

# Software Management Guidelines

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## About This Document

This document is intended to provide guidelines for Rockwell Automation Studio 5000 users who would like to simplify and reduce the lifecycle management of their automation system. It is intended to provide the latest recommendations and best practices from Rockwell Automation to end users.

# 1. What is Studio 5000

The Studio 5000® environment combines elements of design into one standard framework that optimizes productivity and reduces time to commission. This intuitive integrated design environment focuses on rapid design, re-use, collaboration, and virtual design and is built on a foundation consisting of several core tenants.

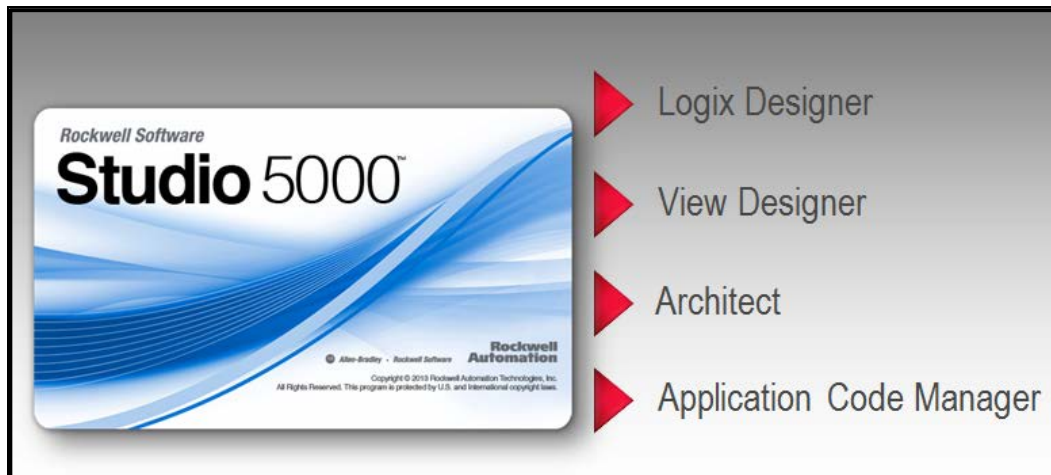


With the Studio 5000 Applications you can:

- Build and maintain a system layout in a central place with **Studio 5000 Architect™**
- Configure, program and maintain your Logix 5000™ family of controllers with **Studio 5000 Logix Designer®**
- Create intuitive, modern screens for the PanelView™ 5000 graphic terminals with **Studio 5000 View Designer™**
- Create and leverage re-usable libraries of content for rapid project development with **Studio 5000 Application Code Manager**

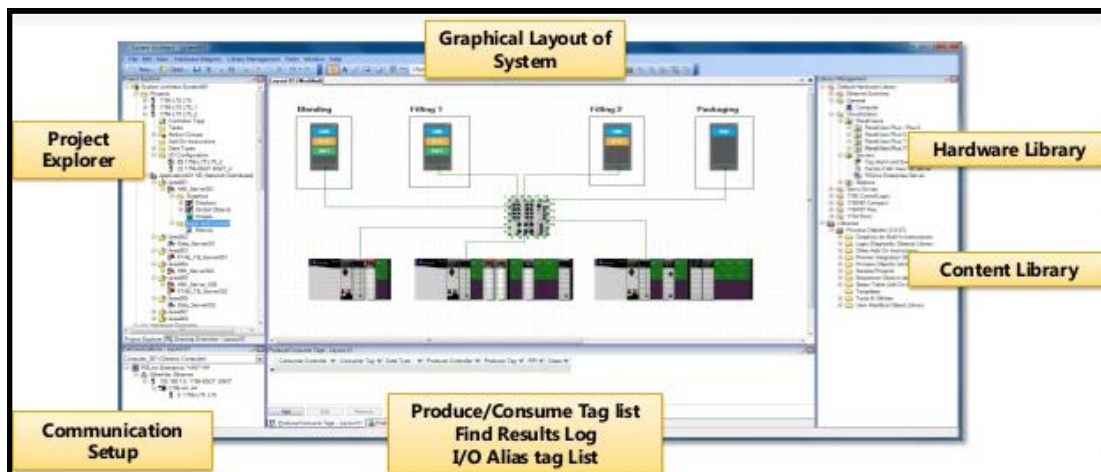
Studio 5000 is required for all Logix controllers that are running version 21 firmware or greater.

## 1.1 What Makes up Studio 5000



### 1.1.1 Studio 5000 Architect

Studio 5000 Architect is the central point within the Studio 5000 environment where users can view the overall automation system; configure devices such as controllers, Human Machine Interface (HMI) and Electronic Operator Interface (EOI); and manage the communications between the devices. The Studio 5000 Architect application also exchanges data with other Studio 5000 applications and third-party electrical design tools to simplify the development experience.



This helps streamline the time to build your Logix and View automation system and allows you to:

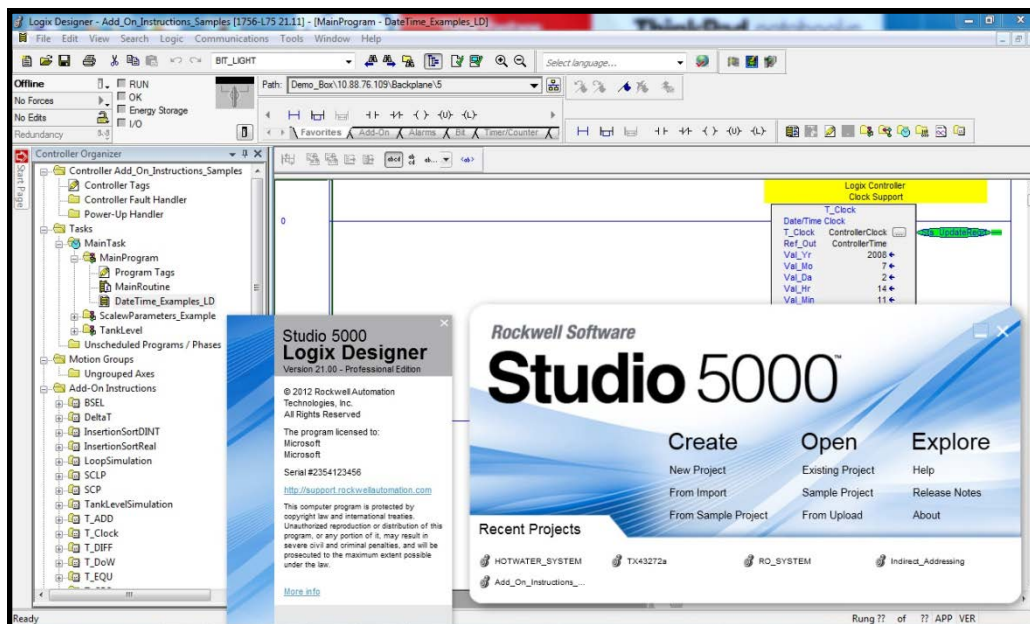
- Create a graphical representation of your system for easier system modifications
- Build Logix and View projects from an integrated environment
- Re-use Logix and View content as well as use content from the Rockwell Automation Library of Process Objects
- Exchange hardware configuration data with third party tools

Learn more at [RockwellAutomation.com](http://RockwellAutomation.com):

[Studio 5000 Architect](http://Studio5000Architect)

### 1.1.2 Studio5000 Logix Designer

Studio 5000 Logix Designer is the one application used to configure, program and maintain the entire Allen-Bradley® Logix 5000 family of controllers' products and related devices. Its intuitive programming environment allows users to work collaboratively to design and maintain their systems.



Studio 5000 Logix Designer offers a single programming software application that can be used for all disciplines – safety, motion, drives, process and discrete.

- Easily configure devices with graphical wizards and automatically create tags
- Simplify programming with multiple languages and modularity features
- View the system and find what you need easily with the Logical Organizer and Controller Organizer views – helping maintain uptime
- Create code simultaneously with others, and then compare and merge changes

**Note:** Starting with version 21, Studio 5000 Logix Designer is the new name of RSLogix 5000.

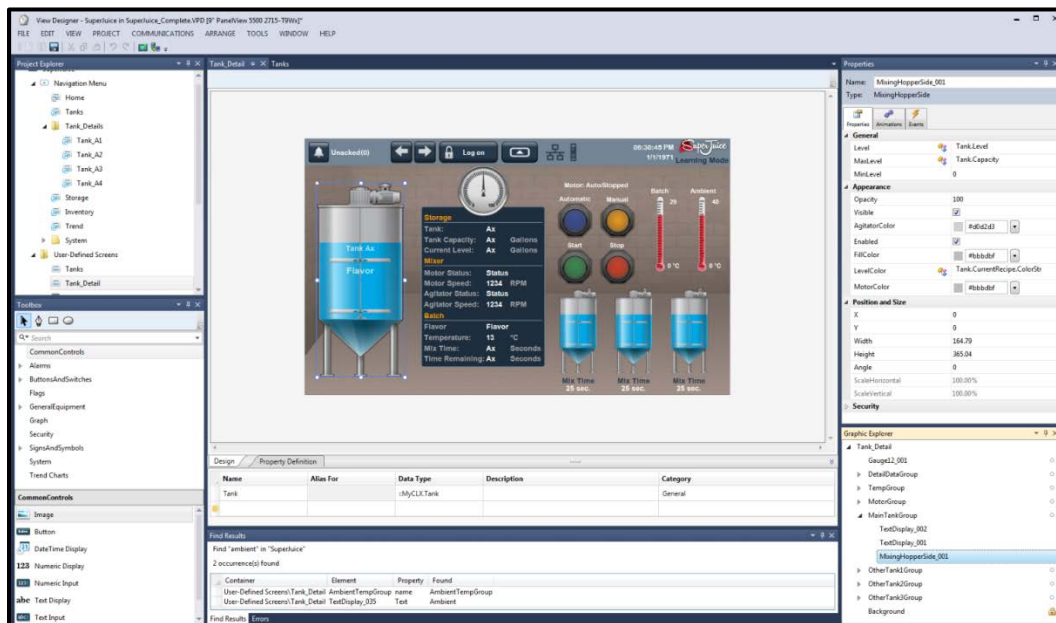
Learn more at [RockwellAutomation.com](http://RockwellAutomation.com):

[Studio 5000 Logix Designer](#)

### 1.1.3 Studio 5000 View Designer

Studio 5000 View Designer is the design environment for the PanelView 5000 family of operator terminals. The integration of the PanelView 5500 with Studio

5000 View Designer helps build modern applications more easily and improve operator performance.



The Studio 5000 View Designer application provides an intuitive, modern design environment and enhances integration between the control system and operator interface to improve programming efficiency and runtime performance.

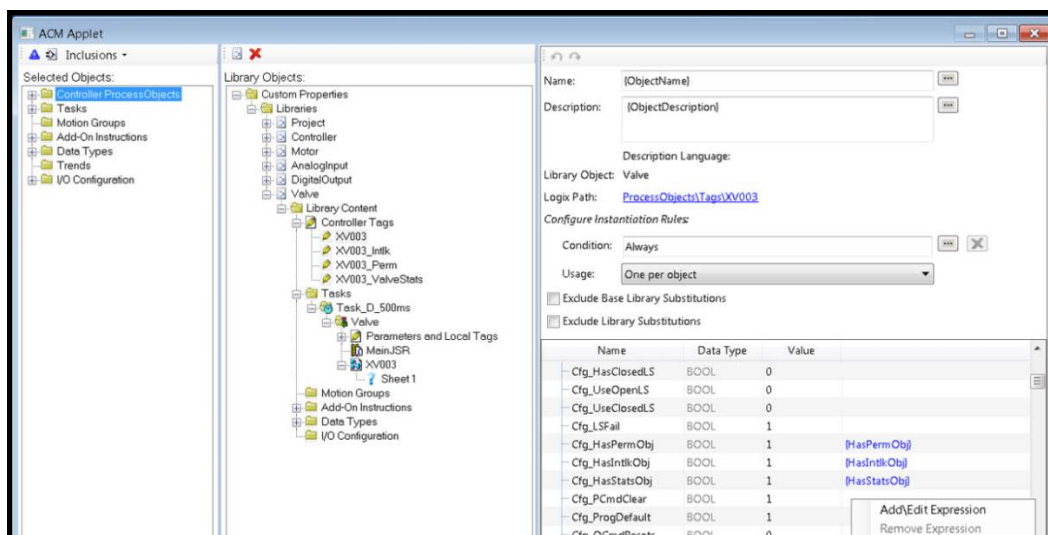
- Searchable toolbox of graphic elements that have built-in animations to simplify configuration
- Preconfigured banner, alarm summary and diagnostic screens help reduce design time
- Shared Logix Tags help simplify engineering time by allowing your controller tags to be used in your terminal without having to create HMI tags
- Logix-based alarms are automatically available on the PanelView 5500 to eliminate additional alarm programming and to help reduce network traffic
- High-speed button control provides quick response and feedback for machine jogging applications

Learn more at [RockwellAutomation.com](http://RockwellAutomation.com):

[Studio 5000 View Designer](#)

### 1.1.4 Studio 5000 Application Code Manager

Studio 5000 Application Code Manager helps speed system development by building libraries of re-usable code that can be managed and deployed across the entire enterprise. Creating projects with Studio 5000 Application Code Manager helps improve design consistency, reduce engineering costs and achieve faster commissioning.



- Easily create and configure objects in bulk using re-usable libraries of code to increase application development, without any additional programming
- The auto content generation feature creates not only the controller code for the modular object, but also the associated visualization, historical and alarming data — helping to build projects more efficiently

Learn more at [RockwellAutomation.com](http://RockwellAutomation.com):

[Studio 5000 Application Code Manager](http://RockwellAutomation.com)

Table 1 summarizes the main features of Studio 5000 framework.

*Table 1 Studio 5000 Software Components/Plug-ins*

| <b>Architect</b>                               | <b>Logix Designer</b>                   | <b>View Designer</b>                               | <b>Application Code Manager</b> |
|------------------------------------------------|-----------------------------------------|----------------------------------------------------|---------------------------------|
| Integrated Environment                         | Scalable and flexible solutions         | Quickly and easily create modern, powerful screens | Engineering Design Tool         |
| Graphical Layout of System                     | Efficient project design                | Enhanced integration with Logix                    | Auto Content Generation         |
| Initial Architecture and Project Configuration | Effective content management            | Highly flexible animation configuration            | Configuration parameters        |
| Multi-controller graphic representation        | Quicker downtime recovery               | Enhanced runtime operation                         |                                 |
| Re-Use of project content                      | Collaborative engineering               |                                                    |                                 |
| Data exchange with engineering tools           | Support for more complex motion systems |                                                    |                                 |

Learn more at [RockwellAutomation.com](http://RockwellAutomation.com):

[Rockwell Automation Products - Studio 5000](#)

## 2. Recommendations for Choosing a Studio 5000 Logix Designer Release

### 2.1 Releases

Studio 5000 does not have an “overall” release. Rather, it is a collection of plug in software pieces, or software applications that work under the same umbrella as part of an engineering platform.

Table 2 lists the plug in software releases of Studio 5000.

