Control Systems Visualization Libraries Logix Batch Sequence Manager (v4.0-01) (Read Only) Process Library (v4.0-01) (Read Only) Process Library (v4.0-01) (Read Only)	In the upper, right corner, you can view hardware (switches, controllers, associated I/O modules, and so forth) in the project. There are two libraries that are listed as 'Read Only' to denote they cannot be modified or managed within Architect. User-defined libraries are supported in Architect. You must download the Rockwell Automation® Library of Process Objects from the Product Compatibility and Download Center (PCDC). See <u>5 - PCDC</u> .
3 - Communications	Communications - Process Area PASS02A (Generic Computer) FactoryTalk Linx, PASS02A FactoryTalk Linx, PASS02A EtherNet, Ethernet 172.18.1.100, 1756-EN2T, LGXC01EN01A 1756-A4, LGXC01R00 0, 1756-L75, LGXC01 	In the lower, left corner, the Communications pod shows the communication path from the PASS01 computer to the five controllers. These paths are pre-defined shortcuts by using the Single Process Server template.
4 - Canvas	Distributed Architecture - Single Process Server	In the middle section, the canvas shows a graphical representation of the system elements that comprise the application. You can drag-and-drop elements to modify a project. The canvas also provides access to the Product Compatibility and Download Center (PCDC). See <u>5 - PCDC</u> table description.
5 - PCDC	Note::::::::::::::::::::::::::::::::::::	In the upper, right corner of the canvas, click the Rockwell Automation logo. The Library filter appears to let you download the Process Library from the Product Compatibility and Download (PCDC) website. The PCDC website provides access to the latest software and hardware updates.

Table 2 - Studio 5000 Architect Palette Example

Name	Graj	phic Examp	ole		Description
6 - Messages Output			At the bottom of the canvas, the Messages area provides alerts, if any, for the project.		
	Component	Project •	Description Project update complete. No updates required.		

Create an HMI Application

To build your HMI objects and displays through drag-and-drop procedures in an Architect project, complete these steps.

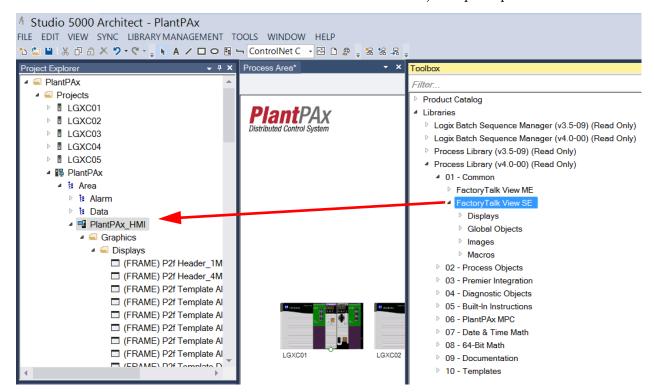
IMPORTANT To customize a template, see the Rockwell Automation Library of Process Objects: Configuration and Usage Reference Manual, publication PROCES-RM002.

 To add the basic frame for the template, drag the Libraries> Process Library>Templates>FactoryTalk* View SE>P2f Template from the Library Management pane and drop it into the PlantPAx HMI folder.

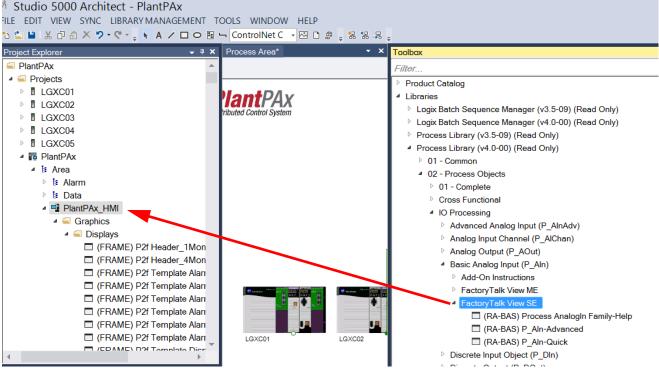
^A Studio 5000 Architect - PlantPAx FILE EDIT VIEW SYNC LIBRARY MANAGEMENT TOOLS WINDOW HELP 11 🖕 💾 🐰 🖓 🖞 🗸 ႒ • 🔇 • 🔉 💺 A 🖌 🗖 🗢 🗟 🛏 ControlNet C 🕞 🖂 🗅 🕸 🚽 🛣 😹 목 - × Toolbox Project Explorer 🗸 🕂 🗙 🛛 Proc PlantPAx Filter Projects Product Catalog LGXC01 Libraries PlantPAx LGXC02 Logix Batch Sequence Manager (v3.5-09) (Read Only) Distributed Control System I LGXC03 Logix Batch Sequence Manager (v4.0-00) (Read Only) LGXC04 Process Library (v3.5-09) (Read Only) I LGXC05 Process Library (v4.0-00) (Read Only) PlantPAx 01 - Common ▲ Area 02 - Process Objects 🖻 🗄 Alarm 03 - Premier Integration 🖻 🗄 Data 04 - Diagnostic Objects PlantPAx_HMI 05 - Built-In Instructions Graphics 06 - PlantPAx MPC Logic and Control 07 - Date & Time Math 4 🛋 Devices ▷ 08 - 64-Bit Math ▷ 品 Process Area 09 - Documentation 4 10 - Templates P2fTem 1080 Full HD) 10.0 Displays Global Objects Images I GXC01 LGXC02 Macros

2. In the Library Management pane, expand Libraries>Process Library>Common folders.

3. Expand the FactoryTalk View SE folder and drag-and-drop into the PlantPAx HMI folder in the Project Explorer pane.



4. In the Process Object folder, select the Object folder that is used in the application and drag-and-drop into the PlantPAx HMI folder.



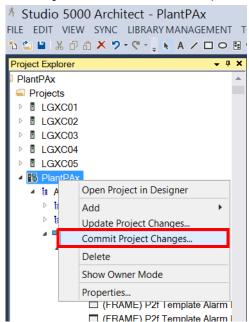
- 5. Repeat $\underline{\text{step 4}}$ for each object that you need.
- 6. Save your work.

Commit a Project

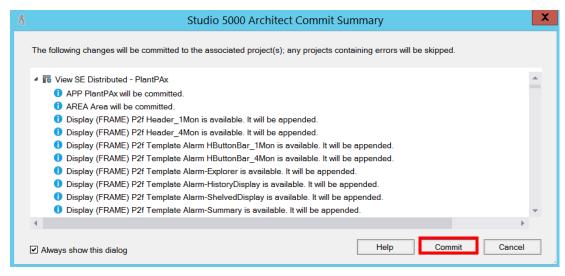
The Commit option sends the data from an Architect project to the FactoryTalk View project for the respective servers: HMI, data, and alarm.

Complete the following steps:

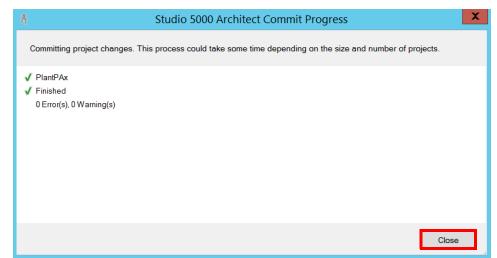
1. In the Project Explorer pane, right-click the application (PlantPAx in the example) and choose Commit Project.



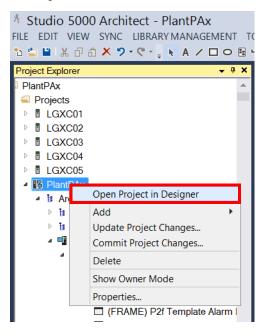
2. Click Commit.



3. Click Close.

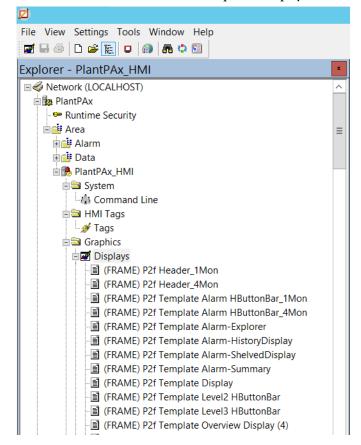


4. To confirm the commit action, in the Project Explorer pane, right-click the application (PlantPAx in the example) and choose Open Project in Designer.



The FactoryTalk[®] View Studio window appears.

5. In the Explorer pane, open the PlantPAx>Area>PlantPAxHMI>Graphics>Displays folder.



This folder typically contains the FRAME, P2f, and RA-BAS display files.

Organize Your Controller Folders

IMPORTANT Before setting up system folders, we recommend that you review the controller guidelines in the PlantPAx Reference Manual, publication <u>PROCES-RM001</u>.

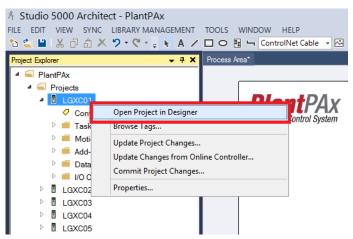
This section shows how to configure your controller folders by using the following tabs in the Logix Designer application:

- **Controller Organizer** Lists the execution tasks and I/O configuration
- Logical Organizer Sorts in terms of procedures, objects, functions, equipment, or some other natural term or concept for a 'logical' model of your application

Controller Organizer

Complete these steps to organize your controller based on the execution rate of your tasks.

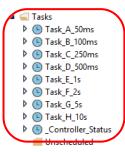
1. In Studio 5000 Architect, right-click a controller and choose Open Project in Designer.



Controller Organizer 🗕 🕂 🗙 a • ▲ 🗲 Controller LGXC01 Controller Tags Controller Fault Handler Power-Up Handler 🔺 📹 Tasks Task_A_50ms 🕨 🔓 Task_A_MainProgram 🔺 🕒 Task_B_100ms 🕨 🔓 Task_B_MainProgram Task_C_250ms Task_C_MainProgram Task_D_500ms Tasks Þ Task_D_MainProgram See Tip ▲ 🕒 Task_E_1s Task_E_MainProgram Task F_2s Task_F_MainProgram ▲ 🕒 Task_G_5s 🕨 🔓 Task_G_MainProgram 🔺 🕒 Task_H_10s Task_H_MainProgram ▲ ● _Controller_Status Diagnostics 💼 Unscheduled 🔺 <u> Motion</u> Groups Ungrouped Axes Assets Þ Logical Model I/O Configuration 1= Controller Organizer 🔁 Logical Organizer

The execution tasks appear in the Controller Organizer tab. Periodic tasks are executed at specific rates that are based on application requirements

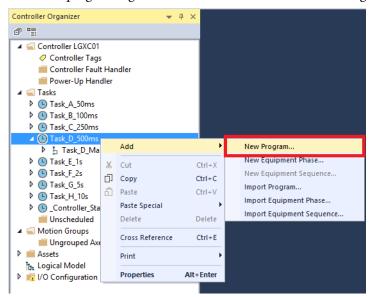
> **TIP** The controller template contains nine predefined periodic tasks, eight of these named Tasks A...H. There is a separate periodic task that is named Controller Status, which is used to collect system diagnostics. For example, the L_CPU Add-On Instruction monitors resources.



Each task is set to execute at a defined time interval from 50 ms...10 s, with faster tasks given higher priority.

See the Task Configuration guidelines in the PlantPAx Reference Manual, publication <u>PROCES-RM001</u>.

2. To create a program, right-click a task and choose Add>New Program.



The New Program dialog box appears.

3. Type a program name (Equipment01 is the example) and click OK.

	New Program	X
Name:	Equipment01	ОК
Description:	<u>^</u>	Cancel
	×	Help
Parent	<none> V</none>	
Use as folder		
Schedule in:	STask_D_500ms ✓	
Inhibit program		
Synchronize re	dundancy data after execution	
Open properties		

- 4. To create a routine within a program, right-click the name of the program that you created.
- 5. Click Add and choose New Routine.

Equipment	J.				
▲ [©] Task_E_1	Add	•		New Routine	
¢ ¦⊾ Task_ پ	Cut	Ctrl+X	0	New Local Tag	Ctrl+W
▲ S Task_F_2 ▷ Lask	Сору	Ctrl+C		New Parameter	
▲ [©] Task_G_	Paste	Ctrl+V		Import Routine	
▶ Lask_	Delete	Delete			
▲	Verify				
▷ Lask_ ▲ Ontrol	Cross Reference	Ctrl+E			
Diagr	Browse Logic	Ctrl+L		\sim	
Description	Find in Logical Orga	nizer		► Errors	

A Jump to Subroutine (JSR) is going to be added to the program to execute a command. JSRs are explained later in this section.

- 6. Type 'MainRoutine' for the routine name and click the Assignment pull-down menu to select Main.
- 7. Click OK.

	New Routine	X
Name:	MainRoutine	ОК
Description:		Cancel
	✓	
Туре:	🗏 Ladder Diagram 🗸 🗸	Help
In Program or Phase:	Equipment01 V	
	Assignment 🛛 Main 🗸 🗸	
Open Rou	line	

The New Routine has been added.

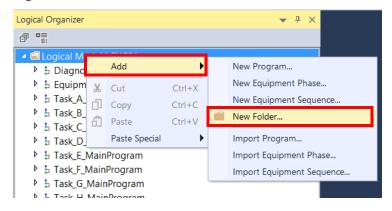
Logical Organizer

The Logical Organizer creates an organizational model of your system. This model is a hierarchy of your system.

Due diligence is required in the layout of your logical organizer. A properly organized system within the logical organizer helps to simplify application development.
Several components of your PlantPAx system depend on the organization and hierarchy of your Process system. These components consist of the following:
HMI application
• Alarms
User roles and responsibility
• Security
We recommend that you see these additional references:
 Chapter 6 of the PlantPAx DCS Infrastructure User Manual, publication <u>PROCES-UM001</u>
 Chapters 34 of this application manual

Complete these steps to build your logical model.

- 1. From the controller that is being configured, click the Logical Organizer tab.
- 2. Right-click the controller and choose Add>New Folder.

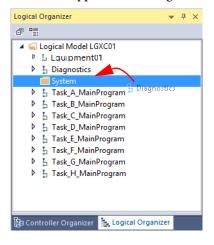


The New Program dialog box appears.

	New Program		x
<u>N</u> ame:	System		ОК
Description:		^	Cancel
		~	Help
<u>P</u> arent:	<none></none>	~	
Use as <u>f</u> older			
Sc <u>h</u> edule in:	<none></none>	\sim	
🔄 Inhibit program	n		
Synchronize r	edundancy data after execution		
Open properties			

3. Type 'System' for the folder name and click OK.

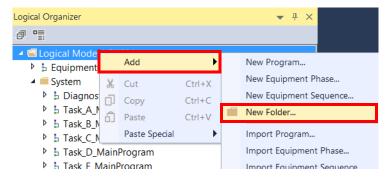
The folder appears in the Logical Model list for the controller.



4. Drag-and-drop the Diagnostics folder and all Task programs into the 'System' folder.

IMPORTANT A Diagnostics task is included in all controller templates to provide for troubleshooting, reporting, and alarming of controller status and resources.

5. Right-click the controller and choose Add>New Folder.



6. Type a folder name and click OK.

	New Program	×
<u>N</u> ame:	Process01	ОК
Description:		Cancel Help
<u>P</u> arent:	<none></none>	
✔ Use as <u>f</u> older		
Schedule in:	<none> V</none>	
Inhibit program		
Synchronize re	dundancy data after execution	
Open properties		

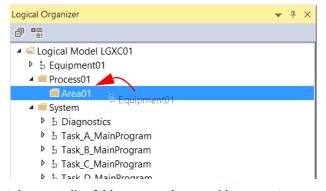
7. Right-click the Process01 folder and choose Add>New Folder.

Logical Organizer				▼ ₽ ×
a •				
 Logical Mod Logical Mod Lequipme 				
Processo Syst	Add	Þ		New Program
⊳ ₽ C %	Cut	Ctrl+X		New Equipment Phase
	Сору	Ctrl+C		New Equipment Sequence
▶ 5 T ▶ 5 T	Paste	Ctrl+V		New Folder
▷ 5 T ¹¹ ▷ 5 T	Paste Special	•		New Routine
▶ ₽ L	Delete	Delete	0	New Local Tag Ctrl+W
▷ 5 T	Verify			New Parameter
▶ <u>5</u> T	Cross Reference	Ctrl+E		

8. Type a folder name and click OK.

	New Program	X
Name:	Area01	ОК
Description:		Cancel Help
Parent	Process01 V	
✓ Use as folder		
Schedule in:	<none></none>	
Inhibit program	1	
Synchronize re	dundancy data after execution	
Open properties		

9. Drag-and-drop the folder (Equipment01) into the program (Area01) folder.



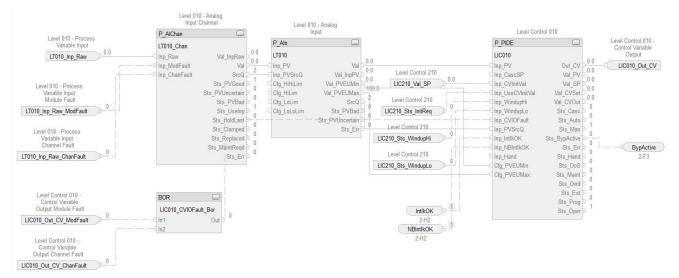
The controller folders are ready to Build Process Strategies on page 32.

Build Process Strategies

Procedures to add process strategies to controllers apply for Architect and ACM processes. The strategies, which are labeled 'PS_', contain pre-connected Process Library objects for control of process devices. Strategies are imported into your program to help reduce implementation time of your application.

 IMPORTANT
 To complete these procedures, you must have unzipped the process strategies folder within the Process Library download. See the PCDC at: https://compatibility.rockwellautomation.com/Pages/home.aspx The procedures are written as if they are being performed online. However, if you are offline, the procedures can be used because they are similar.

Figure 3 - Process Strategy Example Using the P_PIDE Object



The following procedures do not encompass all available process strategies. The examples that are shown are a cross-section of the Rockwell Automation[®] Library of Process Objects that comprise the process strategies.

Program parameters are used for I/O connection. The Add-On Instruction tags are controller-scoped tags.

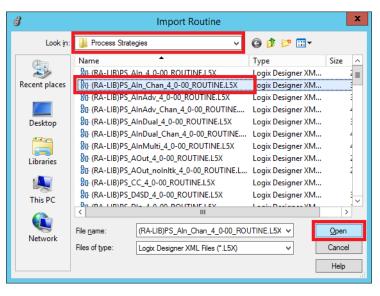
PS_Aln_Chan

The PS_AIn_Chan strategy lets you monitor a basic analog object with channel capability.

1. From the Studio Architect application, right-click a controller that is being configured and select Open Project in Designer.

The Logix Designer application opens within the Architect tool.

- 2. Click the Logical Organizer tab.
- 3. Right-click the program (Equipment01 is the example) and choose Add>Import Routine.
- 4. Browse the path to the Process Strategies folder and select the (RA-LIB)PS_AIn_Chan_x_x-xx_ROUTINE.L5X.



IMPORTANT See <u>page 32</u> for the path to the folder that you used to unzip the process strategies folder.

5. Click Open.

🗶 💃 Find:		Find/Replace
Find Within: Final Name, Descri	otion	
Import Content:		
- Programs	Configure Rout	ine Properties
Equipment01	Import Name:	XT101
References	Operation:	Create Create C
Add-On Instructions	Final Name:	Configured in the References folders XT101 V Properties
- Errors/Warnings*	Description:	TagDescript
		Find / Replace
	Type: In Program: Number of Sheets:	Find What: XT101 Find Next Replace With: TT01001 Replace Use Wildcards Replace All
		Search current view only Close
		Direction: Oup Down Find Help
the Final Name and no second seco		
		Alias For Data Type Parameter

The Import Configuration dialog box appears.

6. Click the Find/Replace button to find all tag references of 'XT101' and replace with a user-designated tag name.

Our example is 'TT01001'.

IMPORTANT	In the Find Within section at the bottom of the dialog box, the Final Name box defaults with a check mark only. The first time that you
	use this dialog box, you must check the Description box. Thereafter, the Description box defaults with a check mark.

7. Click Replace All.

TIP Click Close to exit Find/Replace only if you are done using the utility.

8. Repeat <u>step 6</u> and <u>step 7</u> to find all tag references to 'TagDescript' and replace with a description.

Our example is 'Temperature 01001	Our examp	le is 'Temperat	ure 01001'.
-----------------------------------	-----------	-----------------	-------------

	Import C	Configuration	n - (RA-LIB)PS_AIn_Chan_4_0-00_ROUTINE.L5X	X
¥ %	Find: XT101 Find Within: Final Name, Descrip	→ A [®] A [®] →	Find/Replace	
Import Con	itent:			
- 🗐 Pro		Configure Routi	tine Properties	
	Equipment01	Import Name:	XT101	
	References	Operation:	Create 🗸 🗅	
P	- 🗸 Tags		 References will be imported as configured in the References folders 	
	····································	Final Name:	TT01001 V Properties	
-Co Err	ors/Warnings*	Description:	TagDescript	
			Find / Replace	
		Туре:	Find What: TagDescript	
		In Program: Number of Sheets:	Replace With: Temperature 01001	
		Sheets.	Use Wildcards Replace All	
			Search current view only Close	
			Direction: Up Down	
			Find	
			Import Name V Final Name V Description	
			Alias For Data Type Parameter	
		L		

9. Click Close to exit Find/Replace.

10. Click Tags to view all parameters that comprise the PS_AIn_Chan strategy.

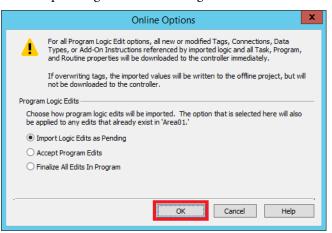
IMPORTANT If there are errors, a red 'X' with a message appears to describe the issue.

			Import (Conf	figu	uration - (RA-LIB)PS_AI	n_Chan_	4_()-00_ROUTINE.L5	X		X
*	x	Find:	TagDescript		~	A A Find/Replace						
		Find V	Vithin: Final Name, Descri	ption								
Imp	ort Cor	ntent:										
		ograms		Con	figu	ure Tag References						
		Equipn				Import Name	Operation			_	Usage /	
			References	*	1	[⊞] XT101	Create		TT01001	-	Local	
1			Tags	*	đ	XT101_Chan	Create		TT01001_Chan	-	Local	
√ -₽			🗟 Add-On Instructions 웲 Data Types	*		XT101_Inp_Raw	Create		TT01001_Inp_Raw		Input	
_	Err		arnings*			XT101_Inp_Raw_ChanFault	Create		TT01001_Inp_Raw	-	Input	
						XT101_Inp_Raw_ModFault	Create	D	TT01001_Inp_Raw		Input	
				<							>	
✓	Presen	ve existi	ing tag values in offline pro	oject					ОК	[Cancel	Help
Rea	dy											

11. Click OK to import the routine.

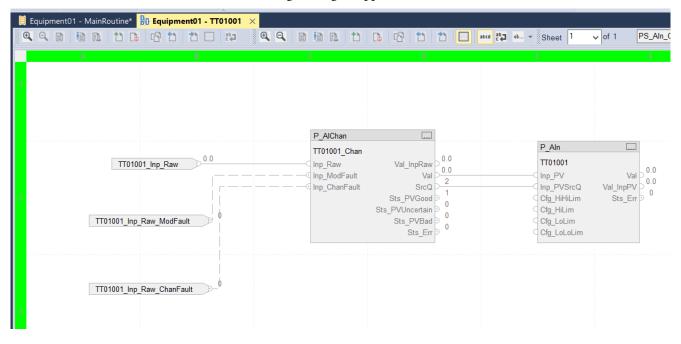
IMPORTANT You must be online to view the dialog box for the next procedure.

12. Select Import Logic Edits as Pending and click OK.



If offline, the imported values are written to the project.

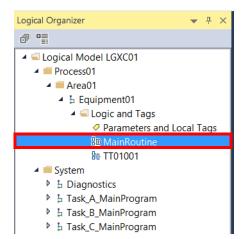
The control strategy (PS_AInChan in our example) appears in the Logix Designer application.



Add JSR Instructions

The Jump to Subroutine (JSR) instruction directs the controller to 'jump to' and execute a separate subroutine file within the ladder program, and return to the instruction following the JSR instruction.

We use JSR instructions to schedule the routines that are added for execution. A JSR instruction must be created for each routine. 1. From the Logical Organizer in the Logix Designer application, double-click MainRoutine.



A JSR instruction can be added in the following ways:

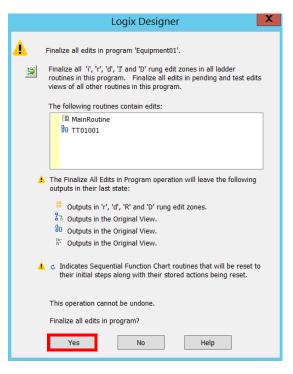
- From the Program Control tab, click JSR (as shown in the example). (Click the left (<) and right (>) arrows to find the Program Control tab.)
- Click the rung, type 'JSR' and press Enter. Double-click the routine name and select the created Process Strategy.

.18.25.240\Backplane\2*	×.	윮 🛯 🖣		LBL JSR JXR RET SBR TND	MCR UID UIE SFR SFP EVENT EOT AFI NO∳
▶ _↓ No Edits	Redundancy	N 1	Equipment Phase	Equipm Jump to Subroutine	For/Break Special HMI T
🗏 Equipment01 - MainRo	utine* ×			Routine Name	?
0, 0, 14 🚡 🔍 [abed abg	ib (46)cd	🔍 🔍 🔃	Input Par Return Par	?
0 8 i					
(End)					

2. If online, click the Finalize All Edits in Program action.

	t01 - MainRoutine* 🗙
역 역 🖽	🔚 🖓 🔀 👪 abas abas abas 🛶 🐽 🚥 🖉 🔍 🖽 🔚 🌄 🔚 🛃 🔤 abas abas - 🗸 (abas
i O i i	Temperature 01001 USR Routine Name TT01001
(End)	

3. Click Yes.



4. Save the Logix Designer project.

PS_PID_AIn_Chan

The PS_PID_AIn_Chan strategy provides loop control with an analog object that has channel capability.

IMPORTANT	The procedures and screen facsimiles to create this instruction are similar to PS_AIn_Chan. For your convenience, we include the screen facsimiles that require specific information for this instruction.

- 1. Repeat steps <u>1</u> through <u>3</u> on page <u>33</u>.
- On the Import Routine dialog box, browse the path to the Process Strategies folder and select (RA-LIB)PS_PID_AIn_Chan_x_x-xx.ROUTINE.L5X.
- 3. Click Open.

Import Cor	figuration -	(RA-LIB)PS_PID_AIn_Chan_4_0-00_ROUTINE.L5X	x
Find: Find: Find Within: Final Name, Descrip	tion	Find/Replace	
Import Content: Programs Equipment01 References Add-On Instructions Add-On Instructions Data Types -Co Errors/Warnings*	Configure Routi Import Name: Operation: Final Name: Description:	ne Properties XIC502 Create Create Create Properties Configured in the References folders XIC502 Properties TagDescript Find / Replace X	
	Type: In Program: Number of Sheets:	Find What: XIC502 ✓ Find Next Replace With: FIC01002 ✓ Replace Use Wildcards Replace All Search current view only Close Direction: Up Obown Help Find ✓ Final Name Ø Description Import Name Final Name Ø Description Alias For Data Type	
Preserve existing tag values in offline pro Ready	ject	OK Cancel Help	

The Import Configuration dialog box appears.

4. Click the Find/Replace button to find all tag references to 'XIC502' and replace with a user-designated tag name.

Our example is 'FIC01002'.

5. Click Replace All.

6. Repeat step <u>4</u> and step <u>5</u> to find all tag references to 'TagDescript' and replace with a description.

	Import Con	figuration - (RA-LIB)PS_PID_AIn_Chan_4_0-00_ROUTINE.L5X	X
*	Find: XIC502 Find Within: Final Name, Descript	→ A A Find/Replace	
▼. ₽	Equipment01	Configure Routine Properties Import Name: XIC502 Operation: Create ① ① ① ① ① ① ① ① ⑦ Properties Description: TagDescript ○ 	
		Type: Find What: TagDescript In Program: Number of Sheets: Find What: Flow Control \phi1002 Import Name Use Wildcards Replace All Search current view only Close Direction: Up Import Name Final Name Import Name Final Name Description Alias For Data Type Parameter	
	Preserve existing tag values in offline proj	ect OK Cancel H	Help
Rea	ady		1

Our example is 'Flow Control 01002'.

7. Click Find/Replace for all tag references to 'XT502' and replace with a user-designated tag name.

	Impor	Configuration - (RA-LIB)PS_PID_AIn_Chan_4_0-00_ROUTINE.L5X	X
¥ 1	Find: TagDescript Find Within: Final Name, I	scription	
	rt Content: Programs Equipment01 References Add-On Instructi Nota Types Frrors/Warnings*	S Configure Routine Properties Import Name: XIC502 Operation: Create Import Name: FIC01002 Import Name: FIC01002 Properties Properties Description: Flow Control 01002 Import Name: Find / Replace Type: Find What: In Program: Replace With: Number of Find What: Sheets: Use Wildcards Import Name Up @ Down Find Import Name Import Name Final Name Import Name Import Name Import Name Parameter	
✓ Pre	reserve existing tag values in offl	e project OK Cancel	Неір
Ready	ly		

Our example is 'FT01002'.

8. Click Replace All.

9. Repeat step 7 and step 8 to find all tag references to 'DescAnalogInp' and replace with a description.

		Import Co	nfiguration -	(RA-LIB)PS_PID_AIn_Chan_4_0-00_ROUTINE.L5X	X
4	- 1	nd: XT502 nd Within: Final Name, Descrip	→ A A	Find/Replace	
	ort Conten	it:	Configure Routi Import Name: Operation: Final Name: Description: Type: In Program: Number of Sheets:	xIC502 Create References will be imported as configured in the References folders FIC01002 Flow Control 01002 Find What: DescAnalogInp Find What: Flow 01002 Find What: DescAnalogInp Find What: Flow 01002 Find What: DescAnalogInp Find What: DescAnalogInp Find What: DescAnalogInp Find Next Replace Use Wildcards Search current view only Direction: Up Down Find Import Name Final Name Data Type Parameter	
✓ I Rea		xisting tag values in offline pro	pject	OK Cancel	Help

Our example is 'Flow 01002'.

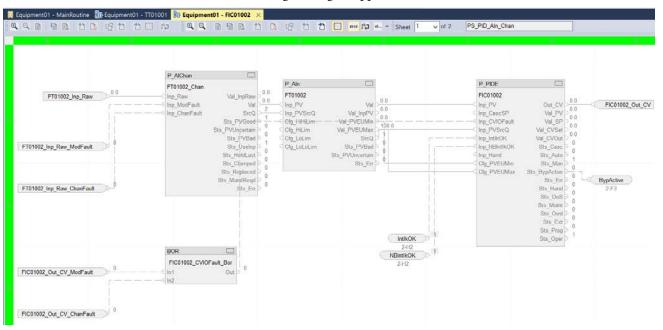
10. Click Close to exit Find/Replace.

11.	Click Tags to view all parameters that comprise the P_PID_AIn_Chan
	code object.

ort Content:		_			
Programs Equipment01	Configure Tag References	₽ Usage	Alias For Data Type	Description	
8. FIC01002	* FIC01002	Usage Local	P PIDE	Description ^	
References	* FIC01002_CVIOFault	··· Local	FBD BO		
→ Togs → Add-On Instructions	* FIC01002_Intlk	··· Local	P Intlk	Flow Control 01002 - I	
- 191 Data Types	* FIC01002_Out_CV	··· Output	REAL	Flow Control 01002	
🗔 Errors/Warnings	* FIC01002_Out_CV_C	··· Input	BOOL	Flow Control 01002	
	* FIC01002_Out_CV_M	··· Input	BOOL	Flow Control 01002	
	T FT01002	Local	P_Aln	Flow 01002 - Analog I	
	🌠 FT01002_Chan	Local	P_AlChan	Flow 01002 - Analog I	
	* FT01002_Inp_Raw	… Input	REAL	Flow 01002 - Process	
	* FT01002_Inp_Raw_C	Input	BOOL	Flow 01002 - Process 🗸	
	<		111	>	
	different. The existing data ty	pe will be used.		ady exists in project and is vill be converted if possible erts as expected.	

- 12. Click OK to import the routine.
- 13. If online, select Import Logic Edits as Pending and click OK.

If offline, the imported values are written to the project.



The control strategy (PS_PID_AIn_Chan) appears in the Logix Designer application.

- 14. Complete the Add JSR Instructions as documented on page 37.
- 15. Save the Logix Designer project.

PS_PF755

The PS_PF755 strategy provides a PowerFlex[®] drive interface.

IMPORTANT The procedures and screen facsimiles to create this instruction are similar to PS_Aln_Chan. For your convenience, we include the screen facsimiles that require specific information for this instruction.

- 1. Repeat steps <u>1</u> through <u>3</u> on <u>page 33</u> and <u>page 33</u>.
- On the Import Routine dialog box, browse the path to the Process Strategies folder and select (RA-LIB)PS_PF755_x_x-xx.ROUTINE.L5X.
- 3. Click Open.

The Import Configuration dialog box appears.

4. Click the Find/Replace button to find all tag references to 'MT310' and replace with a user-designated tag name.

Import Configuration - (RA-LIB)PS_PF755_4_0-00_ROUTINE.L5X X Import Security Import Real Import Security Import Real Import Content: Import Name: Import Rest Import Name: Import Rest Import Name: Import Name: MT310 Operation: Import Rest Import Name: MT310 Operation: Import Rest Import Name: Import Name: Import Name: Import Name: Import Name: Find / Replace Import Name: Import Name:					
Import Content: Import Content: Import Content: Import References Import Name: MT310 Import Name: Import Name: <t< th=""><th></th><th>Import</th><th>Configuratio</th><th>on - (RA-LIB)PS_PF755_4_0-00_ROUTINE.L5X</th><th>X</th></t<>		Import	Configuratio	on - (RA-LIB)PS_PF755_4_0-00_ROUTINE.L5X	X
Programs Equipmento1 Beferences Import Name: MT310 Operation: Create Import Name: MT310 Import Name: MT310 Operation: Import Name: MT310 Import Name: Import Name: MT310 Import Name: Import Name: MT310 Import Name: MT310 Import Name: MT310 Import Name: MT310 Description: TagDescript Type: In Program: In Program: Number of Shetts: Use Wildcards Import Name Final Name	4			Find/Replace	
Sequence of the second sec			Configure Routi	ine Properties	
Type: In Program: Number of Sheets:	₹.	Image: Base of the second	Operation: Final Name:	Create Create C	
Find Help Import Name Final Name Description Alias For Data Type Parameter			In Program: Number of	Find What: MT310 V Find Next Replace With: MT01001 V Replace Use Wildcards Replace All Close	
Preserve existing tag values in offline project OK Cancel Help				Find Help	
Ready	-		ject	OK Cancel Help	

Our example is 'MT01001'.

5. Click Replace All.

6. Repeat step <u>4</u> and step <u>5</u> to find all tag references to 'TagDescript' and replace with a description.

	Import (Configuratio	n - (RA-LIB)PS PF75	540	0-00 R	OUTINE.L5	X			x
Find: M		- A A	Find/Replace			_					
	t01 001 ferences Tags Add-On Instructions Data Types	Configure Routi Import Name: Operation: Final Name: Description: Type: In Program: Number of Sheets:	MT310 Create () References v configured in MT01001 TagDescript Find What: Replace With: Use Wildcar	TagDescript Motor 0100 ds ent view only Up I t Name	ed as ces fold Find t	Properti d / Rep			Find Next Replace Replace All Close Help		
✓ Preserve existing Ready	tag values in offline proje	ct					ОК		Cancel	Help	
Reduy								_			1

Our example is 'Motor 01001'.

- 7. Click Tags to view all parameters that comprise the PS_PF755 strategy.
 - **TIP** If there are errors, a red 'X' with a message appears to define the issue.

Impor	t Configuration - (RA-LIB)PS_	PF755_4_0-00_ROUTINE.L5X	X
Find: TagDescript Find Within: Final Name, Descript	✓ ♣ ♣ Find/Replace		
Import Content:			
- Programs	Configure Tag References	· · · · · · · · · · · · · · · · · · ·	
• Equipmentol	Import Name	Operation 🗃 Final Name 🔺 🖌 Usage 🔨	
References	* MT310	Create D MT01001 Local	
Tags	* MT310_FaultDest	Create D MT01001_FaultDest Local	
Add-On Instructions	MT310_FwdPerm	Create D MT01001_FwdPerm Local	
• Errors/Warnings*	* MT310_Inp	Create D MT01001_Inp Local	
	* MT310_Inp_IOFault	Create D MT01001_Inp_IOFault Input	
	* MT310_Intlk * MT310_Msg	Create MT01001_Intlk Local Create MT01001_Msg Local	
	* MT310_Out	Create D MT01001_Wisg Local	
	* MT310_RevPerm	Create D MT01001_CourLocal	
	* MT310_RunTime	Create D MT01001_RunTime Local V	
Preserve existing tag values in offline pr	oject	OK Cancel Hel	lp
Complete - 9 occurrence(s) found, 9 occurr	ence(s) replaced		

- 8. Click OK to import the routine.
- 9. If online, select Import Logic Edits as Pending and click OK.

If offline, the imported values are written to the project.

- MT01001 × 🔍 🔍 🗎 🛅 🛅 🛅 🔂 🔂 🔂 🎦 🛄 and 🔁 🚸 - - Sheet 1 P_PF755 ✓ of 4 P_PF755 MT01001 Inp MT01001_Inp Out MT01001_Out Ref_GetFaultMSG MT01001_Msg 📖 1 FwdPermOK Ref_GetFaultDest MT01001_FaultDest 0.0 1 Inp_FwdPermOK Stoppped FwdNBPermOK Val_SpeedRef 2-H2 P_RunTime 0.0 Inp_FwdNBPermOK Val_SpeedFdbk **RevPermOK** 2-H2 4-F4 0 1 MT01001_RunTime 3-H2 RevNBPermOK Inp_RevPermOK Val_Fault 0 1 IntlkOK 3-H2 Inp_RevNBPermOK Sts_Stopped Inp_Starting Val_Starts 0.0 1 0 4-H2 NBIntlkOK Inp_IntlkOK Sts_StartingFwd Inp_Running Val_CurRunHrs Ó 0.0 Inp_NBIntlkOK Sts_RunningFwd Val_MaxRunHrs 4-H2 0 ζ**0.0** Inp_IOFault Sts_StoppingFwd Val_TotRunHrs 0 Inp_Hand Sts_JoggingFwd 0 0 MT01001_Inp_IOFault Inp_Ovrd Sts_ActualDir 0 Inp_OvrdCmd Sts_Alarm 0 Inp_Reset Sts_AtSpeed 0 Sts_SpeedLimited 0 Sts_Available BypActive 0 Sts_BypActive 2-F3 3-F3 0 Sts_Err 3 4-F3 0 Sts_Hand 0 0 Sts_Ovrd 0 Sts_Prog Sts_Oper

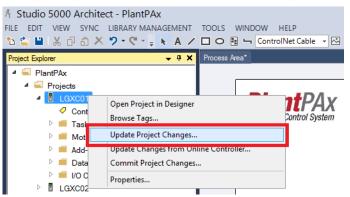
The control strategy (PS_PF755) appears in the Logix Designer application.

- 10. Complete the Add JSR Instructions as documented on page 37.
- 11. Save the Logix Designer project.

Sync Controller to System

Complete these steps to synchronize the controller changes with the system template inside the Studio Architect software.

1. From the Studio 5000 Architect application, right-click a controller that is being configured and choose Update Project Changes.



The Studio 5000 Architect Update Summary window appears.

The example shows the project that is expanded with the list of changes.

