



# SequenceManager Controls Reference Manual

1756 ControlLogix, 1756 GuardLogix, 1769 CompactLogix, 1769  
Compact GuardLogix, 1789 SoftLogix, Studio 5000 Logix Emulate



# 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.

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**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.

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

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

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**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.

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**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.

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

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

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

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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.

# 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

This table identifies changes that apply to all information about a subject in the manual and the reason for the change. For example, the addition of new supported hardware, a software design change, or additional reference material would result in changes to all of the topics that deal with that subject.

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.

**Table 1. New or enhanced features**

Topic Name	Reason
<a href="#">Configure the Sequence Summary Control on page 13</a> : To configure the Sequence Summary Control to communicate with a controller	Step 3 now correctly references the <b>Properties</b> tab instead of the <b>Connections</b> tab.
<a href="#">Configure the Sequence Detail Control on page 23</a> : To configure the Sequence Detail Control to communicate with a controller	Step 3 now correctly references the <b>Properties</b> tab instead of the <b>Connections</b> tab.



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# Preface

## Studio 5000 Environment

The Rockwell Software Studio 5000 Automation Engineering & Design Environment™ combines engineering and design elements into a common environment. The first element is the Studio 5000 Logix Designer® application. The Logix Designer application is the rebranding of RSLogix 5000® software and will continue to be the product to program Logix 5000™ controllers for discrete, process, batch, motion, safety, and drive-based solutions.



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.

The Studio 5000® environment is the foundation for the future of Rockwell Automation® engineering design tools and capabilities. The Studio 5000 environment is the one place for design engineers to develop all elements of their control system.

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Please include "Open Source" as part of the request text.

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## Additional resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
<a href="#">SequenceManager Quick Start Guide</a> , publication 1756-QS109	Provides installation information and usage instructions for SequenceManager Event Components.
<a href="#">Industrial Automation Wiring and Grounding Guidelines</a> , publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications webpage, available at <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a>	Provides declarations of conformity, certificates, and other certification details.

View or download publications at <http://www.rockwellautomation.com/literature>. To order paper copies of technical documentation, contact the local Rockwell Automation distributor or sales representative.

## Introduction

The SequenceManager Visualization Components includes the FactoryTalk® View Site Edition (SE) ActiveX Controls and the SequenceManager Server Service.

The SequenceManager ActiveX Controls sequences a series of Equipment Phases to the Control Logix platform. The operator views and interacts with the Equipment Sequences downloaded to a Logix controller through three types of controls:

- Sequence Detail Control
- Sequence Summary Control
- Sequence Parameters Control

The SequenceManager Server Service application is a SequenceManager component for operator visualization and interaction. The SequenceManager Server Service application makes controller data available to the ActiveX Controls and allows the operator to command sequences. If the SequenceManager Server Service application is not running, SequenceManager ActiveX Controls will not display data.

SequenceManager controls can only be embedded with FactoryTalk View SE displays.



## About the SequenceManager Controls

The SequenceManager Controls are divided into functional areas:

- **Sequence Detail Control**  
The **Sequence Detail Control** provides the operator with a detailed view of an Equipment Sequence, including its chart structure, steps, and transitions. The runtime status of the sequence program and its sequence elements are also shown. The operator can command the Equipment Sequence from this control.
- **Sequence Summary Control**  
The **Sequence Summary Control** displays the sequence program status for each of the Equipment Sequences downloaded to the controller. The **Sequence Summary Control** also allows the operator to view and command a selected Equipment Sequence.
- **Sequence Parameters Control**  
The **Sequence Parameters Control** displays a table of all sequencing parameters and step tags of a specified Equipment Sequence, and allows the operator to command a selected sequencing parameter or step tag. To refine the display, configure the table to filter the displayed information. Sequence Parameters Control validates the value so it is within the configured Min and Max range.

## SequenceManager Server Service

The SequenceManager Server Service application is a SequenceManager component for operator visualization and interaction. The SequenceManager Server Service application makes controller data available to the ActiveX Controls and allows the operator to command sequences. If the SequenceManager Server Service application is not running, SequenceManager ActiveX Control will not display data. To avoid interruptions of operations, set up redundant SequenceManager Server Services.

### Setting up redundant SequenceManager Server Services

The SequenceManager Server Service must be installed on a machine that has a FactoryTalk View Site Edition (SE) HMI Server installed. Install the SequenceManager Server Service application on machines that are hosting a redundant pair of FactoryTalk View SE Servers. The SequenceManager ActiveX Controls know the location of the SequenceManager Server Service application that it needs because the display in the ActiveX Control is part of a display that belongs to a particular FactoryTalk View SE HMI Server.

At runtime, the SequenceManager ActiveX Controls connect to the SequenceManager Server Service application to obtain data from the controller. If links are broken in these two places, the connection can fail:

- Between the ActiveX Control and the SequenceManager Server Service application.
- Between the SequenceManager Server Service application and the controller.

Status properties in the ActiveX Controls display the status of both links to help diagnose communication problems.

If communication is lost (on either link between the ActiveX Control and the controller), a timer is started. Should communications not be restored within approximately 4 minutes, the ActiveX Control attempts to connect to the

secondary SequenceManager Server Service application. If the connection is successful, communications continues through the secondary service.

- Refer to FactoryTalk View SE HMI Server documentation for information on running redundantly and for details that describe architectural and configuration recommendations.
- The primary and secondary SequenceManager Servers that are on the same computers as the primary and secondary HMI Servers are configured in FactoryTalk View SE. However, the switchover option **Continue using the secondary server even when the primary server becomes available again** in FactoryTalk View SE does not apply to SequenceManager Server. The SequenceManager Server Service application always switches to the primary server when it becomes available.
- Use the read-only properties in the ActiveX Controls to make redundancy data available for VBA within the control:
  - **IsSeqMgr Server Connected:** Read-only property that shows whether the primary SequenceManager server is connected to the ActiveX control (default: 0 or False)
  - **IsSeqMgrServerConnectedBackup:** Read-only property that shows whether the backup SequenceManagerSequenceManager server is connected to the ActiveX control (default: 0 or False)
  - **IsSeqMgrServerToControllerConnected:** Read-only property that shows whether the primary SequenceManager server is connected to the controller (default: 0 or False)
  - **IsSeqMgrServerToControllerConnectedBackup:** Read-only property that shows whether the backup SequenceManager server is connected to the controller (default: 0 or False)
  - **SeqMgrServerAddress:** Read-only property that shows the IP Address of the machine hosting the primary SequenceManager Server Service. (default: 99.99.99.99)
  - **SeqMgrServerAddressBackup:** Read-only property that shows the IP Address of the machine hosting the backup SequenceManager Server Service. (default: 99.99.99.99)
  - **SeqMgrServerPortNumber:** Port number of the hosting primary and backup SequenceManager server. (default: 7452)

## Sequence Summary Control

Use the Sequence Summary Control to see status information for the Equipment Sequences downloaded to a controller. You can select a sequence in the list and command it.

### Configure the Sequence Summary Control

To configure the **Sequence Summary Control** to communicate with a controller or to use VBA, you must customize several settings in the **Property Panel** for the control. You can also customize display options.

#### Prerequisites

- Open the FactoryTalk View Site Edition (SE) application.
- Open a display that contains the **Sequence Summary Control**.

#### To configure the Sequence Summary Control to communicate with a controller

1. In the display window, right-click the **Sequence Summary Control**.
2. Select **Property Panel**.
3. Select the **Properties** tab.
4. In the **ControllerPath** property text box, enter the FactoryTalk Linx Harmony path for the controller.  
For example: `AB_ETH-1\99.99.99.99\Backplane\0`
5. In the **ControllerShortcut** property text box, enter the FactoryTalk Linx device shortcut name to the controller.
6. In the **DataServerPath** property text box, enter the FactoryTalk path to the FactoryTalk Linx data server. This can be a relative path or an RNA path  
For example: `MyProject/MyArea/ - Or - RNA://$Local/MyProject`
7. In the **SeqMgrServerPortNumber** property text box, enter the port number that was defined during the installation of the SequenceManager Server service and the ActiveX controls. The default value is 7452.
8. Close the **Property Panel** window.
9. Select **Save**.