*Table 2 Studio 5000 Plug-in Software Release*

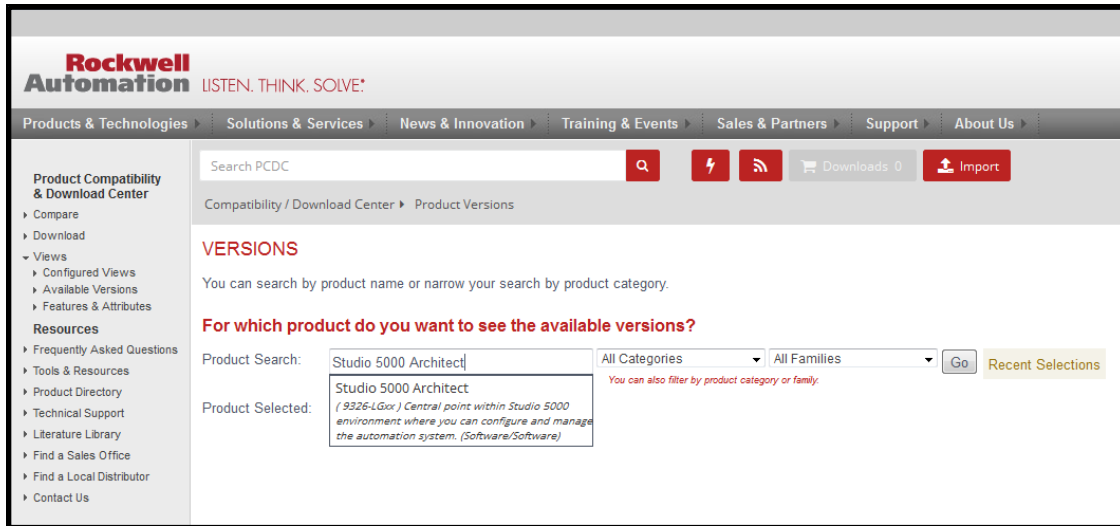
| Architect | Logix Designer | View Designer | Application Code Manager |
|-----------|----------------|---------------|--------------------------|
| V1.00     | V21.00.03      | V2.01         | V1.00.02                 |
| V1.01     | V21.00.04      | V2.02         | V1.00.04                 |
| V1.02     | V21.03.01*     | V2.03         | V1.00.06                 |
| V2.00     | V21.03.02*     | V3.01         |                          |
|           | V23.00.00      |               |                          |
|           | V23.00.01      |               |                          |
|           | V24.00.00      |               |                          |
|           | V24.01.00      |               |                          |
|           | V26.01.01      |               |                          |
|           | V27.00.00      |               |                          |
|           | V28.02.01      |               |                          |
|           | V29.00.01      |               |                          |
|           | V30.00.00      |               |                          |

\* Studio 5000 Logix Designer Product Resiliency Release – See section 4.5 (Incompatible Minor Revisions) for more information.

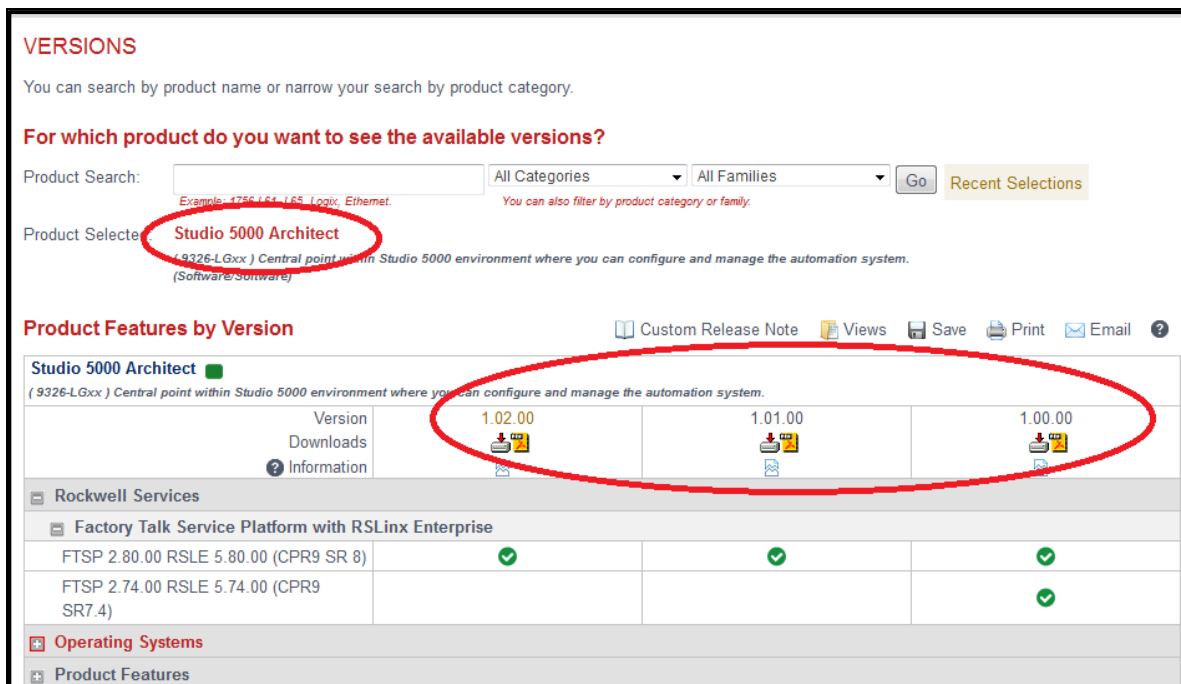
For more information about a particular version of an application, such as Studio 5000 Logix Designer, visit [RockwellAutomation.com](http://RockwellAutomation.com):

[Product Compatibility Download Center – Available Versions](#)

In the *Product Search* box, type the name of the product you would like to view available versions of, and then select the *Go* button.



In the example above, the user typed “Studio 5000 Architect” in the *Product Search* box, and after selecting the *Go* button the following available versions were loaded below.



## 2.2 Studio 5000 Ordering Information

The following table describes the various software package options that can be ordered for Studio 5000.

### 2.2.1 Studio 5000 Software Package Options

| Studio 5000 Edition      | Toolkits | Professional | Full | Standard w/<br>Network | Standard | Lite | Mini | Service |
|--------------------------|----------|--------------|------|------------------------|----------|------|------|---------|
| Architect                | ✓        | ✓            | ✓    | ✓                      | ✓        | +    | +    | +       |
| Logix Designer           | ✓        | ✓            | ✓    | ✓                      | ✓        | ✓    | ✓    | ✓       |
| View Designer            | ✓        | ✓            | ✓    | ✓                      | ✓        | ✓    | ✓    | ✗       |
| Application Code Manager | 🛒        | 🛒            | 🛒    | 🛒                      | 🛒        | 🛒    | 🛒    | 🛒       |

Included  
 By Subscription  
 Add-on Purchase  
 Not Included

Publication: [9324-PP006](#)

Rockwell Automation provides a number of downloads, updates and additional resources related to software and associated products. Find available software downloads by searching by the software serial number, or using the Product Compatibility Download Center.

Learn more at [RockwellAutomation.com](http://RockwellAutomation.com):

[Software Downloads by Serial Number](#)  
[Product Compatibility Download Center](#)

### 2.2.2 Studio 5000 Architect

Studio 5000 Architect activates with Logix Designer Full, Standard, and Pro licenses. Studio 5000 Architect can also be purchased standalone.

Studio 5000 Architect is compatible with the following software:

- FactoryTalk® Services Platform 2.74.00 or later
- FactoryTalk® Activation Manager 3.62.00 or later
- RSLogix 5000® v18 or later and Logix Designer version 21.00.00 or later
- RSLinx® Classic 3.70.00 or later
- RSNetWorx™ for ControlNet 24.00.00
- FactoryTalk View 8.10 or later

To access Studio 5000 Architect, open Studio 5000 version 21.00.00 or later, select *New Project* → *Architect*. An activation is required for this software.

Studio 5000 Architect only available for Web Download:

[Studio 5000 Architect Download](#)

### **2.2.3 Studio 5000 Logix Designer**

Studio 5000 Logix Designer is available for purchase in multiple bundles. Depending on the functionality required, one or more product catalog numbers might be needed to acquire the appropriate functionality.

The following links will help you to determine which Logix Designer application package is best suited for your application needs:

[Studio 5000 Logix Designer Bundles](#)

[Comparison of Multiple Logix Designer Releases](#)

### **2.2.4 Studio 5000 View Designer**

Studio 5000 View Designer is included with Studio 5000 Professional, Full, Standard, Network, Lite and Mini editions.

### **2.2.5 Studio 5000 Application Code Manager**

Studio 5000 Application Code Manager is available as a Software as a Service (SaaS) offering, with 1 year subscription.

## 3. Feature Considerations by Studio 5000 Releases

The following tables describe the key features and highlights of Studio 5000 Logix Designer releases.

### 3.1 Release Version 24 – Key Features

#### Key Features

1. Automation Productivity Focus
2. Motion Updates
3. Safe & Standard Connections
4. Alarm Management
5. New Device Support

**Automation Productivity Focus** – offers new design workflows to enhance productivity. These workflows allow for a more productive experience when creating, storing, sharing and reusing content between working and library ACD files.

- New Logical Organizer
- New Program Parameters and Hardware abstraction
- Enhanced Import/Export features
- Compare and Merge capabilities for concurrent engineering

**Motion Updates** – added support for multiple update rates.

**Safe & Standard Connections** - added support for Safe Torque Off (STO).

**Alarm Management** – offers full support of the ISA18.2 Alarming state model.

**New Device Support** – many new devices are now supported.

- 1788-EN2DNR
- 440R-ENETR
- 193-ECM-ETR
- 1756-OB16IEF
- 1756-OB16IEFS
- 1769-AENTR
- 1756-HIST
- 1734-IB8S and 1734-OB8S 1756-IB16F
- 1734-AENT/AENTR Series B
- PowerFlex® 755 Integrated Motion on the EtherNet/IP network AOPs
- Stratix 5700 and 8000 enhancements
- 1783-BMS10CGN, 1783BMS20CGN, 1783-BMS10CG and 1783-BMS20CGP, Stratix Modules with NAT support
- Kinetix 5500 ERS2 with Integrated Safety over EtherNet/IP

## 3.2 Release Version 26 – Key Features

### Key Features

1. Kinetix 5700 Servo Drive
2. Content Protection
3. Profile Usability Enhancements

**Kinetix 5700 Servo Drive** - Snap fit bus system that requires no tools. *Single Cable Technology* that results in 60% less wiring. Supports *Servo and Vector* motor control. Features *Integrated Safety* with controller based safety delivered via EtherNet/IP.

**Content Protection** - Introducing new capabilities to support content protection through a new license based method of protecting Add-On Instruction definitions and Routines utilizing secure USB devices.

**Profile Usability Enhancements** - Simplified prompts and diagnostics messages on module's profile when a type or revision mismatch exists. Corrected module firmware selection to conform to revision standards.

### 3.3 Release Version 27 – Key Features

#### Key Features

1. Studio 5000 Architect
2. Studio 5000 View Designer
3. Studio 5000 Application Code Manager

**Studio 5000 Architect** – Offers an integrated environment for streamlined creation and configuration of the system architecture and application. Helps enables library management capabilities to help users build systems faster and with less risk. It provides a standard interface to support better data exchange between development systems.

Also Includes:

- Integrated FactoryTalk View 8.1.
- IAB Export to Studio 5000 Logix Designer - Allows for the export of control systems created in Integrated Architecture Builder to Architect and the automatic creation of the corresponding Logix Designer controller project files. Eliminates data entry redundancy. Reduces design time by matching the BOM with the actual project.
- EPLAN Bi-Directional synchronization - Synchronizes data transfer of Hardware configuration and Point Tags (Alias Tags). Allows for automated schematic updates in EPLAN. Improves start-up time ensuring electrical drawings are perfectly matched to I/O assignments.

**Studio 5000 View Designer** - Offers premier integration features with Logix family of controllers. Design leverages modern graphics, navigation, and usability functions for a more improved user experience. It also offers a common design environment for more productive development.

Also Includes:

- Preconfigured system setting screens.
- Extended tag properties – Single reference to obtain all data.
- Reusable screens leverages UDTs – Create a screen property and give it a Logix data type.
- Logix based alarms automatically viewed in panel.
- High-speed HMI Button Control- Fast (<100msec), deterministic, and auto diagnosing. Eliminates custom diagnostic logic for communications loss. More flexible and lower cost than physical buttons.

**Studio 5000 Application Code Manager** – One place to store, decorate and instantiate content to:

- Create reusable content
- Generate project content

## 3.4 Release Version 28 – Key Features

### Key Features

1. ControlLogix 5580 Controller
2. CompactLogix 5380 Controller
3. 5069 Compact I/O
4. Added Security

**ControlLogix 5580 Controller** - Control focused on Logix machine performance for faster system performance.

Includes:

- Onboard display
- 1GB Embedded EtherNet/IP™ port enables high-performance I/O and Motion control
- Controller Task Monitor / Embedded Web Page
- Up to 45% Increased memory capacity
- Improved performance and throughput
- Studio 5000, Version 28 Support
- Digitally signed and encrypted firmware support
- Controller-based Change Detection and logging
- Role-based access control to routines and Add-On Instructions
- Future proofing Your System and enabling The Connected Enterprise

**5069 Compact I/O** – Added support for family.

Includes:

- 1 Adapter, 14 Modules
- Channel Level Data Structure - All information associated with a channel is contained within the channel structure
- Future Proof Data Structures - Code within Studio 5000 Logix Designer will not have to change going forward to adapt new hardware.

**Added Security** – Includes added support for many new security features.

Security Features:

- Factory Talk Temporary Users - Temporarily give someone access to privileges of a different user group. A special account that can use temporary passwords is created ahead of time. Privileges are assigned to this account like any other account. As part of defining the account, the admin specifies how long the temporary passwords work, and what groups of users are permitted to generate them.
- Permission Sets for Securing Projects - Secure a project file with a Permission Set to use the same policies for many controllers. Normally when securing a controller's project file, a Logical Name is created in the FactoryTalk Directory with the same name as the controller. This means that every time a new controller is secured, a new object is created in the FactoryTalk directory, and the security admin must do something with this logical name to ensure it has the correct security policies applied – put it in a particular Application or Area, or set its permissions directly.
- Permission Sets for Securing Routines, AOIs and Tags - Apply Permission Sets to Routines, AOIs and Tags to have different policies for different components. Before V28, when a controller was secured, when policies were established for routines, AOIs or tags, the same policies were used for all routines, AOIs or tags in the entire project. In V28, permission sets can be applied to individual Routines, AOIs and Tags, meaning that different Routines, AOIs and Tags can have different policies.
- Guest User Access - Grant limited permissions to users who aren't members of your FactoryTalk Directory. Often, a machine builder wants to control access to a project file, but still give their end customer some level of access. With Guest Users, this is possible. The machine builder will give the desired level of access to the pre-defined group called Guest Users. Then, any user who is log logged into the machine builder's FactoryTalk directory will get the access given to Guest Users.
- Secondary Security Authority - Guest Users can further limit access to a project file with a Secondary Security Authority. If the End User in the

previous scenario wants to further limit access to the project file, they can specify a Secondary Security Authority. For example, if the Machine Builder specified that Guest Users are permitted to go online, but the end user wants to restrict this to only a particular set of users, they will use a Secondary Security Authority.

## 3.5 Release Version 29 – Key Features

### Key Features

1. ControlLogix 5580 Controller
2. CompactLogix 5380 Controller
3. ControlLogix 5580 & CompactLogix 5380 - Instruction based alarms
4. ControlLogix 5580 & CompactLogix 5380 - PanelView 5000 support
5. ControlLogix 5580 & CompactLogix 5380 - String Assignment Support
6. ControlLogix 5580 & CompactLogix 5380 - Message to SELF
7. Generic Ethernet Safety and Standard Profile
8. Guardmaster 440C-CR30 Profile Enhancement
9. Compare & Merge Enhancements

**ControlLogix 5580 Controller** – Support for the entire family of controllers.

Includes:

- 1756-L81E
- 1756-L82E
- 1756-L84E

**CompactLogix 5380 Controller** – Support for the entire family of controllers.

Includes:

- 5069-L306ER(M)
- 5069-L310ER(M)
- 5069-L320ER(M)
- 5069-L330ER(M)
- 5069-L340ER(M)

**ControlLogix 5580 & CompactLogix 5380: Instruction based alarms** – Choose Instruction Based or Tag Based Alarming based on your application (ALMA and ALMD instructions).

**ControlLogix 5580 & CompactLogix 5380: PanelView 5000 support** – Supports simple configuration, improved performance and greater flexibility.

Includes:

- New Logix and View Communications method
  - New instruction in Logix that HMI will interact with
  - High speed deterministic communications similar to I/O
- Benefits
  - Reduced lag and improved accuracy for manual jog operations from traditional HMI
  - More flexible than physical buttons with comparable performance
  - Eliminates need for custom logic to verify active communications

**ControlLogix 5580 & CompactLogix 5380: String Assignment Support** – Supports increased programming productivity through better string management.