ቶ	Studio 5000 Architect Update Summary	X
	The following changes will be updated to the associated project(s); any projects containing errors will be skipped.	
	⊿ 🖞 1756-L73 - LGXC01	
	Controller 'LGXC01' will be changed from '1756-L73' to '1756-L75'.	
	Controller 'LGXC01' in 'LGXC01R00' will be moved to position '2'	
	Module 'EN2T' will be added to 'LGXC01R00', slot 1.	
	1 The AOI called 'L_CPU_24_Up' will be updated.	
	1 The AOI called 'P_AIChan' will be added to Studio 5000 Architect.	
	1 The AOI called 'P_Gate' will be added to Studio 5000 Architect.	
	1 The AOI called 'P_AIn' will be added to Studio 5000 Architect.	
	1 The AOI called 'P_CmdSrc' will be added to Studio 5000 Architect.	
	1 The AOI called 'P_PF755' will be added to Studio 5000 Architect.	
	The AOI called 'P_PIDE_only' will be added to Studio 5000 Architect.	
	1 The AOI called 'P_PIDE' will be added to Studio 5000 Architect.	-
[Always show this dialog Update Cancel	

2. Click Update.

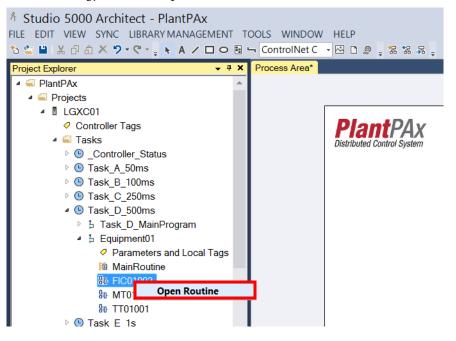
The Ethernet Configuration dialog box appears.

3. Leave the devices and their port configuration as is, and click OK.

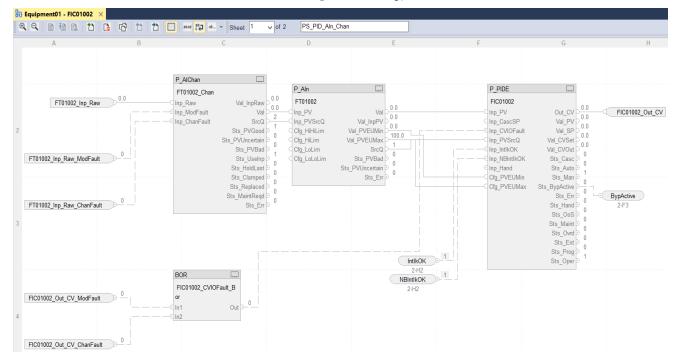
A wait message appears while the project is being synchronized.

To verify that the changes are synchronized with the system, complete these steps.

1. From the Studio 5000 Architect application, right-click a controller strategy and chose Open Routine.



In the Logix Designer application, the program logic appears for the selected process strategy.



2. From the Studio 5000 Architect toolbar, click Edit and choose Find.

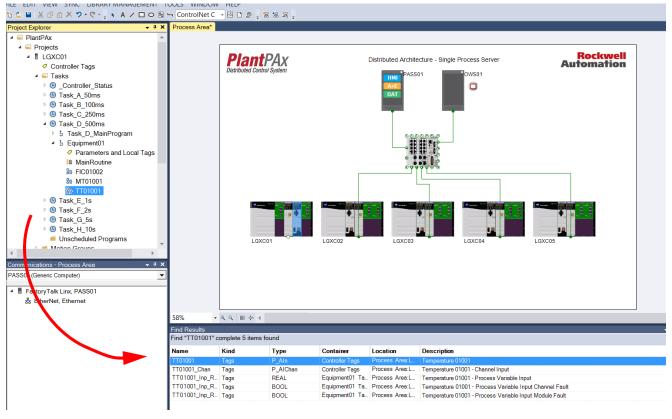
A Studio 5000 Architect - PlantPAx FILE EDIT VIEW SYNC LIBRARY MANAGEMENT TOOLS WINDOW HELP 🐁 😋 ፇ Undo Update ACD: "LGXC01" 🛛 Ctrl+Z 🛛 🖬 🛏 ControlNet C 🕞 🖂 🗅 の 🍦 🏗 器 🔒 G, × Process Area* Proje **ኤ** Cut 6 . Сору 🖞 Paste X Delete **Plant**PAx 🛣 New Hardware Diagram Distributed Control System Add Graphic... Add File... # Add Web Link.. 👂 Find Ctrl+F

3. From the Find text box, type the tag name.

Our example shows TT01001.

Å	Find		x
Find: TT01001 V Match case Whole word			
Hide Options Controller Projects:	Libraries:	Look for: Data Types Tasks Programs Routines AOIs Instructions Instruction Operands Folders	
All None	All None	All None Close Help	
		2	

4. Click Start Search.



The tags for the selected routine display underneath the system model on the Studio Architect software.

5. Save the Studio 5000 application.

The remaining chapters in this manual describe how to continue to build your application by adding the following:

- Produce/Consume tags
- Alarms
- Historian points
- I/O modules
- Diagnostics
- Asset management tools

Notes:

Configure Controller-to-Controller Communication

This chapter describes how to establish a communication pipeline between controllers by creating produce/consume tags with a user-defined data type (UDT).

A Logix5000[™] controller lets you produce and consume system-shared tags. A producer controller sends data to the system. The consumer controller is configured to consume the produced tag. The data type of the consumed tag **must** match the data type of the produced tag.



Produced Tag LGXC01 Consumed Tag LGXC02 Consumed Tag LGXC01 Produced Tag LGXC02

For controllers to share produced or consumed tags, the controllers must be attached to the same network, such as a ControlNet[®] or EtherNet/IP[™] network.

The consumed tags require connections. An increase in the number of controllers that consume a produced tag reduces the number of connections the controller has available for other operations. These operations include communication and I/O.

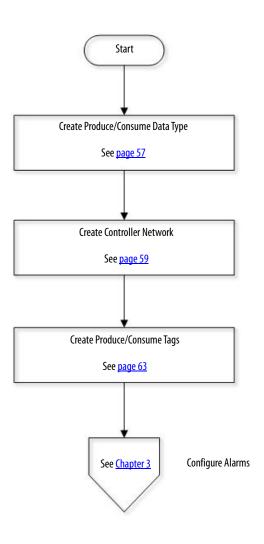
Considerations

Consider the following suggestions before starting this chapter:

- Producer/Consumer uses Class 1 communication (I/O) to enhance data integrity and response time.
- The Producer/Consumer configuration is available only in offline mode. During the initial system configuration, we recommend that you create the communication between any system tags.
- If a controller is not consuming produced tags, we recommend that you inhibit the controller connection to save bandwidth.

Figure 4 shows the topics that are described in this section. Click or see the page number for quick access to a section.

Figure 4 - Controller-to-Controller Workflow



Create Produce/Consume Data Type

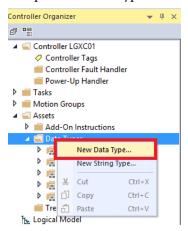
Use an Engineering Workstation with these procedures.



EWS

Complete these steps to create a user-defined data type (UDT) that is shared between two or more controllers. Remember, the data type of the consumed tag **must** match the data type of the produced tag.

- **TIP** For more information on configuring produced and consumed tags, see the Logix 5000 Controllers Produced and Consumed Tags publication, <u>1756-PM011</u>.
- 1. In the Controller Organizer of the Logix Designer application, click '+' to expand the Data Types folder for the producer controller.



2. Right-click Data Types and choose New Data Type.

The New UDT dialog box appears.

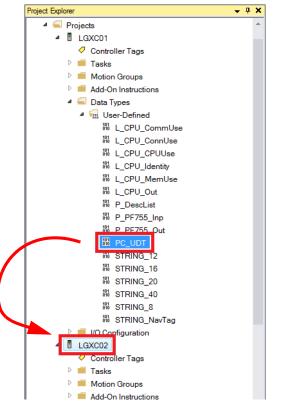
		ype: New UDT1*	×					
<u>N</u> an	ne:	PC_UDT		Data Type Size: ??	Pro	perties	•••••••••••••••••••••••••••••••••••••••	д
					Exte	nded Properti	es	•
<u>D</u> es	crip	tion:			4 (General		
						Data Type Siz		?
Mer	nbe	ers:				Description		
		Name	Data Type	Description		Name	PC_UDT	
*	۲	Status	CONNECTION_STATUS	^				
*		Dint	DINT[25]					
*		Real	REAL[25]					
		* Add Member						
		A						
	-	*						
		ж.						
		*						
		*						
		*						
		*						
				~				

- 3. To add members to your new data type, do the following:
 - a. Type a name.
 - Our example is PC_UDT.
 - b. Click Add Member and type a name and data type.
 - c. Repeat step b for each new member of the UDT.
 - d. Click OK.

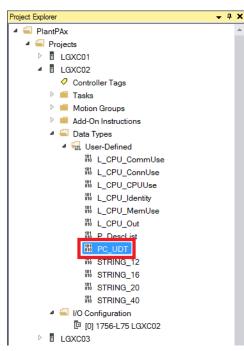
IMPORTANT The Consumer controller must use the Connection Status for the source quality of the information. If there is a loss of communication, the Connection Status reports the fault.

- 4. Save your work.
- 5. From the Studio 5000 Architect[®] application, right-click the producer controller and choose Update Project Changes.

In the Architect project, the UDT that you created appears in the User-Defined list for the controller.



6. Drag-and-drop the new UDT into the other controller.



The UDT is now in the User-Defined list for the consumer controller.

Create Controller Network

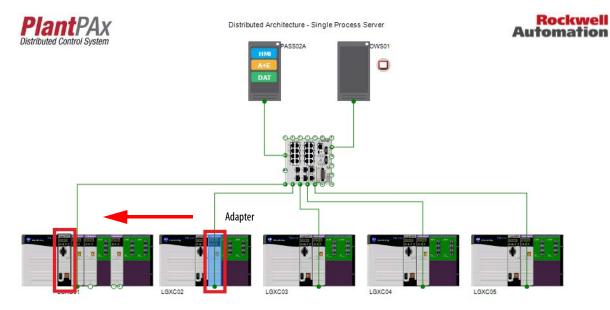
This section describes how to add controllers and place the Producer controller definition into the Consumer controller. This action creates a network communication path.

IMPORTANT	To modify controller properties and add local communication adapters,
	see the PlantPAx [®] Distributed Control System Infrastructure Configuration
	User Manual, publication PROCES-UM001.

Complete these steps.

1. On the Architect canvas, click and drag the **adapter** of the Producer controller and drop into the Consumer controller.

For our example, LGXC02 is the Producer controller and LGXC01 is the Consumer.

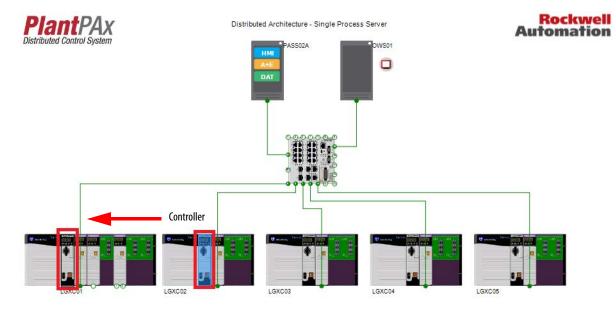


2. Use the defaults and click OK.

A.	Configure Module X			
Type: Vendor: Parent:	1756-EN2T 1756 10/100 Mbps Ethernet Bridge, Twisted Rockwell Automation/Allen-Bradley LGXC01EN01A			
<u>N</u> ame:	LGXC02EN01			
<u>D</u> escription:	1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media			
<u>S</u> lot:	1 🔺			
Electronic Keying	Compatible Module 🔹			
Address / Host	Name			
O Private Ne	twor <u>k</u> : 192.168.1. 1			
IP Address	s: 172 . 18 . 1 . 105			
○ <u>H</u> ost Name:				
	OK			

If necessary, you can change the IP address and then click OK.

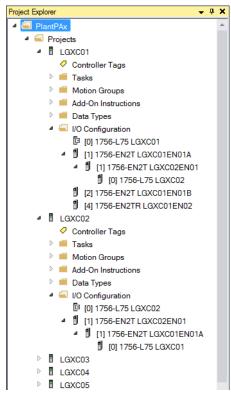
3. On the Architect canvas, click and drag the **controller** for the Producer controller and drop into the Consumer controller.



4. Use the defaults and click OK.

å	Configure Module				
<u>T</u> ype:	1756-L75 V				
Vendor:	Rockwell Automation/Allen-Bradley				
Parent:	LGXC02EN01				
Na <u>m</u> e:	LGXC02				
Descripti <u>o</u> n:	Template Application with only task layout pre-installed				
Sl <u>o</u> t:	0				
<u>R</u> evision:	31 🗸 1 👗				
	OK Cancel				

5. Repeat <u>step 1</u> through <u>step 4</u> but with LGXC01 as the Producer controller and LGXC02 as the Consumer.



The respective controllers are now linked and can communicate.

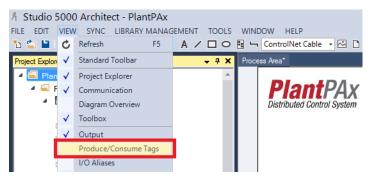
6. Save your work.

Create Produce/Consume Tags

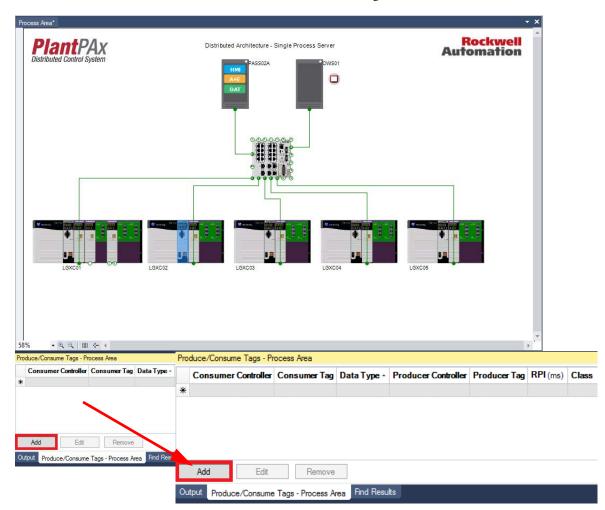
Complete these steps to attach produce/consume tags to a UDT for an application controller.

1. In the Architect menu bar, click View and choose Produce/Consume Tags.

IMPORTANT Step 1 applies if you do not have Produce/Consume tabs on the bottom of the Architect application. Otherwise, click an existing Produce/Consume tab.



2. In the Produce/Consume Tags window, click Add.



The Consumer Tag dialog box appears.

3. Select 'LGXC01' in the Controller text box.

ሳ	Consumer Tag
Controller:	LGXC01 V
Tag Name:	LGXC02
Description:	
_	
Type: Alias For:	Consumed V Connection
Data Type:	v
Data Type.	PC_UDT Y
External Acce	ss: Read/Write Y
Array Dimens	Nedu/ Write 🔹
Dim 2:	Dim 1: Dim 0:
0	
	Use Unicast Connection over EtherNet/IP
Information	tag must be defined.
Troducer	ray musi be dermed.
	OK Cancel

- 4. Type 'LGXC02' as the tag name.
- Select PC_UDT from the Data Type pull-down menu. The message 'Producer tag must be defined' appears.
- 6. Click Connection.

The Producer Tag dialog box appears.

x Producer Tag Controller: LGXC02 ¥ Tag Name: LGXC02 ... Description: Produced Connection. Type: Alias For: v Data Type: PC_UDT U External Access: Read/Write ~ Array Dimensions Dim 2: Dim 1: Dim 0: ÷ 0 ÷ 0 RPI: 500.0 🗘 ms Allow Unicast Consumer Connections Information Produced tag "LGXC02:LGXC02" of data type "PC_UDT" will be created. OK Cancel

Make sure that the Producer controller is listed.

7. Set an RPI value and click OK.

Use the highest permissible RPI for your application. Follow the standard rule, which is, the RPI must be two times faster than the execution.

The Consumer Tag dialog box reappears.

Observe in the Information box that you are creating a consumed tag with the same UDT as a produced tag with your selected RPI.

ቶ	Consumer Tag
Controller:	LGXC01 v
Tag Name:	LGXC02
Description:	
Type:	Consumed V Connection
Alias For	
Data Type:	×
Data Type:	PC_UDT V
External Acces	ss: Read/Write 🗸
Array Dimens	sions
Dim 2:	Dim 1: Dim 0:
0	
	Use Unicast Connection over EtherNet/IP
-Information -	
Consumed	tag "LGXC01:LGXC02" of data type "PC_UDT" with ag "LGXC02:LGXC02" and RPI "500.0" will be created.
produced to	ag Lancuz.Lancuz and nri 500.0 will be created.
	OK Cancel

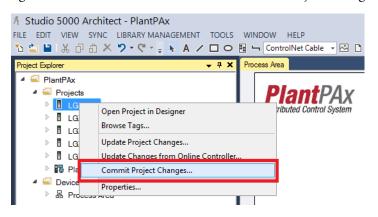
- 8. Click OK.
- 9. Repeat <u>step 1</u> through <u>step 7</u> with 'LGXC02' as the Producer controller and 'LGXC01' as the Consumer.

The created tags appear in the Produce/Consume Tags window.

	Consumer Controller	Consumer Tag	Data Type 🗠	Producer Controller	Producer Tag	RPI (ms)	Class
•	LGXC01	LGXC02	PC_UDT	LGXC02	LGXC02	500.0	
	LGXC02	LGXC01	PC_UDT	LGXC01	LGXC01	500.0	
*							
*	Add Edit	Remove					

IMPORTANT Make sure that the Logix Designer application is closed before you Commit a project.

10. Right-click in each controller and choose Commit Project Changes.



Notes:

Configure Alarms

This chapter describes how to configure your process alarms in the PlantPAx[®] system.

IMPORTANT	For information on the HMI template referenced in this chapter, see the
	Rockwell Automation Library of Process Objects: Configuration and Usage
	Reference Manual, publication <u>PROCES-RM002</u> .

Alarms are a critical function of a distributed control system. Effective alarm systems direct the attention of an operator to improve the productivity, safety, and environment of a process plant. The PlantPAx system follows industry standards that govern alarm management.

This chapter does not cover the engineering practices that are required to fully apply alarm management standards. However, we describe the procedure that is required to implement alarms on the PlantPAx system. The steps make sure of system performance and alignment with the functionality expectations of the industry standards.

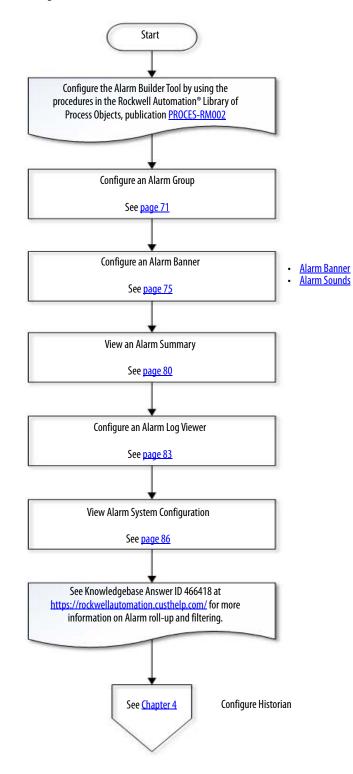
In addition, this chapter includes how to configure visualization components, including an alarm summary, alarm log viewer, and alarm banner (shown in the graphic). When a controller detects an alarm condition, the server publishes the information to a subscribing Operator workstation via FactoryTalk[®] Alarm and Event Services.

Pla Distribut	ant ted Contr	PAX System		irrent User: Process01
1 🗹) 🗹 🛇) 🥏 = 🛎 🏘 🖪 🕤	🕐 🔒 (No Filter) 🗸 🏹 🥥 🔚	Q
1	A Eve	ent Time	Alam Name	Message
A	4 6/5	/2018 4:33:54 PM	TT01001_Alm_Lo	Temperature TT03001 Low Alarm; Val= 0.0;
•	点 6/5	/2018 4:33:54 PM	TT02001_Alm_LoLo	Temperature TT02001 Low-Low Alarm; Val= 0.0;
A	4 6/5	/2018 4:33:54 PM	TT03001_Alm_Lo	Temperature TT03001 Low Alarm; Val= 0.0;

IMPORTANT Install the Alarm Builder Tool to simplify alarm tag creation. Each alarm object that comprises the Library of Process Objects must be enabled for the tool to create the alarm.

<u>Figure 5</u> contains the topics that are described in this chapter. Click or see the page number for quick access to a section.

Figure 5 - Alarm Workflow



Considerations

Consider the following suggestions before starting this chapter:

- Tag-based alarms are recommended to generate alarms in the PlantPAx system. Device-based alarms can be used, but we recommend that you limit their use to enhance system performance.
- Perform any alarm configurations in Chapter 8 of the PlantPAx Distributed Control System Infrastructure Configuration User Manual, publication <u>PROCES-UM001.</u>
- Before you configure alarms, organize and group your alarms based on your system. The alarms are organized by Level 1 through Level 3 as shown in the example.
- For more HMI template information, see the Rockwell Automation Library of Process Objects: Configuration and Usage Reference Manual, publication <u>PROCES-RM002</u>.

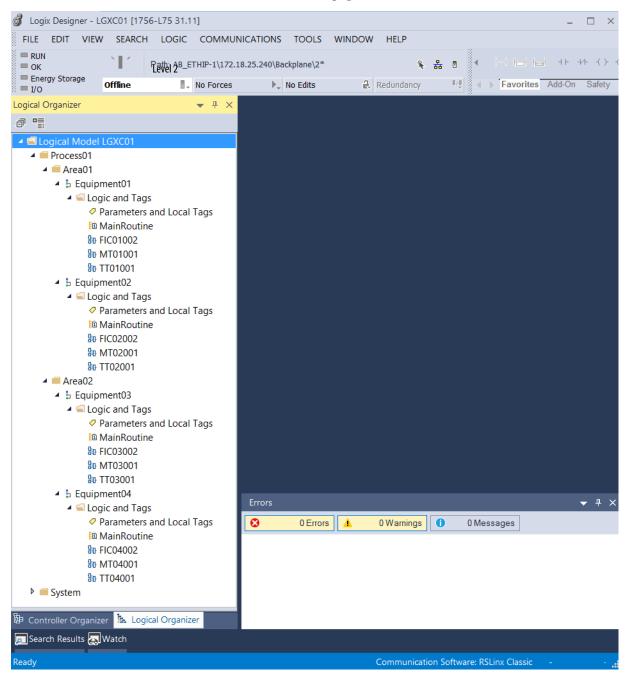
	Alarm and Eve	nt Setup - RNA:/	//\$Global/Pla	antPAx/Area/Alarn	n/PlantPA
	All Alarms Messages Tag Update Rate Search for Group	es] Type _All →]		
	ALL Alarms	Name	Туре	Input Tag	Ac
	Ungrouped Alarms	Process01	Group	Group	Gr
Level 1	PlantPAx_AE	System	Group	Group	Gr
Level 2	Process01				
	Area01				
Level 3	Equipment01				
	Equipment02				
	Equipment03				
	Equipment04				
	Equipmento +				

Configure an Alarm Group

This section describes how to configure a group of alarms for a specific process area. Complete these steps for each group of alarms for each process area.

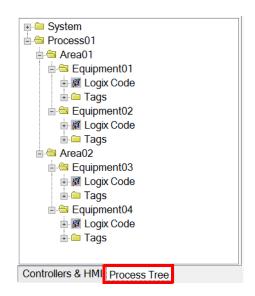
The following example shows a controller that has two areas.

- Area01 contains Equipment01 and 02.
- Area02 contains Equipment03 and 04.

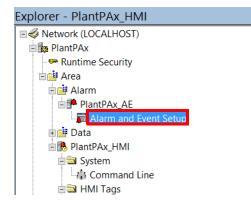


 Use Alarm Builder to import your alarms as documented in the Rockwell Automation[®] Library of Process Objects Reference Manual, publication <u>PROCES-RM002</u>.

IMPORTANT	When using Alarm Builder, it is expected that the Process Tree is created. To create the group organization, you must create the display association.
	We recommend that you create an entire system organization by attaching multiple controllers, different programs, routines, and so forth. These items can be part of one group to be the foundation of the alarm grouping.



2. In the FactoryTalk View Studio software, open PlantPAx>Area>Alarm>PlantPAx_AE>Alarm and Event Setup.



D. 📽 🖀 🗶 🖬 🙆 🙆					
All Alarms Messages Tag Update R	ates				
Search for Group	Type All V				
늘 ALL Alarms	Name	Туре	Input Tag	Ack Req'd	Aları
🚞 Ungrouped Alarms	FIC01002_Alm_Fail	Digital	/Area/Data::[LGXC01]FIC01	true	false
🖃 🚞 PlantPAx_AE	FIC01002_Alm_HiDev	Digital	/Area/Data::[LGXC01]FIC01	true	false
🖃 🚞 Process01	FIC01002_Alm_HiHiDev	Digital	/Area/Data::[LGXC01]FIC01	true	false
E 📥 Area01	FIC01002_Alm_IntlkTrip	Digital	/Area/Data::[LGXC01]FIC01	true	false
Equipment01	FIC01002_Alm_LoDev	Digital	/Area/Data::[LGXC01]FIC01	true	false
	FIC01002_Alm_LoLoDev	Digital	/Area/Data::[LGXC01]FIC01	true	false
E Area02	FT01002_Alm_Fail	Digital	/Area/Data::[LGXC01]FT010	true	false
Equipment03	FT01002_Alm_Hi	Digital	/Area/Data::[LGXC01]FT010	true	false
Equipmento4	FT01002_Alm_HiHi	Digital	/Area/Data::[LGXC01]FT010	true	false
System	FT01002_Alm_Lo	Digital	/Area/Data::[LGXC01]FT010	true	false
	FT01002_Alm_LoLo	Digital	/Area/Data::[LGXC01]FT010	true	false
	FT01002_Chan_Alm_Fa	l Digital	/Area/Data::[LGXC01]FT010	true	false
	TT01001_Alm_Fail	Digital	/Area/Data::[LGXC01]TT010	true	false
	TT01001_Alm_Hi	Digital	/Area/Data::[LGXC01]TT010	true	false
	TT01001_Alm_HiHi	Digital	/Area/Data::[LGXC01]TT010	true	false
	TT01001_Alm_Lo	Digital	/Area/Data::[LGXC01]TT010	true	false
	TT01001_Alm_LoLo	Digital	/Area/Data::[LGXC01]TT010	true	false
	TT01001_Chan_Alm_Fa	il Digital	/Area/Data::[LGXC01]TT010	true	false
	<	III			

The Alarm and Event Setup window appears.

By following the Alarm Builder procedure, it is expected that the Alarm and Events Grouping is similar to the Process Tree organization.

3. To add more groups, right-click on your project (PlantPAx in the example) and choose Add Group.

Or, if you like, you can drag-and-drop groups and alarms.

4. Click the Save 📕 icon.

Configure an Alarm and Event Banner

This section how to configure the visual and audible components of an alarm state.

For more information on how to customize an HMI template, see the Rockwell Automation Library of Process Objects: Configuration and Usage Reference Manual, publication <u>PROCES-RM002.</u>

Alarm Banner

Complete the following steps to configure an alarm banner that provides a visual representation of the alarm status.

- 1. In FactoryTalk View Studio, open the display name based on the following:
 - Single monitor The name of the display is (FRAME) P2f Header_1Mon
 - Four-monitor The name of the display is (FRAME) P2f Template Alarm HButtonBar_4Mon

Explorer - PlantPAx_HMI	
PlantPAx_AE	
Alarm and Event Setup	
🗉 🥶 Data :	
BantPAx_HMI	
🖃 System	
🕼 Command Line	
🖃 HMI Tags	
_∯ Tags	(FRAME) P2f Header_1Mon - /PlantPAx//Area (Display)
🚔 Graphics	Alarm and Event Banner Design View
🖃 🖬 Displays	cess Area
FRAME) P2f Header_1Mon	
(FRAME) P2f Header_4Mon	
-Image: (FRAME) P2f Template Alarm HButtonBar_1Mon	
(FRAME) P2f Template Alarm HButtonBar_4Mon	(FRAME) P2f Template Alarm HButtonBar 4Mon - /PlantPAx//Area (Display)
(FRAME) P2f Template Alarm-Explorer	Alarm and Event Banner Design View
(FRAME) P2f Template Alarm-HistoryDisplay	
(FRAME) P2f Template Alarm-ShelvedDisplay	
(FRAME) P2f Template Alarm-Summary	
(FRAME) P2f Template Display	
- (FRAME) P2f Template Level2 HButtonBar	
 FRAME) P2f Template Level3 HButtonBar 	

2. To access the Alarm and Event Banner Properties dialog box, double-click in the icon bar.

	Alarm a	nd Event Ban	ner Propertie	?S		
General Columns Status Bar Event	Subscriptions State	es Sort Comm	non			
Event subscriptions:	Subscribe to e	vents where:				
Default	Priority	✓ Urgent	✓ High	 Medium 	 Low 	
	Scopes:					
	(Any Scope)					
Add	Browse	Remo	ve			
Remove	Event sources	(wildcards are sup	ported):			
Rename	(Any event so	ource)				

3. In the Event Subscriptions tab, click Browse (ellipsis ...).

The Select Scope window appears.

4. Click Process01 and click OK.

C	Select Scope	X
	 PlantPAx Area Process01 Equipment01 Equipment02 Area02 Equipment03 Equipment04 System 	
	ОК Сапсе	ł

5. To use the scope defaults on the Alarm and Event Banner Properties dialog box, click OK.

	Alarm and	Event Banne	er Properties	5		X
General Columns Status Bar Event Su	bscriptions States	Sort Common]			
Event subscriptions: Default	Subscribe to event	ts where:	✓ High	🖌 Medium	✓ Low	
	Scopes: Area/Alarm:Plant	tPAx_AE:Process(01			
Add	Browse	Remove				
Remove	Event sources (wild (Any event source		rted):			
Rename						
	Browse	Add	Ec	lit Rer	nove	
		_	ОК	Cancel	Apply Hel	p

Once configured, the alarm banner appears as shown in the example.

٠.	🥼 6/4/2018 8:01:06 AM	Temperature TT02001 Low-Low Alarm; Val= 0.0;	

Alarm Sounds

Complete the following steps to configure sounds that provide an audible alert for an alarm.

- 1. Repeat step 1 and step 2 on page 75.
- 2. Click the States tab.
- 3. Check the desired sound actions in the Sound column and click Configure Sounds.

Alarm and Event Banner Properties							
General Columns Status Bar Event Subscriptions States Common							
Select a state to view and set its pro	Select a state to view and set its monenties						
Show event type	Priority	Text	Background	Blink	Sound	Sample	
🔽 🔔 In Alarm Unacknowledged	Urgent			✓	✓	Mixing Tank1 almost empty	
	High			•	✓	Mixing Tank1 level low	
	Medium			✓		Mixing Tank1 valve 1 close time exc	
	Low			✓		Mixing Tank1 level less than 0. Sen	
🗹 🐓 In Alarm Acknowledged	Urgent					Mixing Tank1 almost empty	
	High					Mixing Tank1 level low	
	Medium					Mixing Tank1 valve 1 close time exc	
	Low					Mixing Tank1 level less than 0. Sen	
🗹 🛓 Normal Unacknowledged	Urgent			✓		Mixing Tank1 almost empty	
	High			✓		Mixing Tank1 level low	
	Medium			✓		Mixing Tank1 valve 1 close time exc	
	Low			✓		Mixing Tank1 level less than 0. Sen	
Configure Sounds Blink Rate Medium V Test Rates							
				ОК	Cano	cel Apply Help	

The Alarm Sound Configurator dialog box appears.

IMPORTANT We recommend that you change the default beep to different sounds according to the alarm priority. The default beep is the sound that your local computer generates.

4. For each alarm priority, select a sound file from the pull-down list.

5. When you are finished selecting sound files, click OK.

Alarm Sound Configurator					
Sounds Status Tags					
Urgent Default Beep	~	Test			
High Default Beep	~	Test			
Medium Default Beep	~	Test			
Low Default Beep	~	Test			
Beep Rate 1 V Seconds					
	OK	Cancel			

Your configured Alarm Sound Configurator dialog box looks similar to the following figure.

	Alarm Sound Configurator						
Sounds St	atus Tags						
Urgent	Highest_A.wav 🗸	Test					
High	High_A.wav 🗸	Test					
Medium	Medium_A.wav 🗸	Test					
Low	Low_A.wav 🗸	Test					
Beep Ra	te 1 V Seconds						
	OK	Cancel					

If necessary, it is possible to send sound information to the controller to create a control for a physical horn that can be configured in the Status Tags tab.

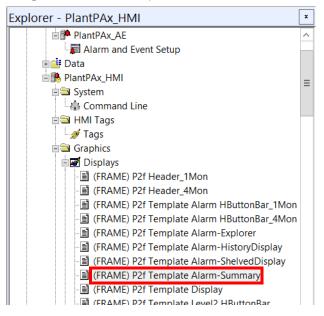
Alarm Sound Configurator	x
Sounds Status Tags	
Urgent High Medium	···
Low	
OK	Cancel

View an Alarm Summary

Complete these steps to view alarms in Summary mode.

For more HMI template information, see the Rockwell Automation Library of Process Objects: Configuration and Usage Reference Manual, publication <u>PROCES-RM002.</u>

1. In the FactoryTalk View Studio software tree, open PlantPAx>Area>PlantPAx_HMI>Graphics>Displays>(FRAME) P2f Template Alarm-Summary.



2. Double-click in the summary object.

	Alarm and Event Summary Properties	X
Appearance Columns Toolbar Status Ba	ar Event Subscriptions Display Filters Sort States Behavior Common	
Default	Subscribe to events where: Priority Urgent High Medium Low Scopes:	
Add Remove Rename	Browse Remove Event sources (wildcards are supported): (Any event source)	
	Browse Add Edit Remove	
	OK Cancel Apply Help	

The Alarm and Event Summary Properties dialog box appears.

3. In the Event Subscription tab, click Browse (ellipsis "…") under the Scope text box.

The Select Scope dialog box appears.

Select Scope	X
PlantPAx Area Alarm PlantPAx AF Process01 Equipment01 Equipment02 Area02 Equipment03 Equipment04 System Data	
ОК С	ancel

4. Select Process01 and click OK.

The Alarm Summary dialog box appears.

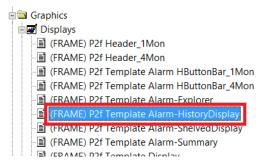
Plai Distributed	Control System		urrent User: WS45\ADMINISTRATOR	Process01
🖌 💋 🛛	' 🛇 🏓 = 🛎 🖑 🚺 I	🕈 🕐 🔒 (No Filter) 🛛 🗙 🕗 🖺	0	
! A	Event Time	Alarm Name	Message	
	6/5/2018 4:33:54 PM	TT01001_Alm_Lo	Temperature TT03001 Low Alarm; Val= 0.0;	
4	6/5/2018 4:33:54 PM	TT02001_Alm_LoLo	Temperature TT02001 Low-Low Alarm; Val= 0).0;
▲ ♣	6/5/2018 4:33:54 PM	TT03001_Alm_Lo	Temperature TT03001 Low Alarm; Val= 0.0;	

Configure an Alarm Log Viewer

You can view and print alarm history databases from the Alarm and Event log. Complete these steps.

IMPORTANT For more HMI template information, see the Rockwell Automation Library of Process Objects: Configuration and Usage Reference Manual, publication <u>PROCES-RM002</u>.

1. In the FactoryTalk View Studio software tree, open PlantPAx>Area>PlantPAx_HMI>Graphics>Displays> (FRAME) P2f Template Alarm-HistoryDisplay.



The Alarm and Event Log Viewer Properties dialog box appears.

2. Double-click in the (FRAME) P2f Template Alarm-HistoryDisplay object.

The Alarm and Event Log Viewer Properties dialog box appears.

- 3. On the Display Filters tab, click Add and type the name of the filter (Process01 in the example).
- 4. Select a group and click Add Where Condition.

The Filter Wizard dialog box appears.

5. Select a 'Where <Group>' from the pull-down list (Contains in the example).

6. Click Browse ('...' ellipse) and select a group name (Process01 in the example).

2		((FRAME) P2f Tem	plate Alarm-HistoryDisplay - /	PlantPAx//Area (Display)
(No Filter)					
! 4 Event	Time Alarm Name Condition Name	Message			
	General Columns Toolbar Display Filters	Alarm and Event Log Viewe	r Properties	X	
	Initial display filter. (No Filter)	Field names: Alarm Class Alarm State		cila	er Wizard X
	Display filters:	Area Computer			er Wizard
	Process01	Condition Name Condition Quality Current Value Event Category	=	Where <group></group>	
		Event Source Event Time Event Type Group		Process01	OK Cancel
		Message Priority	<u> </u>	Add Where Condition	
		Display events where:		Remove	
	Add		[Modify	
	Rename			() NOT	
		Limit number of records returned to:	50000		
No message select					
			OK Cance	el Apply Help	

7. On the Application window, click the Program pull-down arrow.

PlantP Distributed Control 3	AX System	$\frac{1}{2}$ $\stackrel{\circ}{\leftrightarrow}$ \times		Current User: EWS45\ADMINISTRATOR	Process01
Process01 V	V 🗘 🖸 🤗 🗄	a			
(No Filter) Process01	Time	Alarm Name Co	ondition Name	Message	
FIOCESSUI					

8. Select a program (Process01 in the example) to view the alarm log.

You can also configure global objects to filter and announce alarms by alarm group. The objects are in the Rockwell Automation Library of Process objects.

9. To filter by alarm group, complete these steps.

a. From the Alarm Objects in the Library global objects folder, drag-and-drop the Alarm object onto the Navigation screen.

		Equip01	002	
	ilobal Object Parameter Va	alues		Level 2 Alarm Group Annunciation - Use this object with a r any sharm in a level 2 alarm sub-group that is represented b
Name Value 1 #101 Area/Alarm:PlantPAx_AE 2 #102 Process01 3 #103 Area01 4 #104 Equipment01	Alarm Group	Description Path:Server Name (Ex. FTAE_Area:F Name (Level 1) oup Name (Level 2) bGroupName (Level 3)		the navigation Hutton #101 FTAE Server Path Server Name (EX. FTAE_Area.FTAE_Svr or :F #102 Alarm Group Name #103 Alarm Sub Group Name For example: #101 FTAE_Area.FTAE_Svr (or :FTAE_Svr if the server is in the root) #102 Process #103 Unit Level 1 Alarm Group Annunciation/Navigation - Use this of any alarm in the level 2 alarm sub-group that is represent #101 FTAE Server Path:Server Name (Ex. FTAE_Area.FTAE_Svr or #102 HTAE Server Path:Server Name (EX. FTAE_Area.FTAE_Svr or #102 HTAE Server Path:Server Name (EX. FTAE_Area.FTAE_Svr or #102 HTAE Server Path:Server Name (EX. FTAE_Area.FTAE_Svr or
		OK Cancel	Help	#103 Alarm Sub Group Name (Level 2)

b. Right-click the global object and choose Global Object Parameter Values.

The Global Object Parameter Values dialog box appears.

- c. For the #101 parameter, type the Alarm server name.
- d. For the #102 parameter, type the Level 1 Alarm group name.
- e. For the #103 parameter, type the Level 2 Alarm group name
- f. If necessary for the #104 parameter, type the Level 3 Alarm group name
- g. Click OK.

View Alarm System Configuration

The System folder includes the L_CPU instruction and the L_ModuleSts alarming. Complete these steps to view the alarm system.

- 1. In the Application tree, open the Area program and choose Alarm>PlantPAx_AE.
- 2. Double-click Alarm and Event Setup.

). 🖷 🖅 🗙 🖬 😰 📀							
All Alarms Messages Tag Update Rate	es l						
Search for Group	Type All 🗸						
🚞 ALL Alarms	Name	Туре	Input Tag	Ack Reg'd	Alarm as a Tag	Group	Alarm Clas
Ungrouped Alarms	LGXC01EN01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
E PlantPAx AE	LGXC01EN02FF01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
Process01	LGXC01EN02MT01001_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
E E Area01	LGXC01EN02MT01002_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
Equipment01	LGXC01EN02MT01003_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
Equipment02	LGXC01EN02MT01004_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
Equipmentoz	LGXC01EN02PA01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC01EN02R01AI01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
Equipment03	LGXC01EN02R01AO01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
Equipment04	LGXC01EN02R01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
🖃 🚞 System	LGXC01EN02R02DI01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
🚞 Diagnostics	LGXC01EN02R02DI02_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC01EN02R02DI03_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC01EN02R02DO01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC01EN02R02DO02_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC01EN02R02_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC01EN02_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC02EN01_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	LGXC02_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW001_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW002_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW003_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW004_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW005_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW006_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW007_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	SW008_Module_Sts_IOFault	Digital	/Area/Data::[LGXC01]Program:Dia	true	false	Diagnostics	L_Module
	<	ш					

3. Click Diagnostics to view information that has been automatically generated.

If you are using L_StsModule, the Alarm Builder Tool, by default, creates and populates a system alarm summary.

Configure Historian Data Collection

Possessing the right information at the right time is critical for decision making. FactoryTalk^{*} Historian software captures data for reports to help maximize plant-floor objectives and productivity. The software uses historical points (tags) in the system to produce analytical data.

