



FactoryTalk eProcedure Administrator's User Manual



Important User Information

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

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

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



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT: Identifies information that is critical for successful application and understanding of the product.

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



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



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



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

The following icon may appear in the text of this document.



Identifies information that is useful and can help to make a process easier to do or easier to understand.

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

Summary of changes

This manual contains new and updated information. Use these reference tables to locate new or changed information. Grammatical and editorial style changes are not included in this summary.

Global changes

None for this release.

New or enhanced features

This table contains a list of topics changed in this version, the reason for the change, and a link to the topic that contains the changed information.

The identified changes will fall into one of these categories:

- New feature
- Enhanced feature
- Functional change
- Anomaly fix
- Usability improvement
- Clarification

Table 1. Summary of changes

Category	Topic Name	Reason
Functional change	Removed <i>Create a shared directory</i> section from Chapter 2	No longer used.
Functional change	Replaced <i>Perform a manual failover</i> with Configure the FactoryTalk Batch Server for manual failover on page 18 .	Updated the reference in step 2 from the FactoryTalk Batch Equipment Editor > Server Options dialog to the FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties dialog. Updated step 3 to account for the new Hot server startup type. Updated step 4 to include the startup type. Updated steps 5 and 6 to reflect updated functionality for FactoryTalk® Batch Server pair operations. In step 6, updated the tip to explain the differences between Warm Restart, Warm All Restart, and Hot Restart for batch handling.
Anomaly fix	Configure security for commands on page 21	Added the subheading <i>To configure security for FactoryTalk Batch View commands</i> .
Functional change	Configure hyperlinks on page 13	Updated the path to the customer content directory from the FactoryTalk Batch Equipment Editor > Server Options dialog to the FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties dialog, Descriptors and

Table 1. Summary of changes (continued)

Category	Topic Name	Reason
		Defaults tab, Hyperlinks descriptors and defaults area.
Usability improvement	Use automatic restart control to restart the FactoryTalk Batch Server services on page 16	Added <i>services</i> to the title.
New feature	Manually restart the FactoryTalk Batch Server on page 16 (formerly <i>Restart the FactoryTalk Batch Server</i>) <ul style="list-style-type: none"> • Manually do a Warm or Warm All Restart of the FactoryTalk Batch Server on page 17 (new topic) • Manually do a Hot Restart of the FactoryTalk Batch Server on page 17 (new topic) 	Updated the title for clarity. Broke out the existing steps into a new topic, Manually do a Warm or Warm All Restart of the FactoryTalk Batch Server on page 17 , and added steps for starting the FactoryTalk Batch Service Manager. Added a new topic, Manually do a Hot Restart of the FactoryTalk Batch Server on page 17 , with instructions for using the new Hot Restart startup type.
Functional change	FactoryTalk Batch Server Details dialog on page 28	In the Tip, updated the area model configuration from the FactoryTalk Batch Equipment Editor > Server Options dialog to the FactoryTalk Administration Console.
Usability improvement	The FactoryTalk Batch Server	Removed this chapter from the publication.
Usability improvement	Batch identification	Removed one of two <i>Batch identification</i> chapters from the publication.
Functional change	Removed the <i>Change permissions on the Batchctl share</i> section from Chapter 3	The share no longer exists and the new share does require modification.
Functional change	Sample demonstration setup on page 32	Rewrote the introduction paragraph and updated obsolete references from BATCHCTL share to new FTBatch_Projects share.
Functional change	View event log entry properties on page 36	<ul style="list-style-type: none"> • Removed Error ID 1038 and its description. • Updated to indicate that the following paths are identified in the FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings tab. <ul style="list-style-type: none"> - Error logging - Event Journal - Duplicate Journal - Restart - Duplicate Restart - Area Model
Functional change	FactoryTalk Batch Phase Simulator interface on page 50	Updated to indicate that the area model path is defined in the FactoryTalk Administration Console

Table 1. Summary of changes (continued)

Category	Topic Name	Reason
		> FactoryTalk Batch Services Properties > Project Settings tab.
Functional change	<ul style="list-style-type: none"> • Determine abnormal termination on page 60 • Log tag verification on page 61 • Tag verification log file on page 62 	Updated to indicate that the log file is specified in the FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings tab, and the maximum number of tags to be read each time is specified in the FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Advanced tab.
Functional change	Troubleshoot errors on page 64	<p>Updated the path to troubleshooting errors in the FactoryTalk Batch Equipment Editor > Server Options dialog, to troubleshooting errors in the FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties dialog.</p> <p>Removed information about incorrect Net registry key value because it is no longer true.</p> <p>Rewrote the <i>Event Journal files are not being created</i> section.</p>
Functional change	Create a custom BatchIDCreate.dll on page 67	Removed the tip from step 1: The Release folder can also be copied from the <code>Batchctl\Custom</code> shared network location.
Functional change Anomaly fix	Configure your FactoryTalk Batch system with the new server user account on page 76	<p>Replaced batchsvr_group with FTBatchServiceAccounts in step 1.</p> <p>Removed "and administrators group" from step 1.</p> <p>Removed the second instance of this topic from this chapter.</p>
Functional change	FactoryTalk Batch Service Manager dialog box on page 23	In the <i>Items in the Server area</i> table, updated <i>Boot</i> references to <i>Restart</i> , and added a <i>Hot Restart</i> row.
Functional change	Service state on page 26	Removed the outdated image of FactoryTalk Batch Service Manager.
Functional change	Server on page 26	<ul style="list-style-type: none"> • Removed the outdated image of FactoryTalk Batch Service Manager. • In the <i>Items in the Server area</i> table, updated <i>Boot</i> references to <i>Restart</i> references, and added a <i>Hot Restart</i> row.
Functional change	Start the FactoryTalk Batch Server service on page 30	In step 7, updated <i>Boot</i> references to <i>Restart</i> and added a bullet point for <i>Hot Restart</i> .
Functional change	Batch Service Manager server options on page 33	In the <i>Methods to restart FactoryTalk Batch Server</i> table, updated <i>Boot</i> references to <i>Restart</i> , and added a <i>Hot Restart</i> row.

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Preface

About this manual

This guide contains instructions for procedures specific to FactoryTalk eProcedure®, such as implementing security and configuring the user-defined area active server page. It is one of a set of related manuals that describe installing, programming, and operating the FactoryTalk Batch system.

Included are instructions for tasks specific to FactoryTalk® Batch, such as configuring security and services to support eProcedure. Instructions are also provided on the implementation and use of components not normally accessed or used by batch operators, such as the FactoryTalk Batch Server, Simulator, and performance chart.

To review FactoryTalk Batch release notes and latest information regarding product compatibility refer to the [Product Compatibility and Download Center \(PCDC\)](#).

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- **Copyright Text**
Includes the name of the open-source component, its version number, and the copyright declaration.
- **Licenses**
Includes the name of the license, the list of open-source components citing the license, and the terms of the license.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\FactoryTalk Batch\Release Notes\OPENSOURCE

You may obtain Corresponding Source code for open-source packages included in this product from their respective project web site(s). Alternatively, you may obtain complete Corresponding Source code by contacting Rockwell Automation via the **Contact** form on the Rockwell Automation website: <http://www.rockwellautomation.com/global/about-us/contact/contact.page>. Please include "Open Source" as part of the request text.

Additional resources

This topic has a comprehensive documentation list for the FactoryTalk® Batch products from Rockwell Automation.

Table 2. Installation Instructions, Quick Start, and Getting Results guides

Resource	Description
FactoryTalk Batch Components Installation Instructions , publication BATCH-INO02	Provides information and procedures for FactoryTalk Batch system installation. Includes information for FactoryTalk Batch Material Manager, FactoryTalk Event Archiver, and associated FactoryTalk Batch Client and Server components.
FactoryTalk Batch View Quick Start , publication FTBVS-QS001	Provides information about using FactoryTalk Batch View to create, view, and command control recipes, acknowledge prompts and signatures, view equipment phases and diagnostic information, and view profile information.
FactoryTalk Batch View HMI Controls Quick Start , publication BATCH-QS001	Provides a general overview of FactoryTalk Batch View HMI Controls.
FactoryTalk eProcedure Getting Results , publication BWEPRO-GRO11	Explains the basics of FactoryTalk eProcedure.
FactoryTalk Batch Getting Results , publication BATCH-GRO11	Introduces the basics of automated batch manufacturing and the FactoryTalk Batch product components.
FactoryTalk Batch Material Manager Getting Results , publication BWMTR-GRO11	Introduces the basics of FactoryTalk Batch Material Manager.

Table 3. User Manuals

Resource	Description
FactoryTalk Batch Material Editor User Manual , publication BWMTR-UM001	Provides access to information and procedural instructions required to configure materials and the containers to hold them. The material data is stored in the material database, which is used to create material-based recipes. This information is intended as a reference for formulators.
FactoryTalk Batch Equipment Editor User Manual , publication BATCH-UM004	Provides information on creating and maintaining an equipment database (area model). The area model is available to all other FactoryTalk Batch programs, including the FactoryTalk Batch Recipe Editor, FactoryTalk Batch View, and Phase Simulator.
FactoryTalk Batch PhaseManager User Manual , publication BATCX-UM011	Describes the integration of the FactoryTalk Batch software with the Studio 5000 Logix Designer® application and the Logix 5000™ family of controllers. The integration simplifies the configuration and maintenance of the FactoryTalk Batch automation system, provides better communication between the FactoryTalk Batch Server and the Logix 5000 controller, and significantly reduces the programming effort required to develop the phase logic code that resides in your Logix 5000 controller.
FactoryTalk Batch Recipe Editor User Manual , publication BATCH-UM006	Provides instructions on using FactoryTalk Batch Recipe Editor to create and configure master recipes for use in batch automation. The interface is based on IEC 61131-3 Sequential Function Charts (SFCs) to organize recipes graphically into procedures, unit procedures, operations, and phases. Build recipes using either the SFC format or a table-based format.

Table 3. User Manuals (continued)

Resource	Description
FactoryTalk Batch View HMI Controls User Manual , publication FTBVS-UM003	Provides details about using FactoryTalk Batch View HMI Controls to monitor and interact with the production process within a FactoryTalk View SE Display Client.
FactoryTalk Batch View User Manual , publication FTBVS-UM002	Provides information and procedural instructions for using FactoryTalk Batch View in a modern and intuitive portal into a comprehensive batching solution for effective operations, leveraging its own web server using HTML5 technology to provide connectivity into a FactoryTalk Batch Server.
FactoryTalk Batch Event Archiver User Manual , publication BATCH-UM012	Provides information and instructions specific to the FactoryTalk Event Archiver. Intended for use by system administrators and production supervisors.

Table 4. Administrator's User Manuals

Resource	Description
FactoryTalk Batch Administrator's User Manual , publication BATCH-UM003	Provides instructions for configuring security and services, and implementation and use of components not typically accessed or used by batch operators, such as the FactoryTalk Batch Server.
FactoryTalk eProcedure Administrator's User Manual , publication BWEPRO-UM011	Provides procedures specific to FactoryTalk Batch eProcedure, such as implementing security. Included are instructions for tasks specific to FactoryTalk Batch, such as configuring security and services to support FactoryTalk Batch eProcedure. Provides instructions on the implementation and use of components not typically accessed or used by batch operators, such as the FactoryTalk Batch Server.
FactoryTalk Batch Material Manager Administrator's User Manual , publication BWMTR-UM011	Provides information and instructions specific to FactoryTalk Batch Material Manager. Intended for use by system administrators and database administrators.

Table 5. Reference Manuals

Resource	Description
FactoryTalk Batch Material Server API Reference Manual , publication BWMTR-RM001	Provides access to information regarding the interface between the FactoryTalk Batch Material Server and the FactoryTalk Batch Material Editor and FactoryTalk Batch. It is intended to be used as a reference by custom interface developers.
FactoryTalk Batch PCD Programming Reference Manual , publication BATCH-RM004	Provides information and instructions about the FactoryTalk Batch process-connected device (PCD) interface design. It is intended to be used as a reference guide for PCD programmers.
FactoryTalk Batch Server API Reference Manual , publication BATCH-RM003	Provides information regarding the interface between the FactoryTalk Batch Server and FactoryTalk Batch View—the Server Application Programming Interface (API). It is intended to be used as a reference guide by custom interface developers.
FactoryTalk Batch System Files Reference Manual , publication BATCH-RM005	Provides the technical information for configuration and maintenance of a FactoryTalk Batch system. It can be used as a reference for implementation engineers and system administrators.

Table 5. Reference Manuals (continued)

Resource	Description
FactoryTalk eProcedure Instruction File Design Reference Manual , publication BWEPRO-RM001	Includes information about the building of manual instruction files for manual phases in the equipment database. This information is intended to be used as a reference by instruction file authors.
FactoryTalk Batch PC-Based Phase Programming Reference Manual , publication BATCH-RM006	Provides information and procedures required to create and use FactoryTalk Batch PC-based phases for use in FactoryTalk Batch recipes.

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Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

Customize eProcedure

eProcedure is used to display hyperlinks associated with equipment resources. Hyperlinks are assigned to equipment resources within the FactoryTalk Batch Equipment Editor.

Use hyperlinks

You can use any valid URL to view web pages from the Equipment view, but you can also configure hyperlinks for internal documents such as maintenance history logs, maintenance schedules, personnel schedules, notes about operations, web camera views of units or equipment, and startup or shutdown documentation.

Once the URL of a document (or web camera) is configured, you can view the item through the browser. You can use the **Back** or **Home** button to return to the Equipment view.

Hyperlinks can be assigned to any resources within the equipment database. These hyperlinks are then made available within the FactoryTalk Batch View client in the Equipment view. You can use the hyperlinks to provide access to documents that reside on your local intranet, pertaining to the specific equipment resource, or you may want to provide access to a manufacturer's web site. The following instructions outline the method for making internal documents available via hyperlinks.

Make internal documents available

In order to make documents or items accessible from within the FactoryTalk Batch View Client, the content files must be available from a secure (HTTPS) web server. The FactoryTalk Batch View Server can host the content in Batch View Server\customercontent folder. By default the location of this folder is:

C:\Program Files (x86)\Rockwell Software\Batch ViewServer\customercontent

Configure hyperlinks

FactoryTalk eProcedure® instructions allow for the configuration of hyperlink descriptors and defaults to associate them with resource types.

To configure hyperlinks

1. Open FactoryTalk Administration Console and sign in to the FactoryTalk Network Directory.
2. In **FactoryTalk Administration Console Explorer**:
 - To configure a new FactoryTalk Batch Server, right-click the application or the area name and select **Add New Server > FactoryTalk Batch Server**.
 - To edit an existing FactoryTalk Batch Server, expand an application or area name, right-click, and select **Properties**.
3. From the **FactoryTalk Batch Services Properties** dialog, **Descriptors and Defaults** tab, see the **Hyperlinks descriptors and defaults** area.
4. Select the desired resource type.
5. In the **Descriptors** area, type a descriptive name for each hyperlink you want associated with the resource type.
6. If necessary, type or change the information listed in the **Default Values** fields.
7. Select **OK**.

8. Open the FactoryTalk Batch Equipment Editor.
 9. Navigate to the desired resource and right-click to display the edit dialog.
 10. Select the **Hyperlinks** tab.
 11. In the **Hyperlink Configuration** area, type each hyperlink. An example is, `http://ServerName/eProcedure/Reports/<doc_name>` where `<doc_name>` is the desired HTML file to display, `Server_Name` is the name of the computer and `Reports` is a directory under `Program Files (x86)\RockwellSoftware\Batch View Server\customercontent`.
 12. Select **OK** when done.
 13. Restart the FactoryTalk Batch Server and eProcedure Server services to apply the configuration updates. When the resource is used in a batch and viewed in FactoryTalk Batch View, the hyperlink is displayed to the right of the resource.
-



If there are batches on the batch list, the FactoryTalk Batch Server should be restarted in either Warm Restart, Warm All Restart, or Hot Restart mode. Before you restart the eProcedure server, uncheck the Cold Restart checkbox.