#### To configure the Sequence Summary Control to use VBA

1. Right-click the **Sequence Summary Control** in the display window.
2. Select **Property Panel**.
3. In the **ExposeToVBA** property text box, select **VBA Control** to allow the Sequence Detail Control to use VBA for scripting.
4. Close the **Property Panel** window.
5. Select **Save**.

#### To configure the Sequence Summary Control display options

1. Right-click the **Sequence Summary Control** in the display window.
2. Select **Property Panel**.

3. Select optional display options.
  - (optional) In the **Column1Content** property text box, select a content option for the column.
  - (optional) In the **Column2Content** property text box, select a content option for the column.
  - (optional) In the **Column3Content** property text box, select a content option for the column.
  - (optional) In the **Column4Content** property text box, select a content option for the column.
  - (optional) In the **Column5Content** property text box, select a content option for the column.
  - (optional) In the **Column6Content** property text box, select a content option for the column.
  - (optional) In the **Column7Content** property text box, select a content option for the column.
  - (optional) In the **CommandButtonLocation** property text box, choose the location.
  - (optional) In the **ShowCommandButtons** property text box, select **True** to display the command buttons.
  - (optional) In the **ShowStatusBar** property text box, select **True** to display the status bar.
  - (optional) In the **TouchPointerSize** property text box, select an option to auto-size, decrease, or increase the size of buttons.
4. Close the **Property Panel** window.
5. Select **Save**.

## Sequence Summary Control table columns

These columns are displayed in the Equipment Sequence list in the table area of the Sequence Summary Control. The list can be sorted in alphabetical order for any column to group Equipment Sequences based on status.

Status column	Description
Sequence Name	The Equipment Sequence name.
ID	The identifier assigned to the Equipment Sequence before it runs. This field is editable when the sequence is inactive, or in the IDLE state. When the sequence is active, the ID field is locked.
State	The current execution state of the Equipment Sequence. Possible states include NOT CONNECTED, IDLE, RESTARTING, RUNNING, RESETTING, HOLDING, STOPPING, ABORTING, HELD, STOPPED, ABORTED, and COMPLETE.
Mode	The operational mode for the Equipment Sequence, either <b>Automatic</b> , in which sequence steps advance automatically, or <b>Manual</b> , in which the operator advances sequence steps manually.
Phase Failure	Indicates a failure in an Equipment Phase associated with the sequence.
Sequence Failure	Indicates a failure in the Equipment Phase.
Owners	The current owner of the Equipment Phase.
Unit ID	A numerical representation of the piece of equipment that the Equipment Sequence is controlling.

## Sequence Summary Control property settings

The **Sequence Detail Control** has the following properties that are configurable in the **Property Panel** of the control in the FactoryTalk View SE application.

Property name	Description	Read only	Value type
AutoLoad	Determines if the sequence chart is loaded automatically after the FactoryTalk View SE runtime starts.	No	Boolean
Column1Content	Determines what content is displayed in Column 1.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed
Column2Content	Determines what content is displayed in Column 2.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed
Column3Content	Determines what content is displayed in Column 3.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed
Column4Content	Determines what content is displayed in Column 4.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed
Column5Content	Determines what content is displayed in Column 5.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed

Property name	Description	Read only	Value type
Column6Content	Determines what content is displayed in Column 6.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed
Column7Content	Determines what content is displayed in Column 7.	No	1 - ID 2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID 8 - NotUsed
CommandButtonLocation	Determines the location of the command buttons displayed. Default value: 0 - Bottom	No	0 - Bottom 1 - Right 2 - Top 3 - Left
ConfirmedCommands	Specifies a command group that requires confirmation when any of the command buttons in that group is pressed. Default value: 0 - None	No	0 - None 1 - StopAndAbort 2 - All
ControllerPath	Controller path of the Equipment Sequence. This path is specific to the workstation on which the SequenceManager Server is communicating with is located. Path example: AB_ETH-1\99.99.99.99\Backplane\0	No	String
ControllerShortcut	FactoryTalk Linx device shortcut to the controller. Default value: MY_CONTROLLER	No	String
DataServerPath	The FactoryTalk View SE path to the FactoryTalk Linx Data Server. Path Example: MyProject/MyArea -OR- RNA: // \$Local/MyProject/	No	String
IsEveryTagConnected	Displays whether every tag is connected to the ActiveX Control. Default value: True	Yes	Boolean

Property name	Description	Read only	Value type
IsLiveDataConnected	Displays whether the live data server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerConnected	Displays whether the primary SequenceManager server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerConnectedBackup	Displays whether the backup SequenceManager server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerToControllerConnected	Displays whether the primary SequenceManager server is connected to the controller. Default value: False	Yes	Boolean
IsSeqMgrServerToControllerConnectedBackup	Displays whether the backup SequenceManager server is connected to the controller. Default value: False	Yes	Boolean
LoadTable	Determines if the table is loaded to the window. Default value: False	No	Boolean
SelectedSequenceName	String containing the name of the currently selected Equipment Sequence.	No	String
SelectedSequenceState	Displays the state of the selected Equipment Sequence.	Yes	String
SeqMgrServerAddress	Displays the IP address of the computer hosting the primary SequenceManager server.	Yes	String
SeqMgrServerAddressBackup	Displays the IP address of the computer hosting the backup SequenceManager server.	Yes	String
SeqMgrServerPortNumber	Port number of the hosting SequenceManager server. Default value: 7452	No	String
ShowCommandButtons	Determines if the command buttons are shown. Default value: True	No	Boolean
ShowStatusBar	Determines if the status icons are shown. Default value: True	No	Boolean
SortField	An enumerated value that determines which column the table is sorted upon.	No	0 - Name 1 - ID

Property name	Description	Read only	Value type
	Default value: 0 - Name		2 - State 3 - Mode 4 - Phase Failure 5 - Sequence Failure 6 - Owners 7 - Unit ID
TouchPointerSize	Determines the size of the command buttons and the height of the fields in the header and footer areas.	No	0 - AutoSelect 1 - Large 2 - Small

## Sequence Summary Control events













The **Sequence Summary Control** has the following events that can be used by a client in runtime.



Name	Description
doubleClicked	The doubleClicked event can be used to directly display the double-clicked Equipment Sequence in the Sequence Detail Control using VBA script.  Example VBA Script:  <pre>Private Sub SeqMgrSummaryControl2_sequenceRequested(ByVal p_SequenceName As String) SeqMgrDetailControl1.SequenceName = p_SequenceName SeqMgrDetailControl1.LoadChart = True End Sub</pre>
sequenceSelected	The sequenceSelected event can be used to directly display the selected Equipment Sequence in the Sequence Detail Control using VBA script.
everyTagConnectedChanged	Occurs whenever the value of the IsEveryTagConnected property changes. The event has a single Boolean parameter that is the current IsEveryTagConnected property value.
liveDataConnectedChanged	Occurs whenever the value of the IsLiveDataConnected property changes. The event has a single Boolean parameter that is the current IsLiveDataConnected property value.
seqMgrServerConnectedChanged	Occurs whenever the value of the IsSeqMgrServerConnected property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerConnected property value.
seqMgrServerConnectedBackupChanged	Occurs whenever the value of the IsSeqMgrServerConnectedBackup property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerConnectedBackup property value.
seqMgrServerToControllerConnectedChanged	Occurs whenever the value of the IsSeqMgrServerToControllerConnected property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerToControllerConnected property value.
seqMgrServerToControllerConnectedBackupChanged	Occurs whenever the value of the IsSeqMgrServerToControllerConnectedBackup property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerToControllerConnectedBackup property value.