Analytical data includes process variables, trends, estimations, and statistical reporting.

IMPORTANT This chapter includes procedures for how to manually create Historian tags, digital states, and Asset Framework. We recommend using the PlantPAx[®] Configuration Tool (see <u>page 122</u>) for creating bulk tags for large process systems.

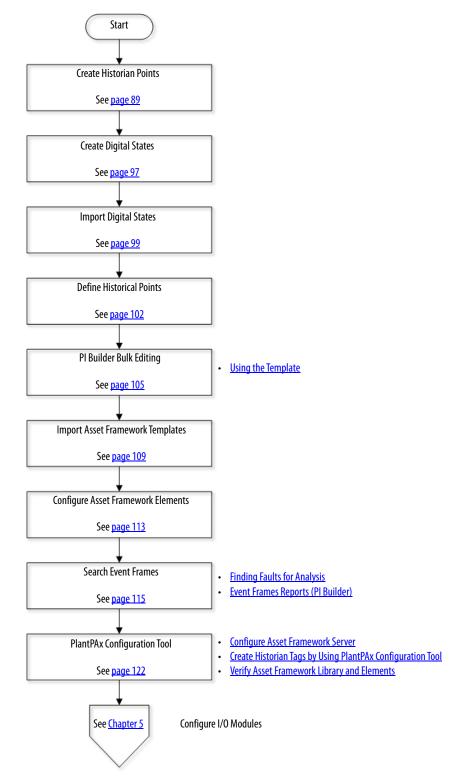
Considerations:

Consider the following suggestions before starting this chapter:

- Perform any necessary configurations that are contained in the PlantPAx Distributed Control System Infrastructure Configuration User Manual, publication <u>PROCES-UM001</u>.
- The procedures in this chapter use the 'System Management Tool' and PI System Explorer within FactoryTalk Historian software. The tool is available for Historian Asset Framework management computers, such as server, node interface, and EWS.
- Microsoft[®] Excel[®] software is required to enable the bulk editing capability. An additional license is required to use PI Datalink.

Figure 6 contains the topics that are described in this chapter. Click or see the page number for quick access to a section.





Create Historian Points

Use an Engineering Workstation or a Historian server with these procedures.



EWS01 or ASIH01A

Complete these steps to create historian points by using the FactoryTalk[®] Administration Console.

- 1. Click Rockwell Automation[®] software and choose FactoryTalk Administration Console.
- 2. Select the network for the type of FactoryTalk directory.
- 3. In the Explorer pane, right-click an application (PlantPAx is our example) and choose Add Individual Historian Points.

7	
File View Tools	Window Help
Explorer	5501)
Ala Carlor C	Delete New Area Add New Server ► Discover Historian Points
Actio	Add Individual Historian Points
● 一 Polici ● 一 Comp ● 番 Netw ● 一 Users ● 一 Conn	Backup Resource Editor Security Properties

4. On the Add Historian Points dialog box, click Browse Tags.

Add Historian Points									
Add points to server:	Production Hi	istorian	~						
Using data collection interface:	FTLD1		~						
Default scan rate:	(1) 1 second		¥						
Tag attributes for new points:	Default Config	guration	~						
From application:	PlantPAx		~						
	Browse Tag	js							
Tags to add:									
Tag Name	FTH Server	Interface	Scan Class	Config File	From Application				
					OK Cancel				

5.	In the Tag Browser window, select an object tag (TT01001 in the
	example) in the Folders pane on the left side of the window.

Select Tag(s)	ľ	Fag Browser			
Folders		Contents of '/Area/	Data::LGXC01/Onlin	e/TT01001'	
	PFDC_FaultCode	Name	Access Rights	Description	^
		🧬 Val	ReadOnly		
	🗉 🚞 Program:Diagno	🖉 Val_Fault	ReadOnly		
	🗄 🦲 Program:Task_A	🔗 Val_HiHiLim	ReadOnly		
		🔗 Val_HiLim	ReadOnly		
	Program:Task_C	🔗 Val_InpPV	ReadOnly		
	Program:Task_D	🧬 Val_LoLim	ReadOnly		
		🔗 Val_LoLoLim	ReadOnly		
	Image: Image: Image: Barrier Barri	🔗 Val_Mode	ReadOnly		
	Program:Task_F	🧬 Val_Notify	ReadOnly		
	SMC50 FaultCo	💣 Val_Owner	ReadOnly		
	SMCElex FaultC	🔗 Val_PVEUMax	ReadOnly		
	+ 🦳 TT01001 🛛 💶	🖉 🖉 Val_PVEUMin	ReadOnly		
	+ TIUIUUI_Chan	& Val_PVMaxC	ReadOnly		
	~	🖉 Val_PVMinC	ReadOnly		\sim
< 111	>	<	ш	>	
Refresh All Folders	: Tag filter:		~	Add Tag(s) to List	
Selected tag(s)					
/Area/Data::[LGXD	01)TT01001.Val				< >
Home area:	7		Remove	Clear	
		ОК	Cancel	Help	

6. In the pane on the right side of the Tag Browser window, double-click the tag to configure as a Historian Point.

Val (Process Variable Value) is the example.

7. Click Add Tags to List and click OK.

	ļ	Add Historia	n Points		×		
Add points to server:	Production Hist	orian	~				
Using data collection interface:	FTLD1		~				
Default scan rate:	(1) 1 second		~				
Tag attributes for new points:	Default Configu	ration	~				
From application:	PlantPAx		~				
	Browse Tags.						
Tags to add:	.						
Tag Name	FTH Server	Interface	Scan Class	Config File	From Application		
/Area/Data::[LGXC01]TT01	Production His	FTLD1	(1) 1 seco	Default Configuration	PlantPAx		
<		Ш			>		
OK Cancel							

The Add Historian Points dialog box reappears with a list of selected tags.



8. Click OK.

FactoryTalk Historian uses System Management Tools (SMT[®]) to create and maintain historical points. You must have the proper historian server connection.

- 9. Choose Rockwell Software^{*}>FactoryTalk Historian SE> System Management Tools.
- 10. In the Servers Pane (or the Servers and Collectives pane if you have a collective), select the Historian server.

%	l	PI System I	Manageme	ent Tools (A	dministra	tor)		_	D X
File View Tools He	elp								
Collectives and Servers	Ў 🖬 🍕		0						0 points
Search 🔎	Server Point	Point Source	e Point Type	e Point Class	Descriptor				
Collective: ASIH01									
🗹 asih01a 🛛 Primary									
ASIH01B Secondary									
System Management Tools	General Arc	hive Classic	Security Sy	rstem					
Search 🔎	Ciciliciai Arci		Security 5)	stem					
▷ Alarms	Name:					Rename	PI Server:	asih01a	~
▷ Batch	Descriptor:								
⊳ Data	· ·							L	
▷ Interfaces ▷ IT Points	Point class:	classic				✓ Poi	nt source:	L	
 Operation 	Point type:	Float32	~	Digital set:					~
✓ Points	Eng Units:							isplay digits:	-5
Digital States	-							ispidy digits.	
Performance Equations	Exdesc:								
Point Builder Point Classes	Source tag:								Q
Point Classes Point Source Table									
Totalizers									
▷ Security	Session Reco	rd							
	0000101110000								_
SYSTEM\Administrator piad	Imin								
<u> </u>									

11. In the System Management Tools pane, select Point Builder.

12. Click the Search dutton.

13. In the Tag Search window, type the Tag Mask and click Search.

The tag appears on the Tag Search window.

14. Select the tag and click OK.

×

	1	Tag Search		_ D X
— Wild Card	Basic Search Advanced Sear PI Server: ASIH01\asih01a Tag Mask: *TT01001* Descriptor: *	Point Type: Point	it Class: v ineering Units:	Favorites Connections Search Abort Reset
	Server Tan ASIH01\as PlantPAx.Area.Dat	a:PlantPAx_DAT:LGXC01.TT01001.Val	Descriptor:	Select All Pt. Attr Pt. Values
				OK Cancel Help
	< III Ready		List Count: 1	Percent 100 %

The point name and entire path appear on the Point Builder window.

To opt for a shorter point name, continue with the next step; otherwise, go to $\underline{\text{step } 17}$.

%		PI Sy	ystem Ma	nagement T	ools (Adı	ministrator)			-	D X
File View Tools He	elp									
Collectives and Servers	衬 🖬 🍕	2	0							1 point
Search P Collective: ASIH01	Server Poir asih01a Plar		ata:PlantPAx_	DAT:LGXC01.T	T01001.Val	Point Source FTLD	Point Type Float32	Point Class classic	Descriptor	Point Security piadmin: A(r,w
System Management Tools Search P										
⊳ Alarms ⊳ Batch	<			Ш						>
⊳ Data	General Arr	hive Classic	Security	System						
▷ Interfaces ▷ IT Points	Name:	_		PAx_DAT:LGX0	:01.TT01001	.Val	Rename	PI Server:	asih01a	~
 Operation Points 	Descriptor:							-		
⊿ Points Digital States Performance Equations	Point class:	classic					V	Point source:	FTLD	
Point Builder	Point type:	Float32	~	Digital set:						~
Point Classes Point Source Table	Eng Units:			1				I	Display digits	.: 5
Totalizers ⊳ Security	Exdesc:									
> Security	Source tag:									æ
	Session Reco	ord								
SYSTEM\Administrator piac	Imin									

15. Select the tag and click Rename.

16. In the Rename PI Point window, type a new name and click OK.

	Rename PI Point X
Current name:	PlantPAx.Area.Data:PlantPAx_DAT:LG>
New name:	TT01001.Val
	OK Cancel

17. In the General tab of the Point Builder dialog box, type a tag description and engineering units.

General	Archiv	e Classic	Security	System	
Name:	T	T01001.Val			Rename PI Server: asih01a V
Descript	or: T	emperature	01001		
Point cla	ss: c	assic			V Point source: FTLD
Point typ	e: F	oat32		✓ Digi	tal set: V
Eng Unit	s: C				Display digits: 5
Exdesc:					
Source ta	ag: [A

18. Click the Archive tab to configure the range (Zero and Span), typical value, and all exception and compression data for the historical point.

IMPORTANT Usually, Minimum Range Value = Zero, Span = Maximum Range Value minus Minimum Range Value. The Typical Value is between the Minimum Range Value and the Maximum Range Value.

General Archive Classic Security S	stem
Typical value: 85 Zero:	-200 Span: 1050
Scan Archiving Step ● On ● On ● On ● Off ● Off ● Off	Shutdown Compressing ● On ● On ○ Off ○ Off
Exception Deviation 0.25 Eng. Units	Compression Deviation 0.5 Eng. Units
Day Hr Min Sec Min. Time: 0 0 0 0	Day Hr Min Sec

19. Click the Classic tab to view the historical tag path (instrument tag) that includes the Data server name.

Our example has the FactoryTalk Linx name, PlantPAx_DAT. The historical point link is broken if any change is made to the FactoryTalk Linx application name.

General Archive	e Classic Secu	rity System				
Location1: Location2: Location3:	1 0 1	Conversion factor: Filter code: Square root code:	1 0 0	UserInt1: UserInt2: UserReal1:		
Location4:	1	Total code:	0	UserReal2:	0	
Location5:	0					
Instrument tag:	PlantPAx/Area/D	lata:PlantPAx_DAT:[L	GXC01]TT01	001.Val		

20. To monitor the last historical data, select Current Values and click the Search 4 tool.

\$		Р	l System	Management Tools	(Adminis	strator)		
File View Tools He Collectives and Servers	elp 🥳 🗙 💥	🕨 🔳	🖳 🛃	0				
Collective: ASIH01 ✓ asih01a Primary ASIH01B Secondary	Tag Name TT01001.Val	Server asih01a		Timestamp 10/28/2015 6:23:50 PM	Value 22.39998	Engineering Units	Descriptor	
System Management Tools Search Aams Aams Batch Data Archive Editor Current Values State and Bad Points Interfaces								
 ▷ IT Points ▷ Operation ▷ Points ▷ Security 								
	Session Reco	ord						
SYSTEM\Administrator piad	Imin							

21. In the Tag Search window, type a tag mask or "*" for all tags, and click Search.

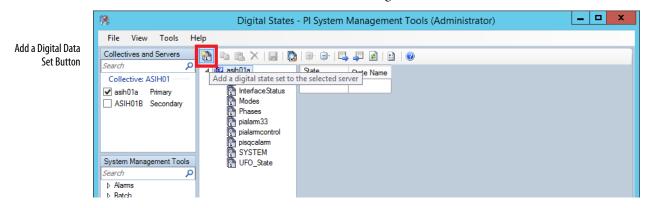
A tag list appears on the Tag Search window.

- 22. Select any tags that you wish to monitor and click OK.
- 23. To see values change as they periodically refresh, click the 'Play' button.

Create Digital States

Historian points can be defined as analog or digital. Digital points can be used to enumerate the process states, thus creating a relationship between the value and the text state name. For example: 1 = Good.

1. Using SMT with the proper historian server connection, select Digital States and click Add a Digital Data Set.



As an example of how to create your own Digital Data Set, review Table 3.

Table 3 - Source Quality Data Examples

Parameter	Data Type	Description
SrcQ	SINT	Final PV source and quality. GOOD 0 = 1/0 live and confirmed good quality 1 = 1/0 live and assumed good quality 2 = No feedback configured, assumed good quality TEST 8 = Device simulated 9 = Device loopback simulation 10 = Manually entered value UNCERTAIN 16 = Live input, off-specification 17 = Value substituted at device/bus 18 = Value substituted by maintenance (Has and not Use) 19 = Shed, using last good value 20 = Shed, using replacement value BAD 32 = Signal failure (out-of-range, NaN, invalid combination) 33 = 1/0 channel fault 34 = 1/0 module fault 35 = Bad I/0 configuration (for example, scaling parameters)

- 2. Type a Digital Set name (SrcQ in the example).
- 3. Type a state name as shown in the Description column of <u>Table 3</u>.

New rows are automatically added as information is entered.

Unused values can be Undefined states.

%	Digital States	- PI System	Management Tools (Administrat	or) 🗕 🗖 🗙
File View Tools H	lelp			
Collectives and Servers Search P Collective: ASIH01 Image: Collective: ASIH01 Image: Collective: ASIH01 Image: Collective: ASIH01 Image: Collective: ASIH01 P and	 A sh01a A sh01a BatchAct InterfaceStatus Modes InterfaceStatus Interface	State 0 1 2	State Name Good - I/O Live and confimed good quality Good - I/O Live assumed good quality Good -	Number of states: 3
	Session Record			
SYSTEM\Administrator pia	dmin			

4. Save your changes.

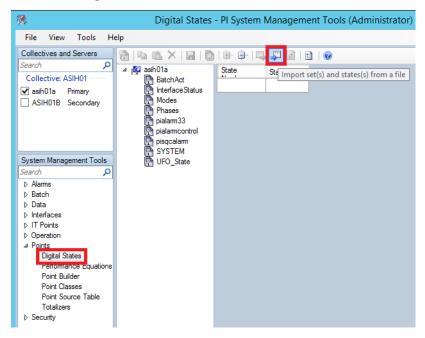
Import Digital Sets and States

Instead of manually entering Digital Sets and States, use Process Objects to import them.

The Digital Sets and States are available from the Historian folder in the Process Library. The Historian information is in a subfolder (Tools & Utilities) of the Files folder in the Process Library download.

Complete these steps.

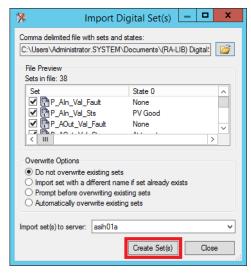
- 1. Using SMT with the proper historian server connection, click Digital States.
- 2. Click the Import button.



- 3. From the Import Digital Set(s) dialog box, click the folder icon.
- 4. Select a .CSV file from the dialog box.

Comma delimited file with sets and states:			
File Preview Sets in file: Set	*	Open	x
			م @
Overwrite Options Do not overwrite existing sets Import set with a different name if set already exists Prompt before overwriting existing sets Automatically overwrite existing sets Import set(s) to server: asih01a Create Set(s) [★ Favorites ■ Desktop ▶ Downloads ™ This PC ▶ Desktop ▶ Documents ▶ Documents ▶ Downloads ▶ Music ▶ Pictures ▶ Videos ▲ Local Disk (Context) 	es I	
		File name: (RA-LIB) DigitalSet_ProcessObjects v4.00-01.csv V CSV Files (*.csv) Open Cancel	~

- 5. Click Open.
- 6. Click Create Set(s).



A minimum number of the recommended Digital Sets is created. This procedure does not create the basic Digital Set file for all Process Objects digital states.

陝	Digital States - PI System Management Tools (Administrator)	x
File View Tools H	Help	
Collectives and Servers		
Search P Collective: ASIH01	a sinula A State State Name	
	BatchAct	
✓ asih01a Primary	Modes	
ASIH01B Secondary	Phases Comma delimited file with sets and states:	
	pialam 33 C:\Users\Administrator.SYSTEM\Documents\(RA-LIB) Digital:	
	pialamcontrol	
	File Preview Sets in file: 38	
System Management Tools	Sets in file: 38 Set State 0	
Search P		
▷ Alams	P_AIn_Val_Sts	
⊳ Batch	P_AOut_Val_Fa P_AOut_Val_Fault None	
⊳ Data	P_AOut_Val_Si	
Interfaces	P_D4SD_Val_F	
 IT Points Operation 	P_DBC_Val_Fa	
✓ Operation	P_DBC_Val_St Do not overwrite existing sets 	
Digital States	P_DIn_Val_Fau O Import set with a different name if set already exists	
Performance Equations		
Point Builder	P_DoseFM_Va O Automatically overwrite existing sets P DoseFM_Va	
Point Classes Point Source Table		
Totalizers	P_DoseWS_Va Import set(s) to server: asih01a	
▷ Security	P_DOut_Val_Fi Create Set(s) Close	
	P_DOut_Val_S	
	P_HiLoSel_Val	
	R P LLS Val_ra	
	Session Record	
	10/28/2015 6:51:28 PM (SYSTEM\Administrator) PI-DSE> Set "Val Notify' successfully imported to server asih01a (Import)	^
		\sim
SYSTEM\Administrator pia	admin	

7. Click Close.

Define Digital Historical Points

The digital set is available only to a digital points type. The FactoryTalk Administration Console automatically creates a Float32 (Real) point type for each new point.

IMPORTANT Before continuing with this section, it is necessary to include the Digital Historical point such as SrcQ (see <u>step 1 on page 89</u> through <u>step 11 on page 92</u>).

%	Point Builder - PI System Management Too	ls (Adminis	trator)	-	□ X
File View Tools He	elp				
Collectives and Servers	V . (4)				2 points
Collective: ASIH01	Server Point			Point Class Descriptor	
✓ asih01a Primary	asih01a TT01001.SrcQ asih01a TT01001.Vat	FTLD	Float32 Float32	classic classic	piadmin: A(piadmin: A(r
ASIH01B Secondary		FILD	FIUGLJZ	CIESSIC	piaumin. Aų
System Management Tools					
Search 🔎					
⊳ Batch					
⊳ Data	< III				>
Interfaces	General Archive Classic Security System				
▷ IT Points	Name: TT01001.SrcQ		Rename	9 Server: asih01a	
▷ Operation Points				1 Server. daino la	
Digital States	Descriptor: Temperature 01001				
Performance Equations	Point class: classic		V Point	t source: FTLD	
Point Builder	Point type: Float32 V Digital set:				~
Point Classes Point Source Table	Eng Units:			Distant and	5
Totalizers				Display digits:	
▷ Security	Exdesc:				
	Source tag:				A state
	Session Record				
SYSTEM\Administrator piac	dmin				:

This section shows how to change the point type.

1. To be able to change the digital set, select Digital from the Point type pull-down.

%	Point Builder - PI System	Management Tools (Adminis	strator)		_	D X
File View Tools He	lp					
Collectives and Servers Search	😻 🛃 🥰 🗈 🖻 🙆	Point Source	Point Type	Point Class	Descriptor	2 point Point Seci
Collective: ASIH01	asih01a TT01001.SrcQ asih01a TT01001.Val	FTLD FTLD	Float32 Float32	classic classic		piadmin: A piadmin: A
System Management Tools Search P Alams b Batch b Data	<iii< td=""><td></td><td></td><td></td><td></td><td></td></iii<>					
▷ Interfaces	General Archive Classic Security Syst	em				
 ▷ IT Points ▷ Operation 	Name: TT01001.SrcQ		Rename	PI Server:	asih01a	~
⊿ Points Digital States	Descriptor: Temperature 01001					
Performance Equations Point Builder	Point class: classic		✓ Po	int source: F	TLD	
Point Classes	Point type: Digital 🗸	Digital set:				¥
Point Source Table Totalizers	Eng Units:	P_DoseFM_Val_Fault P_DoseFM_Val_Sts				^
▷ Security	Exdesc:	P_DoseWS_Val_Fault P_DoseWS_Val_Sts				
	Source tag:	P_DOut_Val_Fault P_DOut_Val_Sts				
		P_HiLoSel_Val_Selected P_LLS_Val_Fault P_LLS_Val_Sts				
	Session Record	P_Motor_Val_Fault				
	Coston Necora	P_Motor_Val_Sts P_nPos_Val_Fault				
		P_nPos_Val_Sts P_PIDE_CtrlAction				
SYSTEM\Administrator piac	Imin	P_PIDE_Val_Fault P_PIDE_Val_State				
		P_PIDE_Val_Sts P_ValveC_Val_Fault P_ValveC_Val_Sts P_ValveMP_Val_Sts P_ValveMP_Val_Sts P_Valve Val_Fault				=
		P_Valve_Val_Sts P_VSD_Val_Fault P_VSD_Val_Ste SrcQ				_
		UFO_State Val_Mode Val_Notify				~

2. Click the Digital set pull-down menu and select a Digital Set (SrcQ in the example).

3. Click the Save 🚽 icon to store the Historian point.

4. Click Current Values and search for our tag to view the Digital set value corresponding to the point value.

%	Currer	nt Values - PI Sy	/stem Management	Tools (Administrato	or)	_ □ ×
File View Tools He	lp					
Collectives and Servers	🧟 🗙 💥 🕨	💷 🖳 🛃 🎯)			
Search 🔎	Tag Name S	erver Collective	Timestamp	Value	Engineering Units	Descriptor
Collective: ASIH01	TT01001.SrcQ as	sih01a ASIH01	10/28/2015 7:06:28 PM	Uncertain - Value substi		Temperature 01001
✓ asih01a Primary	TT01001.Val as	sih01a ASIH01	10/28/2015 7:06:46 PM	21.88934	С	Temperature 01001
ASIH01B Secondary						
.						
System Management Tools						
Search 🔎						
▷ Alarms						
▷ Batch						
⊿ Data Archive Editor						
Current Values						
Stale and Bad Points						

PI Builder Bulk Editing

The PI Builder spreadsheet provides for bulk tag editing. Complete the following steps.

IMPORTANTBefore starting this section, PI Builder must be configured as a Microsoft
Excel add-in. See the Excel add-in subsection in Chapter 9 of the PlantPAx
Distributed Control System Infrastructure Configuration User Manual,
publication PROCES-UM001.

- 1. Open the Microsoft Excel software.
- 2. Click PI Builder and choose PI Points>Find PI Points.

Image: Image	rt Page Layout	Formulas Dat	ta R	Book1 - Mic eview View	t Excel	Pl Builder	1					× ₽X
Data Server: 😭 ASIH01 - Asset Server: 🧔 ASIS01 - Database: 👔 PlantPAx - Connections	Publish Delete	Select All Deselect All Reset to Template	Pl Points		vent Refre	sh	ow Values in ow Values in oute Data Re	Columns +	Headers Settings	About About Help		
	fx			<u>A</u> ll PI Points Find PI Points		Attric	die Data Ke	rerences	Resor	lices		~
A B 1 2	C D	E		<u>A</u> ll Digital States <u>F</u> ind Digital States	 I	J	K	L	M	N	0	
3 4 5												
6 7												

The Tag Search dialog box appears.

3. Type an object between the asterisks (*TT01001* in the example) and click Search.

The asterisks are a wild-card search that finds all tags associated with the object.

🔎 Tag Search		x
Server(s): ASIH01		•
TT01001	x 🔻 😻 🛛 Se	arch
Name	Data Server	De 💿
TT01001.SrcQ	ASIH01	Tempe
🍼 TT01001.Val	ASIH01	Tempe
	ASIH01	Tempe
< III		<u> </u>
3 results returned in 0.126712 seconds.		
ок	Cancel Re	eset

4. Click OK.

5. Click OK to use the default for the objects types and column headers on the spreadsheet.

📋 Select	Object Types and Column Headers	x
<u>O</u> bject Type:	PIPoint	~
Object Types:	1 selected, Columns: 51 selected	
·····································	lected(x) me jectType al l solution italset playdigits gunits desc ure ntsource nttype dassname urcetag wName X	*
Description:		
The columns in	n this group are required. They may not be d neither the group nor the 'Selected(x)' column d.	^ ~
	OK Cancel Reset	

The spreadsheet populates information under the respective default headings.

	1 m - C	- -			Book1 - Microso	oft Excel					-		x
File	Home	Insert Page L	layout For	mulas Data Revi	ew View PH	DataLink PI	Builder				۵ () — đ	23
	ierver: 😭 AS Server: 📣 AS ase: 😰 Pla Connection	silS01 - antPAx - s	Build	elect All Pl et to Template		Event Refresh rames *	Show	Values in R Values in C e Data Refe	Columns T	Headers Settings Errors Resou	i About Help		
		▼ (0	<i>f</i> ∗ Selecte		1	1	1						*
	A	В	С	D	E	F	G	Н	-	J	K	L	
	elected(x)			Description	digitalset	displaydigits	-						ai
2 x		TT01001.SrcQ	PIPoint	Temperature 01001	SrcQ	1		TT01001		FTLD	Digital	classic	-
3 X		TT01001.Val	PIPoint	Temperature 01001	D Ale Mal Cault	_	С	TT01001 TT01001		FTLD FTLD	Float32	classic classic	-
4 x		TT01001.Val_Fault	PIPOINt	Temperature 01001	P_AIn_val_Fault	1		1101001	U	FILD	Digital	classic	-
6													-
7													-
8				R	etrieve Selected	Objects		×					-
9													
10			Ope	ations Completed:	3								-
11				essing PIPoint 'TT01001.Sr essing PIPoint 'TT01001.Va				^					-
12			Proc	essing PIPoint 'TT01001.Va	l_Fault'								
13			The	requested action is complet	te.								
14													
15													
16								~					
17			<					>					
18													
19					Close								
20									11				
21													

6. Click Close.

- 7. Change your configuration or duplicate the point.
- 8. Click Publish.

X 🔒 🤊 - (*	* -			Book1 - Microso	ft Excel					-	D X
File Hom	e Insert Pagel	ayout Fori	mulas Data Revi	ew View PH	DataLink PI I	Builder				۵ () — @ X
Data Server: 🖀 A Asset Server: 决 A Database: 😰 F Connectio	ISISO1 - Publish De	(x) Selec () Dese Rese Build			Event Refresh ames +	Show *	Values in R Values in C Data Refer	olumns	Headers Settings	1 About ? Help	
	- (0	<i>f</i> _* Selecte	ed(x)								
A	В	С	D	E	F	G	Н	1	J	К	L
1 Selected(x)	Name	ObjectType	Description	digitalset	displaydigits	engunits	exdesc	future	pointsource	pointtype	ptclassna
2 x	TT01001.SrcQ	PIPoint	Temperature 01001	SrcQ	1		TT01001	0	FTLD	Digital	classic
3 x	TT01001.Val	PIPoint	Temperature 01001		5	С	TT01001	0	FTLD	Float32	classic
4 x	TT01001.Val Fault	PIPoint	Temperature 01001	P_AIn_Val_Fault	1		TT01001	0	FTLD	Digital	classic
4 A											
5 6											

9. Click OK to print the information on the spreadsheet.

Publish Options		Publish Selected Objects	x
Edit Mode: Create and Edit v OK Cancel	Process Process Process	ons Completed: 3 ing PIPoint 'TT01001.SrcQ' ing PIPoint 'TT01001.Val' ing PIPoint 'TT01001.Val_Fault' juested action is complete. Close	

10. Click Close.

Using the Template

Rockwell Automation provides a Historian template inside the Process Library that shows suggested points that can be used as digital Historian points. To access the Library folder that contains the template, see <u>page 99</u>.

You can select the object points ('x' in the Select(x) column next to the desired point) and edit them according to your needs.

X∎	5	- C - ÷			(RA-	-LIB) Templ	ate_ProcessObjects v4	.00-01.xlsx - E	xcel			?	图 -	
F	ILE H	OME INSERT	PAGE LAYO	UT FORM	ULAS I	DATA F	EVIEW VIEW	VANTAGEP	DINT PI	DATALINK	PI BUILDE	R	4	Sign in
a:	ste	Calibri • 1 B I U • Ent		• = = :	■ 🇞 - = 🗲 🔁		General \$ - % > 500 → Number	Condition Formatti	nal Format	as Cell	E Insert • Delete • Format • Cells	Sort &	t Find & Select ▼	
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44	4	▼ : × ✓	f_X											
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_	Select (x)	-	archiving	changedate	changer	compdev	compdevpercent	compmax	compmin	compressin	g convers	creationdate	creator	datas
_		P_DIn												
_	x	LS100.Sts_PV	1		piadmin	0		28800	0		1 1		piadmin	
_	x	LS100.Val_Sts	1		piadmin	0		28800	0		1 1		piadmin	
_	x	LS100.Val_Fault	1		piadmin	0	0	28800	0		1 1		piadmin	piadr
		P_DOut												
	x	XY100.Val_Sts	1		piadmin	0		28800	0		1 1		piadmin	
_	x	XY100.Val_Fault	1		piadmin	0	0	28800	0		1 1		piadmin	piadr
		P_AOut												
-	x	XC100.Val_CVOut	1		piadmin	0.5		28800	0		1 1		piadmin	
-	x	XC100.Val_Sts	1		piadmin	0	-	28800	0		1 1		piadmin	
-	x	XC100.Val_Fault	1		piadmin	0	0	28800	0		1 1		piadmin	piadr
-		P_AIn												
-	х	XT100.Val	1		piadmin	0.5		28800	0		1 1		piadmin	
-	x	XT100.SrcQ	1		piadmin	0		28800	0		1 1		piadmin	
-	x	XT100.Val_Fault	1		piadmin	0	0	28800	0		1 1		piadmin	pladr
		P_AInAdv			a ta das ta			20000					a ta abaa ta	and an all of
-	x	XT200.Val_RoC	1		piadmin	0.5		28800	0		1 1 1 1		piadmin	
-	x	XT200.Val_Ref XT200.Val	1		piadmin piadmin	0.5		28800 28800	0		1 1 1 1 1		piadmin piadmin	
-	x x	XT200.Val XT200.SrcQ	1		piadmin	0.5		28800	0		1 1		piadmin	
-	x	XT200.Val Fault	1		piadmin	0		28800	0		1 1		piadmin	
	^	P AInDual	-		plaumin		0	20000	0		1 1		plaumin	piaui
	x	XT300.Val	1		piadmin	0.5	0.5	28800	0		1 1		piadmin	niadr
-	x	XT300.Val PVA	1		piadmin	0.5		28800	0		1 1		piadmin	
					· · ·				-					· ·
	< • •	IO Processing	Motors	Valves	Procedu	ral Control	Regulatory C	. 🕂 :	4					Þ

The Export Tags functionality is available to create, edit, or delete
Historian points.

Import Asset Framework Templates

Complete these steps to import templates for Asset Framework, which provides a means to organize your process equipment assets. We provide Asset Framework templates with the download of the Rockwell Automation Library of Process Objects.

1. To open the Asset Framework server, click Programs>Rockwell Software^{*}>FactoryTalk Historian SE>System Explorer (64-bit).

					Microsoft Visual Studio 2010	•	·
		FactoryTalk Activation	•		Rockwell Software		
Help +		FactoryTalk Historian SE	\rightarrow		Startup	•	
System Explorer (64-bit)		FactoryTalk Tools	+		VMware	•	•
System Explorer		RSLinx	→		Windows Accessories	•	÷
🀁 Uninstall FactoryTalk Historian Analysis Service	5.	FactoryTalk Administration Console			Windows System	•	•
🎂 Uninstall FactoryTalk Historian Asset Framework		the second s			Desktop		
the second s				ø	PC settings		
				P	Search		
				â	Store		

2. Click Yes to create a user database.

IMPORTANT	Steps 2 and 3 are necessary only the first
	time that you name a database.

Create Database
The AF server 'ASIS01' only contains the system configuration database. Would you like to create a user database at this time?
<u>Y</u> es <u>N</u> o

3. Type the name of the user database and click OK.

2	Database Properties 📃 🗖 🗙
General Co	unts
Name:	PlantPAx
Description:	
Server:	ASIS01
	Extended Properties (0) Security
	OK Cancel Apply

The PI System Explorer dialog box appears.

- 4. Click Library in the lower, left pane.
- 5. Right-click the database name and choose Import from File.

Q	\\ASIS01\PlantPAx - PI System Explorer (Administrator)	
File View Go Tools Help		
🟮 Database 🛗 Query Date 🔻 🕔 🤩	🔇 Back 💿 🗟 Check In 🏷 🖌 🗟 Refresh 📓 New Template 🔹 Search Element Templates 🔎	•
· · · · ·	PlantPAx General Counts me: PlantPAx scription:	
Unit of Measure		
Ralyses		
PlantPAx Modified:4/10/2017 9:21:37 AM.	l.	.::

- 6. Click Browse (ellipsis '...') in the Import From File dialog box.
- 7. Browse in your system files to the (RA-LIB) AssetFramework_Templates .xml and click Open.

0	\\ASIS01\PlantPAx - PI S	ystem Explorer (Administrator)	_ 🗆 X
File View Go Tools Hel	łp		
🔕 Database 🛗 Query Date 👻 🕔	🤩 🕼 Back 💿 🗟 Check In 🧐 🖌 🖻	Refresh 🛛 词 New Template 👻	Search Element Templates 🔎 🔻
Library	PlantPAx		
PlantPAx	General Cour		
🗄 🗝 🔂 Element Templates	Import f	rom File	
±	File:		
	Import Options		🖀
🗄 🗝 🗟 Reference Types	✓ Allow Create	Create or Update PI Points	
Tables	(Dpen	X
i ⊡…	N 👔 « Downloads 🕨 Historian	✓ ♂ Search Historian	Q
- Att			
💮 🗐 Ele 🛛 Organize 🔻	New folder	8== •	• 🔲 🔞
🔁 Re 🖻 Tal 🛛 🔶 Favorites	^ Name	Date modified Type	Size
Desktop		emplates v4 4/28/2017 2:05 PM XML File	3
📕 Downloa 📃 Recent p			
in tecent p	naces =		
🖳 This PC			
📗 Desktop			
Docume			
Elements Music	405		
Event Frame	✓ <	ш	
jjj Library			
🚥 Unit of Mea	File name: (RA-LIB) AssetFramework_Te	emplates v4.00-00.xml v xml files (*.xml)	¥
Analyses		Open	Cancel
PlantPAx Modificut-	2 T 141.		

- **IMPORTANT** The Asset Framework templates are included in the Historian files with the Rockwell Automation Library of Process Objects download.
- 8. Click OK and Close.

Import from File	
Ele: 10\Downloads\Historian\(RA-LIB) AssetFramework_Templates v4.00-00.xml Import Options Allow Greate Allow Update Allow Update Allow Update Allow Update Allow Check In	Import from File X Operations Completed: 508 Processing AFAnalysisTemplate 'Fault Analysis' ^ Processing AFElementTemplate 'P_ValveMP_Val_Fault' ^ Processing AFAnalysisTemplate 'Data' ^ Processing AFAnalysisTemplate 'Pault Analysis' ^
OK Cancel	Processing AFElementTemplate 'P_VSD' Processing AFAnalysisTemplate 'Data' Processing AFAnalysisTemplate 'Data' Processing AFElementTemplate 'P_VSD_Val_Fault' The requested action is complete. Close

(\ASIS01\Pla	ntPAx - PI System Explorer (Administrator)	- 🗆 X
<u>F</u> ile <u>V</u> iew <u>G</u> o <u>T</u> ools <u>H</u> elp 🕼 Database 🛅 Query Date ▼ 🕔 🥥 🚱 Back 🌍 💐 Check II	n 🍫 🗸 🔊 Refresh 📓 New Template 🗸 🛛 Search Element Ten	
• • • • • • • • • • • • • • • • • • • •		nplates 🎾 🔹
Library	PlantPAx General Counts Name: PlantPAx Description:	
PlantPAX_Modified:4/28/2017 2:21:42 PM.		

The database now contains the Library object templates.

Configure Asset Framework Elements

Complete these steps to associate the tags with Historian elements, which are the Process object templates.

1. Click Elements in the lower, left pane of the PI System Explorer dialog box.

An Element tree appears in the top, left pane.

- **TIP** The term 'element' is used in the Asset Framework software. For PlantPAx system purposes, 'element' can be considered synonymous with 'objects' in the Rockwell Automation Library of Process Objects.
- 2. Right-click Element and choose New Element.

File Search View Go Tools Help Database Query Date * () @ Back () @ Check in * () * () @ Refresh * New Element * Elements Image By Add Element Reference Arrange By I @ Refresh Paste I @ Paste I @ Paste I @ Description Category Type Template I @ Refresh I @ Refresh I @ Refresh I @ Paste I @ Description Category Type I @ Refresh I @ Description Category Type I @ Description Category Type I @ Refresh I @ Description I @ Descripti	٩	\\ASIS	01\Pla	antPAx - Pl	System Explo	orer (Administ	trator)	_	D X
Image: Big State New Element Image: By Image:	Database Elements		Back		eck In 🏷 🗸 🛛	👌 Refresh 🛛 🎁 N	lew Element	~	
Elements Event Frames	Elements	New Model Add Element Reference Arrange By Refresh Paste Paste Reference Import from File		ame ere are no ele d object block w Element w Model	ements configured of AF, typically us	for this database.	Type Elements are t	Template	م ©

3. Select P_AIn and click OK.

Parent: PlantPAx Add child element using the reference type:
Element Template:
P_AIn ^
LBP_AINAOV
🛱 P_AInDual
P_AInMulti ≡
P_AOut
P_D4SD
P_DBC
P_DIn
☐ P_DoseFM ☐ P DoseWS
OK Cancel

- 4. Type the tag that is being assigned to the object, such as P_AIn.
- 5. Click Check In.

() \\ASIS	01\PlantPA	x - PI System Explorer (Ac	lministrator)	_ 🗆 X
Eile Search View Go Iools E Database Query Date • () Elements Elements TTO1001 Element Searches	Back 🗊 🖬 TT01001 General Chi <u>N</u> ame: <u>D</u> escription:	Id Elements Attributes Ports TT01001 Simple Analog Input P_AIn IO Processing	Analyses Version Type: Default Attribute: tions (0) Security Event Frame	None <none></none>

6. Click Check In again.

Name V J Data V J Fault Analysis	Change Added Added	This Session True True	Path TT0 100 1\Data TT0 100 1\Fault Analysis	Type Analysis Analysis	User SYSTEM\Administrator SYSTEM\Administrator
✓ √ TT01001	Added	True	TT01001	Element	SYSTEM\Administrator
<u>A</u> ll <u>N</u> one	Sessio	n			
Create New Version					
Effective <u>D</u> ate: 5/30/20: Comment:	17 2:13:01.32 F	M			

The current historical value is accessed from the Attributes tab.

- 7. Click the Attributes tab.
- 8. Click the Refresh button Refresh.

()ASIS	01\P	lant	PAx -	PI System Explore	er (Administrator)
<u>F</u> ile <u>S</u> earch <u>V</u> iew <u>G</u> o <u>T</u> ools <u>H</u> 🕲 Database 🛅 Query Date 🔹 🔇 🥥 🌗	•	6	🗐 🗸 C	heck In 🏾 🖓 🖌 🛃 R	Refresh 📴 New Element 🔹 🔟 New Attribute 🛛
Elements Elements TT01001 Element Searches	TT0 Gen	eral	Child El	ements Attributes Po	orts Analyses Version Group by: Category Template
		/:		Name 4	▲ Value
	E	0		🎺 SrcQ	Good - I/O live and assumed good quality
	ll⊞	4		🎺 Val	0
	⊕	4	None		

Search Event Frames

Complete these steps to search for event frames. Abnormal conditions trigger an event, with date, time, and duration of the event.

- 1. Click Elements in the lower, left pane.
- 2. Click the Analyses tab on the PI System Explorer dialog box.

