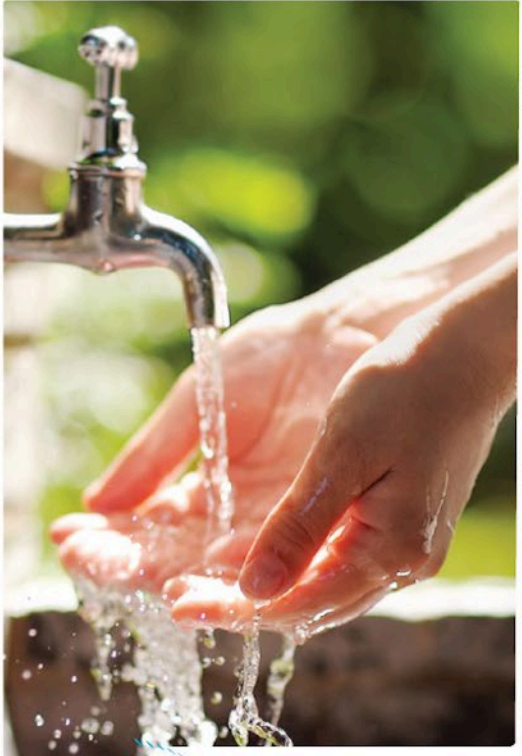

Studio 5000 View Designer User Manual

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Rockwell Automation

Original Instructions

Important User Information

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

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

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

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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.

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).

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.

This manual includes new and updated information. Use these reference tables to locate changed information.

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.

Topic Name	Reason
Import and export on page 727	new feature
Configure network-based security logon using Active Directory on page 703	new feature
Add controller references on page 85	enhanced feature
Project Navigation on page 551	enhanced feature
Logix datatype support on page 374	enhanced feature
CommonControls on page 180	enhanced feature
Perform basic functions on page 752	enhanced feature
Display alarms on page 563	enhanced feature
Configure Ethernet ports on page 742	enhanced feature

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Studio5000 environment_View Designer

The Studio 5000 Automation Engineering & Design Environment® combines engineering and design elements into a common environment. 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.

Studio 5000 View Designer Help

Get started creating a runtime application

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Helpful links

FactoryTalk View Machine Edition (ME) vs View Designer on page 30

On Literature Library search for:

- *PanelView™ 5510 Terminals User Manual 2715P-UM001*
- *PanelView™ 5310 Terminals User Manual 2713P-UM001 http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2713p-um001_-en-p.pdf*

Additional resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications webpage, available at http://ab.rockwellautomation.com	Provides declarations of conformity, certificates, and other certification details.
PanelView 5310 Terminals User Manual publication 2713P-UM001	Describes how to install, configure, operate, and troubleshoot the PanelView 5310 terminals.

Resource	Description
PanelView 5510 Terminals User Manual publication 2715P-UM001	Describes how to install, configure, operate, and troubleshoot the PanelView 5510 terminals.

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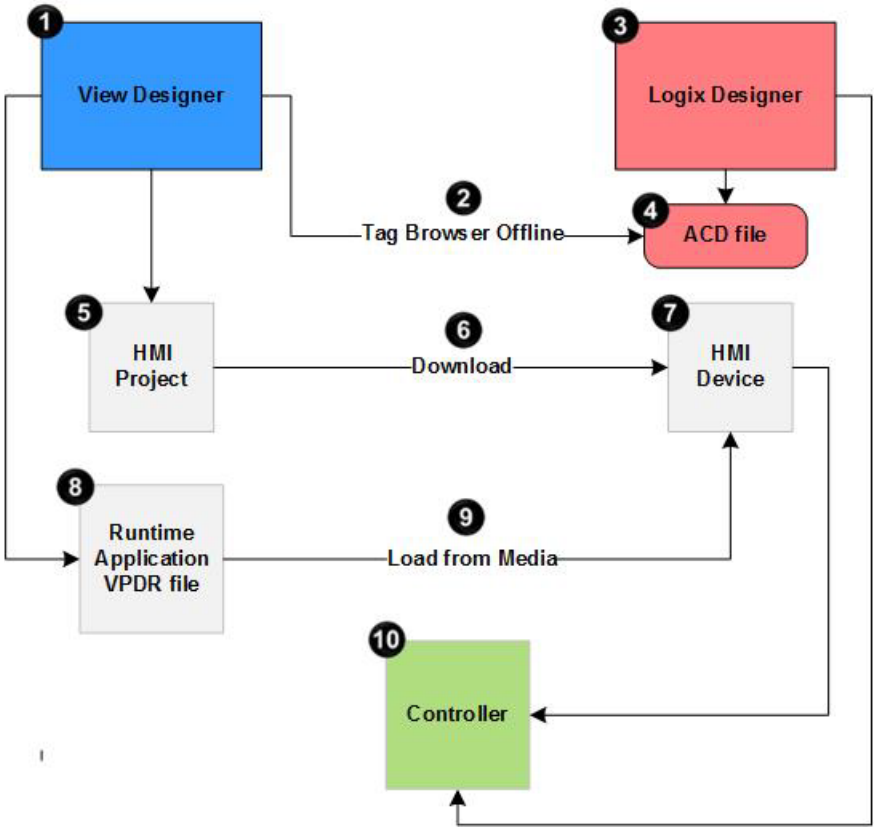
Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes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

View Designer

View Designer

The following diagram shows how View Designer works with the Studio 5000 suite to create a control and visualization system to monitor and control the manufacturing process.



Item	Name	Description
1	View Designer	Build the projects that are downloaded to an HMI device.
2	Tag Browser	Search for and select tags within a Logix Designer project file to bind the tags to the properties of graphic elements and screens in the View Designer project.
3	Logix Designer	Develop control logic for an industrial automation system.
4	ACD file	The Automation Control Database (ACD) file that is the Logix Designer project file containing the logic or code, including tags and data types, that runs within a controller. View Designer uses the Tag Browser to read data from the ACD file.
5	HMI project	The user-defined screens, controller references, information about the target HMI device, and so forth. Projects are stored in files with a .vpd extension.
6	View Designer Download Runtime Application Wizard	Transfer the HMI project to the HMI device.

7	HMI device	The Human Machine Interface (HMI) device, such as a PanelView 5000 device, that runs the HMI project. At runtime, the HMI device communicates directly with the controllers.
8	VPDR file	Save a Runtime Application VPDR file from View Designer.
9	Load from media	Load a Runtime Application VPDR file from removable media such as an SD Card or USB storage device to the HMI device.
10	Controller	A controller with the ACD file and tags used in the View Designer project.

See also

Gather process and system requirement information on page 47

What types of HMI screens do I need? on page 47

Define conventions for screens on page 49

Project navigation on page 551

FactoryTalk View Machine Edition (ME) vs View Designer

View Designer is not a replacement for FactoryTalk View Machine Edition (ME); however, it provides many of the same features.

When familiar with working in FactoryTalk ME, review the differences in functionality and terminology.

See also

FactoryTalk View Machine Edition (ME) vs View Designer on page 30

FactoryTalk View Machine Edition (ME) vs View Designer: Terminology on page 31

FactoryTalk View Machine Edition (ME) vs View Designer

Although View Designer is not a replacement for FactoryTalk View ME (ME), it provides many of the same features. However, there are significant differences in the performing some tasks:

- Set up communications
- Create a navigation menu
- Setup security
- Display alarms and alarm messages
- Change the appearance and behavior of graphic elements
- Display runtime diagnostics
- Pass parameter to a screen
- Format color values

See also

View ME ViewE: Create a navigation menu on page 31

View ME ViewE: Display alarms and alarm messages on page 32

View ME ViewE: Change the appearance and behavior of graphic elements on page 31

View ME ViewE: Pass parameters to a screen on page 33

ViewME ViewE: Format color values on page 33

FactoryTalk View Machine Edition (ME) vs View Designer: Terminology

The following table provides the View Designer equivalent of some FactoryTalk View Machine Edition (ME) terms.

FactoryTalk View ME term	View Designer equivalent term
graphic object	graphic element
Object Explorer	Graphic Explorer
On Top display	popup
operator interface application	HMI project
parameter files	screen properties
Symbol Factory	Extensive built-in graphics library
tag placeholders	user-defined alias properties or data type properties
Studio	Designer
project file (.med)	project file (.vpd)
shortcut or device shortcut	controller reference

See also

- FactoryTalk View Machine Edition (ME) vs View Designer on page 30

View ME ViewE: Change the appearance and behavior of graphic elements

FactoryTalk View ME (ME) provides various dialog boxes to change the appearance and behavior of objects. It also provides several editors for configuring animations such as changing the color of an object.

View Designer provides a **Properties** window on the main interface to configure the appearance and behavior of the selected screen or graphic element. This includes configuring events and animation, and selecting tags to bind to properties. Bind most graphic element properties, such as opacity, directly.

See also

Properties window on page 493

View ME ViewE: Create a navigation menu

In FactoryTalk View Machine Edition (ME), the display list selector object shows a list of displays from which to choose. Scroll through the list and select the display to open. Opening the display requires security access.

In View Designer, drag and drop screen shortcuts into the **Navigation Menu** folder on the **Project Properties** window. Organize the contents of a project into folders and subfolders. View Designer creates a **Navigation menu** based on the structure of the contents of the **Navigation Menu** folder. Screens that have security access for the logged in user appear in the **Navigation Menu**.

See also

How do I create navigation for the HMI screens? on page 43

View ME ViewE: Display alarms and alarm messages

In FactoryTalk View ME (ME), use the **Alarm Setup** editor to set up alarm triggers (the tags or expressions to monitor), define alarm messages, and so forth. Use the default [ALARM] display or create a graphic display.

In Studio 5000 Logix Designer, program Logix Designer alarm detection instructions in a Logix controller and reference that controller in a View Designer project. View Designer provides pre-configured **Alarm Summary** or **Alarm Manager** tables to display the alarm data and messages. The alarm tables receive the alarm data automatically; configuration and tag binding is not required.

Every View Designer project contains an **Alarm Summary** screen and a **Alarm Manager** screen by default. Create alarm screens by dragging the **Alarm Manager** or **Alarm Summary** graphic elements onto the screen.

See also

Create an alarm screen on page 565

View ME ViewE: Display runtime diagnostics

FactoryTalk View ME (ME) uses FactoryTalk Diagnostics to record various types of system activity such as:

- System messages and errors.
- Errors from the communication network.
- Tag read and write activity.

Configuring the severity of a system activity to log adds a message to the list when the activity occurs. The list appears in the default [DIAGNOSTICS] display or user-created display.

View Designer provides several options for monitoring system health, network communications, and tag read and write activity in a project. The **Predefined Screens** folder in the **Project Explorer** contains:

- **Alarm Summary**, **Alarm Manager** and **Alarm History** screens to monitor alarms set up in the controller.
- **Troubleshooting** screen to collect data and export a log to external media.
- **NetworkDiagnostic** screen and **ControllersDiagnostic** screen to troubleshoot network and controller problems.

The **Toolbox** contains alarm graphic elements used to create screens.

On the HMI device, errors are indicated for a graphic element when the graphic element or group of graphic elements is outlined in red and has an **Error** icon . Select the **Error** icon to view the **Error list**, which contains a snapshot of the diagnostic messages associated with a graphic element or group of graphic elements in error.

See also

View error messages for a graphic element on page 769

View ME ViewE: Pass parameters to a screen

In FactoryTalk View ME (ME), create tag placeholders in graphic displays and then create a parameter file or a parameter list. This specifies which tags or folders to substitute for which placeholders when a display opens at runtime.

In View Designer, pass tag values from controllers to a screen or popup by defining properties and exposing them for re-use. These user-defined properties can be aliases of existing screen properties or properties that have a data type. Data type properties replace a specific Logix Designer tag instance when configuring bindings and expressions on the screen. To pass the correct tag context to use at runtime, create a navigation event or a shortcut to the screen.

In addition to passing tag values from controllers to a screen, pass the values of non-alias screen properties from one screen to non-alias screen properties of another screen with each target screen acting on the data associated with its source screen. This chains reusable screens together by passing tag values to the first screen, when then passes the values to subsequent screens.

See also

Example of content reuse on page 359

View ME ViewE: Set up communications

FactoryTalk View ME (ME) requires specifying and configuring an FactoryTalk® Linx or OPC server, configuring the path between the data server and each controller, and adding device tags to the tag database for the application.

In View Designer, set up an Ethernet driver in RSLinx Classic. Use the **Application** tab on the **Project Properties** dialog box to select the HMI device for the project. Use the **References** tab to add and configure the controller references. Both tabs contain integrated browsers for selecting the HMI device, controller, and Logix project file and setting up the appropriate communication paths. Manually enter an IP address and slot number for the controller instead of browsing for the path.

See also

Project Properties dialog box on page 68

ViewME ViewE: Format color values

When binding a color property to a tag or expression, the string tag or expression in View Designer resolves to the format #RRGGBB. R, G, B are the Hex digits that represent the value for the red, green, and blue color channels. For example, in View Designer, the string "#ffff00" produces yellow.

FactoryTalk View Machine Edition (ME) and FactoryTalk View Site Edition (SE) use the format #BBGGRR. Change this format to #RRGGBB for color property strings and expressions in View Designer.

See also

FactoryTalk View Machine Edition (ME) vs View Designer on page 30

Learn

This section provides step-by-step direction to perform some basic tasks in View Designer:

- Animate a graphic element
- Configure a button with an event
- Display values on graphic elements
- Reuse screens
- Trigger an action on a screen or graphic element
- Set up security
- Create navigation on the HMI device
- Display alarm data from controllers

See also

How do I animate a graphic element? on page 34

How do I create a reusable screen? on page 38

How do I secure a screen, shortcut, or folder? on page 42

How do I create navigation for the HMI screens? on page 43

How do I animate a graphic element?

Use animation to enhance the graphical representation of the state of a machine or process on the HMI device. View Designer provides animation through these methods:

- Property binding
- Color tables
- State tables

Configure graphic elements in View Designer to monitor the temperature of the liquid in the tank using a **Color Table** or a **State Table**. The color of the liquid in a tank changes when the temperature is too cool, too hot, or at the appropriate temperature. In this topic, animate the graphic element using a Color Table.

Prerequisites

- Create the following tags in Logix Designer. For information on creating tags in Logix Designer, refer to the Logix Designer Help.
  - TankFill: To monitor the tank level.
  - TankTemperature: To monitor the temperature of the tank.
- Create a project.
- Add a controller reference.
- Create a screen.

To animate a graphic element

1. Add a **Tank Assembled** graphic element to the screen.

2. Configure the graphic element for animation using a Color Table.
   a. Select the **Tank Assembled** graphic element on the screen.
   b. In the **Properties** window, click the **Animations** tab.
   c. Click **Add Animation > Color Table**.
   d. In the **Name** box of the **Color Table Definition** dialog box, enter a name for the Color Table.
   e. In the **Number of states** box, enter or select **3**, to indicate too cold, too hot, and normal temperature states.
   f. Select the **LevelColor** property and click **OK**. The **Color Table** card appears in the **Animations** tab of the **Properties** window.
   g. In the **Expression** box on the card, click **Select tag** to select a tag, or type a tag name, to base an expression on. Select the **TankTemperature** tag.
3. Enter the expression value and color for each state.
   - To indicate cold temperatures, type **0-25** in the **Expression Value** box and enter Hex value #0000FF for a blue color or click the down arrow to select a color from the **Color Picker**.
   - To indicate normal temperatures, type **25-75** in the **Expression Value** box and enter Hex value #00FF00 for a green color or click the down arrow to select a color from the **Color Picker**.
   - To indicate hot temperatures, type **75-100** in the **Expression Value** box and enter Hex value #FF0000 for a red color or click the down arrow to select a color from the **Color Picker**.
4. Download the runtime application to the HMI device. The result of the expression is compared with the values entered in the **Color Table.** The **Color Table** is evaluated from top to bottom. The first expression value that is met applies the color to the graphic element.

See also

Create a project on page 53

Add a controller reference on page 85

Create a screen on page 348

Animate a graphic element or screen on page 435

How do I configure a button for high-speed control?

Use an HMI Button Control (HMIBC) instruction in Logix Designer to communicate between an HMI device and a Logix controller over a high-speed I/O connection. On the HMI device, initiate machine control operations, such as jogging a motor or opening and closing a valve, with a higher degree of accuracy and determinism than a standard button on a typical HMI. Any graphic element can be configured to function as a high-speed HMIBC button. Each Logix controller can support up to 256 HMIBC tags.

In this topic, create a button that jogs a motor so that when the button is pressed, the motor starts and runs until the button is released. Create a visual notification of the status of whether the motor is running or

stopped. Use a Compact servo motor and a Text Display graphic element to receive notification when the motor stops.

Prerequisites

- In a Logix Designer project, create an HMIBC instruction. Ensure that the HMIBC instruction in Logix Designer is configured to scan quickly enough to perform the motor jog control needed. For more information on creating an HMIBC instruction, refer to the Logix Designer help.
- In Logix Designer, add a PanelView 5000 HMI device to the I/O configuration tree in the Controller Organizer. For more information on adding a device to the I/O configuration tree, refer to the Logix Designer help.
- Create a View Designer project.
- Add a controller reference.
- Create a screen.

To configure a button for high-speed control

1. Add Button, Compact servo motor, and Text Display graphic elements to the screen.

   Tip: All graphic elements in View Designer are located in the **Toolbox** grouped by categories. The Button and Text Display graphic elements are located in the **CommonControls** category. The Compact motor graphic element is located in the **General Equipment > Motors > Servo** category.

2. Configure the Button graphic element to behave as a high-speed HMIBC button.

a. On the screen, right-click the Button graphic element and click **Button Behavior > Logix HMIBC set to 1 on press, 0 on release**. A **Button Behavior Event** card opens on the **Events** tab on the **Properties** pane.

b. In the **Key** box, select **Touch Only**.

c. In the **HMIBC Tag** box, type the name of the HMIBC tag or click **Select tag** and select the tag.

3. Configure the Compact servo motor to receive visual feedback:

a. Select the Compact servo motor graphic element.

b. On the **Properties** window, click the **Animations** tab.

c. Click Add **Animation > State Table**.

d. In the **Name** box of the **State Table Definition** dialog box, enter a name for the State Table.

e. In the **Number of states** box, enter or select **2**, to indicate the state of the machine - stopped or running.

f. Select the **Fill Color** property, and click **OK**. The **State Table** appears in the **Animations Tab** of the **Properties** window.

g. In the Expression box on the card, click **Select tag** to select a tag, or type a tag name, to base an expression on. Select the

HMIBC tag configured with the .ProgFB member. The .ProgFB member provides feedback to the HMI device when the device controlled by the HMIBC instruction changes state.

h. For each state, enter the expression value and color.

- To indicate the stopped state of the motor: Enter a value of 0 in the **Expression Value** box and click the swatch in the **FillColor** box to select a red color from the **Color Picker**.
- To indicate the running state of the motor: Enter a value of 1 in the **Expression Value** box and click the swatch in the **FillColor** box to select a red color from the **Color Picker**.

At runtime, the value of the HMIBC tag is compared with the value entered in the **State Table** and the appropriate color changes are applied.

4. Configure the Text Display graphic elements to receive visual feedback:

a. Select the Text Display graphic element.

b. On the **Properties** window, click the **Animations** tab.

c. Click Add **Animation > State Table**.

d. In the **Name** box of the **State Table Definition** dialog box, enter a name for the State Table.

e. In the **Number of states** box, enter or select 2, to indicate the state of the machine - stopped or running.

f. Select the Text property, and click **OK**. The **State Table** appears in the **Animations Tab** of the **Properties** window.

g. In the **Expression** box on the card, click **Select tag** to select a tag, or type a tag name, to base an expression on. Select the tag configured with the .ProgFB member.

h. For each state, enter the expression value and the text to display on the graphic element.

- To indicate stopped, enter **0** in the **Expression Value** box, and **Stopped** in the **Text Display** box.
- To indicate running, enter **1** in the **Expression Value** box, and **Running** in the **Text Display** box.

5. Download the runtime application to the HMI device, the value of the HMIBC tag is compared with the value entered in the **State Table** and the appropriate text appears.

See also

Create a project on page 53

Add a controller reference on page 85

Create a screen on page 348

Create an HMIBC Button on page 489

How do I create a graphic or screen that displays values of Logix extended properties?

Extended properties are properties added to tags and data types in Logix Designer to help reduce the number of tags that need to be created. If an individual tag is configured in Logix Designer with extended properties, use the extended properties on the tag.

For example, use tags to display values of extended properties, such as name and description of a tank, the minimum and maximum values, and engineering units of the level of the liquid in the tank. Then Bind graphic elements in View Designer to the tag configured with the Name, Description, Min, Max, and Engineering Unit extended properties.

Prerequisites

- In Logix Designer, create a tag with Name, Description, Engineering unit, Min, and Max extended properties. For information on how to create a tag with extended properties, refer to the Logix Designer help.
- Create a project.
- Add a controller reference.

To create a graphic or screen that displays values of Logix extended properties

1. Create a screen.
2. Add five **Text Display** graphic elements to the screen.
3. Bind each **Text Display** graphic element to the tag configured with extended properties. For each of the **Text Display** graphic elements:

a. Select the **Text Display** graphic element.

b. In the **Properties** tab, point to the **Text** property to show and click **Binding** , and then click **Bind property to item**.

c. Click **Select tag** to open the **Tag Browser** and navigate to the tag configured with extended properties.

d. Double-click one of the extended properties in the list.

4. Download the runtime application to the HMI device. The **Text Display** graphic elements show the values of the extended properties.

See also

Create a project on page 53

Add a controller reference on page 85

Create a screen on page 348

How do I create a reusable screen?

Assume there is a plant that has two mixer tanks, and the application requires:

- One screen to provide an overview of the plant showing both

tanks.
- Individual screens that show details specific to each tank.

Use View Designer to create:

- One overview screen that displays all of the tanks.
- One mixer detail screen reused to display information for each tank on request.

The detail screen essentially acts as a template, and the detail information for each tank is passed into the screen at runtime. In this topic, the tank graphic elements on the overview screen act as buttons to navigate to the detail screen.

Prerequisites

- Use Logix Designer user-defined data types to create a data structure to match the machine or process. Assign a name, description, and data type for each member of the user-defined data type. For more information refer to the Logix Designer help.
- Create a View Designer project.
- Add a controller reference.

To create a reusable screen

1. Create an overview screen with content to show on the HMI device.

a. Create a screen named **Overview**.

b. Add a graphic element to the overview screen. For example, add the Mixing Hopper Side graphic element to the Overview screen. The Mixing Hopper Side graphic element is located in the **GeneralEquipment > TanksAndContainers > Agitators** category.

c. Bind a property of the graphic element to a tag.

2. Create a detail screen with content to show on the HMI device.

a. Create a screen named **Mixing Hopper Detail**.

b. Add graphic elements to the detail screen. For example, add the Mixing Hopper Side, Text Display, and Numeric Display graphic elements to the screen. The Numeric Display graphic element can show the name of the mixing hopper, and the Numeric Display graphic elements can show the values of the mixing hopper.

3. Create user-defined properties with a data type.

a. At the bottom of the screen, in the **Name** box of the **Property Definition** tab, type a name for the property.

b. Click **Expand** below the screen to display the **Property Definition** tab if it is not open.

c. Click the **Data Type** box and click **Select data type** to select a data type:

- **User-Defined.** A structure data type defined in Logix Designer.
- **Predefined.** An atomic or structure data type that is defined by the controller.
- **Module-Defined.** A structure data type defined by a module when you create it. Tags of these types are created to store input, output, and configuration data for the module.

The selected data type is used as a filter criteria for the **Tag Browser**. Only items in the Logix Designer project (.acd) file that meet the filter criteria appear in the **Tag Browser**.

4. Bind graphic element properties to an instance of a user-defined property.

a. Expand the categories in the **Properties** tab to locate the property to bind to a tag.

b. Point to the property box to show and click the **Binding** and then click **Bind property to item**.

c. Click **Select tag** to open the **Tag Browser** and select a data item from the **Tag Browser**, or enter an expression.

- To create or edit lengthy or complex expressions, click **Open Expression Editor** .
- To bind to a property of a graphic element, browse to enter ElementName.PropertyName.
- To bind to an instance of a user-defined property, select the graphic element in the **Tag Browser** and then the Level member.

5. Create a Button Behavior event for screen navigation. This passes the screen properties to the target screen when the event occurs.

a. On the **Overview** screen, select the graphic element to trigger the event.

b. In the **Properties** window, click the **Events** tab.

c. Click **Add Event** and click **Button Behavior**.

d. Click **Choose Behavior** and click **Navigate to screen on release**.

e. In the **Screen** box, click **User-Defined Screens** and then click the **Mixing Hopper Detail** screen.

f. In the **Property Configuration box**, click **Select tag** and select the data type tag. The **Tag Browser** displays only tags of the type specified in the **Property Definition** tab.

6. Configure the overview screen to reuse the detail screen.

a. Copy and paste another instance of the mixing hopper on the Overview screen.

b. Click the copied mixing hopper and change the binding from, for example, Mixer 1 to Mixer 2.

c. On the **Events** tab, change the Property Configuration to, for example, Mixer 2.

7. Download the runtime application to the HMI device. Tapping each mixing hopper displays the details of the mixing hopper. The event passes the details of the mixing hopper to the screen.

See also

Create a project on page 53

Add a controller reference on page 85

User-defined property on page 370

How do I make a graphic element interactive?

Make any graphic element or screen interactive by adding events. An event is something that occurs to trigger an action. For each event, configure one or more actions or commands that the event triggers. When something occurs to trigger the event, this performs the configured command of the event. Depending on the type of event, configure commands from different categories to perform tasks.

In this topic, monitor two bottling lines. There are two screens with a button on Screen_A that opens Screen_B. Configure a Button graphic element on Screen_A that opens Screen_B.

Prerequisites

- Create a project.
- Add a controller reference.
- Create screens named Screen_A and Screen_B.

To make a graphic element interactive

1. Open **Screen_A**.
2. In the **Toolbox**, expand the appropriate category.

   Tip: All graphic elements in View Designer are located in the **Toolbox** grouped by categories. Button and Text Display graphic elements are located in the **CommonControls** category. The Compact motor graphic element is located in the **General Equipment > Motors > Servo** category.
3. Drag the graphic element onto the screen.
4. Double-click the graphic element in the **Toolbox** to add it to the center of the screen.
5. Select the graphic element. The **Properties** window shows the properties of the selected graphic element.
6. In the **Properties** window, click the **Events** tab.
7. Click **Add Event** and select **Touch Release** event from the list.
8. Click **Add Command**.
9. Expand the **Navigation** category and select the **Screen Navigate** command.
10. In the **Navigate To** box, click the arrow, expand the **User-Defined Screens** category and select Screen_B.
11. Download the runtime application to the HMI device. When releasing the button, **Screen_B** opens.

    Tip: To configure a graphic element to behave as a button to navigate to a screen or change a tag value, create a **Button Behavior** event

See also

What is an event? on page 476

Configure an event to trigger an action on page 447

Trigger an action on a Button Behavior event on page 444

Add a controller reference on page 85

Create a screen on page 348

How do I secure a screen, shortcut, or folder?

By default, all users on HMI devices have access to these items in the **Project Explorer:**

- Shortcuts in the **Navigation Menu** folder.
- Screens and popups in the **User-Defined Screens** or **Predefined Screens** folders.

In this topic, a **Screens** folder in the **Navigation menu** contains shortcuts to **Screen_ A** and **Screen_B**. Set security for **Screen_A** and **Screen_B** and the folder in the **Navigation menu** that contains the screens. Set different security for a screen than the folder from which the screen inherits security. Do this if the data on most screens in a folder is not useful to users assigned to the **Maintenance** security role.

To secure a screen or shortcut, give users assigned the **Maintenance** security role **Read-only** access to **Screen_A** and **Screen_B**. To secure a folder, give users assigned the **Restricted** security role **No access** to the **Screens** folder.

Prerequisites

- Create a project.
- Add a controller reference.
- Create screens named Screen_A and Screen_B.

To secure a screen, shortcut, or folder

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Select **Screen_A**.
3. In the **Properties** tab, expand the **Security** category.
4. After the **Maintenance** box, click the arrow and select **Read Only**.
5. For **Screen_B**, set the security for users who are assigned the Maintenance security role Read Only access.
6. Download the runtime application to the HMI device. Users with the Maintenance security role can navigate to both **Screen_A** and **Screen_B**, but cannot interact with the screens.

Tips:

- By default, security for shortcuts is based on the security assigned to the defining screen of the shortcut. Configuring the security of a shortcut to not use the security of the screen is allowed.
- To secure a folder, in the **Project Explorer**, select the **Screens** folder and then in the **Properties** tab, expand the **Security** category to select **Restricted** after the **Restricted** box.
- At runtime on the HMI device, users with the Restricted security role do not see the **Screens** folder in the **Navigation menu**. As a result, they are unable to access screens in that folder.
- If it is visible at the top of the screen, users have full access to the **System Banner** and its items, regardless of the security assigned to the screen.

See also

Set security on page 685

Create a project on page 53

Add a controller reference on page 85

Create a screen on page 348

How do I create navigation for the HMI screens?

To create navigation for the HMI project, organize content, such as screens and folders, in the **Navigation Menu** folder in the Project Explorer in View Designer. The content and order of the **Navigation Menu** folder appears in the **Navigation menu** on the HMI device.

In this topic, access **Screen_A** and **Screen_B** from the **Navigation Menu**. Create the shortcuts and arrange the content to create the **Navigation menu** that opens on the HMI device.

To create navigation for the HMI screens

1. Create a folder in the **Navigation Menu** folder to contain shortcuts and other folders:

a. In the **Project Explorer**, right-click the **Navigation Menu** folder.

b. Click **New Folder**. A new folder appears at the bottom of the folder with the default name Folder_001 or increment number. Folders at the same level must have unique names.

c. Right-click the folder, click **Rename**, type a new name for the folder, and then press **Enter**.