Name	Description
selectedSequenceStateChanged	Occurs whenever the value of the SelectedSequenceState property changes. The event has a single integer parameter that is the current SelectedSequenceState property value.

## Sequence Summary command controls

Use the following commands to control an Equipment Sequence using the Sequence Summary Control. The availability of some commands depends on the selected Equipment Sequence owner, state, mode, and failure status. Select **More** to display all the commands on the toolbar.



Icon	Command	Description
	Take Ownership	Take ownership of the Equipment Sequence. Taking ownership means that this application now has the right to command this Equipment Sequence; other internal sequencers, external sequencers, and operators are not allowed to command this sequence. The Logix Designer application can override ownership.
	Release Ownership	Release ownership of the Equipment Sequence. Releasing ownership makes the sequence available to internal sequencers, external sequencers, and operators for attachment.
	Set ID	Opens the <b>Set Sequence ID</b> dialog box where you can assign an identifier to the Equipment Sequence. This command is enabled only when an Equipment Sequence is idle.
	Start	Start execution of the Equipment Sequence.
	Hold	Halt all attached phases for the Equipment Sequence and stop evaluating transitions until the Equipment Phase runs its HOLDING routine.
	Restart	Resume execution of the Equipment Sequence from the HELD state.
	Stop	Stop all attached phases and active transitions for the Equipment Sequence. Any attached Equipment Phases run their STOPPING routines.
	Abort	Abort all attached phases and active transitions for the Equipment Sequence. Any attached Equipment Phases run their ABORTING routines.
	Reset	Reset any remaining active phases for the Equipment Sequence.
	Clear Failures	Clear the failure flags on the Equipment Sequence.
	Pause	Pause execution of the Equipment Sequence. When the active transition evaluates TRUE, it does not transition to the FIRING state until you select <b>Resume</b> . The <b>Resume</b> command resets the <b>Pause</b> flag so the sequence continues execution uninterrupted.
	Auto-Pause	Automatically pause the Equipment Sequence as transitions evaluate TRUE. The <b>Resume</b> command resets the <b>Pause</b> flag. The <b>Auto-Pause</b> flag immediately causes the <b>Pause</b> flag to be turned on again, so the sequence pauses when the next transition expression evaluates TRUE.
	Resume	Continue execution of the Equipment Sequence.

Icon	Command	Description
	Automatic	Put the Equipment Sequence in <b>Automatic</b> mode, which allows the sequencing engine to automatically fire transitions and execute the Equipment Sequence.
	Manual	Put the Equipment Sequence in <b>Manual</b> mode, in which the sequencing engine does not automatically fire transitions, and an operator commands the Equipment Sequence step by step. On the toolbar, only the <b>Release Ownership, Pause, Auto-Pause, and Automatic</b> commands are enabled.

## Command an Equipment Sequence using the Sequence Summary Control

Use the commands on the Sequence Summary Control to send commands to an Equipment Sequence.

### To command an Equipment Sequence using the Sequence Summary controls:

1. Select an Equipment Sequence in the list.
2. Select **Take Ownership** .
3. Select the command buttons to command the Equipment Sequence.
4. When finished, select **Release Ownership** .

## Sequence Summary Control runtime data

Use Sequence Summary Control to make data available for VBA programmers at runtime. The following is a list of properties that are read-only assigned data.









Property Name	Description	Read Only	Value Type
IsEveryTagConnected	Displays whether every tag is connected to the ActiveX control. True = -1 and False = 0.  Default value: -1	Yes	Integer
IsLiveDataConnected	Displays whether the live data server is connected to the ActiveX control. True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerConnected	Displays whether the SequenceManager Server Service application is connected to the ActiveX control. True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerConnectedBackup	Displays whether the backup SequenceManager Server Service application is connected to the ActiveX control. True = -1 and False = 0.  Default value: 0	Yes	Integer

Property Name	Description	Read Only	Value Type
IsSeqMgrServerToControllerConnected	Displays whether the SequenceManager Server Service application is connected to the controller. True = -1 and False = 0. Default value: 0	Yes	Integer
IsSeqMgrServerToControllerConnectedBackup	Displays whether the backup SequenceManager Server Service application is connected to the controller. True = -1 and False = 0. Default value: 0	Yes	Integer
SelectedSequenceName	Displays the name of the selected Equipment Sequence.	Yes	String
SelectedSequenceState	Displays the state value of the selected Equipment Sequence	Yes	String

## Settings and status in the Control footer

The footer section on the Sequence Control contains the following settings and status indicators.

The communication, failure, and unscheduled/inhibited icons are also displayed in the upper left corner of the diagram window, in the status bar, and on any step or tag the status is detected.

Setting or status	Description
Zoom control	Adjusts the zoom on the control window.
Auto-Scroll	Turn Auto-Scroll on or off.
Sequence name	The name of the Equipment Sequence.
Status bar	<p>Displays the following status icons:</p> <ul style="list-style-type: none"> <li> - There is a communication problem with the controller, the SequenceManager server, the live data server, or the tags.</li> <li> - No known communication problem.</li> <li> - There is a failure in the Equipment Sequence.</li> <li> - No known failure in the Equipment Sequence.</li> <li> - The controller is in Program, Remote Program, or an unknown mode.</li> <li> - The controller is in Run, Remote Run, or an unknown mode.</li> <li> - The Equipment Sequence or task is inhibited, or the Equipment Sequence is unscheduled.</li> <li> - The Equipment Sequence is scanning, or the status is unknown.</li> </ul>



## Sequence Detail Control

Use the Sequence Detail Control to see a detailed view of an Equipment Sequence, including its chart structure, steps, and transitions. You can also view the runtime status of the Equipment Sequence and the sequence elements.

### Configure the Sequence Detail Control

To configure the **Sequence Detail Control** to communicate with a controller, you must customize several settings in the **Property Panel** for the control.

#### Prerequisites

- Open the FactoryTalk View SE application.
- Open a display that contains the **Sequence Detail Control**.

#### To configure the Sequence Detail Control to communicate with a controller

1. In the display window, right-click the **Sequence Detail Control**.
2. Select **Property Panel**.
3. Select the **Properties** tab.
4. In the **ControllerPath** property text box, enter the FactoryTalk Linx Harmony path for the controller.  
For example: `AB_ETH-1\99.99.99.99\Backplane\0`
5. In the **ControllerShortcut** property text box, enter the FactoryTalk Linx device shortcut name to the controller.
6. In the **DataServerPath** property text box, enter the FactoryTalk path to the FactoryTalk Linx data server. This can be a relative path or an RNA path.  
For example: `MyProject/MyArea - 0f - RNA://$Local/MyProject`
7. In the **SequenceName** property text box, enter the name of the Equipment Sequence.
8. In the **SeqMgrServerPortNumber** property text box, enter the port number that was defined during installation of the SequenceManager Server service and the ActiveX controls. The default value is 7452.
9. Close the **Property Panel** window.
10. Click **Save**.

#### To configure the Sequence Detail Control display options

1. Right-click the **Sequence Detail Control** in the display window.
2. Select **Property Panel**.
3. (optional) In the **AutoScroll** property text box, select **True**.
4. (optional) In the **CommandButtonLocation** property text box, choose the location for the Equipment Sequence command buttons.
5. (optional) In the **ShowCommandButtons** property text box, select **True** to display the command buttons.
6. (optional) In the **ShowStatusBar** property text box, select **True** to display the status bar.
7. (optional) In the **TouchPointerSize** property text box, select an option to auto-size, decrease, or increase the size of buttons.
8. Close the **Property Panel** window.
9. Select **Save**.