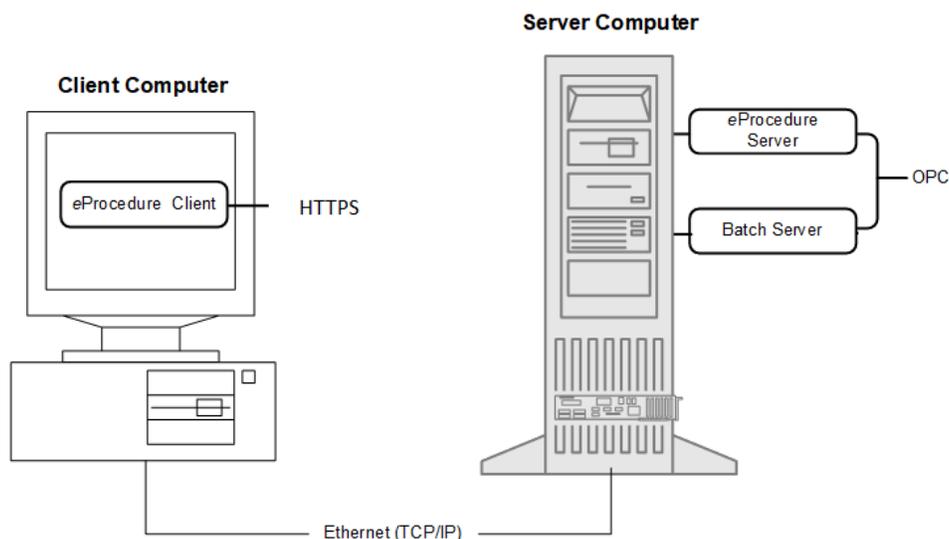
14. Stop and restart the FactoryTalk Batch View Server.
15. When you select the hyperlink, the specified web page opens. To return to FactoryTalk Batch View, select **Back** on the browser toolbar. The URL displays in the remote Client's **Address** box.

Understand communications

FactoryTalk eProcedure itself requires very little in the way of special configuration. Most of the required configuration is performed in the post-installation procedures. [See the [FactoryTalk eProcedure Getting Results](#), publication [BWEPRO-GRO11](#) guide for more information.] The information in this section is provided to enhance your understanding of how eProcedure works in conjunction with FactoryTalk Batch.

FactoryTalk eProcedure communications

eProcedure uses OPC to communicate between the eProcedure Server and the FactoryTalk Batch Server. Communication from the client to the Server is HTTPS (for web content).



Change the FactoryTalk Batch Server computer name

The Net registry key contains the FactoryTalk® Batch Server computer name and is used by remote clients to locate the server computer. During a FactoryTalk Batch Client computer installation, the setup program prompts you for the server computer name and then places the name into the Net key. If you change the server computer name, or if you are switching control to another FactoryTalk Batch Server computer, you need to manually change the Net registry key on all remote client computers to point to the server computer.

To change the FactoryTalk Batch Server computer name:

1. Open the Registry Editor.
2. Select the HKEY_LOCAL_MACHINE on the Local Machine window. Navigate to the **SOFTWARE\WOW6432Node\BATCHCTL\Net** subkey.
3. Double-click the **Server** registry value.
4. Change the value data: Server = <MachineName>, where <MachineName> is the computer name on which the FactoryTalk Batch Server is installed.

Use Open Platform Communications (OPC)

The FactoryTalk Batch Server supports the use of the Open Platform Communications (OPC) protocol. OPC provides a defined set of COM interfaces for data access functions.

The OPC communications protocol is used by the FactoryTalk Batch Server to communicate with process-connected devices via a data server and PC-Based phases. COM is used to communicate with other high-level applications such as FactoryTalk Batch Material Manager.

OPC group support

Within the OPC protocol, data is accessed through collections of data items referred to as groups. Different data servers have varying levels of OPC support, including maximum numbers of groups, maximum numbers of items per group and performance issues, and so on. Because of this, FactoryTalk Batch support of OPC is flexible in order to achieve successful communication with as many different data servers as possible. To achieve this, the FactoryTalk Batch Server is flexible in its definition of Groups, and allows for different OPC grouping configurations to communicate with the data server(s).

The manner in which the FactoryTalk Batch Server organizes the area model tags into groups is defined by data server definition files (DSDF). These files are located in the Batch \Dataservers directory. FactoryTalk Batch comes with a predefined set of DSDF files. If you need to communicate with a data server for which there is no predefined DSDF file, contact Rockwell Automation Application Support.

Use automatic restart control to restart the FactoryTalk Batch Server services

Learn how to use automatic Windows Service restart control to restart the FactoryTalk® Batch Server services after a failure.

The FactoryTalk Batch Server maintains a detailed record of every recipe's state as the recipe is running. If the FactoryTalk Batch Server computer were to lose power or otherwise fail, use the automatic Windows Service restart control feature to restart the server on a failed server node. This is enabled by default during a FactoryTalk Batch Server installation.

Upon automatic restart of the server in a non-Cold restart, the following functions are placed into the state that existed before termination of the server:

- Control Recipes
- Semi-Auto Phase Control
- Arbitration

Manually restart the FactoryTalk Batch Server

This task explains how to manually restart the FactoryTalk® Batch Server in case of a system or service failure.

If the FactoryTalk Batch Server service fails, then you need to manually restart the service using the FactoryTalk Batch Service Manager.

- A Warm Restart or Warm All Restart of the batch server attempts to restore batches (that were on the batch list when the server previously terminated) to the batch list with active transitions in the HELD state, and recipe procedures in MANUAL mode. These restart types require operator interaction.
- A Hot Restart attempts to restart the Batch server in a mode where it attempts to restore all batches into their last known state, including transition states and recipe modes, without any operator interaction.

Manually do a Warm or Warm All Restart of the FactoryTalk Batch Server

This task explains how to manually do a Warm Restart or Warm All Restart of the FactoryTalk® Batch Server in case of a system or service failure.

If the FactoryTalk Batch Server service stops, then you need to manually restart the service using the FactoryTalk Batch Service Manager. A Warm Restart or Warm All Restart will restart the server in a manual mode and a held state, restoring the set of batches that were on the batch list when the server previously terminated. These restart types require operator interaction.

To do a Warm Restart or Warm All Restart of the FactoryTalk Batch Server:

1. In **Start > Rockwell Software > Batch Service Manager**, select **Batch Service Manager**. The **Batch Service Manager** opens.
2. Select **Warm Restart** or **Warm All Restart** as the startup type.
3. Select **Start/Continue** to start the service. Wait for the status to change to RUNNING and the light to turn green.
4. Open FactoryTalk Batch View.
Batches on the batch list before the failure are still on the batch list. All batches that had phases in an active state now have transitions in the HELD state, and are in MANUAL mode with a failure.
5. Select the batch, and then select **Auto** to place a batch in AUTOMATIC mode.
6. Select **Clear All Failures** to clear the failures.
7. Select the batch, and then select **Restart Batch**.
The previously active phases return to a RUNNING state and the batch completes.

Manually do a Hot Restart of the FactoryTalk Batch Server

This task explains how to manually do a Hot Restart of the FactoryTalk® Batch Server in case of a system or service failure.

If the FactoryTalk Batch Server service stops, then you need to manually restart the service using the FactoryTalk Batch Service Manager. A Hot Restart attempts to restore the batches in the last known state they were in, including transitions and modes of recipe procedures, without any operator interaction.

To do a Hot Restart of the FactoryTalk Batch Server:

1. In **Start > Rockwell Software > Batch Service Manager**, select **Batch Service Manager**. The **Batch Service Manager** opens.
2. Select **Hot Restart** as the startup type.
3. Select **Start/Continue** to start the service. Wait for the status to change to RUNNING and the light to turn green.

4. Open FactoryTalk Batch View.
5. Batches on the batch list before the failure are still on the batch list. Inspect the batches to verify they are progressing as expected.

Configure the FactoryTalk Batch Server for manual failover

FactoryTalk Batch can be configured to store batch journals and batch restart information in two separate locations. The use of a secondary server allows you to perform a manual failover if there is a hardware failure on the primary FactoryTalk Batch Server. The second computer must be capable of running the server.

You must install your area model file and all recipe files (and all instruction files if using eProcedure) on both the primary server and the secondary server.



Archiver recovery - As part of the manual failover procedure you must manually copy the **eventdir.txt** and the **archque.txt** from the primary directory to the secondary directory.

When the FactoryTalk® Batch Server fails, complete these steps.

To configure the FactoryTalk Batch Server for manual failover:

1. Start the process-connected device communication software on the secondary server. The secondary server computer needs to communicate with the process controller that is running the phase logic.
2. Make sure that the secondary server's project directories are assigned to local directories in FactoryTalk® Administration Console.



To configure project directories, right-click an application or area name in FactoryTalk Administration Console **Explorer** and select **Properties**. In the **FactoryTalk Batch Services Properties** dialog, select the **Project Settings** tab.

3. Use the FactoryTalk Batch Service Manager to start the FactoryTalk Batch Server on the secondary server computer, and select **Warm**, **Warm All**, or **Hot** as the startup type. The secondary server allows the batches to be restarted based upon information written by the primary server.
4. (optional) If you are also using eProcedure®, use the FactoryTalk Batch Service Manager to start the eProcedure Server on the secondary server computer, and clear the **Cold Restart** checkbox.
5. Start the FactoryTalk® Batch View™ Server on the secondary server.
6. Redirect any FactoryTalk Batch View clients to the secondary URL.



For a Warm Restart or Warm All Restart, the existing batches are placed in the MANUAL mode with transitions in the HELD state. Place the batches in AUTOMATIC mode, clear the failures, and then restart the batch.

A Hot Restart attempts to restore a batch into its last known state, including the states of transitions and the modes of recipe procedures.

Command handshake timeout

The FactoryTalk® Batch Server uses a command handshake protocol to ensure that commands issued to phases are handled in a serial manner and are not lost or overwritten. The protocol has a configurable timeout period. When a command handshake timeout condition occurs,

an error is generated in the phase object that represents the phase. The batch is then placed on HOLD, based upon the configured hold propagation settings. This allows the operator to disconnect the server from the affected phase should the timeout period expire. Without this feature, the server must be shut down and restarted if the phase stops responding.

When a command handshake timeout period occurs, the step representing the troubled phase in the **SFC** display turns red and a failure is generated for the phase. The message PHASE NOT RESPONDING is shown on the status bar when the step is selected. It is also displayed in the **Phase List Display** area of the **Phase Control** window when the phase is selected.

A **System Message** event type is logged into the electronic batch record. The description includes the fact that a time-out occurred and the type and ID of the command that timed out. In addition, the event is recorded in the FactoryTalk Batch Server log file with a severity status of SEVERE and the description is the type and ID of the timed-out command.

If a communication error is detected while the command handshake is in process, the command handshake timer is stopped. The timer is reset and restarted if communication is successfully restored. If the command handshake completes after the timeout period, then the commands that are pending the handshake completion are processed. However, the error must be cleared before the batch can be restarted.

To restart a batch, you must issue the CLEAR_FAILURES command. If the command handshake completes successfully, the error is cleared and the batch can be restarted. Otherwise, the error is not cleared and the batch is not restarted. The operator should check the execution status of the process-connected device.

You can add a FactoryTalk Batch Server extended property to configure the length of time, in seconds, that the FactoryTalk Batch Server waits for a command handshake before issuing a timeout. If you do not configure this property, the timeout defaults to 60. The valid range is 5 to 600.

To add a command handshake timeout property:

1. Open FactoryTalk® Administration Console and sign into the FactoryTalk Network Directory.
2. In the FactoryTalk Administration Console **Explorer**, do one of the following:
 - For a new FactoryTalk Batch Server, right-click the application or the area name and select **Add New Server > FactoryTalk Batch Server**.
 - For an existing FactoryTalk Batch Server, expand the application or the area name, right-click the server, and select **Properties**.
3. In the FactoryTalk Batch Services Properties dialog, select the **Advanced** tab.
4. In the **Extended properties** area, select **Add**.
5. In the **Add Extended Property** dialog, enter a **Name** of `CommandTimeOut` and a **Value**, in seconds. If you do not enter a **Value**, the timeout defaults to 60. The valid range is 5 to 600.
6. Select **OK**.
7. Select **Apply** to save the data in the **Advanced** tab.
8. Because the **CommandTimeOut** value is read when the FactoryTalk Batch Server starts, if you change the value, you must stop and restart the server.

Implement security

FactoryTalk eProcedure takes advantage of the security features of FactoryTalk Batch View. [See the [FactoryTalk Batch Administrator's User Manual](#), publication [BATCH-UM003](#) for more information.]

The logged in user should:

- be an FactoryTalk Security user or a Windows-linked user
- be a user with rights to all of the buttons

If operators wish to perform a function that is secured, for instance **Abort**, they must enter a user name and password, which is checked against the FactoryTalk Security settings defined in the FactoryTalk Directory. [See the [FactoryTalk Batch Administrator's User Manual](#), publication [BATCH-UM003](#) for more information.]

IMPORTANT: FactoryTalk Security cannot be used to secure eProcedure instructions. However, instructions can be secured through verification signatures.

Configure the eProcedure service

The eProcedure Service is installed on the FactoryTalk Batch Server computer and requires no special configuration. The eProcedure Service can be configured to start manually by changing the startup type in the **Services** dialog box of the Control Panel. [See the [FactoryTalk Batch Administrator's User Manual](#), publication [BATCH-UM003](#) for more information.]

FactoryTalk Batch Client security

FactoryTalk Batch View, FactoryTalk eProcedure, FactoryTalk Batch View HMI Controls, Equipment Editor, and Recipe Editor use FactoryTalk Security, which allows security settings to be shared among FactoryTalk enabled products across a network or on the same computer. FactoryTalk Directory is the infrastructure which contains the security policies defined for FactoryTalk Security secured resources.

FactoryTalk Batch secured resources include Batch Commands, Phase Commands, the Batch View windows, and log ons to FactoryTalk Batch components. For a complete list of FactoryTalk Batch secured objects and their default security policy settings, refer to the [FactoryTalk Batch Administrator's User Manual](#), publication [BATCH-UM003](#).

FactoryTalk Batch product policies are created in the Network Directory when the FactoryTalk Services Platform installs. The FactoryTalk Batch product polices are used to restrict access to the FactoryTalk Batch client components and the features within them. (See the FactoryTalk Help for more information.)

The FactoryTalk Services Platform installation process:

- **Creates both a FactoryTalk Local Directory and a FactoryTalk Network Directory on the computer.** When the install process finishes, both directories are fully configured and ready for use.



Security settings are completely separate in the Network Directory and Local Directory. Changes you make to the security settings in the Network Directory do not affect the Local Directory and vice versa.

- **Allows any Windows Administrator user account to log on to either directory.** The installation process automatically adds the local Windows Administrators group to the FactoryTalk Administrators group in each FactoryTalk Directory.
- **Allows any authenticated Windows user to log on to the FactoryTalk Local Directory.** The installation process automatically adds all members of the local Windows Authenticated Users group to the FactoryTalk Local Directory.
- **Allows all new user accounts full access permissions.** The installation process automatically sets system policies to allow all new user accounts added to either directory full access to that directory by default.

Tighten security for FactoryTalk Batch Clients

Restrict access to specific features of your individual FactoryTalk products. Only users with access can use secured product features.

For example, when you set up product policies for FactoryTalk Batch, restrict use of the Abort command to specific users. This prevents automated batch processes from being unintentionally aborted during run time.

To configure security for multiple features in FactoryTalk, use the Feature Security for Product Policies dialog box.

To configure security for the FactoryTalk Batch features, refer to the secured product policies defined for the FactoryTalk Batch Clients.