Includes:

- Structured Text Editor Support
  - String to String Direct Assignment
  - Literal to String Assignment
- Ladder Editor Support
  - Literal to String Tag MOV
  - String Tag to String Tag MOV

**ControlLogix 5580 & CompactLogix 5380: Message to SELF** – Supports user configurable functionality for an additional layer of security.

Includes:

- Programmatic ability enable/disable via Message to “SELF”
- Configurable “Masking” of Scrolled Fields 4-Char LCD
- Embedded Web Page Disable/Enable
- Embedded Ethernet port Disable/Enable

**Generic Ethernet Safety and Standard Profile** – Simplifies configuration by requiring only one IP address and will not require extra Ethernet hardware.

Supports the following connection types:

- Standard, Standard with Status
- Safety
- Safety and Standard, Safety and Standard with Status

Simplifies integration and improves user experience

- One profile versus two
- One IP address versus two
- Simplified hardware implementation
- Common user experience

**Guardmaster 440C-CR30 Profile Enhancement** – Supports a simplified and integrated design experience with a fully functional Logic editor for the Guardmaster 440C-CR30 safety relay. Now available with Add-on Profile v2.01.

**Compare & Merge Enhancements** – Supports increased granularity to compare individual parts of individual projects. Compares AOIs that are signed. Supports any L5X file to perform a compare without having to compare the entire project.

Examples:

- AOI-to-AOI
- UDT-to-UDT
- Program-to-Program
- Routine-to-Routine
- One-to-One also One-to-Many

## 3.6 Release Version 30 – Key Features

### Key Features

1. CompactLogix 5380
2. ControlLogix 5580
3. CompactLogix 5480
4. Kinetix VPC motor support
5. PowerFlex 750 Series CIP Safe Torque Off (STO) support
6. ControlLogix and CompactLogix 5x80 Family of Controllers
7. ControlLogix and CompactLogix 5x70 Family of Controllers
8. Add On Profile enhancements
9. Support for Windows 10

#### CompactLogix 5380

- Additional catalog numbers launched for increased scalability
  - o 5069-L350ERM, 5 MB memory, 60 nodes, 24 motion axes
  - o 5069-L380ERM, 8 MB memory, 70 nodes, 28 motion axes
  - o 5069-L3100ERM, 10 MB memory, 80 nodes, 32 motion axes

#### ControlLogix 5580

- Ethernet/IP node limits increased
  - o 1756-L81E, 100 nodes
  - o 1756-L82E, 175 nodes
  - o 1756-L83E, 250 nodes
  - o 1756-L84E, 250 nodes
  - o 1756-L85E, 300 nodes

#### CompactLogix 5480

- Introduction of new high performance/open controller in the Logix controller family
  - o Multi-disciplined Logix controller with Microsoft Windows 10 IoT Enterprise for 3rd party applications
  - o Advanced design enables control code to run completely independent of the commercial operating system
  - o Internal CIP communications between Logix and Windows
  - o Configurable for DLR or dual IP Ethernet topologies

- Still programmed with Studio 5000 Logix Designer, can run existing projects

### **ControlLogix and CompactLogix 5x80 Family of Controllers**

- string to literal binary comparison
  - increased programming productivity through better string management
- license based content protection
  - a solution for customers to protect the design and execution of Logix content
  - managed through the use of a USB device and a web portal
  - prevents the duplication of code in an unauthorized controllers

### **ControlLogix and CompactLogix 5x70 Family of Controllers**

- Change protection
  - New FactoryTalk permissions to ensure only authorized users can exchange secured content
- Controller based audit log
  - New custom audit log entry enables detailed event logging that detects what online changes occur and when
  - Quickly determine if changes were made to a program offline

### **Add On Profile (AOP) enhancements**

- Classic to AOP Conversion with new look and feel
- Missing AOP notification now supplied with context to improve user experience
- Available separate AOP Bundle Install
  - easy access to all available devices without having to install latest Studio 5000 Logix Designer

### **Studio 5000 Architect V2.0**

- Modernized user interface
- Expanded device support (drives and motion devices added)
- Enhanced capabilities for bidirectional data exchange between Studio 5000 and engineering tools

**Studio 5000 View Designer V3.1**

- Support for ControlLogix 5580 and CompactLogix 5380 controllers (controller firmware V29 or later)
- Create and Instantiate Add-On Graphics (AOGs)
- Multi-version support (V27 and later)
- Runtime language switching
- Enhanced Logix integration

## 4. Managing Multiple Studio 5000 Versions

### 4.1 General Practice

Rockwell Automation supports the general practice that a user can have multiple major releases installed on a computer, **BUT** only one minor release.

For example, Studio 5000 Logix Designer v21.00 and V23.00 can run on the same machine.



However, Studio 5000 Logix Designer V21.03 can NOT be run on the same machine as V21.00.



Additionally:

- A Studio 5000 Logix Designer minor revision of software can open projects created by other minor revision software. \*
- Minor revisions of software can go online with supported controller firmware running projects created with other minor revisions of software.\*

Yes! A user can have both RSLogix 5000 and Studio 5000 Logix Designer installed on the same computer.

**\* IMPORTANT:** There are some very important notes regarding the product release of RSLogix 5000 v20.03, and Studio 5000 Logix Designer v21.03. It is recommended that the user reads section 4.5, “Incompatible Minor Revisions”, and [Tech. Note 582891](#) for more information.

**Note:** If multiple minor releases are needed to be installed on a single computer a support strategy leveraging separate computers or a virtualized environment should be considered. Please refer to your IT department or specific hypervisor product help pages for more information about setup and maintenance of virtual images. See section 5.6.3 (Virtualization) for more information regarding software activations.

## 4.2 Incompatibilities That Exist in Software

There are a few common areas of concern for managing software revisions. They include the operating system (the version, as well as 32 bit and 64 bit), Rockwell Automation hardware compatibility, and compatibility between different versions of the software.

## 4.3 Information to be Collected

An assessment of the current hardware and firmware revisions installed is required to determine compatible editing and runtime versions. In addition to Rockwell Automation software products installed on a PC, the available versions of OS and Antivirus software need to be considered. To determine hardware revisions installed, the System Ferret tool can be used to collect this information. See section 6.4 (System Ferret) for more information on this tool.

Revision management of Studio 5000 Logix Designer involves knowing your controllers, Windows OS and understanding incompatible minor revisions. The Studio 5000 Logix Designer major revision must match the major revision of the firmware in the controller. A list of available firmware revisions for the Logix family of controllers can be found on the Product Compatibility Download Center.

Learn more at RockwellAutomation.com:

[Product Compatibility Download Center](#)

## 4.4 Windows OS Compatibility

Each version of Studio 5000 Logix Designer is tested with specific operating systems. For Windows 7, Version 19 is the first supported version. For Windows 8, Version 24 is the first supported version. It is possible to run older versions provided you have RSLinx 2.58 or later installed. Previous versions of RSLinx do not work on a 64 bit OS. Use the Product Compatibility Download Center to determine if all versions of Rockwell Software installed are compatible with the OS.

## 4.5 Incompatible Minor Revisions

Incompatibilities exist in RSLogix 5000 version 20 and Studio 5000 Logix Designer version 21.

Version 20.01 and 20.03 are not compatible, meaning a version 20.03 project cannot be opened with version 20.01. More importantly, if a user opens, or converts a v20.00 project to a v20.03 project they cannot REVERT the project back to v20.

To resolve this issue it is recommended to move to version 20.04 or later. Version 20.04 can work with all minor V20 versions.

Version 21.01 and 21.03 are not compatible, meaning a version 21.03 project cannot be opened with version 21.01. More importantly, if a user opens, or converts a v21.00 project to a v21.03 project they cannot REVERT the project back to v21. It is recommended when possible to upgrade to Version 24 or later. If this is not possible all minor V21 versions will need to be the same to keep them compatible.

**Note:** See [Tech. Note 582891](#) for more information on these incompatibilities.

## 4.6 Installing or Adding a Version of Studio 5000 Logix Designer

To download a newer or older version of Studio 5000 Logix Designer go to the Product Compatibility Download Center.

Enter the serial number, and product key or company name (use the pull down menu to select company name). Select the version and download.

Versions of Studio 5000 Logix Designer (formally RSLogix 5000) need to be installed oldest version to newest version. Older versions may not install with later versions of FactoryTalk Services. If you must uninstall FactoryTalk Services to install an older version of software, re-install the newest version of FactoryTalk service after completing the install of the older version of software.

## 4.7 Considerations with 5380/5580 Controllers

For systems that have multiple versions of Studio 5000 Logix Designer and multiple controller types and revisions installed, there are several factors that need to be considered. Please refer to the *Replacement Guidelines: ControlLogix 5560/5570 to ControlLogix 5580* ([1756-RM100](#)) for more information.

## 4.8 FactoryTalk Directory Compatibility

When using a centralized FactoryTalk Directory for security or FactoryTalk AssetCentre it is important to ensure that the FactoryTalk Directory version is the same or later than any version that connects to it. If you install a FactoryTalk product that is CPR9 SR6 then the FactoryTalk directory must be at CPR9 SR6 or later.

## 5. Managing Activations

### 5.1 How FactoryTalk Activation Works

FactoryTalk Activation works by binding the license for a Rockwell Automation software product to a specific device, such as a dongle, Ethernet address for a computer, or hard disk drive so that it can be run in a production environment. Once a license is bound, the product is activated. Without activation, some Rockwell Automation software products will not run, some will run with diminished functionality, and others will run for a limited period of time and then shut down with or without warning.

The activation is protected by a system-generated signature that is based on machine-specific information that you provide when installing the software. If the signature is tampered with, damaged, or deleted, the software will not function.

If an activation becomes corrupted, you must rehost the activation to rebind the license with the device.

FactoryTalk Activation is designed to work within the system requirements of all Rockwell Automation software products.

#### 5.1.1 Service Dependencies

In some cases, a product's activation requires a specific dongle type. If the error message "Different dongle type needed" displays, the dongle in use is not supported for activating the product. The message indicates the type of dongle required; FlexNet or CmStick. Identify the correct dongle type and plug it into the computer.

FactoryTalk Activation Manager contains these services:

- FactoryTalk Activation Helper
- FactoryTalk Activation Service

FactoryTalk Activation Manager is dependent on these services:

- NetworkProvider
- Windows Management Instrumentation
- WMI Performance Adapter
- Rockwell Application Services is required for logging but is not required for activating products or retrieving activations
- CodeMeter Runtime Server

### 5.1.2 Dongles

FactoryTalk Activation supports Rockwell Automation's Universal Serial Bus (USB) dongles. Binding an activation to the dongle serial number allows the dongle to activate software on any computer that the dongle is attached to.

Using a plug-and-play dongle with storage capacity allows FactoryTalk Activation Manager to automatically detect the dongle and provide the option of downloading activation files to it. The dongle can then be connected to any computer and used to activate software.

Each dongle is labeled:

- CodeMeter dongles are labeled *CmStick* or *CmCard*
- FlexNet dongles are labeled *FlexNet*, *Flexera*, *HASP*, or *FLEXid*

Table 3 details the supported dongles for FactoryTalk Activation Manager.

*Table 3 FactoryTalk Activation Manager Supported Dongles*

| Catalog Number | Name                      | Storage |
|----------------|---------------------------|---------|
| 9509-USB-DONG  | FlexNet (legacy)          | None    |
| 9509-USB-DONG2 | FlexNet (plug-and-play)   | 2 GB    |
| 9509-CMSTICKC  | CodeMeter CmStick Compact | None    |
| 9509-CMSTICK8  | CodeMeter CmStick         | 8 GB    |
| 9509-CMSDCD4   | CodeMeter CmCard SD       | 4 GB    |

## 5.2 Types of FactoryTalk Activations

Different Rockwell Software products offer different activation options. Activations can be bound to a permanent device on a computer such as a hard disk or ethernet card, or to a removable device, such as a dongle.

In general, the following types of software activations are available:

- Node-locked activations (legacy products)
- Concurrent activations (shared across networks)
- Borrowed activations

### 5.2.1 Node-locked activations

Node-locked activations are locked to a specific piece of computer hardware and is used only on the computer to which it is locked. Examples of computer hardware used for node-locked activations include an Ethernet card, a hard disk, or a dongle. A node-locked activation is not supported by all products.

### 5.2.2 Concurrent activations

Concurrent activations require computers running Rockwell Automation software to be connected to a network. The software automatically connects to a designated activation server on the network and retrieves an activation. Upon shutdown, the software automatically returns the activation to the pool of available activations. The activation server manages a set number of activations and serves these activations to any configured computer on the network.

### 5.2.3 Borrowed activations

Borrowed activations are concurrent activation that do not require a continuous network connection and expire after a specified amount of time (borrow term). A borrowed activation is checked out from a pool of activations managed by an activation server.

A borrowed activation can be checked out to a dongle or a computer. Once checked out to the device, the device does not need to maintain connection to the network. When the time limit of the borrowed activation expires, the software is no longer activated on the device where the borrowed activation resides, and the activation automatically becomes available again from the server's activation pool.

Borrowing also allows activations to be reserved from the activation pool to be used by a certain computer or group of computers.

A borrowed activation can be manually returned to the activation server before the borrow term expires, but this requires a network connection.

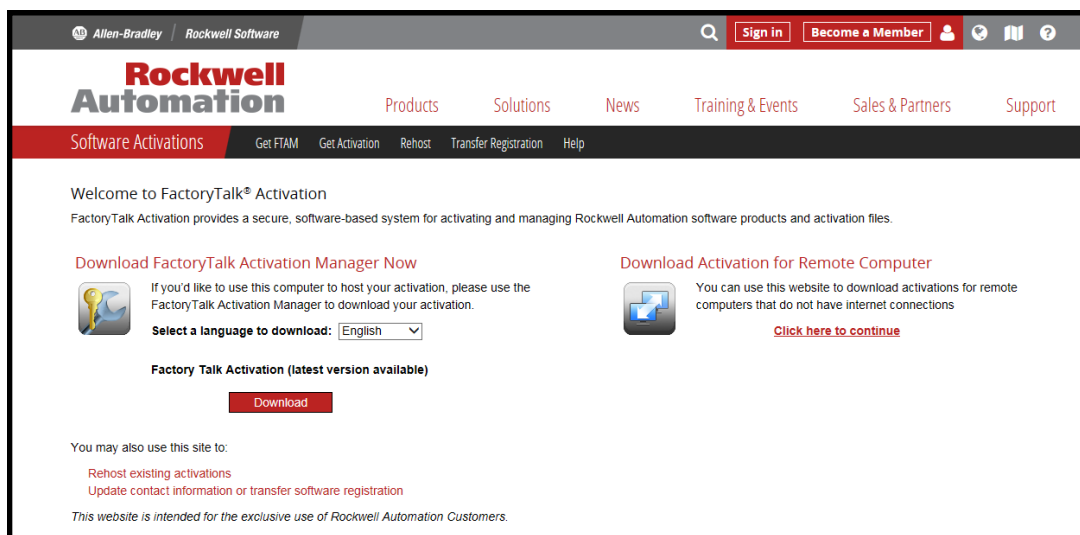
## 5.3 FactoryTalk Activation Servers

An activation server is simply a remote computer from which you retrieve activations. It does not need to have a server operating system, and can be any computer that hosts concurrent activations. The computer acting as the activation server manages the activations, sharing them with other configured computers on the network. A network can have multiple activation servers, and computers can retrieve activations from more than one activation server. Activation Manager works the same on an activation server and on the computers retrieving the activations.

Establishing a single computer as an activation server allows you to designate a primary location from which other computers can retrieve activations. Although a server class operating system is not required for an activation server, using one will allow you to administer licenses more effectively. Checkout times will be quicker and the administrator can use a single, central computer to host activations.

To configure an activation server, install FactoryTalk Activation Manager on your computer and use the “Learn More” button on the Home page, or see the Online Help.