### To configure the Sequence Detail Control to use VBA

1. Right-click the **Sequence Detail Control** in the display window.
2. Select **Property Panel**.
3. In the **ExposeToVBA** property text box, select **VBA Control** to allow the **Sequence Detail Control** to use VBA for scripting.
4. Close the **Property Panel** window.
5. Select **Save**.

### Sequence Detail Control command controls




Use these commands to control an Equipment Sequence using the Sequence Detail Control. The availability of some commands depends on the selected Equipment Sequence owner, state, mode, and failure status. Select **More** to display all the commands on the toolbar.












These commands are always displayed:

- Take/Release ownership
- Set ID
- Start
- Hold
- Restart
- Stop
- Abort
- Reset
- More/Less

These commands are available after selecting the **More** button and can be hidden by selecting the **Less** button:

- Initialize parameters
- Clear Failures
- Pause/Cancel Pause
- Auto Pause/Cancel Auto Pause
- Resume
- Enter/Exit Manual
- Step change
- Force transition

Icon	Command	Description
	Take Ownership	Take ownership of the Equipment Sequence. Taking ownership means that this application now has the right to command this Equipment Sequence; other internal sequencers, external sequencers, and operators are not allowed to command this sequence.
	Release Ownership	Release ownership of the Equipment Sequence. Releasing ownership means that internal sequencers, external sequencers, and operators with attachments are allowed to command this sequence.
	Set ID	Opens the <b>Set Sequence ID</b> dialog box where you can assign an identifier of up to 82 characters to the Equipment Sequence. This command is enabled only when an Equipment Sequence is idle.

Icon	Command	Description
	Initialize Parameters	Reinitialize all sequencing parameter and step tag value fields with their configured Initial Value.
	Step Change	Make the next step of the Equipment Sequence active and able to be commanded.
	Start	Start execution of the Equipment Sequence.
	Hold	Halt all connected phases for the Equipment Sequence and stop evaluating transitions until the Equipment Sequence runs its Hold routine.
	Restart	Resume execution of the Equipment Sequence from the HELD state.
	Stop	Stop all connected phases and active transitions for the Equipment Sequence.
	Abort	Abort all connected phases and active transitions for the Equipment Sequence.
	Reset	Reset any remaining active phases for the Equipment Sequence.
	Clear Failures	Clear the failure flags on the Equipment Sequence.
	Pause	Pause execution of the Equipment Sequence. When the active transition evaluates TRUE, it does not transition to the FIRING state until you select <b>Resume</b> . When paused, select to cancel pause.
	Auto-Pause	Automatically pause the Equipment Sequence as transitions evaluate TRUE. When you select <b>Resume</b> , the next transitions fires, but the Equipment Sequence pauses again after each transition evaluates TRUE. When auto-pause is enabled, select to cancel auto-pause.
	Resume	Continue execution of the Equipment Sequence when the substate is Paused.
	Enter Manual	Put the Equipment Sequence in <b>Manual</b> mode, in which the sequencing engine does not automatically fire transitions, and an operator commands the Equipment Sequence step by step. On the toolbar, only the <b>Release Ownership</b> , <b>Pause</b> , <b>Auto-Pause</b> , and <b>Automatic</b> commands are enabled.
	Exit Manual	Put the Equipment Sequence in <b>Automatic</b> mode, which allows the sequencing engine to automatically fire transitions and execute the Equipment Sequence.

## Sequence Detail Control property settings

The Sequence Detail Control has these properties that are configurable in the **Property Panel** of the control in the FactoryTalk View SE application.

Property name	Description	Read only	Value type
ActiveStepsCount	Contains the number of active steps in the currently loaded Equipment Sequence.	Yes	Integer
AutoLoad	Determines if the sequence chart is loaded automatically after the FactoryTalk View SE application	No	Boolean
AutoScroll	Specifies whether automatic scrolling to active steps is enabled or disabled.	No	Boolean
CommandButtonLocation	Determines the location of the command buttons.	No	0 – Bottom 1 – Right 2 – Top

Property name	Description	Read only	Value type
			3 - Left
ConfirmedCommands	Specifies a command group that requires confirmation when any one of the command buttons in that group is selected.	No	0 - All 1 - StopAndAbort 2 - None
ControllerPath	The controller path. Example Path: AB_ETH-1\99.99.99\Backplane\0	No	String
ControllerShortcut	FactoryTalk Linx device shortcut to the controller. Example Shortcut: MY_CONTROLLER	No	String
DataServerPath	The FactoryTalk View SE path to the FactoryTalk Linx Data Server. Example Path: <code>MyProject/MyArea</code> -or- <code>RNA: // \$Local/MyProject/</code>	No	String
FailedStepCount	Contains the number of steps with failures in the currently loaded Equipment Sequence. If no Equipment Sequence is loaded, the value is zero.	Yes	Integer
IsEveryTagConnected	Displays whether every tag is connected to the ActiveX Control. Default value: True	Yes	Boolean
IsLiveDataConnected	Displays whether the live data server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerConnected	Displays whether the primary SequenceManager Server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerConnectedBackup	Displays whether the backup SequenceManager Server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrToControllerConnected	Displays whether the primary SequenceManager Server is connected to the controller. Default value: False	Yes	Boolean
IsSeqMgrToControllerConnectedBackup	Displays whether the backup SequenceManager Server is connected to the controller. Default value: False	Yes	Boolean
LoadChart	Initiates the loading of the Equipment Sequence chart using the current property values.	No	Boolean
SelectedStepName	String containing the name of the currently selected step in the Equipment Sequence. The Sequence Detail Control stores the names of the currently selected steps here to be used as data by VBA scripts.	No	String

Property name	Description	Read only	Value type
SeqMgrServerAddress	The IP address of the workstation hosting the primary SequenceManager Server.	No	String
SeqMgrServerAddressBackup	The IP address of the workstation hosting the backup SequenceManager Server. Default value: 2147483648 unknown state	No	String
SeqMgrServerPortNumber	The port number of the workstation hosting the SequenceManager Server. Default value: 7452	No	String
SequenceName	Name of the Equipment Sequence that the chart loads if a load is initiated using the AutoLoad or LoadChart properties.	No	String
SequenceState	Shows the state value of the displayed sequence.	Yes	Integer
ShowCommandButtons	Determines if the command buttons are shown.	No	Boolean
ShowStatusBar	Determines if the status icons are shown.	No	Boolean
TouchPointerSize	Determines the size of the command buttons and the height of the fields in the header and footer areas.	No	0 - AutoSelect 1 - Large 2 - Small

## Sequence Detail Control methods

The **Sequence Detail Control** has these methods that can be used by a client in runtime.

Method	Description
navNextStep	This method causes the control to select the 'Next' sequence step in the loaded sequence and scroll to make the step visible. If no step is selected in the chart when this method is invoked, then the 'next' step is the first step of the sequence.
navPriorStep	This method causes the control to select the 'Prior' sequence step in the loaded sequence and scroll to make the step visible. If no step is selected in the chart when this method is invoked, then the 'prior' step is the final step of the sequence.
navNextActiveStep	This method causes the control to select the 'Next' active sequence step in the loaded sequence and scroll to make the step visible. If no steps are active, then any selected chart element is deselected, and no other effect occurs. If no step is selected in the chart, then the 'next' step is the first active step in the chart.
navPriorActiveStep	This method causes the control to select the 'Prior' active sequence step in the loaded sequence and scroll to make the step visible. If no steps are active, then any selected chart element is deselected, and no other effect occurs. If no step is selected in the chart, then the 'prior' step is the last active step in the chart.
navNextFailedStep	This method causes the control to select the 'Next' failed sequence step in the loaded sequence and scroll to make the step visible. If no steps are failed, then any selected chart element is deselected, and no other effect occurs. If no step is selected in the chart, then the 'next' step is the first failed step in the chart.