To tighten security for Clients:

- Delete the Windows Authenticated Users group from the Local Directory.
- Create new FactoryTalk user accounts and groups in the FactoryTalk Directory. Create user accounts or groups to secure the FactoryTalk Batch Clients.
- Add user accounts and groups created in Windows to the FactoryTalk Directory. Windows accounts added to the FactoryTalk Directory are called Windows-linked user accounts and groups.

IMPORTANT:

Windows Workgroup User Accounts are not supported in FactoryTalk.

If you use Windows workgroups, you cannot administer user accounts centrally for FactoryTalk Batch Client applications. FactoryTalk Directory does not allow multiple user accounts to have the same name and password.

- Remove the All Users group from the FactoryTalk Batch product policies. The FactoryTalk Services Platform installation process adds the All Users group to all FactoryTalk product policies.
- Add user accounts and groups to the FactoryTalk Batch product policies. To secure FactoryTalk Batch resources, add only the necessary user accounts and groups to the corresponding product policies.

Configure security for commands

Add the appropriate users or user groups to the security setting to allow only specified users to issue commands for batches, equipment, and prompts.

FactoryTalk Batch View security settings are under the following categories:

- Command Batch
- Command Equipment
- Command Prompts
- Confirmation Authorization

To configure security for FactoryTalk Batch View commands

1. Open the **FactoryTalk Administration Console** and log on to the appropriate FactoryTalk Directory.
2. Expand **System > Policies > Product Policies > Batch > BatchView & ActiveX**.
3. Right-click **Batch View Server** and then select **Properties**.
4. In the **Batch View Server Properties** window, select the product policy setting to configure and then select the corresponding browse button.
5. (optional) In the **Configure Securable Action** dialog box:
 - Remove a user or group by selecting it and then selecting **Remove**.
 - Allow or deny a user or group access to the feature by selecting or clearing the corresponding check box and then selecting **OK**.
 - Add a user account or user group by selecting **Add**. This option displays the **Select User and Computer** dialog box.
6. (optional) In the **Select User and Computer** dialog box:
 - Select a user, user group, computer, or computer group and then select **OK**.
 - Select **Create New** to create and then add a new user, user group, computer, or computer group, then select **OK**.
7. Select **OK** to close the **Batch View Server Properties** dialog box.

The FactoryTalk Batch Service Manager

The FactoryTalk Batch Service Manager is used with the FactoryTalk Batch Server, FactoryTalk Batch View Server, and FactoryTalk Event Archiver, when FactoryTalk Event Archiver is configured as a Windows service. The Service Manager manually starts and stops the FactoryTalk Batch Server and manually starts, pauses, continues or stops FactoryTalk Event Archiver services. The Service Manager accesses the **Batch Server Statistics** dialog box, which gives access to COM server information, COM client status, error information, and other FactoryTalk Batch Server information.



To command the FactoryTalk Batch Server, FactoryTalk Batch View Server, or FactoryTalk Event Archiver services, you must have local administrator privileges on the computer where the server and/or FactoryTalk Event Archiver services are installed. If you do not have local administrator privileges, you will have view-only privileges.

Windows services

The FactoryTalk Batch Server, FactoryTalk Event Archiver Server, and FactoryTalk Event Archiver operate as Windows services. During FactoryTalk Batch installation, the user account specified during the installation is assigned to the **Log On As: This Account:** option, found in the (Administrative Tools) **Services** dialog box.

Running as a Windows service allows the FactoryTalk Batch Server to run in the absence of an interactive Windows logon. Logging on or logging off Windows during operation does not disrupt the server execution.

Configure the FactoryTalk Batch Server to start automatically, giving server control to Windows Services, or control the FactoryTalk Batch Server manually using the FactoryTalk Batch Service Manager. The Service Manager also controls the type of boot method that the server uses, and runs the server in demo mode.



Specifying the boot method or demo mode in the FactoryTalk Batch Service Manager does not alter the Batchsvr.ini file and has no effect on the server when automatically starting.

FactoryTalk Batch Service Manager dialog box

Overview

The **FactoryTalk Batch Service Manager** dialog box has three areas:

- Connection
- Service state
- Server

Connection area

Table 6. Items in the Connection area

Item	Definition
Computer	Displays the selected computer.

Table 6. Items in the Connection area (continued)

Item	Definition
Select Computer	Selects the computer where the service is located.
Service	Allows you to select a service from a list of batch services for the selected computer.

Service state area

The **Service state** area has two sections: one with buttons and another with a traffic light graphic.

The buttons allow you to select a service state:

Table 7. Buttons for selecting a service state

Item	Definition
Stop	Stops the selected service.
Pause	Pauses the selected service. This button is not enabled for the FactoryTalk® Batch Server.
Start/Continue	Starts the selected service or continues a paused service.

The traffic light graphic displays the current service status with an accompanying color:

Table 8. Service status and their colors

Service Status	Color
STARTING	None
RUNNING	Green
STOPPED	Red
PAUSED	Yellow
NOT CONNECTED	None
START PENDING	None



The state of the FactoryTalk Batch Service Manager (information from the **Connection** and **Server** groups) is stored from the last time the Service Manager was run. These values are written when the FactoryTalk Batch Server is closed.

Server area

Table 9. Items in the Server area

Item	Definition
Allow Demo Mode	The FactoryTalk Batch Server runs with full functionality without a license for a 2-hour period. After 2 hours, the server stops running.
Allow Grace Period	The FactoryTalk Batch Server starts when a valid activation is not found. The grace period is 7 days, after which a valid FactoryTalk Batch Activation license is required.
Cold Restart	The FactoryTalk Batch Server starts in a new instance without restoring data from its previous run. Batches are not added back to the batch list, and operator arbitration states are not recovered. For all batches that were not restored, batch completion events are recorded in the FactoryTalk Batch Event Journals. After a Cold Restart, you will not be able to resume execution of batches from the previous instance. If Security Authority is enabled, SAIs in a secured area model and any secured recipes must match the current Network FactoryTalk Directory SAI.
Warm Restart	Restarts the FactoryTalk Batch Server and attempts to restore the set of batches that were on the batch list when the server previously stopped. Batch complete events are added to the FactoryTalk Batch Event Journals for all batches that were not restored to the batch list. After a Warm Restart, any batches that are not restored cannot be recovered or resumed in the future. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
Warm All Restart	The FactoryTalk Batch server attempts to restart but will not restart if it is unable to restore all the batches to the batch list. If a Warm All Restart attempt fails, the ability to restore batches in the future is not affected. After the issues are resolved, another attempt to restore the batches to the batch list can be made using Warm Restart, Warm All Restart, or Hot Restart. This is the default setting for automatic restarts. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
Hot Restart	Follows all the startup rules of Warm All Restart. In addition, the FactoryTalk Batch Server attempts to restore batches to their last known state, including transition states and recipe modes, without any operator interaction.
Verify/Deploy Area Model	Opens the Verify/Deploy Area Model dialog box.
Server Details	Opens the Batch Server Details dialog box.

Connection

The **Connection** area contains:

Table 10. Items in the Connection area

Item	Definition
Computer	Displays the selected computer.

Table 10. Items in the Connection area (continued)

Item	Definition
Select Computer	Selects the computer where the service is located.
Service	Allows you to select a service from a list of batch services for the selected computer.

Service state

The **Service State** area has buttons, text, and a graphic traffic light service state representation.

These server states and corresponding colors are shown:

Table 11. Server status and their colors

Server Status	Color
STARTING	None
RUNNING	Green
STOPPED	Red
PAUSED	Yellow
NOT CONNECTED	None
START PENDING	None

The **Service State** area has these buttons:

Table 12. Buttons in the Service State area

Item	Definition
Stop	Stops the selected service.
Pause	Pauses the selected service. This button is not enabled for the batch server.
Start/ Continue	Starts the selected service or continues a service that has been paused.



The state of the FactoryTalk Batch Service Manager (information from the **Connection** and **Server** groups) is stored from the last time the Service Manager was run. These values are written when the FactoryTalk Batch Server is closed.

Server

The **Server** area provides various server options.

The **Server** area options include:

Table 13. Items in the Server area

Item	Definition
Allow Demo Mode	The FactoryTalk Batch Server runs with full functionality without a license for a two-hour period. After two hours, the server stops running.
Allow Grace Period	The FactoryTalk Batch Server starts when a valid activation is not found. The grace period is seven days, after which a valid FactoryTalk Activation license is required.
Cold Restart	The FactoryTalk Batch Server starts in a new instance without restoring data from its previous run. Batches are not added back to the batch list, and operator arbitration states are not recovered. For all batches that were not restored, batch completion events are recorded in the FactoryTalk Batch Event Journals. After a Cold Restart, you will not be able to resume execution of batches from the previous instance. If Security Authority is enabled, SAIs in a secured area model and any secured recipes must match the current Network FactoryTalk Directory SAI.
Warm Restart	Restarts the FactoryTalk Batch Server and attempts to restore the set of batches that were on the batch list when the server previously stopped. Batch complete events are added to the FactoryTalk Batch Event Journals for all batches that were not restored to the batch list. After a Warm Restart, any batches that are not restored cannot be recovered or resumed in the future. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
Warm All Restart	The FactoryTalk Batch server attempts to restart but will not restart if it is unable to restore all the batches to the batch list. If a Warm All Restart attempt fails, the ability to restore batches in the future is not affected. After the issues are resolved, another attempt to restore the batches to the batch list can be made using Warm Restart, Warm All Restart, or Hot Restart. This is the default setting for automatic restarts. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
Hot Restart	Follows all the startup rules of Warm All Restart. In addition, the FactoryTalk Batch Server attempts to restore batches to their last known state, including

Table 13. Items in the Server area (continued)

Item	Definition
	transition states and recipe modes, without any operator interaction.
Verify/Deploy Area Model	This button opens the Verify/Deploy Area Model dialog box.
Server Details	This button opens the Batch Server Details dialog box.

FactoryTalk Batch Server Details dialog

The **FactoryTalk Batch Server Details** dialog displays an overview of the current system's status and the current running area model.



Use the FactoryTalk® Administration Console to configure the area model.

The **FactoryTalk Batch Server Details** dialog has five tabs.

FactoryTalk Batch Server Details dialog box - General tab

The **General** tab lists data on the number of batches and prompts being currently handled by the FactoryTalk Batch Server, as well as the Windows time on the server, the time the batch server started, and the name and creation date of the current area model.

The **General** tab shows:

Table 14. Items on the General tab

Field	Definition
Batch Count	The number of batches loaded in the FactoryTalk Batch Server.
Prompts Count	The number of prompts currently existing within all batches.
Version	The version number of the FactoryTalk Batch Server.
Time	The time as specified by Windows on the FactoryTalk Batch Server.
Started at	The time the FactoryTalk Batch Server started.
Area Model File Name	The name of the currently active area model.
Area Model Date	The file date of the currently active area model at the time of FactoryTalk Batch Server startup or the last update.

FactoryTalk Batch Server Details dialog box - Messages tab

The **Messages** tab is used to monitor FactoryTalk Batch Server log information. The messages displayed in the three sections are the most recent messages written to the server log by the server.

The **Messages** tab shows:

Table 15. Items on the Messages tab

Field	Definition
Info	The most recent Info -type entry in the log file. Info entries are log entries recorded as a part of the normal execution.
Warning	The most recent Warning -type entry in the log file. Warning entries indicate that a minor irregularity the system detected. The irregularity was handled by the system or the system is not sure of the occurrence's implications.
Severe	The most recent Severe -type entry in the log file. Severe entries indicate that the system encountered a severe error condition. The system handled the situation as best it could.

FactoryTalk Batch Server Details dialog box - PCD Communications tab

The **PCD Communications** tab is used to monitor the FactoryTalk Batch Server communication status and any data servers that are communicating with the server. Verification of all tags, phases, and equipment operation sequences associated with the current area model is also performed.

The **PCD Communications** tab displays these components:

Table 16. Components on the PCD Communications tab

Field	Definition
Data Server Status	Lists of all configured data servers in the area model and the communication status between FactoryTalk Batch and these data server(s).
Tag Verify Status	Indicates if the verification function is READY, IN PROGRESS, or COMPLETED.
Tag Verify Verified	Indicates the number of tags, phases, and equipment operation sequences that the server processed during tag verification.
Tag Verify Bad	Indicates the number of tags, phases, and equipment operation sequences that the server was unable to verify. Bad tags, phases, and equipment operation sequences indicate either the data server cannot supply

Table 16. Components on the PCD Communications tab (continued)

Field	Definition
	the data requested by the FactoryTalk Batch Server or the data was not of the expected type.
Tag Verify Total	Indicates the total number of tags, phases, and equipment operation sequences.
Start	Starts the verification process.
Stop	Stops the verification process.

FactoryTalk Batch Server Details dialog box - View Communications tab

The **View Communications** tab is used to monitor the number of Dynamic Data Exchange (DDE), Component Object Model (COM) and Open Platform Communications (OPC) conversations taking place between the FactoryTalk Batch Server and Client software.

The **View Communications** tab shows:

Table 17. Items on the View Communications tab

Item	Definition
DDE Connections	The number of DDE connections attached to the FactoryTalk Batch Server.
COM Connections	The number of COM connections attached to the server.
OPC Connections	The number of OPC connections attached to the server.
Items	The number of connection items the server currently supports.

Start the FactoryTalk Batch Server service

The FactoryTalk® Batch Service Manager communicates with the Windows® Services of the selected computer to identify available services. There may be a noticeable delay as communications are established, marked by the cursor displayed as an hourglass. If the FactoryTalk Batch Service Manager cannot communicate with the selected computer's Windows Services, a message box states that the FactoryTalk Batch Service Manager failed to connect to the specified computer.

The FactoryTalk Batch Phase Simulator must be running to test FactoryTalk Batch in a demo environment. For more information, see **The FactoryTalk Batch Phase Simulator** in the [FactoryTalk Batch Administrator's User Manual](#), publication [BATCH-UM003](#).

IMPORTANT: The FactoryTalk Batch Server cannot start if **Security Authority** is enabled and there is a mismatch between the Security Authority Identifiers (SAIs) in the area model and the FactoryTalk Network Directory. For information on your recovery options, see **Troubleshooting** in the [FactoryTalk Batch Equipment Editor User Manual](#), publication [BATCH-UM004](#).

To start the FactoryTalk Batch Server service:

1. In **Start > Rockwell Software > Batch Service Manager**, select **Batch Service Manager**. The **Batch Service Manager** opens.
2. Select **Select Computer**. The **Select Computer** dialog box opens.

IMPORTANT: You need administrator privileges to perform this procedure.

3. In **Enter the object name to select**, enter the name of the computer where the FactoryTalk Batch Server is installed, or select **Advanced** to search for a computer.
4. Select **OK** to close the **Select Computer** dialog box.
5. From the **Service** list, select **FactoryTalk Batch Server**.
6. (optional) Select **Allow Demo Mode** to run FactoryTalk Batch in demo mode. If you run FactoryTalk Batch in demo mode, be aware that the FactoryTalk Batch Server stops after 2 hours of operation.
7. Select the method to use for restarting the server after a service halt.
 - **Cold Restart**
The FactoryTalk Batch Server starts in a new instance without restoring data from its previous run. Batches are not added back to the batch list, and operator arbitration states are not recovered. For all batches that were not restored, batch completion events are recorded in the FactoryTalk Batch Event Journals. After a Cold Restart, you will not be able to resume execution of batches from the previous instance. If Security Authority is enabled, SAIs in a secured area model and any secured recipes must match the current Network FactoryTalk Directory SAI.
 - **Warm Restart**
Restarts the FactoryTalk Batch Server and attempts to restore the set of batches that were on the batch list when the server previously stopped. Batch complete events are added to the FactoryTalk Batch Event Journals for all batches that were not restored to the batch list. After a Warm Restart, any batches that are not restored cannot be recovered or resumed in the future. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
 - **Warm All Restart**
The FactoryTalk Batch server attempts to restart but will not restart if it is unable to restore all the batches to the batch list. If a Warm All Restart attempt fails, the ability to restore batches in the future is not affected. After the issues are resolved, another attempt to restore the batches to the batch list can be made using Warm Restart, Warm All Restart, or Hot Restart. This is the default setting for automatic restarts. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
 - **Hot Restart**
Follows all the startup rules of Warm All Restart. In addition, the FactoryTalk Batch Server attempts to restore batches to their last known state, including transition states and recipe modes, without any operator interaction.
8. Select **Start/Continue** to start the service. Wait for the status to change to **RUNNING** and the light to turn green.
9. Select the **Server Details** button. The **FactoryTalk Batch Server Details** dialog box opens.
10. In **PCD Communications**, verify the **Data Server Status** displays the status of the conversation as **GOOD**.