0	\\ASIS01\PlantPAx - PI System Explorer (Administ	trator)	_ 🗆 X		
<u>F</u> ile <u>S</u> earch <u>V</u> iew <u>G</u> o <u>T</u> ools <u>H</u>	elp				
🔕 Database 🛗 Query Date 👻 🔇 🥥	Back 💿 🗟 Check In 🧐 🖌 👔 Refresh 🎁 New Element 👻		Search Elements 🔎 🔻		
Elements	TT01001				
Elements	General Child Elements Attributes Ports Analyses Version				
TT01001	Name:	Fault Ar	nalysis		
_	🛛 🖿 🖻 Name Backfilling Descri	ption:			
	🖉 🖩 f🐼 Data Catego	ories: Fault			
	👩 🗉 💾 Fault Analysis		pression () Rollup		
	Analys		ent Frame Generation		
		() LI			
	Event Frame Template: P_AIn_Val_Fault		Functions		
		Evaluate	Insert functions into the expression		
	Name Expression	Value	All		
	StartTrigger 'Val Fault'<>"None"	^	Abs		
			Acos		
	EndTrigger		And And		
	StartTrigger true for: 0 Minutes 👻		Ascii Abs(number x)		
	Generate child root cause event frame before parent event frame sta	arts	Return the absolute value of an integer or re		
	Duration: 5 Minutes -		Example: Abs(1)		
☐ Elements	Name: Root Cause				
Event Frames	Category:		Attributes		
Unit of Measure	Scheduling: Event-Triggered Periodic	Advanced	•		
Analyses	Trigger on Any Input		Connected to the PI Analysis Service.		
-			oe, vice,		
TT01001 Modified:5/30/2017 2:14:04 PM. Ve	rsion: 1/1/1970 12:00:00 AM, Revision 1				

The same fault information is available from Analyses in the lower, left pane.

File Yiew Go Lools Help										
File Yiew Go Iools Help										
File View ©o Tools Bile Database © Database © Query Date ~ () © © Back () © Check ln ~? ~ () Refresh Analyses Choose a filter None None None Image: Status Image: St										
	0 total analyses selected (0 on this page) 1 - 2 of 2 <> Operations									
None										
All (2)										
	C V H TT01001 Fault Analysis Fault Analysis									
Choose a filter 0 total analyses selected (0 on this page) 1 - 2 of 2 <> Operations All (2) filter Image: Status in the status i										
Elements										
Event Frames	Element path: TT01001									
🎬 Library										
File View Go Lools Help Database @ Query Date • () @ C Back @ C Check In * • • @ Refresh Analyses Choose a filter None All (2) Operations Status @ Element Name Template Backfilling I (2) Analysis Details Overview Errors And Warnings H Fault Analysis configuration Analysis Details Overview Errors And Warnings H Fault Analysis Configuration Analysis Service: Elements H Fault Analysis Ibitrary Butt of Measure Out of Measure										
Analysis Details Image: Constraints and the second sec										
Analyses		.:								

Finding Faults for Analysis

Complete these steps to search for event frame events to assess faults.

1. Click Event Frames in the lower, left pane of the PI System Explorer dialog box.

0	\\ASIS01\PlantPAx - PI System Explorer (Administrator)	_ □	x I
<u>F</u> ile <u>S</u> earch <u>V</u> iew <u>G</u> o <u>T</u> ools <u>H</u>	elp		
🔕 Database 🛗 Query Date 🔻 🕚 🥥	Back 💿 🖳 Check In 🍫 🖌 🗟 Refresh 💾 New Event Frame 🖉 Se	earch Event Frames	- م
Event Frames	Event Frame Searches		
Event Frame Searche For transfer Searches ✓ Transfer Searches ✓ Transfer Search ✓ New Att			
	ribute Search		
Anter a construction of the second se	ent Frame		
2 Kerres <u>n</u>			
Elements			
Event Frames			
Unit of Measure			
Analyses			
0 Event Frame Searches			:

2. Right-click Event Frame Searches and choose New Search.

3. Select the desired search criteria and any filters.

		E	vent Fra	me	Search				x
Enter Event Fi	ame Criteria					<u>م</u>	-	Search	
					٢				
Search: Search start:	Starting Befi 12/31/9999								
Name:						×			
Element Name						×			
Category:	<all></all>					¥ ×			
Template:	< <u>All></u> Comput Controll Cross Fi					×			
	IO Proc Motors	essing							۲
	Procedu	ral Control ory Control				: 🗆	Categ	gory 🗌 Tem	plate
	Valves	ory control				on		Start Time	<u>م</u>
Status									
				[OK	Can	cel	Reset	

4. Click Search.

The search results for the selected criteria appear at the bottom of the dialog box.

		5. Click O	K.					
	Event Frame Search		x					
Category:"IO Pro	ocessing"	× ▼ <u>S</u> ear	ch					
	Criteria		۲					
	In Progress 2/31/9999 11:59:59 PM 🖾 ► 🗹 All Descendants			Event I	Frame Search			x
			Category:"IO Pr	ocessing"		× •	<u>S</u> earch	
Name:		×		c	Criteria			
Element Name:		×	Search:	Starting Before	V 🗌 In Progress			
Category:	IO Processing V	×	Search star <u>t</u> :	12/31/9999 11:59:59 PM	All Descendants			
Template:	<all> ~</all>	×						
💫 Add <u>C</u> riteria	-		Name:			×		_
	Results		Element Name:			×		
	Group b	y: Category	Category:	IO Processing	~	×		
	Gantt Dura	ition Start T	Template:	<all></all>	~	×		
			🖧 Add Criteria	•	,			
				R	lesults			\$
					Group b	y: 🗌 🖸	ategory 🗌 Temp	ate
Status			Name		5/ [06:26:34.6732025] 5/	Duration 💿	
	ОК	Cancel <u>R</u> e	H Fault Analys	sis 2017-05-30 08:12:27			0:03:44.035	
<u> </u>				sis 2017-05-30 08:23:58			1:40:13.181	[=
Symbo	ol shows duration of fault by length of the line.			sis 2017-05-30 14:25:30.249			0:03:35.346	~
			The search found	d 4 Event Frames matching the se	earch criteria.			

6. To view elements (tags) that are associated with the fault for the selected search criteria, double-click a fault.

ОК

Cancel

<u>R</u>eset

7. Click the Referenced Elements tab.

•	\\ASIS01\PlantPAx - PI System Explorer (Administrator)	
<u>F</u> ile <u>S</u> earch <u>V</u> iew <u>G</u> o <u>T</u> ools <u>H</u> ② Database ⊞Query Date → () 🥥 🌍	elp Back 🌍 💐 Check In 🧐 🖌 🛃 Refresh 🗮 New Event Frame 🛛	Search Event Frames
Event Frames rent Frame Searches Frame Search 1 Fault Analysis 2017-05-30 14:25:30.249 Fault Analysis 2017-05-30 08:23:58.940	Fault Analysis 2017-05-30 14:25:30.249 General Child Event Frames Referenced Elements Attributes Filter	Group by: Category Template
Fault Analysis 2017-05-30 08:12:27.907 Fault Analysis 2017-05-30 08:02:30.923 ansfer Searches Transfer Search 1	Image: Construction Category Type Template Image: Construction of the system of the syst	©

Each tag (and description) that is assigned to the element appears.

8. To view a description of the abnormal condition, click the Attributes tab.

0	\\ASIS01\PlantPAx - PI System Explorer (Administrator)	- 🗆 X							
🧔 Database 🛗 Query Date 👻 🕔 🥥	🕽 Back 💿 💐 Check In 🧐 🖌 😰 Refresh 💾 New Event Frame ៉ New Attribute 🕴 Search Event Frame	es 🔎 🔻							
Event Frames	Fault Analysis 2017-05-30 14:25:30.249								
ent Frame Searches	General Child Event Frames Referenced Elements Attributes								
Paul Analysis 2017-05-30 08:23:58.940									
		<u></u>							
ansfer Searches	Val_Fault High								
Transfer Search 1									
Fault Analysis 2017-05-30 14:25:30.249 Filter Fault Analysis 2017-05-30 08:23:58.940 Filter Fault Analysis 2017-05-30 08:12:27.907 Value									
-									
File Search View Go Jools Help Database © Query Date © Back © Check In *? © Refresh New Event Frame New Attribute Fault Analysis 2017-05-30 14:25:30.249 Fault Analysis 2017-05-30 04:25:30.249 Fault Analysis 2017-05-30 08:12:27:90 Heaut Analysis 2017-05-30 08:12:27:90 Fault Analysis 2017-05-30 08:02:30.923 andfer Searches Transfer Search 1 Fault Analysis 2017-05-30 08:02:30.923 andfer Searches Transfer Search 1 Image: Searches Fault Analysis 2017-05-30 08:02:30.923 andfer Searches Transfer Search 1 Hements Fuent Frames Fault Analysis 2017-05-30 08:02:30.923 andfer Searches Transfer Search 1 Hements Fuent Frames Fue									
Ele Search Yiew So Tools Help Database Query Date Image: Search Searc									
1 Attribute									

Event Frames Reports (PI Builder)

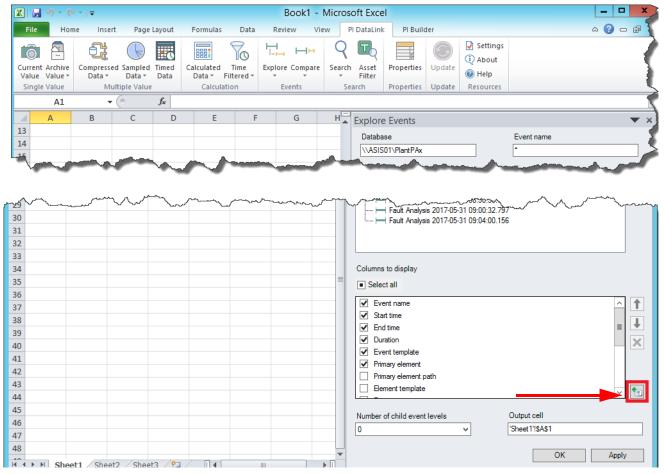
This section describes how to generate reports by using the information that is collected from the Event Frames (PI Builder spreadsheet).

IMPORTANT The PI Datalink tool used in this section is optional and requires a license.

1. Open the Template_ProcessObjects spreadsheet, which is included in the download with the PlantPAx Library of Process.

	a 9 - 0	• × -			Bo	Book1 - Microsoft Excel								_ 🗆 X			
F	File Home Insert Page La			Layout	Formulas	Data	Re	view V	'iew	PI D	ataLink	Pl Build	er 🗠	· 🕜 🗆	đ	23	
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	rent Archive lue Value ₹	Compress Data *	ed Sampled Data ≠	Timed Data	Calculated Data ▼	Time Filtered *	Explo *	ore Compar	e Sea		Asset Filter	Properties	Upda	te Reso			
Sir	ngle Value	M	ltiple Value		Calculation		Events			Sear	ch	Properties	Upda	te			
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	А	В	С	D	E	F	:	G	Н		1	J		К			
1																	
2																	
3																	

2. Select the PI DataLink tab and click Explore.



3. Click the Add button to add an attribute.

4. Click the desired additional attribute.

1	Add Attributes	_ _ ×
Browse events and select attribut	30 08:23:58.940 30 14:25:30 249 31 08:50:33.773 31 09:00:32.797	

5. In the bottom, right pane, select the desired 'Columns to display' ans click Apply.

	, , , , ,	- -					Book1	- Mici	os	oft Exce	1				_ 🗆 X
	ile Hom		rt Page La	ayout	Formulas	Data	Review	View	P	9 DataLink	PI Build	ler			a 🕜 🗆 🗗 🔀
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	A1			f. J-DI				40.080						"start time ascendi	ng","","","", 🗘 🗙
	A		В	J. 1-F1		D	E					, , acu	vennange,	start time ascentin	
1	A Start time		End time				y el Val_Fault	F			e Events				• ×
2			30-May-17	10:04:12		Filling	Bad Input			Databa				Event name	
3			30-May-17			TT0100				\\ASIS	01\PlantPAx			•	
4	31-May-17	08:50:34	31-May-17	08:57:25	0 0:06:52	TT0100	1 High			Search	start			Event template	
5	31-May-17	09:00:33	31-May-17	09:01:14	0 0:00:41	TT0100	1 High			*-1d				•	
6	31-May-17	09:04:00	31-May-17	09:05:32	0 0:01:32	TT0100	1 High			Search	end			Element name	
7										•				•	
8															
9 10										🗌 Limi	t to database	level		Element template	
10														-	▼ ⊒
12										+ Mor	e search opti	ons			
13										Preview					
14											vents (5 found	0			
15													5-30 08:23:58.94	10	
16													5-30 14:25:30.24		
17													5-31 08:50:33.77 5-31 09:00:32.79		
18									=				5-31 09:04:00.15		
19															
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31											ement templat				
32															
33										Numbe	r of child ever	nt levels		Output cell	
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35 36															
	► ► She	et1 / She	et2 / Sheet	t3 / 🞾				•	•					OK	Apply
Rea														I II 100% —	

The events under the filter section appear in the report array.

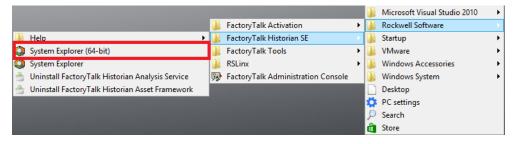
PlantPAx Configuration Tool

The tool is used for creating tags in Historian based on the Asset Framework model. The procedure assumes that the tool is installed after being downloaded from the Rockwell Automation Library of Process Objects.

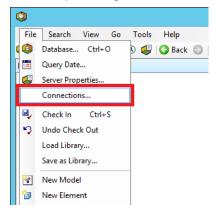
Configure Asset Framework Server

For optimum tool performance, you must make sure that the Asset Framework server is configured as described in this section.

1. To open the Asset Framework server, click Programs>Rockwell Software>FactoryTalk Historian SE>System Explorer (64-bit).



2. In the PI System Explorer, click File and choose Connections.



The Servers dialog box appears.

3. Right-click data collective (ASIH01) and choose Properties.

		Servers			>	:
🍋 Add Asset Server 🦄	Add Data Server 👘 Con	nect 🛛 Set as 🛛	efault 😁 Prope	rties <i> </i> Bufferi	ng Manager	Ŧ
Filter					Q	•
Name	Host	User	Buffer Status	Description	Туре	I
ASIH01	ASTH01A.Svs	SYSTEM\Admi	Unknown		Data Collective	
ASISO1	Add Data Server Add Asset Server Disconnect Switch Collective Memb Connect to Collective M Refresh	-			Asset Server	F
Suffer status upda	Remove				Close	>
burrer status upua	Properties					

The Properties dialog box appears.

	8	1
8	PI Data Archive Properties	D X
General Collective		
<u>N</u> ame:	ASIH01	<u>R</u> ename
Host:	ASIH01A.System.PlantPAx.local Port:	5450
Connection Timeout:	10	seconds
Data Timeout:	60	seconds
ID:	f955a146-c10b-4f1d-bda7-35ef12fe97ca	
Time <u>Z</u> one:	(UTC-08:00) Pacific Time (US & Canada)	
Version:	3.4.395.80	
Aļiases:	ASIH01A ASIH01B	*
	Connect	
	OK Cancel Apply	.ii

4. Rename or configure this connection as necessary for your system.

- 5. Click OK.
- 6. Right-click asset server (ASIS01) and choose Properties.

			Servers				_ □	x
🍋 Add Asset Server l Add Data	a Server	Cor	nnect 🔍 Set as De	efault 🖞	Prope	erties <i>@</i> Buffer	ing Manage	
Filter								، م
Name ASIH01	Host ASIH01A	A.Sys	User SYSTEM\Admi	Buffer S Unknov		Description	Type Data Colle	ر ective
WASIS01	localhosi		CVETENIA des Add Asset Server Add Data Server Disconnect Create Collective Refresh				Asset Ser	ver f
Suffer status update is complete.		• •	Remove Security				C	lose
		8	Properties					н

The Properties dialog box appears.

7. Rename or configure this connection as necessary for your system.

2	PI AF Server Propert	ies	_	D X
General Plu	g-Ins Libraries Identities Mappings Cou	nts		
<u>N</u> ame:	ASIS01			<u>R</u> ename
Description:				
H <u>o</u> st:	localhost	Port:	5457	
Account:			300	seconds
ID:	b233bc67-6891-44ae-a333-25c751682760			
Time <u>Z</u> one:	(UTC-05:00) Eastern Time (US & Canada)			
Version:	Server:2.7.5.7166; Database:2.7.5.7166			
Aļiases:	localhost			*
	Extended Properties (0) Security			
	Configure Active Directory Access for Conta	<u>cts</u>		
	Connect			
	OK Cancel	Apply		
				æ

8. Click OK.

Create Historian Tags by Using PlantPAx Configuration Tool

This procedure assumes that the controller, HMI server, and the alarm server are configured for using the PlantPAx Configuration Tool. For tool configuration procedures, see the documentation that is supplied with the tool. The tool is contained in the download with the Rockwell Automation Library of Process Objects.

- 1. Open the PlantPAx Configuration Tool.
- 2. Right-click Historian Servers and choose Add Historian Server.

			PlantPAx	Configurati	on Tools f	for Tag
File	View	Tools	Windows	Help		
i 🗅 🖻						
		Associa Associa Association	ated HMIA toryTalk Vid Server Nai Server Are a Server Are a Server Na a Server De rvers AES 1	oplication = F aw SE Netwo me = PlantP/ a Name = A a Name = A amme = PlantP avice Shortcu	ork Ax_HMI rea Area/Dat Ax_DAT	

The Add Historian Server dialog box appears.

3. Type the name of the Historian server and click OK.

	Add Historian Server	x
Name:	Production Historian	
Description:		
	OK	

The Select Controllers dialog box appears.

	Sele	ct Controllers for Building Data Points i	n Historian Server	X
Name: Description: FTLD Interface Number:	Production Historian			
Server or Collective Name: Point Source Name: Select Controllers and Enter D	ASIH01 FTLD ata Server Information			
Select Controller	Application Name PlantPAx	Data Area Full Path Area/Data	Data Server Name PlantPAx_DAT	Device Shortcut Name LGXC01
Factory Talk Application Mag	ne Data Server Name	and Device Shortcut Name must be provide	d when using ETLD point source	
Data Server Name is not req The default data server ram (Data Area Full Path example	uired when point source e used by FactoryTalk	e is not FTLD.	a when asing FFLD point source.	
				OK Cancel

4. Type the server or collective name and select applicable controllers.

- 5. Click OK.
- 6. In the left pane, right-click the Historian server that you just created (Production Historian in our example), and choose Import to Asset Framework (AF) Database.

PlantPAx Configuration Tools for Tags, Alarms, and Historian [PlantPAx]	_ 🗆 X
File View Tools Windows Help	
Logix Controllers Logix Controllers LGXC01 LGXC01 Scotted HMI Application = PlantPAx Scotted HMI Application = PlantPAx Scotted HMI Application = PlantPAx Scotted HMI Server Name = PlantPAx_HMI Scotted HMI Server Name = PlantPAx_HMI Data Server Area Name = Area Data Server Name = PlantPAx_DAT Data Server Name = PlantPAx_DAT Data Server Device Shortcut Name HMI Alarm Servers Scotted HMI Alarm Servers LGXC01 Scotted HMI Alarm Servers Scotted	
Change Controllers Associated with Historian Server	
Remove Historian Server	
Import to Asset Framework (AF) Database	
Build PI Points or Import File	
Evened All	

In the right pane, the Build Tags Setup window appears.

7. Click Connect.

Setup Information Build	
PI Server: Not Connected AF Server: Not Connected	PI Point Builder Options
AF Database: Not Connected	PI Point Builder Logix Data Type Definitions
Connect	Use the data types in the following controller to edit the definitions:
	Definitions
	Process Library Version
	V4_0 v
	PlantPAx Elements to Import to AF Database
	Process Tree v

8. Click OK twice.

	Connect	x
PI Server:	ASIH01A	v
AF Server:	ASIS01	¥
AF Database:	Plant PAx .	¥
	OK	

OK Connected
Connected to PI Server ASIH01A Connected to AF Server ASIS01 Connected to AF Database PlantPAx
ОК

The Build Tags window reappears.

9. Click Options.

Ş	
5	PI Point Builder Options
	Options
Ę	PI Point Builder Logix Data Type Definitions
Ş	Use the data types in the following controller to edit the definitions:
Ţ	Definitions
< l	Process Library Version
Ę.	V4_0 ~
3	PlantPAx Elements to Import to AF Database
5	ProcessTree v

The FactoryTalk Historian Import File Builder Options dialog box appears.

FactoryTalk Historian Import File Builder Options
Naming Version Descriptors Adjustments Security Parameters File Import Tags
Options for the Historian Data Point Name:
Include the controller name. Check the box if the same tag names are used in more than one controller - this will create unque PI Points for the controller tags; for example, "Controller1.TI123", "Controller2.TI123", etc.
Process Library Version
V4_0 V OK Cancel
UK Cancel

The option, if selected, adds the controller name as a prefix to Historian tags. For example, LGXC01.<tagname>.

For our example shown, the option is not checked. Therefore, the controller prefix is not included in the Historian tag names.

- 10. Close the FactoryTalk Historian Import File Builder Options dialog box.
- 11. In the right pane, click the Build Tags Information tab.

/ Enumeration Sets Templates Categories Element	its						
PAX Library State Sets File Name: C:\Program File	es (x86)\Rockwell Automation\PlantF	Ax Configuration Too	ls for Tags, Al	larms, Historian\PAxFTHLibraryF	Files\PAX_V	4_0\V4_(_FTH
PAX Library State Sets:		~					
PI Server Digital State Sets				AF Database Enumeration	n Sets		
Digital State Sets:		~		Enumerati	on Sets:		
The following is a summary of comparsion of the li	ibrary state sets and PI Server state	e sets.		The following is a sun	nmary of co	mparsior	n of the
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if ar	on import. prary sets on import. ny.		^	Sets that are not found Sets that are different Double-click on a row	d in the AF o will be over v to view the	latabase written wi differenc	are ad th the li
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if ar Libray Set Name	on import. prary sets on import.	Not Found		Sets that are not foun Sets that are different	d in the AF d will be over	latabase written wi differenc	are ad th the li es - if a
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if an Libray Set Name P_AIn_Val_Fault	on import. prary sets on import. ny.	NotFound		Sets that are not found Sets that are different Double-click on a row	d in the AF o will be over v to view the	latabase written wi differenc Not	are ad th the li es - if a
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if ar Libray Set Name	on import. prary sets on import. ny.	Not Found		Sets that are not found Sets that are different Double-click on a row Libray Set Name	d in the AF d will be over to view the Different	latabase written wi differenc Not Found	are ad th the li es - if a
Sets that are not found in the PI Server are added Sets that are different will be overwriten with the lib Double-click on a row to view the differences - if an Libray Set Name P_Aln_Val_Fault P_Aln_Val_Sts	on import. prary sets on import. ny.	Not Found		Sets that are not found Sets that are different Double-click on a row Libray Set Name P_Ain_Val_Fault	d in the AF of will be over v to view the Different	latabase written wi differenc Not Found	are ad th the li es - if a
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if an Libray Set Name P_AIn_Val_Fault P_AIn_Val_Fault P_AOut_Val_Fault	on import. prary sets on import. ny.	Not Found V V V		Sets that are not found Sets that are different Double-click on a row Libray Set Name P_Ain_Val_Fault P_Ain_Val_Sts	d in the AF c will be over v to view the Different	latabase written wi differenc Not Found V	are ad th the li es - if a
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if ar Libray Set Name P_AIn_Val_Fault P_AIn_Val_Fault P_AOut_Val_Fault P_AOut_Val_Sts	on import. prary sets on import. ny.	Not Found V V		Sets that are not found Sets that are different Double-click on a row Libray Set Name P_AIn_Val_Fault P_AIn_Val_Sts P_AOut_Val_Fault	d in the AF of will be over v to view the Different	Iatabase written wi difference Found V V V	are ad th the li es - if a
Sets that are not found in the PI Server are added Sets that are different will be overwritten with the lib Double-click on a row to view the differences - if ar Libray Set Name P_AIn_Val_Fault P_AIn_Val_Fault P_AOut_Val_Fault P_AOut_Val_Sts P_D4SD_Val_Fault	on import. prary sets on import. ny.	Not Found V V V		Sets that are not found Sets that are different Double-click on a row Libray Set Name P_AIn_Val_Fault P_AIn_Val_Sts P_AOut_Val_Fault P_AOut_Val_Sts	d in the AF of will be over v to view the Different	latabase written wi difference Not Found V V	are ad th the li es - if a

Review the information.

12. Click the Build tab.

Setup Information Build	
Status:	-
	Build
	Abort Build
	Abort build
	Save Log

13. Click the Build button.

14. Click OK.

000c2951dd44' FIC01002		<u>^</u>
AFDatabase change event: Action='SubObjectChange', Identity=' 000c2951dd44'	Element', UniquelD='242b3bb6-699b-11e8-80dc-000c2951dd44', ParentlD='242b3bb3-699b-11e8-80dc-	Build
Equipment01		Abort Build
AFDatabase change event: Action='SubObjectChange', Identity=' 000c2951dd44' Area01	Element', UniqueID='242b3bb3-699b-11e8-80dc-000c2951dd44', ParentID='242b3bb0-699b-11e8-80dc-	
AFDatabase change event:	X	
Action='SubObjectChange', Identity=' 000000000000' Process01	EK dd44', ParentID='0000000-0000-0000-0000- Completed adding Logix elements to AFDatabase.	
AFDatabase change event: Action='DirtyCleared'	ОК	
PlantPAx		

The build process completes.

Information Bu	ild		
Status:			
AFDatabase c Action='SubOb 000c2951dd44	jectRefresh', Identity='Element', UniqueID='242b3be3-699b-11e8-80dc-000c2951dd44', ParentID='242b3bd7-699b-11e8-80dc-	^	1
TT03001			Build
AFDatabase c Action='SubOb 000c2951dd44	jectRefresh', Identity='Element', UniqueID='242b3be9-699b-11e8-80dc-000c2951dd44', ParentID='242b3be6-699b-11e8-80dc-		Abort Build
FIC04002			
AFDatabase c Action='SubOb 000c2951dd44 FT04002	jectRefresh', Identity='Element', UniqueID='242b3bec-699b-11e8-80dc-000c2951dd44', ParentID='242b3be6-699b-11e8-80dc-		
AFDatabase c Action='SubOb 000c2951dd44 MT04001	jectRefresh', Identity='Element', UniqueID='242b3bef-699b-11e8-80dc-000c2951dd44', ParentID='242b3be6-699b-11e8-80dc-		
AFDatabase c Action='SubOb 000c2951dd44 TT04001	jectRefresh', Identity='Element', UniqueID='242b3bf2-699b-11e8-80dc-000c2951dd44', ParentID='242b3be6-699b-11e8-80dc-		
	00 AM Exit AddAFElementsToRoot. tion time = 00.00:02.2168705		Save Log

15. Close the PlantPAx Configuration Tool.

Verify Asset Framework Library and Elements

After using the PlantPAx Configuration Tool, you must verify that the Asset Framework library and elements are properly imported into the Asset Framework database.

1. To open the Asset Framework server, click Programs>Rockwell Software>FactoryTalk Historian SE>System Explorer (64-bit).

the second se			Microsoft Visual Studio 2010	•
the second se	FactoryTalk Activation	۲ 📔	Rockwell Software	•
Help +	퉬 FactoryTalk Historian SE	> ม	Startup	•
System Explorer (64-bit)	FactoryTalk Tools	۲ 🎚	VMware	•
🕥 System Explorer	🐌 RSLinx	٠ 🔋	Windows Accessories	•
🐁 Uninstall FactoryTalk Historian Analysis Service	🥵 FactoryTalk Administration Console		Windows System	→
🐁 Uninstall FactoryTalk Historian Asset Framework			Desktop	
		0	PC settings	
		P	Search	
		i di	Store	

The PI System Explorer window appears.

2. Click the Library folder.

۰ ر	\\ASIS01\PlantPAx - Pl Sys	tem Explorer (Administrator)		×
<u>F</u> ile <u>V</u> iew <u>G</u> o <u>T</u> ools <u>H</u> elp ② Database Query Date → ① 🥥 🊱 Back	🏐 🗟 Check In 🧐 🗸 🛃	Refresh 词 Nev	v Template 🔹	Search	1 Element Templates 🔎	_
Library	Element Templates					
September 2019					Group by: 📃 <u>C</u> atego	; 0
⊡… 🔽 Templates	Filter				م	>
🗉 🗝 Event Frame Templates	Name 4	Description	Category	Туре	٢	
····· 😤 Model Templates	□ C_Interface_FTLD	Historian Fact	Computer	Element		2
	C_Interface_Perfmon	PI Perfmon Int	Computer	Element		
🖅 🗠 Reference Types	C_Perfmon	Standard Com	Computer	Element		
🛅 Tables 🛅 Table Connections	C_Perfmon_ASAM	AssetCentre C	Computer	Element		
	C_Perfmon_ASIH	Historian Com	Computer	Element		
🔄 Analysis Categories	C_Perfmon_ASIS	SQL Server Co	Computer	Element		
🖻 Attribute Categories	C_Perfmon_PASS	PASS Compute	Computer	Element		
····· 🕞 Reference Type Categories	🕞 L_Shortcut	RSLinx Enterpr	Computer	Element		
🛄 Table Categories	🛱 P_AIn	Simple Analog	IO Processing	Element		
	P_AInAdv	Analog Input	IO Processing	Element		
	🕞 P_AInDual	Dual Analog In	IO Processing	Element		l
	🕞 P_AInMulti	Multi Analog In	IO Processing	Element		2
	🛱 P_AInTest	Simple Analog	IO Processing	Element		
	P_AOut	Analog Output	IO Processing	Element		
	P_D4SD	Discrete Contr	Valves	Element		2
🗊 Elements	P_DBC	Deadband Con	Regulatory Co	Element		
Event Frames	P_DIn	Digital Input	IO Processing	Element		2
Library	P_DOut	Digital Output	IO Processing	Element		2
unit of Measure	P_Fanout	Fanout Control	Regulatory Co	Element		Z
	P_HiLoSel	High Low Selec	Regulatory Co	Element		Z
Mary Scs	A P IIS	Lead Leg Control	Procedural Co	Flement		2

3. Verify the contents of the library.

4. Click Elements.

- 5. Verify the elements.
- 6. Close the PI System Explorer.

Notes:

Configure I/O Modules

The PlantPAx[®] system features flexible, intelligent I/O instrumentation to maximize production and reduce downtime. This chapter describes basic techniques for configuring plant-wide communication via I/O modules.

The ControlLogix^{*} system is chassis-based and provides the option to configure a control system that uses sequential, process, motion, drive control, deterministic, and I/O capabilities. Ethernet remote I/O modules transmit end device feedback to controllers. The data includes diagnostics, temperature measurement, and counter-inputs for process control.

Procedures in this chapter describe how to configure the devices that are shown in <u>Figure 7</u>.

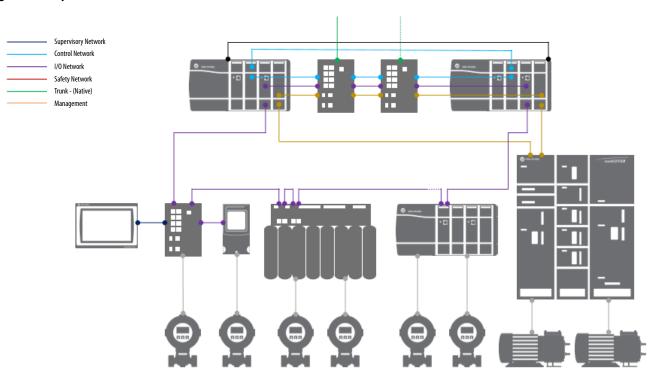
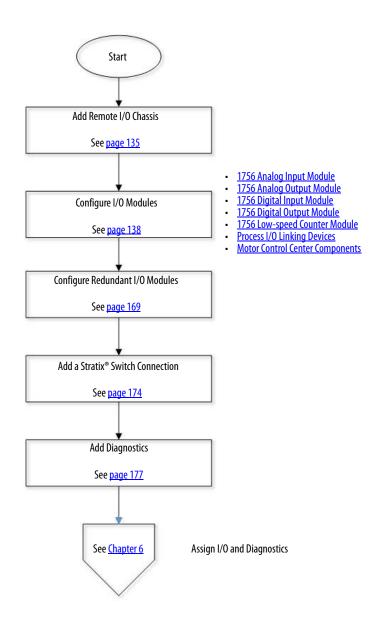


Figure 7 - Example of PlantPAx Distributed I/O Modules

Figure 8 contains the topics that are described in this chapter. Click or see the page number for quick access to a section.

Figure 8 - I/O Infrastructure Workflow



Add Remote I/O Chassis

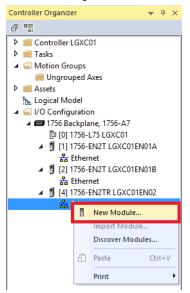
Use an Engineering Workstation with these procedures.



This section describes how to add a remote I/O chassis and configure a ring supervisor, if applicable. Make sure that the chassis size matches the installed rack size.

Complete these steps in Logix Designer.

1. In the I/O Configuration tree, right-click the remote I/O network under the adapter and choose New Module.



2. In the Catalog tab of the Select Module Type dialog box, select a network adapter and click Create.

Catalog Module Discovery Fa	Select Module Ty	/pe	
Enter Search Text for Modu	<u>C</u> lear Filters		H <u>i</u> de Filters
Module Type Categor CIP Motion Converter Communication Communications Communications Adap	er V Ad	odule Type Vendor Filters vanced Energy Industries, Inc. dress+Hauser NUC CORPORATION NUC Robotics America	×
<		III	>
Catalog Number 1747-AENTR 1756-EN2E 1756-EN2TP 1756-EN2TR 1756-EN2TR 1756-EN2TSC <	Description 1747 Ethemet Adapter, 2-Port, Twisted-Pair 1756 10/100 Mbos Ethemet Bridge, Eher N 1756 10/100 Mbps Ethemet Bridge, 2-Port, 1756 10/100 Mbps Ethemet Bridge, 2-Port, 1756 10/100 Mbps Ethemet Bridge, Twister III	Media Bockwell Autom d-Pair Media Rockwell Autom Twisted-P Rockwell Autom Twisted-P Rockwell Autom	Category Communication Communication Communication Communication Communication Communication Communication Communication Communication >
142 of 548 Module Types Fo	und		Add to Favorites
Close on Create		Create	Close Help

3. On the New Module dialog box, type a module name and set an IP address.

New Mod	ule	x
General* Connection Module Info Internet Protocol Port Configurat Type: 1756-EN2T 1756 10/100 Mbps Ethemet Bridge, Twiste Vendor: Rockwell Automation/Allen-Bradley Parent: LGXC01EN02 Name: LGXC01EN02R01 Descrigtion:	tion Time Sync	x
Status: Creating	OK Cancel Help	

- 4. Click Change.
- 5. On the Module Definition dialog box, do the following.

Module Definition*				
<u>R</u> evision: Electronic <u>K</u> eying:	10 V 001 V Compatible Module V			
Rack Connection: Time Sync Connection: Chassis Size:	None v Time Sync and Motion v 7 v			
ок	Cancel Help			

- a. See <u>step 6</u> for the Rack Connection.
- b. In the Time Synch Connection pull-down, select Time Synch and Motion.
- c. In the Chassis Size pull-down, select a value for the number of chassis slots for this remote chassis.
- d. Click OK.

6. If you use a rack connection as 'Rack Optimization', make sure to configure the proper Requested Packet Interval (RPI) under the Connection tab.

If you are not using a rack option, you have to set an RPI for each device.

IMPORTANT The option 'Use Unicast Connection over EtherNet/IP' defaults. For a redundant controller, you must disable this option.

- 7. Click OK to change the module definition.
- 8. Click OK again to add the module.
- 9. To add additional network adapters, repeat step 1 through step 7.

See <u>Configure I/O Modules on page 138</u> for how to add analog and digital I/O modules.

Configure I/O Modules

A wide range of I/O modules can be used with smart devices and motors for process control in the PlantPAx system. This section describes how to configure analog and digital I/O modules.

Procedures in this section use preferred PlantPAx I/O network modules with example settings for ControlLogix, HART, Process device, and motor control modules.

Logix5000[™] controllers can be configured with local and remote I/O modules in multiple networks.

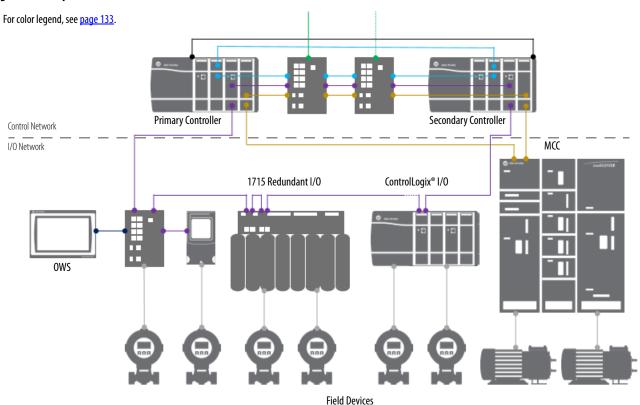


Figure 9 - Example of I/O Network Modules

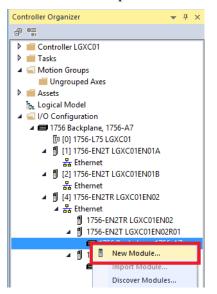
1756 Analog Input Module



ControlLogix analog I/O modules are interface modules that convert analog signals to digital values for inputs. Conversely, the modules convert digital values to analog signals for outputs. Controllers use these signals for control purposes. After you create a Logix Designer application and add a communication module to the project (see <u>page 135</u>), complete the following steps to create a module in the project.

This procedure shows how to add an 8-channel isolated HART analog input model to a 1756 ControlLogix controller.

1. In the Controller Organizer of a Logix Designer application, right-click the remote I/O backplane and choose New Module.



The Select Module Type dialog box appears.

	Sele	ct Mo	dule	е Туре			
Catalog Module Discovery Favori	tes						
Enter Search Text for Module Ty	pe	<u>C</u> lear	Filter	5		Hide Filters	*
 Module Type Category Fit 	ters	^	✓	Module Type Ver	ndor Filters		^
Analog		=	-	Advanced Micro	Controls Inc. (AMCI)		=
Communication			✓	Hardy Process So	olutions		
Controller			-	Hiprom Technolog	gies		
Digital		~	✓	Molex Incorporate			~
		>	<	Osline Developer		(=h=)	>
 Catalog Number 	Description				Vendor	Category	~
1756-IF8H	8 Channel HART Analog	nput			Rockwell Autom	Analog	
1756-IF8I	8 Channel Voltage/Curren	t Analo	1 Innu	t Isolated	Rockwell Autom	Analog	
1756-IF8IH	8 Channel Isolated HART	Analog	Input		Rockwell Autom	Analog	
1/56-IR12	12 Channel Non-Isolated	RTD An	alog I	nput	Rockwell Autom	Analog	
1756-IR6I	6 Channel Isolated RTD A	nalog li	nput		Rockwell Autom	Analog	
1756-IRT8I	8 Channel RTD/Thermoc	ouple A	nalog	Input, Isolated	Rockwell Autom	Analog	~
<							>
26 of 150 Module Types Found						Add to Fav	orites
Close on Create					Create	Close	Help

2. With the Category tab selected, click the box for each module type (in the top left filters box).

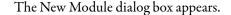
The Analog box is checked in our example so analog modules are our selection choices in the middle of the dialog box.

You can also sort by vendor in the top right filter box.

A Logix Designer application also gives you an option to select available modules when you are **online** in the system. The Module Discovery tab lists modules that the Logix Designer application automatically detects on the backplane.

- 3. If online, select a module and click Create.
 - **TIP** If you are offline, in the Catalog tab of the Select Module Type dialog box, select an analog module and click Create.

Select Module Type						
Catalog Module Discovery Favorites						
Modules	Revision Additional Information	Action				
1756 Backplane, 1756-A7						
🖞 [01] 1756-IF8IH	1.001	Create				
🖞 [02] 1756-IB32	3.006	Create				
🖞 [03] 1756-EN2TR	10.010	Create				
🖞 [04] 1756-OF8IH	1.001	Create				
🖞 [05] 1756-OF8H	2.001	Create				
🖞 [06] 1756-DNB	10.004	Create				



				N	ew Module				x
General*	Connection	Module Info	Configuration	Alarm	HART Device	Info Calibra	tion		
Type:	1756	-IF8IH 8 Chann	el Isolated HAR	T Analog	g Input				
Vendor:	Vendor: Rockwell Automation/Allen-Bradley								
Parent:	LGX0	C01EN02R01							
Na <u>m</u> e:	LGX	C01EN02R01A	N01			Slot:	1	~	
Descri <u>p</u> tio	on:				^ ~				
Module	Definition								
Series:	:	А							
Revisio	on:	1.001							
Electro	onic Keying:	Compatible M	odule						
Conne	ection	Data			^				
Input C	Data	Analog Only							
Config	gure HART D.	No			~				
				C	Chan <u>q</u> e				
Status: Crea	Status: Creating OK Cancel Help								

- 4. On the General tab, do these steps:
 - a. Type a name for the module.
 - b. Type a description for the module.
 - c. Select the slot number for the module.