2. Create shortcuts to appear in the Navigation menu:
   - Drag a screen from the **User-Defined Screens** folder or the **Predefined Screens** folder to the **Navigation Menu** folder.
   - In the **User-Defined Screens** folder or the **Predefined Screens** folder, right-click the desired screen to base the shortcut, and click **New Shortcut**. The new shortcut appears in the **Navigation Menu** folder. The new shortcut is given a default name that is identical to the screen name. Move the new shortcut within the **Navigation Menu** folder and its subfolders.
3. Drag a graphic element onto the screen and double-click a graphic element in the **Toolbox** to add it to the center of the screen.

Tip: Configure any graphic element with navigation. For example, add a back arrow.

4. Configure the graphic element to open a screen when pressing the graphic element on the HMI device.

a. Select the graphic element.

b. In the **Properties** window, click the **Events** tab.

c. Click **Add Event** and select **Touch Release** event from the list.

d. Click **Add Command**, expand the **Navigation** commands category, and then select the **Screen Navigate** command.

e. In the **Navigate To** box, navigate to the **User-Defined Screens** folder and select **Screen_A**.

5. Download the runtime application to the HMI device. Pressing the graphic element navigates to **Screen_A**.

See also

Navigation menu contents on page 553

Select an icon for a shortcut in the Navigation menu on page 554

Project navigation on page 551

How do I display alarm data from controllers?

Use alarm screens to monitor and manage control system alarms. Use Logix Designer to program alarm detection instructions in Logix controllers. The View Designer **Alarm Manager** shows alarms in all states and include all conditions for an alarm. The View Designer **Alarm Summary** shows alarms that are in *interesting* states or require attention, such as alarms that are In Alarm and Unacknowledged.

In this topic, monitor alarms in View Designer that become active when the temperature of the liquid in a tank goes out of normal range.

Prerequisites

- Create alarm instructions in Logix Designer. Create instructions for an analog Level alarm that enters the In Alarm state when the tank temperature is outside the normal range. For information on creating alarm instructions, refer to the Logix Designer software instruction set topic in Logix Designer Help.
- Create a project.
- Add controller references.

To display alarm data from controllers

- View alarms by performing one of the following:
  - **Create an alarm screen.** In the **Alarms** category of the **Toolbox**, drag and drop the appropriately sized alarm table graphic element onto the screen.
  - **Open a predefined alarm screen.**

a. On the **Menu bar**, click **View > Project Explorer**.

b. In the **Project Explorer** folder, expand the **Predefined Screens**.

c. Double-click the **AlarmSummary** or **AlarmManager** screen.

Tips:
- View Designer provides Alarm Manager Large, Alarm Manager Medium, Alarm Summary Large, and Alarm Summary Medium graphic elements.
- The Alarm Summary and Alarm Manager graphic elements are pre-configured to automatically display alarm data from the Logix Designer project files (.vpd) referenced on the **References** window. No tag binding is required.
- Adjust the appearance and order of alarm tables on either a predefined alarm screen or on a screen that includes an alarm table graphic element to meet the needs of the application. For example, change the font, opacity, and sort order of the content on the screens. Create filters on the screens to show items that match specified criteria. For example, create a filter to show only alarms in the In Alarm state.

See also

What is the Alarm Summary? on page 99

What is the Alarm Manager? on page 99

Display alarms on page 563

Add a controller reference on page 85

Create a screen on page 348

How do I display a different language on the HMI device?

Create a View Designer project that supports multiple languages to select the appropriate language to display on the HMI device.

For example, create a project in English for operators who only speak French. Use View Designer to create a single project and then export all of the user-editable strings to a language file. Translate the strings in French and then import the language file to add the language to the project. On the HMI device, select French as the language for the text strings.

To display a different language on the HMI device

1. On the Standard Menu bar, click **Tools > Export Languages**.
2. In the **Select current language** list, select the language in which the project was created.
3. In the **Selected language for localization** box, select one or more languages for translating the strings.

   Tips:
   - View Designer does not support the Spanish (Spain, Traditional Sort) language that is supported in Studio 5000 Logix Designer®.
   - When opening the exported language file in Microsoft Excel, the selected languages appear as column headers. Languages currently in the project are always included in the export operation, and are not available for selection.
4. In the **Export language file to** box, click **Browse** to select the location to save the language file, and click **Save**.

Tips:
- The default path and file name is C:\Users\username\Documents\Studio 5000\Projects\Project name_Language.xlsx.
- View Designer supports .xlsx and .txt file formats only.
- If a file name does not have a file extension, or has an file extension that is not supported, View Designer appends the file to the default .xlsx format.

View Designer only exports localizable and unlinked properties.

5. Click **Export**.
6. Open the exported file using Excel.
7. To add a language that is not in the spreadsheet, in the column next to the last language column, enter the language code for the desired language, such as en-US.

   Tip: Reference the Internet Engineering Task Force (IETF®) RFC 5646 for guidelines on formatting language codes.

8. On the **Standard Menu** bar, click **Tools > Import Languages**.
9. On the **Import Languages** dialog box, next to the **Language file** box click **Browse** and select the translated language file.

   The **Import language changes** box lists the language changes to be made to the project:

   - Languages Added
   - Languages Updated
   - Languages Removed
   - Invalid Languages

   Tips:
   - View Designer supports .xlsx and .txt file formats only.
   - If importing a file with a name that does not have a file extension, or has an file extension that is not supported, View Designer appends the file to the default .xlsx format.
   - When exporting the language file, all language data in the project exports.
   - View Designer only imports localizable and unlinked properties.

10. Click **Import**.
11. Save the project.
12. Select the language to display and download to the runtime application:

a. From the **Menu** bar, click **COMMUNICATIONS > Download**.

b. In the **Location** box, click **Browse** and select the IP address of the HMI device to which to download the runtime application.

c. Click **Next** to open **Controller References**.

Tip: If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the translated string for the download language is also blank, View Designer defaults to the language used when designing the project.

See also

Export Languages dialog box on page 669

Import Languages dialog box on page 671

Download Runtime Application wizard on page 709

About changing the project language on page 675

Plan

View Designer projects are used to create runtime applications for monitoring and managing a system. Before creating a project, take some time to become familiar with the View Designer interface and adjust it to suit your needs.

During the planning phase of your project, gather information from a variety of sources so that you have a complete understanding of the automation process and can create screens to support it and establish an effective hierarchy of screens.

Creating runtime application in FactoryTalk View Machine Edition (ME) is different than creating runtime application in View Designer.

See also

What types of HMI screens do I need? on page 47

FactoryTalk View Machine Edition (ME) vs View Designer on page 30

Gather process and system requirement information

Before creating an HMI project, gather information from a variety of sources to gain a complete understanding of the process to automate:

- Review the project scope (usually created by a process engineer or a chemical engineer).
- Talk to operators and other experts who will use the system to find out what information they need to optimize plant operations.
- Talk to information systems staff to find out what information they need to support design decisions.
- Talk to management staff to find out what information they need to support planning decisions.

After understanding the overall process, analyze key process areas and consider important factors such as alarms and security. Pay attention to details that might affect the overall performance of the system. Specifically:

- Determine the process variables to be accessed and identify their locations in the programmable controllers or devices.
- Determine which parts of the process to secure and identify the most efficient ways to restrict user access.

See also

What types of HMI screens do I need? on page 47

Screen hierarchy on page 48

What types of HMI screens do I need?

An HMI project contains multiple types of HMI screens and each serves a different purpose. Use HMI screens to access and navigate the runtime application as well as provide high level and detailed views of plant activity.

Common types of HMI screens used in a runtime application include:.

HMI screen	Description

HMI screen	Description
Log in	A **Home** screen that provides a way to log in. Assign different levels of access to the HMI screens within the application based on the credentials of the logged in user.
Menu	An optional navigation screen that provides a high-level view of the screens and functional areas within the operator interface application. Navigate to progressively more detailed screens from a menu screen. For most applications, a menu screen is not required because View Designer creates a **Navigation menu** based on the organization of the contents of the **Navigation Menu** folder. The **Navigation menu** that appears at runtime is sufficient for all but very large applications.
Alarm Summary	A high-level HMI screen that contains all the alarms for the controllers in the project. By default, each HMI project contains an **Alarm Summary** screen for monitoring and responding to alarms. Alarms are configured in Logix Designer. Alarms in Logix controllers appear on the **Alarm Summary** screen automatically at runtime. No configuration is required. Add an **Alarm Summary** to another screen to increase alarm visibility.
Process overview	A high-level HMI screen that provides an overview of the process being controlled or monitored. The primary purpose of a process overview screen is to provide situational awareness, but it is not generally used to execute any controls. From these screens, navigate to additional screens that represent specific process areas.
System status	A high-level HMI screen that provide one place to review the health and status of the processes and devices being controlled and monitored from the operator interface application.
Process area	A mid-level HMI screen that provides information about a specific process area that is usually within the control of the user. Process area screens monitor the process and are often the main control interface for performing routine operational tasks. From these screens, navigate to detail displays related to the process being represented.
Equipment overview	A mid-level HMI screen that provides information about a specific collection of equipment. An equipment overview screen is often used to view all equipment of a certain type. For example, create an equipment overview screen that shows all of the tanks. From this screen, select a specific tank and navigate to a tank detail screen within the collection.
Equipment detail	A detailed HMI screen that contains all available information for a specific piece of equipment. For example, create a detail equipment screen for a specific tank or a specific pump.

See also

Create a screen on page 348

Screen hierarchy on page 48

Screen hierarchy

A well-designed runtime application has an effective hierarchy of screens that guides users through the system. The hierarchy provides progressively more detail when moving through different levels of information and data.

Before designing a screen hierarchy and creating navigation for screens, consider:

- The needs of all users, including managers, supervisors, and operators
- Which users have access to which parts of the application
- How users navigate through the application
- The process areas being monitored
- Required equipment overview screens

- Required specific equipment screens
- Any other types of required screens

The most common and effective method for presenting a screen hierarchy for the runtime application is to use the **Navigation menu** created automatically by View Designer. When building an application, View Designer automatically creates a **Navigation Menu** that is included with the application. The location and hierarchy of screens in the **Navigation menu** at runtime is determined by the organization of the contents of the **Navigation Menu** folder in the **Project Explorer**.

See also

Gather process and system requirement information on page 47

What types of HMI screens do I need? on page 47

Define conventions for screens on page 49

Project navigation on page 551

Define conventions for screens

To increase application usability and operator efficiency, follow established conventions and good visual design principles when creating screens.

Prerequisites

Decide the specific settings to use for items before creating screens:

- Colors, background colors, and fonts
- Equipment symbols
- Position and status of valves
- Position and status of pumps and motors
- Information to be included on each screen such as a company logo.

Consistency considerations

Follow guidelines to make the screens within the application consistent:

- Present the same information and basic functions in the same places on each display to make it easier for users to find elements as they navigate from screen to screen.
- Use the standard and easily recognizable symbols from the View Designer library of predefined graphics. For example, View Designer contains standard ISA symbols for tanks and valves.
- Place the same kind of buttons in the same positions on each screen, and label them consistently. For example, if there is a Start button in a certain position in one screen, do not put a Stop button in the same position on another screen.
- Use standard, clear terminology. Avoid abbreviations or acronyms.
- Use colors with recognizable meanings. For example, in Europe and North America, the colors red and green often mean stop and

start. Keep color meanings consistent by assigning red only to Stop buttons, and green only to Start buttons.

Usability considerations

Follow guidelines to increase application usability:

- On each screen, include only necessary information. Create pop-ups to provide more detailed information.
- For touch screens, place important buttons where they will not be blocked by a pop-up. Also ensure that buttons are large enough and spaced far enough apart for users to touch them easily, even when they are wearing work gloves.
- Ensure there is always a clear way to move between displays.
- For text, use high-contrast color combinations such as yellow on blue or dark text on light-colored backgrounds.

Reuse considerations

After establishing conventions for screens, ensure screen uniformity by reusing screens.

See also

What types of HMI screens do I need? on page 47

Screen hierarchy on page 48

Object Naming Conventions

All objects created in View Designer must follow specific naming conventions listed in this section:

- The name must contain only numbers, letters, and underscores.
- The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.
- The name must not be a reserved keyword:

Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword
ABS	ACOS	ACS	AND	ASIN	ASN	ATAN	ATN
BEGIN_NT_RUNG	BY	CASE	COS	DEG	DEG	DO	ELSE
ELSIF	END_CASE	END_FOR	END_IF	END_NT_RUNG	END_REPEAT	END_WHILE	EXIT
FOR	FRD	GOTO	IF	IMAGES	LN	LOG	MOD
NOT	OF	OR	PROFILES	RAD	REPEAT	RETURN	SIN
SQR	SQRT	TAN	THEN	THIS	TO	TOD	TRN
TRUNC	UNTIL	WHILE	XOR				

The naming conventions apply to the following items:

- project names
- screen names
- popup names

- custom property names for screens and popups
- folder names
- shortcut names
- graphic element names
- add-on graphic names
- pdf document names
- image names
- data log names
- project event names
- controller reference names
- user names

Create a project in View Designer

Create a project

The first step towards building a runtime application is creating a project. A View Designer project includes screens, controller references, and information about the target HMI device.

View Designer creates and uses the file extension .vpd for user-created projects. By default, projects are saved to <user>\My Documents\Studio 5000\Projects.

Use the **View** tab on the **New Project** dialog box to:

- Create and name a View Designer project.
- Select the type of HMI device.

See also

Create a project for a PanelView HMI device on page 53

New Project dialog box on page 54

Open a project on page 56

Save a project on page 62

Create a project

The first step towards building a runtime application is creating a project. A View Designer project includes the screens, controller references, and information about the target HMI device. View Designer creates and uses the file extension .vpd for user-created projects. By default, projects are saved to <user>\My Documents\Studio 5000\Projects.

Prerequisites

- Close any open project. Creating a project is not allowed if another project is open. Projects in other instances of View Designer may remain open. It is recommended that no more than three instances of View Designer run at one time.

To create a project

1. On the **Menu** bar, select **File > New Project**.
2. In the **Name** box, type a name for the project, and select **Finish**.
   - The name must contain only numbers, letters, and underscores.
   - The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore. The name must not be a reserved keyword:

Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword
ABS	ACOS	ACS	AND	ASIN	ASN	ATAN	ATN
BEGIN_NT_RUNG	BY	CASE	COS	DEG	DEG	DO	ELSE
ELSIF	END_CASE	END_FOR	END_IF	END_NT_RUNG	END_REPEAT	END_WHILE	EXIT
FOR	FRD	GOTO	IF	IMAGES	LN	LOG	MOD
NOT	OF	OR	PROFILES	RAD	REPEAT	RETURN	SIN
SQR	SQRT	TAN	THEN	THIS	TO	TOD	TRN
TRUNC	UNTIL	WHILE	XOR				

View Designer creates the project and displays its contents in the **Project Explorer** tab. The project contains a default screen named Screen_001, which is open.

The **Project Properties** dialog box is also open. Use the References tab to add the controller references for this project. A controller reference is a connection from the View Designer project file (.vpd) to a Logix Designer project file (.acd).

See also

Add a controller reference on page 85

Select a target HMI device for a new project on page 67

Close a project on page 64

Rename a project on page 60

Save a copy of a project on page 62

New Project dialog box

How do I open the New Project dialog box?

On the **Menu** bar, click **FILE > New Project.**

Use the **View** tab on the **New Project** dialog box to:

- Create and name a View Designer project. A View Designer project includes the screens that you create, controller references, and information about the target HMI device. The project is stored in a file with a .vpd extension.
- Select the type of HMI device. The screens in a project represent the physical size of the HMI device selected for the project.
- Optionally, select the View Designer version with which to create the project when there are multiple versions of View Designer installed.

Creating a project is the first step in building a runtime application.

Tip: Close any open project before creating another project. Projects in other instances of View Designer may remain open. It is recommended that no more than three instances of View Designer run at one time.

See also

Create a project on page 53

Open a project on page 56

Close a project on page 64

Rename a project on page 60

Save a project on page 62

Create a project from the Studio 5000 launcher

The first step towards building a runtime application is creating a project. A View Designer project includes the screens, controller references, and information about the target HMI device. View Designer creates and uses the file extension .vpd for user-created projects. By default, projects are saved to <user>\My Documents\Studio 5000\Projects.

To create a project from the Studio 5000 launcher

1. Start Studio 5000 from the icon on the desktop.
2. Select **New Project**.
3. On the **New Project** dialog box, select the **View** tab.
4. In the **Name** box, type a name for the project, and click **Finish**.
   - The name must contain only numbers, letters, and underscores.
   - The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.The name must not be a reserved keyword:

Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword
ABS	ACOS	ACS	AND	ASIN	ASN	ATAN	ATN
BEGIN_NT_RUNG	BY	CASE	COS	DEG	DEG	DO	ELSE
ELSIF	END_CASE	END_FOR	END_IF	END_NT_RUNG	END_REPEAT	END_WHILE	EXIT
FOR	FRD	GOTO	IF	IMAGES	LN	LOG	MOD
NOT	OF	OR	PROFILES	RAD	REPEAT	RETURN	SIN
SQR	SQRT	TAN	THEN	THIS	TO	TOD	TRN
TRUNC	UNTIL	WHILE	XOR				

5. (optional) If multiple versions of View Designer are installed, to create a project using a different version, in the **Version** box, select a version. The **Version** box lists the versions of View Designer installed.

See also

Add a controller reference on page 85

Select a target HMI device for a new project on page 67

Close a project on page 64

Rename a project on page 60

Save a copy of a project on page 62

Open a project

Open the last saved project or any previously saved project. Open a View Designer project using the same or later version of View Designer used to save the project. Opening a .vpd file of an earlier version than the installed version of View Designer converts the .vpd file to the installed version of View Designer.

IMPORTANT Converting a View Designer project to a later version does not convert any user-defined changes to predefined screens or the System Banner. When converting a project to a later version, reapply the user-defined changes to the predefined screens and the System Banner.

To copy user-defined changes to predefined screens and the System Banner:

1. Copy the user-defined content (for example, the System Banner) and paste it to a temporary screen in the original project.
2. Convert the project to a later version.
3. Copy the changes from the temporary screen back to predefined screens or the System Banner
4. Delete the temporary screen.

Prerequisites

- Close any open project. Only one project can be open at a time. Projects in other instances of View Designer may remain open. It is recommended that no more than three instances of View Designer run at one time.
- Verify the version used to save the project without opening View Designer. Browse to and hover over the .vpd file. To show the project version you can also right-click the .vpd file, select **Properties**, and then select the **Details** tab.

To open a project:

1. On the **Menu** bar, click **File > Open Project**.
2. Select a project and select **Open**. The title bar shows the name of the open project and the HMI device type for the project.

Tips:

- When opening a large project, wait for the project to finish opening before using these functions:
  - Download
  - Emulate
  - Verify
  - Find and Replace
  - Save as .vpdr
- Double-click a .vpd file to launch View Designer and open the project.
- Opening a project created using an earlier version of View Designer opens the **Opening Project** dialog box. This indicates that the project was created using an earlier version and creates a backup of the project. Selecting **Convert** saves the backup of the original project in the same folder. The name of the backup file is appended with _Vn, where n is the version of View Designer used by the project.
- A project does not convert if the **Templates** folder or a project template file is missing or corrupt. Repair the View Designer install to create or replace an unrevised missing or corrupt project template. If the **Templates** folder is revised, manually delete a corrupt project file.
- Opening a project saved with a later version of View Designer is not allowed.
- View Designer provides a list of recent projects. On the **Menu** bar, click **File** > **Recent Projects**. The most recently closed project appears at the top of the list.

See also

Close a project on page 64

Open Project dialog box on page 57

Rename a project on page 60

Change the HMI device of a project

Change the type of HMI device for a project to change the device for which the project is configured. Do this to view the runtime application on the different HMI device.

To change the HMI device of a project

1. Select **Project > Project Properties**. The **Target HMI Device** dialog box opens.
2. Select the HMI device. To search for the HMI device, start typing the name of the HMI device in the **Search** box.
3. Click **Next**.
4. Select the HMI device screen size for a PanelView HMI device project. The screens in the project represent the physical size of the screen for the project.
5. Click **OK**.

See also

Runtime application scaling on different HMI devices on page 77

How changing the HMI device for a project affects screens on page 73

Save a project on page 62

Open Project dialog box

How do I open the Open Project dialog box?

On the **Menu** bar, click **FILE > Open project**. The **Open project** option

is also available on the Studio 5000 Launcher.

The **Open Project** dialog box provides a list of HMI projects saved to the computer. Use the **Open Project** dialog box to select and open a project.

Close any open project before opening another project. Projects in other instances of View Designer may remain open. It is recommended that no more than three instances of View Designer run at one time.

See also

Open a project on page 56

Close a project on page 64

Rename a project on page 60

Save a copy of a project on page 62

Convert a project

Convert a project to upgrade it from an earlier version of View Designer to the current installed version of View Designer. Converting a project to an earlier version of View Designer is not allowed.

IMPORTANT Converting a View Designer project to a later version does not convert any user-defined changes to predefined screens or the System Banner. When converting a project to a later version, reapply the user-defined changes to the predefined screens and the System Banner.

To copy user-defined changes to predefined screens and the System Banner:

1. Copy the user-defined content (for example, the System Banner) and paste it to a temporary screen in the original project.
2. Convert the project to a later version.
3. Copy the changes from the temporary screen back to predefined screens or the System Banner
4. Delete the temporary screen.

Prerequisites

- Verify the version used to save the project without opening View Designer. Browse to and hover over the .vpd file. Right-clicking the .vpd file, selecting **Properties**, and then selecting the **Details** tab also shows the project version.

To convert a project

1. (optional) To retain customized content on a predefined screen or the System Banner, open the project using the current version of View Designer, copy any customized predefined screen or the System Banner content to a separate screen for temporary storage, and then save and close the project.

   Tip: Copy content that appears on separate tabs of predefined screens to separate screens.
2. Create a new project in View Designer using the new version.
3. Select **File > Close Project**.
4. Select **File > Open Project**

5. Select the project to convert and select **Open**. A prompt appears to convert the project to the current version of View Designer.
6. Select **Convert**. When the project converts, View Designer creates a backup of the original project in the same location as the converted file. View Designer appends the name of the backup file with _V#.

   Tips:
   - A project does not convert if the **Templates** folder or a project template file is missing or corrupt. Repair the View Designer install to create or replace an unrevised missing or corrupt project template.
   - To repair a missing or corrupt project template manually, copy the missing or corrupt content from another project. After revising the **Templates** folder manually, delete the corrupt project template.
7. (optional) Copy the custom content from the temporary screens created in step 1 onto the new versions of the predefined screens and System Banner. Then delete the temporary screens.

See also

Open a project on page 56

Close a project on page 64

Open Project dialog box on page 57

Rename a project on page 60

View the default content of a project

The **Predefined Screens** folder in the **Project Explorer** contains default screens, popups, and a **Banner** item for each project.

To view the default content of a project

1. Select **View > Project Explorer**.
2. View the contents of the **Predefined Screens** folder:
   - **Banner.** Appears at the top of each project screen. It displays date and time, active and unacknowledged alarm indicators, controller diagnostic, and network diagnostic information. It also provides buttons to navigate to the **Alarm Summary**, log on and log off from the project, move backward and forward through navigation history, and display the **Navigation menu** at the bottom of the HMI device.
   - **Settings.** Provides a menu of options to configure settings for the HMI device. By default, access the **Settings** screen through the **Navigation menu** on the HMI device. The options on the **Settings** screen open the popups listed under the screen in the **Predefined Screens** folder. These popups perform tasks to configure the HMI device.

     Tip: Restrict access to the screens that configure the HMI device. Apply any role that is not **Administrator** to the **Guest User** on the **Security Administration** screen. Any non-Administrator user, including users with the **None** role assigned, can open the popups but cannot change the options.
   - **AlarmSummary.** This screen displays a list of alarms that are in "interesting" states or that require attention. For example, the **Alarm Summary** lists alarms that are In Alarm and Unacknowledged. By default, access the **AlarmSummary**

screen through the System Banner or the **Navigation menu** on the HMI device.

- **AlarmManager.** This screen displays a list of all alarms regardless of their state. Alarms in the **Alarm Manager** include all of the conditions for a given alarm. By default, access the **AlarmManager** screen through the **Navigation menu** or the **Alarm Summary** on the HMI device.
- **Alarm History.** This screen displays a list of all alarm state changes. Each row in the table contains one state change. By default, access the **Alarm History** screen through the **Navigation menu** on the HMI device.

- To add or remove information and functionality from predefined items, change the content of predefined screens, popups, and the **Banner** item like any other screen. Do not remove content that configures the HMI device.
- To restore the default content of a predefined screen, popup, or the **Banner** item, remove any remaining content from the revised item, open an unchanged version of the item in another project, and copy and paste the default content to the item.
- Dragging the **Settings**, **AlarmSummary**, and **AlarmManager** screens to the **Navigation Menu** folder in the **Project Explorer** creates a shortcut for the screen. The shortcut appears in the **Navigation Menu**. By default, these items are already in the **Navigation Menu**.

3. View the contents of the **Assets > Add-On Graphics** folder:
   - **PDF_Reader.** This predefined Add-On Graphic occupies the entire screen of an HMI device to display, zoom, and navigate a PDF document.
   - **PDF_Reader_Small.** This predefined Add-On Graphic occupies half of the screen of an HMI device to display, zoom, and navigate a PDF document. This Add-On Graphic is not available on six-inch or seven-inch HMI devices.

See also

New Project dialog box on page 54

Create a project on page 53

Open a project on page 56

Close a project on page 64

Rename a project

Change the name of an open project. Renaming a project file does not change the project name.

To rename a project

1. In the **Project Explorer**, right-click the project and select **Rename**.
2. Type a new name for the project file and select **Enter**.
   - The name must contain only numbers, letters, and underscores.
   - The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.The name must not be a reserved keyword:

Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword	Keyword
ABS	ACOS	ACS	AND	ASIN	ASN	ATAN	ATN
BEGIN_NT_RUNG	BY	CASE	COS	DEG	DEG	DO	ELSE
ELSIF	END_CASE	END_FOR	END_IF	END_NT_RUNG	END_REPEAT	END_WHILE	EXIT
FOR	FRD	GOTO	IF	IMAGES	LN	LOG	MOD
NOT	OF	OR	PROFILES	RAD	REPEAT	RETURN	SIN
SQR	SQRT	TAN	THEN	THIS	TO	TOD	TRN
TRUNC	UNTIL	WHILE	XOR				

3. On the **Standard** toolbar, select **Save** .

See also

Close a project on page 64

Project Explorer on page 95

Save a project on page 62

Save a copy of a project on page 62

Rename a View Designer project file on page 61

Rename a View Designer project file

View Designer project files can have a different name than the project name. Renaming a project does not rename the project file name.

To rename a View Designer project file

- Use one of the following methods:
  - Navigate to the file location and change the file name. By default, projects are saved as VPD files in the project directory <user>\My Documents\Studio 5000\Projects.
  - Select **File > Save Project As** and type a unique name for the project.

Tip: View Designer cannot save a .vpd file with a name if a .vpd file of the same name is open in another instance of View Designer.

See also

Create a project on page 53

Rename a project on page 60

Sort the contents of a project

View and sort a list of all open screens, shortcuts, and popups in a project.

To sort the contents of a project:

1. On the **Menu** bar, click **WINDOW > Windows**.
2. Click the **Name** column heading. Clicking the heading switches between ascending and descending sort order.

Tip: To display an item from the list, select the item and click **Activate**. Activating an item also opens the corresponding **Graphic Explorer** and **Properties** windows for the item.

See also

Graphic Explorer on page 132

Properties window on page 493

Save a project

As a best practice, save a project frequently while working on it. This prevents data loss due to an unexpected power failure or other problem.

By default, projects are saved as .vpd files in the project directory <user>\My Documents\Studio 5000\Projects.

To save a project

- On the **Standard** toolbar, select **Save** .

See also

Save a copy of a project on page 62

Close a project on page 64

Open a project on page 56

Rename a project on page 60

Save a copy of a project

Use the **Save Project As** command to create a copy of an open project. Create a copy of a project to:

- Create a project from an existing project.
- Prevent overwriting the original project.

To save a copy of a project

1. Select **File > Save Project As**.
2. In the **File name** box, type a name for the project.
3. Select **Save**. The open project is now the new project, not the original project. Pending edits are saved only to the new project. They are not saved to the original project.

Tip: View Designer cannot save a project if a .vpd file with the same name is open in another instance of View Designer.

4. (optional) Rename the project.

See also

Save a project on page 62

Close a project on page 64

Rename a project on page 60

Save a runtime application to removable media

Save a View Designer runtime application as a .vpdr file. Files that are a .vpdr file download to the HMI device without using View Designer. Save the .vpdr file to removable media. After inserting the removable media in the HMI device, download the runtime application to the HMI device.

Prerequisites

- To save the runtime application to removable media, insert a USB storage device or SD card into the HMI device.

To save a project to removable media

1. Select **File > Save Project As**. Windows Explorer opens.
2. Navigate to the location to save the runtime application.

   Tip: Save the runtime application directly to a USB drive or SD card, or save the runtime application to another location and then copy the runtime application to the USB drive or SD card.
3. In the **File name** box, type a unique name for the runtime application.

   Tips:
   - Do not insert the characters ( ) or commas in runtime application file names. When selecting a .vpdr file to upload from removable media on the HMI device, any .vpdr file name that contains a comma or ( ) characters does not appear in the list selector. The list selector cannot show file names that contain a comma or ( ).
   - If typing the .vpdr extension as part of the file name, type the extension in lowercase letters.
4. In the **Save as type** box, select **View Designer Runtime Application (.vpdr)** and select **Save**. The **Save Runtime Application** wizard opens the **Save Runtime Application** page. The **Location** box on the **Save Runtime Application** page contains the specified location and file name.