11. Select **Start** to begin the tag verification process. When tag verification is COMPLETED, select **OK**, or select **Stop** to end the verification process and then select **OK**.



If the number of COM servers exceeds the viewable area within the **Data Server Status** box, a scroll bar displays, enabling you to scroll through the list.

12. Select **Close**. The **Batch Service Manager** dialog box closes.



If software component conversation becomes *LOST* while running in Demo mode, make sure that the simulator is running and try starting the server(s) again.

FactoryTalk Batch Server overview

The FactoryTalk Batch Server is the engine that runs FactoryTalk Batch. It is this component that allows integration with the process-connected devices (PCDs) and third-party software packages.

The FactoryTalk Batch Server operates as a Windows Service, which means you can configure the Server to start automatically and give control of the Server service to the Windows Service Manager. Because the FactoryTalk Batch Server runs as a service, logging on or off Windows during operation does not disrupt the operation of the Server.

Using the FactoryTalk Batch Service Manager, you can control the FactoryTalk Batch Server manually, select the boot method for the Server, and configure the Server to run in Demo mode. Use the FactoryTalk Batch Equipment Editor to configure the FactoryTalk Batch Server.

The FactoryTalk Batch Server coordinates the following functions:

- **Creating a Batch:** Transforms the configured recipe into an executable working recipe.
- **Executing a Recipe:** Communicates with the process-connected devices to execute phases.
- **Arbitrating Equipment:** Allocates resources based on recipe and operator requirements.
- **Collecting Data:** Gathers and stores production information for reporting and archiving.
- **Performing Client Communications:** Transfers data between the process-connected devices (PCDs), operator displays, Human Machine Interfaces (HMIs), databases, and various other software packages.

See the [FactoryTalk Batch Equipment Editor User Manual](#), publication [BATCH-UM004](#) and the [FactoryTalk Batch Administrator's User Manual](#), publication [BATCH-UM003](#) for more detailed information about the FactoryTalk Batch Server.

Sample demonstration setup

The installation process places `SampleDemo1` and `SampleDemo2` folders in the `FTBatch_Projects` share on the FactoryTalk® Batch Server computer. Within each of these `SampleDemo` folders are four subfolders that contain the project files, including the area model and recipes. The `FTBatch_Projects` shared is mapped to the `Public\Documents\Rockwell Automation\Batch` folder on the Batch Server computer. The installation program also adds `SampleDemo1` and `SampleDemo2` to the FactoryTalk Directory. To run the demo projects, you must configure the demo project's Batch Server properties in the directory by setting the **Computer hosting the primary FactoryTalk Batch Server**.

To set up sample demonstrations:

1. Add sample FactoryTalk Security users
2. Configure sample permissions for FactoryTalk Security users
3. Configure the sample FactoryTalk Batch Server
4. Rebuild the recipe directory

Batch Service Manager server options

These methods are available to restart the FactoryTalk® Batch Server after a service halt:

Table 18. Methods to restart FactoryTalk Batch Server

Method	Description
Cold Restart	The FactoryTalk Batch Server starts in a new instance without restoring data from its previous run. Batches are not added back to the batch list, and operator arbitration states are not recovered. For all batches that were not restored, batch completion events are recorded in the FactoryTalk Batch Event Journals. After a Cold Restart, you will not be able to resume execution of batches from the previous instance. If Security Authority is enabled, SAIs in a secured area model and any secured recipes must match the current Network FactoryTalk Directory SAI.
Warm Restart	Restarts the FactoryTalk Batch Server and attempts to restore the set of batches that were on the batch list when the server previously stopped. Batch complete events are added to the FactoryTalk Batch Event Journals for all batches that were not restored to the batch list. After a Warm Restart, any batches that are not restored cannot be recovered or resumed in the future. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
Warm All Restart	The FactoryTalk Batch server attempts to restart but will not restart if it is unable to restore all the batches to the batch list. If a Warm All Restart attempt fails, the ability to restore batches in the future is not affected. After the issues are resolved, another attempt to restore the batches to the batch list can be made using Warm Restart, Warm All Restart, or Hot Restart. This is the default setting for automatic restarts. Batches are restored in Manual execution mode with active transitions in a HELD state. No validation for Security Authority is performed.
Hot Restart	Follows all the startup rules of Warm All Restart. In addition, the FactoryTalk Batch Server attempts to restore batches to their last known state, including

Table 18. Methods to restart FactoryTalk Batch Server (continued)

Method	Description
	transition states and recipe modes, without any operator interaction.

Enable a grace period

Use the **Allow Grace Period** option on the **Batch Service Manager** dialog box to start the FactoryTalk Batch Server in the event that it cannot find a valid activation license. The grace period is seven days.

To enable a grace period:

1. Select **Start > Rockwell Software > Batch Service Manager**. The **Batch Service Manager** opens.
2. Select **Select Computer**. The **Select Computer** dialog box opens.
3. In the **Enter the object name to select** area, enter the computer name where the batch server is installed (or click the **Advanced** button to search for a computer).
4. Select **OK** to close the **Select Computer** dialog box.
5. From the **Service** list, select **FactoryTalk Batch Server**.
6. Select **Allow Grace Period** enable grace period activation.
7. Select **Start/Continue** to start the service. Wait for the status to change to **RUNNING**.
The FactoryTalk Batch Server searches for valid activations first. If the appropriate activation is not found, the server will start under a grace period activation. The FactoryTalk Batch Server checks for valid activation licenses every four hours until it either finds one or the grace period expires.
8. Select **Close**. The **Batch Service Manager** dialog box closes.

Grace periods in FactoryTalk Batch Server

When the FactoryTalk Batch Server starts, it performs a license check. If a valid activation is found, a successful license check is returned to the server. As a result of the license check, the server determines which applications have a license.

If its normal license check process fails, the server requests grace period activation from FactoryTalk Batch Activation. The manner in which the grace period activation is requested depends on the area model and why the license check process failed. The server will log the request for, and receipt of, the grace period license.

When grace period activation is requested for multiple activations by one process, the grace period is ended and the timer reset when any of the multiple activations can be successfully obtained.

Every four hours the FactoryTalk Activation software attempts to check out each activation requested as a grace period activation by the FactoryTalk Batch Server. If any one of these activations is successfully checked out, the grace period for the server ends.



If the FactoryTalk Batch Server is started in the Demo mode, an exception is made to the license and unit checks. Even if no licenses are found, the server will run for two hours and then shut down.

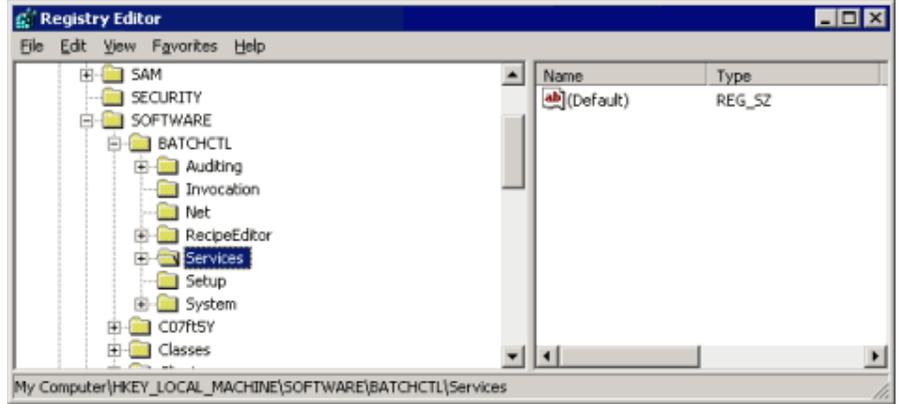
Add a custom service

Define a custom service to command the FactoryTalk Batch Server and FactoryTalk Event Archiver services using the FactoryTalk Batch Service Manager. To make a service available to the Service Manager, you must enter the file name of the executable for the service in a service registry key. This key is located at:

```
HKEY_LOCAL_MACHINE\SOFTWARE\BATCHCTL\Services
```

To add a custom service:

1. In the Registry Editor, select the **HKEY_LOCAL_MACHINE\SOFTWARE\BATCHCTL\Services** subkey.



2. From the **Edit** menu, select **New > Key**. A new key folder is added.
3. Enter the **Key Name** without the file extension.

Windows event log

The Windows Event Log service records application, system, and security information. View this information using the Event Viewer.

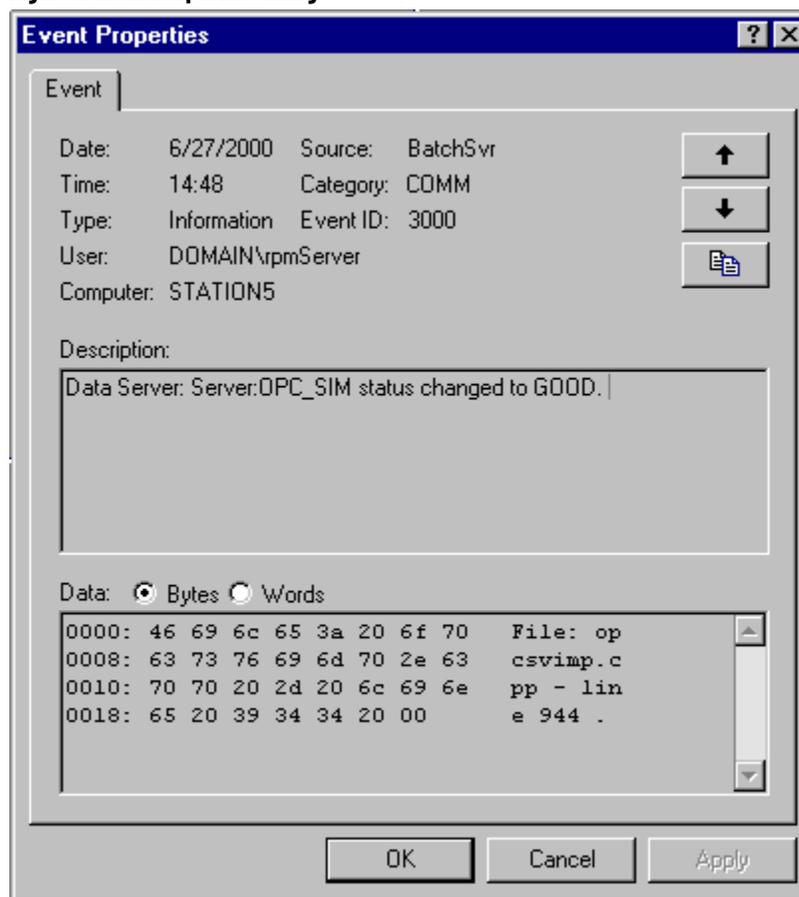


Supported Windows versions for FactoryTalk Batch are listed in the [FactoryTalk Batch Components Installation Instructions](#), publication [BATCH-IN002](#).

View event log entry properties

From the Windows Event Viewer, double-click any log entry to display its properties.

Figure 1. Event Properties dialog



There are 10 items for a Windows event log entry. Six of these are identical for all FactoryTalk Batch Server events. See a list of these items, along with a description, below. See a description of the Category, Event ID, and Description in the table below the list.

Table 19. Items for a Windows event log entry identical for all Server events

Item	Description
Date	Date that the event occurred.
Time	Time that the event occurred.

Table 19. Items for a Windows event log entry identical for all Server events (continued)

Item	Description
Type	Type of the event (that is, Information, Error, and so on).
User	Configured domain user.
Computer	Computer on which the FactoryTalk Batch Server is running.
Source	BatchSvr
Category	Category of the event.
Event ID	ID of the event.
Description	Description of the event.
Data	File and line number within the FactoryTalk Batch Server source code that generated the entry.

Table 20. Items for a Windows event log entry identical for all Server events

Category	Event ID	Description
Start	1000	Server demand started successfully in demo mode.
Start	1001	Server demand started successfully in production mode.
Start	1002	Server auto started successfully.
Start	1003	Server failed to auto start. See the Batchsvr.log file for more information.
Start	1004	Server failed to demand start. See the Batchsvr.log file for more information.

Important: Do not edit the [Batchsvr.log](#) files. The [Batchsvr.log](#) contains critical information. Technical Support must determine the cause of a FactoryTalk Batch Server failure.

Start	1005	Command line arguments are inconsistent.
Start	1006	Unexpected command line argument [Descriptive String].
Start	1007	Service handler not installed.

Table 20. Items for a Windows event log entry identical for all Server events (continued)

Category	Event ID	Description
Start	1008	Not running as a service or <i>StartServiceCtrlDispatcher</i> failed.
Start	1009	Log directory does not exist. Validate the Error logging entry that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories .

Important: Do not edit the *Batchsvr.ini* file unless specifically instructed by Technical Support.

Start	1010	Unable to start due to access permissions on log directory specified by the Error logging entry in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories .
Start	1011	<i>Batchsvr.log</i> file could not be created/opened. Validate pathname in the Error logging file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories .
Start	1012	Unable to start. Log file (<i>Batchsvr.log</i> or <i>Verify.log</i>) does not have write access permission.
Start	1013	Unable to start. Unable to access log file (<i>Batchsvr.log</i> or <i>Verify.log</i>).
Start	1014	Unable to start. <i>Verify.log</i> file does not have write access permission.
Start	1015	Unable to start due to missing <i>Batchsvr.ini</i> file.

Table 20. Items for a Windows event log entry identical for all Server events (continued)

Category	Event ID	Description
Start	1016	Unable to start due to access permissions on <code>Batchsvr.ini</code> file.
Start	1017	Unable to start due to access problem with <code>Batchsvr.ini</code> file.
Start	1018	Access error on <code>Batchsvr.ini</code> detected before logging on as user specified.
Start	1019	Access error on <code>Batchsvr.ini</code> detected while running as user specified.
Start	1020	Access error on log file detected while running as user specified.
Start	1021	Access error on event files detected while running as user specified.
Start	1022	Unable to start because primary event file directory specified by the Event Journal file path in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories is missing.
Start	1023	Unable to start because secondary event file directory specified by the Duplicate Journal file path in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories is missing.
Start	1024	Unable to start because of access permissions on primary event file directory specified by the Event Journal file path in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories .

Table 20. Items for a Windows event log entry identical for all Server events (continued)

Category	Event ID	Description
Start	1025	Unable to start because of access permissions on secondary event file directory specified by the Duplicate Journal file path in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories .
Start	1026	Unable to start because of access permissions on <code>Archque.txt</code> file in primary event file directory.
Start	1027	Unable to start because of access permissions on <code>Archque.txt</code> file in secondary event file directory.
Start	1028	Unable to start because of access permissions on <code>Eventdir.txt</code> file in primary event file directory.
Start	1029	Unable to start because of access permissions on <code>Eventdir.txt</code> file in secondary event file directory.
Start	1030	Unable to start because the Restart file path is not specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories .
Start	1031	Unable to start because the Restart file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories is missing.
Start	1032	Unable to start because of access permissions on the Restart file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project

Table 20. Items for a Windows event log entry identical for all Server events (continued)

Category	Event ID	Description
		Settings > Server directories > Project directories.
Start	1033	Unable to start because of access permissions (security) on the Restart file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories.
Start	1034	Unable to start because the Duplicate Restart file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories is missing.
Start	1035	Unable to start because of access permissions on the Duplicate Restart file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories.
Start	1036	Unable to start because of access permissions (security) on the Duplicate Restart file path that is specified in FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories > Project directories.
Start	1037	Server started by an HMI Controls client.
Start	1039	Internal Error. Call to ColnitalizeSecurity failed.
Start	1040	Internal Error. Call to RegisterClassObjects failed.