### 5.3.1 Rockwell Automation Activation Website



The Rockwell Automation Activation Website provides an alternative method of getting and rehosting Rockwell Automation software product activations. The

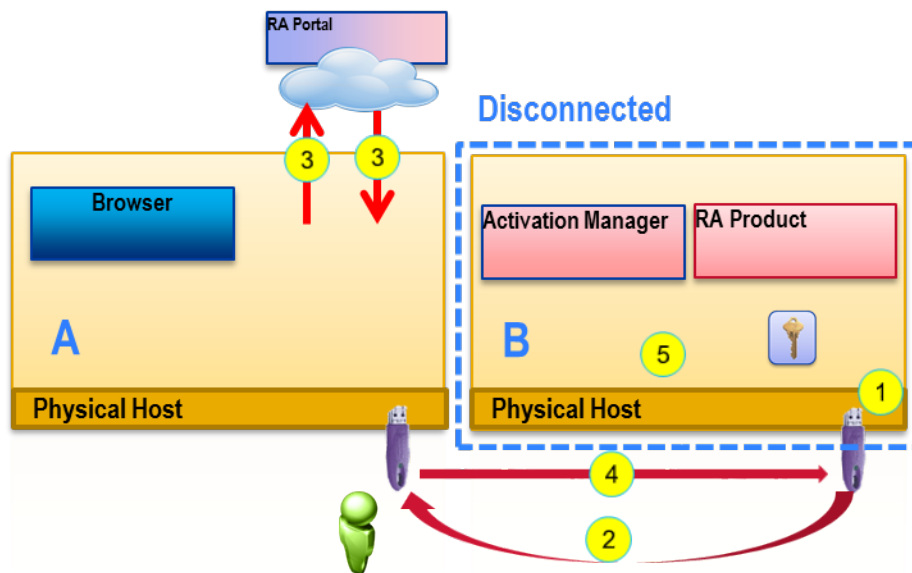
Website can be use useful when deploying activations to locations without Internet access.

Access FactoryTalk Activation site at:

<https://activate.rockwellautomation.com>

Example:

1. **Computer B:** Create or Update Data File on Device with Binding Information
2. **Device:** Computer B to Computer A
3. **Computer A:** Get Activation to Data File on Device
4. **Device:** Computer A to Computer B
5. **Computer B:** Import Activation from Data File on Device



## 5.4 Managing Activations over a WAN

### 5.4.1 Configuration

#### *Configure the FactoryTalk Activation Manager Instance Hosting (Serving) Activations*

The network administrator should designate a machine that will operate as the FactoryTalk Activation Manager that hosts licenses on the network. This machine can be a desktop computer or a server, however if your network has more than 10 clients connecting to this activation server it is recommended that you specify a server class system and operating system. There must be at least one concurrent license in the activation folder in order to distribute the activations. Node-Locked licenses are locked to their local PC and cannot be distributed across the network.

#### *Configure the FactoryTalk Activation Manager Instance Using Activations*

The FactoryTalk Activation Manager will be installed on each client machine. From the "Find Available Activations" section of the "Manage Activations" tab add the computer name of the PC hosting the FactoryTalk activations to the list of available sources. A connection to that instance of the FactoryTalk Activation Manager will be established and allow the licenses to be checked out or borrowed to the client machines.

#### *FactoryTalk Activation Manager Ports*

Firewall rules allow a computer to send or receive traffic from programs, system services, other computers, or computer users.

Table 4 details the Transmission Control Protocol (TCP) ports and rules for FactoryTalk Activation Manager.

*Table 4 FactoryTalk Activation Manager TCP Ports and Rules*

| Program                                               | Ports                                 | Rules                                                                                                                       |
|-------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>lmgrd.exe, Flexera Software license daemon</b>     | One TCP port between 27000 and 27009. | Allow inbound traffic from one of these ports. The default is 27000. Non-default ports need to be set in each license file. |
| <b>flexsvr.exe, Rockwell Automation vendor daemon</b> | One other TCP port, negotiated.       | Allow inbound and outbound connections from one additional TCP port which will be negotiated at runtime.                    |
| <b>codemeter.exe, CodeMeter runtime server</b>        | TCP and UDP port 22350.               | All inbound and outbound connections from TCP and UDP port 22350.                                                           |

For Windows Firewall, FactoryTalk Activation Manager automatically adds exceptions for **lmgrd.exe** and **flexsvr.exe** during installation.

The License Manager Daemon within the FactoryTalk Activation Manager uses ports 27000 - 27009 by default to communicate between the client machines. The entries in the “Find Available Activations” section of the “Manage Activations” tab, establishes that connecting to the server name will grant the client access to any concurrent activations that are on that particular server. It is also possible to change the port that the lmgrd service will communicate on. This change must be placed in all of the concurrent license files on the Licensing server and reflected in the Settings tab of all the FactoryTalk Activation Clients.

### 5.4.2 Troubleshooting

In a case where the Licensing Client cannot see the licenses that are on the server, here are some common troubleshooting techniques:

1. Verify that the FactoryTalk Activation Manager is installed on the server machine.
2. Verify that the FactoryTalk Activations Manager has started and there is at least one (1) concurrent license.
3. The *Manage This Server* section under the *Advanced* tab will show “Running” to signify that the manager is operating; however, you must also verify the activations on the licensing server under *Find Available Activations*.

### 5.4.3 WAN Environment

In a WAN environment, the machine that will serve as the Licensing Server and the machine(s) that will serve as the Licensing Clients could reside on the same subnet, or on a different subnet. There could be multiple networking devices, routers, switches, hardware firewalls, gateways, etc., that would be in between the PCs. In a WAN environment, it is important to check the following; however, it is important to note that your IT support should be called in to handle the connection issues with the FactoryTalk Activation System:

1. Check that a successful connection can be made to the Licensing Server.
2. See 1 above
  - This is stated again, because in a typical LAN environment, the connecting machines are under the same subnet, in the same building, etc.
  - In a WAN environment, the connecting machines can be in another building, or miles apart from each other.
3. Make sure that the computer name is used as opposed to the IP address for the entry, in the *Find Available Activations* section.
4. In a typical WAN environment, NAT (Network Address Translation) is used to mask the true IP address of a machine as it passes through the internet

to reach the destination. Routers on either end have the ability to translate the IP addresses to determine where they go; however, problems could arise if a router is led to believe that an address is not intended for its stub network. DNS (Domain Name System) is in place to resolve IP addresses to their computer names.

5. Make sure ALL Firewalls are allowing ports 27000 - 27009 and the flexsvr TCP-port.

The port that flexsvr.exe uses will be tricky because the port is not specified until flexsvr actually starts.

- By going to

**C:\Documents and Settings\All Users\Shared Documents\Rockwell Automation\Activations\Logs\RSvrlog**

It is possible to determine which TCP-port flexsvr.exe is using. Please Note that if the FactoryTalk Activations Manager is stopped and restarted for any reason, flexsvr.exe will select a new TCP-port to communicate on.

- If you are hosting the FactoryTalk Activation Server in a DMZ environment and require specific ports be set statically; the flexsvr.exe process can be configured to assign a static set of ports.
- For information on configuring your system to assign static ports see [Tech. Note 184922](#) - *How to change TCP port number in FactoryTalk Activation Manager*, or [Tech. Note 35610](#) - *Changing the port number for concurrent activations in the FactoryTalk Activation Tool* if you are running a version prior to 3.30 of the FactoryTalk Activation Manager software.

### 5.4.4 Server Cluster Environment

The idea of clustering is to share the resources of various applications among several machines as opposed to just one. There are two forms of clustering; Network Load Balancing and Server Clustering. Network Load Balancing will be discussed below.

A Network Load Balancing Cluster separates the resources among many machines and operates in a round-robin approach. All of the machines will share a MAC Address, which is generated by the cluster IP address. It is also recommended that the individual nodes have a static IP addresses.

When using the FactoryTalk Activation Manager in Cluster Environment there are a couple of items to be aware of:

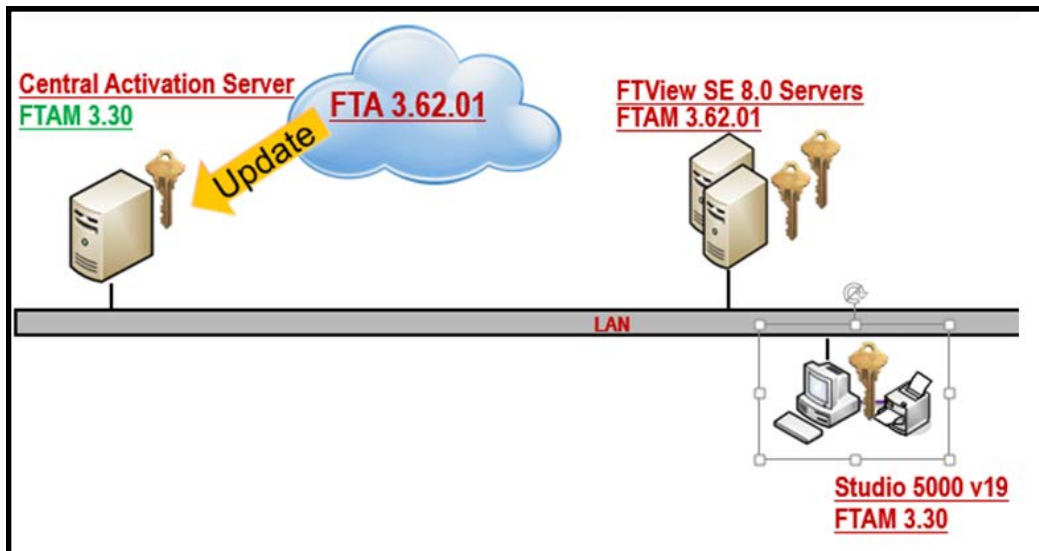
- The Host ID to be used for all the cluster activations **MUST** be the cluster MAC address.
- The license file should be copied to all the machines in the cluster.
- The Activation Manager on the Client Machines should contain the svrname entry for all the nodes in the cluster that will contain the FactoryTalk Activation License.

#### *How This Works*

Once the cluster is running on the domain, only the primary node will be communicating on the network. All of the other nodes will be in a standby state; therefore, the Client Machines will only communicate with one server at a time. If the primary server were to fail, then a negotiation period takes place to determine which node will now serve as the primary; furthermore, if the primary server were to fail at the same time that a user tries to access the software, there will be a wait period before the software starts up. This period of time can depend on the complexity of the network, the physical distance between nodes, and the distance between the client and the new primary node.

## 5.5 Best Practices

### 5.5.1 Managing Remote or Centralized FactoryTalk Activation Servers



[Tech. Note 612825](#) – Managing Remote FactoryTalk Manager Servers

There are several important factors to consider when choosing to manage FactoryTalk Activations on a centralized server. There are also different considerations to take into account when working with a system running version 3.62.01 and later of the FactoryTalk Activation Manager and systems running version 3.60 and earlier of the FactoryTalk Activation Manager software.

The general rule of thumb for choosing a version is that you want your centralized FactoryTalk Activation Manager to be running the latest available version of the FactoryTalk Activation Manager software. The FactoryTalk Activation Manager is backwards compatible to support hosting activation clients back to version 3.30 of the FactoryTalk Activation Manager software.

### *Design Consideration Tips*

1. When centralizing versions of the FactoryTalk Activation Manager to a single server host it is important to ensure that the centralized Activation server is running a version of FactoryTalk Activation Manager equal to or greater than the latest client system on your network.

Example: If you have a client running FactoryTalk ViewME Station 8.0 with the FactoryTalk Activation Manager v3.62.01 your centralized server must be running at least version 3.62.01 of the FactoryTalk Activation Manager. This would still enable your other system running RSLogix 5000 v19 with version 3.30 of the FactoryTalk Activation Manager to activate successfully from the updated centralized server system.

2. Using the Rockwell Automation Activation Server Status tool introduced in version 3.62.01 (CPR9-SR7) of the FactoryTalk Activation Manager, verify that any centralized remote activation servers are running a compatible version of FactoryTalk Activation Manager to serve activations to the clients.

See [Tech. Note 613718](#) - *After Software Upgrade Activations enter Grace Period with a notification from the Rockwell Automation Server Status tool* for more information on this tool.

3. Ensure that the network connection between clients and the server is reliable. Rockwell Automation recommends using a wired switched network with speeds of at least 100Mbps between the client & server for maximum reliability.
4. See [Tech. Note 35708](#) - *FactoryTalk Activation in Advanced Network Environments* for recommendations on configuring the FactoryTalk Activation Manager over the wire.
5. Systems that utilize a centralized or remote activation server should use a local network
6. If a FactoryTalk Activation Manager client is updated by a product update install, the user is notified to update the remote activation servers.

7. To simplify activation management, consider consolidation of serial numbers. See section 5.5.4 (Consolidation of Activation Serial Numbers) for more information.

### 5.5.2 Setup a Backup Activation Server

Use a backup activation server to provide activations in case your primary activation server fails. To establish two activation servers with one as a backup, install FactoryTalk Activation Manager and add the activation files to both computers. Lock the activations to a dongle so that the dongle can be moved between the servers. Add the location of both activation servers to any computer that will be checking out activations.

To set up a primary and a backup activation server:

1. Install FactoryTalk Activation Manager on both server computers.
2. Retrieve activation files for the primary server using the dongle as the binding.
3. Copy the activation files you retrieved to the activation folder on the backup server.
4. Attach the dongle to the primary server.
5. Configure all computers that need software activations to recognize both servers. To expedite checkouts, place the primary server at the top of the list of servers.
6. If the primary server fails, move the dongle to the secondary server.
7. On the FactoryTalk Activation Manager **Home** page, click the **Manage Activations** tab, and move the secondary server to the top of the list to expedite checkouts.

### 5.5.3 Borrowing Activations Outside the United States

To borrow or get activations when outside the United States, the time-out for the activation client must be increased from the default of 100 msec. to 1 sec. This is required on slow networks typically international connections to the server.

The following system variables need to be added:

- Variable Name: FLEXLM\_TIMEOUT
- Variable Value: 1000000

Windows 7 detailed instructions:

1. In Windows 7 click on Start and then right-click on Computer and select Properties.
2. Select *Advanced* system settings on the left side of your screen (a window will appear that says system properties).
3. Select the *Advanced* tab in the middle.
4. Select *Environment Variables* at the bottom of the screen.
5. Click on *New* under System variables.
6. Set the Variable name to: FLEXLM\_TIMEOUT
7. Set the Variable value to: 1000000
8. Click OK and close all the screens.

Start FactoryTalk Activation Manager. After changing or adding the system variable the Activation Manager must be restarted. A reboot is not required.

### 5.5.4 Consolidation of Activation Serial Numbers

Consolidating activation serial numbers is a convenient way to simplify activation management. It allows a user to take a set of serial numbers and put them into one serial number. The user is able to still activate one or multiple activations at a time.

To consolidate serial number please contact:

[techconnect\\_cs@ra.rockwell.com](mailto:techconnect_cs@ra.rockwell.com)

#### *Requirements for Serial Numbers to be Consolidated*

1. Must be registered to the same company, at the same address.
2. Must be under an active support contract.
3. Must have FactoryTalk Activation.
4. Must be the same product. If the serial #'s are the same product but have various catalog #'s (i.e. ending in ENE, ENM or ENW) – the serial #(s) must be consolidated to a primary serial # with an ENE catalog #.

**IMPORTANT:** Once a consolidation is processed, **it cannot be deconsolidated** at any time for any reason. The Consolidated Serial #'s provided will be changed to zero installs and a status of Retired. Once retired, they become inactive.

### 5.5.5 FactoryTalk Activation Scripting

FactoryTalk Activation Manager scripts can be written that can read and modify the search path, and borrow and return activations.

For example: A license manager wants to change the search path for many computers to a new activation server all at one time. He writes an activation script to help with this task.

This is typically done to manage FactoryTalk Activation from a central administrative or remote location. *An FTA Scripting Guide* is available as a reference upon request. Custom scripting implementations are not included with RA Technical Support.