5. In the Module Definition box, click Change.

The Module Definition dialog appears.

	Module Definition*	x
<u>S</u> eries: <u>R</u> evision: Electronic <u>K</u> eying:	A ✓ 1 ✓ 001 🔹 Compatible Module ✓]
Connection: Input Data: Configure HART Device(s): Coordinated System Time: Data Format:	Data v Analog and HART by Channel v Yes v Timestamped v Float v	
ОК	Cancel Help	

6. Complete the following actions.

Parameter	Action	Values		
Connection	From the pull-down menu, select a connection type.	 Data - has more tabs on the Module Properties dialog box than Listen-only because of configuration settings for alarms, calibration. 		
		Listen-only - has no configuration data, does not send output data.		
Input Data	From the pull-down menu, select a data input mode.	 Analog Only Analog and HART PV Analog and HART by Channel For details, see the ControlLogix HART Analog I/O Modules User Manual, publication <u>1756-UM533</u>. 		
Configure HART Device	Select whether to enable the Configure HART Device feature. This feature is available only for the 1756-IF8IH and 1756-OF8IH modules when data format is Analog and HART by Channel. If you select Yes, a HART Command tab is added to the configuration dialog, in which you specify configuration values to be sent to the HART device.	Values that can be added in the HART Command tab are PV Damping (seconds), PV Units, PV Upper Range, PV Lower Range, PV Transfer Function.		
Coordinated System Time	Not configurable.	Timestamped.		
Data Format	Not configurable.	Float.		

7. Click OK.

A warning message asks you to confirm changes to the module definition.

8. Click Yes.

9. Click the Connection tab.

New Module	x				
General Connection Module Info* Configuration* HART Command*	HART Device Info* Calibration*				
Requested Packet Interval (RPI): 250.0 ms (11.0 - 750.0)					
Inhibit Module	Inhibit Module				
Major Fault On Controller If Connection Fails While in Run Mode					
✓ Use Unicast <u>Connection over EtherNet</u> /IP					

10. In the RPI box, type a value to specify a time interval when the data is sent to the controller.

IMPORTANT An RPI that is set too fast can affect controller performance. We suggest that you specify an RPI that is two times faster than task execution or based on inherent properties of the signal being measured. For example, a 250 ms task requires a 125 ms time, but temperature measurements can be set slower as they are unlikely to change that quickly.

11. Leave the default checkbox 'Use Unicast Connection over EtherNet/IP'.

IMPORTANT The Unicast checkbox must be disabled (no check mark) for a redundant controller.

Enable HART Channel Data

Complete these steps to configure each channel for HART data.

1. Click the Configuration tab.

		New Module
	ſ	General* Connection* Module Info* Configuration* HART Command* HART Device Info* Calibration* Channel 0* 1 2 3 4 5 6 7
ard e.		Scaling High Signal: High Engineering: 20.0000 mA = 100.0000 Low Signal: Low Engineering: 0 0 4.0000 mA = 0 0 Beal Time Sample (RTS): 115 ms ms

2. Check Enable HART for each applicable channel and click OK to create the module.

We recommend that you Enable HART for any channel that has a connected HART device. The information is displayed on the HART Device Info tab and accessed by FactoryTalk[®] AssetCentre software.

See <u>Appendix A</u> for NAMUR standard value ranges depending on module.

You can check Enable HART on channels that have HART field devices attached.

- 3. If online, reopen the module properties dialog box and click the HART Command tab to specify HART device parameters for each channel. These values are sent to the HART device.
- 4. Click 'Enable HART Device PV Range Configuration (Command 35, Command 47)'.

IMPORTANT If you enable the HART device for a PV range, the functionality provides a continuous update of the variables. The data is exposed as tags in the I/O module. If you do not want a continuous update of the variables, remove the check in the 'Enable HART Device PV Range Configuration' box.

General Connection Module Info Configuration HART Command HART Device Info* Calibration						
- Chan	nel 0 1 2 3 Enable HART Device PV Dam PV Damping:	4 5 6	34)			
	Enable HART Device PV Ram PV Units: PV Upper Range: PV Lower Range: PV Transfer Function: PV Damping, PV Range and connected to the channel.	ge Configuration (Command 35 °C (850.0000 (200.0000 Linear PV Transfer Function values)	· · · · · · · · · · · · · · · · · · ·	T device		
Status:	Running		ОК	Cancel	Apply	Help

- 5. Set a range for the highest and lowest values for the PV in the specified engineering units.
- 6. Click Apply.

- 7. Click the HART Device Info tab.
- 8. Click Set Device Info.

The Set Device Info button is enabled when the controller is **online**.

General Connection Module Info Configuration HART Co	mmand HART Device Info* Calibration
Channel	6 7 Set Device Info
Tag: TT01001 Message: AREA01	Manufacturer ID: Endress+Hauser Device Type: TMT162 Device ID: 5573646
Descriptor: TEMP 01001 Date: 1/1/2010 Write Protect: No	Final Assembly Number: 0 Set Device Info
PV Upper Range Value: 850.00 °C Lower Range Value: -200.00 °C Damping: 0.50 s Transfer Function: Linear	Tag: TT01001 Message: AREA01 Descriptor: TEMP 01001
SV Units: °C TV Units: °C FV Units: Unknown units : 0	OK Help
	Refresh
Status: Running	OK Cancel Apply Help

9. Type a tag name, message, and descriptor for the HART device on the selected channel and click Set.

This information is sent to and stored in the HART device.

10. Click OK.

1756 Analog Output Module

This section describes how to enable output parameters for a 1756-OF8IH analog module.

 To name the module, select the chassis slot, and define the RPI, repeat <u>step 1</u> through <u>step 11</u> on pages <u>139</u>...<u>142</u>.

The example shows a naming convention for the 1756-OF8IH analog module.

]				N	lew Mo	dule						x
	General*	Connect	tion Mo	odule Info	Output State	Configura	ation	Limits	HART	Device In	fo Cal	libration	
	Type:	1	756-OF8	BIH 8 Chan	nel Isolated HA	RT Analog	g Outpu	rt					
	Vendor:	R	Rockwell	Automation	n/Allen-Bradley								
	Parent:	L	GXC01E	EN02R01									
	Na <u>m</u> e:	l	LGXC01	EN02R01A	.001		Sl <u>o</u> t:			4		~	
	Descri <u>p</u> ti	on:				^ ~ ~							
	Module	e Definitio	n										
	Series	:	Α										
	Revisi	on:	1.0	001									
	Electro	onic Keyin	ng: Co	mpatible M	odule								
	Conne	ection	Da	ata		^							
	Input I			nalog Only		H.							
	Config	gure HAR	T D No	0		~							
					Change .								
9	itatus: Crei	ating							ОК	(ancel		Help

2. Click the Output State tab.

•	New Module
General* Connection* Module Info [*] Output State*	Configuration* HART Command* HART Device Info* Calibration*
Channel	5 6 7 <u>B</u> amp in Run Mode
	Ramp Rate: 0.0000 /s
Output State in Program Mode	Output State in Fault Mode
 Hold Last State 	● Hold Last State
O User Defined Value: 0.0000	O User Defined Value: 0.0000
Ramp to User Defined Value	Ramp to User Defined Value
	ts in Program Mode state uts to Fault Mode state

The dialog box is divided into four sections:

- Ramp Rate
- Output State in Program Mode
- Output State in Fault Mode
- Communications Failure

3. With an individual channel button selected, use the information in <u>Table 4</u> to configure the parameters.

Table 4 - Output Parameter Configuration

Select	Transitions
Ramp in Run Mode (Paramete	rs available in Hard Run mode)
Ramp Rate	Check the box and type a value to limit the speed at which an analog output signal can change. This option helps prevent fast transitions in output from damaging equipment that the output controls.
Output State in Program Mode	e (Parameters not available in Hard Run mode)
Hold Last State	Click to leave the current output at its last value.
User-Defined Value	Click and type a specific value to use when the owner controller is switched into Program mode. Value range is from -9,999,99999,999,999, default is 0.
Ramp to User-Defined Value	If Hold Last State — This field is disabled. User-Defined Value — Check if you want the output to ramp to the user-defined value at the specified ramp rate. If unchecked, output signal steps to the User-Defined Value immediately when you enter Program mode.
•	arameters not available in Hard Run mode) te if the Connection from Logix is inhibited. If communication later fails, in Program mode.
Hold Last State	Click to leave the output signal at its last value.
User-Defined Value	Click and type a specific value to use if a fault occurs. Value range is -9,999,99999,999,999, default is 0.
Ramp to User-Defined Value	If Hold Last State — This field is disabled. If User-Defined Value — You can check this option if you want the output to ramp to the user-defined value at the specified ramp rate If unchecked, the output signal steps to the user-defined value immediately when you enter Fault mode.
Communications Failure	·
	n mode, the output signal goes to its Fault mode state. If ram mode, the output signal behaves as follows.
Leave outputs in Program Mode state	Click to leave output signal at the configured Program mode value
Change outputs to Fault Mode	Change output signal at configured Fault mode value if a

communication fails (connection from controller breaks).

Proceed to Enable HART Channel Data on page 147

state

Enable HART Channel Data

Complete these steps to set up each channel for HART data.

1. Click the Configuration tab.

	New Module	x
General* Connection* I	Module Info* Output State* Configuration* HART Command* HART Device Info* Calibration*	
0× 1	2 3 4 5 6 7	
Scaling <u>H</u> igh Signal: 20.0000	High Engineering: Output Bange: 4 mA to 20 mA mA = 100.0000 Sensor Offset: 0.0000	
<u>L</u> ow Signal: 4.0000	Low Engineering: Hold for Initialization mA = 0.0000	
Keep HART Replies for:	15 × s	
Pass through:	Once per two channels scanned	

2. Check Enable HART for each applicable channel.

We recommend that you Enable HART for any channel that has a connected HART device. The information is displayed on the HART Device Info tab and accessed by FactoryTalk[®] AssetCentre software.

- 3. Click OK to create the module.
- 4. If online, reopen the Module Properties dialog box and click the HART Device Info tab.

5. Click Set Device Info.

The Set Device Info button is enabled when the controller is **online**.

Gener		Module Info Output 2 3 CV01002 AREA 01 VALVE 01002 1/15/2006 No No	t State Configuration	HART Command 7 Manufacturer ID: Device Type: Device ID: Final Assembly Nu Stat Diag	HART Device Info
	2V Upper Range Va Lower Range Va Damping: Transfer Function SV Units: TV Units: FV Units:	ilue: 0.00 0.00	% % \$	Message: Descripto	AREA 01
Status:			o not match the values o update these values.	stored with Refree OK	Ssh Cancel Apply Help

6. Type a tag name, message, and descriptor for the HART device on the selected channel and click Set.

This information is sent to and stored in the HART device.

7. Click Set.

1756 Digital Input Module

This section focuses on how to configure individual points of the module for On/Off detection and actuation.

Complete these steps.

1. To name the module, select the chassis slot, and define the RPI, repeat step 1 through step 11 on pages 139...142.

On the respective Select Module Type dialog box, choose a 1756-IB16D diagnostic module or a 1756-IB32/B module.



ControlLogix Digital I/O modules are input/output modules that produce information when needed by using the produce/consume model. Digital modules also provide additional system functions, such as system Time Stamp of data and diagnostic detection. The diagnostic ('D') module has tabs for diagnostics output data while the output module has only Output Data. The graphics are examples only.

		lew Module
General* Connection	General	
Module Info Configuration Points Diagnostics	Type: 1756-IB16D 16 Point Vendor: Rockwell Automatic Parent: LGXC01EN02R02 Name: LGXC01EN02R02 Description:	
	Module Definition Series: Revision: 3.004 Electronic Keying: Compatible M Connection Data	New Module X Type: 1756-IB32/B 32 Point 10V-31.2V DC Input Vendor: Allen-Bradley Parent: LGXC01EN02R02 Name: LGXC01EN02R02D102 Slot: 2 🗸 Description: ✓ Comm Format: Input Data Revision: 3 6 🗸 Electronic Keying: Compatible Keying
Status: Creating		Open Module Properties OK Cancel Help

2. On the Connection tab, select an RPI and click OK.

	New	Module			x
General* Connection*	Connection				_
- Configuration - Points - Diagnostics	Name	Requested Packet Interval (RPI) (ms)	Connection over EtherNet/IP		
	StandardInput	250. d 1.2 - 750.0	Multicast 🥥		
	Inhibit Module Major Fault On Controller If Connection Module Fault	n Fails While in Run Mode			
Status: Creating			ОК	Cancel	Help

3. Click the Configuration tab.

IMPORTANT Skip the next two steps if you are not using the Change of State functionality.

- 4. Do one of the following in the Enable Change of State columns:
 - To enable COS for point range, check the corresponding Off to On or On to Off box.
 - To disable COS for a point range, clear the corresponding Off to On or On to Off box.

	New Module	x
General* Connection* Module Info Configuration - Points - Diagnostics	Points Input Filter Time (ms) Off -> On On -> Off 00 - 07 1 08 - 15 1 Imple Enable Change of State for Diagnostic Transitions	

- 5. Click OK.
- 6. Click the Points tab.

General*	Points						
Connection*							
Module Info			nge of State		Enable		
Points Diagnostics	Point	<mark>∲ Off->On</mark>	🛃 On->Off	Dpen Wire	Diag. Latching		
	00	~	Image: A state of the state	✓	✓		
	01	✓	~	✓	✓		
	02	<	✓	 Image: A start of the start of	✓		
	03	>	✓	✓	✓		
	04	✓	 Image: A start of the start of	 Image: A start of the start of	 Image: A start of the start of		
	05	~	✓	✓	✓		
	06	✓	 Image: A start of the start of		✓		
	07	✓	✓		✓		
	08	~		✓	✓		
	09	~	✓	✓	✓		
	10	~	~		✓		
	11	✓	✓	✓	✓		
	12	~	 Image: A start of the start of	✓	✓		
	13	~	 Image: A set of the set of the	✓	✓		
	14	✓	✓	✓	✓		
	15	✓	✓	✓	✓		

- 7. Do one of the following in the Enable Change of State columns:
 - To enable COS per point, check the corresponding Off to On or On to Off box.
 - To disable COS per point, clear the corresponding Off to On or On to Off box
- 8. Click OK to create the module.

For more information, see the ControlLogix Digital I/O Modules User Manual, publication <u>1756-UM058</u>.

1756 Digital Output Module

This section describes how to configure output states if the module goes into Program mode or Fault mode.

Complete these steps.

1. To name the module, select the chassis slot, and define the RPI, repeat step 1 through step 11 on pages 139...142.

On the respective Select Module Type dialog box, choose a 1756-OB16D diagnostic module or a 1756-OB32 module.

The diagnostic ('D') module has tabs for diagnostics output data while the output module has only output data. The graphics are examples only.

2. After you define the RPI on the Connection tab, click the Configuration Tab.

			New Mo	dule			x	
: General*	Configuratio	n						
Connection*	5							
Configuration		Output St	tate During	Enable Dia	gnostics for	Enable		
Diagnostics	Poin	Program Mode	Fault Mode	Uutput Verify	No Load	Diag. Latching		
Pulse Test	00	-	Off 🗸			✓		
	01	Off 🗸	Off 🗸	 Image: A start of the start of	v	v		
	02		Off v	✓ ✓	✓✓			
	04		Off 🗸	 ✓ 	▼			
	05	Off 🗸	Off 🔍	✓	 Image: A start of the start of	 Image: A start of the start of		
	06		Off v Off v	✓ ✓	✓✓	✓		
	08		Off 🗸	✓	▼			
	09		Off 🗸	✓				
	10		Off v Off v	✓ ✓	✓✓			
	12	Off 🗸	Off 🗸	✓	✓	 Image: A start of the start of		
	13	Off 🗸	Off v Off v					
	14	Off v Off v	Off v Off v	✓ ✓	 ✓ ✓ 			
			·					
		tions Failure						
	If communi Program M	cations fail in ode: (Leave output	s in Program Mode	state			
				its to Fault Mode s				
1								
Status: Creating						ОК	Cancel Help	
					New Mod	ule		
			Configuratio	n	New Mod	ule		
	General*		Configuratio	n	New Mod	ule		
	General* Connection* Module. Info			Output Sta		7		
	General*		Configuratio	Output Sta		7		
	General* Connection* Module. Info		Point	Output Sta Program Mode Off	te During ^ Fault Mode Off v	7		
	General* Connection* Module. Info		Point 00 01	Output Sta Program Mode Off v Off v	te During ^ Fault Mode Off v	7		
	General* Connection* Module. Info		Point 00 01 02	Output Sta Program Mode Off v Off v Off v	te During ^ Fault Mode Off v Off v Off v			
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	General* Connection* Module. Info		Point 00 01 02 03 04 05 06	Output Sta Program Mode Off Off Off Off Off Off Off Off	te During ^ Fault Mode Off v Off v Off v Off v Off v Off v Off v			
	General* Connection* Module. Info		Point 00 01 02 03 04 05	Output Sta Program Mode Off	te During ^ Fault Mode			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07	Output Sta Program Mode Off v Off v	te During ^ Fault Mode Off v Off v Off v Off v Off v Off v Off v Off v Off v Off v			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10	Output Sta Program Mode Off v Off v	te During Fault Mode Off U			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11	Output Sta Program Mode Off v Off v	te During Fault Mode Off v			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 07 08 09 10 11 12	Output Sta Program Mode Off ✓	te During Fault Mode Off v			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13	Output Sta Program Mode Off ✓	te During Fault Mode Off U			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 07 08 09 10 11 12	Output Sta Program Mode Off ✓	te During ^ Fault Mode			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	Output Sta Program Mode Off V Off V Off V	te During ^ Fault Mode Off Off _			
	General* Connection* Module. Info		Point 00 01 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16	Output Sta Program Mode Off ✓ Off ✓ <	te During ^ Fault Mode Off Off _			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Communica	Output Sta Program Mode Off ✓	te During ^ Fault Mode Off Off _			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Communica If communica	Output Sta Program Mode Off Program Mode Off Off <t< td=""><td>te During ^ Fault Mode </td><td></td><td></td><td></td></t<>	te During ^ Fault Mode			
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Communica	Output Sta Program Mode Off U Off	te During ^ Fault Mode	Program Mode s		
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Communica If communica	Output Sta Program Mode Off U Off	te During ^ Fault Mode	Program Mode s		
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Communica If communica	Output Sta Program Mode Off U Off	te During ^ Fault Mode	Program Mode s		
	General* Connection* Module. Info		Point 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Communica If communica	Output Sta Program Mode Off U Off	te During ^ Fault Mode	Program Mode s		Cancel

- 3. From the Program Mode pull-down menu, choose the module output state during Program mode:
 - On
 - Off
 - Hold (Retain current output state)



The low-speed counter module is used in Process applications to save controller bandwidth. The module can be used as a pulse totalizer for flowmeters or a speed sensor in conveyors.

- 4. From the Fault Mode pull-down menu, choose the module output state during Fault mode:
 - On
 - Off
 - Hold (Retain current output state)
- 5. Click OK.

For more information, see the ControlLogix Digital I/O Modules User Manual, publication <u>1756-UM058</u>.

1756 Low-speed Counter Module

This section describes Configuration tabs so the counters can count pulses from devices such as proximity switches and photoelectric sensors. The counts are presented as an accumulated count or frequency.

Complete these steps.

 To name the module, select the chassis slot, and define the RPI, repeat <u>step 1</u> through <u>step 11</u> on pages <u>139</u>...<u>142</u>.

On the respective Select Module Type dialog box, choose a 1756-LSC8XIB8I module.

2. After you define the RPI on the Connection tab, click the Configuration Tab.

You can associate hardware inputs of the module to the counters.

					New Module)
	Connection* Modu	le Info Input Co	Configuration	Counter Cor	figuration				
Counter	Up / Down Count Enable			Reset Count Preset Count		Counters	Counter Input Filter Time (µs)		
	Input Invert	input 🗖	nvert Input	Invert	input 🗀		Off->On	On->Off	
1 2	None	None v None v	None None None		None	0-7	0 🜩	0 ≑	
4	None	None v	None None None		None V		Counter Feature available in Outp Ielp.		
	None V	None 🗸 🛛	None None		None V				
Hardwa	are Input Filters	: <u> </u>							
Input Po 0	int Enable Filter			Points	Off->On On->Off				
2				0-7	0 🗢 0 🗢				
4 5 6									
7									

3. Select a counter to tie the counter control function to a standard hardware input.

The state of the external input device controls the designated counter

- 4. Check Invert to change the input count direction, if applicable.
- 5. Use the pull-down menus to choose the desired input filter times.
- 6. Click the Counter Configuration tab.

	New Module	x
General* Connection* Module Info	Input Configuration Counter Configuration	
Counter 0 1 2 3 Calculate Average Freque Frequency Calculation Tim Window Defined 0 Counts 1 Counts 1 Counts	4 5 6 7 ency Qver: 10 pulses neout: 1000 ms Enable Filter of this Counter In If Itter values for all counters Off->On 25µs, On->Off 50µs reset and Rollover values sout tags for this module. If is in the image of the ima	
Status: Creating	OK Cancel <u>H</u> elp	
Status, Greating	OK Cancel <u>H</u> eip	

- 7. Click a counter to configure frequency per pulses.
- 8. Click OK to create the module.

For more information, see the ControlLogix Low-speed Counter Module User Manual, publication <u>1756-UM536</u>.



These modules are referred to as linking devices because they provide a gateway between Ethernet and ControlNet networks to FOUNDATION Fieldbus and PROFIBUS PA networks.

Process I/O Linking Devices

This section shows how to configure Fieldbus Foundation and PROFIBUS PA linking devices to communicate field device information via Common Industrial Protocol (CIP[™]) networks to a Logix controller.

Complete these steps.

- 1. Right-click the network of the remote I/O, and choose New Module.
- 2. On the respective Select Module Type dialog box, choose a 1788-EN2FFR (fieldbus) or 1788-EN2PAR (PROFIBUS) module.
- 3. Name the device and type an IP address.

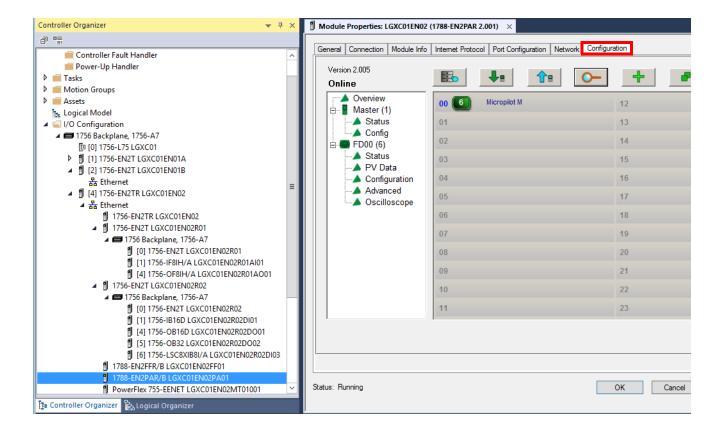
	Module Properties: LO	GXC01EN02 (1788-EN2FFR 1.001)	- 0 ×
General Conne	ection Module Info Configuration Internet Proto	col Port Configuration Network	
Type:	1788-EN2FFR Foundation Fieldbus Linking Device		
Vendor:	Hiprom Technologies		
Parent:	LGXC01EN02	Ethernet Address	
Name:	LGXC01EN02FF01	○ P <u>r</u> ivate Network: 192.168.1.	
Description:	<u>^</u>	IP Address: 172 . 18 . 2 . 21	
	✓	○ Host <u>N</u> ame:	
Module Defin			
Revision:	B Change		
Electronic Ke			
Connection:			
Status: Offline		OK Cancel Ar	oply <u>H</u> elp

- On the Connection tab, set the RPI value and click OK.
 For more RPI information, see the Important on page 142.
- 5. Click OK.
- 6. In the Controller Organizer, double-click the linking device.

The Module Properties dialog box appears.

7. Click the Configuration tab.

Controller Organizer 💌 👎 🗙	1	Module Properties: LG	XC01EN02 (1788-EN2FFR 1.001) ×	
a =			_		
Controller Fault Handler		General Connection I	Aodule Info	Configuration Internet Protocol Port Configuration	n Network
📕 Power-Up Handler					1
Tasks		Online 1.003			- 3 -
Motion Groups		····· A Overview		Prosonic-M	
Assets		Master (16)		00 24 452B481011-6200451509	
the Logical Model ▲ ⊆ I/O Configuration		🔺 🔺 Status		01	09
✓		🦾 🔺 Config			
[] [0] 1756-L75 LGXC01				02	10
[1] 1756-EN2T LGXC01EN01A				03	11
[2] 1756-EN2T LGXC01EN01B				04	12
器 Ethernet =				04	12
[4] [4] 1756-EN2TR LGXC01EN02				05	13
▲ 윪 Ethernet 1756-EN2TR LGXC01EN02				06	14
1756-EN2T LGXC01EN02R01					
⊿ 📾 1756 Backplane, 1756-A7				07	15
[0] 1756-EN2T LGXC01EN02R01				V	V
[1] 1756-IF8IH/A LGXC01EN02R01AI01					V
[4] 1756-OF8IH/A LGXC01EN02R01AO01				V	V
▲ 1756-EN2T LGXC01EN02R02				V	V
▲ 🚍 1756 Backplane, 1756-A7				V	V
[1] 1756-IB16D LGXC01EN02R02D101					
[4] 1756-OB16D LGXC01EN02R02DO01					
[5] 1756-OB32 LGXC01EN02R02DO02					
[6] 1756-LSC8XIB8I/A LGXC01EN02R02DI03					
1788-EN2FFR/B LGXC01EN02FF01					
1788-EN2PAR/B LGXC01EN02PA01	Sta	atus: Running			OK Cancel
PowerFlex 755-EENET LGXC01EN02MT01001		atao. Harining			Cancer
[I= Controller Organizer] [문_Logical Organizer					



Once the linking device is connected to the controller, you can see the linking device in the Configuration tab.

- Master green in the configuration tree = linking device is online
- Master gray in the configuration tree = linking device is offline

For more information, see the following documents:

- EtherNet/IP[™] and ControlNet® to FOUNDATION Fieldbus Linking Devices User Manual, publication <u>1788-UM057</u>
- EtherNet/IP and ControlNet to PROFIBUS PA Linking Devices User Manual, publication <u>1788-UM058</u>

Motor Control Center Components

This section describes how to configure MCC components, including PowerFlex[®] drive, SMC[™], and overload relay examples.

IMPORTANT	This section shows how to configure the PowerFlex 755 drive. You can use basically the same procedures for configuring other PowerFlex drives.
	The Datalinks must be configured before using the respective PowerFlex procedures. For Datalink information, see the following Rockwell Automation [®] Library of Process Objects Add-On Instructions: • PowerFlex 755 (P_PF755), publication <u>SYSLIB-RM040</u>

PowerFlex 753 (P_PF753), publication <u>SYSLIB-RM044</u>

PowerFlex 755 Example

Complete these steps.

1. In the I/O Configuration tree, right-click the remote I/O network and choose New Module.



Low-voltage motor control centers (MCC) house starters, soft starters, and drives as an alternative to wiring each device individually. Simplified programming creates a single network for complete machine control. 2. From the Select Module Type dialog box, select a PowerFlex 755 module and click Create.

	Selec	t Mo	dul	е Туре			
atalog Module Discovery Favor	ites						
Enter Search Text for Module 1	pe	<u>C</u> lear	Filter	S		Hide Filters	*
Module Type Category Fi	ters	~	~	Module Type Ver	ndor Filters		
DPI to Dual Port EtherNet			Ì	Advanced Energy			
DPI to EtherNet/IP				Endress+Hauser			
✓ Drive				FANUC CORPOR	RATION		
DSI to EtherNet/IP				FANUC Robotics	America		
		~		FUD Costana			~
<		>				>	
 Catalog Number 	Description				Vendor	Category	~
PowerFlex 755 HiPwr-EN.	1				Rockwell Autom	Drive	
PowerFlex 755 HiPwr-NE	AC Drive via 20-COMM-E				Rockwell Autom	Drive	
PowerFlex 755-EENET	AC Drive				Rockwell Autom	Drive	
PowerFlex 755-EEIVET-CIVI	PowerFlex 755 AC Drive via	a Emp		Ethemet - CIP	ROCKWEII AUTOM	Drive, Motion	
PowerFlex 755-EENET-C	PowerFlex 755 AC Drive via	a Emb	eddeo	Ethemet - CIP	Rockwell Autom	Drive, Motion	_
	PowerFlex 755 AC Drive via	a Emb	eddeo	Ethemet - CIP	Rockwell Autom	Safety, Drive, Mot	
<						>	
152 of 549 Module Types Foun	1					A <u>d</u> d to Favor	ites
Close on Create					Create	Close	Help

3. Type a name and IP address for the drive.

			Ne	w Moo	dule					x
General* Type: Vendor: Parent: Name: Descriptio Module Revision	Rocky LGXC Definition n: nic Keying: tion:	Flex 755-EEN well Automation 01EN02 01EN02MT010 01EN02MT010 01EN02MT010 01EN02MT010 01EN02MT010 01EN02MT010 01EN02MT010 01EN02MT010	Port Configuration ET AC Drive n/Allen-Bradley	Drive]	Ethernet Address Prjvate Netwo IP Address: Host <u>N</u> ame:	rk:	192.168 18 .	.1.	
Status: Crea	ting					ОК	(Cancel	Н	elp

4. In the Module Definition section, click Change.

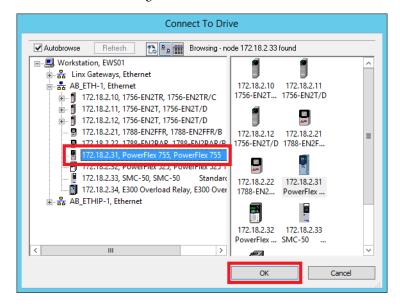
		Мос	lule Definition		x
<u>R</u> evision:	9 🗸 1	~	Input Data	Output Data	^
Electronic Koniner			DriveStatus	LogicCommand	
Electronic <u>K</u> eying:	Compatible Module	~	Feedback	Reference	
Drive Rating:	200V 4.8 (ND) 4.8 (HD)	~		Use Network Reference	=
Rating Options:	Normal Duty	~			-
ridding options.	Nonnai D'uty	+		<u></u>	
Special Types:	Compact	~		<u> </u>	
				<u></u>	
Selected Rating:	200V 4.8A				
Selected Catalog:	20GB4P8				
					~
			when improperly using a	, hazardous motion of machinery may o oftware to configure a drive. ted for the Input and Output Data appe	
Connection:	Parameters via Datalinks			ive Module-Defined Data Types and de	
Data Format:	Parameters	<u> </u>		ameters in the RSLogix 5000 project. Ad ontroller and drive is determined by Dat	
 click Web Update the web if drive is o 	ase button below if drive is online . to download the database from		parameters. You must download coi controller, drive and coi consistent with each ot	nfiguration to the drive to ensure that the nmunication module configurations are	
Create Database Match Drive	Web Update		OK	Cancel Help	

The Module Definition dialog box appears.

5. Click Match Drive.



6. Click Full on the message window.



- 7. Select the drive and click OK.
- 8. Click OK to the message that the online action is successful.

The Module Definition dialog box reappears with the input datalinks for the matching drive.

	Мос	lule Definition		x
<u>R</u> evision:	9 ~ 1 ~	Input Data	Output Data	^
Electronic Keying:		DriveStatus	LogicCommand	
Electionic Reying.	Compatible Module 🗸 🗸	Feedback	Reference	
Drive Rating:	240V 4.2 (ND) 4.2 (HD) 👻	TorqueCurFdbk	Use Network Reference	=
Rating Options:	Normal Duty 🗸	OutputCurrent		-
		OutputPower	<u></u>	
Special Types:	Standard 🗸 🗸	ElapsedMWH	<u> </u>	
		ElapsedRunTime SpeedUnits		
Selected Rating:	240V 4.2A	PredMaintSts		
Selected Catalog:	20GB4P2	StartInhibits		
-		DriveStatus2		_
		DriveOL Count	=	<u> </u>
		when improperly using	d, hazardous motion of machinery may o software to configure a drive. cted for the Input and Output Data appe	
Connection:	Parameters via Datalinks	member names in the	drive Module Defined Data Types and d	efines
Data Format:	Parameters 🗸		rameters in the RSLogix 5000 project. An controller and drive is determined by Dat	
If the revision of your - click Create Datab	r drive is not listed: ase button below if drive is online.	parameters.	controller and universidetermined by Dar	
	to download the database from		onfiguration to the drive to ensure that th ommunication module configurations are	e
To match revision ar - click Match Drive.	nd upload the configuration of an online drive		unei.	
Create Database	Web Update			
Match Drive]	ОК	Cancel Help	•

- 9. Click OK.
- 10. Click Yes to accept the module changes.
- 11. Click the Connection tab and set an RPI value.
- 12. Click OK to add the drive.

For more information, see the PowerFlex 750-Series AC Drives Programming Manual, publication <u>750-PM001</u>.

PowerFlex 525 Example

IMPORTANT	This section shows how to configure the PowerFlex 525 drive. You can use basically the same procedures for configuring other PowerFlex drives.
	The Datalinks must be configured before using the respective PowerFlex procedures. For Datalink information, see the following Rockwell Automation® Library of Process Objects Add-On Instruction:
	 PowerFlex 523/525 (P_PF52x), publication <u>SYSLIB-RM048</u>

Complete these steps.

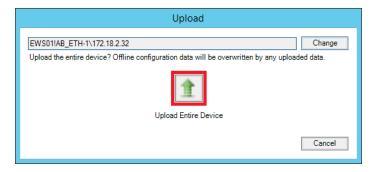
1. In the I/O Configuration tree, right-click the remote I/O network and choose New Module.

- 2. From the Select Module Type dialog box, select a PowerFlex 525 module and click Create.
- 3. Type a name and IP address for the drive.
- 4. In the Module Definition section, click Change.

The Module Definition dialog box appears.

	Modu	le Definition		×
Drive Rating 1P 110V .50HP Revision 5 Electronic Keying		Disabled 🔹	Output Data LogicCommand Network Start Is Used FreqCommand Network Reference Is Used Disabled	
Compatible Module				
If the revision of your drive is not listed:	Paran Memb neces	perly using software to config neter names selected for the ber names in the drive Modul ssary Datalink parameters in	motion of machinery may occ jure a drive. Input and Output Data appear e-Defined Data Types and def the RSLogix 5000 project. Ac ve is determined by Datalink p	r as fines tual data
dick Create Database button below if drive is online. - click Web Update to download the database from the web if drive is offline. Create Database Web Update		and communication module (to the drive to ensure that the to consistent v	
Match Drive		(DK Cancel	Help

5. Click Match Drive.



- 6. Click Upload Entire Device.
- 7. Click OK after a review of possible changes to the module definition on a popup window.

Module Definition Differences Found						
This upload/import could change the module definition for this device in the project. Those differences are identified below.						
Press OK to accept the changes per the checkboxes below.						
Press Cancel to discard the entire upload.						
Device Changes Summary Network I/O Configuration Differences Summary Network Communications Differences Summary						
Include Network I/O Configuration Settings Include Network Communications Settings OK Cancel						

	Module Definition*	
Drive Rating	Input Data	Output Data
1P 110V .50HP	D	LogicCommand
	DriveStatus	Network Start Is Used
Revision	0.1.15	FreqCommand
4 🔹 . 1 💌	OutputFreq	Network Reference Is Used
	Fault 1 Code 💌	
Electronic Keying	Output Current	
Compatible Module	Disabled	
	Display as Tag Memb	ers
	Mode Select:	Velocity 💌
	Mode Select.	Velocity
	DANGER: Unexpected bazardous	motion of machinery may occur when
4	improperly using software to config	
	Parameter names selected for the	leader and Output Data areas are
		e-Defined Data Types and defines
	necessary Datalink parameters in	the RSLogix 5000 project. Actual data
Rabe en la la constata de la constitución de	transfer between controller and dr	ive is determined by Datalink parameters
If the revision of your drive is not listed: - click Create Database button below if	You must download configuration	to the drive to ensure that the controller.
drive is online.	drive and communication module	configurations are consistent with each
 click Web Update to download the database from the web if drive is offline 	other.	
database from the web it drive is omine.		
Create Database		
Web Update		
Match Drive		DK Cancel Help

8. Click OK on the Module Definition dialog box.

- 9. Click Yes to accept the module changes.
- 10. Click the Connection tab and set an RPI value.
- 11. Click OK to add the drive.

For more information, see the PowerFlex 520-Series Adjustable Frequency AC Drive Programming Manual, publication <u>520-UM001</u>.

Smart Motor Controller (SMC-50) Example

Complete these steps to use a module that is designed to maximize the efficiency of motor starts and stops.

IMPORTANT	This section shows how to configure the SMC™-50 smart starter. You can use basically the same procedures for configuring other motor starters.
	The Datalinks must be configured before using the respective SMC™ procedures. For Datalink information, see the following Rockwell Automation Library of Process Objects Add-On Instructions:
	SMC-50 (P_SMC50), publication <u>SYSLIB-RM052</u>
	 SMC[™] Flex (P_SMCFlex), publication <u>SYSLIB-RM053</u>

- 1. In the I/O Configuration tree, right-click the remote I/O network and choose New Module.
- 2. From the Select Module Type dialog box, select an SMC-50 module and click Create.
- 3. Type a name and IP address for the motor controller.
- 4. In the Module Definition section, click Change.

The Module Definition dialog box appears.

- 5. Click Match Drive.
- 6. Click Upload Entire Device.
- 7. Click OK after a review of possible changes to the module definition on a popup window.

		Мос	dule De	finition*		×
Revision:	4 🗸 2	~	Datalink	Input Data		Dutput Data
-				LogicStatus		ogicCommand
Electronic <u>K</u> eying:	Compatible Module	<u> </u>		PhaseACurrent		NotUsed
Drive Rating:	Standard					Use Network Reference
Drive Hating:	Standard	<u> </u>	✓ A	RealPower - 10	~	Indefined_A1
		- 1		PowerFactor - 17	~	Jndefined_A2
		- 1	✓ B	MtrThermUsage - 18	~	Jndefined_B1 🔍
		- 1		TimetoOLTrip - 19	~	Jndefined_B2
		- 1	✓ C	TimetoOLReset - 20	~	Jndefined_C1 🔍
		- 1		Fault1 - 138	~	Jndefined_C2
		- 1	v D	Undefined_D1	~	Indefined_C2
				Undefined_D2	~	Jndefined_D2
Connection:	Parameters via Datalinks					
Data Format:	Parameters	\checkmark		Sort Input/Output se	electior	lists by Parameter Name
				ANGER: Unexpected, ha		is motion of machinery may occur configure a drive.
	se button below if drive is onlin to download the database from	ie.	m ni di	ember names in the drive ecessary Datalink parame	Modul ters in	Input and Output Data appear as e-Defined Data Types and defines the RSLogix 5000 project. Actual nd drive is determined by Datalink
To match revision and - click Match Drive.	upload the configuration of an c	online (C		unicatio	to the drive to ensure that the m module configurations are
Create Database	Web Update					
Match Drive				ОК	(Cancel Help

The Module Definition dialog box reappears with the input datalinks for the matching drive.

- 8. Click OK.
- 9. Click Yes to accept the module changes.
- 10. Click the Connection tab and set an RPI value.
- 11. Click OK to add the motor controller.

For more information, see the SMC-50 Solid-State Smart Motor Controller User Manual, publication <u>150-UM011</u>.

E300[™] Electronic Overload Relay Example

Complete these steps to add an overload relay that features a modular design and diagnostic information for motor control applications.