Table 20. Items for a Windows event log entry identical for all Server events (continued)

Category	Event ID	Description
Start	1041	The SQL Server database cannot be opened.
Boot	2000	Server warm booting.
Boot	2001	Server cold booting.
Boot	2002	Server started.
Boot	2003	Server warm all booting.
Boot	3000	Data Server: [Descriptive String] status changed to GOOD.
Boot	3001	Data Server: [Descriptive String] status changed to SUSPECT.
Boot	3002	Data Server: [Descriptive String] status changed to LOST.
Boot	3003	Data Server: [Descriptive String] status changed to BAD.
Boot	3004	Data Server: [Descriptive String] status changed to an unknown conversation status.
Boot	3005	Data Server: [Descriptive String].
Shutdown	4000	Server shutting down.
Shutdown	4001	Server exception occurred. See the <code>Batchsvr.log</code> file for information.
Shutdown	4002	Server automatically shutting down from demo mode.
Tag_Verification	5000	Server tag verification process Started.
Tag_Verification	5001	Server tag verification process Aborted.
Tag_Verification	5002	Server tag verification completed, [Descriptive String1] of [Descriptive String2] tags verified successfully.
Registration	6000	Server registered.
Registration	6001	Server unregistered.

Table 20. Items for a Windows event log entry identical for all Server events (continued)

Category	Event ID	Description
Registration	6002	Server registered as a service.
Control	7000	Notify SCM: The service is stopping.
Control	7001	Notify SCM: Service stopped.
Control	7002	Notify SCM: The service is starting.
Control	7003	Notify SCM: The service is running.
Control	7004	SERVICE_CONTROL_STOP received from Service Control Manager.
Control	7005	Unexpected SERVICE_CONTROL_PAUSE received from Service Control Manager.
Control	7006	Unexpected SERVICE_CONTROL_CONTINUE received from Service Control Manager.
Control	7007	SERVICE_CONTROL_INTERROGATE received from Service Control Manager.
Control	7008	SERVICE_CONTROL_SHUTDOWN received from Service Control Manager.
Control	7009	Bad Service Request.
Category_Debug	8000	Command Line: [Descriptive String].
Category_Debug	8001	Argument received from SCM or BatchSCM: [Descriptive String].
Category_Debug	8002	HRESULT = [Descriptive String].
Category_Debug	8003	Thread [Descriptive String] started.
Category_Debug	8004	Exception in object [Descriptive String1] in method [Descriptive String2].
Category_Debug	8005	Service could not be marked for deletion by the SCM.
Category_Debug	8006	Debug: [Descriptive String].

Modify event log settings

To prevent the system event logs from exceeding the maximum allowable size, configure the application and system log to overwrite events as needed.

To modify event log settings:

1. Navigate to **Control Panel > Administrative Tools > Event Viewer**.
2. Right-click **Application**, and then select **Properties**. The **Application Properties** dialog box opens.
3. In the **Log size** area, select **Overwrite events as needed**, and then select **OK**.
4. Repeat steps 2 and 3 for the **System**.
5. Exit the **Event Viewer**.

Cross invocation

Cross Invocation is the means by which the FactoryTalk Batch View HMI Controls pass data to, and activate, an automation server such as an HMI or Visual Basic program. The data passed is specific to an equipment resource selected from the FactoryTalk Batch Client applications.

FactoryTalk Batch provides a procedure-centric view of the batches running in the plant. The HMI provides an equipment-centric view of these batches. If the HMI is an automation server that supports the Cross Invocation interface, cross invocation can send equipment-specific information about a batch to your HMI. The HMI can then act based on the data received. For example, it may invoke a graphic specific to the selected equipment resource or information specific to an Equipment Module's running logic.

Cross invocation overview

Cross invocation is accomplished by way of user-defined and selectable cross invocation menu items. If configured for a selected equipment resource, the cross invocation menu items are visible and selectable by right-clicking on the running object in the FactoryTalk Batch client .

If a recipe step is not bound to an equipment resource the FactoryTalk Batch client does not display the **Cross Invocation** menu when you right-click on the step.

Within the FactoryTalk Batch client applications, there are a number of selectable procedural elements. Each of these procedural elements relates to a specific equipment resource. Each equipment resource may be configured to have cross invocation strings (defined on the **Cross Invocation** tab of any configurable equipment resource in the area model).

Procedural Element > Equipment Resource > Cross Invocation Strings

Each cross invocation string defines:

- The text for displaying the **Cross invocation** menu item.
- The data for passing to the automation server.

This table shows the various equipment resource for which a selected procedural element is linked. For cross invocation to be implemented, the cross invocation strings must be configured for the equipment resource.

Table 21. Equipment resource

Procedural elements	Corresponding equipment resource
Batch	Process Cell (Procedure)
	Unit (Unit Proc or Operation)
Batch	Process Cell (Procedure)
	Unit (Unit Proc or Operation)
Unit Procedure	Unit
Operation	Unit
Recipe Phase	Phase

Table 21. Equipment resource (continued)

Procedural elements	Corresponding equipment resource
Batch	Process Cell (Procedure)
	Unit (Unit Proc or Operation)
Unacknowledged Prompts	Phase
Process Cell	Process Cell
Unit	Unit
Phase	Phase
Recipe	Process Cell (Procedure)
	Unit (Unit Proc or Operation)
Process Cell	Process Cell
Unit	Unit
Phase	Phase
Resource	Resource
N/A	N/A
Phase	Phase

Cross invocation string configuration

Use FactoryTalk Batch Equipment Editor to define up to five cross invocation strings for each resource defined within the area model. Each time a procedural element is selected from the FactoryTalk Batch View HMI Controls, the cross invocation strings associated with the equipment resource corresponding to the selected element are retrieved from the FactoryTalk Batch Server and evaluated. The contents of these strings become the caption(s) for the cross invocation menu item(s) and optional submenu items as well as the context data that is passed to the automation server. The context data is encapsulated in escape sequences.

Cross invocation strings are defined according to the following syntax:

- A cross invocation string must be enclosed entirely in square brackets []. Anything outside of the square brackets is ignored by the Server.
- Within the square brackets, the initial text (to the first semicolon) indicates the menu item(s) caption(s).
- All text within the square brackets after the first semicolon defines the context data passed to the automation server when the menu item is selected.
- A single string can specify one cross invocation item with any number of subitems. The first comma-delimited portion of the cross invocation string identifies the menu item for the shortcut menu, and each subsequent substring identifies a subitem.

- The data passed in response to all subitems is identical. Subitems are optional.

Example:

[Menu Item, Subitem 1, Subitem 2; %P, %S, %R]

The cross invocation string portion that specifies the data to pass to the automation server when selecting a menu item is defined by escape sequences. The escape sequences are replaced by the context data they represent before the string is passed. The valid escape sequences are identified in this table along with their meaning.

Table 22. Valid escape sequences

Escape sequence	Replace by
%P	The path to the selected step. In some instances, this value can be empty. (See Context Data Responses for more information.) Examples: CreateID CreateID \t Procedure \t Unit Procedure \t Operation \t Phase
%N	Equipment resource name to which the selected control recipe corresponds.
%C	Class name from which the equipment resource corresponding to the step was created.
%T	Equipment resource type to which the selected control recipe corresponds.
%S	Computer on which the FactoryTalk Batch Server is executing.
%B	Batch ID of the selected control recipe.
%M	Menu item caption that was selected. If submenu items exist, they appear in the following order: the caption of the menu item appended with a colon, then the index number of the submenu item appended with a colon, and then the caption of the submenu item selected.
%R	Resource ID of the equipment resource to which the selected control recipe corresponds.

Cross invocation string escape sequences

The escape sequences used in the cross invocation strings correspond to the current selection the in the FactoryTalk Batch View HMI Controls. The context data passed to the automation server is relative to the current selection.

The table describes each escape sequence relative to the type of procedural element selected:

Table 23. Escape sequence descriptions

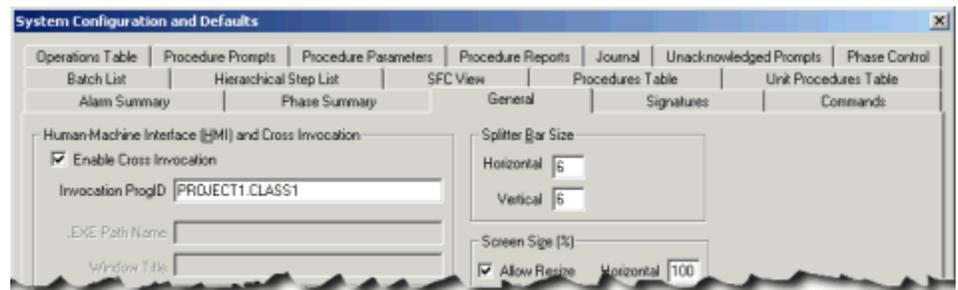
Escape Sequence	Procedure	Unit Procedure	Operation	Phase
%P	Path	Path	Path	Path
%N	Corresponding Process Cell Name	Corresponding Unit name	Corresponding Unit name	Corresponding Phase name
%C	Corresponding Process Cell class name	Corresponding Unit Class name	Corresponding Unit Class name	Corresponding Phase Class name
%T	1 (Process Cell)	2 (Unit)	2 (Unit)	3 (Phase)
%S	Node	Node	Node	Node
%B	Batch ID	Batch ID	Batch ID	Batch ID
%M	Menu caption	Menu caption	Menu caption	Menu caption
%R	Corresponding Process Cell resource ID	Corresponding Unit resource ID	Corresponding Unit resource ID	Corresponding Phase resource ID

If the control recipe runs across multiple process cells, the context data replaced by %N and %C is the first process cell in the process cells list of associated with the recipe.

FactoryTalk Batch View and ActiveX Controls configuration for cross invocation

Once the cross invocation strings are defined, FactoryTalk Batch View and ActiveX Controls must be configured to support cross invocation.

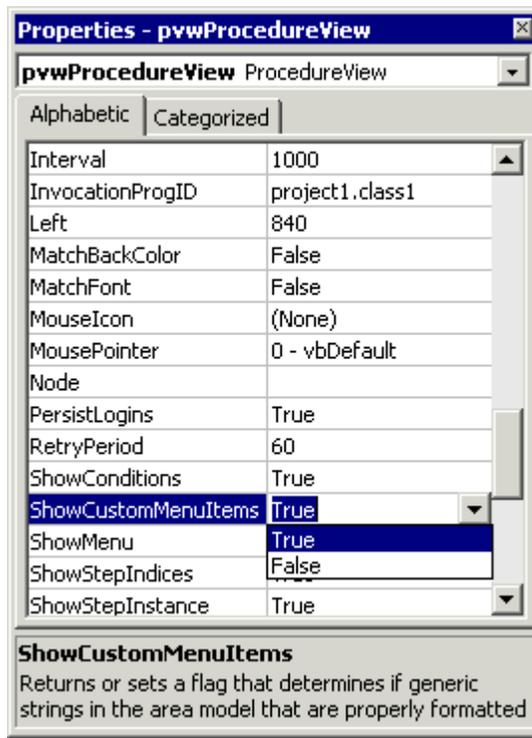
FactoryTalk Batch View is configured to support cross invocation under the **General** tab of the **System Configuration and Defaults** window. On this tab, cross invocation must be selected and the program identifier of the automation server must be specified.



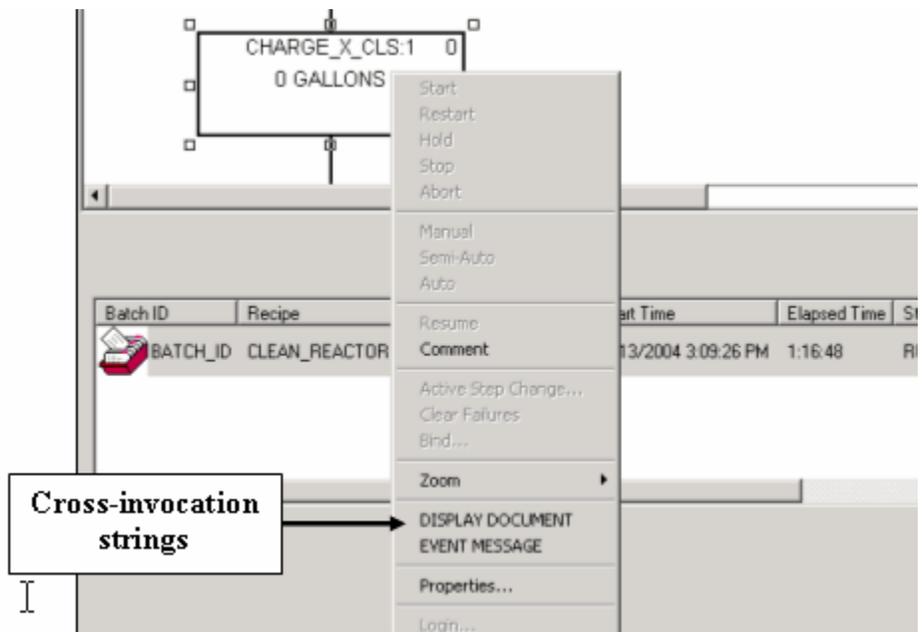
Once configured in FactoryTalk Batch View, the cross invocation menu items become visible when a procedural element is selected (that corresponds to an Equipment Resource with configured cross invocation strings) followed by selecting the **Goto HMI** button.

The ActiveX Controls are configured to support cross invocation when the following two properties are configured for the ActiveX object:

- InvocationProgID
- ShowCustomMenu



The InvocationProgID property must contain the program identifier of the automation server. The ShowCustomMenu property must be set to **True** so that the cross invocation strings are visible on the ActiveX object's shortcut menu during runtime as shown:



The FactoryTalk Batch Phase Simulator

FactoryTalk Batch comes with a phase logic simulation program that allows you to run the FactoryTalk Batch software and simulate your batch process without being connected to a PCD. The FactoryTalk Batch Phase Simulator imitates the functionality of a data server and communicates with the FactoryTalk Batch Server using the OPC communication protocol. This is a powerful tool for testing, experimentation and demonstration purposes.



The Simulator is automatically started by the FactoryTalk Batch Server if required by the area model.

The Simulator allows you to save report parameter values.



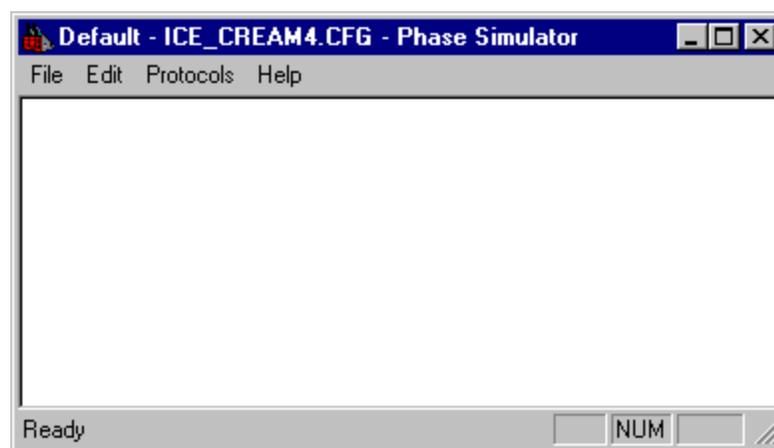
When running a material-enabled phase, RUNNING logic should not have any configured requests. You must set the FEED_COMPLETE report parameter to **1** and set a value for the ACTUAL_AMOUNT report parameter. Save the simulation file after making these changes.

Start the FactoryTalk Batch Phase Simulator

Start the FactoryTalk Batch Phase Simulator for the FactoryTalk Batch Server and FactoryTalk Batch to run in a simulated environment.