Method	Description
navPriorFailedStep	This method causes the control to select the 'Priors' failed sequence step in the loaded sequence and scroll to make the step visible. If no steps are failed, then any selected chart element is deselected, and no other effect occurs. If no step is selected in the chart, then the 'prior' step is the last failed step in the chart.

## Next and previous step navigation VBA scripting

Next and Previous Step Navigation functionality can be implemented by adding two buttons to the FactoryTalk View SE display. The Next button would have a Released event handler configured in the VBA code that calls the Sequence Detail Control's navNextStepMethod.

An example of this VBA code follows:

```
Private Sub Button62_Released()
    SeqMgrDetailControl1.navNextStep
End Sub
```

Similarly, the Prior button would have a Released event handler configured in the VBA code that calls the Sequence Detail Control's navPriorStepMethod. An example of this VBA code could appear as follows:

```
Private Sub Button61_Released()
    SeqMgrDetailControl1.navPriorStep
End Sub
```

## Next and previous active step navigation VBA scripting

VBA logic to provide Next and Previous active step functionality is recommended to be more complex to enable and disable the Prior and Next buttons based on whether there are active steps in the loaded Equipment Sequence.

The 'Release' event handlers on the Prior and Next buttons is coded to invoke the navPriorActiveStep/navNextActiveStep method, as shown in the following example:

```
Private Sub Button59_Released()
    SeqMgrDetailControl1.navNextActiveStep
End Sub
```

```
Private Sub Button60_Released()
    SeqMgrDetailControl1.navPriorActiveStep
End Sub
```

To control the enabling and disabling of the Prior and Next active step buttons, run initialization logic when the screen loads. The following code is an example of using the Display's AnimationStart event to provide this functionality:

```
Private Sub Display_AnimationStart()
    If (SeqMgrDetailControl1.ActiveStepsCount > 0) Then
        Button59.Enabled = True
        Button60.Enabled = True
    End If
End Sub
```

```

Else
    Button59.Enabled = False
    Button60.Enabled = False
End If
End Sub

```

The final piece of logic for controlling the enabling and disabling of the Prior and Next active step buttons is VBA code configured to handle the ActiveStepCountChanged event. The following code is an example implementation:

```

Private Sub SeqMgrDetailControl1_ActiveStepCountChanged(ByVal p0 As Long)
    If (p0 > 0) Then
        Button59.Enabled = True
        Button60.Enabled = True
    Else
        Button59.Enabled = False
        Button60.Enabled = False
    End If
End Sub

```

### Next and previous failed step navigation VBA scripting

VBA logic to provide Next and Previous failed step functionality is implemented identically to the active step example, but using the Failed versions of the Sequence Detail Control's methods, properties, and events.

## Sequence Detail Control events

The **Sequence Detail Control** has these events that can be used by a client in runtime.

Event	Description
ActiveStepCountChanged	Event indicates that the count of active steps in the displayed Equipment Sequence has changed. The event has a single integer parameter that is the ActiveStepsCount property value.
AutoScrollChanged	Event occurs whenever the value of the AutoScroll property changes. The event has a single Boolean parameter that is the current AutoScroll property value.
FailedStepCountChanged	Event indicates that the count of failed steps in the displayed Equipment Sequence has changed. The event has a single integer parameter that is the FailedStepsCount property value.
StepSelectionChanged	Event occurs when the value of the SelectedStepName property changes. The event has a single string parameter that is the SelectedStepName property value.
everyTagConnectedChanged	Occurs whenever the value of the IsEveryTagConnected property changes. The event has a single bool parameter that is the current IsEveryTagConnected property value.

Event	Description
liveDataConnectedChanged	Occurs whenever the value of the IsLiveDataConnected property changes. The event has a single bool parameter that is the current IsLiveDataConnected property value.
seqMgrServerConnectedChanged	Occurs whenever the value of the IsSeqMgrServerConnected property changes. The event has a single bool parameter that is the current IsSeqMgrServerConnected property value.
seqMgrServerConnectedBackupChanged	Occurs whenever the value of the IsSeqMgrServerConnectedBackup property changes. The event has a single bool parameter that is the current IsSeqMgrServerConnectedBackup property value.
seqMgrServerToControllerConnectedChanged	Occurs whenever the value of the IsSeqMgrServerToControllerConnected property changes. The event has a single bool parameter that is the current IsSeqMgrServerToControllerConnected property value.
seqMgrServerToControllerConnectedBackupChanged	Occurs whenever the value of the IsSeqMgrServerToControllerConnectedBackup property changes. The event has a single bool parameter that is the current IsSeqMgrServerToControllerConnectedBackup property value.
sequenceStateChanged	Occurs whenever the value of the SequenceState property changes. The event has a single integer parameter that is the current SequenceState property value.

## Sequence Detail Control runtime data

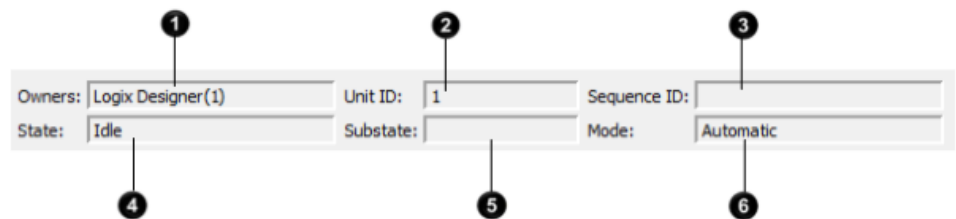
Use Sequence Detail Control to make data available for VBA programmers at runtime. This list of properties are read-only assigned data.

Property Name	Description	Read Only	Value Type
IsEveryTagConnected	Displays whether every tag is connected to the ActiveX control.  True = -1 and False = 0.  Default value: -1	Yes	Integer
IsLiveDataConnected	Displays whether the live data server is connected to the ActiveX control.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerConnected	Displays whether the SequenceManager Server Service application is connected to the ActiveX control.  True = -1 and False = 0.  Default value: 0	Yes	Integer

Property Name	Description	Read Only	Value Type
IsSeqMgrServerConnectedBackup	Displays whether the backup SequenceManager Server Service application is connected to the ActiveX control.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerToControllerConnected	Displays whether the SequenceManager Server Service application is connected to the controller.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerToControllerConnectedBackup	Displays whether the backup SequenceManager Server Service application is connected to the controller.  True = -1 and False = 0.  Default value: 0	Yes	Integer
ActiveStepCount	A count of the number of active steps in the displayed Sequence.	Yes	Integer
FailedStepCount	A count of the number of failed steps in the displayed Sequence.	Yes	Integer
SelectedStepName	The name of the currently selected step in the sequence.  If no sequence is loaded, no element is selected, or the selected element is not a step, then this property contains an empty string.	Yes	String
SequenceState	Displays the state value of the displayed Sequence.	Yes	Integer (unsigned)

## Overview of the Sequence Detail Control status header area

The header area of the Sequence Detail Control shows live data values for the currently loaded Equipment Sequence.