IMPORTANT	This section shows how to configure the E300 overload relay. You can use basically the same procedures for configuring other protection relays.
	The Datalinks must be configured before using the respective SMC procedures. For Datalink information, see the following Rockwell Automation Library of Process Objects Add-On Instructions:
	E300 (P_E3000vld), publication <u>SYSLIB-RM051</u>
	E1 Plus (P_E1PlusE), publication <u>SYSLIB-RM049</u>
	 E3/E3 Plus (P_E30vld), publication <u>SYSLIB-RM050</u>

1. In the I/O Configuration tree, right-click the remote I/O network and choose New Module.

2. From the Select Module Type dialog box, select an E300 relay module and click Create.

Catalog Module Discovery Fav	/orites	lect Modul	е Туре	
Enter Search Text for Module	Туре	<u>C</u> lear Filte	s	H <u>i</u> de Filters ☆
Module Type Category MotorOverload MotorStarter Other PowerRex 750-Series v Construction Construction	ia Embedded EtherNet/IP	 <th>Module Type Vendor Filters Advanced Energy Industries, Inc. Endress+Hauser FANUC CORPORATION FANUC Robotics America</th><th>×</th>	Module Type Vendor Filters Advanced Energy Industries, Inc. Endress+Hauser FANUC CORPORATION FANUC Robotics America	×
193-ECM-ETR	E300 Electronic Overlo	ad Relay, 2-Por	Vender Rockwell Autom	Category MotorOverload
<		III		>
1 of 549 Module Types Found	ł			Add to Favorites
Close on Create			Create	Close Hel

3. Type a name and IP address for the drive.

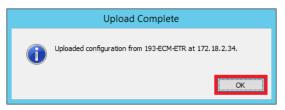
]		New	Module			X
ſ	General Connection Module Info Control Configuration I Relay / Logic-Defined Data Sensing Configuration Overload Protection Advanced Protection Expansion Modules DeviceLogix Internet Protocol Pot Configuration	Vendor: F Parent: L	193-ECM-ETR E300 Electror Rockwell Automation/Allen-B .GXC01EN02 LGXC01EN02MT01004	•	Port Ethernet Addres O Private Netw IP Address: O Host <u>N</u> ame:	-	 34
	- Network Time Sync	Series: Revision: Electronic Keyin Connection: Configured By: Input Data: Sensing Module: Operating Module:	Data This Controller All Data e: XXX-ESM-IG-30A 193-EI0-43-120	Digital Module 1: Digital Module 2: Digital Module 3: Digital Module 4: Operator Station:	Undefined Undefined Undefined Undefined	Analog Module 2: Analog Module 3:	Change Undefined Undefined Undefined
s	< III >				[OK Cano	cel Help

4. In the Module Definition section, click Change.

	Module Definition	X
Upload	LGXC01EN02MT01004	
LGXC01EN02MT01004	Series:	A v
Digital Modules	Revision:	6 ¥ 1 ×
	Electronic Keying:	Compatible Module V
Input Data	<u>C</u> onnection:	Data 🗸
	Configured By:	This Controller 🗸
	<u>I</u> nput Data:	All Data 🗸
	Sensing Module	
	Module:	XXX-ESM-IG-30A 🗸
	Description:	0.5A-30A, Current & Ground Fault
	Mismatch Action:	Trip 🗸
	Control Module	
	Module:	193-EIO-43-120 V
	Description:	4 Point 110V-120V AC Input, 3 Point Relay Output
	Mismatch Action:	Trip 🗸
		OK Cancel Help

The Module Definition dialog box appears.

- 5. Click Upload
- 6. Click OK on the popup window when the Upload completes.



7. Click OK again on the Module Definition dialog box.

		New Module			x
General*	Overload Protection				
Connection* Module Info* ⊟Control Configuration*	Trip Class:	10			
Relay / Logic-Defined Data	Full Load Current				-
Advanced Protection Expansion Modules*	Primary Full Load Current		Alternate Full Load Curre	ent	
DeviceLogix*	FLA1:	0.50 + Amps	FLA2:	0.50 Amps	
Internet Protocol* Port Configuration* Network*			Activate FLA2:	Disable 🗸	
	Overload Trip / Warning —				_
	Enable Trip on Overload		Enable Warning on O	verload	
	Include Overload Trip	o In History	✓ Include Overload	Warning In History	
	Trip Limit:	100 ^ % TCU	Warning Limit:	85 🔷 % TCU	
	Reset Mode:	Manual 🗸			
	Reset Level:	75 🔶 % TCU			
< III >	Overload Trip Enable is	read-only based on the Motor Co	ntrol Operating Mode.		
Status: Creating			ОК	Cancel Help	,

8. Click OK on the New Module dialog box.

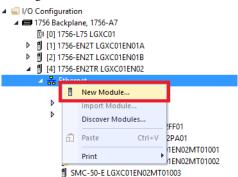
For more information, see the Bulletin 193/592 E300 Overload Relay User Manual, publication <u>193-UM015</u>.

Configure Redundant I/O Modules



The 1715 redundant I/O platform offers flexibility, with no special wiring, and no user programming code or Add-On Instructions. The redundant I/O system requires less engineering because no additional hardware is required. This section shows how to configure a 1715 redundant I/O system with a remote I/O chassis on an EtherNet/IP network. Using a ControlLogix controller, this redundant system provides fault tolerance with a redundant adapter pair and multiple I/O modules for enhanced diagnostics.

1. To set up a network adapter, right-click an Ethernet bridge in the I/O Configuration tree and choose New Module.



2. On the Catalog tab, use the filter to select a 1715 Ethernet adapter and click Create.

						Theorem and the second	*
Module Type Category	Filters	^	•	21			^
Analog							÷
				21101000111000			
Communications			Ī				
C / d		>	~	FUD Codeses			>
-							
			'air M	edia			1
/38-AEN I	1738 Ethernet Adapter 1738 Ethernet Adapter				Rockwell Autom		
738-AENTR							
	Analog CIP Motion Converter Communication Communications	CIP Motion Converter Communication Communications III Contract Provide Advance III III Contract Provid	Analog CIP Motion Converter Communication Communication Communication Communication Communications Communication C	Analog CIP Motion Converter Communication Communications	Analog Advanced Ene CIP Motion Converter Communications Communications Communications Control Advanced Ene Communications Control Advanced Ene Control Converter Control Converter Control Converter Control Converter Converte	Analog Advanced Energy Industries, Inc. CIP Motion Converter Communications	Analog Advanced Energy Industries, Inc. CIP Motion Converter Communication FANUC CORPORATION Communications FANUC CORPORATION FANUC CORPORATIO

3. On the New Module dialog box, type a name for the adapter and set an IP address.

		New Module	x
	meral* Connection Type: Vendor: Parent: Name: Descrigtion: Module Definition Revision: Electronic Keyi	1 Module Info A Module Info B Internet Protocol Port Configuration Network 1715-AENTR 1715 Ethernet Adapter, Twisted Pair Media Rockwell A Ethernet Address IGX Orgivate Network 192.168.1. IGX Image: Ima	x
State	Connection: Redundant: Chassis Size: us: Creating	Data Yes	

4. Click the Connection tab and select an RPI value.

New Module
General Connection* Module Info A Module Info B Internet Protocol Port Configuration Network
Requested Packet Interval (RPI): 250.0 ms (60.0 - 750.0)
Inhibit Module
Major Fault On Controller If Connection Fails While in Run Mode
Use Unicast Connection over EtherNet/IP
Module Fault
module i duit
Status: Creating OK Cancel Help

- 5. Click OK to add the module.
- 6. Right-click the new 1715 adapter and select New Module.

- 7. Select a 1715-IF16 analog input module, click Create, then name the module.
- 8. Assign a slot number.

			New Module			x
General*	Connection Mod	ule Info A Module Info B	Configuration			
Type: Vendor:		16 Channel Current Analo utomation/Allen-Bradley	g Input			
Parent:	LGXC01EN0		_			
Na <u>m</u> e:	LGXC01EN	I02R03AI01	Module A Sl <u>o</u> t: 2	✓ Module B Slot:	3	
Descri <u>p</u> ti	ion:					
Module	e Definition					
Revisio	on:	1.1 Chang	ge			
Electro	onic Keying:	Compatible Module				
Conne	ection:	Data	^			
Input C		Analog Only	=			
Data F	format:	Float	~			
Status: Cre	ating			ОК	Cancel He	lp

- 9. Click the Configuration tab to check the channel signals.
- 10. Click OK to add the module.

]				New	Module		
General*	Connection	Mod	dule Info A Module	Info B Configura	tion		
Channe	Current Ran	ge	Low Signal =	Low Engineering	High Signal =	High Engineering	^
0	0-20 mA	1	4.0 ≑	0.0 🌻	20.0 🜻	100.0 🌻	
1		~	4.0 🜲	0.0 韋	20.0 ≑	100.0 韋	=
2		~	4.0 🌲	0.0 韋	20.0 🜲	100.0 🜩	
3		~	4.0 ≑	0.0 韋	20.0 🜲	100.0 韋	
4		~	4.0 🌲	0.0 韋	20.0 🜲	100.0 🜩	
5	0-20 mA	~	4.0 🜲	0.0 韋	20.0 🗘	100.0 韋	
6	0-20 mA	~	4.0 🌻	0.0 ≑	20.0 ≑	100.0 🜩	
7	0-20 mA	~	4.0 ≑	0.0 🌩	20.0 ≑	100.0 🜩	
8	0-20 mA	~	4.0 ≑	0.0 🌻	20.0 ≑	100.0 韋	×
Status: Cre	ating					ОК	Cancel Help

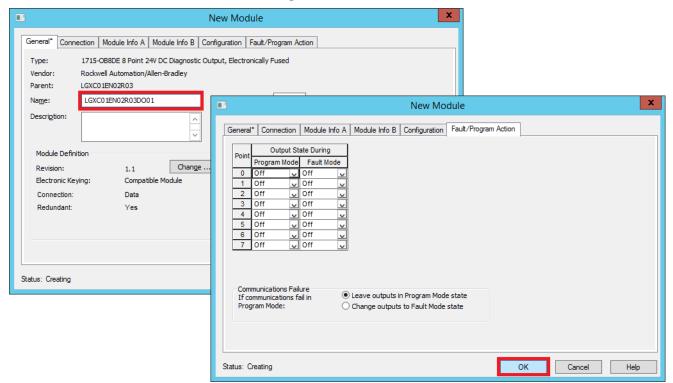
11. Repeat <u>step 7</u> through <u>step 9</u> to create a 1715-OF8I analog output module.

			New M	odı	ule						x			
General* Conne	General* Connection Module Info A Module Info B Configuration Limits Fault/Program Action													
Type: 1715-OF8I 8 Channel Current Analog Output, Isolated														
Vendor:														
Parent:	nt: LGXC01EN02R03													
Na <u>m</u> e:	LGXC01EN02R03AO01		Module A Sl <u>o</u> t	: [4	4 ⊻ Moo	dule B !	Slot:	5						
Descri <u>p</u> tion:								New Modu	le					x
		General*	Connection Mod			lafa D	L C	figuration Limits F	-	/Program Action	7			
Module Definit	ion	General	Connection Mod	Jule		INTO B	Con		auit	/Trogram Action				
Revision:	1.1					Dar	np to				Ramp t			
Electronic Key		Channe	Fault Mode		Fault Value		Value	Program Mode		Program Value	Progra Value	^m Failure	Ramp Rate	
Connection:	Data								_			Output State		
Input Data:	Analog Only	0	Hold last state Hold last state	H	0.0			Hold last state Hold last state		0.0		Program Mode V Program Mode V	0.0	
Data Format:	Float	2	Hold last state	Ŭ			-	Hold last state	Ŭ	0.0		Program Mode V		
		3	Hold last state		0.0			Hold last state		0.0		Program Mode 🗸	0.0	
		4	Hold last state		0.0			Hold last state	~	0.0		Program Mode 😈	0.0	
		5	Hold last state	$\overline{}$	0.0			Hold last state	~	0.0		Program Mode 😈	0.0	
		6	Hold last state	$\overline{}$				Hold last state	~	0.0		Program Mode 😈		
Status: Creating		7	Hold last state	~	0.0			Hold last state	~	0.0		Program Mode 😈	0.0	
		Status: Cre	ating									OK Canc	el Help	

- 12. Click OK.
- 13. Repeat <u>step 7</u> through <u>step 9</u> to create a digital diagnostic input (1715-IB16D) module.

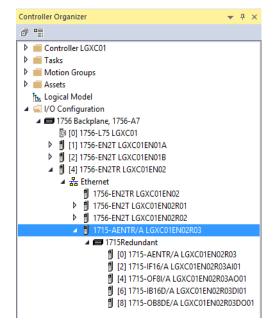
	New Module	
General* Connection Module Info A Module Info B	Configuration	
Type: 1715-IB16D 16 Point 24V DC Diagnostic Vendor: Rockwell Automation/Allen-Bradley Parent: LGXC01EN02R03	input	
Name: LGXC01EN02R03DI01	New Module	x
Description:	General* Connection Module Info A Module Info B Configuration Enable Change of State Custom Open Wire Latch Reset	
Revision: 1.1 Change	Point Diagnostics Orange of State Diagnostics Custom Thresholds Diagnostics Diagnostics Orange Orang	
Electronic Keying: Compatible Module	0 🔽 Full 🗸 Edit 🗹 🔽 Reset 😑	
Connection: Data	1 V Full V Edit V Reset	
Redundant: Yes	2 V Full V Reset 3 V Full Edit V Reset	
Houndain. 100	4 V Full V Edit V Reset	
	5 V Full Edit V Reset	
	6 🗸 🖌 Full 🗸 Edit 🗸 🖌 Reset	
	7 🗸 Full V Edit V Reset	
	8 🗸 🖌 Full 🗸 Edit 🖌 🖌 Reset 🗸	
Status: Creating	☑ Enable Change of State for Diagnostic Transitions ① Full and custom diagnostics require use of an appropriate end-of-line device.	
	Status: Creating OK Cancel	Help

- 14. Click OK to add the module.
- Repeat <u>step 7</u> through <u>step 9</u> to create a digital diagnostic output (1715-OB16DE) module.



16. Click OK to add the module.

All 1715 I/O modules are added to the remote I/O chassis.



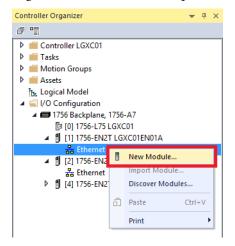
For more information, see the Redundant I/O System User Manual, publication <u>1715-UM001</u>.

Add a Stratix Switch (CIP) Connection

IMPORTANT A CIP[™] VLAN must be enabled for the switch to perform the following steps. To enable CIP, see Chapter 1 in the PlantPAx Distributed Control System Infrastructure Configuration User Manual, publication <u>PROCES-UM001</u>.

Complete these steps to configure a managed switch to leverage ports for sending messages only to the device that needs or requests the communication.

1. Right-click on an Ethernet adapter and choose New Module.



The Select Module Type dialog box appears.

2. Select a Stratix managed port adapter and click Create.

	Sel	ect Mo	dule	Туре			
atalog Module Discovery Favor	ites						
Enter Search Text for Module T	ype	<u>C</u> lear	Filters	5		Hide Filters	*
Module Type Category Fi	ters	^	✓	Module Type Ver	ndor Filters		^
Analog			✓	Advanced Energy	Industries, Inc.		
CIP Motion Converter			✓	Endress+Hauser			
Communication			~	FANUC CORPOR			
Communications		~	~	FANUC Robotics	America		\sim
			<	FUD Curtana	Ш	>	
 Catalog Number 	Description				Vendor	Category	~
1783-BMS20CA	Stratix 5700 20 Port Man	aged Sw	tch, F	ull FW	Rockwell Autom	Communication	
1783-BMS20CGI	Stratix 5700 20 Port Mar	aged Sw	tch (iigabit Uplinks	Rockwell Autom	Communication	
1783-BMS20CGN	Stratix 5700 20 Port Mar	naged Sw	tch, C	iigabit Uplinks,	Rockwell Autom	Communication	
1783-BMS20CGP	Stratix 5/00 20 Port Mar	aged Sw	tch, G	agabit Uplinks,	Rockwell Autom	Communication	
1783-BMS20CL	Stratix 5700 20 Port Mar	naged Sw	tch, L	ite FW	Rockwell Autom	Communication	
1783-BMS4S2SGA	Stratix 5700 6 Port Mana	aged Swit	ch, Gi	gabit Uplinks, a	Rockwell Autom	Communication	~
<		1				>	
142 of 549 Module Types Found	ł					A <u>d</u> d to Favori	tes
Close on Create					Create	Close	Help

IMPORTANT The Stratix 5410 is accessed via the Managed Ethernet Switch category filter. Other switches are accessed by using the Communication category type.

3. On the New Module dialog box, type a module name and assign an IP address.

	New Module
General" - Connection - Module Info - Fault/Program Action - Switch Configuration - Switch Status - Port Configuration - Smartports and VLANs - Port Thresholds - Port Status - Port Status - Port Status - Device Level Ring (DLR) - Redundant Gateway Cl - Statistics - DHCP - Members - DHCP Pools - DHCP Pools - DHCP Address Assignment - Time Sync Configuration - Time Sync Information - NAT - EtherChannels	General Type: 1783-BMS20CGN Stratix 5700 20 Port Managed Switch, Gigabit Uplinks, Full Vendor: Rockwell Automation/Allen-Bradley Parent: LGXC01EN01A Name: SW020 Descrigtion: Image: Image:
EtherChannels SD Flash Sync Save/Restore	

- 4. Click Change and select a Connection type 'Data'.
- 5. Type a password and click OK on the Module Definition dialog box.

Module Definiti	on* X	I
Revision: 9 001 Electronic Keying: Compatible Module Connection: Data Data Connection Password Image: Connection Password	× 	Password Confirmation X
DANGER. Connection Interruption. "Data" Connection Output Tag can in interruption of connections to and	disable ports, resulting through the switch. <u>H</u> elp	Re-enter Password:

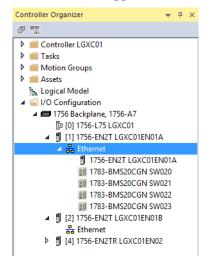
- 6. Confirm the password and click OK.
 - The New Module dialog box reappears.

7. To enable a redundant power supply, if applicable, click 'Enable Dual Power Supply Alarm' on the switch configuration for the module properties.

; General	Switch Configuration	
Connection	·	
Module Info Fault/Program Action	Internet Protocol (IP) Settings	
Switch Configuration	Manually Configure IP settings	
Switch Status		
Port Configuration	\bigcirc Obtain IP settings automatically using DHC <u>P</u>	
···· Smartports and VLANs	IP Settings Configuration	
Port Thresholds		
Port Security Port Status	Physical Moglule IP Address: 172 18 1 200 Subnet Mask: 255 255 0	
Device Level Ring (DLR)		
Bing 1	<u>G</u> ateway Address: 172 . 18 . 0 . 1	
Redundant Gateway C	C Domain Name: Primary DNS Server Address: 0.0.0.0	
Statistics		
DHCP	Host Name: SW020 Secondary DNS Server Address: 0 , 0 , 0 , 0	
DHCP Address Assignment	Administration	
···· Time Sync Configuration	Spanning Tree Mode:	
Save/Restore	Location:	
	✓ ✓ ✓ ► nable Dual Power Supply Alarm	
	Management Interface VLAN: 501	
	Refrede Communication	
Time Sync Configuration Time Sync Information NAT EtherChannels SD Flash Sync	Administration Spanning Tree Mode: Contact:	

Repeat step 1 through step 7 to configure all of your system switches.

A list of switches appears in the Controller Organizer.



For more information, see the Stratix Managed Switches User Manual, publication <u>1783-UM007</u>.

Add Diagnostics

This section describes how to add diagnostics to an I/O module. Complete these steps.

IMPORTANT Controller Status is among nine predefined periodic tasks in the controller template. A diagnostics folder is within the Controller Status periodic task.

- 1. In the Logical Organizer, open the Controller Task folder.
- 2. Right-click Diagnostics and choose Add>New Routine.

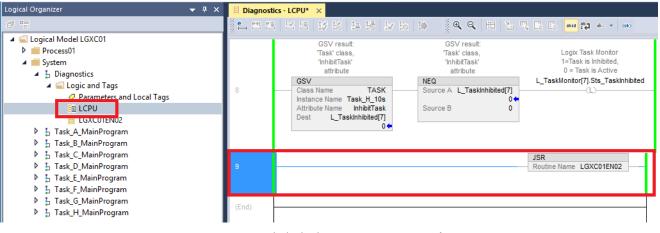
Logical Organize	er			▼ ₽ ×
7 "				
▲ 🛁 Logical ▷ 💼 Proc ▲ 💼 Syste	ess01 em			
 51 5	x 1	Add Cut Ctrl+X Copy Ctrl+C Paste Ctrl+V Paste Special Delete Delete Verify	• •	New Program New Equipment Phase New Equipment Sequence New Folder New Routine New Local Tag Ctrl+W New Parameter
▶ 5 T ▶ 5 T		Cross Reference Ctrl+E Browse Logic Ctrl+L Find in Controller Organizer Online Edits	•	Import Program Import Equipment Phase Import Equipment Sequence Import Routine

The New Routine dialog box appears.

IMPORTANT For a remote rack, include one routine per rack. Each rung is to contain one Module_Sts. For an MCC, include one routine for each MCC device.

	New Routine		x						
<u>N</u> ame:	LGXC01EN02		ОК						
<u>D</u> escription:		^ ~	Cancel						
<u>T</u> ype:	📙 Ladder Diagram	¥	Help						
In Program or Phase:	L Diagnostics	~							
	Assignment: <none></none>	~							
<u>O</u> pen Rou									

3. Type a routine name and click OK.



4. In the Diagnostics folder, double-click the LCPU routine to access a ladder logic.

- 5. Click the last rung, type JSR and press Enter.
- 6. Click the routine name box inside the JSR command, and select the routine name that you created.
- 7. Double-click the routine that you created to access a ladder logic.

Logical Organizer 🗢 📮 🗄	< 📜 Diagnostic	cs - L	.CPU* 🗏 Diagnostics - LGXC01E	EN02* ×	
a =	ိုင်္ရ 🕶 📬	I.	4 HA 😼 🖌 😹 😾	bo 😫 🔍	Q 11 12 17 18 20 20 40. ▼ (0)
🔺 <u> Logical Model LGXC</u> 01					
Process01	0 🐼 i				
🔺 🚞 System	i i	ж	Cut Rung	Ctrl+X	
🔺 🔓 Diagnostics		ŋ	Copy Rung	Ctrl+C	
🔺 <u> Logic</u> and Tags	(End)	ñ	Paste	CtrI+V	
Parameters and Local Tags					
in I CPU			Delete Rung	Delete	
LGXC01EN02		B	Add Rung	Ctrl+R	
👂 🤚 Task_A_MainProgram			Edit Rung		
🕨 🔓 Task_B_MainProgram			Edit Rung Comment		
 Task_C_MainProgram Task_D_MainProgram 			Import Rungs		
Task_E_MainProgram			Export Rungs		
Task_F_MainProgram		e	Start Pending Rung Edits	Ctrl+Shift+S	
🕨 🔓 Task_G_MainProgram		e→I	Accept Pending Rung Edits		
🕨 🔓 Task_H_MainProgram					
		еŵ	Cancel Pending Rung Edits		

8. Right-click the rung and choose Import Rungs.

- х đ Import Rung Look in Process Strategies G 🤣 📂 🖽 🗸 Name Туре Size $\overline{}$ 9 P (RA-LIB)PS_LVMCC_FVR_E3000vId_OpMode... 674 KB Logix Designer XM... Recent places & (RA-LIB)PS_LVMCC_FVR_E3000vId_OpMode... Logix Designer XM... 674 KB & (RA-LIB)PS_LVMCC_PF525_with_HOA_4_0-0... Logix Designer XM... 486 KB 🚇 (RA-LIB)PS_LVMCC_PF753_with_HOA_4_0-0... Logix Designer XM... 601 KB 많아 (RA-LIB)PS_LVMCC_PF755_with_HOA_4_0-0... Logix Designer XM... 595 KB Desktop Php (RA-LIB)PS MMC 4 0-00 ROUTINE,L5X Loaix Designer XM. 89 KB (RA-LIB)PS_ModuleSts_4_0-00_RUNG.L5X Logix Designer XM.. 6 KB Logix Designer XM... 部 (RA-LIB)PS_Motor_4_0-00_ROUTINE.L5X 422 KB Libraries 🔐 (RA-LIB)PS_Motor_E1PlusE_4_0-00_ROUTINE... Logix Designer XM... 506 KB 🕼 (RA-LIB)PS_Motor_E3OvI_4_0-00_ROUTINE.L... Logix Designer XM... 505 KB 🔐 (RA-LIB)PS_Motor_E3000vI_4_0-00_ROUTIN... Logix Designer XM... 656 KB This PC 沿 (RA-LIB)PS_Motor2Spd_4_0-00_ROUTINE.L5X 🛛 Logix Designer XM... 451 KB & (RA-LIB)PS_Motor2Spd_E3Ov1_4_0-00_ROUTI... Logix Designer XM... 531 KB (h 🔐 (RA-LIB)PS_Motor2Spd_E300OvI_4_0-00_RO... Logix Designer XM... 682 KB Network RA-LIB)PS_MotorHO_4_0-00_ROUTINE.L5X 261 KB Logix Designer XM... 🚯 (RA-LIB)PS_MotorHO_E1PlusE_4_0-00_ROUT... Logix Designer XM... 344 KB 🕼 (RA-LIB)PS_MotorHO_E3OvI_4_0-00_ROUTI... Logix Designer XM... 342 KB File name: (RA-LIB)PS_ModuleSts_4_0-00_RUNG.L5X ¥ Oper ¥ Cancel Files of type: Logix Designer XML Files (*.L5X) Help
- 9. Browse to the Process Strategies folder and select the Module Status process strategy.

- 10. Click Open.
- 11. On the Import Configuration dialog box, click the Find/Replace button to replace the default module tag with your device.

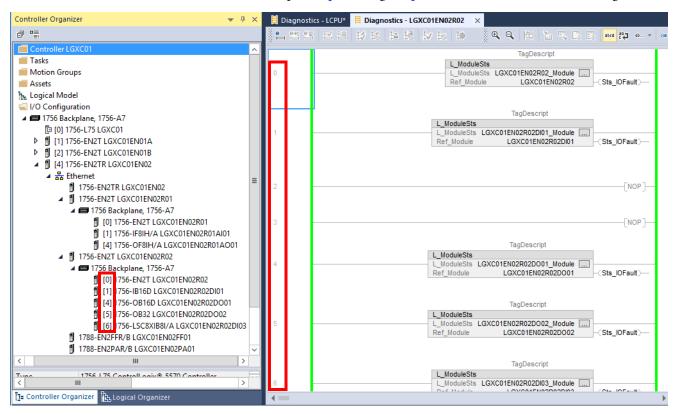
Impo	ort Configuration	- (RA-LIB)PS_ModuleSts_4_0-00_RUNG.L5X
Find: Find: Find Within: Final Name, Descript	ion	Find/Replace
Import Content:		
Programs	Configure Rung Pr	operties
Diagnostics	Imported Rungs:	1
References	Operation:	Create V after Rung 0
☐ ☐ ☐ ☐ ☐ ☐ ☐		References will be imported as configured in the References folders
Errors/Warnings	Routine Propert	ies
	Name:	LGXC01EN02
	Description:	<u>^</u>
		Find / Replace
		Find What: MOD001 V Find Next
	Type:	Replace With: LGXC01EN02 V Replace
	In Program:	Use Wildcards Replace All
		Search current view only
		Direction: Up Down
		Find Within:
		Import Name I Final Name I Description
		Alias For Data Type Parameter
< III >		
	1	
✓ Preserve existing tag values in offline pro	ject	OK Cancel Help
Ready		

12. Click Replace All.

13. Repeat <u>step 11</u> and <u>step 12</u> to replace 'TagDescript' with your own description (EtherNet/IP 02 is the example).

	×				
Fi <u>n</u> d What:	TagDe	script	<u>F</u> ind Next		
Replace With:	Netwo	ork 02	<u>R</u> eplace		
Use <u>W</u> ildcard	ls				Repla <u>c</u> e All
Search curre	nt <u>v</u> iew	only			Close
Direction:	OUp	• Down			Close
Find Within:					Help
Import N	Name	✓ Fin <u>al</u> Name	✓ Description		
Alia <u>s</u> For	r	Da <u>t</u> a Type	<u>P</u> arameter		

- 14. Click Replace All.
- 15. Click Close, and then click OK to import the routine.
- 16. Repeat step 7 through step 15 for all modules in the I/O configuration.



This example shows that the routine rungs align with the I/O tree configuration.

17. Save your work.

Assign I/O and Diagnostics

After you have defined your I/O modules and built the process strategies, you must connect the I/O definition to a physical device. This chapter describes how to assign the I/O tags.

When we assign I/O, we are creating a relationship between process strategies and the device. The I/O module is connected to the tags of the process strategy.

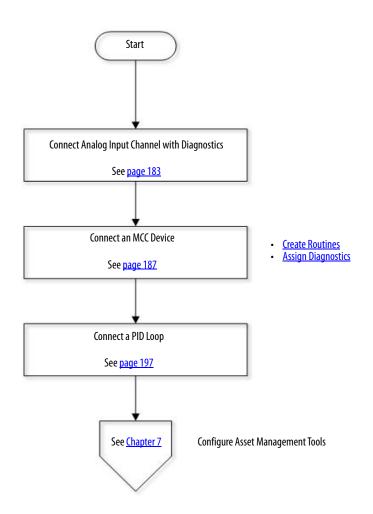
This chapter illustrates the following three program examples:

- An analog input channel with diagnostics
- An MCC device that uses a COP instruction to transfer raw data
- Analog input tags assigned to connectors within a PID loop

Typically, you can use the basic analog input procedures in the first example to assign I/O tags to devices. The other two examples have additional requirements, such as the creation of programs and routines for drives because of differing data types.

<u>Figure 10</u> contains the topics that are described in this chapter. Click or see the page number for quick access to a section.





Connect Analog Input Channel with Diagnostics

This section shows how to connect I/O to the analog input channel process strategy (PS_AIn_Chan). Complete these steps.

- 1. In a Logix Designer application, open an existing program.
- 2. Double-click Parameters and Local Tags under the Area01>Logic and Tags folders.

Logical Organizer	•	ņ	x
a 11			
🔺 🛁 Logical Model LGXC01			
🔺 🗰 Process01			
🔺 🔓 Area01			
Logic and Tags			
Parameters and Local Tags			
MainRoutine			
망· FIC01002			
ap MT01001			
出 TT01001			
👂 🛑 System			
🛱 Controller Organizer			
1.66 3 3			

IMPORTANT The first time that you perform this procedure, the Connections column is not visible. Complete <u>step 3</u> to show the Connections column.

- 3. Click the Edit Tab (at the bottom of the screen), then right-click a column header.
- 4. Click Toggle Column and choose Connections.

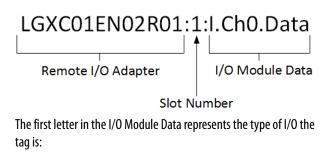
Na	ame		n T	.	уре		Descript	ion
	TT01001	Sort C	olumn e Tag Members In So	ation of		•	Tempera	ture 01001
	TT01001	includ	e lag members in so	rung		·	Tempera	ture 01001
	TT01001	Hide C	olumn		_		Tompora	ture 01001
	MT01001	Toggle	e Column		~	Name		001 - Netwo.
	FT01002_	np_Raw		BOOL	~	Usage Sequencing		02 - Process .
	FT01002_	np_Raw		BOOL	4	Alias For		02 - Process .
	FT01002_	np_Raw		REAL	~	Base Tag		02 - Process
	FIC01002_	Out_CV		BOOL	~	Data Type		ntrol 01002
	FIC01002	Out_CV		BOOL	\checkmark	Description		ntrol 01002
	FIC01002_	Out_CV		REAL	\checkmark	External Acce	255	ntrol 01002
Þ	FIC01002	CVIOFau		FBD_B	\checkmark	Constant		
1					\checkmark	Style		

The process strategy tags that appear in the Edit Tags tab show connections.

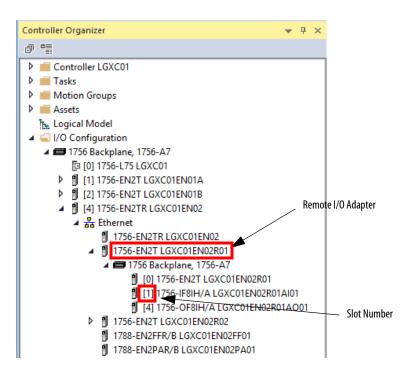
See Build Process Strategies on page 32.

5. In the Connections column, click the pull-down to display a list of I/O tags for the Inp_Raw Process Strategy.

The tag names can be broken down into the remote module, slot number, and I/O module.



- I = Input
- 0 = Output
- C = Configuration



6. Click a data tag (LGXC01EN02R01:1:1.Ch0.Data) in the example) to place the tag in the Connections text box.

	Program Parameters and Parameters	nd Local Tags - Area01	×								
	Scope: 📳 Area01	✓ Show: All Tags					~	T. Enter	Name Filter.		
	Name	== -	Connections	+ U	lsage	Data Type		Desci	iption		
	TT01001_Inp_Raw_	ModFault		In	nput	BOOL		Temp	erature 010	001	
	TT01001_Inp_Raw_	ChanFault		In	nput	BOOL		Temp	erature 010	001	
Local Process Strategy Tags	TT01001_Inp_Raw		.GXC01EN02R01:1:I.Ch0.E	Data 🗹 🗸 In	nput	REAL		Temp	erature 010	001	
	MT01001_Inp_IOFa	ault	🜪 Enter Name Filter		Show:	All Tags					
	FT01002_Inp_Raw_	ModFault	Name		==1	Data Type	Usage	•	Descriptio	<u> </u>	
	FT01002_Inp_Raw_	ChanFault	LGXC01EN02R0	1:1:I.Updated		BOOL				1.	
	FT01002_Inp_Raw		LGXC01EN02R0	1:1:I.AnalogG	GroupFault	BOOL					
	FIC01002_Out_CV	ModFault	LGXC01EN02R0			AB:1756_IF8I					
	FIC01002_Out_CV	ChanFault	LGXC01EN02			REAL					
	FIC01002_Out_CV			RUT.T.I.CHU.D	eviceStatus	AB:1756_IF8I				Ľ.	
	FIC01002_CVIOFau	llt_Bor	 Show controller tags 								
	Q		✔ Show Area01 tags								
			Show parameters from other	r program:							
			<none></none>		~						

- 7. To place the tag in the Connections text box, click an I/O tag.
- 8. Repeat <u>step 5</u> through <u>step 7</u> to assign a Fault tag to the Inp_Raw_ChanFault Process Strategy.

Program Parameters and Local Tags - A	rea01	×									
Scope: Area01 V Show: A	ll Tags					¥	T.	Enter N	lame Filter.		_
Name		Connections •	Usage		Data Type		D	Descrip	otion		
TT01001_Inp_Raw_ModFault		_	Input		BOOL		Т	empe	rature 010	01 -	•
* TT01001_Inp_Raw_ChanFault		LGXC01EN02R01:1:I.Ch0Fault	Input		BOOL		Т	empe	rature 010	01 -	·
TT01001_Inp_Raw		T Enter Name Filter	~	Show	All Tags					¥	
MT01001_Inp_IOFault		Name		-8	Data Type	Usad	ie i		escriptio		.
FT01002_Inp_Raw_ModFault		LGXC01EN02R01:1:C			AB:1756_IF8I	-	-				
FT01002_Inp_Raw_ChanFault		LGXC01EN02R01:1:I			AB:1756_IF8I	<con< th=""><th>troller</th><th>></th><th></th><th></th><th></th></con<>	troller	>			
FT01002_Inp_Raw		LGXC01EN02R01:1:I.Char			INT BOOL						
FIC01002_Out_CV_ModFault		LGXC01EN02R01:1:I.Ch0F			BUUL					V	
FIC01002_Out_CV_ChanFault										<u> </u>	
FIC01002_Out_CV		Show controller tags									
FIC01002_CVIOFault_Bor		✓ Show Area01 tags									Γ
9		Show parameters from other program									Γ
				1							
		<none></none>	×								

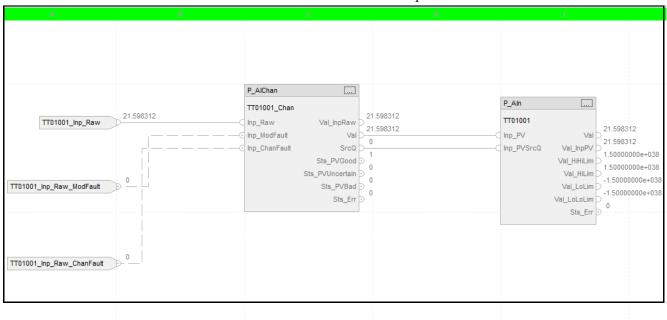
9. For the Module input fault (Inp_Raw_ModFault) Process Strategy, select Diagnostics from the Show parameters from other program pull-down.

Diagnostics	Y
Show parameters from other program:	
Show Area01 tags	
Show controller tags	

10. Click the Connections pull-down and double-click an I/O diagnostics tag.

c	ope: 📳 Area01 🗸 Show: All 1		ter Name Filter
	Name 📑	Connections Otata Type	Description
	TT01001_Inp_Raw_ModFault	Diagnostics.LGXC01EN02R01Al01_Module.Sts_IOFault	Temperature 01001 -
	TT01001_Inp_Raw_ChanFault	T Enter Name Filter ↓ Show: All Tags ↓	Temperature 01001 -
	TT01001_Inp_Raw	Name Data Type Usage D	Temperature 01001 -
	MT01001_Inp_IOFault	VDiagnostics.LGXC01EN02R01_Module L_ModuleSts Public T	Motor 01001 - Netwo
	FT01002_Inp_Raw_ModFault	▲ \Diagnostics.LGXC01EN02R01Al01_Module L_ModuleSts Public T	Flow 01002 - Process
	FT01002_Inp_Raw_ChanFault	\Diagnostics.LGXC01EN02R01Al01_Module.EnableIn BOOL T \Diagnostics.LGXC01EN02R01Al01 Module.EnableOut BOOL T	Flow 01002 - Process
	FT01002_Inp_Raw	VDiagnostics.LGXC01EN02R01AI01_Module.EnableOut_BOOL	Flow 01002 - Process
	FIC01002_Out_CV_ModFault	Show controller tags	Flow Control 01002 -
	FIC01002_Out_CV_ChanFault	Show controller tags	Flow Control 01002 -
	FIC01002_Out_CV	Show Area01 tags	Flow Control 01002 -
	FIC01002_CVIOFault_Bor	Show parameters from other program:	
2		Diagnostics	

11. To view the connections, open the routine.

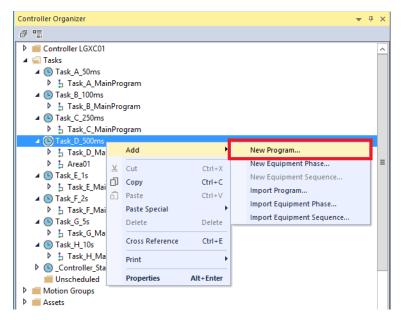


Connect an MCC Device

Drives typically have different data types. You can create a program with specified input and output routines to send raw data to a compatible data type.

Complete the following steps.

- 1. In a Logix Designer application, open an existing program.
- 2. In the Controller Organizer, right-click a task and choose Add>New Program.



The New Program dialog box appears.

3. Type a program input name.

Our example (EtherNetIP_Inputs_D) has an _D because we created our program from the Task_D_500ms folder. When you create programs from different tasks add an _x, with 'x' to denote the letter of the selected Task folder.

For example, EtherNetIP_Inputs_C if this routine were to be used in the Task_C_250ms task.

4. Click OK.

	New Program		x			
<u>N</u> ame:	EtherNetIP_Inputs_D		ОК			
Description:		^ ~	Cancel Help			
<u>P</u> arent:	<none></none>	~				
Use as <u>f</u> older						
Schedule in:	Task_D_500ms	~				
<u>I</u> nhibit progra	m					
Synchronize redundancy data after execution						
Open properties						

5. Repeat step 2 through step 4 and type a program output name.

	New Program	x				
<u>N</u> ame:	EtherNetIP_Outputs_D	ОК				
Description:	<u>^</u>	Cancel				
	~	Help				
<u>P</u> arent:	<none> v</none>					
Use as <u>f</u> older						
Schedule in:	Task_D_500ms v					
Inhibit program						
✓ Synchronize redundancy data after execution						
 Open properties						

6. To organize programs within a task, right-click the Task in the Controller Organizer and choose Properties.

The Task Properties dialog box appears.