### 5.5.6 FactoryTalk Activation with Remote Desktop or Terminal Services

For users connecting to a Terminal Server, a concurrent activation must be available for each user, even if all of the users are logged in using the same account name.

Example: Five users all log in to the same Terminal Server as an administrator, and all five wish to use RSLogix 5. The FactoryTalk Activation server needs to have at least five concurrent activations available for RSLogix 5.

#### *Node-Locked Activations*

Cannot be used in a Remote Desktop or Terminal Services session, whether those node-locked activations are installed on the local or remote computer.

#### *Concurrent Activations*

- May be used by remote computers during a Remote Desktop or Terminal Services session when those computers can make a TCP/IP connection to a FactoryTalk Activation Server.
- Must have the concurrent activations for the number of terminals.

Configure the remote computer's Client Activation Path via the FactoryTalk Activation Manager, to point to the appropriate server name.

## 5.6 Additional Considerations

### 5.6.1 Activation Grace Period

If an activation cannot be located on a computer, the grace period allows the software to run normally for up to 7 days. During this period, valid activations are rechecked every 4 hours, and the user receives notifications. As soon as an activation is found, the 7-day grace period clock stops and is reset, 4 hour rechecking stops, and the software will start and runs normally. Since the 7-day grace period clock resets, the grace period can be reused.

If grace period expires, products that support a demo mode may run in demo mode after 7 days

If an activation isn't found after 7 days, the application will continue to run until a power cycle or reboot is done to the computer and the software is re-launched.

**IMPORTANT: Be sure to enter the correct serial number during the install.**

Failure to enter valid serial number means the software will be restricted to Service Edition functionality while running within a grace period.

### 5.6.2 Using an Options File

The Options File is a plain-text file containing options that affect how an activation server manages concurrent activations. Editing the options file allows you to reserve activations for specific computers or users, restrict maximum borrow time, and manage capacity access for activations.

To create or edit the options file:

1. Launch FactoryTalk Activation Manager
2. Click the Advanced tab, and then select File Access.
3. Click Edit Options File to open a text document in Notepad.

The Options file is called flexsvr.opt, and is located in the default activations folder.

### *Reserving and Excluding Activations*

You can use the Options File to both reserve activations for specific computers and to restrict borrowing of activations to specific computers.

Concurrent activations are served on a "first come, first served" basis. If you have 10 activations for a certain product, the first 10 computers on the network that run that product will get those activations. After that, no activations will be available until one of those computers releases its activation. If you have a computer that must always be able to activate and run the product, you can use the Options File to reserve one or more activations specifically for that computer.

FactoryTalk Activation Manager now borrows all activations on a per computer basis - not on a per-user basis. That is, borrowed activations are available to all users of the computer. This eliminates the need to borrow some activations in the SYSTEM context and others in the USER context or to borrow multiple instances of an activation for use by multiple users. When you restrict borrowing of activations using the Options File, you must use the computer name - not the user name.

### ***Excluding Activations for Lower Precedent Products***

Some products, such as FactoryTalk Gateway and FactoryTalk Transaction Manager, check out activations in a particular hierarchy or order of precedence. If you want to reserve an activation for products that are lower in precedence you must configure the Options file to exclude the activations with higher precedence.

For example, suppose you have the following activations, in order of precedence, for a specific computer:

1. ActivationA.3000
2. ActivationB.2000
3. ActivationC.1000

If you only want to use ActivationC.1000 on the computer OperatorComputer1, you must exclude ActivationA.3000 and ActivationB.2000, and reserve ActivationC.1000.

```
EXCLUDE ActivationA.3000 HOST OperatorComputer1  
EXCLUDE ActivationB.2000 HOST OperatorComputer1  
RESERVE 1 ActivationC.1000 HOST OperatorComputer1
```

This would reserve 1 ActivationC.1000 activation for the computer OperatorComputer1.

If ActivationA.3000 and ActivationsB.2000 had not been excluded, they would have been checked out first because they have a higher precedence than ActivationC.1000, even though ActivationC.1000 has been reserved.

### 5.6.3 Virtualization

An activation server can be virtualized in a production environment or run on the host for a development machine. FactoryTalk Activation is fully supported in a virtual environment. Virtualization does not impact how Rockwell Software products are licensed.

There are several considerations for a virtualized activation server:

- MAC addresses on virtual network adapters can change. Therefore, use a disk serial number as host ID instead.
- Use concurrent activations centralized on an activation server for easy management.

## 6. Managing Firmware Updates

Rockwell Automation provides several tools to assist with firmware updates.

- The Product Compatibility Download Center
- Firmware-Supervisor
- AutoFlash
- System Ferret

### 6.1 Product Compatibility Download Center

The Product Compatibility Download Center (PCDC) is an online tool from Rockwell Automation created to concentrate technical information for a wide range of products making them faster and more convenient to find. It is the first step when you are looking into modifying, extending or upgrading your application.

#### *Why is it useful to customers?*

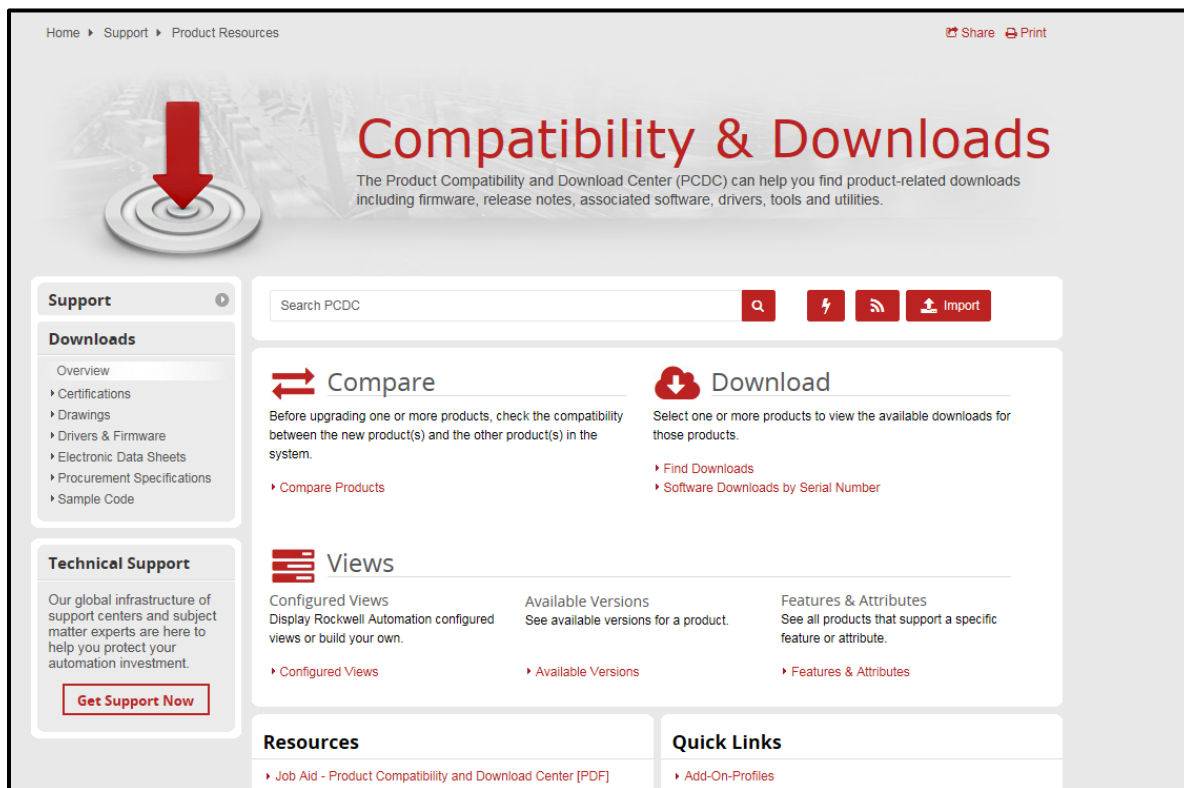
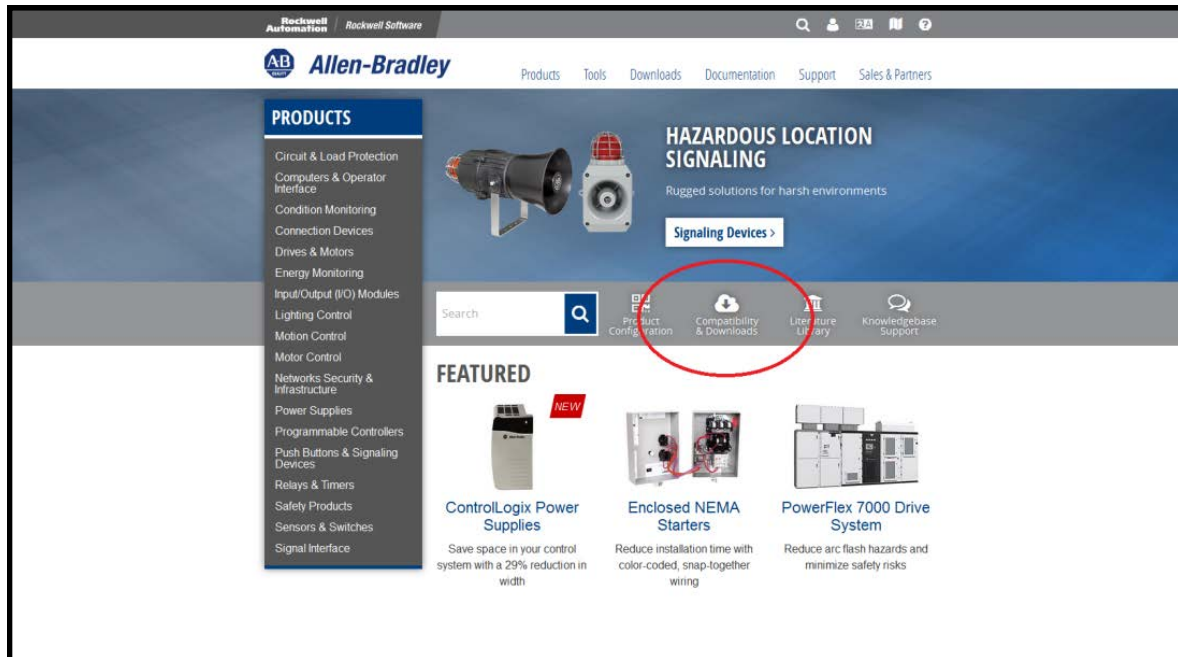
The Product Compatibility Download Center is a great tool that can help you find product related downloads including firmware, release notes, associated software, drivers, tools and utilities.

#### *Using the PCDC you can do the following*

- Determine how different products interact
- Compare features and capabilities between different series of products and associated firmware versions
- Create a multi-version release note for a product
- Search for a specific feature in a specific product
- Display versions of a product to determine whether you can replace an older version with a newer version
- Determine what operating systems are supported by a specific software product

## Where can I find it?

The Quick Link to PCDC is placed on <http://ab.rockwellautomation.com/> website as shown below, and can also be at [Product Compatibility Downloads Center](#).



## *Main Features on the PCDC Home Page*

On this page there are several features to get you started:

- **Compare Products** – Use this feature to select two or more products to view their compatibilities and features. This can be helpful when upgrading a product within an existing system. Type in the catalog numbers and/or descriptions of the products you wish to compare, or use the drop down lists to limit your search. View the release notes per product, or create a multi-version release note.
- **Find Downloads** – Use this feature to select one or more products to view the available downloads, along with an option to view firmware compatibility for a given product. If you have a valid serial number and product key you can access the software download page directly.
- **Configured Views** – Use this feature to build and save your own configured views, as well as view Rockwell Automation standard views. Rockwell Automation standard views depict groupings for related products (such as software releases or hardware releases) and typical architectures.
- **Available Versions** – Use this feature to view all available versions of a selected product.
- **Features & Attributes** – Use this feature to select a feature or other support attribute (such as operating system) to view all the products that support that feature or attribute. This can help determine the effects of changes on products already in your system.

## *Is the PCDC easy to use?*

Yes! It is quick and convenient. However, there are also several resources available to help guide and walk a user through the PCDC.

- [Job Aid](#) – This step-by-step lab guides a user through several scenarios such as determining and uploading newer software and firmware to a controller, determining what software products are compatible with a controller, what operating systems are supported by a specific product, and many more typical user scenarios.

- [Quick Reference Guide](#) – This short reference guide describes the features and functionality found on the main page of the PCDC. This guide is intended to help a user quickly navigate through the PCDC and find the features they desire.
- [Overview Video](#) - This video demonstrates the full capabilities and features of the PCDC. It is an easy to follow complete overview of the PCDC.

## 6.2 Automatic flash update with Firmware Supervisor

Firmware Supervisor is a mechanism integrated into and run by the controller without user intervention. Controllers automatically flash update modules on keying mismatch situations with a firmware stored on the removable media of the controller. Firmware Supervisor has been available since version 16 of Logix5000 and is supported by both CompactFlash and Secure Digital flash cards.

### 6.2.1 Which I/O Devices are Supported?

Firmware Supervisor supports local and remote devices that:

- Are in the I/O tree and their Electronic Keying is configured as *Exact Match*
- Support firmware upgrades via the ControlFLASH utility
- The hardware revision supports the firmware stored for that *Exact Match* device

Firmware Supervisor works on local I/O modules and distributed devices via EtherNet/IP, SERCOS, and ControlNet networks. On DeviceNet networks, the Firmware Supervisor supports local devices only, such as scanners and linking devices that reside in the I/O tree of the controller project. Because you cannot directly place a remote DeviceNet device in the I/O tree, the Firmware-Supervisor does not manage remote DeviceNet devices. The Firmware Supervisor supports Logix5000 controllers that support removable media (except for redundant controllers).

For more detailed information on devices supported refer to the *Logix5000 Controller Design Considerations Reference Manual* ([1756-RM094](#)), Chapter 12.

## 6.2.2 Typical Scenarios of using Firmware Supervisor

Since the Firmware Supervisor feature can automatically load firmware when you replace a device in the system it can be very useful in the following cases:

- OEMs who build multiple machines a month can have the controller flash update all the modules and devices in the system without user intervention.
- Machines with strict regulation may require specific firmware revisions for the devices to maintain certification. The Firmware Supervisor helps make sure devices are at the correct firmware revision.
- Maintenance personnel replacing failed hardware can install the replacement device and the controller automatically flashes the device with the correct firmware revision.

## 6.2.3 How to Configure Firmware Supervisor

This section provides guidelines on the following procedures:

### *Enabling Firmware Supervisor*

1. Set electronic keying as *Exact Match* for each device that you want have its firmware managed by Firmware-Supervisor (*Compatible* or *Disabled* can be used for remaining devices).
2. Make sure that the non-volatile memory CompactFLASH or SD card is properly formatted: less than 4GB -> FAT16, 4GB and more -> FAT32 and not locked.
3. Enable the Firmware Supervisor, from *the Nonvolatile Memory* tab of the controller properties. Click *Load/Store* from *the Automatic Firmware Updates* pull-down menu, and choose *Store* to copy it to removable media.

**Note:** The computer running Studio 5000 Logix Designer application must have:

- ControlFLASH utility installed.
- The required firmware kits in the ControlFLASH default directory for all the modules that the Firmware Supervisor has to maintain. The Studio 5000 Logix Designer application moves firmware kits from your computer to the controller's removable media for Firmware Supervisor to use.

**Other Important Notes:**

- Controller firmware and application logic is managed independent of/ outside of Firmware Supervisor on the *Nonvolatile Memory* tab.
- Firmware Supervisor adds to / is incremental to the long-term established ability to store controller firmware and logic on the removable media.
- If you disable the Firmware Supervisor, you only disable the Firmware Supervisor updates and not the controller firmware updates that still occur when the controller image is reloaded.

### ***Disabling Firmware Supervisor***

The Firmware Supervisor can be disabled in Logix Designer from the *Nonvolatile Memory* tab of the controller or by means of controller application code.

SSV and GSV instructions can be used to enable/disable automatic firmware updates as well as to monitor the status of updates for particular devices.