To start the FactoryTalk Batch Phase Simulator:

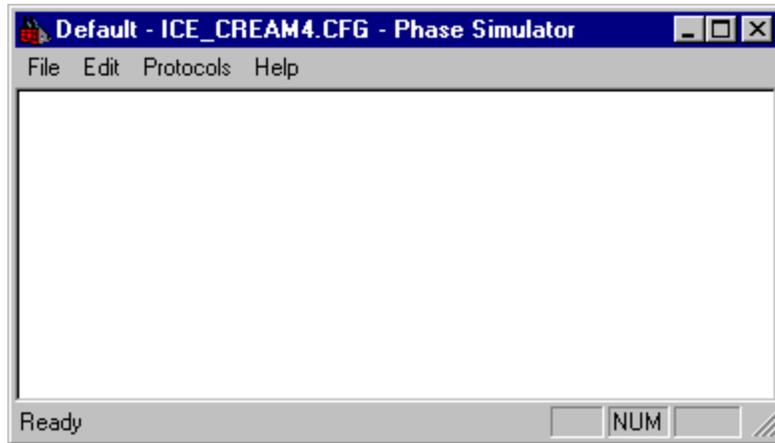
Select **Start > Rockwell Software > Simulator**. The Phase Simulator opens.



FactoryTalk Batch Phase Simulator interface

Upon startup, the FactoryTalk® Batch Phase Simulator reads the area model that is specified in the **Area Model** path that is defined in **FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Project Settings > Server directories**. The area model file name is displayed on the title bar. By default, when you first install the software it is set up to read `ice_cream1.cfg`, one of the sample area models shipped with FactoryTalk Batch. This file contains the equipment required to run the Sampledemo1 recipe. The Simulator simulates the

RUNNING, STOPPING, HOLDING, ABORTING, and RESTARTING states for all phases configured in the recipe.



The Simulator simulates only phase states for area models that have no more than 50 parameters and 50 report parameters.

The Simulator menu bar consists of these options:

Table 24. Options on the Simulator menu bar

Option	Definition
File	Open a simulator (.sim) file, save a file, or exit the Simulator.
Edit	Edit phase configuration, phase status, or unit tag status.
Protocols	Enable or disable the Watchdog and Command Handshake functions.
Help	Open the Simulator About box.

Phase Configuration dialog box

The FactoryTalk Batch Phase Simulator allows you to edit a phase’s configuration. You can set these items for each sequencing state of a phase:

- **Dwell Time**
Indicates the length of time, in seconds, that a specific state is active for the selected phase.
- **Time of Request**
Indicates the time, within the dwell period, at which a request is made.
- **Type of Request**
Indicates the type of request to make. (Refer to the [FactoryTalk Batch PCD Programming Reference Manual](#), publication [BATCH-RM004](#) for more information about requests.)
- **Request Parameters**
Each request can have up to three parameters that further describe the request.

- **Continuous Phase Indication**
A continuous phase is a phase whose phase logic does not transition to the COMPLETE state. You can simulate continuous phase logic by selecting Continuous Phase. When a transition that follows a step running continuous phase logic evaluates to TRUE, and the step is not involved in Transfer of Control, then the FactoryTalk Batch Server sends a STOP command to the phase. If the phase with continuous phase logic is involved in Transfer of Control, and the transition evaluates to TRUE, the Transfer of Control procedure is executed, transferring ownership of the phase from the step prior to the transition to the step following the transition. A NEW_PARAMETERS command is issued to the phase's phase logic when the Transfer of Control occurs, notifying the phase logic that new recipe parameter values associated with the new recipe step are available for download if the phase logic requests a download.



To use a continuous phase in an actual batch, write appropriate phase logic to define non-terminating behavior.

Refer to the NEW_PARAMETERS Command section in the [FactoryTalk Batch PCD Programming Reference Manual](#), publication [BATCH-RM004](#) for more information.

Change the dwell time

Change the length of time that a specific state is active for the selected phase.

To change the dwell time:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Configuration**. The **Phase Configuration** dialog box opens.
3. From the **Select Phase** list, select the appropriate phase.
4. From the **Select State** list, select the state to change the dwell time.
5. In **Dwell Time**, type the desired dwell time for the selected state.
6. Select **Update Phase**.

Change the sequence of requests

Change the time, type, and parameters of the request in a phase.

To change the sequence of requests:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Configuration**.
3. In the **Phase Configuration** dialog box, from the **Select Phase** list, select the appropriate phase.
4. Type an appropriate value in **@Time** (time is in seconds). This value determines when the request is processed. This value must not be greater than the **Dwell Time**.

For example, if the **Dwell Time** is 30 seconds, and the **@Time** value is 20 seconds, then this request will be processed after the selected state has been active for 20 seconds.

5. Type an appropriate request number in **_RQ**. (Refer to the [FactoryTalk Batch PCD Programming Reference Manual](#), publication [BATCH-RM004](#) for information on request numbers.)

6. Type any required request parameter data in **Q01**, **Q02**, and **Q03**. These parameters are used to further define the request.
7. Select the **Update Phase** button.
8. Select **Close**.

Indicate a continuous phase

Simulate continuous phase logic by selecting **Continuous Phase**.

To indicate a continuous phase:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Configuration**. The **Phase Configuration** dialog box opens.
3. From the **Select Phase** list, select the appropriate phase.
4. If this is a continuous phase, select **Continuous Phase**.
5. Select **Update Phase**.
6. Select **Close**.

Phase Status dialog box

The status of a phase can be changed during run time to test phase logic prior to implementation.

- View parameter tag values and associated parameter names
- View request tag values
- Set owner of phase to External
- Change the phase's state for phases under External Control
- Restore active requests for HELD/RESTARTED phases
- Change report parameter tag values
- Change value of the Failure bit
- Set phase to COMPLETE
- Acknowledge/Clear requests of phases under External control

View phase parameter tag values

The phase parameter tag values are read-only and cannot be modified in the Simulator. The FactoryTalk Batch Server writes these tags when a download request is processed.

To view phase parameter tag values:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Status**.
3. Select the appropriate phase from the **Select Phase** list.
4. In the **Arrays** list, select **Phase Parameter Tags**. Each parameter tag associated with this phase is displayed, along with its current value and type.

View and update report parameter tag values

The report parameter tag values can be modified and uploaded to the FactoryTalk Batch Server. The uploaded value(s) are reflected in the electronic batch record (.evt or .evtj files).

To view and update report parameter tag values:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Status**.
3. In the **Select Phase** list, select the appropriate phase.
4. In the **Arrays** list, select **Report Parameter Tags**. Each report parameter tag associated with this phase displays, along with its current value and type.
5. Enter a new value for the appropriate Report Parameter Tag.
6. Select **Update Report Data** to update the tag value. The report tag values are uploaded to the Batch Server when an upload request is processed.

Phase commands

The FactoryTalk Batch Phase Simulator allows you to change the state of a phase. An active phase can be commanded to COMPLETE without gaining phase ownership. All other state change commands require the phase be under external control. The **Start/Stop**, **Abort/Reset** and **Hold/Restart** buttons are modal, in that the command issued is determined based on the phase's active state at the time the button is clicked. Only legal state change commands are executed. For example, if a phase is RUNNING and the **Start/Stop** button is clicked, the STOP command is issued. START is not a legal command to a phase in the RUNNING state. [Refer to the [FactoryTalk Batch PCD Programming Reference Manual](#), publication [BATCH-RM004](#) for additional information on legal state transitions.]

This table shows the phase's transition when the state change command is received, along with the associated state value (##).

Table 25. Phase transition descriptions

COMMAND	INITIAL STATE	FINAL STATE
COMPLETE		COMPLETE (70)
START		RUNNING (50)
STOP	STOPPING (30)	STOPPED (80)
ABORT	ABORTING (10)	ABORTED (90)
RESET		IDLE (100)
HOLD	HOLDING (20)	HELD (60)
RESTART	RESTARTING (40)	RUNNING (50)

Command a phase

The FactoryTalk Batch Phase Simulator allows you to change the state of a phase.

To command a phase:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. In the **Edit** menu, select **Phase Status**.
3. In the **Select Phase** list, select the phase to command.
4. To set the phase to COMPLETE, select **Set Complete**.
5. For all other state change commands, set the **Owner** of the phase to External.
6. Select the appropriate state change command (**Start/Stop**, **Abort/Reset**, or **Hold/Restart**).

If the requested state change is legal, the server sends the command and the phase transitions to the appropriate state. The new state value is displayed in the **Status** register in the **Phase Status** dialog box.

- If the phase is running and **Abort/Reset** is selected, the phase goes to ABORTING. To transition the phase to the ABORTED state, select **Set Complete**.
- If a phase is running and **Hold/Restart** is selected, the phase goes to HOLDING. To transition the phase to the HELD state, select **Set Complete**.

Change ownership of a phase

The **Owner** button acts as a toggle, switching the value in the **Owner** register between zero and one. A zero represents Batch as the owner and a one represents an external owner.

To change ownership of a phase:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Status**.
3. From the **Select Phase** list, select the appropriate phase.
4. To set ownership to **External**, select **Owner** when the value in the **Owner** register is **0**.
To set ownership to **Batch**, select **Owner** when the value in the **Owner** register is **1**.

Acknowledge and clear a request

Requests must be acknowledged and then cleared to allow a phase to continue processing when running under External control. The **Ack/Clear Request** button must be clicked twice, first to acknowledge the request, then to clear the request.

To acknowledge and clear a request:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Status**.
3. In the **Select Phase** list, select the phase to command.
4. If the **Request** register contains a request, select **Ack/Clear Request** to acknowledge the request. The value in the **Request** register changes to **10**, indicating that the request confirmation was received from the Batch Server.
5. Select **Ack/Clear Request** to clear the request. Upon clearing the request, the value in the **Request** register changes to **0**, indicating that the request was cleared. The phase continues to process.

Restore and clear requests

Requests generated by a phase can be stored in the request buffer registers should the phase receive a Hold command. The requests can then be copied back to the request registers when the phase receives a Restart command. The **Restore Req** and **Clear Req** registers must both contain a **1** (one) to allow for the saving and restoring of requests for a HELD/RESTARTED phase.

To restore and clear requests:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Phase Status**.
3. In the **Select Phase** list, select the phase to command.
4. In the **Restore Req** register, type a **1**.
5. In the **Clear Req** register, type a **1**.

View request data tag values

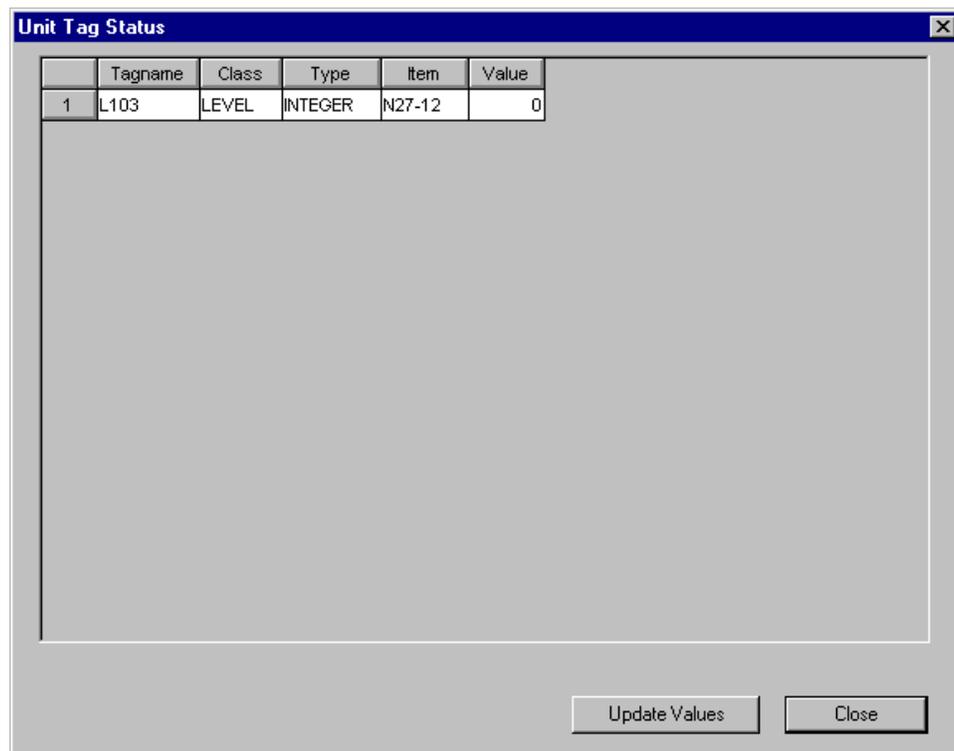
The request data tag values are read-only. These may be set by the FactoryTalk Batch Phase Simulator when making a configured request or may be written to the FactoryTalk Batch Server when processing a phase logic Receive Message request.

To view request data tag values:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit >Phase Status**.
3. Select the appropriate phase from the **Select Phase** list.
4. From the **Arrays** list, select **Request Data Tags**. Each request data tag associated with this phase is listed, along with its current value and type.

Unit Tag Status dialog box

Values of unit tags configured in the area model can be changed during run time in the **Unit Tag Status** dialog box.



The **Unit Tag Status** dialog box shows:

Table 26. Items in the Unit Tag Status dialog box

Item	Definition
Tagname	A list of all configured unit tags for the active area model.
Class	The class associated with the unit tag.
Type	The type value associated with the unit tag.
Item	The item (addressable location) associated with the unit tag.
Value	The current value for the unit tag. This value can be modified and sent to the FactoryTalk Batch Server.
Update Values	Updates the tag values in the Simulator.

Change the value of a unit tag

Change the value of a unit tag using FactoryTalk Batch Phase Simulator.

To change the value of a unit tag:

1. Start the **FactoryTalk Batch Phase Simulator**.
2. Select **Edit > Unit Tag Status**.
3. Make any required modifications to the Unit Tag Values, and select **Update Values**. The new values are written into the FactoryTalk Batch Phase Simulator unit tags.
4. Select **OK** to return to the FactoryTalk Batch Phase Simulator window.

Troubleshooting

This section contains information on possible troubleshooting solutions for FactoryTalk eProcedure and the FactoryTalk Batch Server.

Troubleshooting eProcedure

This section contains information on eProcedure problems and possible work-arounds.

Objects embedded in HTML code do not display

By design, the eProcedure service does not look for embedded objects in the manual instruction files (HTML template). The service simply passes that HTML code through to the Client and allows the browser to interpret it. All embedded objects must be available from a secure (HTTPS) web server. The FactoryTalk Batch View Server can host the content in Batch View Server \customercontent folder. By default the location of this folder is:

C:\Program Files (x86)\Rockwell Software\Batch View Server\customercontent



Make sure the object's HTML code occurs within the <form> tags in the instruction file.

Control step reactivation error messages

These messages may appear when attempting to reactivate a control step:

Cannot reactivate step

Only past control steps that have not been reactivated, are in phases that are currently in the RUNNING state, and do not have any pending reactivated steps are eligible to be reactivated.

Cannot remove batch

If there are any incomplete Signature Requests pending for the batch, it cannot be removed from the batch list. Complete all Signature Requests and try again.

Permission Denied

If you do not have security permission to reactivate steps, you will see the "Permission denied to reactivate step" message. Another user with valid permission will have to reactivate the step.

Troubleshooting FactoryTalk Batch

This section contains information on error log and tag verification log generation, and how these logs are used to troubleshoot system problems. This section also contains a list of specific error messages that may be encountered after installing and/or running FactoryTalk Batch, and possible troubleshooting solutions.

Handle abnormal FactoryTalk Batch termination

In the event of a FactoryTalk Batch Server failure, FactoryTalk Batch allows you to restart your batches where they were before the failure. However, the ability to restart your batches may not be enough. If the reason for the Server failure is not something obvious, like a power failure, you will probably want to know the cause. If you need Rockwell's Application Support group to assist

you with the determination, they need information regarding the Server's status just prior to the failure.