7. Click the Program/Phase Schedule tab.

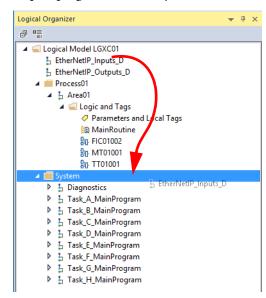
💰 🛛 Task Proper	ties - Task_D_500ms
General Configuration Program Sc	hedule* Monitor
Unscheduled:	Scheduled: Task_D_MainProgram EtherNetIP_Inputs_D Area01 EtherNetIP_Outputs_D Move
Add>	< <u>R</u> emove
ОК	Cancel <u>A</u> pply Help

8. Click a program that you want to move and click the Up or Down arrows to move the program. Position the programs in the following execution order (top to bottom):

Input ---> Process Strategies ---> Output

9. Click OK.

10. Click the Logical Organizer tab and drag-and-drop the Inputs and Outputs programs into the System folder.



11. Save your work.

a 📲	
🔺 <u> Logical Model LG</u> XC01	
🔺 🚞 Process01	
🔺 🔓 Area01	
🔺 <u> Logic</u> and Tags	
Parameters and Local Tags	
🗈 MainRoutine	
品D: FIC01002	
品 ^D MT01001	
B _D TT01001	
🔺 🗰 System	
Diagnostics	
🕨 🔓 Task_A_MainProgram	
🕨 🔓 Task_B_MainProgram	
🕨 🔓 Task_C_MainProgram	
🕨 🔓 Task_D_MainProgram	
🕨 🔓 Task_E_MainProgram	
🕨 🔓 Task_F_MainProgram	
🕨 🔓 Task_G_MainProgram	
Task H MainProgram	
EtherNetIP_Inputs_D	
EtherNetIP_Outputs_D	

Create Routines

Complete the steps to create routines for the programs.

1. On the Logical Organizer, right-click a Program and choose Add>New Routine.

Logical Organizer					▼ ∓ ×
ā "					
Logical Model LG Degical Model LG Process01 System Diagnostic Lask_A.M: Lask_B.M: Lask_B.M: Lask_C.M: Lask_C.M:	s ainPr ainPr ainPr ainPr ainPr ainPr	rogram ogram rogram ogram ogram ogram			
EtherNetlP					
EtherNetIP		Add	÷		New Program
	¥ D Ô	Cut Copy Paste	Ctrl+X Ctrl+C Ctrl+V		New Equipment Phase New Equipment Sequence New Folder
		Paste Special	•		New Routine
		Delete Verify Cross Reference	Delete Ctrl+E	0	New Local Tag Ctrl+W New Parameter

The New Routine dialog box appears.

2. Type 'MainRoutine' (for a jump to subroutine) and select "EthernetIP_Inputs_D" in the pull-down for In Program or Phase.

	New Routine		x
<u>N</u> ame:	MainRoutine		ОК
Description:		^	Cancel
		\checkmark	
<u>T</u> ype:	E Ladder Diagram	¥	Help
In Program or Phase:	EtherNetIP_Inputs_D	¥	
	Assignment: <none></none>	\checkmark	
Open Rou	une		

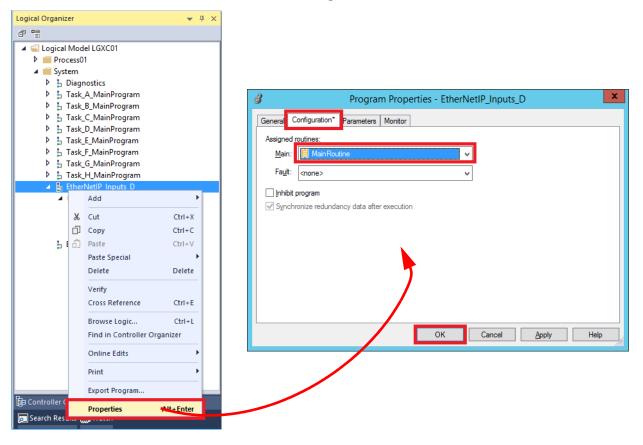
3. Click OK.

4. Repeat step 1 and step 2 for an EtherNetIP Inputs routine name.

We suggest that you create one routine for each network. This routine can contain all network adapters owned by this communication adapter.

	New R	outine	x
<u>N</u> ame:	LGXC01EN02		ОК
Description:		<u>^</u>	Cancel
		\checkmark	
<u>T</u> ype:	📙 Ladder Diagram	~	Help
In Program or Phase:	La EtherNetIP_Input	ts_D v	
	Assignment: <none< td=""><td>></td><td></td></none<>	>	
	ine		
Open Rou	ine		

5. In the Logical Organizer, right-click the EtherNetIP program name and choose Properties.



- 6. On the Connection tab, select MainRoutine from the pull-down menu.
- 7. Click OK.
- 8. Repeat step 1 and step 2 for an EtherNetIP Outputs routine name.

ogical Organizer 🛛 🔻 🕈 🗙	目 EtherNetIP_Inputs_D - MainRoutine* ×
₽ =	·
🔺 🛁 Logical Model LGXC01	JSR
Process01	0 Routine Name LGXC01EN02
🔺 💼 System	i i i
Diagnostics	
🕨 🔓 Task_A_MainProgram	
🕨 🔓 Task_B_MainProgram	(End)
🕨 🔓 Task_C_MainProgram	
🕨 🔓 Task_D_MainProgram	
🕨 🔓 Task_E_MainProgram	
🕨 🔓 Task_F_MainProgram	
🕨 🔓 Task_G_MainProgram	
🕨 🔓 Task_H_MainProgram	
EtherNetIP_Inputs_D	
🔺 🚄 Logic and Tags	
Parameters and Local Tags	
🗈 MainRoutine	
LGXC01EN02	
EtherNetIP_Outputs_D	
🔺 🚄 Logic and Tags	
Parameters and Local Tags	
🗈 MainRoutine	
LGXC01EN02	
E Controller Organizer	
鼬 Controller Organizer 🎠 Logical Organizer	4=

9. In the Logical Organizer, double-click MainRoutine of the Input Program.

10. Double-click a rung, type JSR, and press Enter.

An instruction that is named 'JSR' is shown in the rung.

- In the instruction, select the Routine Name that you created in <u>step 2</u> (MainRoutine in the example) from the pull-down list.
- 12. Repeat step 10 and step 11 for EtherNetIP_Outputs.
- 13. Under EtherNetIP_Inputs, open the LGXC01EN02 routine, double-click the first rung, and type COP.
- 14. Press Enter.

A Copy instruction transfers raw data only and ignores data types. The instruction lets you use a compatible data type to connect the tags.

15. In the instruction, click the Source pull-down arrow to select a drive input from the list.

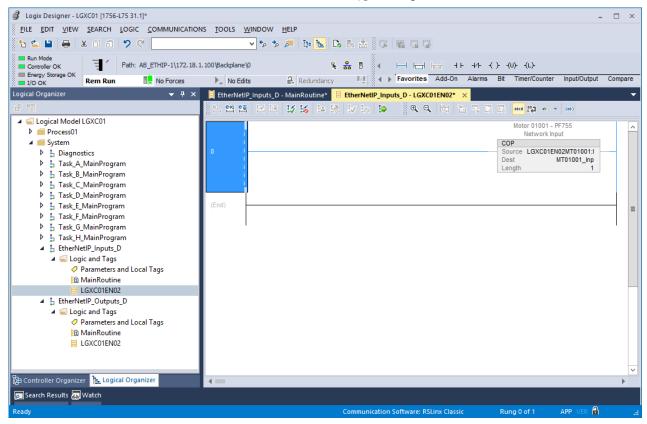
16. In the instruction, click the Destination pull-down arrow and select a destination data tag (for example, MT01001_Inp).

For MCC components, select the drive input that is created when importing process strategies for drives.

Logical Organizer 🗾 👻 🕂 🗙	EtherNetIP_Inputs_D - MainRoutine* EtherNetIP_Inputs_D - LGXC01EN02* ×	-
a -		16)
🔺 🛁 Logical Model LGXC01	Motor 01001 - PF75	5
Process01	Network Input	
🔺 🚞 System	СОР	
Diagnostics	0 Source LGXC01EN02k	
🕨 🔓 Task_A_MainProgram	Dest MT01001_Inp	~
🕨 🔓 Task_B_MainProgram	T Enter Name Filter ✓ Show: All Tags	~
Task_C_MainProgram		
Task_D_MainProgram	Name1 Data Tvoe	Usage D ^
Task_E_MainProgram	(End) P_PF755_Inp	
Task_F_MainProgram	MI01001_intik P_intik P_intik	<controller> M</controller>
Task_G_MainProgram	MT01001_Out P_PF755_Out	
Task_H_MainProgram	MT01001_RevPerm P_Perm	<controller> M</controller>
EtherNetIP_Inputs_D	MT01001_RunTime P_RunTime	<controller> M 🗸</controller>
🔺 ⊆ Logic and Tags	Show controller tags	
Parameters and Local Tags		
🗈 MainRoutine	✓ Show EtherNetIP_Inputs_D tags	
LGXC01EN02		
EtherNetIP_Outputs_D	Show parameters from other program:	
🔺 🚄 Logic and Tags	Area01 V	
Parameters and Local Tags		
MainRoutine		
LGXC01EN02		
		~
📴 Controller Organizer	4=	Þ

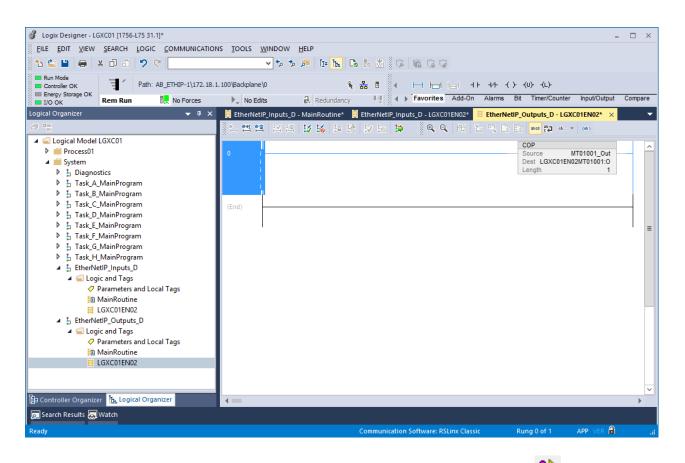
The destination data tag appears in the COP instruction.

17. In the instruction, type a Length of '1'.



 Repeat step 13 through step 17 to tie the EtherNetIP_Outputs tag to the I/O.

IMPORTANT Observe that the Source and Destination are opposite for the COP output instruction.



19. If online, click the Finalize All Edits in Program 😽 icon.

IMPORTANT You must finalize EtherNetIP_Inputs, EtherNetIP_Outputs, and Process Strategies.

The Finalize all edits in program window appears.

- 20. Click OK to finalize edits in all programs.
- 21. Save the program.

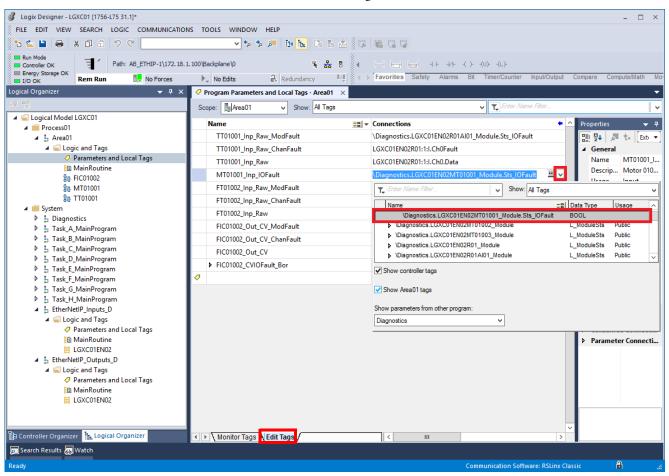
Assign Diagnostics

Complete these steps to connect the process strategy tags to the I/O Module (PowerFlex[®] 755 in our example).

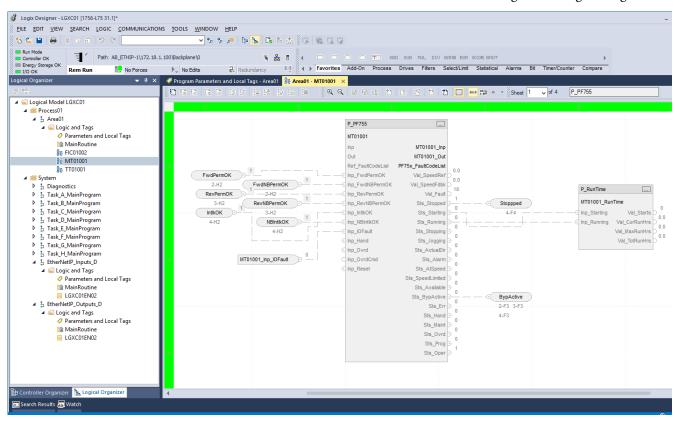
1. In the Logical Organizer, open a program from the Process01 folder and double-click Parameters and Local Tags.

The program tags appear.

2. Click the Edit Tags tab.



- 3. Assign the I/O and the diagnostics by using the program connections.
- 4. Click a data tag to place the tag in the connections text box.



5. To view the connections, click one of the tags in the Logical Organizer.

Connect a PID Loop

Complete the following steps to assign I/O to a PID loop.

- 1. In the Logical Organizer, open the Process folder and double-click Area01>Logic and Tags>Parameters and Local Tags.
- 2. Assign the I/O and the diagnostics by using the program connections.

💰 Logix Designer - LGXC01 [1756-L75 31.1]*			
<u>FILE EDIT VIEW SEARCH LOGIC COMMU</u>	NICATIONS TOOLS WINDOW HELP		
10 🖆 💾 🖶 🔺 🗇 🙃 🤊 🤆 📃	v 🍫 🏂 📠 🗽 🗽		
	\172.18.1.100\Backplane\0	🐐 🚠 🖥 🖣 🕞 📿 🕞 🦳 T ADD SUB MUL DIV BAND BO	DR BXOR BNOT
Energy Storage OK	rces 🕨 ko Edits 🔒 Redundan	ncy IVI A Favorites Add-On Process Drives Filters Select/Lir	mit Statistical Alarms Bit Tin
Logical Organizer 🗾 👻 🎙 🗙	Program Parameters and Local Tags - Area0	1 × 御 Area01 - MT01001	
ð 📲	Scope: 📳 Area01 🗸 Show: All Tag	JS	✓ T _→ 01002
Logical Model LGXC01 Focess01	Name	== ▼ Connections	 Usage Data Typ
▲ L Area01	FT01002_Inp_Raw_ModFault	\Diagnostics.LGXC01EN02R01Al01_Module.Sts_IOFault	Input BOOL
🔺 <u> Logic</u> and Tags	FT01002_Inp_Raw_ChanFault	LGXC01EN02R01:1:I.Ch1Fault	Input BOOL
Parameters and Local Tags	FT01002_Inp_Raw	LGXC01EN02R01:1:I.Ch1.Data	Input REAL
臣 MainRoutine 細 FIC01002	FIC01002_Out_CV_ModFault	\Diagnostics.LGXC01EN02R01AO01_Module.Sts_IOFault	Input BOOL
au MT01001	FIC01002_Out_CV_ChanFault	LGXC01EN02R01:4:I.Ch0Fault	Input BOOL
岛 _中 TT01001	FIC01002_Out_CV	LGXC01EN02R01:4:O.Ch[0].Data	Output REAL
System	FIC01002_CVIOFault_Bor		Local FBD_BOC
	Image: A start of the start		

- 3. Click a data tag to place the tag in the connections text box.
- 4. Save your work.

Notes:

Configure Asset Management Tools

This chapter describes how to use application tools available with the FactoryTalk[®] AssetCentre software.

For example, a Device Type Manager (DTM) contains Field Device Tool (FDT) compliant interfaces to enable configuration and communication between devices and the system. The interface helps create device parameters for diagnostics, maintenance, and calibration purposes.

Disaster recovery is another benefit of AssetCentre software. Back up master files of controller applications help to safeguard against a loss of data.

An Audit Log monitors FactoryTalk-related software products and logs user interactions. For details, see Chapter 10 in the PlantPAx[®] System Infrastructure Configuration User Manual, publication <u>PROCES-UM001</u>.

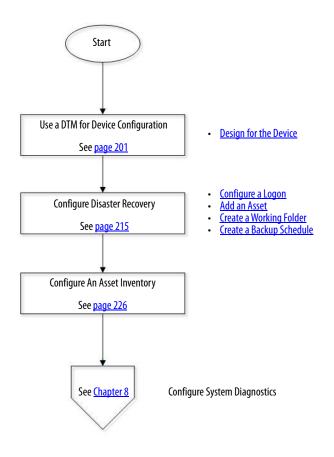
Considerations

Consider the following suggestions before starting this chapter:

- We strongly recommend additional licensing for disaster recovery that automatically backs up supported devices.
- If you are using HART, Fieldbus Foundation, and/or PROFIBUS PA process devices, we recommend the DTM procedure, which starts on page 201. DTMs contain device-specific data to enhance configuration and communication with the system.
- Instrument calibration is an option with AssetCentre software.

Figure 11 shows the topics that are described in this chapter. Click or see the page number for quick access to a section.

Figure 11 - AppServ-Asset Workflow



Use a DTM to Configure a Process Device

Use an Engineering Workstation (preferred) or AppServ-Asset server with these procedures.



EWS01 or ASAM01

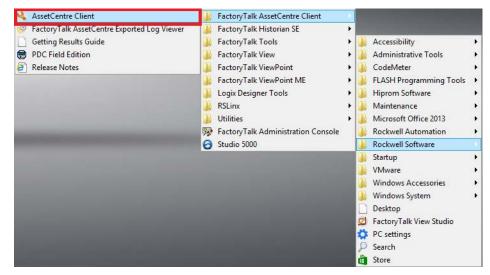
This section describes basic Device Type Manager (DTM) configuration. Use the DTM with FactoryTalk AssetCentre to connect Process devices. You can perform this process in the AppServ-Asset server, but typically the engineering workstation is used to store software.

IMPORTANT For procedures on how to configure the AppServ-Asset server, see the PlantPAx Distributed Control System Infrastructure Configuration User Manual, publication <u>PROCES-UM001</u>.

Complete these steps.

1. Click the Programs symbol and choose Rockwell Software*>FactoryTalk AssetCentre Client>AssetCentre Client.

The AssetCentre Client window appears.



2. Choose Tools>DTM Catalog.

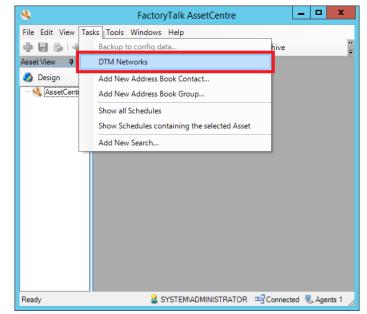
&	FactoryTalk AssetCo	- 🗆 X	
File Edit View Tasks	Tools Windows Help	_	
48340	Options	oups 🔋 Archive	+
Asset View 👎 🗙	Archive Cleanup Wizard		
🤣 Design 🍟	DTM Catalog		
AssetCentre	Log Cleanup Wizard		
		_	

The DTM Catalog window appears.

3. Click Scan Now to update the catalog.

_ 🗆 🗙 DTM Catalog Predefined filters DTM library details All DTMs Missing DTMs Last scanned on 1/25/2018 11:02:59 AM Scan Now Enabled DTMs Disabled DTMs 0 new, 0 removed, 0 upgraded Available DTMs Extra DTMs All 34 DTMs (No filter) Status Available Vendor Protocols DTM Name Version Library Version Class First Date Found Last ^ 6 Â. A A A A A Endress+Hauser HART. Profibus Placeholder FieldDevice 1.00.00 1.00.00 notSpecified 01/25/2018 01/25 Hiprom Technolo... CIP Backplane (... 2.00.01 2.00.01 01/25/2018 01/25 1756-Chassis notSpecified Hiprom Technolo... CIP Backplane,... 1756-CNB 2.00.02 2.00.02 notSpecified 01/25/2018 01/25 \checkmark Hiprom Technolo... CIP Backplane,... 1756-ENBT 2.003 2.003 notSpecified 01/25/2018 01/25 Hiprom Technolo... HS Ethernet/IP (... 1756-ENBT 2.003 2.003 notSpecified 01/25/2018 01/25 \checkmark Hiprom Technolo... HS ControlNet, F... 1788-CN2FFR 1.005 1.005 notSpecified 01/25/2018 01/25 Hiprom Technolo... HS ControlNet, P... 1788-CN2PAR 1.03.00 1.03.00 notSpecified 01/25/2018 01/25 ✓ Hiprom Technolo... HS Ethernet/IP (... 1788-EN2FFR 1.005 01/25/2018 1.005 notSpecified 01/25 \checkmark Hiprom Technolo... HS Ethernet/IP (... 1788-EN2PAR 1 004 1 004 01/25 notSpecified 01/25/2018 \checkmark Hiprom Technolo... HS Ethernet/IP (... HS Ethernet/IP 2.005 2.005 notSpecified 01/25/2018 01/25 Rockwell Autom... HS Ethernet/IP (... 1715 EtherNet/IP Gateway DTM 3.1.3.0 3130 01/25/2018 01/25 dtmSpecific. Rockwell Autom... HS Ethernet/IP (... 1715-IF16 3.1 3.1.3.0 analogInput 01/25/2018 01/25 Rockwell Autom... HS Ethernet/IP (... 1715-OF8I 3.1 3.1.3.0 01/25/2018 01/25 analogOutput Rockwell Autom... A-B 1719-Bus, H... 1719-CF4H 2.0.0.0 2.0.0.0 combinedInputO... 01/25/2018 01/25 Rockwell Autom... A-B 1719-Bus, H... 1719-IF4H 2.0.0.0 2000 analogInput 01/25/2018 01/25 Rockwell Autom... A-B 1719-Bus, H... 1719-IF4HB 2.0.0.0 2.0.0.0 analogInput 01/25/2018 01/25 Rockwell Autom... A-B ControlLogix... 1756-IF16H 1.002 01/25/2018 01/25 1.0 notSpecified ш > Modify Catalog <u>Close</u> Help

- 4. Click Close when the scan is complete.
- 5. In FactoryTalk AssetCentre software, click the Tasks tab and choose DTM Networks.



IMPORTANT Every newly installed DTM requires a scan.

If you do not have a new DTM installed, skip this step.

The DTM Networks window appears.

6. Right-click Host PC>Add DTM.

DTM Networks		_ D X
Host P ^{re} Rename Add DTM	\bigcirc	Add DTM
Add Generic Container		Remove
		Open
	0	Scan network
	i	DTM information
	Next	Close Help

The Add DTM window appears.

IMPORTANTThe HART module must be configured in the I/O configuration tree.For details to enable HART channel data, see <u>Chapter 5</u>.

The same procedure must be performed on PROFIBUS PA and Fieldbus Foundation modules.

			Add DTM		_	D X
Status	Vendor	Protocols	DTM Name	Version	Library Version	Class
	Rockwell Aut Hiprom Tech Rockwell Aut Rockwell Aut Rockwell Aut	nolo HS Ethernet/IP (tom A-B 1719-Bus tom 1797		Image: 2005 2.0.0 1.1.13.28 1.0.1	A 3.1.3.0 2.005 2.0.0 1.1.13.28 1.0.1.13	A dtmSpecifi notSpecifi notSpecifi notSpecifi
< Device Manufa		SLinx 1756 Backplane ockwell Automation	III			>
DTM In:	stallation file	e:///C:/Program Files (x86)	/Rockwell Automation/DTM Library/	/1756 Family	/Rockwell1756Co	omm.dll
Device						
	cturer ID					
	re Revision					
	e Revision					
	Revision					
	Profile Revision Is Generic No					
			<u>_</u>	ĸ	<u>C</u> ancel	<u>H</u> elp

7. Select DTM 'RSLinx* 1756 Backplane (ControlLogix*)' and click OK

8. In the DTM Networks window, right-click '(RSLinx 1756 Backplane)' and choose Configuration.

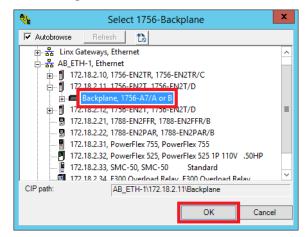
DTM Networks		_ □ ×
Inst PC Inst PC Inst PC Inst PC Rename	•	Add DTM
Add DTM Remove		Remove
Online Device additional		<u>Open</u>
Configuration	0	Scan network
	i	DTM information
	Next	Close Help

9. Select the path to the backplane.

DTM Networks	_ _ ×
Language	Rockwell Automation
CIP Path: Select path: Communication Timeout, msec: 4000	
이 No connection ① Database 鼎<	: Next Close Help

The Select 1756-Backplane dialog box opens.

10. Select 'Backplane, 1756-A7/A or B' and click OK.



	DTM	1 Networks	_ D X
Language			Rockwell Automation
	CIP Path: Select path: Communication Timeout, msec:	AB_ETH-1\172.18.2.11\Backplane	
Image: Constraint of the second s	ttabase 🚉		Next Close Help

11. In the DTM Networks window, click Next.

12. In the DTM Networks window, right-click '(RSLinx 1756 Backplane)' and choose Add DTM.

DTM Networks		_ D X
E		Add DTM
Add DTM Remove		Remove
Online Device additional		<u>Open</u>
Configuration	\bigcirc	Scan network
	i	DTM information
	Next	Close Help

The Add DTM window appears.

13. Select DTM '1756-IF8IH/A' and click OK.

•				Add DTM			_ 🗆 X
Status	Vendor		Protocols	DTM Name	Version	Library Version	Class
A	A		А	A	A	A	A
1	Rockwell A	Autom	A-B ControlLogix	1756-IF8H/A	1.0.1	1.0.1.13	notSpecified
Ĵ	Rockwell A	Autom	A-B ControlLogix	1756-OF8H/A	1.0.1	1.0.1.13	notSpecified
Ĵ	Rockwell A	lutom	A-B ControlLogix	1756-IF16H	1.0	1.002	notSpecified
Ĵ	Endress+H	lauser	HART, Profibus	Placeholder FieldDevice	1.00.00	1.00.00	notSpecified
1	Rockwell A	Autom	A-B ControlLogix	1756-IF8IH/A	1.0	1.001	notSpecified
 Image: A second s	ROCKWEIL P	AULOITI	A-B CONITOLLOGIX	1756-IF 16IH	1.0	1.001	notopecified
Device	Name	1756-IF	8IH/A				
Manufa	cturer	Rockw	ell Automation				
DTM In:	stallation	C:\Prog	ram Files (x86)\Rock	well Automation \DTM Librar	y∖1756 Fa	mily\1756-IF8IH D	TM\RS1756IF8IH
Device	ID					-	
Manufa	cturer ID						
Hardwa	re Revision						
Softwar	e Revision						
Device	Revision						
Profile F	Revision						
Is Generic No							
					<u>О</u> К	<u>C</u> ancel	<u>H</u> elp

14. Select the module slot number and click OK.

	DTM Networks		×
Please enter a Slot Number for the added child device			
Slot Number 1			
		ОК	Cancel
네가 No connection 🚺 Database 🗐		Next Close	Help

- In the DTM Networks window, right-click ' (RSLinx 1756 Backplane)'>1756Bus> - (1756 IF8H/A1)'.
- 16. Choose Online.
- 17. Click Scan network.

DTM Networks	
	Add DTM
Add DTM	Remove
Remove Online Device additional ►	Open
Configuration Diagnosis	Scan network
	DTM information
	Next Close Help
	h.

The Select Communications Channel window appears.

18. Select the channels to perform the Scan Network on and click OK.



Design for the Device

		Scan R	lesults		_ _ ×
Items Found		Selected Item Details			
Channel Address (HARTCH_00:0)	Offline Tag / Device Tag -/TT01001	Summary Details:	New device	found	
		Selected Action:	Add to project		~
		Hardware Information	5573646	DTM Informa	ation <u>Change</u> pe: iTemp/TMT 162/V1.03.0
			0	Quality:	1
		DTM / Hardware Com		Class: Is Generic	temperature :: No
			pure	Hardware	Current DTM Device
		Device Tag		TT01001	-
		Device		iTemp / TMT 162	iTemp / TMT 162 /
		Manufacturer		Endress+Hauser	Endress+Hauser
		Device ID (Cmd 0 By	rte 2) / Sub ID	202/	202/DDCEHS_H11c
		Manufacturer ID (Cm	d 0 Byte 1)	17	17
		Software Revision (C	imd 0 Byte 6)	10	2
		Command Revision (Cmd 0 Byte 5)	2	2
		Profile Revision (Cmo	d 0 Byte 4)	5	v
L		Used Destand			
				<u>о</u> к	<u>Cancel H</u> elp

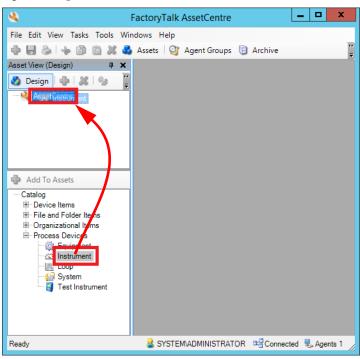
Any items found (temperature transmitter TT01001 in the example) are listed in the Items Found area of the Scan Results window.

- 1. Click OK.
- 2. In the DTM Networks window, click Close.

🔦 F	actoryTalk AssetCentre	_ 🗆 X
File Edit View Tasks Tools Wind		A 11 P
Asset View (Design)	Assets 🦉 Agent Groups 🕲	Archive 🖓
Add To Assets Catalog - Device Items File and Folder Items Corganizational Items		
Process Devices Coursent Coursent Coursent Coursent Coursent Coursent Coursent Final System Test Instrument		
Ready	SYSTEM ADMINISTRATOR	Connected Sector Agents 1

3. In the FactoryTalk AssetCentre window, select Design mode.

4. Drag-and-drop the Instrument asset into the AssetCentre tree.



5. Click DTM Addressing Info and then click Browse (ellipsis '...') to open the Select a DTM device from the DTM network window.

⊿	1.General		Ľ
	(Parent)	AssetCentre	
	Description		
	Name	Instrument	
⊿	2. Hardware Information		
	Catalog Information		
	Configuration Data	No file selected.	
	Device Name		
	DTM Addressing Info	No file selected.	L
	Firmware Revision		
	Hardware Revision		
	Hardware Type		
	Manufacturer		
⊿	3.Asset Information		
	Asset Number		
	Communication Path		
	Location		
	ProCalV5 Company		
	ProCalV5 Linked Item		~
Lin	MAddressing Info ks an Asset to a node in the DTM onfiguration Data' property.	Network. Note: Setting this property will clear the	

6. Select a Process Device (TT01001 in the example) and click OK.

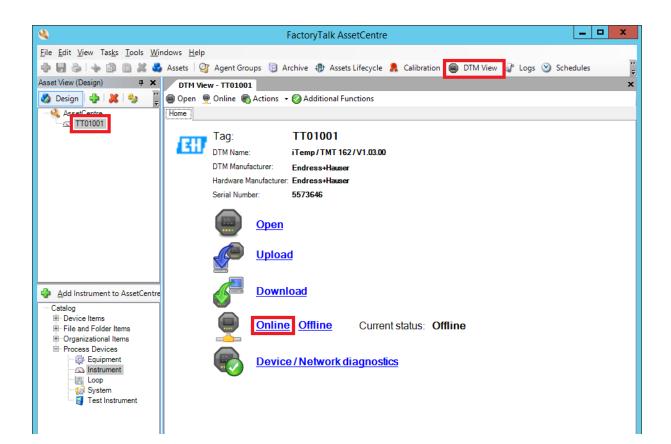
						~
	Sele	ect a DTM device	from the DTM	vl network		x
name, off-line tag	name, DTM name,		For example, if yo	er the list of DTMs by enteri u enter "temp 1001", the list fields.		
Eind:	0// T	0.714.14	10			4
Name TT01001 [iTem	Offline Tag TT01001	iTemp / TMT 16	Class temperature	Communications Path Host PC, - (RSLinx 175	C Daekelanel 1	
rielest prem.	1101001	Tromp's Tivit To	temperature	hoarro, (hourk ho	o occupianoj, r	
				OK <u>C</u> ancel	<u>H</u> elp	

7. Type the device name or tag and click OK.



8. Select DTM View, click the device (TT01001 in the example), and click Online.

IMPORTANT The Upload, Download, and Diagnostics functionality also are available.



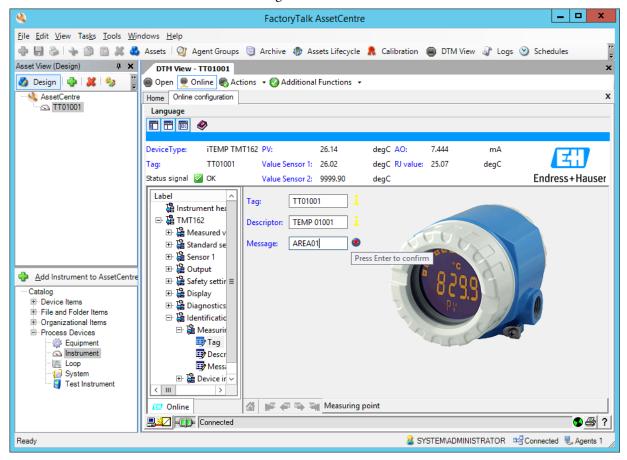
4	FactoryTalk AssetCentre	_ □	x
<u>F</u> ile <u>E</u> dit <u>V</u> iew Tas <u>k</u> s <u>T</u> ools <u>W</u> ir	ndows <u>H</u> elp		
+ 8 & 1 + 0 0 % 🕹) Assets 🥝 Agent Groups 🔋 Archive 🤀 Assets Lifecycle 🤱 Calibration 🝙 DTM View 💐 Logs 😒 Sche	dules	" ₹ X
Asset View (Design) 🛛 📮 🗙	DTM View - TT01001		×
🤣 Design 🕂 🕌 👋 🍟	🗑 Open 👤 Online 🌒 Actions 👻 🖉 Additional Functions 👻		
AssetCentre	Home		
TT01001	Tag: TT01001 DTM Name: iTemp/TMT162/V1.03.00 DTM Manufacturer: Endress+Hauser Hardware Manufacturer: Endress+Hauser Serial Number: 5573646 Image: Distribution of the series o		
Add Instrument to AssetCentre Catalog			
Device Items File and Folder Items Organizational Items Organizational Items Process Devices System Loop System Test Instrument	Online / Offline Current status: Online Operation Device / Network diagnostics		
Ready	SYSTEMADMINISTRATOR 🖙 Connec	ted 🜷 Agents	1

9. Click Open to configure the device.

The Online configuration tab opens.

10. Make any configuration changes you like.

When you are finished with changes, you can exit the FactoryTalk AssetCentre window. You also can return to the Home tab to make more changes.



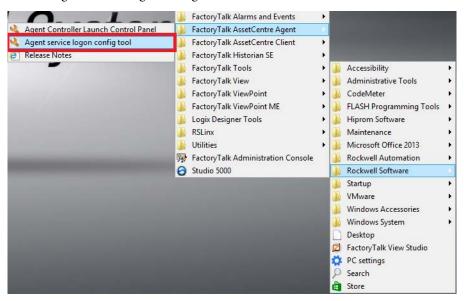
Configure Disaster Recovery

Disaster Recovery software creates back-up files. This procedure schedules a comparison between master files, and processor program and data files.

Configure a Logon

Complete these steps to configure the user name and password to enable the Agent service.

1. Click the Programs symbol and choose Rockwell Software*>FactoryTalk AssetCentre Agent> Agent service logon config tool.



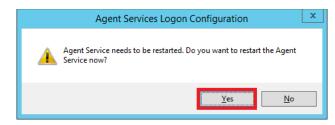
The Agent Services Logon Configuration dialog box appears.

2. Type a user name (AssetCentre_DR in the example), password, and click OK.

Agent Services Logon Configuration		
Please specify the user credentials for the account that will be used to configure the Disaster Recovery services. This account will be created as a local Windows administrator user and will be a FactoryTalk Windows linked user.		
User Name: AssetCentre_DR		
Password:		
Confirm Password:		
OK Skip		

After creating the logon, you must confirm that you need to restart the Agent Service.

IMPORTANT The HART module must be configured in the I/O configuration tree. For details to enable HART channel data, see <u>Chapter 5</u>. 3. Click Yes.



- 4. Perform step <u>1</u> and step <u>2</u> to reopen the Agent Service Logon Configuration dialog box.
- 5. In the next dialog box that appears, confirm that the information is correct and click Close.

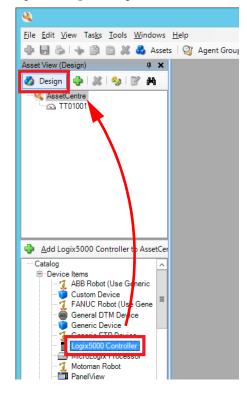
The Agent Service Logon Configuration dialog box closes.

Add an Asset

entre version 9 includes an asset for FactoryTalk View SE, version 11.
set can be created to support disaster recovery for a FactoryTalk View lication.

To add a Logix5000[™] controller as a new asset, complete the following steps.

- 1. In the FactoryTalk AssetCentre, click Design.
- 2. Drag-and-drop the Logix5000 Controller into AssetCentre.



The Add a Logix5000 Controller to AssetCentre dialog box appears.

3. Choose Configuration Data and use Browse (ellipsis '...') to find and click Add.

Add a Logix5000	Controller to AssetCentre
8 1 2 ↓ 1	
⊿ 1.General	
(Parent)	AssetCentre
Description	
Name	Logix5000 Controller
⊿ 2.Hardware Information	
Addressing Info	
Catalog Information	
Change Detect Capable	
Configuration Data	No file selected.
Device Name	
Firmware Revision	
Hardware Revision	
Hardware Type	Configuration Data Browser : Logix5000 Controller 📃 🗖 🗙
Manufacturer	
⊿ 3.Asset Information	AssetCentre
Agent Group	Logix5000 Controller
Asset Number	
Location	
Serial Number	
C	
Configuration Data Configuration data for the device	
	Filter: RSLogix 5000 files (*.acd) ∨
	Add OK Cancel Help

An .ACD file appears in the right side of the window.

4. Select the .ACD file and click OK.

Configuration I	Data Browser : Logix5000 Controller 📮 🗖 🗙
AssetCentre	GXC01 ACD
	Filter: RSLogix 5000 files (*.acd)
Add	OK Cancel Help

- 5. In the Add a Logix5000 Controller to AssetCentre dialog box, choose Addressing Info.
- 6. Click Browse (ellipsis '...').

	Add	a Logix5000 Con	troller to AssetCentre	x					
•	Ż↓								
⊿	1.General								
	(Parent)	A	AssetCentre						
	Description								
	Name		.ogix5000 Controller						
⊿	2.Hardware Inform	nation							
	Addressing Info								
	Catalog Information								
	Change Detect Capa								
	Configuration Data	F	AssetCentre/Logix5000 Co	ntroller/LGXC01					
	•		Selecting	g Device for Asset Ty	/pe: "Log	ix5000 Controller"		_	- 🗆 X
	Autobrowse	Refresh 🚺 🔒	Not Browsing						
4		ateways, Ethernet		^					
	≝								
		HP-1, Ethernet							
		11P-1, Ethernet .18.1.100, 1756-EN2T, 1	TEC ENDT (D						
		Backplane 1756-47/4							
A									
c		00, 1756-L75 LOGIX							
Ĭ		UI, 1750-EN21, 1750		=					
	1 T -	02, 1756-EN2T, 175							
		-	TP Master, 1756HP-TIME/B						
		04, 1756-EN2TR, 17							
		.18.1.101, 1756-EN2T, 1							
			e PTP Master, 1756HP-TIME/B						
	T 5	.18.1.105, 1756-EN2TR,							
		.18.1.107, 1756-EN2TP,							
	T 5	.18.1.108, 1756-EN2TP,							
	i 🗍 🗎 🗎 🗎 172	.18.1.111, 1756-EN2T, 1	756-EN2T/D						
	🚊 🖬 🗍 172	.18.1.112, 1756-EN2T, 1	756-EN2T/D						
	i 🗍 🗎 🗎 172	.18.1.113, 1756-EN2T, 1	756-EN2T/D						
	🏥 🖷 👖 172	.18.1.114, 1756-EN2T, 1	756-EN2T/D						
	🛓 🗍 172	.18.1.115, 1756-EN2T, 1	756-EN2T/D						
	i 🗍 🗄 🗍 🕂 172	.18.1.118, 1756-EN2T, 1	756-EN2T/D						
	 	18 1 150 1756-L 85E L O	GIX5585E 1756-185E/R LovM	air					
				<u> </u>					
	Current Device				r	Remote Input/Output Options			
	Name: LGXC	:01				Remote Input/Output Device			
	Туре: 1756-	L75 LOGIX5575							
	Route: EWS	01!AB_ETHIP-1\172.18.1	.100\Backplane\0			Settings	Select	Cancel	Help
								•	

The Selecting Device For Asset Type window appears.