   Tip: Downloading a .vpd project file to the HMI device from removable media is not supported.
5. In the **Default language used at startup of HMI device and for undefined translations** box, select the language in which to display the runtime application on the HMI device.
6. Select **Save**. The wizard builds and saves the runtime application on the removable device.

   Tips:
   - While saving, the project is verified. Any warnings and errors that occur appear. Select **Close** and correct any warnings or errors and then save the project again.
   - Select **Cancel** to not save the project.
7. When the save is complete, select **Close**.

   Tip: When the runtime application exists in a location other than removable media, copy the .vpdr from the location to the USB drive or SD card.

See also

Create a project on page 53

Save a project on page 62

Save Runtime Application wizard

Use the **Save Runtime Application** wizard to:

- Save a runtime application .vpdr file to removable media.
- Select the default language of the .vpdr file.
- Download a project to an HMI device without using View Designer.

After saving the runtime application to removable media, download the application by inserting the removable media in the HMI device and performing the download from the **Settings** screen.

Tips:

- When saving the runtime application, the syntax of all expressions, the elements and properties referenced in expressions, and the existence of all project tags in the referenced controller projects are verified.
- If View Designer encounters a problem, the **Save Runtime Application** wizard indicates that there is an error. Errors appear in the **Errors** window below the View Designer screen. Select **Close** to close the **Save Runtime Application** wizard and use the **Errors** window to navigate to the source of the error. Resolve all errors before saving the runtime application to removable media.

See also

Create a project on page 53

Save a project on page 62

Save a runtime application to removable media on page 63

Close a project

If you have unsaved changes, you are prompted to save or discard the changes before the project closes.

To close a project

- Select **File > Close Project**.

See also

Open a project on page 56

Rename a project on page 60

Save a project on page 62

Save a copy of a project on page 62

Content reuse

Create a project using content from one or more existing View Designer projects. For example, assume that you use the same screen in multiple projects and now the screen requires updating. Instead of modifying each screen in each project, modify the screen in one project and then copy it to the other projects.

Or assume that you have different projects but the same users are accessing them. Configure the security access for each user in one project and then copy them to the other projects.

The ability to cut or copy and then paste content depends on the item:

Item:	Cut or copy within a project?	Cut or copy to a different project?
Project Explorer		
Navigation Menu content	Yes	No
User-Defined Screens folder	No	No
Predefined Screens folder	No	No
Predefined screens (excluding System Banner)	Copy to User-Defined Screens folder only; no cut	Copy to User-Defined Screens folder only; no cut
Important: Pasting screens or popups in the **Predefined Screens** folder is not allowed.		
Images folder	No	No
Screens with no user-defined properties	Yes	Yes
Screens with user-defined properties	Yes	Yes
Screens with shortcuts	Copy only; no cut	Copy only; no cut
Popups with no user-defined properties	Yes	Yes
Popups with user-defined properties	Yes	Yes
Shortcuts	Yes	No
System Banner	No	No
Screen and popup content		
Graphic elements	Yes	Yes
Images	Yes	Yes
Drawing elements	Yes	Yes
User-defined properties	Yes	Yes
Controller reference	Yes	Yes
Security Administration user account	Yes	Yes
Table content (State Table, Color Table, Property Definition tab)		
Rows	Yes	Yes
Cells	Copy only; no cut	Copy only; no cut

Pasted content retains its appearance and behavior:

- Screens and popups paste with all of their content.
- Links to shortcuts and popups are retained.
- Navigation events are retained. Verify that the navigation works correctly.
- Graphic elements maintain their physical size and position on the screen.
- Content pasted between projects with different terminal sizes are converted using the **Do not scale** scaling mode.
- Position animation behavior may change when copying and pasting with projects of different terminal sizes. The animation works, but the location that it begins and ends may be different due to scaling.

See also

Copy a Security Administration user account on page 432

Copy an image from a different project on page 324

Select an HMI device

Select an HMI device

The screens in a project represent the physical size of the HMI device selected for the project.

Use the **Application** tab of the **Project Properties** dialog box to:

- Specify the location of the HMI device to which the runtime application will be downloaded.
- Select the type of HMI device for the project.
- Specify how screens scale in View Designer if you change the target HMI device after you create screens for a project.
- Specify how screens scale if you download a runtime application to an HMI device that has a different size or aspect ratio than the HMI device for the configured project.

See also

Select a target HMI device for a new project on page 67

How changing the HMI device for a project affects screens on page 73

Screen scaling overview on page 72

PanelView 5000 HMI device dimensions and DPI on page 80

Select a target HMI device for a new project

The screens in a project represent the physical size of the HMI device selected for the project. Selecting a target HMI device is required to download the runtime application to the HMI device. The selected HMI device determines the number of allowed controller references for the project.

Prerequisites

- Create a new project. Selecting **Finish** on the **New Project** dialog box opens the **Project Properties** dialog box.

To select a target HMI device for a new project

1. On the **Project Properties** dialog box, click the **Application** tab.
2. In the **Location** box, select from a list of the most recently used location.

   Tip: When clicking **Browse** to select the HMI device, the **OK** button is available only when a View Designer-compatible device is selected.
3. In the **Type** box, select **Browse** .

4. On the **Select HMI Device** dialog box, select the appropriate HMI device type. By default, this is the HMI device type specified in the **New Project** dialog box.
5. Select **OK**. Select **Apply** to save changes and remain on the **Project Properties** dialog box, or select **OK** to save changes and close the **Project Properties** dialog box.

Important: Use the **Screen Scaling** options on the **Application** tab when changing the HMI device type after creating screen content.

See also

Project Properties dialog box on page 68

Change the target HMI device for a project and select a Screen Scaling option on page 70

PanelView 5000 HMI device dimensions and DPI on page 80

Browse for HMI Device window

The **Browse for HMI Device** window is a network browser that displays active network connections and devices in tree form.

Use the **Browse for HMI Device** window to:

- Select a target HMI device to which to download the project.
- Remove an unused HMI device from the network tree.

See also

Select a target HMI device for a new project on page 67

Remove an HMI device from the network tree on page 71

PanelView 5000 HMI device dimensions and DPI on page 80

Download Runtime Application wizard on page 709

Project Properties dialog box

The **Project Properties** dialog box consists of:

- **Application** tab: Select or change the target HMI device for a project.
- **References** tab: Add and configure the controller references for a project.
- **Log On Method** tab: Select the logon method for users of the HMI device.
- **Language** tab: Select the default language for HMI devices to use for a download or restart.
- **Usage & Capacity** tab: Compare the total number of user-defined screens and popups as well as the total number of controller references in the open project with the maximum number allowed. View the number of existing shortcuts, Add-On Graphics, PDFs, and images used in a project.

See also

Add a controller reference on page 85

Select a target HMI device for a new project on page 67

Change the target HMI device for a project and select a Screen Scaling object on page 70

Security overview on page 698

Application tab

Use the **Application** tab of the **Project Properties** dialog box to:

- Specify the location of the HMI device to which to download the runtime application.
- Select the type of HMI device for the project.
- Specify how existing screens scale in View Designer when changing the target HMI device.
- Specify how screens scale when downloading a runtime application to an HMI device that has a different size or aspect ratio than the HMI device for the configured project.
- Specify the size of the keyboard and keypad for the HMI device.

See also

Project Properties dialog box on page 68

Select a target HMI device for a new project on page 67

Change the target HMI device for a project and select a Screen Scaling object on page 70

Screen scaling overview on page 72

Select a default language for HMI device

Select a default language for HMI devices to use for a download or restart.

1. On the **Project Properties** dialog box, select the **Language** tab.
2. Select the **Default language for HMI device startup** list, select a language, and select **OK**.

Tip: If the **Default language for HMI device startup** list is disabled, import languages to enable the list.

See also

Project Properties dialog box on page 68

Language tab on page 69

Language tab

Use the **Language** tab to select the default language for HMI devices to use for a download or restart.

See also

Project Properties dialog box on page 68

About changing the project language on page 675

Add a language to a View Designer project on page 672

Import a language file on page 671

Remove a language from a View Designer project on page 674

Usage & Capacity tab

The **Usage & Capacity** tab compares the number of certain items included in the open project with the maximum number allowed in a project. Use this tab on the **Project Properties** dialog box to:

- Compare the total number of user-defined screens and popups in an open project with the maximum number allowed for a project.
- View the number of existing shortcuts, Add-On Graphics, PDFs, and images used in an open project.
- Compare the size of the data log configuration in an open project to the maximum size allowed for a project.
- Compare the total number of controller references in an open project with the maximum number allowed for the selected HMI device of the project.

See also

Project Properties dialog box on page 68

What is a popup? on page 118

Shortcut customization on page 107

Create a screen on page 348

Delete a screen on page 352

Change the target HMI device for a project and select a Screen Scaling option

The screens in a project represent the physical size of the HMI device selected for the project. Changing the target HMI device type after creating screens for a project converts the screens to fit the dimensions of the new HMI device based on the selected **Screen Scaling** option.

IMPORTANT
- Changing the screen size and then changing it back to the original size may change the size and position of the contents.
- Changing screen size cannot be undone. To revert to the original screen size, change to the original screen size.

To change the target HMI device for a project and select a Screen Scaling option

1. Open the project.
2. (optional) To save the project with a new name to preserve screen content in the original project, on the **Menu** bar, select **File > Save Project As**, enter a new name, and select **Save**.
3. On the **Menu** bar, select **Project > Project Properties** and select the **Application** tab.
4. In the **Type** box, select **Browse** ... The **Select HMI Device** dialog box opens.
5. Select the appropriate HMI device type. The default HMI device type is set in the **New Project** dialog box.
6. Select **OK** to close the **Select HMI Device** dialog box.
7. In the **Screen Scaling** section of the **Application** tab, select a scaling option:

- **Scale with fixed aspect ratio.** (Default) When you resize the screen, content is resized to fill the screen as much as possible while maintaining the same aspect ratio. If the aspect ratio of the screens changes from regular (4:3) to wide, or vice versa, squares and circles do not elongate into rectangles and ellipses. Screen content anchors to the upper left of the screen. Any extra space appears to the right of or below the converted screen content.
- **Stretch to fit.** Resizes the screen content to fill the screen. As you resize the screen from wider or narrower and vice versa, squares and circles are elongated into rectangles and ellipses. In addition, wrapped text may wrap at different word boundaries on the new screens.
- **Do not scale.** Keeps the screen content the same size and position on the new HMI device as the original screens. Screen content ianchores to the upper-left of the screen. Any extra space is added to the right of or below the converted screen content. If the screen on a new PanelView HMI device is smaller than the original screen, the content might be placed outside the new screen borders.

8. In the **Keypad and Keyboard Size** section, select the size of the keypad and keyboard for an PanelView 5000 device.
   - **Normal**. The default size of the keypad and keyboard.
   - **Large**. The keypad and keyboard display in a larger size similar to a physical keypad and keyboard.

   Tip: The HMI device scales the **Large** keypad and keyboard to fit the screen.
9. Select **Apply** and then select **OK**. The **Project Properties** dialog box closes.

   Tips:
   - Changing the target HMI device to an HMI device that allows fewer controller references displays errors on the **References** tab of the **Project Properties** dialog box.
   - The maximum number of controller references for the HMI device appears at the top of the **References** tab.
   - Delete controller references on the **References** tab to not exceed the maximum allowed for the HMI device of the project.
10. Review the screens, popups, and the banner in the project to ensure that the content, including text and raster images, displays as intended.

See also

Project Properties dialog box on page 68

How changing the HMI device for a project affects screens on page 73

Screen scaling overview on page 72

Remove an HMI device from the network tree

Remove an HMI device from the network tree in the **Browse HMI Device** window to display only the devices relevant to the project.

To remove an HMI device from the network tree

1. On the **Application** tab of the **Project Properties** dialog box, or on the **HMI Device Location** page of the **Download** wizard, select **Browse** next to the **Location** box.
2. In the **Browse HMI Device** window, right-click the HMI device and select **Remove**.

See also

Select a target HMI device for a new project on page 67

Browse for HMI Device window on page 68

PanelView 5000 HMI device dimensions and DPI on page 80

Screen scaling overview

Screen scaling ensures that screen content on the target HMI device is sized similar to the content size on the original HMI device when:

- Changing the target HMI device after creating screens for a project
- Downloading the project to an HMI device that has a different aspect ratio, resolution, or DPI than the HMI device for the configured project

Control how converted screens display in View Designer and how downloaded screens display on the new HMI device by selecting a scaling mode on the **Application** tab of the **Project Properties** dialog box:

- **Scale with fixed aspect ratio.** (Default) Resizes the screen content to fill the screen on the new HMI device as much as possible while maintaining the same aspect ratio. If the aspect ratio of the screens changes from regular (4:3) to wide, or vice versa, squares and circles are not elongated into rectangles and ellipses.
- **Stretch to fit**. Resizes the screen content to fill the screen on the new HMI device. If the aspect ratio of the screens changes from regular (4:3) to wide or vice versa, squares and circles are elongated into rectangles and ellipses.
- **Do not scale.** Keeps the screen content the same size and position on the new HMI device as the original screens.

See also

- Change the target HMI device for a project and select a Screen Scaling option on page 70
- How changing the HMI device for a project affects screens on page 73
- Download a runtime application to a different HMI device on page 711
- Runtime application scaling on different HMI devices on page 77

Screen and content measurements and display on page 81

How changing the HMI device for a project affects your View Designer screens

When changing the target HMI device after creating screens for a project, View Designer converts the screens to fit the dimensions of the new HMI device. Screens in the project convert to display in View Designer as they do on the new HMI device.

The conversion may change the size and position properties of the graphic elements in the original project based on the scaling mode selected. This may require moving content to new screens when converting to a smaller HMI device or combining content into fewer screens when converting to a larger HMI device.

Screens are affected by

- **Content placement**

  Screen content is anchored to the upper left of the screen in pixel position 0,0. Extra space is added below or to the right of the existing screen content. If the new HMI screen is smaller than the original screen, screen content might be placed outside the new screen borders.

- **Text**

  Point size may change during conversion. Word wrapping is not maintained.

- **Banner**

  The banner is always as wide as the screen width. The height of the banner is set based on the selected **Screen Scaling** option.

- **Popups**

  Popups and their contents remain the same physical size as on the original screen unless they do not fit the screens on the new HMI device. In this case, the popups and their contents reduce to fit the new screen area while maintaining a fixed aspect ratio. This is regardless of the **Screen Scaling** option selected. After the screens convert, the relative space that the popups cover on the new screens is different from the original screens.

- Bindings to size and position properties of graphic elements

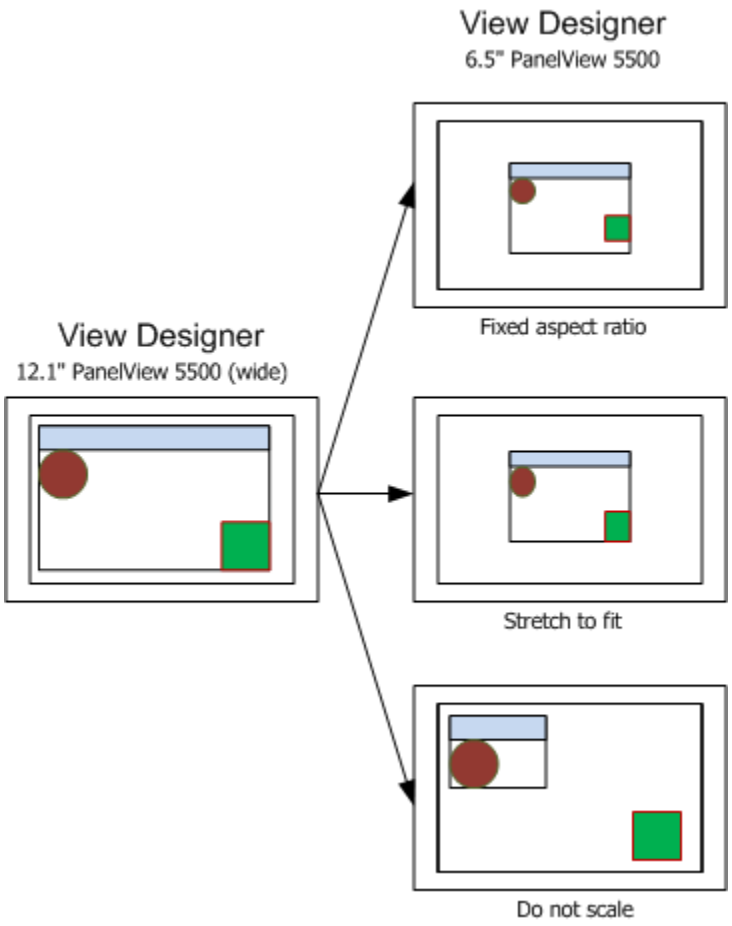
  Bindings to size and position properties of graphic elements may not work the same after project conversion. This is because the size and position properties of the graphic elements may have changed. The animation values in the controller may need to be updated to reflect the new size and position coordinates.

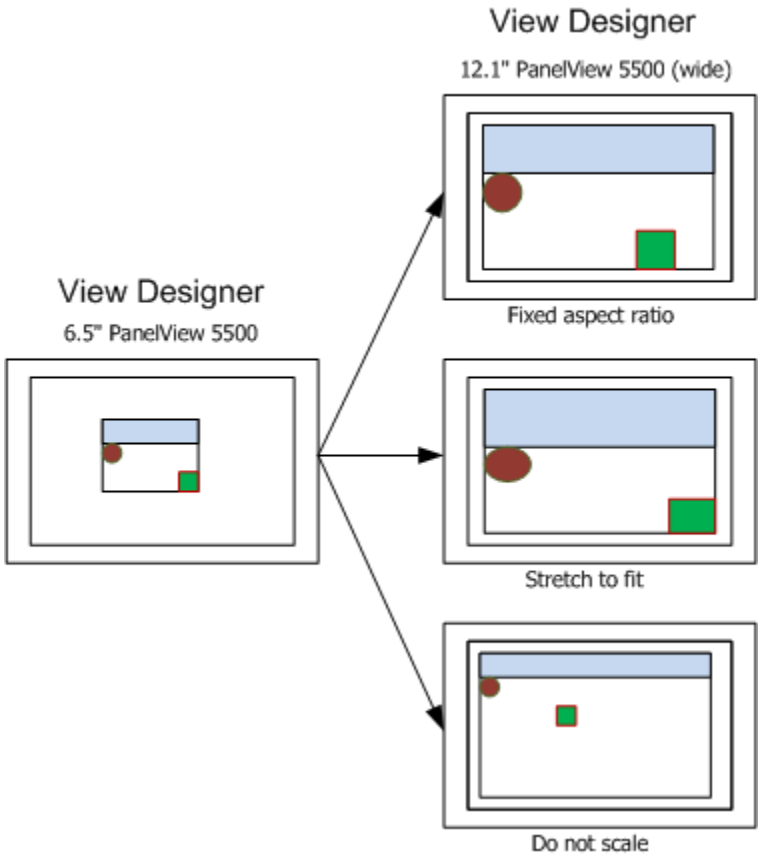
- **Raster images**

  Bitmap or raster images store as a series of tiny dots called pixels. When adding a raster image to a View Designer screen, the image Height and Width property values in the **Properties** tab match the pixel size of the image. Raster images may appear unclear because View Designer scales the bitmap image to match the physical size of the image as it appears on the HMI device screen. Images appear sharp on the HMI device screen.

- **Graphic elements**

The corner radius and the border width of graphic elements do not resize.





See also

Application tab on page 69

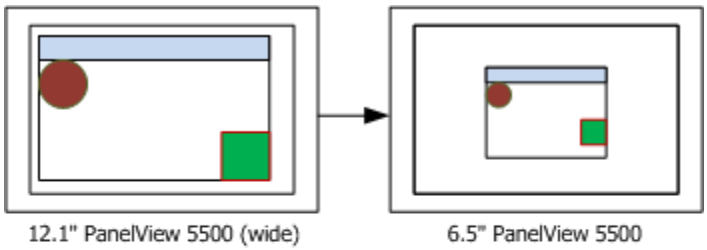
Change the target HMI device for a project on page 70

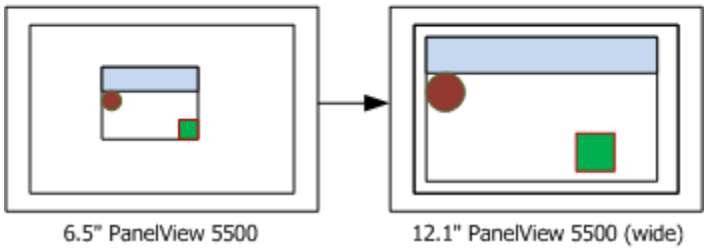
Screen scaling overview on page 72

Scaling examples

Scaling options under **Screen Scaling** on the **Application** tab include:

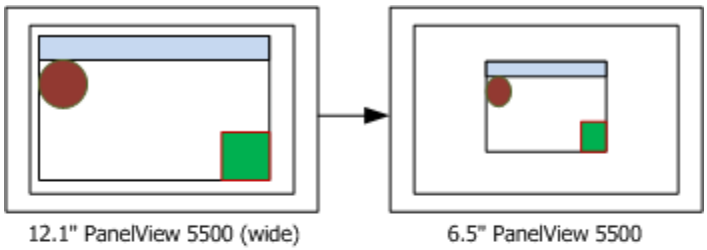
Scale with fixed Aspect ratio

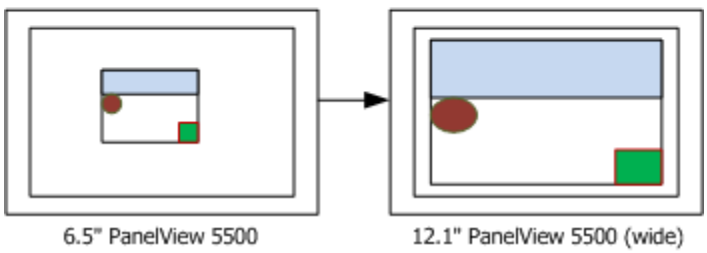




Screen examples represent the View Designer screen (canvas).

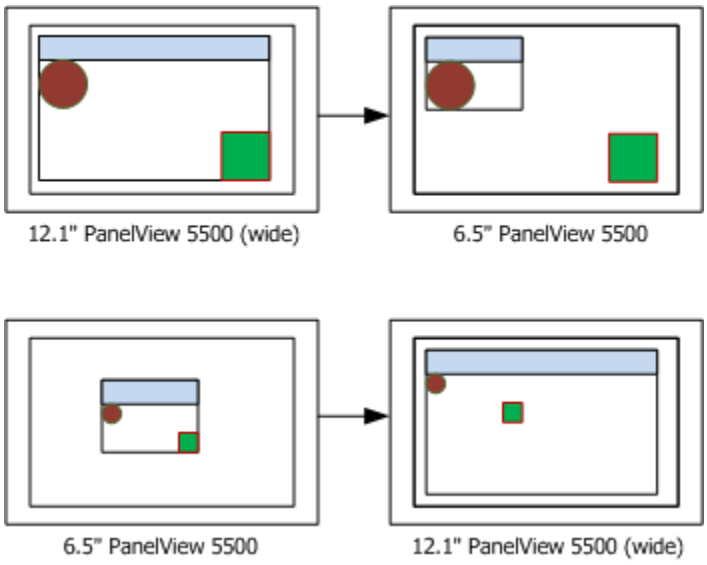
Stretch to fit





Screen examples represent the View Designer screen (canvas).

Do not scale



See also

Change the target HMI device for a project and select a Screen Scaling option on page 70

Runtime application scaling on different HMI devices

When downloading a project to a different HMI device, screens automatically scale on the HMI device to fit based on the scaling option for the project. This does not affect the project contents in View Designer. The scaling option is appears on the **Application** tab of the **Project Properties** dialog box.

Downloading a project to an HMI device with a different DPI setting affects the display of screens:

- **Content placement**

  Screens appear in the center of the new HMI device. Any extra space required for **Scale with fixed aspect ratio** or **Do not scale** options appears equally on either side or above and below the screen. If the new HMI screen is smaller than the original screen, the **Do not scale** option is overridden to **Scale with fixed aspect ratio** to ensure screen content is not clipped.

- **Text**

  Text appears at the point size for the targeted HMI device. If the actual HMI device differs, the text stretches to fit the new area based on the scale mode selected. If the actual HMI device has a different aspect ratio and the scale mode selected is **Stretch to fit**, the aspect ratio of the text stretches or compresses to fill the new area.

- **System Banner**

  The **System Banner** is always as wide as the screen. The height of the **System Banner** depends on the selected scaling option.

- **Popups**

Popups and their contents remain the same physical size as on the original screen unless they do not fit the screens on the new HMI device. In this case, the popups and their contents reduce to fit the new screen area while maintaining a fixed aspect ratio. This is regardless of the **Screen Scaling** option selected. After the screens convert, the relative space that the popups cover on the new screens is different from the original screens.

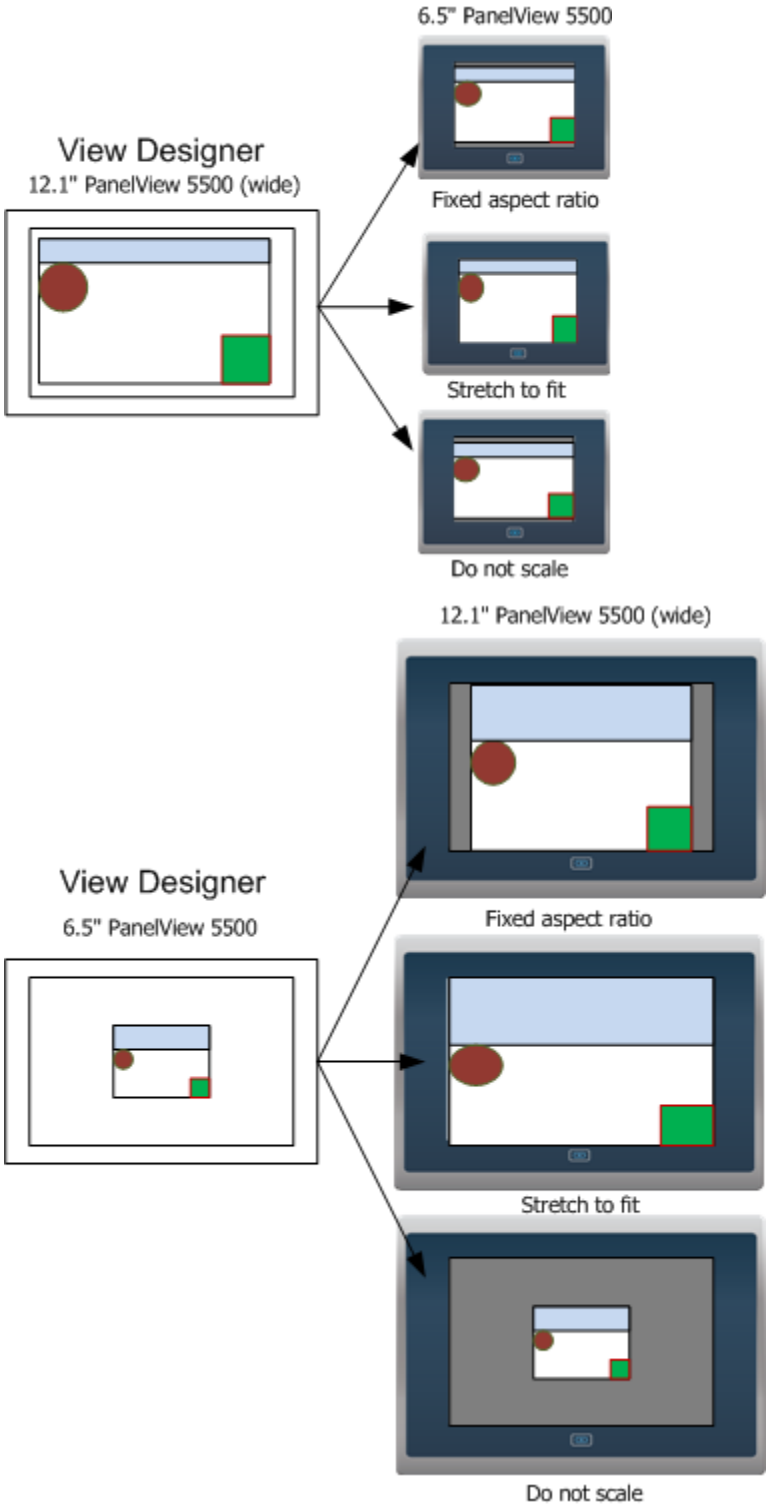
- Bindings to size and position properties

  Downloading a project to a different HMI device does not affect bindings to size and position properties of graphic elements. Update animation values in the controllers as necessary to match the new size and position values.

- **Raster images**

  Bitmap or raster images store as a series of tiny dots called pixels. When adding a raster image to a View Designer screen, the image Height and Width property values in the **Properties** tab match the pixel size of the image. Raster images may appear unclear because View Designer scales the bitmap image to match the physical size of the image as it appears on the HMI device screen. Images appear sharp on the HMI device screen.

Loading a raster image on an HMI device that is different from the HMI device for the project results in the image appearing unclear compared to the original. Add ore remove pixels to match the new image size. The image size varies from with HMI device screen size.