The FactoryTalk Batch Server is designed to write this critical information to a log file. This file contains the information the Application Support group needs when determining the cause of a Server failure. However, the log file is a circular file, and eventually overwrites itself. To eliminate the possibility of losing this critical information, the Server copies the log file upon startup if it determines that the Server terminated abnormally.

Determine abnormal termination

Upon startup, the FactoryTalk Batch Server reads the value of the `AbnormalTermination` field within the `Batchsvr.ini` file. If the field value is **NO**, or the field is not present, then no action is taken. If the field value is **YES**, then the current `Batchsvr.log` file is copied to the path specified by the **Error logging** entry in **FactoryTalk Administration Console > FactoryTalk Batch Properties > Project Settings > Project directories**. The name of the copied log file is determined based on the **CopyFileID** field.

After determining whether or not to make a copy of the current log file, the FactoryTalk Batch Server writes a value of **YES** into the field. At completion of a normal shutdown, the Server writes a value of **NO** into the field.

Name the log file copy

The value of the `CopyFileID` field is an integer from which a file name in this format is generated:

<nnn>.LOG

where <nnn> is the value of the `CopyFileID` field obtained from the `Batchsvr.ini` file, with leading zeros. The leading zeroes help sort the files when viewed from Windows Explorer or a similar program. Every time the FactoryTalk Batch Server uses this value to generate a name for a copied log file, it increments the integer value stored in the field. An attempt to increment the integer beyond a value of 999 results in a wrapping of the value back to one.

If this value is not present or is invalid, then a current value of one (1) is assumed. This results in the creation of a log file copy with the name `001.log` and the updating of the field to a value of two (2).

If the FactoryTalk Batch Server generates a name for a copied log file, and the file name already exists in the directory where the copy is to be stored, the Server attempts to create a new name for the copied log file. The Server generates new log file names by incrementing the `CopyFileID` value until an unused file name is found. The integer used to generate this file name is incremented one last time and this value stored into the `CopyFileID` field in the `Batchsvr.ini` file. If no unused file names are found, then the Server is forced to overwrite the file name generated with the `CopyFileID` field's original value.

End of batch entries

The electronic batch record (`.evt` or `.evtj` file) contains entries if the batch is terminated by a FactoryTalk Batch Server cold boot, or if the batch is terminated due to an error when attempting to restore the batch from a Server warm restart.

The electronic batch record contains three entries if one of the above-mentioned methods for batch termination occurs. The first entry is a repeat of the Event File Name event field. The

second is a System Message event field indicating the reason the batch was terminated. The last is a System Message event field indicating the end of the batch.

Example

Description	Event	PValue
	Event File Name	\\MachineName\Program Files (x86)\Rockwell Software\Batch\YourProject\JOURNALS\4123.evtj
YourBatchDescription	System Message	Batch terminated by COLD boot of FactoryTalk Batch Server
YourBatchDescription	System Message	End Of BATCH

Description	Event	PValue
	Event File Name	\\MachineName\Program Files (x86)\Rockwell Software\Batch\YourProject\JOURNALS\4125.evtj
YourBatchDescription	System Message	Batch terminated due to error attempting to restore batch during WARM restart
YourBatchDescription	System Message	End Of BATCH

Log tag verification

Tag verification is an operator-initiated process that causes the FactoryTalk® Batch Server to attempt to read the current value of most tags defined in the area model. By default, the FactoryTalk Batch Server verifies tags one at a time.

Tag verification start, completion, and abort records are recorded in the standard FactoryTalk Batch Server log file, `Batchsvr.log`. A dedicated log file, `Verify.log`, records the most recent tag verification results. This file is replaced with a new copy each time a tag verification is begun. The `Verify.log` file is written to the same directory as the `Batchsvr.log` file.

To accelerate the verification process, you can configure the maximum number of tags permitted to be verified in parallel using the **FactoryTalk Administration Console > FactoryTalk Batch Services Properties > Advanced** tab.

1. Open FactoryTalk Administration Console and sign into the FactoryTalk Network Directory.
2. In FactoryTalk Administration Console **Explorer**, expand applications or areas until the FactoryTalk Batch Server is visible.
3. Right-click the FactoryTalk Batch Server, and select **Properties**.
4. In **FactoryTalk Batch Services Properties**, select the **Advanced** tab.
5. In **Extended properties**, select **Add**.

6. In **Add Extended Property**, enter the property name and value.
 - a. Enter **Name**. For a primary FactoryTalk Batch Server, enter `PrimaryMaxParallelVerify`. For a secondary FactoryTalk Batch Server, enter `SecondaryMaxParallelVerify`.
 - b. Enter a **Value** between 1 and 30.
 - c. Select **OK**.
7. Select **Apply** to save the data in **Advanced** tab.

Tag verification log file

The record structure in the tag verification log file (`Verify.log`) is identical to the record structure used in the `Batchsvr.log` file. The tag verification log file structure reserves the first record for field labels. The installation program installs a default file into the directory specified by the **Error logging** entry in **FactoryTalk Administration Console > FactoryTalk Batch Properties > Project Settings > Project directories**.

The default file contains the following records:

- The first record is the standard header record that labels the fields.
- The second record indicates whether the verify function was performed.

The format of this record is depicted below:

Table 27. Record format

Field #	Name	Value
1	Time	This field is left blank.
2	Severity	INFO
3	File	This field is left blank.
4	Line	This field is left blank.
5	RC_ID	This field is left blank.
6	Batch ID	This field is left blank.
7	Path	This field is left blank.
8	Element ID	This field is left blank.
9	Element Name	This field is left blank.
10	Message	Tag Verify Has Not Been Run.

The `Verify.log` file is limited to 9,000,000 bytes and wraps if that limit is exceeded. This provides enough space to verify roughly 50,000 tags before the output wraps.

The FactoryTalk Batch Server only keeps the verification log file open during the verification process. When a program has a file open, the file cannot be deleted or renamed. The server overwrites any existing verification log file each time a verification begins. If the server encounters a verification log file that is read only, the server changes the protection on the file to allow it to be overwritten.



Tag verification events are recorded in the FactoryTalk Diagnostic log.

The FactoryTalk Batch Server only keeps the verification log file open during the verification process. When a program has a file open, the file cannot be deleted or renamed. The server overwrites any existing verification log file each time a verification begins. If the server encounters a verification log file that is read only, the server changes the protection on the file to allow it to be overwritten.

Windows event log

The tag verification events are recorded in the Windows Event Log.

Event	Generated Windows Event Log
Start	"Batch Server Tag Verification Process Started"
Abort	"Batch Server Tag Verification Process Aborted"
Completion	"Batch Server Tag Verification Completed, <xxx> of <yyy> tags verified successfully" where <xxx> is the number of tags that were successfully verified, and <yyy> is the total number of tags on which verification was attempted.

Performance chart

The performance chart included with FactoryTalk Batch is a pre-defined set of charts for use with the Windows System Monitor.

Tip:	The predefined performance monitor charts are in English only. Non-English customers must configure the charts manually. (Refer to your Windows documentation for more information on performance charts.)
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The System Monitor can examine the use of computer resources by FactoryTalk Batch components, as well as other processes and applications, and it can help determine if a process or application is using too much CPU time or memory. The pre-defined Performance Chart, supplied with FactoryTalk Batch, charts specific processes that can affect the performance of FactoryTalk Batch, and can be an important tool in identifying and troubleshooting system problems.

Tip:	The performance chart is intended to be used primarily as a debugging and diagnostic tool by FactoryTalk Batch product support personnel.
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The Windows System Monitor is used to view chart data, alerts, logs and reports. Additionally, charts can be saved for future review. To view the FactoryTalk Batch performance chart, make sure that the System Monitor is set to chart view mode. (Refer to your Windows documentation for more information on using the System Monitor.)

Open the FactoryTalk Batch performance chart

The performance chart automatically opens the Windows System Monitor with the pre-defined charts loaded.

To open the FactoryTalk Batch performance chart:

1. Select **Start > Rockwell Software > FactoryTalk Batch Suite > FactoryTalk Batch**.
2. Select **Performance Chart**. The **Performance** dialog box opens with the pre-defined charts listed.

FactoryTalk Batch performance chart

The FactoryTalk Batch performance chart is a predefined set of charts for use with the Windows System Monitor.



The predefined performance monitor charts are in English only. Non-English customers must configure the charts manually. (Refer to your Windows documentation for more information on performance charts.)

The Windows System Monitor can examine the use of computer resources by FactoryTalk Batch components, as well as other processes and applications, and help determine if a process or application is using too much CPU time or memory. The performance chart charts specific processes that can affect the performance of FactoryTalk Batch, and is an important tool in identifying and troubleshooting system problems.



The performance chart is intended to be used primarily as a debugging and diagnostic tool by FactoryTalk Batch product support personnel.

The Windows System Monitor is used to view chart data, alerts, logs and reports. Additionally, charts can be saved for future review. To view the FactoryTalk Batch performance chart, make sure that the System Monitor is set to chart view mode.

Troubleshoot errors

This section outlines errors that sometimes occur while running FactoryTalk® Batch and possible solutions to these errors.

Automatic repair of FactoryTalk Batch component installation fails

This can happen if one or more necessary folders were unintentionally moved (in Windows® Windows). For example, if the Schema folder gets moved away from its original install path, the install package starts up automatically and tries to 'repair' the problem. This 'repair' can clear out the Model and Server keys in the registry, which can make the FactoryTalk Batch client editors generate warning dialogs because they are not able to find the Network Model.

If this happens, completely uninstall the application and then reinstall.

FactoryTalk Batch Server does not start

Error Message: *(none)*

- Journal path is not defined in **Project Settings**.
In the **FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties** dialog > **Project Settings** tab, change the **Project Settings** to include a valid **Event Journal** path. If defined, verify that the **Duplicate Journal** path is valid.
- Restart path is not defined in **Project Settings**.
In the **FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties** dialog > **Project Settings** tab, change the **Project Settings** to include a valid **Restart** path. If defined, verify that the **Duplicate Restart** path is valid.

FactoryTalk Batch Server runs for a specific period of time and then stops, and consistently stops at the same time interval.

Error Message: *(none)*

- Without a license, the FactoryTalk Batch Server shuts down after two hours when started with **Allow Demo Mode**.

FactoryTalk Batch Service Manager does not display the FactoryTalk Batch Server or Event Archiver.

Error Message: *(none)*

- The computer where the services are located is not selected.
Use the **Select Computer** button to select the appropriate computer.
- The FactoryTalk Batch Server or Archiver services are not registered with the Windows Registry.
To register a service, select the **Start** button, point to **All Programs**, and then select **Command Prompt**. Navigate to the `Program Files\Rockwell Software\Batch\bin` directory. To register the FactoryTalk Batch Server, type `batchsrv/service` at the command prompt, and then press Enter. To register the FactoryTalk Event Archiver, type `batch/service` at the command prompt, and then press **Enter**.

FactoryTalk Batch Service Manager displays "Batch.Server Class" instead of "Batch Server".

Error Message: *(none)*

- The service displays the class name instead of the display name.
This is caused by DCOMCNFG configuring the FactoryTalk Batch Server service to display the class name of the service instead of the display name. When this occurs, the FactoryTalk Batch Server no longer supports its COM interface and must be reinstalled.

The FactoryTalk Batch View or Client is properly configured, but can't view the Event Journals.

Error Message: *(none)*

- There is possibly a version conflict in one or more of the required files.

The text in FactoryTalk Batch dialog does not display properly.

Error Message: *(none)*

- FactoryTalk Batch does not support the use of large system fonts.
Use the **Display Properties** dialog to change the default system font size to **Small Fonts**.

Unable to locate files.

Error Message: "The Recipe directory file could not be found."

- Define the **Recipe Directory** path in the **FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties** dialog > **Project Settings** tab > **Recipe Storage** area.

An Application Log error generates.

Error Message: "The Application log file is full."

- The Application log is not set for wrapping.

Use the **Event Viewer** to change the **Application Event Log Wrapping** setting to **Overwrite Events as Needed**:

1. Select **Start**, point to **All Programs > Administrative Tools**, and then select **Event Viewer**. The **Event Viewer** opens.
2. Right-click **Application Log**, and select **Properties**. The **Application Log Properties** dialog opens.
3. In the Log size section, select **Overwrite Events as Needed**.
4. Select **OK**.
5. Exit the **Event Viewer**.

List of available SQL Server databases not displayed in the Project Settings.

Error Message: *(none)*

The SQL Server databases referenced are defined in the **FactoryTalk Administration Console Explorer > FactoryTalk Batch Services Properties** dialog > **Project Settings** tab, **Recipe Storage** area. When **Recipe format** is set to **Microsoft SQL Server Database**, this error is saying that the list of databases is not shown when selecting the browse button next to **Recipe Directory**.

Install SQL Server's ClientTools Connectivity option. Do a custom installation of SQL Server to install the Client Tools Connectivity option.

Event Journal files are not being created.

Error Message: *(none)*

- The primary journal directory must be located on the FactoryTalk Batch Server computer in an accessible share. The default is under the **FTBATCH_PROJECTS** share. If the primary journal is located on a computer other than the FactoryTalk Batch Server computer or in a share that the FactoryTalk Batch Server user does not have access to, the server will not be able to create the event journal files. You will find an error message in the FactoryTalk® Diagnostics journal on the FactoryTalk Batch Server computer.

Batch identification

For purposes of batch identification, you can create custom default batch IDs, and allow or prevent editing of batch IDs. You can also automatically generate custom batch IDs. To implement this option, you must edit some C# code and compile it into a new DLL.

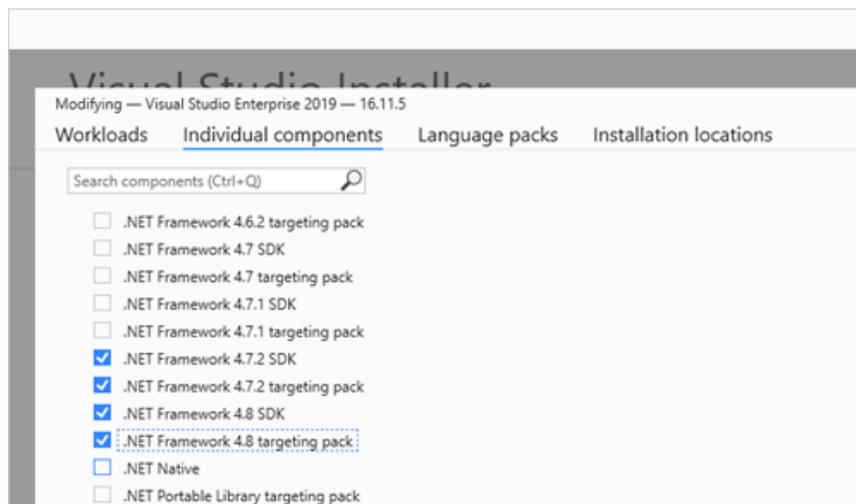
Create a custom BatchIDCreate.dll

You can use the BatchIDCreate solution to automatically generate custom batch IDs in any values or increments. If this option is chosen, you must modify some C# code in an example project, compile it into a new Dynamic Link Library (DLL) file, and then replace the existing DLL in the `BATCH\Bin` folder.

It is recommended that you make a backup copy of the original BatchIDCreate.dll before making any changes. The example solution project provides a starting point that you can modify as needed. You can build this solution using Microsoft® Visual Studio® 2019 (version 16.11.9 or later).



Before attempting to build the project confirm that the .NET Framework 4.8 targeting pack is installed:



To customize BatchIDCreate.dll:

1. Copy the `C:\Program Files x86\Rockwell Software\Batch\Custom\BatchIDCreate\bin\Release` folder, including all subdirectories, to the local hard drive, leaving the structure intact.
2. Double-click `BatchIDCreate.sln` to open the Visual Studio solution.
3. Edit the `BatchIDCreateClass` to include your C# code that modifies the Custom ID generation algorithm then save the solution.