7. Select the path to the controller and click Select.

8. In the Add a Logix5000 Controller to AssetCentre dialog box, type the controller name (PAC01 in the example) and click OK.

1	1.General (Parent)	AssetCentre
	Description	Associatio
	Name	LGXC01
⊿	2. Hardware Information	
	Addressing Info	EWS01!AB ETHIP-1\172.18.1.100\Bac
	Catalog Information	_
	Change Detect Capable	True
	Configuration Data	AssetCentre/Logix5000 Controller/LGX(
	Device Name	LGXC01
	Firmware Revision	31.1
	Hardware Revision	
	Hardware Serial Number	
	Hardware Type	1756-L75 LOGIX5575
	Manufacturer	Rockwell Automation/Allen-Bradley
⊿	3.Asset Information	
	Agent Group	System Default
	Asset Number	
	Location	
	ame ique name for the asset within the	current parent.

Create a Working Folder

Complete these steps to set the workbook (working folder) in any level of the structure.

- 1. In the FactoryTalk AssetCentre window, select Archive.
- 2. In the Archive tab, click Set for the Working folder.

KartoryTalk AssetCentre				
File Edit View Tasks Tools Windows H	elp	_		
🕂 🛃 🗞 🔸 🗊 🛍 🚜 🖧 Assets	🎯 Agent Groups 🔋 Archiv	ve 🕀 Assets Lifecycle 🤱	Calibration 🏾 DTM View 🖓 Logs 🕥	Schedules 🚆
Asset View (Design) 4 ×	Archive			×
💑 Design 🖶 💥 🎭 📝 🙌	😼 Check Out 🗟 Check In	n 📓 Undo Check Out 🗟	Get 🕴 👒 New Label 🛛 Remove Label	Export for PCDC
	AssetCent	<u>re</u>		
	Description:			
	Working folder: (none se	et)		Set
	Name	User	Check Out Location	
Se	Working Folders	x	Browse For Folder	X
Add Lo	asset (set by administrator): asset (overrides system working ose for assets further up the hierar OK Cancel	Browse	Image: Second system Image: Second system	Cancel
			🔒 SYSTEMADMINISTRATOR 🛛 🛤 Co	
Ready			SYSTEMADMINISTRATOR	onnected 😹 Agents 1

The Set Working Folders dialog box appears.

- 3. If the System working folder is incorrect, click Browse (ellipsis '...').
- 4. In the Browse For Folder dialog box, navigate to the desired folder, select it, and click OK.
- 5. In the Set Working Folders dialog box, click OK.

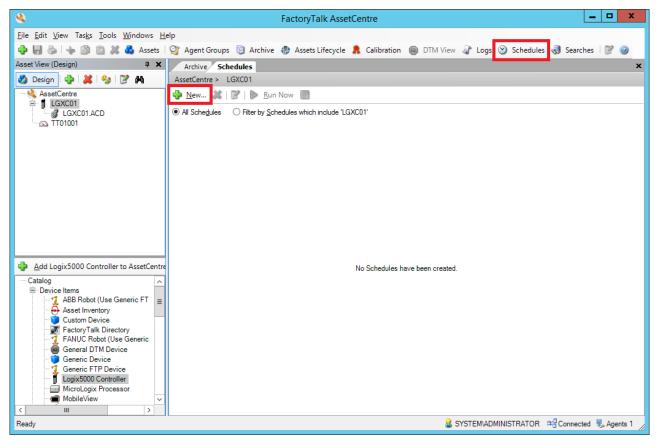
6. In the FactoryTalk AssetCentre software, make sure the Check In, Check Out, and Revision Control procedures are available in the system.

4	FactoryTalk AssetCentre	_ D X
<u>File E</u> dit <u>V</u> iew Tas <u>k</u> s <u>T</u> ools <u>W</u> indows <u>H</u> elp		
🜵 🗐 🗞 🛛 🦆 🗊 🛅 👗 👶 Assets 🛛 😋 Age	ent Groups 🔋 Archive 🐢 Assets Lifecycle 🤱 Calibration 🏾 🛞 DTM Vi	iew 🕼 Logs 🕑 Schedules 🛛 🦉
Asset View (Design) 4 × Arct	hive	×
🤣 Design 🛛 🖶 👗 🖓 🛛 📝 🚧 🔂 Che	eck Out 💩 Check In 📓 Undo Check Out 🗟 Get 👒 New Label 🚪	Remove Label Export for PCDC
AssetCentre	te: The file is checked in.	
Des	scription:	
	Store latest version only	
	Maximum number of versions 200 🔆 Save	
Cur	rrent version total: 1 Total disk usage: 4 MB	
History	Labels	
Rang		ilter Get Versic
Add Logix 5000 Controller to AssetCentre	Most recent 100 records	Version-related activities Pin Versio
···· Catalog ▲	Records from date: 1/26/2018 • to: 1/26/2018	O All activities
	n Time Action User	Comments
Asset Inventory	Today, 8:06 AM Created file SYSTEM\A	
FactoryTalk Directory FANUC Robot (Use Generic General DTM Device Generic Device Generic FTP Device Logix5000 Controller MicroLogix Processor MobileView		
	III	>
Ready	🚨 SYSTEM/ADMI	NISTRATOR 🖼 Connected 🜷 Agents 1 🍃

Create a Backup Schedule

Complete these steps to configure a backup schedule.

- 1. In the FactoryTalk AssetCentre Client, click the controller.
- 2. Select Schedules.



The Schedules tab appears.

3. In the Schedules tab, Click New.

The 'New Schedule Wizard - Step 1 of 3' dialog box appears.

4. Make sure that the Operation is correct.

5. Type the name for the schedule and click Next.

New Schedule Wizard - Step 1 of 3	x
Schedule Properties Name must be unique across all schedule names.	
Location: AssetCentre/LGXC01	
Operation:	
Disaster Recovery - Backup	×
Name: PlantPAx Schedule	
Description:	
	~
Completion Email List:	
Help < Back New	d > Cancel

The 'New Schedule Wizard - Step 2 of 3' dialog box appears.

6. From the pull-down menu, select the Start Time.

			New S	Schedule Wiz	zard - Step	o 2 of 3				x
Timing Properties Please update the timing p Clicking on Next button wil	roperties for this I create the sche	schedule. dule. You will not	be able to	o return to this pag	ge.					
<u>S</u> tart Time: Timing Properties	12:00 AM	~								
 Hourty ● Daity ● Weekty ● Monthly Maximum Runtime (0.0 r Maximum Runtime is lim			y(s)	0 v Minu	uţes					
Help							< <u>B</u> ac	k	<u>N</u> ext >	Cancel

7. Set the Timing Properties.

8. Set the Maximum Runtime.

IMPORTANT A maximum runtime of 0.0 means that there is no maximum limit.

9. Click Next.

The 'New Schedule Wizard - Step 3 of 3' dialog box appears.

New	Schedule Wizard - Step 3 of 3	X
Operation Properties Set operation properties for each asset in the schedule.		
• View By Location View By Asset Type Assets in PlantPAx Schedule: Image: Imag	LGXC01 Properties ▲ 1. Event settings Master File Path Name ▲ 2. Asset specific properties Always Run Events ▲ 3. Email notification Event Completed Event Failed	AssetCentre/LGXC01/LGXC01.ACD , Latest True ed.
Help		< Back Finished Cancel

10. Select the Email notification option and click Finished.

11. In the FactoryTalk AssetCentre - Schedules tab, click Run Now to test the functionality of the new schedule outside of the scheduling period.

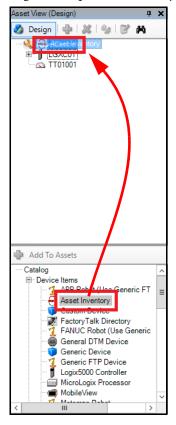
4	FactoryTalk A	ssetCentre	_ D X
<u>F</u> ile <u>E</u> dit <u>V</u> iew Tas <u>k</u> s <u>T</u> ools <u>W</u> indows <u>H</u> i	elp		
💠 🛃 🗞 🛛 👆 🗊 🛅 💥 🕹 Assets 🛛	🎯 Agent Groups 🔋 Archive 🥠 Assets Lifecycle	🤱 Calibration 🔘 DTM View 🔐 Logs 🕑	Schedules 😽 Searches 🍞 🥑
Asset View (Design) 📮 🗙	Archive Schedules		×
🤣 Design 🕀 💥 🎭 📝 🙌	AssetCentre > LGXC01		
AssetCentre	🗣 <u>N</u> ew 💥 📝 🐌 <u>R</u> un Now 🔳		
LGXC01	All Sche <u>d</u> ules O Filter by <u>S</u> chedules which include 'LG	XC01'	
TT01001	Active Name Schedule Location	Operation LastTime NextTim	e Status Completion EmailList
	PlantPAx Schedul AssetCentre/LGXC01	Backup Friday, January Saturday, Ja	anuar Waiting To Run
		Ш	>
	View By Location View By Asset Type	LGXC01 Properties	
	Assets in PlantPAx Schedule:		
Add Logix5000 Controller to AssetCentre		△ 1. Event settings	
Catalog ^		Master File Path Name ⊿ 2. Asset specific properties	AssetCentre/LGXC01/LGXC01.ACD , Late:
Device Items ABB Robot (Use Generic FT =		Always Run Events	True
Asset Inventory		3. Email notification Event Completed	
Custom Device		Event Completed Event Failed	
FANUC Robot (Use Generic			·
General DTM Device Generic Device		Always Run Events	
1 Generic FTP Device		Indicates if events should always be proc	essed.
Logix5000 Controller			
MicroLogix Processor			Undo Save
<			

The backup of the controller runs. After a few minutes, the backup is complete.

Configure An Asset Inventory

This section describes procedures for configuring an inventory list of assets. Complete these steps.

- 1. In the FactoryTalk AssetCentre window, select Design mode.
- 2. Drag-and-drop Asset Inventory into the AssetCentre tree.



3. Click Scanning Configuration and then click Browse (ellipsis '...').

Add a As	set Inventory to AssetCentre
₽	
⊿ 1.General	
(Parent)	AssetCentre
Description	
Name	Asset Inventory
⊿ 2.Hardware Information	
Backup Data	No file selected.
Scanning Configuration	
⊿ 3.Asset Information	
Agent Group	System Default
Scanning Configuration Scanning configuration	
	OK Cancel <u>H</u> elp

4. From the Scanning Configuration dialog box, click Advanced Settings.

	Scanning Configuration
Scan devices using CIP Start scanning with this device: Maximum scanning depth:	EWS01
Scan devices using SNMP	•
Scan within:	● IP address range ○ IP subnet
Start IP address:	172 . 18 . 0 . 1
End IP address:	172 . 18 . 0 . 100
Maximum number of hops:	1 A Unlimited hops
✓ Scan software using WMI	
Scan type:	Changes only O Full scan
Scan within:	● IP address range ○ IP subnet
Start IP address:	172 . 18 . 1 . 1
End IP address:	172 . 18 . 1 . 254
Maximum number of hops:	1 VIIImited hops
Login:	SYSTEM\Administrator
Password:	
	Advanced Settings OK Cancel <u>H</u> elp

5. Type a community string and click Save.

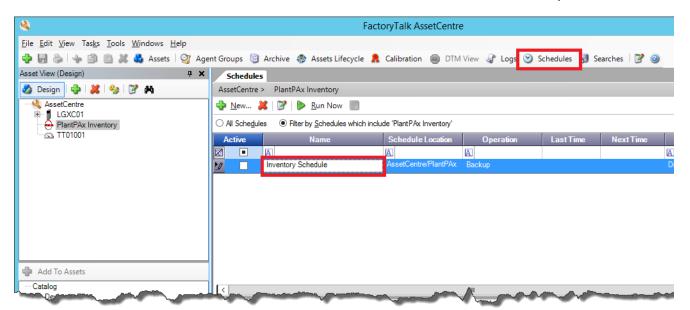
		Advanced Settings	x	
	eneral settings ximum scanning time [min]	1440		Scanning Configuration
	an devices using CIP	1440		
	vice response timeout [msec]	60000	Scan devices using CIP	
	de identification timeout [sec]	60		
	an devices using SNMP	60	Start scanning with this device:	EWS01
	-	PlantPAx		
	mmunity string vice response timeout [msec]	60000	Maximum scanning depth:	1 🗘 Unlimited scanning
	an software using WMI	60000		
	st response timeout [msec]	60000		
	st response timeout [msec] ftware scanning mode	Synchronous	Scan devices using SNMP	·
- 501	itware scanning mode	Synchronous	Scan within:	● IP address range
			Start IP address:	172 . 18 . 0 . 1
			End IP address:	172 . 18 . 0 . 100
Comm	unity string			
Type th		ype up to 255 characters. If you type more, the string v	Maximum number of hops:	1 VIIImited hops
		Save Cancel	Scan type: Scan within: Start IP address:	Changes only Full scan IP address range IP subnet 172 18 1 1
			End IP address:	172 . 18 . 1 . 254
			Maximum number of hops:	1 🔨 Unlimited hops
			Login:	SYSTEM\Administrator
			-	
			Password:	
				Advanced Settings

6. Click OK.

Add a Asset Inve	entory to AssetCentre				
₽ <u>∎</u> Ž ↓					
⊿ 1.General					
(Parent)	AssetCentre				
Description					
Name	PlantPAx Inventory				
⊿ 2.Hardware Information					
Backup Data	No file selected.				
Scanning Configuration	CIP:SNMP:WMI				
⊿ 3.Asset Information					
Agent Group	System Default				
Name					
Unique name for the asset within the current parent. OK Cancel Help					

7. Type PlantPAx Inventory into the Name text box, and click OK.

8. Click Schedules on the menu bar, then click Inventory Schedule.



4	FactoryTalk AssetCentre	_ _ ×
<u>File E</u> dit <u>V</u> iew Tas <u>k</u> s <u>T</u> ools <u>W</u> indows <u>H</u> elp	nt Groups 🔞 Archive 🚸 Assets Lifecycle 🤱 Calibration 🝙 DTM View 🕑 St	chedules 🜏 Searches
Asset View (Design) 4 🗙	Schedules	
💑 Design 🛛 🦣 🛛 👗 🛛 🤣 🛛 🗭 👫	AssetCentre > PlantPAx Inventory	
LGXC01 Inventory	All Schedules Filter by Schedules which include 'PlantPAx Inventory'	
<u></u> TT01001	Active Name Schedule Location Operat	tion LastTime
	M Inventory Schedule AssetCentre/PlantPAx Backup	
		4
Add To Apple And To Apple Add To Apple Add		

9. Click Run Now to generate an inventory list.

10. To access the inventory list, right-click on the inventory name in the left column of the FactoryTalk AssetCentre dialog box.

8		
File Edit View Ta	asks Tools Windows Help	
+ 6 & +	🗊 🛅 🐹 🔩 Assets 🎯 Age	ent Groups 🔋 Archive
Asset View	т х	Schedules
🤣 Design 🛛 📝 (24	AssetCentre > PlantP
		💠 New 🐰 📝
E ■ LGXC01	Inventory	O All Schedules 🛛 🖲 Fil
PlantF	Ax Inventory_Backup.raai	Active
	Archive	
\odot	Schedules	Inventory
۵	Check Out	
•	Get	
	Open	
	Create Shortcut	
1	Select Left File for RA Compare	
1	Export for PCDC	

11. Choose Open from the pull-down menu.

You can view	Devices or	Software from	the respective tabs.

					Asset I	nvento	ry				_ D X
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Time: 1/26/201											
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vices Software											
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	e Name	Device	Product	Product	Product	Revi	Vendo	Commissio	Additional	Additional	Additional
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SNMP_172.1		72.18.0.20						01/26/2018			
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SNMP_172.1		72.18.0.23						01/26/2018			
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Start Time End Time Result Devices PADC PADC PADC PASS PASS PASS PASS ASIM ASIC ASIM ASIC ASIM ASIC	e: 1/26/2018 2:49:08 : 1/26/2018 4:56:47 Succeed Software Name A System.PlantPAx.Id 02A.System.PlantPAx.Id 01S.System.PlantPAx.Id 02A.System.PlantPAx.Id 01S.System.Pl	PM PM ocal ocal ocal ocal ocal .local .local .local .local ocal ocal ocal ocal ocal ocal ocal	Check In					lp	/endor		

Add Basic System Diagnostics

This chapter describes how to add controller and PASS server diagnostics to your system health screen that is provided in the HMI template. HMI templates are provided with the Rockwell Automation[®] Library of Process Objects. As you develop your project, you can add additional diagnostics for your system.

We recommend that you familiarize yourself with the HMI template. See the Rockwell Library of Process Objects, Configuration and Usage Reference Manual, publication <u>PROCES-RM002</u>.

Figure 12 shows diagnostic displays that are explained in this chapter.

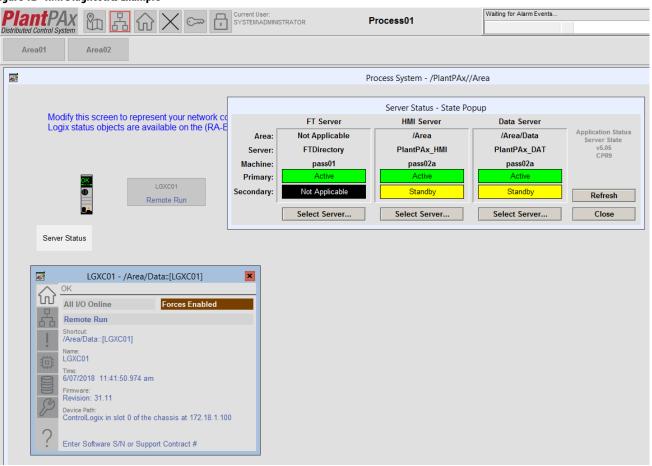
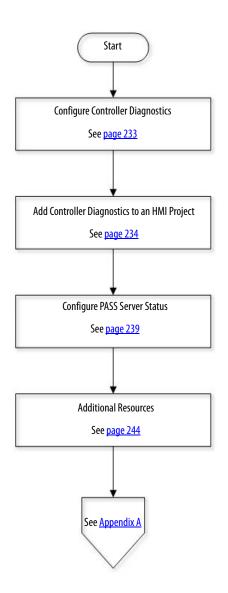


Figure 12 - HMI Diagnostics Example

Figure 13 shows the topics that are described in this chapter. Click or see the page number for quick access to a section.

Figure 13 - Basic Diagnostic Workflow



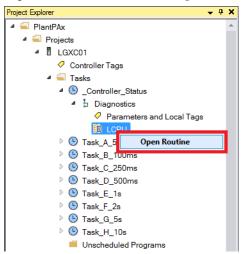
Configure Controller Diagnostics





The Logix Controller CPU Utilization (L_CPU) Add-On Instruction faceplate monitors a Logix controller and provides controller information on the system status page of the HMI template. This status information includes controller CPU utilization, communication usage, memory usage, task scan times, and controller loading.

- 1. In the Studio 5000 Architect[®] application, expand a controller project and open diagnostics under Controller Status.
- 2. Right-click LCPU and choose Open Routine.



The Logix Designer application opens with the LCPU routine.

Controller Organizer 🗸 🗸 🗸	Ψ×	E Diagnostics - LCPU ×	-
a 11		□ 11 11 12 13 14 14 15 14 14 14 14 14 14 14 14 14 14 14 14 14	
🔺 🚄 Controller LGXC01	^	Utilization (V24) Instance Number of	
Controller Tags		Controller Slot Continuous Task if	Ê
💼 Controller Fault Handler		Number in local it exists (131)	
Power-Up Handler	=	chassis (set to 0 if none)	
🔺 🖳 Tasks		0 GSV GSV Task	
Task_A_50ms		Instance Name THIS	
Task_B_100ms		Dest L_CPU.Cfg_SlotNumber Attribute Name INSTANCE	
Task_C_250ms		0	
Task_D_500ms			
Task_E_1s		Processor	
Task_F_2s		Utilization (V24)	
Task_G_5s		L_CPU_24_Up	
Task_H_10s		L_CPU_24_Up L_CPU Cfg ContTaskinstance 94 Sts Enabled	
Controller_Status		Cfg StotNumber 0 4	
Diagnostics		Cfg_UpdateT 5+ -(Sts_Timing)	
Parameters and Local Tags	- 1	Ref_Out L_CPU_Out	
LCPU		Ref_MsgSetWindow L_CPU_MsgSetWindow =(Sts_Busy)== Ref_MsgGetTrendObjUse L_CPU_MsgGetTrendObjUse	
Unscheduled		Ref_MsgGetHemUse L_CPU_MsgGetMemUse(Sts_Done)—	
A G Motion Groups	<u> </u>	Ref_MsgGetTaskTimes1 L_CPU_MsgGetTaskTimes1	\sim
T= Controller Organizer		(=)	<u>۲</u>

- 3. In the MOV instruction, type the controller slot number into the Source text box.
- 4. Save your project.

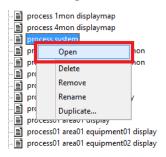
Add Controller Diagnostics to an HMI Project

Follow these steps to add controller diagnostics to your HMI project.

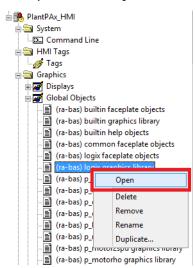
1. From the Architect application, right-click an application and choose Open in Designer.



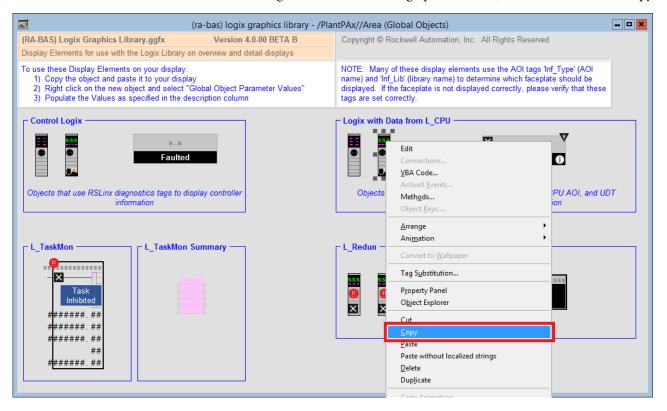
- 2. From your FactoryTalk[®] View project, expand your HMI application and displays.
- 3. Right-click a system diagnostic display (for example, process system) from the template and choose Open.



4. From the Global Objects folder, right-click (RA-BAS) Logix Graphics Library and choose Open.



5. Right-click the controller graphic in the L_CPU box and choose Copy.

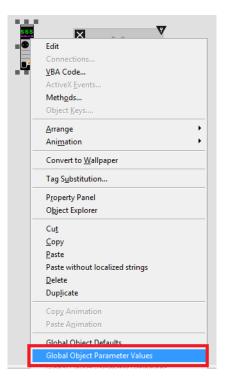


6. On the Process system display, right-click anywhere in the window and choose Paste.



7. Right-click the L_CPU graphics on the Process display and choose Global Object Parameter Values.

IMPORTANT To open the L_CPU faceplate, you must open the Display folder under the FactoryTalk[®] View SE folder.



8. Type the controller shortcut string in #101.

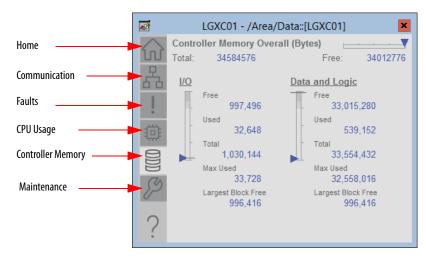
9. Select the shortcut in #102, and click OK.

	Global Object Parameter Values							
	Name	Value	Tag	Description				
1	#101	LGXC01	•••	Controller Identification (enter a text string, not a tag)				
2	#102	{/Area/Data::[LGXC01]}	•••	Processor Shortcut Name (i.e. '[MyCLX]')				
3	#120		•••	Additional display parameter (e.g. /X100 or /CC) (optional)				
4	#121		•••	Additional display parameter (e.g. /Y100) (optional)				
				OK Cancel Help				

- 10. Save the display.
- 11. Open an HMI template.
- 12. On the HMI display, click the System Status icon.

PlantPAx Distributed Control System	& <mark>& </mark>	Cur Cur	TENTADMINISTRATOR	Process01	System Statu
Area01	Area02				
2				Process System - /Plantl	PAx,
Modify th Logix sta	is screen to represent your netwo tus objects are available on the (F	RA-BAS)	Logix Graphics Library		
			LGXC01 - /Area	a/Data::[LGXC01] ×	
	LGXC01 Remote Run		All I/O Online Remote Run	Forces Enabled	
		1	Shortcut: /Area/Data::[LGXC01]		
Server Statu	s		Name: LGXC01 Time:		
			Firmware: Revision: 31.11		
		P	Device Path: ControlLogix in slot 0 of t	the chassis at 172.18.1.100	
		?	Enter Software S/N or St	upport Contract #	

On the HMI template, the controller graphic has some animation that shows the position of the key switch and controller status indicators.



13. Click the controller to access the controller status faceplate.

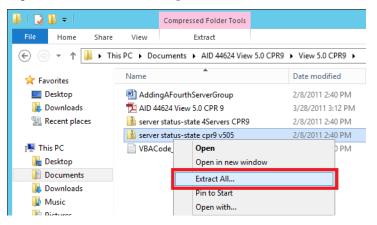
Tabs on the faceplate also provide information on the CPU usage and the status of controller memory and connections.

For details, see the PlantPAx[®] Library of Logix Diagnostic Objects, publication <u>PROCES-RM003</u>.

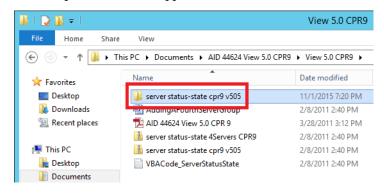
Configure PASS Server Status

In this section, we describe how to add diagnostics for your PASS servers. These diagnostics provide information on the software components that run on the PASS, including an HMI server, data server, and an alarm and event server.

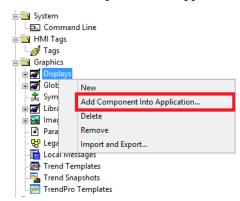
- 1. Open Knowledgebase Answer ID 44624 at <u>http://</u> <u>rockwellautomation.custhelp.com</u> and download the zip attachment.
- 2. Right-click the .zip file and choose Extract All.
- 3. Open the View 5.0 CPR9 folder.
- 4. Right-click the file and choose Open.
- 5. Right-click server status-state cpr9 v505 and choose Extract All.



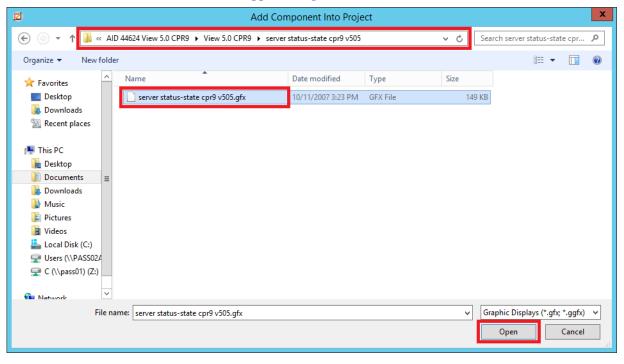
The example shows the unzipped files.



6. In the FactoryTalk View HMI application, right-click Displays and choose Add Component Into Application.



7. Open the server status-state cpr9 V505.gfx file from the files that were unzipped in <u>step 5</u>.



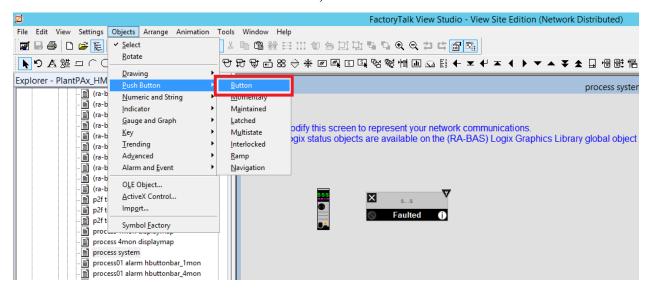
8. Right-click the imported display and choose VBA Code.

2	server status-state cpr9 v505 - /PlantPAx//Area (Display)								
	FT Server	HMI Server	Data Server						
	Display Settings	areaname	areaname	Application Status Server State					
	Display Keys	servername	servername	v5.05 CPR9					
	VBA Code	machine name	machine name	CFR5					
	Property Panel	primary state	primary state						
S	Object Explorer	secondary state	secondary state	Refresh					
	Paste Paste Special	Select Server	Select Server	Close					
	Paste without localized strings		,,						

9. Find the text circled in the example and type the name of your HMI server and data server.

Private WithEvents appStatus As Application	'app events used to update real time status
Private Const ROOT As String = "/" Private Const HMISERVERNAME As String = "PlantPAx_HMI" Private Const HMIAREANAME As String = "/Area"	'default HMI server name - change to actual name 'default area for HMI server - change to actual name
Private Const DATASERVERNAME As String = "PlantPAx_DAT"	'default OPC Data server name - change to actual name
Private Const DATAAREANAME As String = "/Area/Data"	'default area for data server - change to actual name
Private Const NUMBEROFHMISERVERS = 2	'modify to suit actual number of HMI servers in app
Private Const NUMBEROFDATASERVERS = 2	'modify to suit actual number of DATA servers in app

- 10. Save the changes to the VBA code and close the server status display.
- 11. Open the Process system display.
- 12. From the Objects menu, choose Push Button>Button.



- 13. Click the display and drag the mouse to draw a button.
- 14. From the Action tab, click Browse (ellipse '...') next to Release action.

2	process system
_	
Modify this screer	Button Properties
Logix status objec	General Action Up Appearance Down Appearance Disabled Appearance Common
	Action:
	Run command V
SSS	Press action:
	Repeat action:
	Repeat rate (secs): 0.25
	Release action:
	✓
	Confirm Action
	Configure
	OK Cancel Help

15. From the All Commands and Macros list, select Display and click Next.

Command Wizard Step 1 of 2				
Choose a command and click Next to fill in its parameters.				
Command Categories:	Commands:			
Most Recently Used	Name	Description	Syntax	<u>^</u>
All Commands and Macros	DataLogMergeT	Merges data in the secondary path to	DataLogMerge	
in System	DataLogNewFile DataLogOff	Creates a new data log file in the spe Stops data logging for the specified M	DataLogNewFil DataLogOff <file></file>	
Graphics Legacy Alarms	DataLogOn	Starts data logging for the specified M	DataLogOn <file></file>	
Data Log	DataLogRename	Specifies a new name for the logged f	DataLogRenam	
	DataLogSnapshot DataLogSwitchB	Logs tag values to the data log file for Switches from logging in the secondar	DataLogSnaps DataLogSwitch	_
RecipePro+	DataLogSwitchb	Sends a command or series of comma	DDEExecute <	=
Alarm and Event	Define	Creates a symbol.	Define <symbol< td=""><td></td></symbol<>	
	DerivedOff	Stops running the specified derived ta	DerivedOff <file></file>	
	Display	Opens and runs the specified graphic	Display <display< td=""><td></td></display<>	
	Display Otion (Cloco	Cloco the openhed Astro Display Close	Display Client Cle	
	DisplayClientOpen	Open the specified Active Display Clie	DisplayClientOp	
	DisplayNavigatio	Displays a list of previously opened sc	DisplayNavigati	
	DisplayNextScreen	Opens the next graphic display in navi	DisplayNextScr	
	DisplayNextScreen DisplayPrevious Download DownloadAll	Opens the next graphic display in navi Opens the previous graphic display in Writes the value in the selected input Writes the values in all input fields of t	DisplayNextScr DisplayPrevious Download DownloadAll	
Diaday diaday 1/011/011/01	DisplayNextScreen DisplayPrevious Download DownloadAll EventOff	Opens the next graphic display in navi Opens the previous graphic display in Writes the value in the selected input Writes the values in all input fields of t Stops running the specified event file.	DisplayNextScr DisplayPrevious Download DownloadAll EventOff <file></file>	
Display <display> [/8] [/E] [/U]</display>	DisplayNextScreen DisplayPrevious Download DownloadAll EventOff	Opens the next graphic display in navi Opens the previous graphic display in Writes the value in the selected input Writes the values in all input fields of t	DisplayNextScr DisplayPrevious Download DownloadAll EventOff <file></file>	Max] [/M] [position]
Display <display> [/8] [/E] [/U] Opens and runs the specified graphic</display>	DisplayNextScreen DisplayPrevious Download DownloadAll EventOff [/O] [/Z] [/ZA] [/	Opens the next graphic display in navi Opens the previous graphic display in Writes the value in the selected input Writes the values in all input fields of t Stops running the specified event file.	DisplayNextScr DisplayPrevious Download DownloadAll EventOff <file></file>	V Max] [/M] [position]
	DisplayNextScreen DisplayPrevious Download DownloadAll EventOff [/O] [/Z] [/ZA] [/	Opens the next graphic display in navi Opens the previous graphic display in Writes the value in the selected input Writes the values in all input fields of t Stops running the specified event file.	DisplayNextScr DisplayPrevious Download DownloadAll EventOff <file></file>	Max] [/M] [position]
	DisplayNextScreen DisplayPrevious Download DownloadAll EventOff [/O] [/Z] [/ZA] [/	Opens the next graphic display in navi Opens the previous graphic display in Writes the value in the selected input Writes the values in all input fields of t Stops running the specified event file.	DisplayNextScr DisplayPrevious Download DownloadAll EventOff <file></file>	

Command Wizard Step 2 of 2			
Syntax: Display <display> [/B] [/E] [/U] [/O] [/Z] [/ZA] [/Pfile] [/T<tag>,<tag>,] [/Hnnn] [/Wnnn] [/Min] [/Max] [position]</tag></tag></display>			
Area:			
File:	server status-state	cpr9 v505	-
B - Display	In Background	Window Position	
/E - Disable	Enter Key	/H - Height	
/U - Upload	Data Entry Fields	/W - Width	
/O - Disable	Key List	/X - Left	
🗌 /Min - Displa	ay Minimized	_/Ү - Тор	
/Max - Displ	ay Maximized	ZA - Cache Display Always Updating	
/T - Parame	ter tags		
/Z - Cache I	Display	/P - Parameter File	
Command Str	Command String: Display "server status-state cpr9 v505"		
Help	Cancel	< Back Finish	

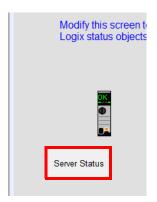
16. From the File pull-down menu, choose the server status display.

- 17. Click Finish.
- 18. On the Button Properties dialog box, click the Up Appearance tab.
- 19. In the Caption text box, type Server Status.

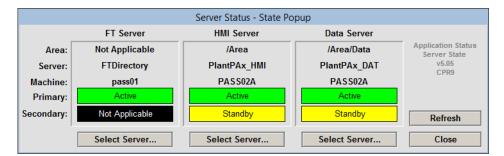
Button Properties		
General Action Up Appearance Down Appearance Disabled Appearance Common		
General Back style:		
Solid 🗸		
Pattern style: Back color		
None Pattern color		
Caption		
Server Status		
Font: Size: Arial v 10 v B Z U		
Image settings		
No image Image:		
O Use image reference		
O Import file [None] Import		
OK Cancel Help		

- 20. Click OK.
- 21. Save the changes to the Process system display.
- 22. Run the client file and access the System Status page.

23. Click Server Status.



The Server Status display appears.



The example shows a networked station application with the FactoryTalk server, HMI server, and data server on one workstation. None of the servers are redundant in this application example.

IMPORTANT We recommend that diagnostic alarms for network adapters and I/O modules be added to the Alarm server. The alarms are displayed on the alarm banner and are included in the alarm log and history

Add These Additional Resources

The following resources are available to assist with developing your application.

Торіс	Description	Where To Find Information
DLR diagnostics	Device Level Ring (DLR) faceplate shows network status and where a break is in the EtherNet/IP [™] network.	The DLR diagnostics faceplate application can be downloaded from the Rockwell Automation [®] Sample Code website at <u>http://</u> <u>samplecode.rockwellautomation.com</u>
L_ChangeDet, L_Redun, L_TaskMon library objects	Objects that comprise the PlantPAx Library of Logix Diagnostic Objects manual monitor Logix controllers on the network, checking for changes that impact operation for primary and secondary controller status.	PlantPAx Library of Logix Diagnostic Objects, publication <u>PROCES-RM003</u>

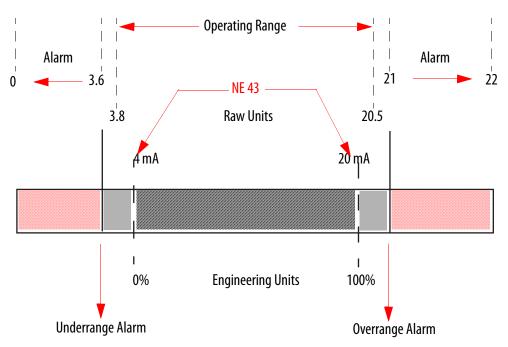
Recommended I/O Module Ranges

You can scale your module to represent I/O data in specific terms for your application. When you scale a channel, you select two points that represent signal units: a Low Signal and a High Signal. You also select two points that represent engineering units: Low Engineering and High Engineering.

For example, if you are using the 1756-IF6I module in current mode, the module maintains a 0...21 mA range capability. But if your application uses a 4...20 mA transmitter, you can scale the module to represent 4 mA as the low signal and 20 mA as the high signal.

The NAMUR NE 43 international standard uses the 3.8...20.5 mA signal range for measurement information. Likewise, signals >21 mA or <3.6 mA indicate diagnostic failures. By using the range values in the standard, instrument faults are separated from process measurements.

By staying within the NAMUR value references, instrument faults are separated from process measurements. Thus, you can adopt maintenance practices for instruments to operate at peak efficiency.





An Overrange or Underrange condition is a common cause of inaccurate channel data reported to the controller. If an input signal is beyond the low and high signals for the module, the data is represented in terms of engineering units set during scaling.

Scaling Example Using I/O Value Range

In the example for the 1756-IF8IH HART module on page 142, the signal range is 4...20 mA and the engineering unit range 0...100%.

By default, module channels are scaled in current mode at 4...20 mA that equates to 0...100% engineering units. Other module channels scale 1:1 regarding signal units and engineering units by default.

EXAMPLE	Using our example, the 1756-IF8IH module in current mode supports 022 mA actual range capability. But your application uses a 420 mA transmitter.
	 If you want to receive values in signal units, configure the module as follows:
	 Low Signal = 4 mA
	 High Signal = 20 mA
	 Low Engineering = 4 EU
	 High Engineering = 20 EU
	 If you want to receive values of Percent of Full Scale, configure the module as follows:
	 Low Signal = 0 mA
	 High Signal = 20 mA
	- Low Engineering = 0%
	– High Engineering = 100%

See the faceplates on page 247 for scaling by using the numbers in the example.

The pair of screens in the example shows a Basic and Advanced faceplates.

Using the values in the Example (on page 246), you want to configure scaling of the raw and engineering units on the Advanced faceplate. The raw values are entered in the Input text boxes and the engineering range and units are entered in the Scaled text boxes.

In the Threshold text boxes, which are shown on the Basic faceplate, enter the recommended threshold limits and Deadband in raw units. These values account for calibration tolerances and differ slightly from the NAMUR limits of 3.60...21.0 mA.

See Figure 15 for more details.

Basic Faceplate

TT01001 - Temperature 01001 Imput Failure 20.63 20.63 3.67 Use Substitute PV -25.00 Ves -25.00 Ves -25.00 Ves -25.00 Ves -25.00 Ves -25.00 Ves -25.00	0.07 Raw Input Scaling 0.07 Input Scaled Maximum 20.00 Input 100.00 Minimum 4.00 0.00 0.00 Units % % % Allow selection of Substitute PV PV Source and Quality © Generate SrcQ Pass thru connected Channel's SrcQ value PV Filter Time Constant (sec) 0.00 0.00 0.00 0.00 cale 0 unfiltered 0.00 0.00 0.00
Figure 15 - Threshold Limits Allowable Input Error = (1.25 % / 3) = 0.416 % (call it 0.	4 %)
Fail Return to Valid	Return to Valid
-0.2 mA = 1.25% $-0.2 mA = 1.25%$	3.66667 mA = -2.0833 % Fail Threshold 20.63333 mA = 103.9583 % 3.73333 mA = -1.6667 % Return Point 20.56667 mA = 103.5417 % -Difference =

Advanced Faceplate

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Notes:

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

Documentation Feedback

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Rockwell Automation maintains current product environmental information on its website at http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page.

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Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444 Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640 Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846