The main groups of modules which benefit from the Firmware Supervisor functionality and often have code dependencies on specific functionalities are communication modules, motion modules and drives. Other modules such as I/O cards have far fewer changes, and generally tend to be compatible.

For more detailed information refer to *Logix5000 Controller Design Considerations Reference Manual ([1756-RM094](#))*, Chapter 11.

### 6.2.4 Best Practices

Consider using Firmware Supervisor especially in validated environments requiring exact matches of hardware, firmware and software for maintaining their validation.

Before relying solely on Firmware Supervisor functionality to take care of firmware revision control, **always check for firmware compatibility with the current hardware series for each device using the Product Compatibility Downloads Center.**

To minimize the risk of unexpected errors, validate the firmware / hardware compatibility by testing it up front whenever possible.

To ensure fast part replacement make sure spare parts in your stock will be supported by the current settings of Firmware Supervisor (firmware compatibility with hardware series). If a new module turns out to be unsupported, the Logix project will require modifications in the I/O Configuration tree and possibly other settings or application code in extreme cases.

An SD/CF card with a modified project can be prepared, so when this module is replaced, the new project can be loaded from the SD card without the need to start Studio 5000 Logix Designer. To initially create an SD/CF card that loads a project, Studio 5000 Logix Designer needs to be used.

## 6.3 AutoFlash for Studio 5000 Logix Designer

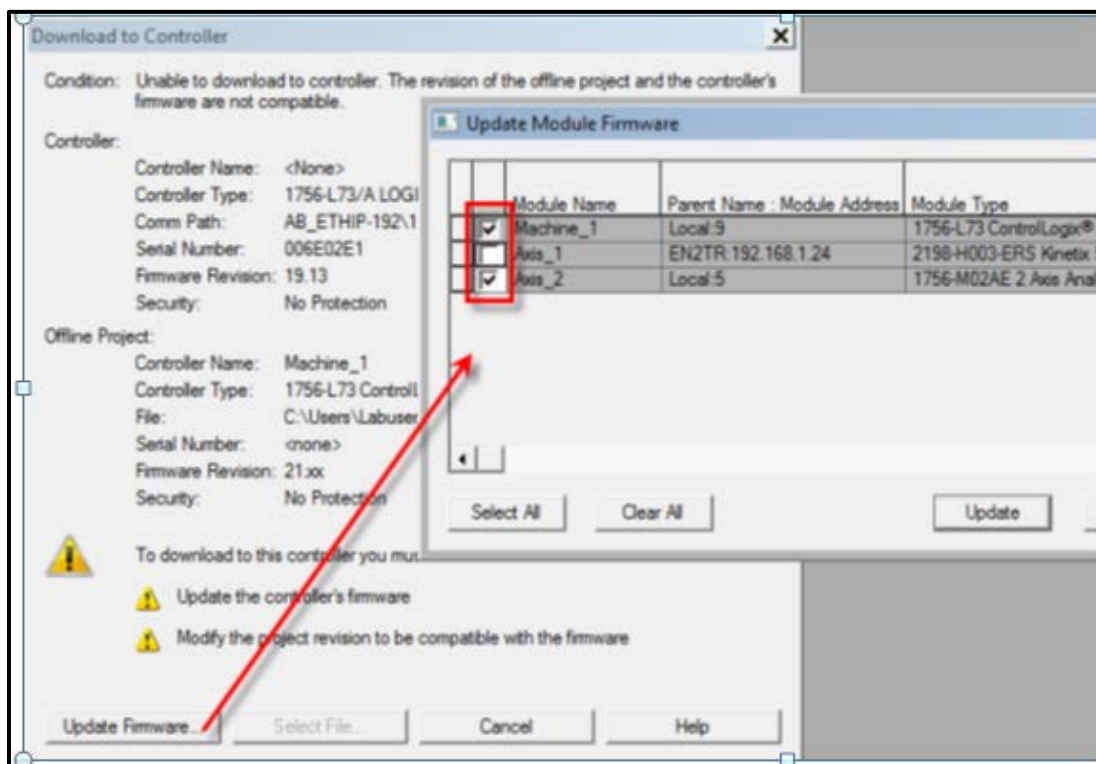
The AutoFlash feature of Studio 5000 Logix Designer software detects if your controller firmware needs to be upgraded upon a program download to the controller. If a firmware upgrade is necessary, AutoFlash will initiate an upgrade.

### 6.3.1 What Devices are Supported?

At this time, only Logix controllers, motion modules, SERCOS and CIP motion drives are supported.

### 6.3.2 Upgrade Firmware during a Download to the Controller

Studio 5000 Logix Designer detects on a download if the firmware needs to be upgraded. The user can select in the Download to Controller dialog box to *Update Firmware*. It enables a user to do a firmware update to multiple modules in the controller I/O tree.

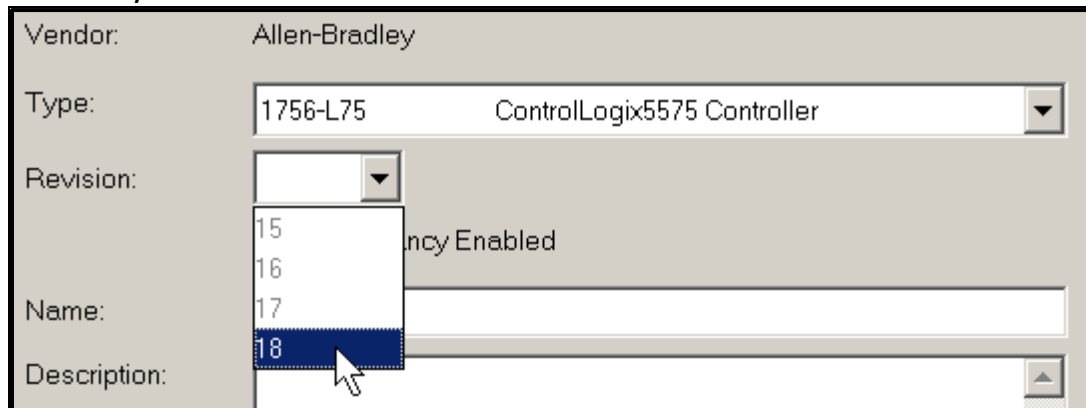


### 6.3.3 Upgrade Firmware without a Download

To upgrade your controller firmware with the AutoFlash feature, complete these steps:

**IMPORTANT:** If the SD card is locked and the *Load Image* option of the stored project is set to *On Power Up*, the controller firmware will not be updated as a result of these steps. The previously stored firmware and project will be loaded instead.

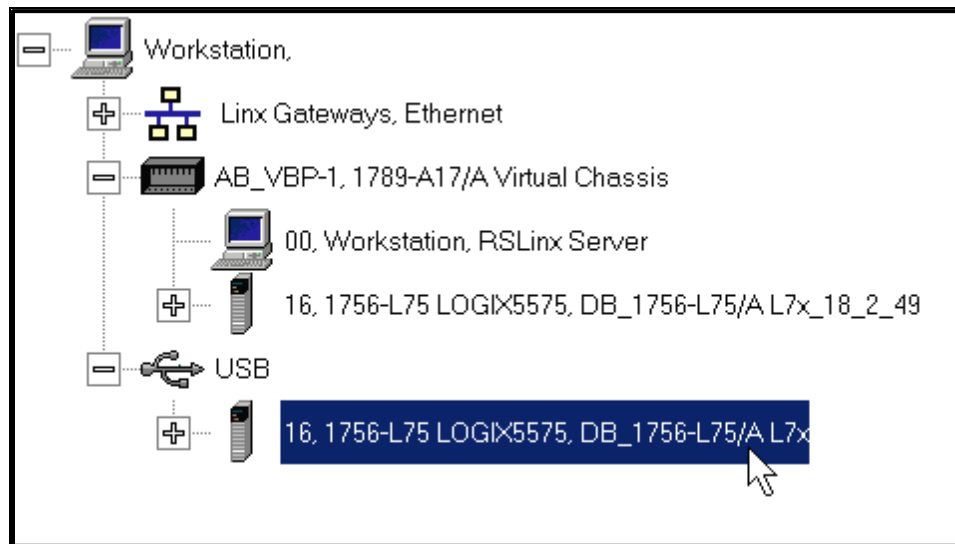
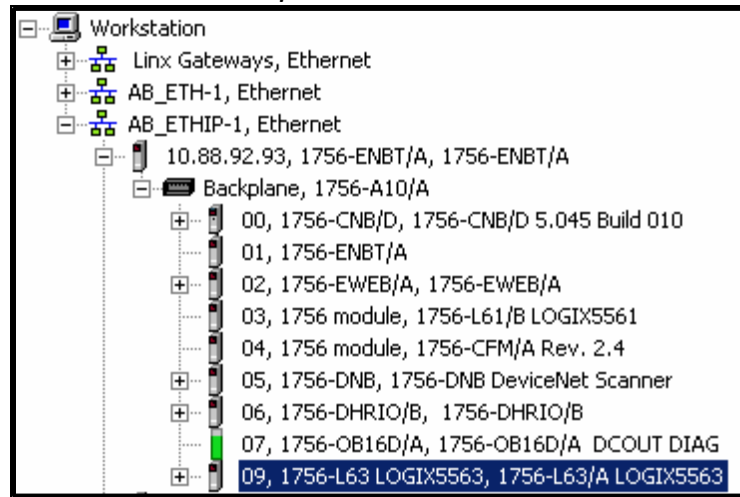
1. Verify that the network connection is made and your network driver is configured in RSLinx software.
2. Use the Studio 5000 Logix Designer application to create a controller project at the version you need.



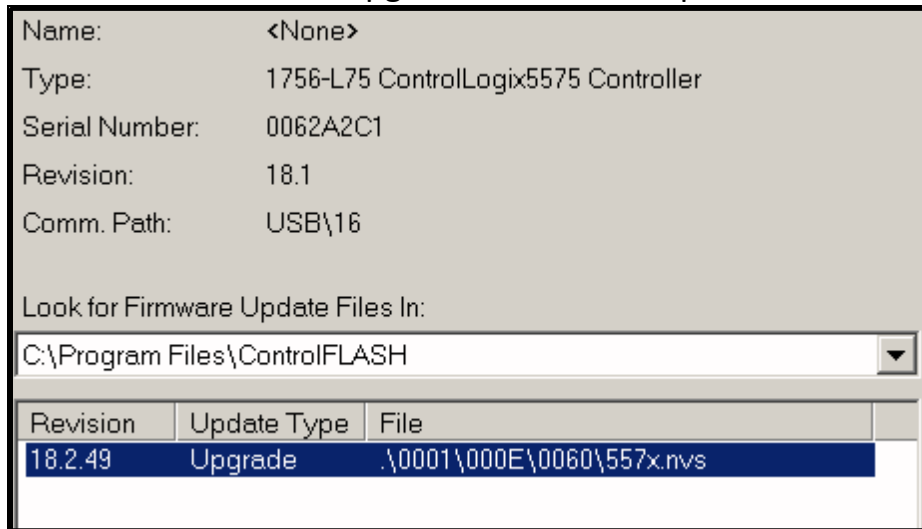
3. Click *RSWho* to specify the controller path.



4. Select your controller and click *Update Firmware*.



5. Select the firmware revision to upgrade to and click update.



The screenshot shows a dialog box for updating the firmware of a 1756-L75 ControlLogix5575 Controller. The fields are as follows:

|                |                                      |
|----------------|--------------------------------------|
| Name:          | <None>                               |
| Type:          | 1756-L75 ControlLogix5575 Controller |
| Serial Number: | 0062A2C1                             |
| Revision:      | 18.1                                 |
| Comm. Path:    | USB\16                               |

Below these fields is a section labeled "Look for Firmware Update Files In:" with a text box containing "C:\Program Files\ControlFLASH" and a dropdown arrow.

| Revision | Update Type | File                      |
|----------|-------------|---------------------------|
| 18.2.49  | Upgrade     | .\0001\000E\0060\557x.nvs |

6. Click Yes. The firmware upgrade begins.

Allow the firmware upgrade to complete without interruption. When the firmware upgrade is complete, the Who Active dialog box opens.

See the *ControlLogix System User Manual* ([1756-UM001](#)) for more information on upgrading controller firmware.

#### 6.3.4 What Conditions Trigger AutoFlash?

To view a list of what conditions trigger AutoFlash, see [AutoFlash Triggers](#) spreadsheet.

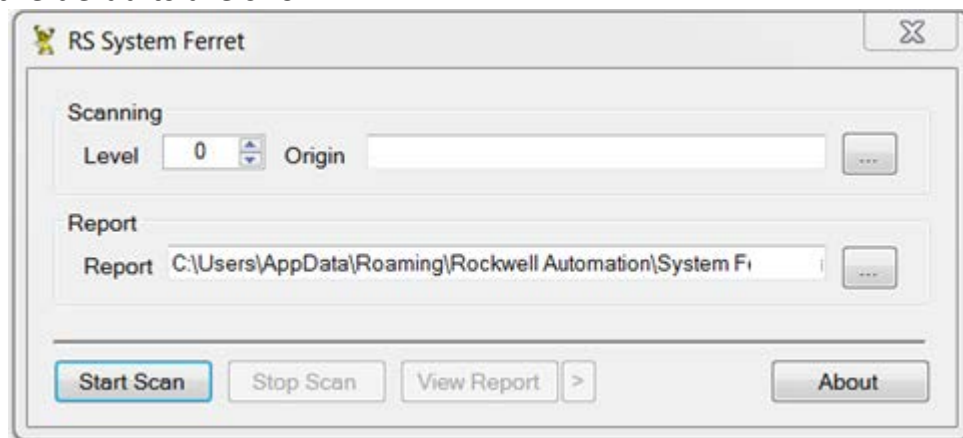
## 6.4 System Ferret

The System Ferret is a system inventory software tool that will seek out and log all devices communicating on DeviceNet, ControlNet and EtherNet/IP in your control system.

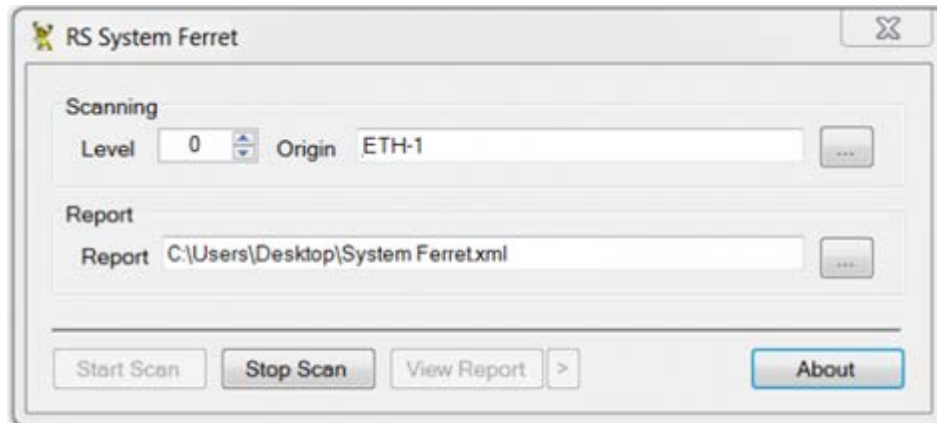
The System Ferret is a great tool to help customers find firmware of devices they have installed on their networks that may need updating. This utility works with RSLinx Classic to poll all the devices on a network and create a report of what is found.