The batch ID can contain a maximum of 255 characters with no spaces or invalid characters. The batch ID can be comprised of any characters except the following: The defined list separator, single or double quotes, brackets, parentheses, the percent sign (%), the tab character (\t), the carriage return character (\r), or the new line character (\n).

4. In the Visual Studio toolbar, set the build type to **Release**.
5. In the Solution Explorer, right-click **BatchIDCreate**, and then select **Build**.

6. Copy the new `BatchIDCreate.dll` from `Custom\BatchIDCreate\bin\Release`.
7. Paste the new `BatchIDCreate.dll` into the `C:\Program Files (x86)\Rockwell Software\Batch\Bin` folder to replace the default `BatchIDCreate.dll`.
8. Restart your computer.

Change the BatchIDCreate.dll registration

After creating a custom BatchID, you might need to unregister the `BatchIDCreate.dll` and register it again for it to be updated on the Batch Server. You can use the provided `.bat` files to perform this task.

1. Open the Windows command prompt as an administrator.
2. Navigate to the `C:\Program Files x86\Rockwell Software\Batch\Custom\BatchIDCreate\bin\Release` folder.
3. At the prompt type **UnregisterBatchIDcreate.bat**.
4. After it completes, at the prompt type **RegisterBatchIDcreate.bat**

Archive manual instruction control step HTML

The archived HTML represents the manual instruction control step as the operator saw it when it completed, and includes any data entered by the operator.

When a FactoryTalk Batch View user completes a control step, FactoryTalk Batch View captures the control step's HTML, removes any script blocks and objects the control step may contain, and disables all dynamic elements in the control step. FactoryTalk Batch View then sends the control step HTML to the eProcedure Server, which sends the control step HTML to the FactoryTalk Batch Server. The FactoryTalk Batch Server then writes the control step HTML to the event journal as part of an Instruction Complete event.

Script Blocks

Before sending the manual instruction control step HTML to the eProcedureServer, FactoryTalk Batch View removes all script blocks, and disables all buttons, text boxes, and other dynamic HTML elements the step contains. For example, before being sanitized, the HTML for a control step may look like this:

```
<form>
  <input type="button" value="Click This Button"
  onclick="ButtonClick">
  <input type="text" value="Enter text here">
  
  <script language="javascript" type="text/javascript">
    function ButtonClick()
      window.alert "Hi There"
  </script>
</form>
```

After sanitization, the HTML for the control step looks like this:

```
<form>
  <input type="button" value="Click This Button"
  onclick="ButtonClick" disabled="true">
  <input type="text" value="Enter text here" disabled="true">
  
  <i hidden="">Note: Script Removed for Archiving<br></i>
</form>
```

OBJECT Elements

In control step HTML stored in the event journal, <OBJECT> elements are removed and are replaced with a message. Before sending control step HTML to the eProcedure Server, FactoryTalk Batch View removes all <OBJECT> elements and their child elements the control step contains and replaces them with the message "Note: Object Removed For Archiving" and the class ID of the removed object. For example, the HTML for a control step may look like this:

```
<FORM>
  Add a CIP Batch to the Batch List. Click "OK" when done.<BR>
  <OBJECT classid=clsid:29DAC4FF-034F-11D3-91DE-0800366B4903
  codeBase=./components/batchv01.cab height=100%
```

```
id=crl name=crl style="POSITION: relative" width=100%>
<PARAM NAME="Node" VALUE="DEV_CLCASE02">
</OBJECT>
</FORM>
```

After sanitization, removing the object element and its child element, and inserting the message, the HTML looks like this:

```
<form>
  Add a CIP Batch to the Batch List. Click "OK" when
  done."&nbsp; "
  <i hidden="">Note: Object 29DAC4FF-034F-11D3-91DE-0800366B4903
  Removed for Archiving<br></i>
</form>
```

TAB Characters and CRLFs

Before sending the control step HTML to the eProcedure Server, the FactoryTalk Batch View removes all TAB characters and CRLFs and replaces them with spaces. As the event journal is a TAB-delimited document, and individual records are separated by CRLFs, this prevents corruption of the data stored in the file. This does not change the way the control step HTML is rendered.

List Separator Characters, Parentheses, and Forward Slashes

List separator characters, parentheses, and forward slashes (/) is not removed from archived instructions.

HTML elements

This list defines HTML elements that can be contained in a manual instruction control step that can be dynamic and therefore must be disabled before archiving. (Source: MSDN Library. See the MSDN library for documentation for the types of events you can define for each element.)

Name	Description
a	Designates the start or destination of a hypertext link.
acronym	Indicates an acronym abbreviation.
address	Specifies information, such as address, signature, and authorship, of the current document.
applet	Places executable content on the page.
area	Defines the shape, coordinates, and associated URL of one hyperlink region within a client-side image map.
b	Specifies that the text should be rendered in bold.
Base	Specifies an explicit URL used to resolve links and references to external sources such as images and style sheets.

Name	Description
baseFont	Sets a base font value to be used as the default font when rendering text.
bdo	Allows authors to disable the bidirectional algorithm for selected fragments of text.
bgSound	Enables an author to create pages with background sounds or sound tracks.
big	Specifies that the enclosed text should be displayed in a larger font than the current font.
blockquote	Sets apart a quotation in text.
Body	Specifies the beginning and end of the document body.
br	Inserts a line break.
button	Specifies a container for rich HTML that is rendered as a button.
caption	Specifies a brief description for a table.
center	Centers subsequent text and images.
cite	Indicates a citation by rendering text in italic.
Code	Specifies a code sample.
col	Specifies column-based defaults for the table properties.
colGroup	Specifies property defaults for a column or group of columns in a table.
comment	Indicates a comment that is not displayed.
custom	Represents a user-defined element.
dd	Indicates the definition in a definition list. The definition is usually indented in the definition list.
del	Indicates text that has been deleted from the document.
dfn	Indicates the defining instance of a term.
dir	Denotes a directory list.
div	Specifies a container that renders HTML.
Dl	Denotes a definition list.
Dt	Indicates a definition term within a definition list.

Name	Description
em	Emphasizes text, usually by rendering it in italic.
embed	Allows documents of any type to be embedded.
fieldSet	Draws a box around the text and other elements that the field set contains.
font	Specifies a new font, size, and color to be used for rendering the enclosed text.
frame	Specifies an individual frame within a FRAMESET element.
frameSet	Specifies a frameset, which is used to organize multiple frames and nested framesets.
Head	Provides an unordered collection of information about the document.
hn	Renders text in heading style.
hr	Draws a horizontal rule.
html	Identifies the document as containing HTML elements.
i	Specifies that the text should be rendered in italic, where available.
iframe	Creates inline floating frames.
img	Embeds an image or a video clip in the document.
Input	Creates a variety of form input controls.
Input type=button	Creates a button control.
Input type=check box	Creates a check box control.
Input type=file	Creates a file upload object with a text box and Browse button.
input type=image	Creates an image control that, when clicked, causes the form to be immediately submitted.
input type=password	Creates a single-line text entry control similar to the INPUT type=text control, except that text is not displayed as the user enters it.
input type=radio	Creates a radio button control.
input type=reset	Creates a button that, when clicked, resets the form's controls to their initial values.

Name	Description
input type=submit	Creates a button that, when clicked, submits the form.
input type=text	Creates a single-line text entry control.
ins	Specifies text that has been inserted into the document.
isIndex	Causes the browser to display a dialog window that prompts the user for a single line of input.
kbd	Renders text in a fixed-width font.
label	Specifies a label for another element on the page.
legend	Inserts a caption into the box drawn by the fieldSet object.
li	Denotes one item in a list.
link	Enables the current document to establish links to external documents.
listing	Renders text in a fixed-width font.
map	Contains coordinate data for client-side image maps.
marquee	Creates a scrolling text marquee.
menu	Creates an unordered list of items.
meta	Conveys hidden information about the document to the server and the client.
noBR	Renders text without line breaks.
noFrames	Contains HTML for browsers that do not support FRAMESET elements.
noScript	Specifies HTML to be displayed in browsers that do not support scripting.
object	Inserts an object into the HTML page.
ol	Draws lines of text as a numbered list.
optgroup	Allows authors to group choices logically in a select element.
option	Denotes one choice in a SELECT element.
p	Denotes a paragraph.
plainText	Renders text in a fixed-width font without processing tags.

Name	Description
pre	Renders text in a fixed-width font.
q	Sets apart a quotation in text.
rt	Designates the ruby text for the RUBY element.
ruby	Designates an annotation or pronunciation guide to be placed above or inline with a string of text.
s	Renders text in strike-through type.
samp	Specifies a code sample.
script	Specifies a script for the page that is interpreted by a script engine.
select	Denotes a list box or drop-down list.
small	Specifies that the enclosed text should be displayed in a smaller font.
span	Specifies an inline text container.
strike	Renders text in strike-through type.
strong	Renders text in bold.
style	Specifies a style sheet for the page.
sub	Specifies that the enclosed text should be displayed in subscript, using a smaller font than the current font.
sup	Specifies that the enclosed text should be displayed in superscript, using a smaller font than the current font.
table	Specifies that the contained content is organized into a table with rows and columns.
tbody	Designates rows as the body of the table.
td	Specifies a cell in a table.
textArea	Specifies a multiline text input control.
tfoot	Designates rows as the table's footer.
th	Specifies a header column. Header columns are centered within the cell and are bold.
thead	Designates rows as the table's header.
title	Contains the title of the document.

Name	Description
tr	Specifies a row in a table.
tt	Renders text in a fixed-width font.
u	Renders text that is underlined.
ul	Draws lines of text as a bulleted list.
var	Defines a programming variable. Typically renders in an italic font style.
xmp	Renders text used for examples in a fixed-width font.

Change the FactoryTalk Batch Server user account

Depending on your facility's security requirements you may need to change the user name and password periodically for the user accounts that the FactoryTalk® Batch and FactoryTalk Batch Material Manager Server run under. If you change the server's user account after installing the FactoryTalk Batch components, you must configure your FactoryTalk Batch system to use the new server user account.



The user account for the FactoryTalk Batch Server, FactoryTalk Event Archiver, eProcedure Server services, and the Batch COM+ Application must be the same. FactoryTalk Batch Material Manager Server can use a different server user account if necessary.

New server user account requirements

When creating a new user account for the FactoryTalk Batch or Material Manager Server, these requirements must be met.

- The password must be configured never to expire--if the password ever expires, the service eventually fails to log on.
- The user account must never be disabled or deleted--if this account is ever disabled/ deleted, the service eventually fails to log on.
- If using a domain, the domain user account must have a unique name--if the user account is a domain account, remove any local user accounts with the same name.



The Material Manager Server and FactoryTalk Batch Server can use the same server user account. If they use separate accounts, the Material Manager Server account is only used on the material server computer.

Configure your FactoryTalk Batch system with the new server user account

After you create a new server user account, configure your FactoryTalk® Batch system.

To configure your FactoryTalk Batch system with the new server user account:

1. Add the new server user account to the **FTBatchServiceAccounts**.
By adding the new account to the **FTBatchServiceAccounts**, it inherits all the required user rights and access permissions.
2. If FactoryTalk Batch Material Manager is part of your system, add the new Material Server user account to the **MTUsers** group on the Material Server computer.
3. Add the new server user account to the **FactoryTalk Batch Server** service.
4. If you are running FactoryTalk Event Archiver in incremental mode, add the new server user account in the **Batch Archiver** service.
5. If FactoryTalk eProcedure is part of your system, add the new server user account to the **eProcedure Server** service.
6. Add the new server user account to the **Batch COM** object in **Component Services > My Computer > COM+ Applications**.

Change the server account password

If you change the password for the existing server user account, change the password in these locations:

- Change the password for the server user account in the FactoryTalk Batch server service.
 - If you are running FactoryTalk Event Archiver in incremental mode, change the password for the server user account to the **Batch Archiver** service.
 - If eProcedure is part of your system, change the password for the server user account in the **eProcedure Server** service.
- Change the password for the FactoryTalk Batch Server user account in the **Batch COM** object in **Component Services > My Computer > COM+ Applications**.
- If FactoryTalk Batch Material Manager is part of your system, change the password for the Material Server user account in the **MaterialTrack COM** object in **Component Services > My Computer > COM+ Applications**.



Make sure the server user account is a member of the MTUsers group on the Material Server computer.

Change the server user account for the FactoryTalk Batch Server service

To change the user account for the FactoryTalk Batch Server service, complete these steps on the server computer.

To change the server user account for the FactoryTalk Batch Server service:

1. Select **Start > Windows Administrative Tools > Services**. The **Services** dialog box opens.
2. Right-click **FactoryTalk Batch Server**, and then click **Properties**. The **FactoryTalk Batch Server Properties** dialog box opens.
3. On the **Log On** tab, select **This Account** and type the new user and/or password.
4. Select **OK**.
 - If you are using FactoryTalk Event Archiver in incremental mode, change the user account name and/or password for the **Batch Archiver** service.
 - If eProcedure is part of your system, change the user account name and/or password for the **eProcedure Server** service.
5. Close **Services**.

Change the server user account in FactoryTalk Batch COM+ applications

To change the FactoryTalk Batch Server or Material Manager Server user account in Batch COM+ applications, complete these steps on the FactoryTalk Batch Server computer.

To change the server user account in FactoryTalk Batch COM+ applications:

1. Select **Start > Windows Administrative Tools > Component Services**.
2. Expand **Component Services, Computers, My Computer** and **COM+ Applications**.
3. For FactoryTalk Batch, right-click **Batch**, and then select **Properties**. The **Batch Properties** dialog box opens.
 - On the **Identity** tab, select **This user** and type the new FactoryTalk Batch Server user name and/or password.
 - Select **OK**.
4. For FactoryTalk Batch Material Manager, right-click **MaterialTrack**, and then select **Properties**. The **MaterialTrack Properties** dialog box opens.
 - On the **Identity** tab, select **This user** and type the new Material Manager Server user name and/or password.
 - Select **OK**.



The new permissions are applied the next time the FactoryTalk Batch Server and the Material Manager Server are started. The same server user account can be used for both servers.

Change the server user account in My Computer properties

To change the server user account in **My Computer** properties, complete these steps on the FactoryTalk Batch client computers.

To change the server user account in My Computer properties

1. Select **Start > Windows Administrative Tools > Component Services**.
2. Expand **Component Services** and **Computers**.
3. Right-click **My Computer**, and then select **Properties**. The **My Computer Properties** dialog box opens.
4. On the **COM Security** tab, select **Edit Default** in the **Access Permissions** area. The **Access Permission** dialog box opens.
5. Select **Add** to open the **Select Users, Computers, or Groups** dialog box.
6. Type the new server user account name and then select **OK**.
7. In the **Access Permission** dialog box, select the new server user account. In the **Permissions** list, select **Allow** for Local Access and Remote Access.
8. Select **OK** twice.



If you are using separate user accounts for FactoryTalk Batch Server and Material Manager Server, repeat steps 5 - 8 to add the additional server user account.

9. Close **Component Services**.
10. Restart the computer.

Server account password change locations

If you change the password for the existing server user account, change the password in these locations:

- Change the password for the server user account in the FactoryTalk Batch server service.
 - If you are running FactoryTalk Event Archiver in incremental mode, change the password for the server user account to the **Batch Archiver** service.
 - If eProcedure is part of your system, change the password for the server user account in the **eProcedure Server** service.
- Change the password for the FactoryTalk Batch Server user account in the **Batch** COM object in **Component Services > My Computer > COM+ Applications**.
- If FactoryTalk Batch Material Manager is part of your system, change the password for the Material Server user account in the **MaterialTrack** COM object in **Component Services > My Computer > COM+ Applications**.



Make sure the server user account is a member of the MTUsers group on the Material Server computer.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	rok.auto/pcdc

Documentation Feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at rok.auto/pec.

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