See also

Project Properties dialog box on page 68

Screen scaling overview on page 72

Download a runtime application to a different HMI device on page 711

PanelView 5000 HMI device dimensions and DPI

Dimensions and DPI for the PanelView 5510 HMI device include:

	HMI device					
	7-inch	7-inch with keypad	7-inch wide	9-inch wide	10-inch	10-inch with keypad
Screen diagonal (in)	6.5	6.5	7	9	10.4	10.4
Catalog number	2715P-T7CD	2715P-B7CD	2715P-T7WD	2715P-T9WD	2715P-T10CD	2715P-B10CD
Screen size (px)	640 x 480	640 x 480	800 X 480	800 x 480	800 x 600	800 x 600
Screen (DPI)	123	123	134	103	96	96
Screen, W x H (mm)	132 x 99	132 x 99	152.5 x 91.5	196 x 118	211 x 158	211 x 158
Screen, W x H (in)	5.20 x 3.90	5.20 x 3.90	6 x 3.6	7.76 x 4.65	8.31 x 6.22	8.31 x 6.22

	HMI device			
	12-inch wide	15-inch	15-inch with keypad	19-inch
Screen diagonal (in)	12.1	15	15	19
Catalog number	2715P-T12WD	2715PT-T15CD	2715P-B15CD	2715P-T19CD
Screen size (px)	1280 x 800	1024 x 768	1024 x 768	1280 x 1024
Screen (DPI)	125	86	86	86
Screen, W x H (mm)	262.6 x 164.7	305.6 x 229.6	305.6 x 229.6	377.0 x 301.8
Screen, W x H (in)	10.34 x 6.48	12.03 x 9.04	12.03 x 9.04	14.84 x 11.88

Dimensions and DPI for the PanelView 5310 HMI device include:

	HMI device				
	6-inch	7-inch wide	9-inch wide	10-inch	12-inch wide
Screen diagonal (in)	5.7	7	9	10.4	12.1
Catalog number	2713P-T6CD1	2713P-T7WD1	2713P-T9WD1	2713P-T10CD1	2713P-T12WD1
Screen size (px)	640 x 480	800 X 480	800 x 480	800 x 600	1280 x 800
Screen (DPI)	142	134	103	96	125
Screen, W x H (mm)	115.2 x 86.4	152.5 x 91.5	196 x 118	211 x 158	262.6 x 164.7
Screen, W x H (in)	4.5 x 3.4	6 x 3.6	7.76 x 4.65	8.31 x 6.22	10.34 x 6.48

See also

Application tab on page 69

Select a target HMI device for a new project on page 67

Screen and content measurements and display on page 81

Screen and content measurements and display

View Designer is a WYSIWYG editor. Text and graphics on the screen in View Designer closely resemble what appears on the target HMI device. Screens and their content are measured and displayed in ways that ensure a project can appear on different HMI devices.

Project screens

Project screens are measured by:

- **Pixel dimension.** Pixel dimension is the number of pixels wide and high for a screen. For example, the 7" PanelView device is 640 wide x 480 pixels high. The density of these pixels is known as DPI (Dots Per Inch). DPI is the number of pixels in a linear inch.

  Screen resolution is also expressed in DPI. For example, the resolution of the 7" PanelView device is 123 DPI.

- **Physical size.** The physical size of an HMI device screen is usually specified as a diagonal measurement, such as from the lower left corner to the upper right corner. For example, the physical size of the 7" PanelView device is 6.5".

  The HMI device screen can also be measured by the width and height measurements that are more important for motion animation. For example, the 7" PanelView device is 5.20" wide x 3.90" high.
  The proportional relationship between the width and height of a screen is called aspect ratio.

The screens in View Designer measure the same as the screens of the configured HMI device. This assumes that Windows is calibrated to the DPI of the monitor on which View Designer is running. For example, the 7" PanelView device is 640 x 480 pixels. To show the screens sized in View Designer with Windows set to 96 DPI, the screens are scaled down to 500 x 375 pixels to represent the 5.20" x 3.90" size.

Text

Text size is typically measured in points, where a point is 1/72 of an inch. This defines the height of the text, but not its width. This means that text width varies slightly on different devices depending on the DPI of the device.

To prevent text from being distorted on screens of varying DPI, View Designer draws the text at the DPI of the target HMI device and sets the width and height based on the number of pixels the text used. Therefore, the X, Y, Width, and Height property values in the **Properties** window are shown in the pixel size they will be drawn on the configured HMI device. The text, including its border, is scaled to the physical size it is on the HMI device. Seeing and measuring the actual size maintains minimum touch areas. This assumes that Windows is calibrated to the DPI of the monitor on which View Designer is running.

Screen content

Screen content is sized to match the size of the font, so that when a screen is viewed at 100%, the text and elements are the same size as they appear on the HMI device.

Changing the HMI device for a project, and selecting **Do Not Scale** as a scaling option causes the size and position properties to change to the pixels necessary to maintain the same size. Text width may also change when the DPI changes, so the font point size might also change to keep the text from being clipped.

Changing the HMI device for a project, and selecting a scale mode other than **Do Not Scale** also changes the size and position properties, including font size. However, this is a relative change, not a physical change. The screen elements take up the same percent of screen space on the new screen as they did on the old screen, but they are now a different physical size and pixel size.

The spacing around content within a graphic element may differ on View Designer screens that are targeted to different HMI devices. This is due to the different HMI devices having different DPI values. However, text wrapping for content within a graphic element is usually the same from View Designer to an HMI device.

See also

Select a target HMI device for a new project on page 67

Change the target HMI device for a project and select a Screen Scaling option on page 70

PanelView 5000 HMI device dimensions and DPI on page 80

Screen scaling overview on page 72

Raster images look unclear in View Designer

Raster images, such as .bmp, .tif, .jpg, or .png files, are comprised of a grid of pixels, or a bitmap. Scaling elements in View Designer to match the DPI of the HMI device so that fonts look correct on the HMI device can make raster images look unclear in View Designer. This happens when the DPI of the target HMI device is much larger than the DPI under which View Designer is running.

The unclear or pixelated effect occurs because the size of all of the elements on the screen are reduced to match the fewer number of pixels used to display fonts on View Designer. The image may look unclear in View Designer, but it displays correctly on the target HMI device. You can typically scale down raster graphics with little loss of quality.

Copying and pasting an image between View Designer projects for different size HMI devices maintains the physical size of the image. The image no longer has the same number of pixels on the new HMI device as it had on the original HMI device. Add the image to the new screen or manually resize the image to correct the size on the new HMI device.

See also

Screen scaling overview on page 72

Screen and content measurements and display on page 81

PanelView 5000 HMI device dimensions and DPI on page 80

Add a controller reference

A controller reference is a connection to a Logix Designer project file (.acd) from a View Designer project file (.vpd). The connection automatically synchronizes data between a Logix Designer project file (.acd) and View Designer project file (.vpd).

Add up to four controller references, and a recommended maximum of 50,000 tags in a Logix controller to a project. Use a maximum of one controller for each PanelView 5310 project or a maximum of four controllers for a PanelView 5510 project.

Tip: Every scalar, array element, and structure member is considered a separate tag.

Use the **References** tab on the **Project Properties** dialog box to add or change a controller reference.

See also

Add a controller reference on page 85

Synchronization on page 89

References tab on page 87

Add a controller reference

A controller reference is a connection to a Logix Designer project file (.acd) from a View Designer project file (.vpd). The connection automatically synchronizes data between a Logix Designer project file (.acd) and View Designer project file (.vpd). For PanelView 5510 HMI devices, View Designer supports up to four controller references.

Adding a controller reference adds the controller reference to the next available reference card on the **References** tab. Each controller reference has a number in the reference card. This controller number appears when browsing for HMI device controller tags in the **Tag Browser**.

IMPORTANT Select a controller only from an Ethernet network. Logix controllers and project files must be version 27 or later.

Tip: For projects with a PanelView 5000 HMI device, the recommended number of tags across all four Logix controllers is 200,000. A tag is a scalar tag. Scalar tags are BOOL, DINT, REAL, a member of structure, or an element of an array.

To add a controller reference

1. On the **Project Properties** dialog box, select the **References** tab.
2. In the **Controller[#] Reference Name** box, type a unique name for the controller reference. Name the controller reference a different name than the project.

   Tips:
   - Add up to four controller references for projects configured with a PanelView 5510 HMI device.
   - Entering a controller reference name or selecting **Add controller reference** adds an additional controller reference card for projects configured with a PanelView 5510 HMI device.
   - Added controller references appear after the last controller reference card. After saving controller references, reference cards appear in order by controller reference number that appears in the **Controller[#] Reference Name** box.
   - Adding the maximum number of controller references for an HMI device makes **Add controller reference** unavailable.
   - Add up to four controller references for projects configured with a PanelView 5510 HMI device.
   - Entering a controller reference name or selecting **Add controller reference** adds an additional controller reference card for projects configured with a PanelView 5510 HMI device.
   - Added controller references appear after the last controller reference card. After saving controller references, reference cards appear in order by controller reference number that appears in the **Controller[#] Reference Name** box.
   - Adding the maximum number of controller references for an HMI device makes **Add controller reference** unavailable.
   - Controller References each contain an index number. When controllers replicate at the same time, the controller with the lowest index number replicates before the other controllers in queue. The controller with the lowest index number in queue has the highest priority.
   - The combined number of PanelView 5000 HMI devices and Logix controllers that can communicate with each other through a 1756-EN2T or 1756-EN3T Ethernet module is eight or fewer.

3. Type the path of the file or select a Logix Designer project file (.acd) by selecting **Browse** next to the **Logix Project File** box.

   Tip: The project file (.acd) for each referenced controller must be Logix Designer version 27 or later.

4. Set the path from the HMI device to the controller:

a. Type the IP address of the controller. To browse for the controller, after the **HMI to Controller Path** box, select **Browse** and select the controller running the selected Logix Designer project file (.acd).

b. In the **Slot** box, select the slot number of the controller to reference. After browsing to the controller in the previous step, the slot number appears automatically.

5. Set the path from the **View 5000 Emulator** to the controller:

a. After the **Emulator to Controller Path** box, select **Browse** and select the controller running the selected Logix Designer project file (.acd).

b. (optional) If the controller is previously viewed, select the **Select Controller Path** list and select the controller from an Ethernet network or virtual backplane running Logix Emulator.

   Tips:
   - The **Select Controller Path** list contains up to the last five recently viewed controller paths. If there are no previously viewed paths, the list does not appear.
   - Setting the Emulator to Controller path to the same path for multiple controller references displays duplicate alarms in the Alarm Summary and the Alarm Manager. Each alarm in the controller displays for each controller reference that has the same Emulator to Controller path.

6. Select **Apply** to save changes and keep the **Project Properties** dialog box open, or select **OK** to save changes and close the dialog box.

Tip: When browsing for a controller, the **OK** button is available when selecting a View Designer-compatible device.

See also

Project Properties dialog box on page 68

References tab on page 87

Select a target HMI device for a new project on page 67

Remove a controller reference on page 88

References tab

Use the **References** tab to add controller references to the project. A controller reference is a connection to a Logix Designer project file (.acd) from a View Designer project file (.vpd). Add up to four controller references for a PanelView 5510 HMI device. The connection automatically synchronizes data between a Logix Designer project file (.acd) and View Designer project file (.vpd).

See also

Project Properties dialog box on page 68

Synchronization on page 89

Add a controller reference on page 85

Remove a controller reference on page 88

Browse for Controller window

The **Browse for Controller** window is a network browser that displays active network connections and devices in tree form.

Use the **Browse for Controller** window to select a controller to reference for the project.

See also

- Add a controller reference on page 85
- Remove a controller from the network tree on page 89

Copy a controller reference

Copy a controller reference within a View Designer project or from one View Designer project to another. This eliminates the need to manually enter the information in a project. Copy individual items from a controller reference or the entire controller reference. Paste controller references that are of the same version of Logix Designer.

Prerequisites

- Open the source View Designer project containing the content to copy.

- If pasting content into another project, start an instance of View Designer and open the target project. Open no more than three instances of View Designer at one time.

To copy a controller reference

1. In the source project, select **Project > Project Properties** and select the **References** tab.
2. Right-click the controller reference and select **Copy**.

   Tip: To copy a single item from a controller reference card, select the controller reference, select the item to copy, and then right-click and select **Copy**.
3. In each target project:

a. Select **Project > Project Properties** and select the **References** tab.

b. Right-click the new controller reference card and select **Paste**. Pasting assigns the next available controller reference number.

c. Select **Apply** to save changes and remain on the **Project Properties** dialog box, or select **OK** to save changes and close the **Project Properties** dialog box.

Tips:

- Pasted controller references appear after the last controller reference card. Each controller reference card has a controller reference number that identifies the position on the **References** tab and the name of the referenced controller. When reopening the **References** tab, reference cards appear in order by controller reference number that appears in the **Controller[#] Reference Name** box.
- After saving controller references, reference cards appear in order by controller reference number.
- For PanelView 5310 HMI devices, View Designer does not support pasting a controller reference in a project that already contains a controller reference.
- For PanelView 5510 HMI devices, paste up to four controller references in a project.
- For multiple controllers and their tags to appear in the **Tag Browser** for a PanelView 5510 HMI device, the project file (.acd) for each referenced controller requires the same version of Logix Designer.
- View Designer does not support pasting a number of controller references that exceeds the total allowed for an HMI device. A prompt appears to paste the copied controller references that do not exceed the maximum for the HMI device.
- The maximum number of controller references appears at the top of the **References** tab and on the **Usage & Capacity** tab. Deleting the required number of controller references from the **References** tab removes the errors.

See also

Project Properties dialog box on page 68

References tab on page 87

Add a controller reference on page 85

Remove a controller reference on page 88

Remove a controller reference

Removing a controller reference disconnects the View Designer project from the Logix Designer project file (.acd). Tags and data types for the referenced controller do not appear in the **Tag Browser** or **Data Type Browser**.

To remove a controller reference

1. On the **Project Properties** dialog box, select the **References** tab.
2. To the right of the controller reference, select **Remove controller reference** . The reference no longer appears.

   Tips:
   - Removing a controller reference adjusts the placement of any subsequent reference cards. After saving controller references, reference cards appear in order by controller reference number that appears in the **Controller[#] Reference Name** box.
   - In the **Controllers** popup on the HMI device, any unused controller reference has a tab named **Not configured**.
3. Select **Apply** to save changes and remain on the **Project Properties** dialog box, or select **OK** to save changes and close the **Project Properties** dialog box.

See also

Project Properties dialog box on page 68

References tab on page 87

Remove a controller from the network tree

Remove a controller from the network tree in the **Browse for Controller** window to display only the controllers that are relevant to the project.

1. On the **References** tab of the **Project Properties** dialog box, or on the **Controller References** page of the **Download** wizard, select **Browse** next to the **Slot** box.
2. In the **Browse for Controller** window, right-click the controller and select **Remove**.

See also

Browse for Controller window on page 87

Add a controller reference on page 85

How does synchronization work?

Studio 5000 automatically synchronizes data between a Logix Designer project file (.acd) and a View Designer project file (.vpd).

It also synchronizes data between the runtime application on the HMI device and the controller connected to that HMI device. The synchronized data includes tags, data types, program tags, and alarms. The synchronization service automatically runs in the background every 15 seconds, enabling you to continue working while the data is synchronized.

Synchronization between Logix Designer and View Designer

When you create an HMI project in View Designer, use the synchronized data to bind to graphic elements, screens, or expressions.

In View Designer:

- Synchronization state indicator icons appear next to the controller on the **References** tab, and on the **Tag Browser** window to

indicate the state of the controller. The state indicators do not appear if there is no new data to synchronize. The following table describes the state indicator icons.

State indicator icons

Icon	Description
	The controller is synchronizing.
	The data in the controller is not synchronized; it will be automatically synchronized. Hover your mouse on the icon to display additional information.
	A synchronization error occurred. The Logix Designer project file (.acd) does not exist, or it is a version that is not supported. Hover your mouse on the icon to display additional information.
	The controller is synchronized.

- When you add a new controller reference, content is synchronized between the Logix Designer project file (.acd) for that controller and the View Designer project file (.vpd).
- When synchronization is in progress, you cannot download an HMI project to the HMI device. As a best practice, Rockwell Automation recommends you save your HMI project after synchronization is complete.
- When you change the controller reference, click **OK** on the **References** tab to synchronize content between the newly referenced Logix Designer project file (.acd) for that controller and the View Designer project file (.vpd). If the Logix Designer project file (.acd) is not valid, the synchronization service displays an error, synchronization does not take place, and the HMI project references the previously synchronized data from the last referenced Logix Designer project file (.acd).
- When you delete the controller reference, the previously synchronized data from the Logix Designer project file (.acd) is removed from the View Designer project file.

Tip: If you save the View Designer project before synchronization finshes, or if you abort the synchronization (for example by closing the project before it finishes), content synchronization will start again the next time you open the project.

In Logix Designer:

When you make a change in a Logix Designer project file (.acd), the synchronization service detects the changes to the Logix Designer project file (.acd). The synchronization service automatically synchronizes data between the Logix Designer and View Designer project files.

Synchronization between the runtime application on the HMI device and the controller connected to the HMI device

When you download the HMI project to the HMI device, the synchronization service connects the runtime application to the controller referenced in the HMI project. After the synchronization service connects to the controller, it reads data from the controller to determine if it matches the data in the HMI project. If the data does not match, the data

in the HMI project automatically synchronizes with the data in the controller.

When the runtime application is running on the HMI device, the synchronization service checks if the Logix Designer file in the controller was updated. The Logix Designer project file in the controller can be updated using the online editing features in Logix Designer. If the project file was updated, the synchronization service will automatically synchronize data between the Logix Designer project file referenced in the runtime application and the newly updated Logix Designer project file in the controller.

You can configure system tags to display information about the synchronization status of the runtime application and the Logix5000 controller or use the ControllersGeneral screen in the **Predefined Screens** folder.

See also

References tab on page 87

Add a controller reference on page 85

Remove a controller reference on page 88

System tags: Controller on page 537

Synchronization between Logix Designer and View Designer

When creating an HMI project in View Designer, use the synchronized data to bind to graphic elements, screens, or expressions.

In View Designer

Synchronization state indicator icons appear next to a controller on the **References** tab, and on the **Tag Browser** window to indicate the state of the controller. The state indicators do not appear if there is no new data to synchronize.

- When adding a new controller reference, content is synchronized between the Logix Designer project file (.acd) for that controller and the View Designer project file (.vpd).
- When synchronization is in progress, downloading an HMI project to the HMI device is not supported. As a best practice, Rockwell Automation recommends saving the HMI project after synchronization is complete.
- When changing a controller reference, select **OK** on the **References** tab to synchronize content between the newly referenced Logix Designer project file (.acd) for that controller and the View Designer project file (.vpd). If the Logix Designer project file (.acd) is not valid, the synchronization service displays an error, synchronization does not take place, and the HMI project references the previously synchronized data from the last referenced Logix Designer project file (.acd).
- When deleting a controller reference, the previously synchronized data from the Logix Designer project file (.acd) no longer appears in the View Designer project file.

Tip: If you save the View Designer project before synchronization finshes, or if you abort the synchronization (for example by closing the project before it finishes), content synchronization will start again the next time you open the project.

In Logix Designer

When making a change in a Logix Designer project file (.acd), the synchronization service detects the changes to a Logix Designer project file (.acd). The synchronization service automatically synchronizes data between the Logix Designer and View Designer project files.

See also

Synchronization between the runtime application and the controller on page 92

Tag browsing in a secured Logix Designer project file on page 93

Synchronization: Controller state indicator icons

These are the controller state indicator icons:

Icon	Description
	A controller is synchronizing.
	The data in a controller is not synchronized. Controller data synchronizes automatically. Hover the mouse on the icon to display additional information.
	A synchronization error occurred. The Logix Designer project file (.acd) does not exist, or it is a version that is not supported. Hover your mouse on the icon to display additional information.
	The controller is synchronized.

See also

Synchronization on page 89

Synchronization between the runtime application and the controller

When downloading the HMI project to the HMI device, the synchronization service connects the runtime application to the controller referenced in the HMI project. After the synchronization service connects to the controller, it reads data from the controller to determine if it matches the data in the HMI project. If the data does not match, the data in the HMI project automatically synchronizes with the data in the controller.

When the runtime application runs on the HMI device, the synchronization service checks if the Logix Designer file in the controller was updated. The Logix Designer project file in the controller can be updated using the online editing features in Logix Designer. If the project file was updated, the synchronization service will automatically synchronize data between the Logix Designer project file referenced in the runtime application and the newly updated Logix Designer project file in the controller.

Configure system tags to display information about the synchronization status of the runtime application and the Logix5000 controller or use the ControllersGeneral screen in the **Predefined Screens** folder.

See also

Synchronization between Logix Designer and View Designer on page 91

Tag browsing in a secured Logix Designer project file on page 93

Tag browsing in a secured Logix Designer project file

Browsing for tags in a secured Logix Designer project file (.acd) from View Designer is allowed only with security access to the .acd file.

The first logged-on user to open View Designer may prevent subsequent users who log on and open View Designer from synchronizing .acd files in their Documents folder while the first user is still logged on. To prevent this:

- Have the subsequent user synchronize with a file that both the subsequent user and first user can access.
- Have the first user log off before the subsequent user logs on.

If multiple users log on and log off of the same computer, and the first user to start View Designer logs out, subsequent users will no longer be able to synchronize .acd files or create or change references to them. To prevent this, have only one user logged on to a multi-user computer at a time when running View Designer.

Install Logix Designer to synchronize with an .acd file.

Install Logix Designer version 27 or version 28, or Studio 5000 Logix Designer version 29 to add a reference to their respective .acd file. However, A View Designer project (.vpd file) that already has an .acd file reference added and synchronized stays synchronized without installing Logix Designer.

See also

Synchronization between Logix Designer and View Designer on page 91

Synchronization between the runtime application and the controller on page 92

View the default content of a project

View Designer provides default content to use to build and organize a project.

The **Project Explorer** displays the contents of a View Designer project in tree form. The root-level project folder contains the project name and default folders -- **Navigation Menu**, **User-Defined Screens**, and **Predefined Screens**.

See also

Project Explorer on page 95

Predefined Screens folder on page 96

What is the System Banner? on page 97

What is the Settings screen? on page 97

What is the Alarm Summary? on page 99

Project Explorer

How do I open the Project Explorer?

On the **Menu bar**, click **VIEW > Project Explorer**.

The **Project Explorer** displays the contents of a View Designer project in tree form. The root-level project folder contains the project name and default folders. These folders contain the items of the project, including default content. Project items include:

Default Folder	Screens	Shortcuts	Popups	Folders	Default Project Screens and Popups	Add-On Graphics	Images	Sample rates	Documents	Events
Navigation Menu		✓		✓						
User-Defined Screens	✓		✓	✓						
Predefined Screens					✓					
Assets						✓	✓		✓	
Data Logging								✓		
Project Events										✓

The content and its order in the **Navigation Menu** folder are displayed as menu items in the **Navigation menu** on the HMI device. The shortcuts in the **Navigation Menu** folder are based on user-defined screens or the **Settings**, **Alarm Summary**, and **Alarm Manager** predefined screens.

Use the **Project Explorer** to:

- Browse and organize the contents of a project.

- Add screens, shortcuts, popups, and folders to a project.
- Open, rename, and delete screens, shortcuts, popups, and folders.
- Create navigation for the user on the HMI device.
- Create an Add-On Graphic or image to add to a screen or popup
- Create a data log with sample rates to add to a screen or popup
- Display the properties of a project, such as controller references and the target HMI device.
- Verify a project.
- Rename a project.
- Add a PDF document
- Create project events
- Copy and paste single and multiple objects.

Right-click an item in the **Project Explorer** to see a list of actions to perform.

See also

Create a screen on page 348

Create a shortcut to an existing screen on page 102

Create a popup on page 110

Open a screen on page 348

Specify a Home screen on page 553

Predefined Screens folder

The **Predefined Screens** folder in the **Project Explorer** contains default screens, popups, and a **Banner** item for each project. The contents of the **Predefined Screens** folder includes:

- **Banner.** By default, this item appears at the top of each project screen. It displays date and time, active and unacknowledged alarm indicators, controller diagnostic, and network diagnostic information. It also provides buttons to navigate to the **Alarm Summary**, log on and log off the project, move backward and forward through navigation history, and display the **Navigation menu** at the bottom of the HMI device.
- **Settings.** This screen provides a menu to configure settings for the HMI device. By default, access the **Settings** screen through the **Navigation menu** on the HMI device. The options on the **Settings** screen open the popups listed under the screen in the **Predefined Screens** folder. These popups perform tasks to configure HMI device settings.
- **AlarmSummary.** This screen displays the **Alarm Summary**, a list of alarms that are in interestingstates or that require attention. For example, the **Alarm Summary** lists alarms that are In Alarm and Unacknowledged. By default, access the **AlarmSummary** screen through the System Banner or the **Navigation menu** on the HMI device.
- **AlarmManager.** This screen displays the **Alarm Manager**, a list of all alarms regardless of their state. Alarms listed in the **Alarm Manager** include all of the conditions for an alarm. By default,

access the **AlarmManager** screen through the **Navigation menu** or the **Alarm Summary** on the HMI device.

- **AlarmHistory**. This screen displays the **Alarm History**, a list of all alarm state changes. By default, access the **AlarmHistory** screen through the **Navigation Menu**.

See also

What is the Settings screen? on page 97

What is the Alarm Manager? on page 99

What is the Alarm Summary? on page 99

What is the System Banner? on page 97

What is the System Banner?

The **System Banner** appears at the top of each screen configured to show the **System Banner**, and each shortcut to which you have access. The **System Banner** contains a default set of items. Security access to the **System Banner** cannot be set for a particular role. You can remove the **System Banner** from a screen or shortcut through the **Properties** window for the selected screen or shortcut.

You can change the height of the **System Banner**, but not the width. The **System Banner** is always as wide as the screen.

If you do not scale screens and change the HMI device type for your project, this affects the **System Banner**. For example, blank space appears to the right of the **System Banner** when you configure the project for larger HMI device screens. Space to the right of the **System Banner** is removed when you configure the project for smaller HMI device screens. When you do not scale screens and change project settings to a smaller HMI device, elements may appear clipped at the right end of the **System Banner** on the HMI device.

See also

Open the System Banner on page 122

Add a graphic element to the System Banner on page 123

Remove a graphic element from the System Banner on page 125

Remove the System Banner from a screen on page 125

System Banner contents on page 127

What is the Settings screen?

Use the **Settings** screen on the HMI device to view and change HMI device and system-wide settings. The **Settings** screen opens popups that appear in the **Predefined Screens** folder of the **Project Explorer**.

View Designer does not support moving the popups into the **User-Defined Screens** folder. Create events to open these popups from other screens and graphic elements in a project. On the HMI device, use the **Settings** screen to select an option to open a popup and perform the associated tasks.

Option:	Popup:	Tasks:
Network	**NetworkIPSettings** tab	• Specify Internet Protocol settings • Specify IP addresses • Specify DNS addresses
	NetworkLinkSettings tab	• Enable Ethernet links • Set link speed • Specify link duplex
	NetworkDiagnostic tab	• View network diagnostics
Display	Display	• Adjust the HMI device screen brightness • Turn on the screen saver • Set the brightness and delay for the screen saver • Calibrate the screen to respond accurately to touch
HMI Device	HMIDevice	• Specify if project downloads and firmware updates are allowed • Change the name of the HMI device • View catalog and firmware numbers • View diagnostic information
	HMIDevice_RebootConfirm	• Restart the HMI device
Data Export	Data Export	• Export the alarm history or data logs to removable media
Troubleshooting	Troubleshooting	• Import a troubleshooting profile • Export a troubleshooting log • Turn off troubleshooting and restart the HMI device
Date and Time	DateAndTime	• Set the date and time for the HMI device • Set the time zone for the HMI device
Controllers	**ControllersGeneral** tab	• View controller reference and status information
	ControllersDiagnostic tab	• View controller diagnostics
Download from Media	Load Application	• Load a .vpdr file from an HMI storage device or an SD Card inserted into the HMI device.
VNC	VNC	• Configure remote access rights to an HMI device as either Full-Access or View-Only, or disable the remote access to the HMI device.
Email	Email	• Configure the SMTP client to send emails.

See also

Predefined Screens folder on page 96

What is the System Banner? on page 97

What is the Alarm Summary? on page 99

What is the Alarm Manager? on page 99

What is the Alarm Summary?

The **Alarm Summary** lists alarms that are In Alarm or Unacknowledged. The **Alarm Summary** automatically subscribes to all alarms from the controller references specified in the project properties. It displays one alarm condition per row. Use the **Alarm Summary** to monitor and interact with alarms. Add or remove columns to show different data for alarms in the **Alarm Summary** table. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms.

Use the **Alarm Summary** on an HMI device to:

- Acknowledge alarms.
- Disable alarms.
- Shelve alarms.
- Sort alarms.
- Filter alarms.
- Pause alarms.
- Reset digital alarms.
- View alarm details.

See also

Alarm Summary contents for a large HMI device screen on page 577

Alarm Summary contents for a medium HMI device screen on page 575

Alarm Summary table columns on page 579

Columns tab on page 580

Details pane for an Alarm Summary on page 580

What is the Alarm Manager?

The **Alarm Manager** lists all alarms configured in a system and their current states. The **Alarm Manager** subscribes to alarms in the controllers. Every alarm from the controllers is listed unless an alarm is removed from a controller. Use the **Alarm Manager** table to monitor and interact with the alarms on the HMI device.

Tips:

- For tag-based alarms, the Alarm Manager only displays alarms with **Use and evaluate alarm** selected in the Logix Designer.
- The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms.

By default, an **AlarmManager** screen is included in each project. Create a user-defined **Alarm Manager** screen by adding an Alarm Manager graphic element to a screen in View Designer.

Use the **Alarm Manager** to:

- View alarm names to identify the controller and tag of an alarm.
- Enable or disable alarms to take them in or out of service.
- Shelve and unshelve alarms and alarm conditions.
- Reset counts for alarms.
- Sort and filter alarms.
- View alarm errors.
- View individual conditions for an alarm.
- View details for a selected alarm or alarm condition.

See also

Alarms overview on page 563

Create an alarm screen on page 565

Alarm Manager contents for a large HMI device screen on page 589

Alarm Manager table columns on page 591

Shortcuts

Use shortcuts to pass properties to screens to customize the screen content that appears on the HMI device.