Item	Name	Description
1	Owners	Shows the current owner of the displayed Equipment Sequence and visual indication of ownership overrides. <ul style="list-style-type: none"> <li>Blank: No ownership.</li> <li>Logix Designer (&lt;number&gt;): The &lt;number&gt; indicates the number of Logix Designer applications that have overridden ownership of the sequence.</li> </ul>












Item	Name	Description
		<ul style="list-style-type: none"> <li>Operator: A user through the SequenceManager Detail of the SequenceManager Summary ActiveX controls has attached to the sequence.</li> <li>Internal Sequencer: A program running within the controller has used the Attach to Equipment Sequence (SATT) command to attach to the sequence.</li> <li>External Sequencer: An application outside the controller, such as the FactoryTalk Batch Server, has attached to the sequence.</li> </ul>
2	Unit ID	Indicates the integer value currently assigned to the sequence. Configured on the <b>Sequence Properties Dialog Box, Configuration</b> tab, that represents the equipment unit the sequence is coordinating.
3	Sequence ID	A string entered by the operator or control engineer using the <b>Set ID</b> button to specify an identifier for this execution of the equipment sequence. Once the sequence is executing (not in an IDLE state), the Sequence ID cannot be changed.
4	State	Shows the current state of the displayed Equipment Sequence. States are: <ul style="list-style-type: none"> <li>IDLE</li> <li>RESTARTING</li> <li>RUNNING</li> <li>RESETTING</li> <li>HOLDING</li> <li>STOPPING</li> <li>ABORTING</li> <li>HELD</li> <li>STOPPED</li> <li>ABORTED</li> <li>COMPLETE</li> </ul>
5	Substate	Displays the state of the bits in Pause Control. The following states are: <ul style="list-style-type: none"> <li>Paused</li> <li>Pause Enabled</li> <li>Auto Pause Enabled</li> <li>Paused, Auto Pause Enabled</li> </ul>
6	Mode	Shows the current execution mode of the displayed Equipment Sequence, either <b>Automatic</b> or <b>Manual</b> .

## Overview of the Sequence Detail Control status footer area

The footer section on the Sequence Detail Control contains the following settings and status indicators.

The communication, failure, and unscheduled/inhibited icons are also displayed in the upper left corner of the diagram window, in the status bar, and on any step or tag the status is detected.

Setting or status	Description
Zoom control	Adjusts the zoom on the control window.
Auto-Scroll	Turn Auto-Scroll on or off.

Setting or status	Description
Sequence name	The name of the Equipment Sequence.
Status bar	<p>Displays the following status icons:</p> <ul style="list-style-type: none"> <li> - There is a communication problem with the controller, the SequenceManager Server, the live data server, or the tags.</li> <li> - No known communication problem.</li> <li> - There is a failure in the Equipment Sequence.</li> <li> - No known failure in the Equipment Sequence.</li> <li> - The controller is in Program mode.</li> <li> - The controller is in Fault mode.</li> <li> - The controller is in Run mode</li> <li> - The controller is in Remote Program mode</li> <li> - The controller is in Remote Run or an unknown mode.</li> <li> - The Equipment Sequence or task is inhibited, or the Equipment Sequence is unscheduled.</li> <li> - The Equipment Sequence is scanning, or the status is unknown.</li> </ul>

## Command an Equipment Sequence using the Sequence Detail Control

Use the commands on the Sequence Detail Control to send commands to an Equipment Sequence.

### Before you begin

- Open a display that contains the Sequence Detail Control.

### To command an Equipment Sequence using the Sequence Detail Control

1. Select **Take Ownership** .
2. Select the command buttons to command the Equipment Sequence.
3. When finished, select **Release Ownership** .

## Command a step or Equipment Phase using the Sequence Detail Control

Command an Equipment Phase through a step using the Sequence Detail Control.






**Tip:** Select **Active Step Change**  to make a step active.

### Before you begin

- Open a display that contains the Sequence Detail Control.
- The Equipment Sequence must be in **Manual** mode.
- The step to be commanded must be active. This implies the step is attached to the Equipment Phase to be commanded.

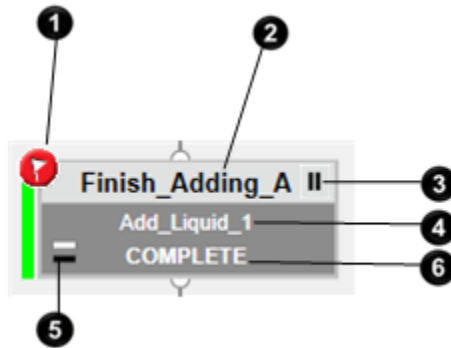
### To command a step using the Equipment Sequence Monitor





1. Select **Take Ownership**  to take ownership of the Equipment Sequence.
2. Select the active step to see the Equipment Sequence step command toolbar.
3. Select a command to command the equipment phase associated with the step.
4. (optional) Once you have completed commanding phases, select **Exit Manual**  to go back to **Automatic** mode.
5. When finished, select **Release Ownership** .


### Monitor a step in the Sequence Detail Control

A monitored equipment sequence step shows several functions:

- The user-configured step name and the Equipment Phase name.
- The step execution state.
- If the step is a source or target for a transfer of control.
- If the step has a failure.
- The step is executing.
- If the step or associated phase is paused.



Item	Name	Description
<b>1</b>	<b>Failure</b>	Phase failure - generated by the Equipment Phase Failure (PFL) instruction in the Equipment Phase logic. Internal failure - the sequencing engine has encountered a problem with the Equipment Sequence.
<b>2</b>	<b>Step Name</b>	The name of the step as configured during creation of the Equipment Sequence.
<b>3</b>	<b>Pause status</b>	The symbol shows that: <ul style="list-style-type: none"> <li>•  A pause of the phase logic is pending.</li> <li>•  An auto-pause of the phase logic is pending.</li> <li>•  The associated Equipment Phase is paused.</li> <li>•  The associated Equipment Phase is paused and auto-pause is pending.</li> </ul>
<b>4</b>	<b>Equipment Phase Name</b>	Each step is configured to reference one phase. The name of the phase is displayed so you know which equipment phase is executing.

Item	Name	Description
5	Transfer of Control (TOC)	<p>A step that has been configured as the source to transfer ownership to a following target step, without stopping the execution of the phase.</p> <p>The symbol shows:</p> <ul style="list-style-type: none"> <li>When the top bar is filled, this step is the beginning of a TOC step pair.</li> <li>When the bottom bar is filled, this step is the end of a TOC step pair.</li> <li>When both top and bottom bars are filled, this step is the end of a TOC step pair and the beginning of another TOC step pair.</li> </ul> <p>When transfer of control is not configured, the symbols are not drawn.</p>
6	Step State	<p>When a step is active, and attached to its phase, the step state mirrors the state of the phase. The set of displayed states are: INACTIVE, NOT CONNECTED (active but not attached), IDLE, RESTARTING, RUNNING, RESETTING, HOLDING, STOPPING, ABORTING, HELD, STOPPED, ABORTED, and COMPLETE.</p> <hr/> <p> <b>Tip:</b> &lt;No phase&gt; steps have no associated phase and only have two displayed states: RUNNING and IDLE.</p> <hr/> <p>The step state is also represented by the color of the step.</p>

## Command a transition using the Sequence Detail Control

You can force an active transition to evaluate TRUE, STOPPING and RESETTING the preceding steps while attaching and STARTING these steps.






**Tip:** The Equipment Sequence must be in **Automatic** mode.

### Before you begin

- Open a display that contains the Sequence Detail Control.
- The Equipment Sequence should be RUNNING.
- The transition must be active.

### To command a transition using the Equipment Sequence Monitor

- Select **Take Ownership**  to take ownership of the Equipment Sequence.
- Select on the active transition.
- Select **Force Transition**  to force the expression to TRUE.
- When finished, select **Release Ownership** .

## Overview of transition display states

Transition display states show how the transition execution relates to the overall Equipment Sequence execution.

Transition Display State	Transition Color	Description
IDLE	GRAY	The transition is not actively executing.
ARMED	GREEN	The transition is actively evaluating its expression.
FIRING	GREEN	The transition expression has evaluated TRUE. Previous steps must be STOPPED and the next steps must be started.
STOPPED	BLUE	The transition has completed processing a STOP command and has stopped the transition's execution.
ABORTED	PURPLE	An Equipment Sequence transition in the ABORTED state has been disabled by an ABORT command and will not advance an Equipment Sequence chart.
HELD	YELLOW/BROWN	An Equipment Sequence transition in the HELD state has been halted by a HOLD command or HELD because of an Equipment Sequence failure and will not initiate or advance the Equipment Sequence transition firing process until issued a RESTART command. If the transition has been HELD due to an Equipment Sequence failure, the failure should be cleared before issuing a RESTART command.
HOLDING	YELLOW/BROWN	An Equipment Sequence transition in the HOLDING state is advancing the Equipment Sequence transition firing process. This transitional state is only visible until the scan processing the HOLD command has finished.