### *Using System Ferret*

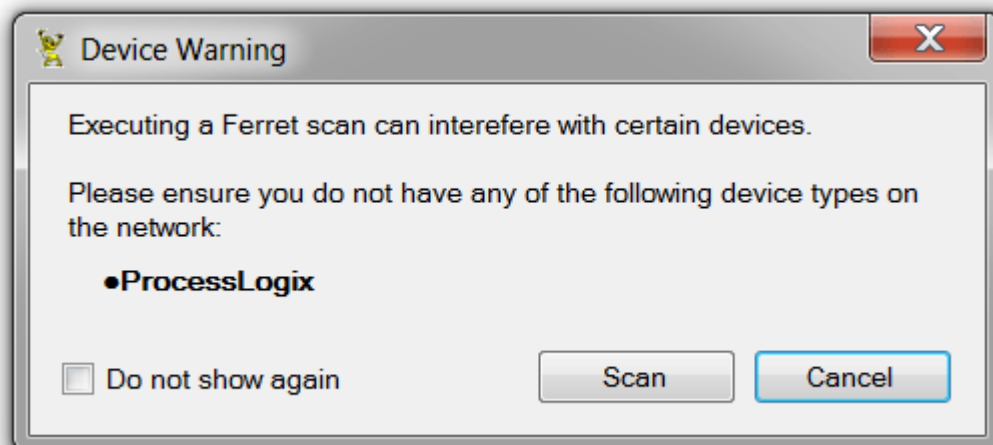
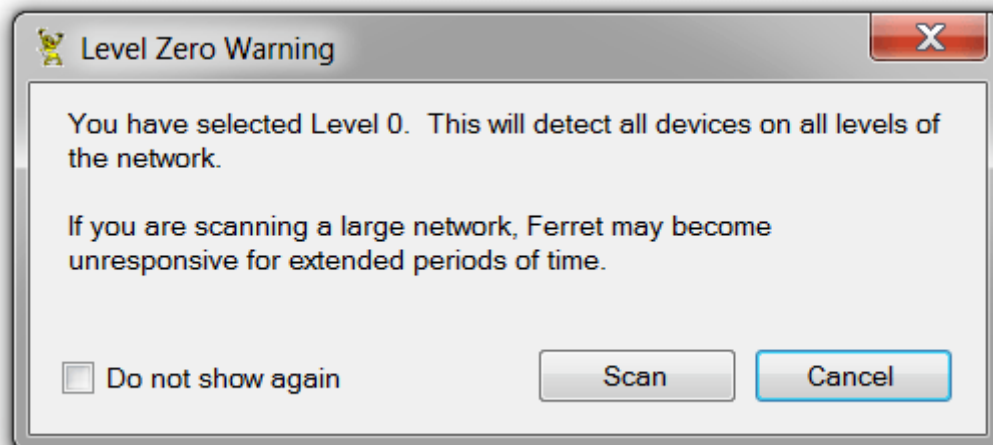
1. Download the [System Ferret](#) software and install it on your system.
2. To communicate to your network configure RSLinx Classic.
3. Launch System Ferret and chose from the available options. In the example below the defaults are shown.



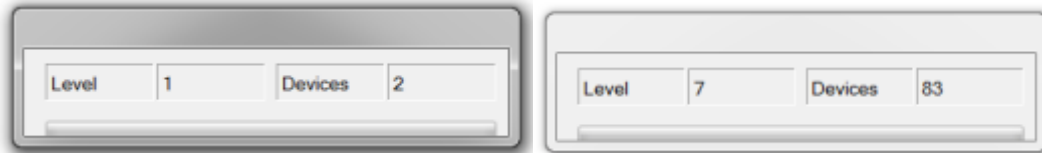
4. Select the *Origin*. This is the RSLinx Classic device driver which System Ferret will scan.



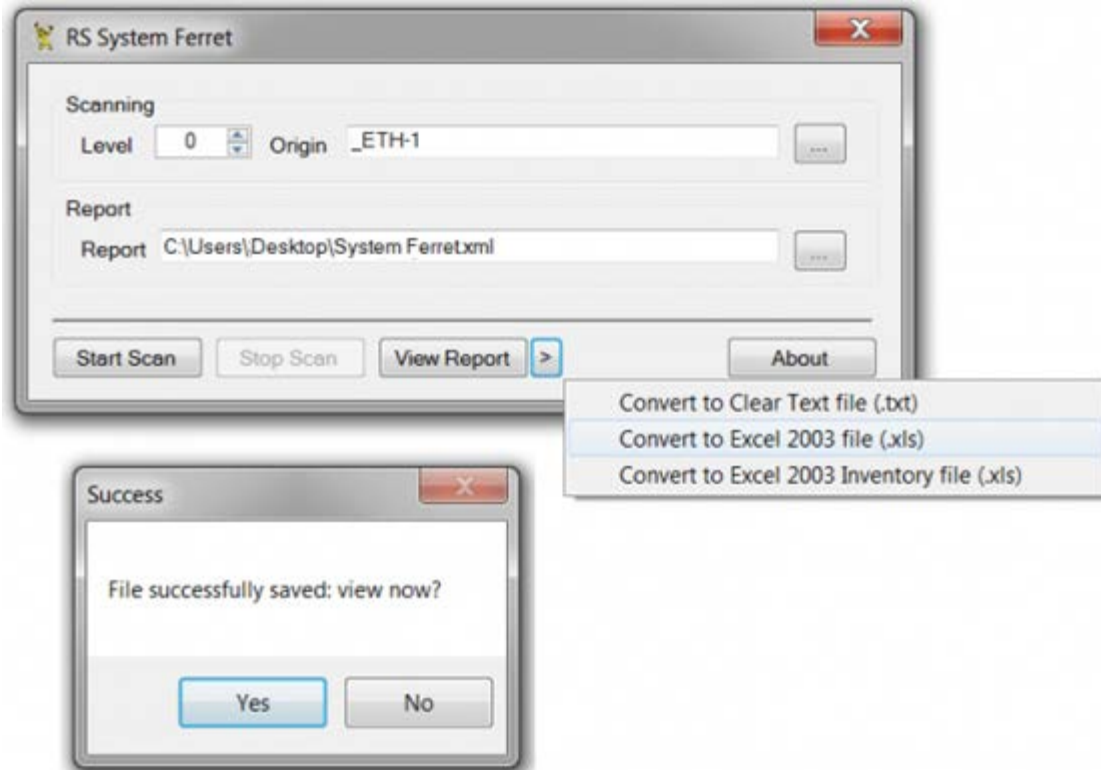
5. Press *Start Scan*. Read each warning that appears, click on *Scan* on each warning popup:



6. Allow the System Ferret to run its scan.



7. Once the scan is complete, save and view the system scan report:



## 8. View the report in Microsoft Excel.

|    | A                   | B                                 | C                 | D                                | E                             | F                               | G                                 | H               | I             |
|----|---------------------|-----------------------------------|-------------------|----------------------------------|-------------------------------|---------------------------------|-----------------------------------|-----------------|---------------|
| 1  | <b>Scan Summary</b> |                                   |                   |                                  |                               |                                 |                                   |                 |               |
| 2  | Root Device:        | STERNEYAB_ETH-1                   |                   |                                  |                               |                                 |                                   |                 |               |
| 3  | Level:              | 0                                 |                   |                                  |                               |                                 |                                   |                 |               |
| 4  | Start Time:         | Friday, May 30, 2014, 10:57:27 AM |                   |                                  |                               |                                 |                                   |                 |               |
| 5  | Scan Result:        | SUCCESS                           |                   |                                  |                               |                                 |                                   |                 |               |
| 6  |                     |                                   |                   |                                  |                               |                                 |                                   |                 |               |
| 7  |                     |                                   |                   |                                  |                               |                                 |                                   |                 |               |
| 8  | <b>Device List</b>  |                                   |                   |                                  |                               |                                 |                                   |                 |               |
| 9  | Scanned Levels:     | 7                                 |                   |                                  |                               |                                 |                                   |                 |               |
| 10 | Total # of Devices: | 83                                |                   |                                  |                               |                                 |                                   |                 |               |
| 11 |                     |                                   |                   |                                  |                               |                                 |                                   |                 |               |
| 12 | <b>Scan ID #</b>    | <b>User Comments</b>              | <b>Device/Bus</b> | <b>Name</b>                      | <b>Product Type</b>           | <b>Product Code</b>             | <b>Vendor ID</b>                  | <b>Revision</b> | <b>Serial</b> |
| 13 | Root                |                                   | Bus (EtherNet)    | AB_ETH-1                         |                               |                                 |                                   |                 |               |
| 14 | 1                   |                                   | Device            | 1769-L24ER-QIBFC1B/A LOGIX5324ER | Programmable Logic Controller | 1769-L24ER-QIBFC1B LOGIX5324ER  | Rockwell Automation/Allen-Bradley | 20.12           | CD1           |
| 15 | 1.1                 |                                   | Bus               | CompactBus (2)                   |                               |                                 |                                   |                 |               |
| 16 | 1.1.1               |                                   | Device            |                                  | 7                             | 64                              | Rockwell Automation/Allen-Bradley | 3.1             |               |
| 17 | 1.1.2               |                                   | Device            |                                  | 10                            | 164                             | Rockwell Automation/Allen-Bradley | 1.1             |               |
| 18 | 1.1.3               |                                   | Device            |                                  | 109                           | 71                              | Rockwell Automation/Allen-Bradley | 1.1             |               |
| 19 | 1.1.4               |                                   | Device            |                                  | 7                             | 69                              | Rockwell Automation/Allen-Bradley | 3.1             |               |
| 20 | 1.1.5               |                                   | Device            |                                  | 7                             | 73                              | Rockwell Automation/Allen-Bradley | 3.1             |               |
| 21 | 1.1.6               |                                   | Device            |                                  | 10                            | 33                              | Rockwell Automation/Allen-Bradley | 1.1             |               |
| 22 | 1.2                 |                                   | Bus               |                                  |                               |                                 |                                   |                 |               |
| 23 | 2                   |                                   | Device            | PanelView_Plus-CE                | Human-Machine Interface       | PanelView Plus CE 1500          | Rockwell Automation/Allen-Bradley | 3.22            | 333           |
| 24 | 2.1                 |                                   | Bus               | Backplane (5)                    |                               |                                 |                                   |                 |               |
| 25 | 3                   |                                   | Device            | 1783-EM508T ENet Managed Switch  | Communications Adapter        | 1783-EM508T ENet Managed Switch | Rockwell Automation/Allen-Bradley | 1.2             | D00           |
| 26 | 4                   |                                   | Device            | 1769-L35E Ethernet Port          | Communications Adapter        | 1769-L35E Ethernet Port         | Rockwell Automation/Allen-Bradley | 20.12           | 001           |
| 27 | 4.1                 |                                   | Bus               | Backplane (6)                    |                               |                                 |                                   |                 |               |
| 28 | 4.1.1               |                                   | Device            | 1769-L35E/A LOGIX5335            | Programmable Logic Controller | CompactLogix Processor          | Rockwell Automation/Allen-Bradley | 20.12           | 003           |

## 7. Electronic Keying

The Revision and Electronic Keying settings of all configured I/O devices in a Studio 5000 Logix Designer application affect how the application will handle device modifications or replacements. Understanding the Revision and Electronic Keying settings is critical in ensuring that your application handles I/O device modifications or replacements in a predictable way that meets the needs of your application.

### *What is Electronic Keying?*

*This section follows ControlLogix System User Manual ([1756-UM001](#)), Appendix B. For more detailed information refer to the User Manual. Also, please see the Electronic Keying in Logix5000 Control Systems [application technique manual](#).*

The electronic keying feature automatically compares the expected module, as shown in the Studio 5000 I/O Configuration tree, to the physical module before I/O communication begins. You can use electronic keying to help prevent communication to a module that does not match the type and revision expected.

For each module in the I/O Configuration tree, the user-selected keying option determines if, and how, an electronic keying check is performed. Typically, three keying options are available:

1. Exact Match
2. Compatible Keying
3. Disable Keying

You must carefully consider the benefits and implications of each keying option when selecting between them. For some specific module types, fewer options are available.

### 7.1 Exact Match

Exact Match keying requires all keying attributes, that is, Vendor, Product Type, Product Code (catalog number), **Major Revision, and Minor Revision**, of the physical module and the module created in the software to match precisely to establish communication. If any attribute does not match precisely, I/O communication is not permitted with the module or with modules connected through it, as in the case of a communication module.

Use Exact Match keying when you need the system to verify that the module revisions in use are exactly as specified in the project, such as for use in highly regulated industries.

Exact Match keying also enables Automatic Firmware Update for the module via the Firmware Supervisor feature from a Logix controller.

A Drawback of Exact Match is that when module hardware changes, the major firmware revision is always changed and you will not be able to replace those modules without changing the Studio 5000 Logix Designer project.

## 7.2 Compatible Keying

Compatible Keying indicates that the module determines whether to accept or reject communication. Different module families, communication adapters, and module types implement the compatibility check differently based on the family capabilities and on prior knowledge of compatible products.

Compatible Keying is the default (and recommended) setting. Compatible Keying allows the physical module to accept the key of the module configured in the software, provided that the configured module is one that the physical module is capable of emulating from a hardware and data communications perspective. The exact level of emulation required is product and revision specific.

With Compatible Keying, you can replace a module of a certain Major Revision with one of the same catalog number and the same or later, that is higher, Major and/or Minor Revision. In some cases, the selection also makes it possible to use a replacement that is a different catalog number than the original. In most cases you can just replace a communication module with a newer hardware or firmware version. Here are some examples:

- 1756-CNBR bridge module is replaceable with a 1756-CN2R bridge module.
- 1756-ENBT is replaceable with a 1756-EN2TR.
- 1734-AENT/A is replaceable with a 1734-AENT/B or even a 1734-AENTR/B.

The release notes for individual modules indicate the specific compatibility details.

When a new module version is created, the module developers consider the module's development history to implement capabilities that emulate those of the previous module.

However, the developers cannot know future developments. Because of this, when a system is configured, we recommend that you configure your module using the earliest, that is, lowest, revision of the physical module that you believe will be used in the system. By doing this, you can avoid the case of a physical module rejecting the compatible keying request because it is an earlier revision than the one configured in the software.

## 7.3 Disabled Keying

Disabled Keying indicates the keying attributes are not considered when attempting to communicate with a module. Other attributes, such as data size and format, are considered and must be acceptable before I/O communication is established, but the data layout may be different! With Disabled Keying, I/O communication will likely occur with a module other than the exact type specified in the I/O Configuration tree with unpredictable results.

**We do not recommend ever using Disabled Keying in production systems,** and applications must be fully validated for all features used, and completely re-validated any time any hardware change is made.

## 8. Simulate Replacement Scenarios with PCDC

Using the Product Compatibility Downloads Center – Versions link, you can easily find replacement products. No matter what the reason, whether you face the need of replacement due to part obsolescence or you want to add/change functionality of your application, you can find a compilation of the most important information in one place.

**Note:** Often hardware series revisions change because of internal parts obsolescence, improved functionality, or compliance to new regulation and standards (e.g. RoHS).

### 8.1 Replace a Product

This scenario gives you the fastest way of obtaining suggestions for part replacement with a compatible product. To do this, simply type in the part number or use the search to find your current product.

In the example below, the user typed “1756-ENBT” in the *Product Search* box.

The screenshot shows the PCDC interface with the search bar containing '1756-ENBT'. The search results show '1756-ENBT' as the selected product, with a dropdown menu showing 'ControlLogix EtherNet/IP Bridge Module (Network & Communications/ControlLogix)'. Below the search results, there is a table titled 'Product Features by Version' for '1756-ENBT (series A)'. The table lists various versions (6.006, 6.005, 6.004, 6.002, 6.001, 5.001, 4.008, 4.007, 4.006, 4.003, 3.009, 3.006, 3.002, 2.004, 1.061) and their corresponding download status (indicated by icons).

| Version     | 6.006    | 6.005    | 6.004    | 6.002    | 6.001    | 5.001    | 4.008    | 4.007    | 4.006    | 4.003    | 3.009    | 3.006    | 3.002    | 2.004    | 1.061    |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Downloads   | Download | Download | Download | Download | Download | Download | Download | Download | Download | Download | Download | Download | Download | Download | Download |
| Information | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     | Info     |

Below the table, there are tabs for 'Product Features' and 'General'.

After selecting the **Go** button, the following page loaded.

**VERSIONS**

You can search by product name or narrow your search by product category.

**For which product do you want to see the available versions?**

Product Search:     
Example: 1756-ENBT, LBS, Logix, Ethernet. You can also filter by product category or family.