A shortcut is a link to a screen on which the shortcut is based. Shortcuts can be based on either new or existing screens.

Shortcuts based on existing screens can reuse screen content to create additional screens that are similar but have been customized to display different values. A project can contain up to 200 shortcuts.

See also

Create a shortcut to an existing screen on page 102

Create a shortcut to a new screen on page 103

Open a shortcut on page 104

Copy a shortcut on page 105

New Shortcut dialog box

Use the **New Shortcut** dialog box to create a shortcut to a screen. Shortcuts provide quick access to a specific screen on the HMI device and can pass tag values from the shortcut to the defining screen using properties you create. Create a shortcut to create another version of a screen by changing the properties of the shortcut.

Shortcuts appear in the **Navigation Menu** folder of the **Project Explorer**. Shortcuts also appear in the **Navigation menu** on the HMI device.

Use the **New Shortcut** dialog box to:

- Create a new shortcut.
- Link a shortcut to a new or existing screen.
- Open a new screen that is linked to the shortcut.

See also

Create a shortcut to an existing screen on page 102

Open a shortcut on page 104

Rename a shortcut on page 104

Open the defining screen of a shortcut on page 105

Shortcut customization on page 107

Shortcut tab

The **Shortcut** tab displays the contents of the shortcut on the HMI device. A shortcut is a link to the screen on which the shortcut is based. A

shortcut displays the same content as the screen to which it is linked. Create screen properties the shortcut can use to pass different tag values to a screen. This allows creating a reusable screen that multiple shortcuts can call using different tag values.

Use shortcuts to provide operators:

- Quick access to a screen.
- A way to call the same screen with different data.

Use the **Shortcut** tab to:

- Specify the icon for the shortcut to appear on the **Navigation menu** of the HMI device.
- Modify properties passed from the shortcut to the defining screen.
- Open the defining screen of the shortcut.

See also

Open a shortcut on page 104

Open the defining screen of a shortcut on page 105

Change a user-defined property on page 368

Restrict access to an item on the HMI device on page 354

Create a shortcut to an existing screen

Create a shortcut to a screen in the **Project Explorer** to create a link to the existing screen. From the shortcut, change any properties defined for the screen. The values of these properties are passed from the shortcut to the screen so that the screen displays different data.

Rockwell Automation recommends using no more than 200 shortcuts per project. Create many shortcuts in order to reuse a single screen and pass different values to the screen. Shortcuts appear in the **Navigation Menu** folder of the **Project Explorer** and in the **Navigation menu** on the HMI device.

To create a shortcut to an existing screen

- In the **Project Explorer**, use one of these methods:
  - **Right-click a screen.** In the **User-Defined Screens** folder or the **Predefined Screens** folder, right-click the screen on which to base the shortcut, and select **New Shortcut**. The new shortcut appears in the **Navigation Menu** folder. The new shortcut is given a default name that is identical to the screen name. Move the new shortcut within the **Navigation Menu** folder and its subfolders.
  - **Drag a screen.** Drag a screen from the **User-Defined Screens** folder or the **Predefined Screens** folder to the **Navigation Menu** folder.
  - **Right-click a location.**

a. Right-click the **Navigation Menu** folder or one of its subfolders and select **New Shortcut**.

b. In the **Name** box of the **New Shortcut** dialog box, type a unique name for the shortcut and select **OK**.

c. Select **Linked to an existing screen**, navigate to select the screen that defines the shortcut, and select **OK**. The shortcut appears in the selected location in the **Navigation Menu** folder. Shortcuts with identical names in the same folder are appended with an increment number.

Tips:
- Create a shortcut to a new screen from the **New Shortcut** dialog box.
- Creating a shortcut to a shortcut is not allowed.
- To not have a shortcut appear in the **Navigation menu** on the HMI device, delete the shortcut.

See also

Create a shortcut to a new screen on page 103

Rename a shortcut on page 104

Move an item in the Project Explorer on page 556

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Create a shortcut to a new screen

Create a shortcut to a screen that does not yet exist in the **Project Explorer**. Any changes made to the newly created screen and its properties are passed to the shortcut. If the screen that defines the shortcut contains property definitions, change those properties in the shortcut to customize the shortcut.

Rockwell Automation recommends using no more than 200 shortcuts per project. A View Designer project for a PanelView 5310 can contain no more than a total of 100 screens and popups. A View Designer project for a PanelView 5510 can contain no more than a total of 500 screens and popups. Projects must have a minimum of one screen. Shortcuts appear in the **Navigation Menu** folder of the **Project Explorer** and in the **Navigation menu** on the HMI device.

To create a shortcut to a new screen

1. Right-click the **Navigation Menu** folder or one of its subfolders and select **New Shortcut**.
2. In the **Name** box of the **New Shortcut** dialog box, type a unique name for the shortcut. Shortcut names are not case sensitive. Screen_001 and screen_001 are considered the same name.
3. Select **Linked to a new screen** and type the name of the new screen.
4. Select the **Open screen** check box to have the new screen open when creating a shortcut and screen.
5. Select **OK**. The new screen appears in the **User-Defined Screens** folder and its shortcut appears in the **Navigation Menu** folder. If you selected the **Open screen** check box, the new screen opens.

Any changes you make to the new screen are reflected in any shortcut you create for the screen.

See also

Create a shortcut to an existing screen on page 102

Rename a shortcut on page 104

Move an item in the Project Explorer on page 556

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Open a shortcut

Open a shortcut to:

- View its contents.
- Change the contents of the screen that defines the shortcut.
- Change the values of any user-defined screen properties that are passed to the defining screen of the shortcut.

Changing the contents of a shortcut is not allowed.

To open a shortcut

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Double-click the shortcut. The shortcut opens.

See also

Create a shortcut to an existing screen on page 102

Create a shortcut to a new screen on page 103

Open the defining screen of a shortcut

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Rename a shortcut

The default shortcut in a project is named Screen_001. Rename a shortcut to make the name more meaningful. For example, give the shortcut a name that reflects the purpose, content, or targeted user of the shortcut. Names within a folder must be unique and are not case sensitive. For example, Bottling_Line and bottling_line are considered identical names.

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Click the shortcut once to select the item.
3. Click the shortcut again and type the new name.

Tip: Right-clicking the shortcut, selecting **Rename**, and then entering a new name also renames the shortcut.

See also

Open a shortcut on page 104

Rename a shortcut on page 104

Delete a shortcut on page 106

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Copy a shortcut

Copy a shortcut to reuse it within a project.

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Right-click the shortcut and select **Copy**.

   Tip: To select multiple shortcuts, hold **Ctrl** and select the items.

3. Right-click the location in the target **Navigation Menu** folder and select **Paste**.
4. If the target folder contains a shortcut with the same name, select **Keep Both** to keep both shortcuts. The name of the new shortcut is appended with a number to distinguish it from the original.

   Tips:
   - Copying an item from a folder in the **Project Explorer** and then pasting it in the same folder in the same project creates a copy of the item. The name of the pasted item is appended with a number that increments with each copy.
   - Copy and paste shortcuts in the **Navigation Menu** folder only.

See also

Create a shortcut to an existing screen on page 102

Rename a shortcut on page 104

Open the defining screen of a shortcut on page 105

Delete a shortcut on page 106

Open the defining screen of a shortcut

Open the screen linked to a shortcut. From this defining screen, make changes to depict in the shortcuts of the defining screen.

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Point to the shortcut in the folder to identify the defining screen of a shortcut. The name of the screen linked to the shortcut appears in a tooltip.
3. Right-click the shortcut and select **Edit Definition**. The screen on which the shortcut is based opens.

   Tips:
   - When a shortcut is open, select the link at the top of the shortcut to open the defining screen of the shortcut.
   - When both the defining screen and a shortcut of that defining screen are open, changes made to the defining screen do not appear in the shortcut until selecting the shortcut.

See also

Create a shortcut to an existing screen on page 102

Open a screen on page 348

Change a user-defined property on page 368

Change a property on page 493

Shortcut customization on page 107

Close a shortcut

Close a shortcut to close items in a project that no longer need to be open. For example, close items that currently do not require viewing or editing.

To close a shortcut

- On the tab of the item, select **Close** .

See also

Delete a shortcut on page 106

Rename a shortcut on page 104

Copy a shortcut on page 105

Open a shortcut on page 104

Delete a shortcut

Delete a shortcut from the **Project Explorer** to remove it from the project. A deleted shortcut no longer appears in the **Navigation menu** on the HMI device. Deleting a shortcut does not remove the screen linked to the shortcut. The defining screen remains in the **User-Defined Screens** or **Predefined Screens** folder of the **Project Explorer**. Deleting the shortcut designated as the **Home** screen is not allowed. You cannot undelete a shortcut.

Prerequisites

- If the shortcut to delete is the **Home** screen, designate another shortcut as the **Home** screen for the project.

To delete a shortcut

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Right-click the shortcut and select **Delete**. The shortcut no longer appears in the **Project Explorer**.

See also

Specify a Home screen on page 553

Rename a shortcut on page 104

Close a shortcut on page 106

Project Explorer on page 95

Shortcut customization

A shortcut is a link to a screen that displays the same content as the screen.

Customize a shortcut to create similar versions of a screen without recreating screens individually. To change the appearance and tag values in a shortcut, create property definitions for the defining screen and its contents in the **Property Definition** tab at the bottom of the defining screen. Aliased properties appear for each shortcut created for the screen. Change the values of the properties passed from the shortcut to the screen. This customizes the shortcuts of a screen.

For example, assume a plant has 10 bottling lines. On the HMI device, you want to see production details for each line. You do not have to create 10 physical screens and bind tags for each line. Create one screen with property definitions. These properties then exist for each shortcut you create for the screen. Create 10 shortcuts and change the properties for each shortcut. For example, Shortcut 1 can pass the screen parameters for bottling line 1, and Shortcut 2 can pass the screen parameters for bottling line 2.

Edit only the defined properties for a shortcut. To add or delete elements, or to change the properties of graphic elements on the screen, edit the screen that defines the shortcut. Any changes made to the defining screen are automatically reflected in the shortcuts of the screen.

Shortcuts appear in the **Navigation Menu** folder of the **Project Explorer**. Shortcuts also appear as items in the **Navigation menu** on the HMI device. Press the item on the **Navigation menu** of the HMI device to access a shortcut. Rockwell Automation recommends a maximum of 200 shortcuts per project.

Shortcuts cannot have events or animations. The **Properties** window does not display the **Events** tab or the **Animations** tab for an open shortcut or a shortcut selected in the **Project Explorer**.

See also

Create a shortcut to an existing screen on page 102

Create a shortcut to a new screen on page 103

Open a shortcut on page 104

Copy a shortcut on page 105

Delete a shortcut on page 106

Popups

A popup is a window that is superimposed on the screen to show relevant information on the HMI device. A View Designer project for a PanelView 5310 can contain no more than a total of 100 screens and popups. A View Designer project for a PanelView 5510 can contain no more than a total of 500 screens and popups. Projects must have a minimum of one screen.

Use a popup to display relevant information or display a prompt on the HMI device screen. Popups open when an event occurs or you perform an action. One popup can be open on the HMI device screen at a time. The popup must be closed before further interaction with the screen is allowed.

See also

Create a popup on page 110

Open a popup on page 110

Resize a popup on page 115

Rename a popup on page 115

What is a popup? on page 118

Popup tab

Use the **Popup** tab to view and modify the contents of a superimposed window to appear on a screen on the HMI device. A popup can show additional information for the open screen or a prompt to perform a task. Popups open when an event configured with an **Open Popup** command triggers.

Use the **Popup** tab to:

- Change the caption of a popup.
- Insert and configure graphic elements on the popup like any other screen.

See also

Create a popup on page 110

Change the caption on a popup on page 112

Resize a popup on page 115

Add a graphic element to a screen on page 136

Popup contents on page 119

Create a popup

Create a popup to superimpose a window on top of an open screen on the HMI device. A popup can show additional information for the screen or a prompt to perform a task. A View Designer project for a PanelView 5310 can contain no more than a total of 100 screens and popups. A View Designer project for a PanelView 5510 can contain no more than a total of 500 screens and popups. Projects must have a minimum of one screen.

Tip: Shortcuts and predefined screens do not count towards the number of screens and popups used.

Popups exist in the **User-Defined Screens** folder of the **Project Explorer**. Default popups that open from the **Settings** screen on the HMI device exist in the **Predefined Screens** folder of the Project Explorer. Popups do not exist in the **Navigation Menu** folder because popups cannot appear as items in the **Navigation menu** on the HMI device. A popup opens on the HMI device using an event configured with an Open Popup command.

To create a popup

1. In the **Project Explorer**, right-click the **User-Defined Screens** folder.
2. Select **New Popup**. A popup named Popup_001 or increment number is added to the folder. Popup names must be unique and are case insensitive. For example, Popup_001 and popup_001 are considered identical names.

   Tips:
   - Add graphic elements, events, and animation to the popup like any other screen.
   - Create user-defined properties for a popup like any other screen. On the HMI device, user-defined properties pass a tag to the popup through a Navigation event such as Popup Open.
   - Popups do not support alarm tables. Do not add an alarm table to a popup. Add an alarm table to a screen only.
   - Size the popup and its elements so that all of the content on the popup appears on the HMI device.
   - Adding elements does not resize the popup.
   - Popups do not contain scroll bars.
   - Elements placed off the edge of the popup appear clipped on the HMI device.

See also

Change the background color of a popup on page 114

Change the caption on a popup on page 112

Rename a popup on page 115

Remove the Close button from a popup on page 113

What is a popup? on page 118

Open a popup

Open a popup to view and modify its contents.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Double-click the popup to open the popup.

See also

Change the caption on a popup on page 112

Remove the caption from a popup on page 113

Remove the Close button from a popup on page 113

Resize a popup on page 115

Close a popup on page 116

Copy a popup

Copy a popup to reuse it within or across View Designer projects. Paste a popup into the same folder in the **Project Explorer** to create a copy of the popup and append the name with an increment number. Pasting a popup into the **Predefined Screens** folder is not allowed.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a popup

1. In the source project, in the **Project Explorer**, right-click the popup and select **Copy**.

   Tip: To select multiple popups, hold **Ctrl** and select the items.

2. Right-click the target folder and select **Paste**. If the target folder contains a popup with the same name, select one of two options:
   - Select **Replace** to overwrite the existing popup.
   - Select **Keep Both** to keep both popups. The name of the new popup is appended with a number that increments with each copy.

Tips:

- Copying a popup that contains an instance of an Add-On Graphic to a different project that does not contain a popup with the same name adds the definition of the Add-On Graphic to the **Assets > Add-On Graphics** folder of the **Project Explorer** and adds the Add-On Graphic to the **Toolbox** category indicated for the Add-On Graphic.
- Copying a popup that contains an instance of an Add-On Graphic to a different project that contains an Add-On Graphic with the same name provides three options:
  - **Keep Both.** Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
  - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On Graphic are updated with the new definition of the Add-On Graphic.
  - **Cancel.** Do not paste the copied Add-On Graphic definition into the project.
- If pasting a popup with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is linked in an instance, the alias property shows in the **Properties** window of the instance, and the alias remains linked to the value of the base property in the definition.
- If pasting a popup with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is unlinked in an instance, the alias property shows in the **Properties** window of the instance, but the alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
- Copying a popup that has an Add-On Graphic with an image that exists in both the source and target projects displays a prompt to replace the image. Images are copied to the **Assets > Images** folder of the **Project Explorer**.
- When copying a popup, any localized data associated with the popup and its children is also copied.

See also

Create a popup on page 110

Rename a popup on page 115

Delete a popup on page 116

What is a popup? on page 118

Reuse content on page 359

Change the caption on a popup

A popup has a caption at the top by default. The caption is not the name of the popup in the **Project Explorer**. Change the caption to reflect the content or purpose of the popup.

To change the caption on a popup

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Double-click the popup to open the popup.
3. At the top of the popup, double-click the caption and type a new caption or change the caption in the **Properties** window.

Tips:

- Binding the **Caption** box of the popup to a tag or expression includes the data in the caption.
- Embedding a REAL tag value in a text display or popup caption shows 13 digits after the decimal point by default. To reduce the number of digits after the decimal point, use a truncate and divide operation. For example, to limit the number of digits shown after the decimal point to 3 digits, use the expression TRUNC(MyTag*10e2)/10e2. To show n+1 digits, use the expression TRUNC(MyTag*10en)/10en.

See also

Open a popup on page 110

Remove the caption from a popup on page 113

Remove the Close button from a popup on page 113

Resize a popup on page 115

Bind a property to a data item on page 508

Remove the caption from a popup

Remove a caption from a popup so the caption no longer appears at the top of a popup. A popup cannot move on the HMI device if the popup does not have a caption.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Select the popup.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **Appearance** category.
5. Clear the **CaptionVisible** check box. The caption is removed from the popup.

See also

Properties tab on page 494

Change the caption on a popup on page 112

Remove the Close button from a popup on page 113

Popup contents on page 119

What is a popup? on page 118

Remove the Close button from a popup

By default, **Close** appears in the upper right corner of a popup. This button closes the popup on the HMI device. Without this button, dismissing the popup on the HMI device requires tapping elsewhere on the screen, opening the **Navigation menu**, or opening another screen or popup. An event with a **Popup Close** command can also close a popup on the HMI device.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Select the popup.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **Appearance** category.
5. Clear the **CloseButtonVisible** check box. **Close** is removed from the popup.

See also

Properties tab on page 494

Remove the caption from a popup on page 113

Events tab on page 447

Popup contents on page 119

What is a popup? on page 118

Change the background color of a popup

Change the background color of a popup to a different color, gradient color, or custom color. Radial gradients are not supported for popup fill color.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Double-click the popup to open the popup.
3. In the **Properties** window, click the **Properties** tab.
4. Expand the **Appearance** category.
5. In the **FillColor** box, select a color using one of these methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.

See also

Create a popup on page 110

Change the opacity of a popup on page 114

Create a color gradient on page 498

Select a fill color on page 141

Create a custom color using the Color Picker on page 497

Change the opacity of a popup

Change the transparency level of a popup to make the popup more or less opaque. Make a popup less opaque to see graphic elements behind the popup when it opens on the HMI device.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Select the popup.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **Appearance** category.
5. In the **BackgroundOpacity** box, enter the opacity percentage:
   - 0 (fully transparent) - 100 (fully opaque)

See also

Change the caption on a popup on page 112

Change the background color of a popup on page 114

Remove the caption from a popup on page 113

Remove the Close button from a popup on page 113

What is a popup? on page 118

Resize a popup

A popup has a preset size and appears centered on the screen in View Designer. Popups cannot move in View Designer, but popups can move on the HMI device. Resize a popup to better accommodate the contents. Resizing a popup does not change the size of graphic elements on the popup. Making a popup smaller may make graphic elements on the popup appear clipped on the HMI device. You cannot make a popup smaller than one inch.

Popups do not rescale automatically when you change the HMI device size in **Project Properties** or download the project to a differently sized HMI device.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Double-click the popup to open the popup.
3. On the screen, select the popup.
4. Drag a sizing handle in a corner of the popup to resize the popup. When dragging a handle, the height and width of the popup shows in pixels. The dotted line surrounding the area outside the popup represents the screen of the HMI device. Releasing the mouse centers the popup.

Tips:

- Change the **Height** and **Width** properties in the **Properties** window to resize a popup.
- Adding elements does not resize the popup. Size the popup and its elements so that all of the content on the popup appears on the HMI device.
- Popups do not contain scroll bars.
- You cannot rotate a popup.

See also

Change the caption on a popup on page 112

Change the opacity of a popup on page 114

Remove the Close button from a popup on page 113

Remove the caption from a popup on page 113

Popup contents on page 119

Rename a popup

By default, the initial popup created in a project is named Popup_001. This number is incremented when creating new popups.

Rename a popup to make the name more meaningful. For example, give the popup a name that reflects the purpose, content, or targeted user of the popup. Names within a folder must be unique and are not case sensitive. For example, Bottling_Line and bottling_line are considered identical names. Renaming any popup in the **Predefined Screens** folder of the **Project Explorer** is not allowed.

To rename a popup

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Double-click the popup to open the popup.

See also

Change the caption on a popup on page 112

Remove the caption from a popup on page 113

Remove the Close button from a popup on page 113

Popup contents on page 119

Open a popup on page 110

Delete a popup

Delete a popup from the **Project Explorer** to remove it from the project. You cannot undelete a popup.

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Right-click the item and select **Delete**. The item is removed.

See also

Change the caption on a popup on page 112

Remove the caption from a popup on page 113

Remove the Close button from a popup on page 113

Rename a popup on page 115

Close a popup

Close a popup to close items in a project that no longer need to be open. For example, close items that currently do not require viewing or editing.

- On the tab of the popup, select **Close** .

See also

Delete a popup on page 116

Open a popup on page 110

Popup contents on page 119

Restore the default content of a predefined item

Restore the default content of a screen, popup, or **Banner** item in the **Predefined Screens** folder of the **Project Explorer** to overwrite any changes made to the item. For example, restore the content of the **Banner** item to have the default content appear at the top of screens.

1. With the revised item open, press **CTRL+A** to select all remaining content in the item and press **Delete**.
2. Open another View Designer project and open the unchanged version of the item.
3. With the unchanged item open, press **CTRL+A** to select all of the default content.
4. Right-click a selected item and select **Copy** to copy the content to the clipboard.
5. Right-click the empty revised item and select **Paste**. The default content of the item is restored.

See also

Predefined Screens folder on page 96

What is the System Banner? on page 97

What is the Settings screen? on page 97

What is the Alarm Summary? on page 99

What is the Alarm Manager? on page 99

Change the update rate of a screen, popup, or the System Banner

Screens, popups and the **System Banner** have a default update rate of 500 milliseconds. Use the **UpdateRate** property to change the frequency rate for an element.

Tip: If the high update rate negatively impacts performance, the HMI device automatically lowers the update rate value.

To change the update rate of a screen, popup, or the System Banner

1. In the **Project Explorer**, expand the **User-Defined Screens** or the **Predefined Screens** folder.
2. Select the item to change.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **General** category.
5. In **UpdateRate**, select the rate.
   - 100 ms
   - 250 ms
   - 500 ms

Tips:
- For best performance, on a PanelView 5310 HMI device use:
  - Up to 600 tag references on a screen at 500 ms update rate
  - Up to 200 tag references on a screen at 250 ms update rate
  - Up to 100 tag references on a screen at 100 ms update rate
- For best performance, on a PanelView 5510 HMI device use:
  - Up to 800 tag references on a screen at 500 ms update rate
  - Up to 300 tag references on a screen at 250 ms update rate
  - Up to 150 tag references on a screen at 100 ms update rate
- It is possible to use up to 2000 tag references on one screen, however, using more references than listed above may cause the HMI device to skip updates.

See also

What is a Popup? on page 118

What is the System Banner? on page 97

Create an alias property on page 361

Add popups to cache

Add popups to cache to decrease their loading time. The cache size is 20 MB and may not contain all of the popups in the project. Consider assigning only those popups that HMI operators open frequently. Popups upload to cache in the order they are placed in the **Predefined Screens** folder.

To add popups to cache:

1. In the **Project Explorer**, expand the **User-Defined Screens** or the **Predefined Screens** folder.
2. Select a popup.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **General** category.
5. Select the **Cacheable** property.
6. Repeat for each popup you want to add to cache.
7. Select **Verify Project**. View Designer displays a warning message for each Cacheable property that did not fit into the cache.

See also

Work with popups on page 109

Create a popup on page 110

What is a popup?

A popup is a small window superimposed on the HMI device screen. A popup opens in response to an event or an action performed. An event configured with a **Popup Open** command opens a popup. Interacting with graphic elements on the HMI device screen while a popup is open is not allowed. You can interact with only the popup until you close the popup. Only one popup can open on the HMI device screen at a time.

Popups can provide:

- A method of showing data, including diagnostic information, related to the screen.
- Additional information without having to open another screen.
- A prompt to perform a task.
- Access to additional events and animations.

A popup has a caption at the top by default that describes the contents of the popup.

Add graphic elements to a popup like any other screen. A popup does not change size when resizing or copying and pasting graphic elements. Create property definitions for a popup or its graphic elements to have those properties change the popup or its contents through an event or animation.

See also

Create a popup on page 110

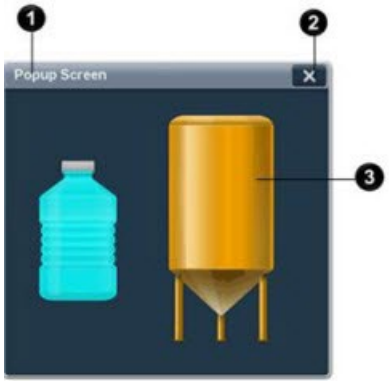
Popup contents on page 119

Properties window on page 493

What is an event? on page 476

Popup contents

A popup is a small window superimposed on a screen. A popup has basic components:



Item	Description
1	An optional caption describing the contents and data the popup contains. On the HMI device, move a popup by dragging the caption. If a popup does not have a caption, the popup cannot move on the HMI device.
2	An optional **Close** button. Select **Close** to close the popup on the HMI device. Other methods of closing popups include selecting elsewhere on the screen, opening the **Navigation menu**, opening another screen or popup, or creating an event with a **Popup Close** command.
3	The contents of the popup.

See also

Popup on page 733

System Banner

The **System Banner** appears at the top of each screen configured to show the banner. If a screen is configured to show the **System Banner**, shortcuts to that screen show the banner. The **System Banner** contains a default set of items.

Display the **System Banner** on screens to log on and off, navigate to screens, and display network and controller issues on the HMI device. Change the **System Banner** by changing its height, background color, and contents, or removing the **System Banner**.

See also

Open the System Banner on page 122

Add a graphic element to the System Banner on page 123

Restore the default content of a predefined item on page 116

System Banner contents on page 127

What is the System Banner? on page 97

Banner tab

The **System Banner** is included in each project by default. It is a rectangular banner that appears at the top of each screen and shortcut. The **System Banner** contains a default set of items.

There is only one **System Banner** per project. To omit the **System Banner** from screens or shortcuts, change the properties of the screen or shortcut.

The **Banner** is a predefined screen. When open, the **Banner** appears in the **Graphic Explorer**. Open the **Banner** from the **Project Explorer** to:

- Add, move, or remove elements from the **System Banner**. Include only graphic elements to appear on every project screen.
- Change the appearance of the top of a screen by changing the fill color and height of the **System Banner**.
- Configure the properties of graphic elements on the **System Banner** like any other graphic element.
- Animate or create events for the **System Banner** or its graphic elements.

See also

What is the System Banner? on page 97

System Banner contents on page 127

Add a graphic element to the System Banner on page 123

Remove the System Banner from a screen on page 125

Change the background color of the System Banner on page 123

Open the System Banner

Open the **Banner** item to add or change the contents of the **System Banner**. The **System Banner** contains default items.

1. In the **Project Explorer** of the open project, expand the **Predefined Screens** folder.
2. Double-click the **Banner** item. The **System Banner** opens.

See also

Remove the System Banner from a screen on page 125

Change the background color of the System Banner on page 123

Change the height of the System Banner on page 122

System Banner contents on page 127

Change the height of the System Banner

By default, the **System Banner** appears at the top of each screen and shortcut in a project and contains a default set of items. Change the height of the **System Banner** to accommodate fewer or more elements.

Before changing the height of the **System Banner**, consider the size of the HMI device screen. The default screen size is outlined below the open **System Banner** to help visualize how much room there is to resize the **System Banner**. Making the **System Banner** taller reduces the available space on the screen. Making the **System Banner** shorter adds to the available space on the screen.

You can change only the height of the **System Banner**. You cannot change the width. Changing the height of the **System Banner** affects every screen in the project shows the **System Banner**.

To change the height of the System Banner

1. In the **Project Explorer**, expand the **Predefined Screens** folder.
2. Select or double-click the **Banner** item to open the **System Banner**.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **Position and Size** category.
5. In the **Height** box, enter:
   - A numeric value between 1 and the value representing 95% of the height of the screen.

See also

Add a graphic element to the System Banner on page 123

Remove a graphic element from the System Banner on page 125

Change the background color of the System Banner on page 123

Project Explorer on page 95

Change the background color of the System Banner

Change the background color of the **System Banner** that appears at the top of each screen in a project. Change the fill color of the banner to a different color, a gradient color, or a custom color.

To change the background color of the System Banner

1. In the **Project Explorer**, expand the **Predefined Screens** folder.
2. Select the **Banner** item or double-click it to open the **System Banner**.
3. In the **Properties** window, click the **Properties** tab.
4. Expand the **Appearance** category.
5. In the **FillColor** box, select a color using one of the these methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.

See also

Bind a color property to a tag or expression on page 500

Open the System Banner on page 122

Add a graphic element to the System Banner on page 123

Change the height of the System Banner on page 122

Remove the System Banner from a screen on page 125

Add a graphic element to the System Banner

By default, the **System Banner** appears at the top of each screen and shortcut in a project. Customize the **System Banner** by adding or deleting graphic elements.

To add a graphic element to the System Banner

1. In the **Project Explorer**, expand the **Predefined Screens** folder.
2. Double-click the **Banner** to open the **System Banner**.
3. From the **Toolbox**, drag the desired graphic element to the **System Banner**.
   - If any portion of the graphic element is placed off the edge of the banner rectangle on the **Banner** tab, that portion of the graphic element appears clipped in the **System Banner** on the HMI device.
   - Placing a graphic element on top of the banner rectangle on an open screen rather than on the **Banner** tab makes any portion of the graphic element that is on top of the rectangle on the screen not visible on the HMI device.
   - Graphic elements with valid tag values placed off the banner rectangle do not appear on the **System Banner** on the HMI device. Graphic elements with invalid tag values are outlined in

red. If a graphic element in error is placed near an edge or off the **System Banner**, an arrow with an **Error** icon points in the direction of the graphic element. Tap the arrow to open the **Error list** for the graphic element.