## Overview of transition firing states

The firing attribute is a subset of the FIRING state and gives a visual indication of the current state.

This firing attribute is visible when the transition expression has evaluated TRUE. The firing process requires several interactions with different phases and is an asynchronous process. Some phases may have programs that can take a long time to finish running (stopping a motor for example), so the firing object shows what the transition is doing. The displayed Firing Attribute values are: ACQUIRING, COMMITTED, STOPPING, RESETTING, PENDING, PAUSED and POST SCANNING.

Firing Attribute	Description
ACQUIRING	The Equipment Sequence is acquiring the right to command the Equipment Phase. For every step that follows the transition, the Equipment Sequence must attach to each associated Equipment Phase before the steps can be activated.
COMMITTED	The transition is committed to firing because the transition expression has evaluated TRUE, but the transition cannot activate the following steps because it is in Manual mode or the Equipment Sequence is in the PAUSED substate.
STOPPING	As part of firing, the Equipment Sequence commands all the active preceding steps to stop. The transition firing state is STOPPING until all commanded steps are STOPPED.
RESETTING	As part of firing, the Equipment Sequence commands all the preceding steps that are STOPPED to RESET. The transition firing state is RESETTING until all the commanded steps are IDLE.

Firing Attribute	Description
PENDING	The transition is not able to fire because the Equipment Phases of the steps above or below the transition are not in the correct state to permit the transfer of control function.
PAUSED	The transition is committed to fire but cannot because the Equipment Sequence has been PAUSED. The transition is waiting for a RESUME command.
POST SCANNING	The transition is at the end of the firing process. On the next scan of the Equipment Sequence chart, the transition advances the chart.

## Monitor a transition in the Sequence Detail Control

A transition has several displayed attributes and status. The transition name and expression are defined when the sequence is configured and static when the sequence is online. The display state and firing attribute are dynamic and update as the transition executes.



Item	Name	Description
1	<b>Transition Name</b>	The name of the transition is assigned by the Equipment Sequence Editor. It is an incremented value beginning with Tran_000.
2	<b>Transition Display State</b>	The transition display state is indicated by the color of the transition. For more information about transition display states, see <a href="#">Overview of transition display states on page 35</a> .
3	<b>Transition Expression</b>	Transition expressions define the criteria to STOP, RESET, and detach all preceding steps and their associated Equipment Phases and attach and START the Equipment Phases and steps. The expression must always evaluate to either TRUE or FALSE.
4	<b>Transition Firing Attribute</b>	The Transition Firing Attribute is only displayed when the transition is in the FIRING state, which means the expression has evaluated TRUE.  The firing attribute is a subset of the FIRING state and gives a visual indication of the current state.



## Sequence Parameters Control

Use the Sequence Parameters Control to see a list of the step tags and sequence parameters in an Equipment Sequence. Select tags and parameters in the list to modify them or view more information about them.

### Configure the Sequence Parameters Control

To configure the **Sequence Parameters Control**, you must customize several settings in the **Property Panel** for the control.

You can configure the **Sequence Parameters Control** to communicate with a controller, to use VBA scripting, or (to) change display options.

#### Prerequisites

- Open the FactoryTalk View Site Edition (SE) application.
- Open a display that contains the **Sequence Parameters Control**.

### Configure the Sequence Parameters Control display options

#### To configure the Sequence Parameters Control display options

1. Right-click the **Sequence Parameters Control** in the display window.
2. Select **Property Panel**.
3. Select optional display options as needed:
  - (optional) In the **Column1Content** property text box, select a content option for the column.
  - (optional) In the **Column2Content** property text box, select a content option for the column.
  - (optional) In the **Column3Content** property text box, select a content option for the column.
  - (optional) In the **Column4Content** property text box, select a content option for the column.
  - (optional) In the **Column5Content** property text box, select a content option for the column.
  - (optional) In the **Column6Content** property text box, select a content option for the column.
  - (optional) In the **Column7Content** property text box, select a content option for the column.
  - (optional) In the **Column8Content** property text box, select a content option for the column.
  - (optional) In the **CurrentFilter** property text box, select an option to filter the display to Sequence Parameters, step tags, selected steps, active steps, or all.
  - (optional) In the **ShowFilter** property text box, select **True** to display the filter control.
  - (optional) In the **ShowSequenceHeader** property text box, select **True** to display the sequence header.
  - (optional) In the **ShowStatusBar** property text box, select **True** to display the status bar.
  - (optional) In the **SortField** property text box, select an option to sort by that field.
  - (optional) In the **SortOrder** property text box, select an option to sort ascending or descending.
  - (optional) In the **TouchPointerSize** property text box, select an option to auto-size, decrease, or increase the size of buttons.
4. Close the **Property Panel** window.
5. Select **Save**.

## Configure the Sequence Parameters Control to use VBA

### To configure the Sequence Parameters Control to use VBA

1. Right-click the **Sequence Parameters Control** in the display window.
2. Select **Property Panel**.
3. In the **ExposeToVBA** property text box, select **VBA Control** to allow the Sequence Detail Control to use VBA for scripting.
4. Close the **Property Panel** window.
5. Select **Save**.

## Configure the Min and Max values

### To configure the Minimum and Maximum values for a Sequence tag input/output Parameters in Studio 5000.

1. Using Studio 5000, select the tag or parameter. Supported data types are INT, SINT, DINT, and REAL.
2. Enable extended properties and select Minimum and Maximum.
3. Assign values to Minimum and Maximum.
4. Select **Save**.

## Sequence Parameters Control table columns

This table describes the columns in the Sequence Parameters Control list. The Parameters Control list includes all the step tags and sequence parameters in an Equipment Sequence.

Use the **Filter** setting to limit the types of tags and parameters that are included in the list. Select the column headers to sort the list alphabetically to group similar tags and parameters.

Column	Description
Name	The name of the step tag or sequencing parameter.
Usage	The usage type of the step tag or sequencing parameter. Usage types include <b>Step input</b> and <b>Step output</b> for step tags, and <b>Input</b> and <b>Output</b> for sequencing parameters.
Value	The current value of the step tag or sequencing parameter. Values can be edited when the <b>External Access</b> for the tag or parameter is set to <b>Read/Write</b> . Use the Tag Editor in the Logix Designer application to change the external value for a tag or parameter. Sequence Parameters control validates the value so it is within the configured Min and Max range.
Initial Value	The initial value of the step tag or sequencing parameter. This value is assigned to the <b>Value</b> field when the Equipment Sequence is initialized. Initialization occurs when the Equipment Sequence is commanded to START, RESET, or both. Step tag and sequencing parameter initial values are editable. Sequence Parameters control validates the value so it is within the configured Min and Max range.
Initialize as Valid	Indicates whether the step output tag or sequencing output parameter value is valid or invalid on initialization of the Equipment Sequence.
Expression	Defines an expression that is evaluated to a value for step input tags and sequencing output parameters.

Column	Description
Data Type	Displays the data type of the step tag or sequencing parameter. Data types for step tags and sequencing parameters include SEQ_DINT, SEQ_SINT, SEQ_INT, SEQ_REAL, SEQ_BOOL, and SEQ_STRING.
Description	Displays the text entered to describe the tag or parameter. Description text is optional and can be blank.
Engineering Unit	Displays the text entered to describe the engineering unit.

## Sequence Parameters Control property settings

The **Sequence Parameters Control** has the following properties that are configurable in the Property Panel of the control in the FactoryTalk View SE application.