Product Selected: **1756-ENBT (series A)**  
ControlLogix EtherNet/IP Bridge Module (Networks & Communications/ControlLogix)

**Product Features by Version**

**1756-ENBT (series A)** ☐

ControlLogix EtherNet/IP Bridge Module

| Version                                   | 6.006 | 6.005 | 6.004 | 6.002 | 6.001 | 5.001 | 4.008 | 4.007 | 4.006 | 4.003 | 3.009 | 3.006 | 3.002 | 2.004 | 1.061 |
|-------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Downloads                                 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Information                               |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Product Features</b>                   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>General</b>                            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Quality of Service                        | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     |
| Extreme Environment                       | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     |
| USB Network Access Port                   | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     |
| Runtime and Online Addition of Modules    | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| <b>Communications EtherNet/IP Network</b> |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Communications General</b>             |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Firmware Management</b>                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Integrated Motion On EtherNet/IP</b>   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Redundancy</b>                         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Firmware Migration</b>                 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <b>Module Replacement</b>                 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1756-EN2T                                 | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 1756-EWEB                                 | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     |
| 1756-EN2TXT                               | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 1756-EN2TR                                | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 1756-EN3TR                                | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 1756-EN2F                                 | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     | ✗     |
| 1756-EN2T                                 | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |

The *Module Replacement* section lists the suggested products along with an indication on their compatibility. This comparison is provided for all existing firmware / software revisions.

For more information, see [Product Lifecycle Status](#) for the most up-to-date lifecycle status on products you are interested in.

## 8.2 Multi-Product Compare

When you already have a compatible candidate to replace your existing part it is very easy to compare features of your current and future device(s). With this scenario you can select one or more devices and have a matrix of their most important features populated for you. Utilizing this approach you will be able to quickly realize which features you will gain or lose choosing a particular replacer.

In the example below, the user selected the Product Compatibility Downloads Center – *Compare Products* link. The user typed “1756-ENBT” in the *Product Search* box. A list of available versions is displayed for the user to select from.

**COMPARE**

Select two or more products to view their compatibilities and features. This can be helpful when upgrading a product within an existing system.

Type in the catalog numbers and/or descriptions of the products you wish to compare. Use the drop down lists to limit your search.

**Start by selecting products**

Product Search:  All Categories All Families

Example: 1756-L61, L65, Logix, Ethernet You can also filter by product category or family.

**1756-ENBT** ControlLogix EtherNet/IP Bridge Module

**select a version**

- 6.006
- 6.005
- 6.004
- 6.002
- 6.001
- 5.001
- 4.008
- 4.007
- 4.006
- 4.003
- 3.009
- 3.006
- 3.002
- 2.004
- 1.061

A 3.002

The user selected three revisions of 1756-ENBT products to compare: v3.002, v4.003, and v6.001. After selecting the *Compare* button at the bottom of the page the following information loaded. From this information, the user can view compatible module replacements, firmware updates, and product features in each version.

**COMPARE SELECTIONS**

Compatibility between selected products and supportability attributes for those products. Click on any icon in the grid to view more information in the knowledge base.

**SELECTIONS** **DOWNLOADS** [Subscribe](#) [Views](#) [Save](#) [Bookmark](#) [Export](#) [Print](#) [Email](#)

|                            | 1756-ENBT<br>series A<br>3.002 | 1756-ENBT<br>series A<br>4.003 | 1756-ENBT<br>series A<br>6.001 |
|----------------------------|--------------------------------|--------------------------------|--------------------------------|
| <b>Compatibility</b>       |                                |                                |                                |
| 1756-ENBT (series A) 3.002 |                                |                                |                                |
| 1756-ENBT (series A) 4.003 |                                |                                |                                |
| 1756-ENBT (series A) 6.001 |                                |                                |                                |
| <b>Supportability</b>      |                                |                                |                                |
| <b>Product Features</b>    |                                |                                |                                |
| <b>Redundancy</b>          |                                |                                |                                |
| <b>Firmware Migration</b>  | 1756-ENBT<br>A<br>3.002        | 1756-ENBT<br>A<br>4.003        | 1756-ENBT<br>A<br>6.001        |
| 1756-ENBT 4.x              | ✓                              | ✓                              | ✓                              |
| 1756-ENBT 5.x              | ✓                              | ✓                              | ✓                              |
| 1756-ENBT 6.x              | ✓                              | ✓                              | ✓                              |
| <b>Module Replacement</b>  | 1756-ENBT<br>A<br>3.002        | 1756-ENBT<br>A<br>4.003        | 1756-ENBT<br>A<br>6.001        |
| 1756-EN2T                  | ✓                              | ✓                              | ✓                              |
| 1756-EWEB                  | ✗                              | ✗                              | ✗                              |
| 1756-EN2TXT                | ✓                              | ✓                              | ✓                              |
| 1756-EN2TR                 | ✓                              | ✓                              | ✓                              |
| 1756-EN3TR                 | ✓                              | ✓                              | ✓                              |
| 1756-EN2F                  | ✗                              | ✗                              | ✗                              |
| 1756-ENBT                  | ✓                              | ✓                              | ✓                              |
| <b>Anomaly</b>             |                                |                                |                                |

✗ A blank or empty cell indicates that there are no known issues or dependencies.

Finding a compatible replacement candidate is only the first step. As stated on the website, the hardware transition will require the application to be modified. This may be as simple as changing an entry in the I/O configuration tree but can be more complex as well.

Always read through the available documentation, such as user manuals and firmware release notes, to identify the changes being introduced. As a result, it will be easier to modify the application and maintain the desired functionality.

### 8.3 Software Modifications

When there is a need to replace modules with newer series or firmware releases, there can be some implications for the application code running in the Logix controller. Since RSLogix 5000 version 15, I/O devices can be added and deleted online while the controller is in *Run* mode.

The list of devices that support this feature can be found in the *ControlLogix System User Manual* ([1756-UM001](#)).

**Note:** The range of devices supporting this feature varies across different versions of Studio 5000 Logix Designer and should be investigated before concluding that the online change is possible.

**Important:** It is not possible to generalize about what consequences a change in hardware configuration can have on an existing application. In the best possible scenario simply changing the device part number or hardware/firmware revision is all that is needed to have a perfectly working upgraded version of the original application. In other cases, changes in parameters or even application logic may be required because of the differences introduced by the new part number / revision. To check for the impact on the application, please always check the release notes and the PCDC website.

For example, most ControlLogix communication modules can be replaced with a different catalog number without the need to change the controller I/O configuration.

**Note:** The PCDC – *Compare Products* feature helps find the available replacement modules. It shows the physical module that can be used to replace the module. Whether or not the I/O tree configuration needs to be changed depends on the specific module. Logix communication modules can be swapped with other compatible modules without the need to change the code (also see compatible keying). When the new device adds new functionality, this will be discarded since the old I/O image is still loaded in the controller.

### 8.4 Preserving Tag Values

When working with existing controller applications, it is important to preserve process values of a running application. This eliminates the need for tuning the

automation system again after any modifications are made to the software or hardware.

There are three methods for storing / saving / restoring data in a controller.

1. Studio 5000 Logix Designer offers the Data Preserve tool as the default option during download. This is fast, but requires an exact match on the data table layout.
2. Tag Upload/Download tool. This tool allows selective upload of individual tags / sets of tags, which can then also be downloaded again after a new program download, even when there is no exact data table match. All tags elements without changes will be downloaded. Others will simply stay in their downloaded state.
3. Write critical program data to the removable media. On the Rockwell Automation Sample Code Website there is optimized code available for doing this, and for managing file storage on the SD / CF card. (See <http://samplecode.rockwellautomation.com> and search for *MMS\_055660* or *CompactFlash* and *SecureDigital* functions library)

When designing an HMI, consider storing all critical process values to the HMI database on demand or at a regular rate. This will allow you to re-download data easily after a program download.

## 9. Part Replacement Considerations

### 9.1 Ordering Spare Parts

When ordering spare parts you may be able to choose among the available hardware series of the part if there is currently more than one being shipped.

**Note:** Normally only one series of hardware is shipped at a certain time. Only the short time during transition to a new series are two series are available.

If the request for an older revision order cannot be completed, the customer will be informed of that fact.

As company policy Rockwell Automation is striving to support Compatibility Mode in firmware whenever possible, meaning a newer module will behave as if it was one of the older ones. To enable this feature keying must be set to *Compatible Keying*, the default, and not *Exact Match* nor *Disabled Keying*. The latter is ONLY for emergency / development purposes, but never for regular mode in operating installations.

## 9.2 Replacement Parts and Firmware Supervisor

In general, new parts should be compatible with older firmware releases but one should always check related information published by Rockwell Automation by means of Product Compatibility Download Center (PCDC) website, firmware release notes and the Rockwell Automation Knowledgebase.

Testing the compatibility, by means of ControlFLASH, upon arrival of the hardware is always recommended to avoid any unexpected behavior from occurring when there is a real need to replace the part. ControlFLASH prohibits the download of incompatible firmware version. When the Firmware Supervisor, Logix5000 embedded version of ControlFLASH, is enabled and a new hardware replacement module is installed that is incompatible with the older firmware version, Firmware Supervisor will prevent the firmware downgrade.

If a replacement part turns out not to be compatible in terms of supported firmware revision, one should modify the existing Logix project by adjusting the I/O configuration tree. Release notes for the new firmware revision should be analyzed for changes with respect to the previous version used. This will ensure that you will be aware of any changes/enhancements made to the functionality of the device and will be able to, if needed, adjust the application accordingly to maintain original functionality of the application.

**Note:** Because of a wide span of Rockwell Automation products, the PCDC database does not contain information for all available and legacy devices in all released versions. If you cannot find the information you need, browse the Rockwell Automation [Literature Library](#) to find the relevant product documentation.

### 9.3 Custom Firmware Kits for Maintenance Personnel

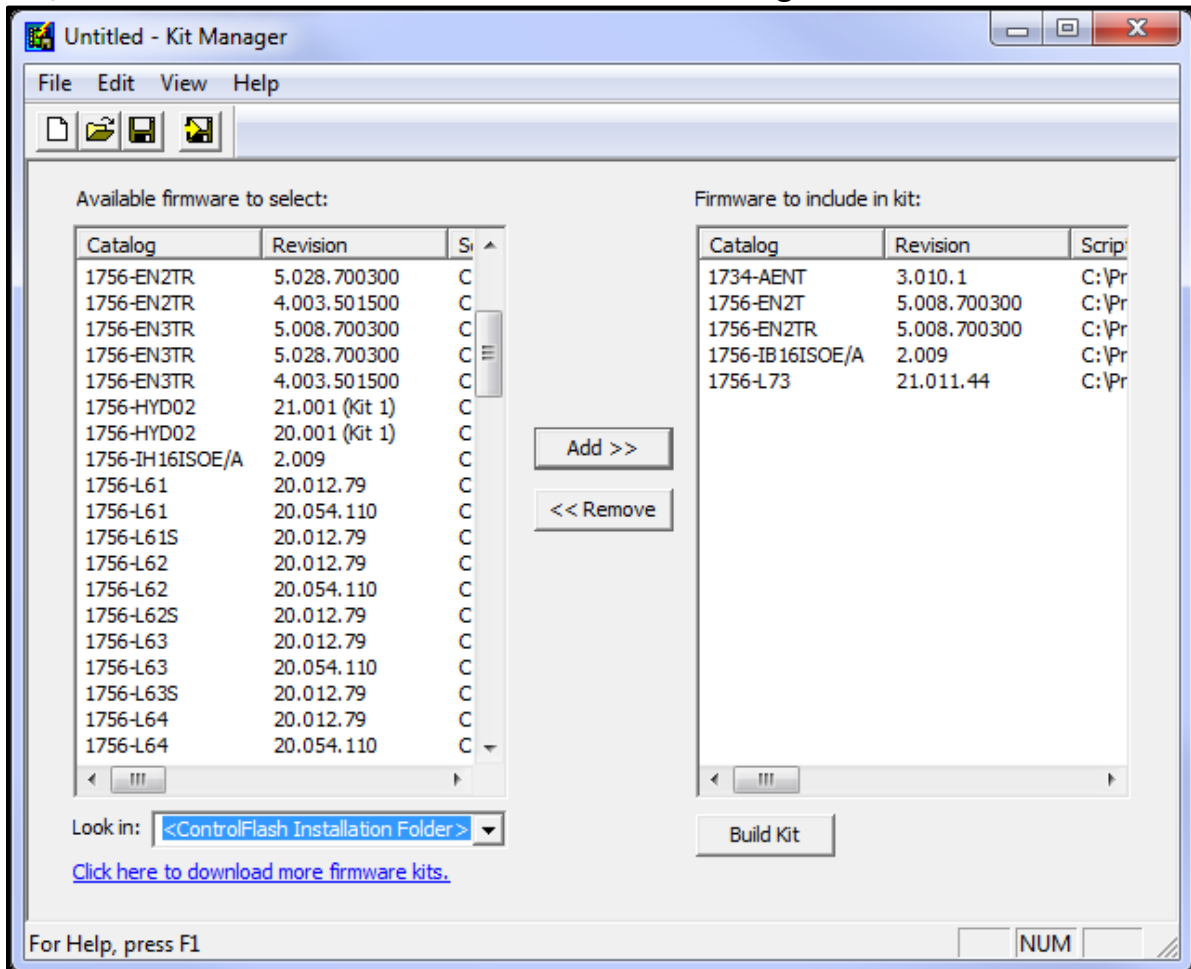
There are some great benefits to creating custom firmware kits dedicated to groups of people by function:

- It decreases the likelihood of incorrect firmware being loaded to devices.
- Manages firmware updates in an organized way – for example, a dedicated person assembles the kit with firmware, of which he knows are compatible versions, and distributes it.
- No need to install several firmware kits on different (maintenance) PC's.

Starting ControlFLASH v12 you can build your own ControlFLASH firmware kits using the optional tool ***ControlFLASH Kit Manager***.

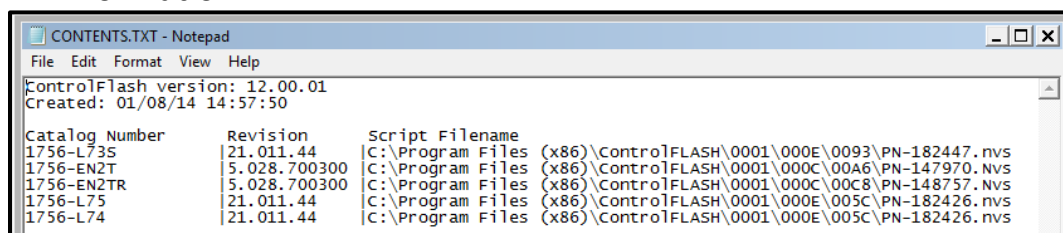
To build your own ControlFLASH firmware kits, first download and install all the firmware you want to include in your own ControlFLASH firmware kit. Open the ControlFLASH Kit Manager tool and select the product firmware (*Catalog and Revision*) that you would like to include in the kit.

Next, select *Build Kit* and the ControlFLASH Kit Manager does the rest.



The tool builds a firmware install kit that can be used and distributed. Each kit consists of 2 files within a ZIP archive:

- Contents.txt includes ControlFLASH version and kit build time information



- ControlFlash.msi is the ControlFLASH installation file



The ControlFLASH Kit Manager does not come with the installer of ControlFLASH. It needs to be downloaded and installed separately. The ControlFLASH Kit Manager can be found on the PCDC website by searching for "ControlFLASH Kit Manager" in the *Find Downloads* section.

### ***Control Flash v13***

Starting with Control Flash v13 and later, each new firmware kit is delivered as an individual DMK file. A DMK (Device Management Kit) is a single, digitally signed

file that contains the firmware binaries. There is no need to install a DMK, just download and use.

The DMK files can be zipped together to create a bundle; there is no need to use the Control Flash Kit Manager. The user must unzip the file into one of the folders monitored by ControlFLASH.

Control Flash v13 is backward compatible as it supports old and new kit formats. It is installed automatically with Studio 5000 Logix Designer V28 and later and is available separately from PCDC.

Many devices support DMK files.