Tips:

- Using the **Graphic Explorer**, view and change graphic elements that are on the **System Banner**.
- Do not place a graphic element on top of the **System Banner** at the top of an open screen. Place the graphic element on the banner rectangle on the open **Banner** tab. Any portion of a graphic element placed on top of the **System Banner** on the **Screen** tab rather than on the **Banner** tab is not visible on the HMI device.
- After adding a graphic element to the **System Banner**, configure the element like any other graphic element, such as change properties and add animations and events.
- Adjust the height of the **System Banner** to accommodate additional graphic elements. However, increasing the height of the banner decreases the amount of available screen space. Consider the size of the screen on the HMI device when adding graphic elements to the **System Banner**.

See also

Remove a graphic element from the System Banner on page 125

Change the background color of the System Banner on page 123

Change the height of the System Banner on page 122

System Banner contents on page 127

Copy and paste a graphic element on the System Banner

Copy and paste graphic elements in the **System Banner** to repeat a graphic element at the top of each screen in the project. Configure copied graphic elements with different property values, animations, or events like any other graphic element. When copying and pasting graphic elements in the **System Banner**, leave space between items to make them more easily tapped on the HMI device.

To copy and paste a graphic element on the System Banner

1. In the **Project Explorer**, expand the **Predefined Screens** folder.
2. Double-click the **Banner** item.
3. On the **System Banner**, right-click the item and select **Copy**.

   Tip: To select multiple items, hold **Ctrl** and select the items.

4. Right-click anywhere on the **System Banner** and select **Paste**.
5. Drag the graphic element to the desired position on the banner rectangle.

See also

Remove a graphic element from the System Banner on page 125

Change the background color of the System Banner on page 123

Change the height of the System Banner on page 122

System Banner contents on page 127

Remove a graphic element from the System Banner

Remove a graphic element from the **System Banner** to no longer show that item at the top of each screen and shortcut in a project.

To remove a graphic element from the System Banner

1. In the **Project Explorer**, expand the **Predefined Screens** folder.
2. Double-click the **Banner** item. The **System Banner** opens.
3. Select the graphic element on the **System Banner** and press **Delete**. The graphic element no longer appears on the **System Banner**. Removing a graphic element from the **System Banner** does not remove the item from the **Toolbox**.

See also

Remove the System Banner from a screen on page 125

Change the background color of the System Banner on page 123

Change the height of the System Banner on page 122

System Banner contents on page 127

Remove the System Banner from a screen

The **System Banner** appears at the top of each screen in a project configured to show the **System Banner**. Remove the **System Banner** from any screen on which it is not to appear. Removing the **System Banner** from a screen does not remove the **System Banner** or its items from the project.

To remove the System Banner from a screen

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Select the screen.
3. On the **Properties** tab, expand the **General** category.
4. Clear the **ShowDefaultBanner** check box. The **System Banner** no longer appears at the top of the screen.

Tip: Graphic elements placed at the top of the screen where the System Banner was located do not cover the System Banner on the HMI device if you later select the ShowDefaultBanner box again. For example, if you clear the ShowDefaultBanner box, place a rectangle at the top of the screen, and then select the ShowDefaultBanner box, the rectangle may cover the System Banner in View Designer. However, the rectangle does not cover the System Banner on the HMI device.

See also

Add a graphic element to the System Banner on page 123

Remove a graphic element from the System Banner on page 125

System Banner contents on page 127

Change the background color of the System Banner on page 123

Change the height of the System Banner on page 122

Close the System Banner

Close the **System Banner** when viewing or changing the banner is no longer required.

To close the System Banner

- On the **Banner** tab, select **Close** .

See also

System Banner contents on page 127

Remove a graphic element from the System Banner on page 125

Remove the System Banner from a screen on page 125

System Banner contents on page 127

Restore the default content of a predefined item

Restore the default content of a screen, popup, or **Banner** item in the **Predefined Screens** folder of the **Project Explorer** to overwrite any changes made to the item. For example, restore the content of the **Banner** item to have the default content appear at the top of screens.

To restore the default content of a predefined item

1. With the revised item open, press **CTRL+A** to select all remaining content in the item and press **Delete**.
2. Open another View Designer project and open the unchanged version of the item.
3. With the unchanged item open, press **CTRL+A** to select all of the default content.
4. Right-click a selected item and select **Copy** to copy the content to the clipboard.
5. Right-click the empty revised item and select **Paste**. The default content of the item is restored.

See also

Predefined Screens folder on page 96

What is the System Banner? on page 97

What is the Settings screen? on page 97

What is the Alarm Summary? on page 99

What is the Alarm Manager? on page 99

Change the update rate of a screen, popup, or the System Banner

Screens, popups and the **System Banner** have a default update rate of 500 milliseconds. Use the **UpdateRate** property to change the frequency rate for an element.

Tip: If the high update rate negatively impacts performance, the HMI device automatically lowers the update rate value.

To change the update rate of a screen, popup, or the System Banner

1. In the **Project Explorer**, expand the **User-Defined Screens** or the **Predefined Screens** folder.
2. Select the item to change.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **General** category.
5. In **UpdateRate**, select the rate.
   - 100 ms
   - 250 ms
   - 500 ms

Tips:
- For best performance, on a PanelView 5310 HMI device use:
  - Up to 600 tag references on a screen at 500 ms update rate
  - Up to 200 tag references on a screen at 250 ms update rate
  - Up to 100 tag references on a screen at 100 ms update rate
- For best performance, on a PanelView 5510 HMI device use:
  - Up to 800 tag references on a screen at 500 ms update rate
  - Up to 300 tag references on a screen at 250 ms update rate
  - Up to 150 tag references on a screen at 100 ms update rate
- It is possible to use up to 2000 tag references on one screen, however, using more references than listed above may cause the HMI device to skip updates.

See also

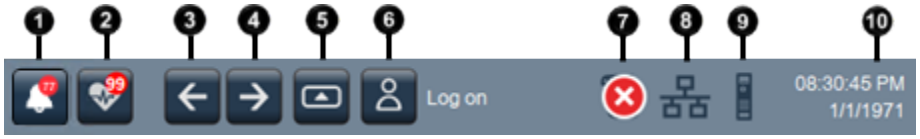
What is a Popup? on page 118

What is the System Banner? on page 97

Create an alias property on page 361

System Banner contents

By default, a **System Banner** appears at the top of each screen in a project. The **System Banner** contains a default set of items:



Item	Description
1	**Alarm Status Indicator** opens the **Alarm Summary** screen on the HMI device. • Shows there are no alarms. • Turns red and flashes when there are active alarms that are unacknowledged. The numbered notification shows the number of unacknowledged alarms. • Returns to a gray icon with a numbered notification showing the number of unacknowledged alarms when all alarms return to normal but some alarms are still unacknowledged. • Turns to red when there are active alarms and all of them are acknowledged.
2	**Automatic Diagnostics Indicator** opens **Automatic Diagnostics** screen on the HMI device. The button shows a notification with the number of active diagnostics. The button returns to an outlined icon when no diagnostics are active.
3	**Previous** displays the previous screen in the navigation history on the HMI device.
4	**Next** displays the next screen in the navigation history on the HMI device. To navigate with **Next** requires displaying a previous screen first.

5		**Navigation** displays the **Navigation menu** at the bottom of the screen on the HMI device. Use the **Navigation menu** to display shortcuts and folder contents.
6		**Log On** logs on or off the project. The name of the logged on user appears in the **System Banner**. The logged on user sees only the screens for which the assigned user role has access.
7	**General Diagnostics Status** for the data log status and project event errors. These icons appear depending on the status of data export and project events. • **Data export ongoing.** The data log is exporting. • **Data export error.** The data log is in error while collecting data or exporting. • **Data export remove.** The media containing the data log is ready to remove without corrupting files or making files read-only on the USB storage device or SD card. • **Data export warning**. Tags in the data log are in error. Select the icon to view the error details. A data log status icon only appears when a project contains a data log and there are no project event errors. • **Error**. Project events and data logs are in error. Select this icon to open the predefined popup for data log and project event status details. • **Project Event.** Project events are in error. Select the icon to view the error details. The **Project Event** error icon only appears when a project event is in error.
8	A **Network Status** icon appears only if there is an issue with network communication. Select the icon to open the **HMI Device Configuration Network** popup for details about the issue. • **Network caution.** The network is functioning but has an issue that requires attention. For example, the Device Level Ring may have a break. • **Network error.** The network is not functioning. An Ethernet link is disconnected, or there is a duplicate IP address.
9	A **Controller Status** icon appears only if there is an issue with any controller in the project. Select the icon to open the **Controllers General** popup for details about the issue. • **Controller error.** Any controller in the project is disconnected, powered down, or not configured. • **Controller caution.** Any controller in the project is not in **Run** mode or the tag data of a controller is not synchronized with the HMI device. • **Controller unknown.** No controller in the project is visible and it is unclear if a controller should be visible to the HMI device. This may occur when a controller is on a disconnected side of the network.
10	The current time and date of the HMI device.

See also

Add a graphic element to the System Banner on page 123

Remove a graphic element from the System Banner on page 125

Change the background color of the System Banner on page 123

Change the height of the System Banner on page 122

What is the System Banner?

The **System Banner** appears at the top of each screen configured to show the **System Banner**, and each shortcut to which you have access. The **System Banner** contains a default set of items. Security access to the **System Banner** cannot be set for a particular role. You can remove the **System Banner** from a screen or shortcut through the **Properties** window for the selected screen or shortcut.

You can change the height of the **System Banner**, but not the width. The **System Banner** is always as wide as the screen.

If you do not scale screens and change the HMI device type for your project, this affects the **System Banner**. For example, blank space appears to the right of the **System Banner** when you configure the

project for larger HMI device screens. Space to the right of the **System Banner** is removed when you configure the project for smaller HMI device screens. When you do not scale screens and change project settings to a smaller HMI device, elements may appear clipped at the right end of the **System Banner** on the HMI device.

See also

Open the System Banner on page 122

Add a graphic element to the System Banner on page 123

Remove a graphic element from the System Banner on page 125

Remove the System Banner from a screen on page 125

System Banner contents on page 127

Add a graphic element to a project

Create screen content by adding graphic elements from the **Toolbox** or drawing free-form shapes. Rockwell Automation recommends using no more than 500 graphic elements, including image graphic elements, on a screen.

After adding a graphic element to a screen, control its appearance and behavior by changing its properties, binding it to a tag, and associating it with an animation or event.

See also

Toolbox on page 131

Add a graphic element to a screen on page 136

Draw a line, polyline, or polygon on page 133

Add an image to a screen on page 326

Group graphic elements on page 151

Toolbox

The **Toolbox** contains the drawing tools and graphic elements to use when creating the screens for an HMI project. The graphic elements are grouped into categories. Search the **Toolbox** to find a specific graphic element or types of graphic elements.

Use the **Toolbox** to:

- Draw free-form and one-dimensional objects, such as lines, rectangles, and ovals.
- Add graphic elements, Add-On Graphics, and images to a screen.
- Search for a graphic element or Add-On Graphic.
-

Tip: The spacing around content within a graphic element may differ on View Designer screens that are targeted to different HMI devices. This is due to the different HMI devices having different DPI values. However, text wrapping for content within a graphic element is usually the same from View Designer to an HMI device.

See also

Graphic elements library on page 153

Add a graphic element to a screen on page 136

Add an image to a screen on page 326

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Graphic Explorer

Use the **Graphic Explorer** to display the contents of an open screen in tree form, including graphic elements and groups and their contents. This is helpful when changing an element of a group that is hidden by other elements.

Selecting a graphic element or a group on the screen highlights the corresponding item in the **Graphic Explorer**. Selecting a graphic element or a group in the **Graphic Explorer** selects the corresponding item on the screen.

Right-clicking in the **Graphic Explorer** displays the same options that appear when right-clicking a screen, group, or graphic element on the screen.

Use the **Graphic Explorer** to:

- View the names of the graphic elements and groups used in a screen.
- View and change the stacking order of the graphic elements.
- Group and ungroup graphic elements.
- Identify and manage element groups.
- Delete graphic elements.
- Lock and unlock graphic elements.

See also

Select a graphic element in the Graphic Explorer on page 138

Change the stacking order of graphic elements and groups on page 148

Lock or unlock graphic elements on page 132

Group graphic elements on page 151

Lock or unlock graphic elements

Lock graphic elements to prevent them from moving when developing a screen or the definition of an Add-On Graphic. Locked graphic elements cannot be selected or affected by keyboard or mouse input. Locking a graphic element does not affect the application on the HMI device. Locking screens and popups is not supported.

To lock or unlock a graphic element:

- In the **Graphic Explorer**, point to the graphic element.
  - To **lock** a graphic element, select **Unlock** . **Unlock** changes to **Lock** to indicate the graphic element is locked.
  - To **unlock** a graphic element, select **Lock** . **Lock** changes to **Unlock** to indicate the graphic element is unlocked.

See also

Graphic Explorer on page 132

Move a graphic element on page 142

Resize a graphic element on page 144

Use drawing tools

The **Toolbox** provides the drawing tools used in creating the screens for an HMI project.

Use the drawing tools to draw free-form and one-dimensional objects, such as lines, rectangles, and ovals.

See also

Draw a line, polyline, or polygon on page 133

Toolbox on page 131

Group graphic elements on page 151

Draw a rectangle or square

Use the **Rectangle Tool** to draw rectangles or squares.

To draw a rectangle or square:

1. In the **Toolbox**, select the **Rectangle Tool** .
2. On the screen, position the crosshair where the square or rectangle is to begin.
   - To draw a **rectangle**, click and drag.
   - To draw a **square**, press and hold **Shift** and drag.

   Tip: Use Smart Guides to help position the shape.

See also

Toolbox on page 131

Smart Guides on page 146

Draw a line, polyline, or polygon

Use the **Line Tool** to draw a line, or the **Pen Tool** to draw a polyline, polygon, or line.

To draw a line, polyline, or polygon:

- In the **Toolbox**, select a tool to draw the item:
  - **Line.** Select the **Line Tool** and drag to draw the line.
  - **Polyline.** Select the **Pen Tool** and select points on the screen.
  - **Polygon.** Select the **Pen Tool** , select points on the screen, and then select the initial point to close the polyline shape.

  Tips:
  - Selecting the **Pen Tool** and selecting a start and end point draws a line.
  - Use Smart Guides to help position the line.
  - To change the shape of a polyline or polygon, select the sizing handle in the middle of a line segment.
  - To remove a segment from a polyline or polygon, select the sizing handle at the end of the segment.
  - The selected drawing tool remains active until selecting a different drawing tool.

See also

Toolbox on page 131

Smart Guides on page 146

Draw an oval or circle

Use the **Ellipse Tool** to draw an oval or a circle.

To draw an oval or circle:

1. In the **Toolbox**, select the **Ellipse Tool** .
2. On the screen, select where the oval or circle is to begin.
   - To draw an **oval**, drag to the desired size.
   - To draw a **circle**, press and hold **Shift** and drag.

Tips:
- Use Smart Guides to help position the shape.
- To change the shape of an oval or circle, use the sizing handles.
- The selected drawing tool remains active until selecting a different drawing tool.

See also

Toolbox on page 131

Smart Guides on page 146

Draw an arc

Use the **Arc Tool** to draw a curved line on the screen.

To draw an arc

1. In the **Toolbox**, select the **Arc Tool** .
2. On the screen, select the beginning point of the arc.
3. Select a second point to determine the span and the direction of the arc.
4. Select a third point to determine the height of the arc.

Tips:
- Use Smart Guides to position the shape.
- The selected drawing tool remains active until you select a different drawing tool.

See also

Toolbox on page 131

Smart Guides on page 146

Work with graphic elements

Create screen content by adding graphic elements from the **Toolbox**. Rockwell Automation recommends using no more than 500 graphic elements, including image graphic elements, on a screen.

After adding a graphic element to a screen, control its appearance and behavior by changing its properties, binding it to a tag, and associating it with an animation or event.

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Graphic elements library on page 153

Group graphic elements on page 151

Add an image to a screen on page 326

Find a graphic element in the Toolbox

Use the **Toolbox** search feature to find a specific graphic element or types of graphic elements in the **Toolbox**.

To find a graphic element in the Toolbox:

1. In the **Toolbox search box**, type the name of the graphic element or a keyword.
   - Search text can contain alphanumeric characters and can be full words, fragments of a word, or a single letter or number.
   - Search text is not case-sensitive.

Press **Enter**. The results display in the **Search Results** window in the **Toolbox**. Select ✕ in the **Toolbox search box** to clear the search results.

Use operators and filters

- Use operators to narrow the search. Type one or more of the following operators with the keywords.

To search for:	Use this operator:	Example:
Two or more keywords	AND (all capital letters)	`reactor AND tank` returns a list of graphic elements with both words in their name or description.
One of several keywords	OR (all capital letters)	`reactor OR tank` returns a list of graphic elements with the word in their name or description.
Exact keywords	" " (quotation marks)	`"reactor tank"` returns a list of graphic elements with those exact keywords in that specific order.

- Use one or more filters to narrow the search. Select 🔍 to display the list of filters. Select a filter name to add it to the search box and type the keyword or keywords.

To filter the search by:	Select this filter:	Or type this shortcut:	Example:
The name of a graphic element	Name	n:	`Name:reactor tank` or `n:reactor tank`

One or more words or part of a word in the description	Description	d:	`Description:show fill` or `d:show fill`
A **Toolbox** category	Category	c:	`Category:tank` or `c:tank`

- Combine operators and filters. For example: `n:reactor AND tank` returns a list of graphic elements that have reactor and tank in their name.
- Use a previous search. Select the down arrow to see a list of your previous searches. Select one to add it to the search box.

See also

Toolbox on page 131

Graphic elements library on page 153

Add a graphic element to a screen

Add up to 500 graphic elements, including Add-On Graphics and Image graphic elements, to a screen. After adding a graphic element to a screen, change its appearance and behavior by changing its properties, binding it to a tag, and associating it with an animation or event.

To add a graphic element to a screen

1. In the **Toolbox**, click a category to display the graphic elements in that category.
2. Drag a graphic element onto the screen. You can also double-click a graphic element in the **Toolbox** to add it to the center of the screen. If a graphic element is already selected on the screen, the new graphic element is placed on top of it.

Tips:

- If the outline of an empty Add-On Graphic appears on the screen, the definition of the Add-On Graphic is empty. Add graphic elements to the Add-On Graphic by changing the definition of the Add-On Graphic. All instances of the Add-On Graphic then update to display the contents of the Add-On Graphic.
- Add a graphic element that is used in a different project by copying and pasting the graphic element between the projects.
- If you know the name or type of the graphic element you want to add, use the search feature for the **Toolbox**.
- The name of each graphic element ends with a number that increments by one each time you add an instance of that element. For example, TextDisplay_002 indicates a second instance of the Text Display graphic element on the screen.

Important:

- If you place a lot of content on your screens, such as large images, the HMI device can run out of memory. The **Properties** tab displays the size of the image. Use the predefined **HMI Device** screen to monitor memory usage. If the HMI device runs out of memory while it is running an application, it restarts and provides an error message indicating that an out-of-memory condition occurred.
- If the computer running View Designer runs out of memory, View Designer shuts down and provides a message indicating that an out-of-memory condition occurred. View Designer retains the last saved version of the project.

See also

Toolbox on page 131

Change the properties of a graphic element on page 139

Bind a property to a data item on page 508

Copy a graphic element on page 138

Add an Add-On Graphic to a screen on page 394

Select a graphic element on a screen

Select single or multiple graphic elements on a screen to perform actions or display properties.

To select a graphic element on a screen

- Select individual or multiple graphic elements:
  - **Single graphic element.** Select the graphic element.
  - **Multiple graphic elements.** Select the screen canvas above the graphic elements and drag diagonally to create a selection border around the graphic elements. When all the graphic elements are inside the border, release the mouse button. Sizing handles on all of the selected graphic elements replace the border.
  - **Additional graphic elements outside of selection.** To select graphic elements that are outside of the border, press and hold **Ctrl** while selecting each additional graphic element, or hold **Ctrl** while dragging to select additional graphic elements.
  - **All graphic elements on a screen.** Press **Ctrl+A**.

Tips:

- To deselect all selected graphic elements, select the screen.
- If a screen contains a lot of content or overlapping graphic elements, use the **Graphic Explorer** to select a graphic element from a list of the graphic elements contained on the screen.

See also

Graphic Explorer on page 132

Select a graphic element in the Graphic Explorer on page 138

Select a graphic element in the Graphic Explorer

Select one or more graphic elements in the **Graphic Explorer** to perform actions on them or display their properties.

To select a graphic element in the Graphic Explorer:

1. Select **View > Graphic Explorer** to open the **Graphic Explorer**.
2. (optional) If the graphic element is contained in a group, expand the group in the **Graphic Explorer**.
3. To select:
   - A single graphic element, select the graphic element.
   - Multiple graphic elements, press and hold **Ctrl** while you select each element.

Tip: To deselect the selected graphic elements, select the screen.

See also

Graphic Explorer on page 132

Select a graphic element on a screen on page 137

Copy a graphic element

Copy a graphic element to reuse it on screens within a project or across View Designer projects. Copying a graphic element copies all of its properties, animations, and events. Copy single, multiple, or groups of graphic elements.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a graphic element

1. On the source screen or in the **Graphic Explorer**, right-click the graphic element and then select **Copy**.
   - To select multiple graphic elements or groups, hold **Ctrl** and select the items.
2. On the target screen, right-click the location to paste the items and then select **Paste**.

Tips:
- If the target screen contains a graphic element with the same name, the name of the new graphic element is appended with a number that increments with each copy.
- To cut a graphic element, right-click the graphic element and select **Cut**.
- When copying a graphic element, any localized data associated with the graphic element is also copied.

See also

Graphic Explorer on page 132

Duplicate a graphic element on page 150

Reuse content on page 359

Copy an instance of an Add-On Graphic within a project on page 397

Copy an instance of an Add-On Graphic between projects on page 398

Delete a graphic element

Delete a graphic element or Add-On Graphic from a screen or from the **Graphic Explorer**. Deleting a graphic element or Add-On Graphic from a screen or the **Graphic Explorer** does not delete it from the **Toolbox**.

To delete a graphic element:

- On the screen or in the **Graphic Explorer**, select the graphic element or Add-On Graphic and press **Delete**.

  Tips:
  - To delete an Add-On Graphic from a project, delete all instances of the Add-On Graphic from the project and then delete the Add-On Graphic from the **Project Explorer**.
  - Alternate methods of deleting a graphic element include:
    - Right-clicking the element and selecting **Delete**.
    - Selecting the element and pressing **Ctrl+X.**
  - To select multiple graphic elements to delete, hold **Ctrl** while selecting each graphic element.

See also

Graphic Explorer on page 132

Select a graphic element on a screen on page 137

Delete an Add-On Graphic from a project on page 379

Change the properties of a graphic element

Change the attributes of a graphic element or Add-On Graphic, such as position and size, using the **Properties** tab in the **Properties** window.

To change the properties of a graphic element

1. On the screen or in the **Graphic Explorer**, select the graphic element.
   - To select multiple elements, press and hold **Ctrl** while selecting each graphic element.
   - To select all of the graphic elements, press **Ctrl+A.**
2. In the **Properties** window, select the **Properties** tab to display the properties for the selected graphic element

   Tip: Select multiple instances of Add-On Graphics to change the properties common to each instance instead of having to select and change the property values of each Add-On Graphic instance individually.
3. Change any or all of the properties:

- Type or select a value.
- Bind the property to a data item.

See also

Add an Add-On Graphic to a screen on page 394

Properties tab on page 494

Graphic Explorer on page 132

Bind a property to a data item on page 508

Propagation of Add-On Graphic changes on page 393

Change the text in a graphic element

Change the text in any graphic element that displays text. For example, change the text on a button in the project.

To change the text in a graphic element:

- On the screen, double-click the graphic element to highlight the text and type the new text.

Tips:

- Resizing the width of a graphic element that displays text wraps the text as necessary.
- Resizing the height of a graphic element that displays text does not resize the text to fit. Resize the height of the graphic element to display the text.
- As an alternative, on the **Properties** tab, type the text in the **Text** property box for the graphic element.
- To resize the text within a graphic element while resizing the graphic element, hold **Ctrl** while dragging a sizing handle.
- Resizing an instance of an Add-On Graphic scales the text of any graphic element contained in the definition of the Add-On Graphic.
- View Designer supports Unicode characters that appear in the Arial Unicode MS font. When inserting text that contains Unicode characters in a graphic element, select **Arial Unicode MS** in the **FontName** property of the graphic element. Supported Unicode characters appear on the HMI device.

See also

Toolbox on page 131

Properties tab on page 494

Change the properties of a graphic element on page 139

Select a graphic element on a screen on page 137

Select a text color

Change the color of the text that appears in a graphic element or Add-On Graphic.

To select a text color

1. Select the graphic element on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** node.

4. In the **FontColor** box, select a text color using one of the following methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.

Tip: To save the selected color as a swatch, select **Add** .

See also

Color Picker on page 495

Create a color gradient on page 498

Select a fill color on page 141

Bind a color property to a tag or expression on page 500

Color Picker overview on page 495

Select a fill color

Select a solid or gradient color to fill a graphic element or the background of a screen or popup.

To select a fill color

1. In the **Properties** window, select the **Properties** tab.
2. Expand the **Appearance** category.

   If the selected item has color properties you can change, those properties appear in this category. The currently applied color for a property appears as a swatch on the **Property** tab.
3. In the **FillColor** property box, select a color using one of the following methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.
   - Create a color gradient.

Tips:
- To save the selected color as a swatch, select **Add** .
- Colors and gradients of some graphic elements may look different on the HMI device due to screen type and resolution.
- Radial gradients are not supported for popup FillColor.

See also

Color Picker on page 495

Create a color gradient on page 498

Select a text color on page 140

Bind a color property to a tag or expression on page 500

Create a custom color using the Color Picker on page 497

Move a graphic element

Move graphic elements by using a mouse, a keyboard, or by changing its properties.

To move a graphic element:

- **Using the mouse.** On the screen, select and drag a graphic element to the desired location.
- **Using the keyboard.** Select the graphic element to select it.
  - To move the graphic element 1 pixel, press the arrow key in the preferred direction.
  - To move the graphic element 10 pixels at a time, press **Shift**+an arrow key.
- **Changing the properties of the graphic element.**
  1. Select a graphic element.
  2. On the **Properties** window, select the **Properties** tab and expand the **Position and Size** category.
  3. Enter any positive number in the **X** and **Y** properties:

     X. Specifies the horizontal coordinate, in pixels, from the upper left corner of the screen to the upper left corner of an unrotated graphic element, or to the center of a rotated graphic element. If the graphic element is in a group, X is relative to the parent.
     Y. Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of an unrotated graphic element, or to the center of a rotated graphic element. If the graphic element is in a group, X is relative to the parent.

Tip: Green lines called Smart Guides appear when moving a graphic element with the mouse to help position the graphic element with precision. Smart Guides do not appear when using the keyboard or the X and Y properties to move a graphic element.

See also

Properties tab on page 494

Align graphic elements on page 145

Distribute graphic elements on page 149

Lock or unlock graphic elements on page 132

Rotate a graphic element on page 142

Rotate a graphic element

Change the angle of a graphic element by rotating the graphic element.

IMPORTANT	Do not rotate the PDF Viewer graphic element or PDF Add-On Graphic. Rotating an element containing a PDF document reduces the clarity of content in the PDF document and prevents zooming and navigating the PDF document on the HMI device.

To rotate a graphic element

1. Select the graphic element.
2. Position the cursor on a corner sizing handle until it turns into a curved double-arrow.
3. Drag to rotate the element. A tooltip displays the angle as you rotate the graphic element. The rotation angle is based on the center point of the graphic element.

Tips:

- The top left sizing handle is a circle so that you can identify the original top left corner after you rotate a graphic element or group.
- To rotate multiple graphic elements, press and hold **Ctrl** while selecting the graphic elements. Use any sizing handle and drag to rotate all of the graphic elements.
- Pressing **Shift** while rotating elements constrains the rotation to 45-degree steps.
- Rotate a graphic element by changing the value of the **Angle** property in the **Properties** tab. Enter 180 to display the element upside down. When entering a value larger than 360, the portion of the numeric value that exceeds 360 becomes the value. For example, enter 380 to enter a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to enter a value of 330.
- The background of an Add-On Graphic may resize when rotating a graphic element in the definition of the Add-On Graphic.
- Rotating the List Box Indicator and List Box Selector graphic elements is not supported.
- View Designer does not support rotating a PDF Viewer graphic element or a PDF Add-On Graphic.

See also

Lock or unlock graphic elements on page 132

Move a graphic element on page 142

Graphic Explorer on page 132

Flip a graphic element

Flip a graphic element or Add-On Graphic to create a reverse image of the element.

To flip a graphic element:

1. On the screen or in the **Graphic Explorer**, right-click the graphic element and select **Flip**.
2. Select one of the following options:
   - **Horizontal**. Flips the graphic element along its horizontal axis.
   - **Vertical**. Flips the graphic element along its vertical axis.

Tips:

- Alternate methods to flip a graphic element:
  - On the **Drawing** toolbar, select the **Flip** down arrow, and select an option.
  - Select **Arrange > Flip**, and select an option.
- Flipping a graphic element that contains text does not flip the text.
- Flip rotated graphic elements. The new rotation angle displays in the Angle property for the graphic element.
- Flipping groups of graphic elements is supported. Flipping individual graphic elements within a group is not supported.
- When flipping a graphic element in the definition of an Add-On Graphic, the background of the Add-On Graphic may resize to fit the flipped graphic element.
- Flipping screens, popups, the definition of an Add-On Graphic, or the **System Banner** is not supported.