Property name	Description	Read only	Value type
AutoLoad	Determines if the sequence chart is loaded automatically after the FactoryTalk View SE runtime starts.	No	Boolean
Column1Content	Determines what content is displayed in Column 1.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used
Column2Content	Determines what content is displayed in Column 2.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used
Column3Content	Determines what content is displayed in Column 3.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used

Property name	Description	Read only	Value type
Column4Content	Determines what content is displayed in Column 4.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used
Column5Content	Determines what content is displayed in Column 5.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used
Column6Content	Determines what content is displayed in Column 6.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used
Column7Content	Determines what content is displayed in Column 7.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description 8 - Engineering Unit 9 - Not Used
Column8Content	Determines what content is displayed in Column 8.	No	1 - Usage 2 - Value 3 - Initial Value 4 - Initialize As Valid 5 - Expression 6 - Data Type 7 - Description

Property name	Description	Read only	Value type
			8 - Engineering Unit 9 - Not Used
ControllerPath	Controller path of the Equipment Sequence. This path is specific to the workstation on which the SequenceManager Server is communicating with is located. Path Example: <code>AB_ETH-1\99.99.99.99\Backplane\0</code>	No	String
ControllerShortcut	FactoryTalk Linx device shortcut to the controller. Default Value: MY_CONTROLLER	No	String
CurrentFilter	Determine which filter is currently being used. Default value: 0 - All	No	<ul style="list-style-type: none"> <li>• 0 - All</li> <li>• 1 - SequencingParameters</li> <li>• 2 - StepTags</li> <li>• 3 - SelectedSteps</li> <li>• 4 - ActiveSteps</li> </ul>
DataServerPath	The FactoryTalk View SE path to the FactoryTalk Linx Data Server. Example Path: <code>My Project/MyArea</code> -or- <code>RNA: //Local/MyProject/</code>	No	String
IsEveryTagConnected	Displays whether every tag is connected to the ActiveX Control. Default value: True	Yes	Boolean
IsLiveDataConnected	Displays whether the live data server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerConnected	Displays whether the primary SequenceManager Server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerConnectedBackup	Displays whether the backup SequenceManager Server is connected to the ActiveX Control. Default value: False	Yes	Boolean
IsSeqMgrServerToControllerConnected	Displays whether the primary SequenceManager Server is connected to the controller. Default value: False	Yes	Boolean

Property name	Description	Read only	Value type
IsSeqMgrServerToControllerConnectedBackup	Displays whether the backup SequenceManager Server is connected to the controller. Default value: False	Yes	Boolean
LoadTable	Determines if the table is loaded to the window.	No	Boolean
SelectedSteps	Names of the selected steps. If multiple step names are entered, each step name must be separated by a comma from other step names.	No	String
SeqMgrServerAddress	The IP address of the workstation hosting the primary SequenceManager Server.	No	String
SeqMgrServerAddressBackup	The IP address of the workstation hosting the backup SequenceManager Server.	No	String
SeqMgrServerPortNumber	The port number of the workstation hosting the SequenceManager Server. Default value: 7452	No	String
SequenceName	Name of the Equipment Sequence that the chart loads if a load is initiated using the AutoLoad or LoadChart properties.	No	String
SequenceState	Displays the state value of the displayed Equipment Sequence.	Yes	Integer
ShowFilter	Determines if the filter box is shown.	No	Boolean
ShowSequenceHeader	Determines if the sequence header is shown.	No	Boolean
ShowStatusBar	Determines if the status icons are shown.	No	Boolean
SortField	Determines which column the table is sorted on.	No	0 - ParameterName 1 - ParameterUsage 2 - ParameterValue 3 - ParameterInitialValue 4 - ParameterInitializeAsValid 5 - ParameterExpression 6 - ParameterDataType 7 - ParameterDescription 8 - ParameterEngineeringUnit
SortOrder	Determines which order the table is sorted, ascending, or descending.	No	0 - Ascending 1 - Descending
TouchPointerSize	Determines the size of the command buttons and the height of the fields in the header and footer areas.	No	1 - Large 2 - Small

## Sequence Parameter Control events

The **Sequence Parameter Control** has the following event that can be used by a client in runtime.

Name	Description
everyTagConnectedChanged	Occurs whenever the value of the IsEveryTagConnected property changes. The event has a single Boolean parameter that is the current IsEveryTagConnected property value.
liveDataConnectedChanged	Occurs whenever the value of the IsLiveDataConnected property changes. The event has a single Boolean parameter that is the current IsLiveDataConnected property value.
seqMgrServerConnectedChanged	Occurs whenever the value of the IsSeqMgrServerConnected property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerConnected property value.
seqMgrServerConnectedBackupChanged	Occurs whenever the value of the IsSeqMgrServerConnectedBackup property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerConnectedBackup property value.
seqMgrServerToControllerConnectedChanged	Occurs whenever the value of the IsSeqMgrServerToControllerConnected property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerToControllerConnected property value.
seqMgrServerToControllerConnectedBackupChanged	Occurs whenever the value of the IsSeqMgrServerToControllerConnectedBackup property changes. The event has a single Boolean parameter that is the current IsSeqMgrServerToControllerConnectedBackup property value.
sequenceStateChanged	Occurs whenever the value of the SelectedSequenceState property changes. The event has a single integer parameter that is the current SelectedSequenceState property value.

## Sequence Parameters Control runtime data

Use Sequence Parameters Control to make data available for VBA programmers at runtime. The following properties are read-only assigned data.

Property Name	Description	Read Only	Value Type
IsEveryTagConnected	Displays whether every tag is connected to the ActiveX control.  True = -1 and False = 0.  Default value: -1	Yes	Integer

Property Name	Description	Read Only	Value Type
IsLiveDataConnected	Displays whether the live data server is connected to the ActiveX control.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerConnected	Displays whether the SequenceManager Server Service application is connected to the ActiveX control.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerConnectedBackup	Displays whether the backup SequenceManager Server Service application is connected to the ActiveX control.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerToControllerConnected	Displays whether the SequenceManager Server Service application is connected to the controller.  True = -1 and False = 0.  Default value: 0	Yes	Integer
IsSeqMgrServerToControllerConnectedBackup	Displays whether the backup SequenceManager Server Service application is connected to the controller.  True = -1 and False = 0.  Default value: 0	Yes	Integer
SequenceState	Displays the state value of the selected Equipment Sequence.	Yes	String


### Modify step tags or sequencing parameters using the Sequence Parameters Control

Select a step tag or sequencing parameter from the list on the Sequence Parameters Control to modify, disable or enable, force evaluation of, or view more information about the step tag or sequencing parameter.



**Tip:** value for the tags and parameters must be set to **Read/Write**. Use the Tag Editor in the Logix Designer application to change the external value for a tag or parameter.

### To modify a tag or parameter

1. Select the tag or parameter.
2. In the **Value** box, type the new value for the tag or parameter.
3. To disable or enable a tag or parameter, select **Expression** and then select **Disable Expression** or **Enable Expression**. When you disable a tag or parameter, the disabled icon  appears in the **Expression** box. To re-enable a disabled tag or parameter, select **Expression** and then select **Enable Expression**. When you re-enable a disabled expression, the disabled icon disappears from the **Expression** box.
4. To force evaluation of a tag or parameter, select **Expression** and then select **Force Evaluation**. The **Force Evaluation** button is disabled when any of these are true:
  - The Equipment Sequence is in the IDLE state.
  - The controller is in Program mode.
  - The Equipment Sequence or its assigned task is disabled.
  - The Equipment Sequence is unscheduled.



**Tip:** If a description is truncated, hover over the description to see the full description in a tool-tip.



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# 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.	<a href="http://rok.auto/support">rok.auto/support</a>
Knowledgebase	Access Knowledgebase articles.	<a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a>
Local Technical Support Phone Numbers	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

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## 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](http://rok.auto/pec).

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