See also

Add a graphic element to a screen on page 136

Align graphic elements on page 145

Change the stacking order of graphic elements and groups on page 148

Graphic Explorer on page 132

Resize a graphic element

Resize any graphic element or instance of an Add-On Graphic. The Height and Width values of a resized graphic element appear in the **Properties** tab.

To resize a graphic element

1. Select the graphic element to resize.
2. Position the cursor on a sizing handle until it turns into a double-arrow.
   - To change the width or height of a graphic element, drag a side sizing handle.
   - To change both the width and height of a graphic element, drag a corner sizing handle.
   - To maintain the aspect ratio between width and height, hold **Shift** as you drag a sizing handle.
   - To maintain the center point of a graphic element, hold **Alt** as you drag a sizing handle.
   - To maintain the aspect ratio and center point of a graphic element, hold **Shift+Alt** as you drag a corner sizing handle.
   - To resize the text within a graphic element while you resize the graphic element, hold **Ctrl** as you drag a sizing handle.

Tips:

- A tooltip shows the height and width of the graphic element as you resize it.
- The font size configured for a graphic element with a text value determines the height of the graphic element. If you resize or rotate a Text Input graphic element, the font size does not change.
- If you resize an element while multiple graphic elements are selected, each element is resized and the proportion is maintained. The height and width shown in pixels are for the selection you are resizing.
- Resizing an instance of an Add-On Graphic scales the text of any graphic element contained in the definition of the Add-On Graphic.
- Changing the size of an instance of an Add-On Graphic does not change any other instance of the Add-On Graphic in the project. The proportion of each graphic element within the Add-On Graphic is maintained as the instance of the Add-On Graphic is resized. Resizing an instance of an Add-On Graphic does not affect the definition of the Add-On Graphic.

See also

Add an Add-On Graphic to a screen on page 394

Graphic Explorer on page 132

Group graphic elements on page 151

Lock or unlock graphic elements on page 132

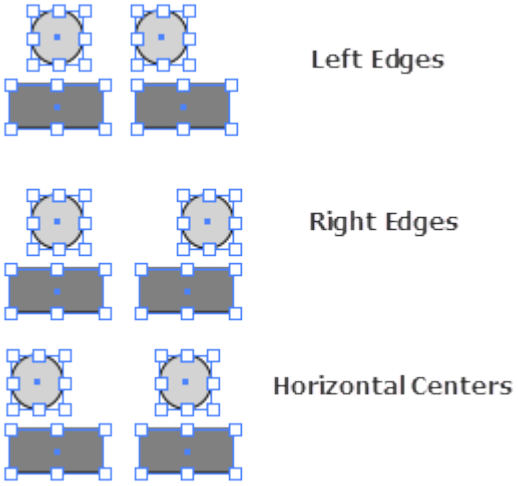
Work with groups on page 313

Align graphic elements

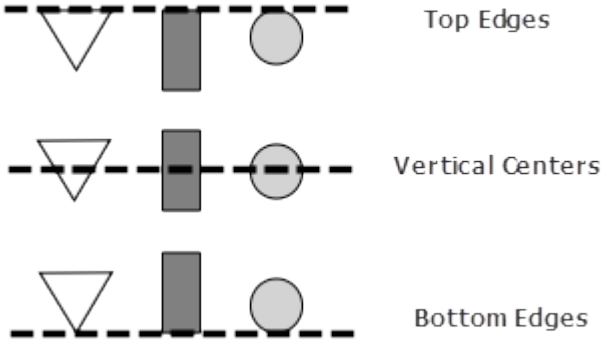
Align selected graphic elements and Add-On Graphics vertically and horizontally based on the edges or the center points of the elements.

To align graphic elements:

1. Select the graphic elements:
   - To select all of the graphic elements on the screen, press **Ctrl+A**.
   - To select multiple graphic elements, press and hold **Ctrl** while selecting the graphic elements.
2. Right-click, select **Align**, and select one of the following options:
   - **Left Edges**. Align the left edges of the graphic elements.
   - **Right Edges**. Align the right edges of the graphic elements.
   - **Horizontal Centers**. Align the center points of the graphic elements vertically.



   - **Top Edges**. Align the top edges of the graphic elements.
   - **Bottom Edges**. Align the bottom edges of the graphic elements.
   - **Vertical Centers**. Align the center points of the graphic elements horizontally.



Tips:

- To arrange graphic elements in a column, right-click the graphic elements and select **Align > Horizontal Centers.** Right-click the graphic elements again and select **Distribute > Vertical**.
- To arrange graphic elements in a horizontal line, right-click the graphic elements and select **Align > Vertical Centers**. Right-click the graphic elements again and select **Distribute > Horizontal.**
- Green lines called Smart Guides appear to help move a graphic element with precision.
- When aligning graphic elements within the definition of an Add-On Graphic, the background of the Add-On Graphic may resize to fit the aligned graphic elements.

See also

Change the stacking order of graphic elements and groups on page 148

Distribute graphic elements on page 149

Lock or unlock graphic elements on page 132

Smart Guides on page 146

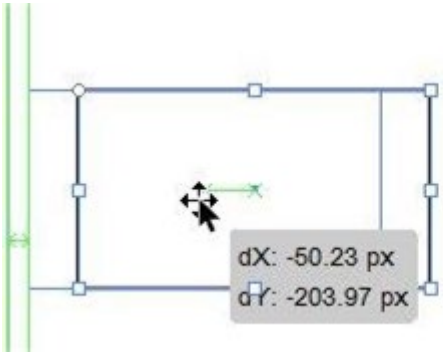
Smart Guides

Smart Guides are green lines that appear when drawing, moving, or resizing a graphic element. Smart Guides indicate where a graphic element snaps relative to the edge of the screen or adjacent graphic elements. Use Smart Guides to help position graphic elements on the screen.

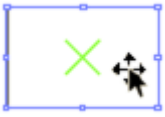
Turn off Smart Guides by pressing the **Ctrl** key while you moving graphic elements. Release the **Ctrl** key to display the Smart Guides again.

To indicate the placement of a graphic element relative to the screen, Smart Guides appear:

- As a double line when a graphic element is 10 pixels from the top, bottom, left, or right edges of the screen:

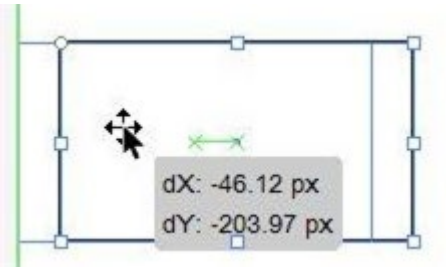


- As a large X when the center point of a graphic element is at the center point of the screen:



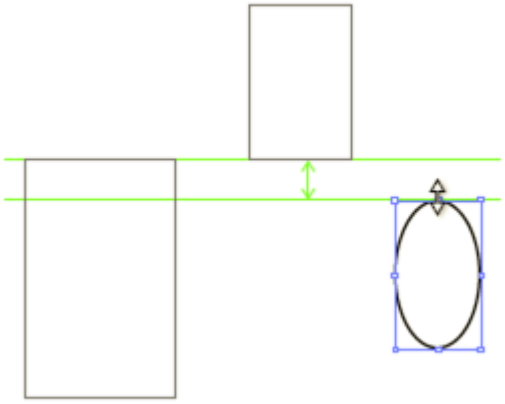
- As a large X when the drawing tool is at the center point of the screen:

- As a single line when a graphic element is on the edge of the screen. Placing an element beyond this line crops the element on the HMI device screen.

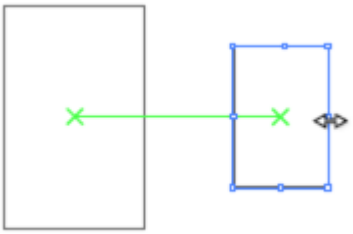


To indicate the placement of graphic elements relative to each other, Smart Guides appear:

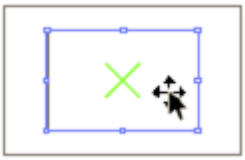
- As a double line when the edge of a graphic element is 10 pixels from the top, bottom, left, or right of the edge of another graphic element.



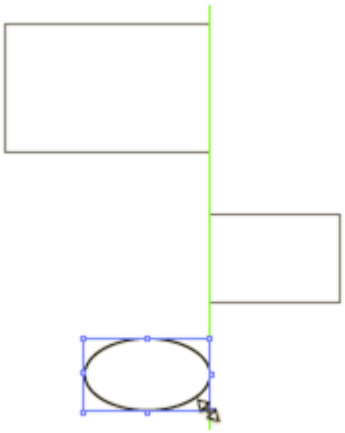
- As a small x to indicate the center point of a graphic element and as an x and a single line from center point to center point of graphic elements that are aligned with each other.



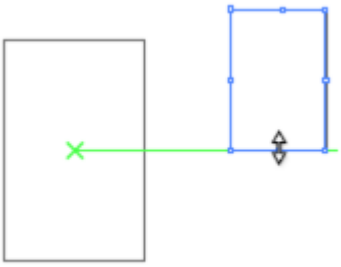
- As a large X when the center point of a graphic element is at the center point of an overlapping graphic element.



- As a single line when the edges of graphic elements are on the same vertical or horizontal plane.



- As an x and a single line when the center point of a graphic element is aligned with the edge of another graphic element.



When moving a graphic element, measurement guides show the position of the element relative to its starting point.

See also

Align graphic elements on page 145

Move a graphic element on page 142

Change the stacking order of graphic elements and groups

Stack graphic elements and groups so that one graphic element or group appears in front of another. Change the stacking order by moving an item forward, backward, or in front of all of the other items on the screen or Add-On Graphic. The order is reflected in the **Graphic Explorer**. Change the stacking order of groups. Changing the graphic elements contained in a group is not supported.

To change the stacking order of graphic elements and groups:

1. On the screen or Add-On Graphic, right-click the graphic element or group and select **Order**.

   Tips:
   - When a group is in the editing mode, you can select elements inside the group.
   - Select a graphic element or group in the **Graphic Explorer**.

2. Select one of the following options:
   - **Bring to Front.** Move the selected graphic element or group to the top of the stack.
   - **Bring Forward.** Move the selected graphic element or group one level forward.
   - **Send Backward.** Move the selected graphic element or group one level backward.
   - **Send to Back.** Move the selected graphic element or group to the bottom of the stack.

     Tip:
     Alternate methods of changing the stacking order:
     - On the **Drawing** toolbar, select the **Order** down arrow, and select an option.
     - Select **ARRANGE > Order**, and then select an option.

See also

Graphic Explorer on page 132

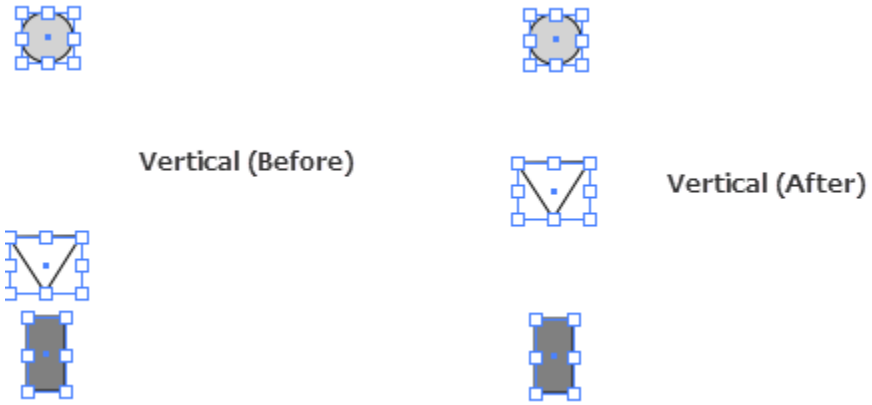
Align graphic elements on page 145

Distribute graphic elements on page 149

Group graphic elements on page 151

Distribute graphic elements

Distribute graphic elements and Add-On Graphics to space them evenly and horizontally or vertically on the screen.



To distribute graphic elements:

1. On the screen, select at least three graphic elements to distribute. The outermost graphic elements act as end points for distribution.
2. Right-click one of the selected graphic elements and select **Distribute**.
3. Select **Horizontal** or **Vertical**.

Tip: The background of an Add-On Graphic may resize when distributing graphic elements in the definition of the Add-On Graphic.

See also

Align graphic elements on page 145

Group graphic elements on page 151

Lock or unlock graphic elements on page 132

Move a graphic element on page 142

Duplicate a graphic element

Use the **Duplicate** command to make a copy of a graphic element or Add-On Graphic. When duplicating a graphic element, everything associated with the graphic element, including property values, animations, and events, is also duplicated.

To duplicate a graphic element:

- On the screen or in the **Graphic Explorer**, select the graphic element or group of graphic elements and press **Ctrl+D**.

Tips:
- Duplicating a graphic element within the definition of an Add-On Graphic is supported.
- Create copies until de-selecting the graphic element or group.
- The duplicate function does not use the clipboard. The contents of the clipboard are not affected when duplicating graphic elements.

See also

Copy a graphic element on page 138

Group graphic elements

Combine graphic elements and Add-On Graphics into a group to work with them as a single element. Work with the elements as a group or manipulate the individual elements within the group. Groups can contain groups.

To group graphic elements:

1. On the screen or in the **Graphic Explorer**, select the graphic elements and Add-On Graphics to include in the group.
2. Right-click one of the selected elements and select **Group**.

View Designer names each group. Rename groups using the **Name** box in the **Properties** tab. The **Properties** tab displays the properties to change for the group. View and work with the contents of a group in the **Graphic Explorer**.

Tip: Alternate methods of grouping:
- On the **Drawing** toolbar, select **Group**.
- On the **Standard** menu, select **Arrange > Group**.
- Press **Ctrl+G**.

See also

Graphic Explorer on page 132

Work with individual graphic elements in a group on page 315

Work with groups on page 313

Zoom in or zoom out

Zoom in on a screen, shortcut, popup, the **System Banner**, or the definition of an Add-On Graphic to enlarge it and all of its contents. For example, zoom in to edit a small, complex portion of a screen. Zoom out to reduce the size of the contents. For example, zoom out to view an entire screen to preview how it appears on the HMI device.

To zoom in or zoom out:

- On the **Screen Editor** toolbar, or select + to zoom in or select − to zoom out. The minimum zoom is 10%. The maximum zoom is 500%. The toolbar displays the current zoom level.

  Tips:
  - To use the keyboard and mouse to zoom in or out, press the **Ctrl** key and rotate the wheel of the mouse.
  - To view the entire screen, shortcut, popup, **System Banner**, or Add-On Graphic definition, select **Fit to Window** .
  - To reset the screen, shortcut, popup, **System Banner**, or Add-On Graphic definition to actual size, press **Ctrl+1**.
  - The zoom level is not maintained when closing the screen or project.

See also

Add a graphic element to a screen on page 136

Select a graphic element on a screen on page 137

Open the definition of an Add-On Graphic on page 386

Add a Slider

Add a Slider graphic element to incrementally adjust numeric values for a tag within a configured range on an HMI device.

To add a Slider:

1. In the **Toolbox**, expand the **CommonControls** category.
2. Drag a horizontal or vertical Slider graphic element onto the screen, popup, or Add-On-Graphic. Double-click a graphic element in the **Toolbox** to add it to the center of the screen. If a Slider is already selected on the screen, the new Slider is placed on top of the selected graphic element.

   Tips:
   - If the outline of an empty Add-On Graphic appears on the screen, the definition of the Add-On Graphic is empty. Add graphic elements to the Add-On Graphic by changing the definition of the Add-On Graphic. All instances of the Add-On Graphic then update to display the contents of the Add-On Graphic.
   - Add a graphic element used in a different project by copying and pasting the graphic element between the projects.
   - Use the search feature to search for a name or type of graphic element for the Toolbox.
   - The name of each graphic element ends with a number that increments by one when adding an instance of that element. For example, TextDisplay_002 indicates a second instance of the Text Display graphic element on the screen.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the categories and configure the Slider properties:
   - **General -** Specify the Slider control values, and when the Slider control updates the values.
   - **Appearance** - Specify appearance properties for the slider.
   - **Thumb** - Specify border and fill color, style, thickness, shape, and visibility properties for the Slider thumb.
   - **Track** - Specify border and fill color, style, thickness, and visibility properties for the Slider track.

     Tip: Bind a Slider property value to another property or data item to change the slider property dynamically at runtime.

IMPORTANT The Slider Vertical and Slider Horizontal graphic elements do not support LINT data types. An error occurs when using a LINT data type with a value property in a Slider.

See also

Bind a property to a data item on page 508

Slider Horizontal on page 195

Slider Vertical on page 199

Toolbox on page 131

What is a Slider? on page 153

What is a Slider?

A Slider graphic element is a read/write control that displays numeric values for a tag within the configured range in Runtime. Sliders are used to set a value for a configured write tag by dragging the slider thumb to the desired position in a range. Vertical and Horizontal Slider graphic elements are available in **CommonControls** for desired positioning.

IMPORTANT If the Slider value tag is outside the MinValue and MaxValue range, the thumb moves to the closest MinValue or MaxValue. The slider track and thumb then change to the color defined in the **OutofLimitFillColor** property depicting that the value is outside the range.

Tip: A release event automatically triggers with when these scenarios occur.

- If the **Visible** property is set to false while the thumb is changing position on the Slider, the Slider then writes the current value of the thumb position to the controller or tag when the release occurs.
- If the **Enabled** property is set to false while the thumb is changing position on the Slider, the Slider then writes the current value of the thumb position to the controller or tag when the release occurs.
- If a graphic element covers a slider while the thumb is changing position, the Slider then writes the current value of the thumb position to the controller or tag when the release occurs.
- If one or both of the **X** and **Y** properties are set to invalid values while the thumb is changing position on the Slider, the Slider then writes the current value of the thumb position to the controller or tag when the release occurs.
- If the screen switches while the thumb is changing position on the Slider, the Slider then writes the current value of the thumb position to the controller or tag when the release occurs.

See also

Add a Slider on page 152

Slider Horizontal on page 195

Slider Vertical on page 199

Toolbox on page 131

Graphic elements library

The **Toolbox** contains graphic elements divided into categories:

- Common Controls
- Alarms
- Buttons and Switches
- Flags
- GeneralEquipment
- Graph
- Security
- Shapes
- Signs and Symbols
- System
- Trend Charts

See also

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

Add a graphic element to a screen on page 136

Add an image to a screen on page 326

Alarms

The **Alarms** category of the **Toolbox** includes four alarm table graphic elements:

- Alarm Manager Large
- Alarm Manager Medium
- Alarm Summary Large
- Alarm Summary Medium

Alarms also contains an Icons category:

See also

Alarm Manager Large on page 154

Alarm Manager Medium on page 157

Alarm Summary Large on page 159

Alarm Summary Medium on page 162

Icons on page 168

Alarm Manager Large

Alarm Manager table for a nine-inch or larger HMI device that is pre-defined to show alarms in all states and include all conditions for an alarm.

The Alarm Manager displays tag-based alarms marked for use and evaluation.

Use the Alarm Manager table to:

- View a list of all alarms regardless of their state.
- View alarm names to identify the controllers and tag of the alarm.
- Enable or disable alarms to take them in or out of service.
- Shelve and unshelve alarms.
- Reset counts for alarms.
- Sort and filter alarms.
- Pause alarms.
- View alarm errors.
- View individual conditions for an alarm.
- View details for a selected alarm or alarm condition.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an alarm.	Any selected option

SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device. This value can write to the tag in a controller during a project event or be part of a state table used in a Navigation event.	Any alarm name in a controller

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
FilterIndex	Appearance	Specifies the default filter for an alarm table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the alarm table on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
DisableEnabled	Appearance	Makes the **Disable** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
EnabledEnabled	Appearance	Makes the **Enable** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
ResetCountEnabled	Appearance	Makes the **Reset Count** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
ShelveEnabled	Appearance	Makes the **Shelve** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
UnshelveEnabled	Appearance	Makes the **Unshelve** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
DisableAccess	Security	Specifies if all users have access to the **Disable** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users

EnableAccess	Security	Specifies if all users have access to the Enable button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
ResetCountAccess	Security	Specifies if all users have access to the Reset Count button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device. This value can write to the tag in a controller during a project event or be part of a state table used in a Navigation event.	Any alarm name in a controller
ShelveAccess	Security	Specifies if all users have access to the **Shelve** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
UnshelveAccess	Security	Specifies if all users have access to the **Unshelve** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled (selected) • Not Enabled (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Alarms on page 154

Alarms overview on page 563

Alarm Manager contents for a large HMI device screen on page 589

Disable a button on an Alarm Manager table on page 586

Specify access to operations performed on an Alarm Manager table on page 587

Alarm Manager Medium

Alarm Manager table for a seven-inch HMI device that is predefined to show alarms in all states and include all conditions for an alarm.

The Alarm Manager displays tag-based alarms marked for use and evaluation.

Use the Alarm Manager table to:

- View a list of all alarms regardless of their state.
- View alarm names to identify the controller and tag of the alarm.
- Enable or disable alarms to take them in or out of service.
- Shelve and unshelve alarms.
- Reset counts for alarms.
- Sort and filter alarms.
- Pause alarms.
- View alarm errors.
- View individual conditions for an alarm.
- View details for a selected alarm or alarm condition.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an alarm.	Any selected option
SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device. This value can write to the tag in a controller during a project event or be part of a state table used in a Navigation event.	Any alarm name in a controller

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font

FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
FilterIndex	Appearance	Specifies the default filter for an alarm table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the alarm table on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
DisableEnabled	Appearance	Makes the **Disable** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
EnabledEnabled	Appearance	Makes the **Enable** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
ResetCountEnabled	Appearance	Makes the **Reset Count** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
ShelveEnabled	Appearance	Makes the **Shelve** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
UnshelveEnabled	Appearance	Makes the **Unshelve** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
DisableAccess	Security	Specifies if all users have access to the **Disable** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
EnableAccess	Security	Specifies if all users have access to the Enable button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
ResetCountAccess	Security	Specifies if all users have access to the Reset Count button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
ShelveAccess	Security	Specifies if all users have access to the **Shelve** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users

UnshelveAccess	Security	Specifies if all users have access to the **Unshelve** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled (selected) • Not Enabled (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Alarms on page 154

Alarms overview on page 563

Alarm Manager contents for a medium HMI device screen on page 588

Disable a button on an Alarm Manager table on page 586

Specify access to operations performed on an Alarm Manager table on page 587

Alarm Summary Large

Alarm Summary table for a nine-inch or larger HMI device that is predefined to show alarms that are in *interesting* states or require attention, such as alarms that are In Alarm and Unacknowledged.

Use the Alarm Summary table to:

- Acknowledge alarms
- Disable alarms
- Shelve alarms
- Sort alarms
- Filter alarms
- Pause alarms
- Reset latched alarms
- View alarm details

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
AlarmManager	General	Specifies the name of the Alarm Manager screen for ten-inch or larger HMI devices.	Alarm Manager screen to open from the Alarm Summary
DateTimeFormat	General	Specifies the format of the date and time displayed for an alarm.	Any selected option
SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device. This value can write to the tag in a controller during a project event or be part of a state table used in a Navigation event.	Any alarm name in a controller

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
AcknowledgeEnabled	Security	Makes the **Acknowledge** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
FilterIndex	Appearance	Specifies the default filter for an alarm table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the alarm table on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
DisableEnabled	Appearance	Makes the **Disable** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared

ResetLatchedEnabled	Appearance	Makes the **Reset Latched Selected** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled (selected) • Not Enabled (cleared)
ShelveEnabled	Appearance	Makes the **Shelve** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
AcknowledgeAccess	Security	Specifies if all users have access to the **Acknowledge** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access- Access granted to all users
DisableAccess	Security	Specifies if all users have access to the **Disable** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
ResetLatchedAccess	Security	Specify if all users have access to the **Reset Latched Selected** button or if access is inherited from the screen.	• Inherit (access inherited from screen) • Full Access (access granted to all users)
ShelveAccess	Security	Specifies if all users have access to the **Shelve** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled (selected) • Not Enabled (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Alarms on page 154

Alarms overview on page 563

Add a column to an Alarm Summary table on page 571

Disable a button on an Alarm Summary table on page 573

Specify access to operations performed on an Alarm Summary table on page 574

Alarm Summary Medium

Alarm Summary table for a seven-inch HMI device that is predefined to show alarms that are in *interesting* states, or require attention, such as alarms that are In Alarm and Unacknowledged.

Use the Alarm Summary table to:

- Acknowledge alarms
- Disable alarms
- Shelve alarms
- Sort alarms
- Filter alarms
- Pause alarms
- Reset latched digital alarms
- View alarm details

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
AlarmManager	General	Specifies the name of the Alarm Manager screen for ten-inch or larger HMI devices.	Alarm Manager screen to open from the Alarm Summary
DateTimeFormat	General	Specifies the format of the date and time displayed for an alarm.	Any selected option
SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device. This value can write to the tag in a controller during a project event or be part of a state table used in a Navigation event.	Any alarm name in a controller

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
AcknowledgeEnabled	Security	Makes the **Acknowledge** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
FilterIndex	Appearance	Specifies the default filter for an alarm table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the alarm table on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
DisableEnabled	Appearance	Makes the **Disable** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
ResetLatchedEnabled	Appearance	Makes the **Reset Latched Selected** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled (selected) • Not Enabled (cleared)
ShelveEnabled	Appearance	Makes the **Shelve** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it not available.	• Enabled - selected • Not Enabled - cleared
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
AcknowledgeAccess	Security	Specifies if all users have access to the **Acknowledge** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access- Access granted to all users
DisableAccess	Security	Specifies if all users have access to the **Disable** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
ResetLatchedAccess	Security	Specify if all users have access to the **Reset Latched Selected** button or if access is inherited from the screen.	• Inherit (access inherited from screen) • Full Access (access granted to all users)
ShelveAccess	Security	Specifies if all users have access to the **Shelve** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled (selected) • Not Enabled (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Alarms on page 154

Alarms overview on page 563

Add a column to an Alarm Summary table on page 571

Disable a button on an Alarm Summary table on page 573

Specify access to operations performed on an Alarm Summary table on page 574

Alarm History Large

The Alarm History table for a nine-inch HMI device is predefined to display the history of alarm state changes.

Use the Alarm History table to:

- View history of state changes for alarms
- Filter alarm state changes
- View history of state changes for individual conditions of an alarm.

Built-in animation properties

Name	Category	Purpose	Accepted values

Name	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an alarm	Any selection option
SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device.	Any alarm name in a controller. **Tip:** This property is not bindable.

Unique properties

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text	Any selection font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
Enabled	Appearance	Disable touch and key input for an alarm table to prevent interaction with the table on the HMI device. For example, disable touch and key input for an alarm table to prevent selecting alarms on the HMI device.	• Enabled - selected • Not Enabled - cleared
RefreshEnabled	Appearance	Makes the **Refresh** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
HelpEnabled	Appearance	Specifies if the help button is available on the Alarm History.	• Enabled (selected) • Not Enabled (cleared)
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending. For example, 1:D,2:D provides a primary sort of Column 1 in descending order, and a secondary sort of Column 2 in descending order. You can enter a value for each column in the table. **Tip:** This property is not bindable.

Common Properties

Name	Category	Purpose	Accepted values
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)

Name	Category	Purpose	Accepted values
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible (selected) • Not visible (cleared)
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled (selected) • Not Enabled (cleared)
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number
Width	Position and Size	Specifies the width in pixels	Any positive number
Height	Position and Size	Specifies the height in pixels	Any positive numeric value
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	Numbers 0 to 360

See also

Alarms on page 154

Alarms overview on page 563

Alarm History Medium

The Alarm History table for a seven-inch HMI device is predefined to display history of alarm state changes.

Use the Alarm History table to:

- View history of state changes for alarms
- Filter alarm state changes
- View history of state changes for individual conditions of an alarm.

Built-in animation properties

Built-in animation properties under the **General** category of the **Properties** window. Specify values for these properties to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an alarm	Any selection option
SelectedAlarmName	General	The name of the selected alarm in the alarm table on the HMI device.	Any alarm name in a controller. **Tip:** This property is not bindable.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text	Any selection font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
Enabled	Appearance	Disable touch and key input for an alarm table to prevent interaction with the table on the HMI device. For example, disable touch and key input for an alarm table to prevent selecting alarms on the HMI device.	• Enabled - selected • Not Enabled - cleared
RefreshEnabled	Appearance	Makes the **Refresh** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled (selected) • Not Enabled (cleared)
SortOrder	Appearance	Specifies the columns to sort and the sort order.	A valid column number, colon, and a D for descending or A for ascending. For example, 1:D,2:D provides a primary sort of Column 1 in descending order, and a secondary sort of Column 2 in descending order. You can enter a value for each column in the table. **Tip:** This property is not bindable.

Common Properties

Common properties exist for all graphic elements.

Name	Category	Purpose	Accepted values
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible (selected) • Not visible (cleared)
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled (selected) • Not Enabled (cleared)
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number
Width	Position and Size	Specifies the width in pixels	Any positive number
Height	Position and Size	Specifies the height in pixels	Any positive numeric value
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	Numbers 0 to 360

See also

Alarms on page 154

Alarms overview on page 563

Icons

The **Icons** category under **Alarms** in the **Toolbox** includes icons that appear on the Alarm Summary table and the Alarm Manager table by default.

Place the icon on a screen or graphic element. Configure events for the icon in order for it to perform tasks on the HMI device.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Property	Category	Purpose	Accepted Values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

- Alarms on page 154
- Alarm Summary Large on page 159

- Alarm Summary Medium on page 162
- Alarm Manager Large on page 154
- Alarm Manager Medium on page 157

Automatic Diagnostics

The **Automatic Diagnostics** category of the **Toolbox** includes four automatic diagnostics table graphic elements:

- Automatic Diagnostics Large
- Automatic Diagnostics Medium
- Automatic Diagnostics History Large
- Automatic Diagnostics History Medium

See also

Automatic Diagnostics Large on page 170

Automatic Diagnostics Medium on page 172

Automatic Diagnostics History Large on page 174

Automatic Diagnostics History Medium on page 175

Automatic Diagnostics Large

Automatic Diagnostics table for a nine-inch or larger HMI device predefined to show diagnostics that are in *interesting* states or require attention, such as diagnostics that are Active, Unsuppressed and Suppressed .

Use the Automatic Diagnostics table to:

- Display diagnostics
- Sort diagnostics
- Filter diagnostics by state
- View diagnostics details
- Suppress diagnostics
- Unsuppress diagnostics

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an automatic diagnostics.	Any selected option

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers

RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
FilterIndex	Appearance	Specifies the default filter for an automatic diagnostics table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the automatic diagnostics on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled - selected • Not Enabled - cleared
SuppressEnabled	Appearance	Makes the **Suppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
UnsuppressEnabled	Appearance	Makes the **Unsuppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
SuppressAccess	Security	Specifies if all users have access to the **Suppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
UnsuppressAccess	Security	Specifies if all users have access to the **Unsuppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

Automatic Diagnostics Medium

Automatic Diagnostics table for a six-inch HMI device that is predefined to show automatic diagnostics that are in *interesting* states, or require attention, such as diagnostics that are Active, Unsuppressed and Suppressed.

Use the Automatic Diagnostics table to:

- Display diagnostics
- Sort diagnostics
- Filter diagnostics by state
- View diagnostics details
- Suppress diagnostics
- Unsuppress diagnostics

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an automatic diagnostics.	Any selected option

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
FilterIndex	Appearance	Specifies the default filter for an automatic diagnostics table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the alarm table on the HMI device by third filter that appears on the **Filters** tab.	Any positive number

HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled - selected • Not Enabled - cleared
SuppressEnabled	Appearance	Makes the **Suppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
UnsuppressEnabled	Appearance	Makes the **Unsuppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
SuppressAccess	Security	Specifies if all users have access to the **Suppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
UnsuppressAccess	Security	Specifies if all users have access to the **Unsuppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

Automatic Diagnostics History Large

The Automatic Diagnostics History table for a nine-inch HMI device is predefined to display the history of automatic diagnostics state changes.

Use the Automatic Diagnostics History table to:

- View history of state changes for automatic diagnostics
- View history of state changes details of an automatic diagnostic.

Built-in animation properties

Name	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an automatic diagnostics	Any selection option

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
FilterIndex	Appearance	Specifies the default filter for an automatic diagnostics table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the automatic diagnostics on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled - selected • Not Enabled - cleared
SuppressEnabled	Appearance	Makes the **Suppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
UnsuppressEnabled	Appearance	Makes the **Unsuppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
SuppressAccess	Security	Specifies if all users have access to the **Suppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
UnsuppressAccess	Security	Specifies if all users have access to the **Unsuppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

Automatic Diagnostics History Medium

The Automatic Diagnostics History table for a seven-inch HMI device is predefined to display history of automatic diagnostics state changes.

Use the Automatic Diagnostics History table to:

- View history of state changes for automatic diagnostics
- View history of state changes details of an automatic diagnostic.

Built-in animation properties

Name	Category	Purpose	Accepted values
DateTimeFormat	General	Specifies the format of the date and time displayed for an automatic diagnostics	Any selection option

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font

FontSize	Appearance	Specifies the size of the text.	Positive numbers
RowPadding	Appearance	Specifies the distance, in pixels, between the cell contents and the cell border.	Any positive number
SortOrder	Appearance	Specifies the columns to sort as well as the sort order.	A valid column number, colon, and a D for descending or A for ascending.
FilterIndex	Appearance	Specifies the default filter for an automatic diagnostics table. The number of the filter represents the order in which the filter appears on the **Filters** tab. Entering 3 in the **FilterIndex** property initially filters the automatic diagnostics on the HMI device by third filter that appears on the **Filters** tab.	Any positive number
HelpEnabled	Appearance	Specifies if the help button is available on the HMI device.	• Enabled - selected • Not Enabled - cleared
SuppressEnabled	Appearance	Makes the **Suppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
UnsuppressEnabled	Appearance	Makes the **Unsuppress** button available. When enabled, the button is available and accepts touch or key input on the HMI device. When not enabled, the button is not available and does not accept touch or key input. The button has a crosshatch overlay on top of it to indicate it is not available.	• Enabled - selected • Not Enabled - cleared
SuppressAccess	Security	Specifies if all users have access to the **Suppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users
UnsuppressAccess	Security	Specifies if all users have access to the **Unsuppress** button or if access is inherited from the screen.	• Inherit - Access inherited from screen • Full Access - Access granted to all users

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

ButtonsAndSwitches

The **ButtonsAndSwitches** category of the **Toolbox** contains graphic elements such as push buttons, potentiometer legend plates, and legend plates commonly seen on equipment in a manufacturing system. The graphic elements in **ButtonsAndSwitches** are organized into categories:

- 22mm
- 30mm
- LegendPlates

See also

22mm on page 177

30mm on page 178

LegendPlates on page 180

What types of HMI screens do I need? on page 47

Toolbox on page 131

22mm

The **22mm** category under **ButtonsAndSwitches** in the **Toolbox** contains illuminated and non-illuminated industrial push buttons. 22mm pushbuttons save space on legend plates. This category of graphic elements also contains a pilot light and a reset button commonly seen in manufacturing systems.

Use a 22mm graphic element on a legend plate to start, stop or jog a piece of equipment on the HMI device. To illuminate a pushbutton or the pilot light, bind the built-in animation property of the graphic element to a tag in a controller. To have the pushbutton behave like a button, add a Button Behavior event by right-clicking the graphic element or adding the event on the **Events** tab of the **Properties** window.

Built-in animation properties

A built-in property to animate a graphic element exists for only some of the graphic elements in this category. This property appears depending on the graphic element selected:

Name	Category	Purpose	Accepted values
LightOn	General	Specifies the on and off state of the light.	• On - selected • Off - cleared

Unique properties

Name	Category	Purpose	Accepted values
HousingColor	Appearance	Specifies the color of the housing.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Trigger an action on a Button Behavior event on page 444

ButtonsAndSwitches on page 177

Search for and select a data type on page 373

Search for and select a tag

30mm

The **30mm** category under **ButtonsAndSwitches** in the **Toolbox** contains illuminated and non-illuminated industrial push buttons. 30mm pushbuttons are used in manufacturing systems where more space for

enclosing internal components is required. This category also contains a pilot light commonly seen in manufacturing systems.

Use a 30mm graphic element on a legend plate to start, stop, or jog a piece of equipment on the HMI device. To illuminate a pushbutton or the pilot light, bind the built-in animation properties of the graphic element to tags in the controllers. To have the pushbutton behave like a button, add a Button Behavior event by right-clicking the graphic element or adding the event on the **Events** tab of the **Properties** window.

Built-in animation properties

A built-in property to animate a graphic element exists for only some of the graphic elements in this category. This property appears depending on the graphic element selected:

LightOn	General	Specifies the on and off state of the light.	• On - selected • Off - cleared

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Trigger an action on a Button Behavior event on page 444

ButtonsAndSwitches on page 177

Search for and select a data type on page 373

Search for and select a tag

LegendPlates

The **LegendPlates** category under **ButtonsAndSwitches** in the **Toolbox** contains standard, jumbo, and potentiometer legend plates commonly seen on equipment in a manufacturing system.

Place a button or switch on a legend plate. Place a Text Display graphic element on the plate to depict the label on the legend plate.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

What is an event? on page 476

Trigger an action on a Button Behavior event on page 444

ButtonsAndSwitches on page 177

CommonControls

The **CommonControls** category in the **Toolbox** contains the most common graphic elements added to a screen. The graphic elements in **CommonControls** are organized into categories:

- Button

- DateTimeDisplay
- Image
- NumericDisplay
- NumericInput
- TextDisplay
- TextInput
- Slider Horizontal
- Slider Vertical

See also

Button on page 181

Numeric Display on page 187

Numeric Input on page 190

Text Display on page 202

Text Input on page 205

Button

The Button graphic element is an undefined standard button. Button appears under **Common Controls** in the **Toolbox**.

Use a button to perform a task on the screen. The button should display explanatory text regarding the task the button performs. Configure events for the button in order for it to perform tasks on the HMI device:

- Set a tag to 0 or 1.
- Toggle a value.
- Write a value.
- Increment a value.
- Use the button as an HMI Button Control (HMIBC).
- Log on or log off the HMI device.
- Open or close a popup.
- Open a screen.
- Navigate forward or backward a screen in navigation history.
- Open the Navigation menu.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Text	General	Specifies the text on the graphic element. Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.	Alpha-numeric characters

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Toolbox on page 131

CommonControls on page 180

Events tab on page 447

Trigger an action on a Button Behavior event on page 444

What is an event? on page 476

DateTime Display

The DateTime Display graphic element is configured to show the current date and time on the HMI device.

Add the DateTime Display graphic element to a screen to:

- Show the current date and time on the HMI device screen.
- Change the the format of the date and time in the **Format** box of the **Properties** window.

- Select the tag representing the date and time of the HMI device in the **Value** box in the **Properties** window.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Format	General	Specifies the format of the date and time.	• yyyy-MM-dd hh:mm:ss.zzzzzz • M/dd/yyyy h:mm:ss AP • d MMM yyyy hh:mm:ss • yyyy-MM-dd hh:mm:ss • dd/M/yyyy hh:mm:ss • dddd, MMMM d, yyyy • MMMM d, yyyy • d MMMM yyyy • d MMM yyyy • yyyy-MM-dd • M/d/yyyy • d/M/yyyy • dddd • MMMM d • yyyy • hh:mm:ss. zzz AP • hh:mm:ss AP • hh:mm ss • hh: mm AP • hh • mm • ss
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
Padding	Appearance	Specifies the distance, in points, between the content of the element and the edge of the element.	Any numeric value

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

CommonControls on page 180

Add a graphic element to a screen on page 136

What is the Settings screen? on page 97

Change a property on page 493

Image

Use the Image graphic element to add an image file to the screen. **Image** appears under **CommonControls** in the **Toolbox**. Supported file formats include BMP, JPG, PNG, and SVG. Use an image file to display hardware, such as a tank that is not available in the **Toolbox**.

Tips:
- Configure an image like any other graphic element. For example, configure events such as screen navigation.
- The image file can exist on the hard disk of your computer, a shared drive, or a network location.
- You can copy image files for reuse in multiple locations. In the **Project Explorer**, image files exist in the **Images** folder under **Assets**.

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
ImageName	General	Specifies the name of the file used in the Image element. Bind expressions or use State Tables to change the ImageName in an Image graphic element. Use this method to switch between images representing different states of equipment.	• String - text • Alphanumeric for State Table.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add an image to a screen on page 326

CommonControls on page 180

Events tab on page 447

What is an event? on page 476

Numeric Display

The Numeric Display graphic element is a control with built-in animation properties to show a numeric value. Numeric Display appears under **CommonControls** in the **Toolbox**.

Use the **Numeric Display** graphic element to show numeric data from a bound tag on the HMI device. For example, use a numeric display to show the current temperature of an oven.

IMPORTANT	A numeric display's .Value property is treated as a string when using the "+" operator, causing a concatenation to occur instead of an addition. To force an addition of .Value properties, first multiply .Value by 1. For example, (NumericDisplay_001.Value*1) + (NumericDisplay_002.Value*1) will perform an addition of the .Value properties. However, NumericDisplay_001.Value + NumericDisplay_002.Value will perform a concatenation of the .Value properties.

You can bind the **Value** property to a numeric tag (DINT, INT, SINT, or REAL) to an expression. You can also bind the **Value** property to a string

tag if the string consists of only numerals. For example, the string value 456 displays as an integer and the string value 321.0 displays as a floating-point value.

Use the **Rounding** field to specify how the numeric tag value appears when the amount of decimal places used by the numeric tag value exceeds the **DigitsAfterDecimal** value. For example, if **DigitsBeforeDecimal** is 3, DigitsAfterDecimal is 2, and **Rounding** = Nearest, the value 112.345 displays as 112.35.

Tips:
- If the **Value** property is assigned to an integer tag, the **DigitsAfterDecimal** property value is ignored. For example, if **DigitsBeforeDecimal** is 3 and **DigitsAfterDecimal** is 1, the INT tag value 123 displays as 123 instead of 123.0.
- If the **Value** property is unassigned, the numeric display fills with asterisks.
- If the value does not fit within the bounding box of the graphic element, the numeric display is filled with asterisks.
- If the integer portion of the value, including the minus sign, contains more digits than specified for the display, the numeric display shows the value in scientific notation.
- If the number of characters required to show the value in scientific notation exceeds the sum of the **DigitsBeforeDecimal** and **DigitsAfterDecimal** fields, the numeric display fills with asterisks.
- If the value contains invalid characters, the numeric display shows dashes in place of the value. An error message appears above the graphic element.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
Padding	Appearance	Specifies the distance, in points, between the content of the element and the edge of the element.	Any numeric value
DigitsBeforeDecimal	Numeric	Specifies the number of digits before the decimal point.	0 - 9
DigitsAfterDecimal	Numeric	Specifies the number of digits after the decimal point.	0 - 9
LeadingZero	Numeric	Places a zero before REAL numbers that are less than 1.	• Leading zero (selected) • No leading zero (cleared)
TrailingZeros	Numeric	Specifies that zeros fill the remaining decimal places.	• Trailing zeros (selected) • No trailing zeros (cleared)
Rounding	Numeric	Specifies the rounding method for the decimal portion of REAL numbers.	• None - Do not round the number • Up - Round up to the nearest number • Nearest - Round up or down to the nearest number

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Numeric Input on page 190

Change a property on page 493

Properties window on page 493

Search for and select a data type on page 373

Search for and select a tag

Numeric Input

The Numeric Input graphic element is a control with built-in animation properties to show a tag value and open the virtual numeric keypad to change the value. Numeric Input appears under **Common Controls** in the **Toolbox**.

Use the Numeric Input graphic element to show the operator numeric information from the data source and to enable the operator to write a numeric value to the data source using the **Virtual Numeric Keypad.**

By default, the **Virtual Numeric Keypad** opens on PanelView projects when interacting with a Numeric Input graphic element.

The range of input values that can be entered in the virtual numeric keypad are specified by the **KeypadMaxValue** and **KeypadMinValue** property values.

Mask the value displayed in the graphic element and in the virtual numeric keypad by selecting the **MaskedValue** box in the **Properties** window.

Bind the **Value** property to a numeric tag (DINT, INT, SINT, or REAL). Bind the **Value** property to a string tag if the string consists of only numerals. For example, the string value 456 displays as an integer and the string value 321.0 displays as a floating-point value.

Use the **Rounding** field to specify how the numeric tag value appears when the amount of decimal places used by the numeric tag value exceeds the **DigitsAfterDecimal** value. For example, if **DigitsBeforeDecimal** is 3, DigitsAfterDecimal is 2, and **Rounding** = Nearest, the value 112.345 displays as 112.35.

Tips:

- If the **Value** property is assigned to an integer tag, the **DigitsAfterDecimal** property value is ignored. For example, if **DigitsBeforeDecimal** is 3 and **DigitsAfterDecimal** is 1, the INT tag value 123 displays as 123 instead of 123.0.
- If the **Value** property is unassigned, the numeric display fills with asterisks.
- If the value does not fit within the bounding box of the graphic element, the numeric display is filled with asterisks.
- If the integer portion of the value, including the minus sign, contains more digits than specified for the display, the numeric display shows the value in scientific notation.
- If the number of characters required to show the value in scientific notation exceeds the sum of the **DigitsBeforeDecimal** and **DigitsAfterDecimal** fields, the numeric display fills with asterisks.
- If the value contains invalid characters, the numeric display shows dashes in place of the value. An error message appears above the graphic element.
- To change the method for entering values in this graphic element, change the ValueEntryMethod property for the graphic element. The ValueEntryMethod property specifies whether entering values is inherited from the project properties, performed through the **Virtual Numeric Keypad**.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Property	Category	Purpose	Accepted Values
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Property	Category	Purpose	Accepted Values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
Padding	Appearance	Specifies the distance, in points, between the content of the element and the edge of the element.	Any numeric value
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)
DigitsBeforeDecimal	Numeric	Specifies the number of digits before the decimal point.	0 - 9
DigitsAfterDecimal	Numeric	Specifies the number of digits after the decimal point.	0 - 9

LeadingZero	Numeric	Places a zero before REAL numbers that are less than 1.	• Leading zero (selected) • No leading zero (cleared)
TrailingZeros	Numeric	Specifies that zeros fill the remaining decimal places.	• Trailing zeros (selected) • No trailing zeros (cleared)
Rounding	Numeric	Specifies the rounding method for the decimal portion of REAL numbers.	• None - Do not round the number • Up - Round up to the nearest number • Nearest - Round up or down to the nearest number
MaskedValue	Input	Specifies that asterisks mask the value entered on the numeric keypad.	• Value masked (selected) • Value not masked (cleared)
KeypadMaxValue	Input	Specifies the maximum value to show and enter on the numeric keypad.	Any numeric value that is greater than the KeypadMinValue property value
KeypadMinValue	Input	Specifies the minimum value to show and enter on the numeric keypad	Any numeric value that is less than the KeypadMaxValue property value
ValueEntryMethod	Input	Specifies the method for entering values in the graphic element. The default is to inherit the value entry method from the project. Selecting the virtual keypad value entry method overrides the default setting of the project.	• InheritProjectSetting • VirtualKeypad When binding to this property, use either the name of a value or the associated number: • 0 (InheritProjectSetting) • 1 (VirtualKeypad)
KeypadPosition	Input	Specifies the position of the virtual numeric keypad on the screen. The default position is the center of the screen (Middle-center).	• Top-left • Top-center • Top-right • Middle-left • Middle-center • Middle-right • Bottom-left • Bottom-center • Bottom-right

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

- CommonControls on page 180
- Numeric Display on page 187
- Search for and select a data type on page 373
- Search for and select a tag

PDF graphic element

Use the PDF graphic element in the **System** category in the **Toolbox** to open and view a PDF, or add a PDF to a screen, popup, or Add-On-Graphic to display a PDF on the HMI device

Unique Properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted Values
DocumentName	General	Displays the name of the currently viewed PDF.	Any listed PDF document.
PageCount	General	Displays the number of pages in the PDF.	Read-only
PageNumber	General	Displays the page number currently being viewed. It also specifies the page that is shown when the screen containing the PDF opens. **Tip:** Writing to this property at runtime changes the page shown in the PDF.	Any positive number. If the PDF has not been loaded, the value of the property is 1.
Zoom	General	Displays the current zoom value used in the PDF. It also specifies the zoom magnification value used in the PDF Viewer when the screen containing the PDF opens. **Tip:** Writing to this property at runtime changes the zoom magnification value used in the PDF Viewer.	• Fit Height • Fit page • Actual size

BackgroundColor	Appearance	Specifies the background color of the PDF.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, 3ffff00 produces yellow.
Bookmarks	Bookmark	Displays the bookmarks in a PDF document.	Read-only
BookmarkIndex	Bookmark	Displays the bookmark index to display in runtime.	The value of the property is 0.

Common Properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a PDF document to a project on page 332

Select Document dialog box on page 335

Toolbox on page 131

Slider Horizontal

Use the **Slider Horizontal** graphic element to build an application using slider control. The **Slider Horizontal** graphic element appears in the **CommonControls** category of the **Toolbox**.

Built-in-Animation Properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Property	Category	Purpose	Accepted Values
Value	General	Specifies the value of the graphic element	Bound tag
MinValue	General	Specifies the minimum value on the graphic element	Any numeric value less than the MaxValue property value.
MaxValue	General	Specifies the maximum value on the graphic element	Any numeric value greater than the MinValue property value.
Write Mode	General	Specifies when the control updates the value tag	**Continuous Update** - Updates the tag bound to the value property while dragging the slider thumb along the track **Update on Release** - Updates the tag bound to the value property after releasing the slider thumb.

Unique Properties

Unique properties are not shared by all graphic elements in **Toolbox**.

Name	Category	Purpose	Accepted Values
CornerRadius	Appearance	Specifies the curve of button corners.	Zero or a positive number.
UsePredefinedDisabled	Appearance	Specifies the crosshatch overlay on disabled graphic element.	True or false
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
BorderColor	Appearance/Border	Specifies the border color of the graphic element.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
BorderStyle	Appearance/Border	Specifies the border style for the graphic element.	• Any selected Line style -- None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style -- Flat, Round, or Square • Any selected Join style -- Miter, Bevel, or Round
BorderWidth	Appearance/Border	Specifies the border width for the graphic element.	• None • 1 pixel • 2 pixels • 4 pixels • 8 pixels

Name	Category	Purpose	Accepted Values
ThumbStyle	Appearance/Thumb	Specifies the appearance of the slider thumb.	• Square • Octagon • Diamond • Circle
ThumbFillColor	Thumb	Specifies the fill color for the slider thumb.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
ThumbBorderColor	Thumb	Specifies the border color for the slider thumb.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
ThumbThickness	Thumb	Adjusts the size of the thumb width along the track.	Zero or a positive number.
TrackVisible	Track	Specifies visibility of the slider track element.	Enable or Disable
TrackFillColor	Track	Specifies the fill color for the slider track.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TrackBorderColor	Track	Specific the border color for the slider track.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TrackThickness	Track	Specifies the relative thickness of the slider track.	The percentage (0 to 100) of the height for Slider Horizontal or the percentage of the width for Slider Vertical.
TrackCornerRadius	Track	Specifies the curve of the track.	Zero or a positive number
LimitVisible	Track	Specifies the visibility of the range between the **LowLimit** and **HighLimit** .	Enable or Disable
LowLimit	Track	Specifies the **LowLimit** value between the **MinValue** and **MaxValue**.	Any numeric value less than the HighLimit.
HighLimit	Track	Specifies the **HighLimit** value between the **MinValue** and **MaxValue**.	Any numeric value greater than the **LowLimit**.

Name	Category	Purpose	Accepted Values
LimitFillColor	Track	Specifies the fill color for the range between the **LowLimit** and **HighLimit** . **Tip:** Enable **TrackVisible** and **LimitVisible** before configuring **LimitFillColor**. The **LimitFillColor** property goes inactive after disabling **TrackVisible** and **LimitVisible**.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
OutofLimitFillColor	Track	Specifies the fill color for the thumb and a portion of the track when the **LowLimit** and **HighLimit** are outside the **MinValue** and **MaxValue** range. **Tip:** Enable **TrackVisible** and **LimitVisible** before configuring **LimitFillColor**. The **OutofLimitFillColor** property goes inactive after disabling **TrackVisible** and **LimitVisible**.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common Properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a Slider on page 152

What is a Slider? on page 153

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

Slider Vertical

Use the **Slider Vertical** graphic element to build an application using slider control. The **Slider Vertical** graphic element appears in the **CommonControls** category of the **Toolbox**.

Built-in Animation Properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device. Not all of the graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected.

Property	Category	Purpose	Accepted Values
Value	General	Specifies the value of the graphic element	Bound tag
MinValue	General	Specifies the minimum value on the graphic element	Any numeric value less than the MaxValue property value.
MaxValue	General	Specifies the maximum value on the graphic element	Any numeric value greater than the MinValue property value.
Write Mode	General	Specifies when the control updates the value tag	**Continuous Update** - Updates the tag bound to the value property while dragging the slider thumb along the track **Update on Release** - Updates the tag bound to the value property after releasing the slider thumb.

Unique Properties

Unique properties are not shared by all graphic elements in **Toolbox**.

Name	Category	Purpose	Accepted Values
CornerRadius	Appearance	Specifies the curve of button corners.	Zero or a positive number.
UsePredefinedDisabled	Appearance	Specifies the crosshatch overlay on disabled graphic element.	True or false
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
BorderColor	Appearance/Border	Specifies the border color of the graphic element.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Name	Category	Purpose	Accepted Values
BorderStyle	Appearance/Border	Specifies the border style for the graphic element.	• Any selected Line style -- None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style -- Flat, Round, or Square • Any selected Join style -- Miter, Bevel, or Round
BorderWidth	Appearance/Border	Specifies the border width for the graphic element.	• None • 1 pixel • 2 pixels • 4 pixels • 8 pixels
ThumbStyle	Appearance/Thumb	Specifies the appearance of the slider thumb.	• Square • Octagon • Diamond • Circle
ThumbFillColor	Thumb	Specifies the fill color for the slider thumb.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
ThumbBorderColor	Thumb	Specifies the border color for the slider thumb.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
ThumbThickness	Thumb	Adjusts the size of the thumb width along the track.	Zero or a positive number.
TrackVisible	Track	Specifies visibility of the slider track element.	Enable or Disable
TrackFillColor	Track	Specifies the fill color for the slider track.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TrackBorderColor	Track	Specific the border color for the slider track.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Name	Category	Purpose	Accepted Values
TrackThickness	Track	Specifies the relative thickness of the slider track.	The percentage (0 to 100) of the height for Slider Horizontal or the percentage of the width for Slider Vertical.
TrackCornerRadius	Track	Specifies the curve of the track.	Zero or a positive number
LimitVisible	Track	Specifies the visibility of the range between the **LowLimit** and **HighLimit** .	Enable or Disable
LowLimit	Track	Specifies the **LowLimit** value between the **MinValue** and **MaxValue**.	Any numeric value less than the HighLimit.
HighLimit	Track	Specifies the **HighLimit** value between the **MinValue** and **MaxValue**.	Any numeric value greater than the **LowLimit**.
LimitFillColor	Track	Specifies the fill color for the range between the **LowLimit** and **HighLimit** . **Tip:** Enable **TrackVisible** and **LimitVisible** before configuring **LimitFillColor**. The **LimitFillColor** property goes inactive after disabling **TrackVisible** and **LimitVisible**.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
OutofLimitFillColor	Track	Specifies the fill color for the thumb and a portion of the track when the **LowLimit** and **HighLimit** are outside the **MinValue** and **MaxValue** range. **Tip:** Enable **TrackVisible** and **LimitVisible** before configuring **LimitFillColor**. The **OutofLimitFillColor** property goes inactive after disabling **TrackVisible** and **LimitVisible**.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common Properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a Slider on page 152

What is a Slider? on page 153

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

Text Display

The Text Display graphic element is a control to show text or a string tag value. Text Display appears under **CommonControls** in the **Toolbox**.

Use the Text Display graphic element to:

- Show messages from the data source on the HMI device. For example, set up the data source to generate strings that report on the state of a process or operation, or that provide instructions about what the operator needs to do next.
- Provide descriptive text or labels for other graphic elements on the screen.

Bind the **Text** property to a string tag, a numeric tag, or an expression to display information from the data source. To use the Text Display as a label with static text, enter the static text value in the **Text** box.

Tips:

- To change the **Text** property value, double-click the Text Display graphic element on the screen to select the text and enter a new value. If the Text Display is bound to a tag or expression, the **Initial** value of the **Text** box changes.
- Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.
- The maximum length of a text display reading from a String data type in a controller is 476 characters.
- If the String is encoded using UTF-8, the text display may not show 476 characters because each character may take multiple bytes of data.
- Embedding a REAL tag value in a text display or popup caption shows 13 digits after the decimal point by default. To reduce the number of digits after the decimal point, use a truncate and divide operation. For example, to limit the number of digits shown after the decimal point to 3 digits, use the expression TRUNC(MyTag*10e2)/10e2. To show n+1 digits, use the expression TRUNC(MyTag*10en)/10en.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Text	General	Specifies the text on the graphic element. Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.	Alpha-numeric characters

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Position and Size	Specifies the width in pixels.	Any positive number
FontName	Appearance	Specifies the font of the text.	Any selected font

FooterFontColor	Appearance	Specifies the color of the text in the footer.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FooterFontSize	Appearance	Specifies the size of the text in the footer.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
Underline	Appearance	Make the text underlined.	• Underline - selected • No underline - cleared
Padding	Appearance	Specifies the distance, in points, between the content of the element and the edge of the element.	Any numeric value

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Change the text in a graphic element on page 140

Text Input on page 205

- CommonControls on page 180

Text Input

The Text Input graphic element is a control with built-in animation properties to show a string tag value and open the virtual keyboard to change the value. Text Input appears under **CommonControls** in the Toolbox.

Use the Text Input graphic element to show messages from the data source on the HMI device, and write a new value to the data source. By default, the **Virtual Standard Keyboard** opens in PanelView projects when interacting with a Text Input graphic element.

Make the value you enter by selecting the **MaskedValue** box in the **Properties** window. For example, select **MaskedValue** to have users not see their passwords while they type them.

Bind the **Text** box in the **Properties** window to a string tag, a numeric tag, or an expression to display information from the data source. Write a new value to the tag on the HMI device using the virtual keyboard. If you enter an invalid value, the value does not write to the tag and an error appears. For example, if the **Text** property is bound to an INT tag, writing the value "abc" to the tag is not supported.

Tips:

- Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If placing text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.
- The maximum length of a text input is 82 characters.
- To change the method for entering values in this graphic element, change the ValueEntryMethod property for the graphic element. The ValueEntryMethod property specifies whether entering values is inherited from the project properties, performed through the Virtual Numeric Keypad.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Property	Category	Purpose	Accepted Values
Text	General	Specifies the text on the graphic element. Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.	Alpha-numeric characters

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Property	Category	Purpose	Accepted Values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
Padding	Appearance	Specifies the distance, in points, between the content of the element and the edge of the element.	Any numeric value
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)
MaskedValue	Input	Specifies that asterisks mask the value entered on the numeric keypad.	• Value masked (selected) • Value not masked (cleared)
KeypadMinValue	Input	Specifies the minimum value to show and enter on the numeric keypad	Any numeric value that is less than the KeypadMaxValue property value

KeypadMaxValue	Input	Specifies the maximum value to show and enter on the numeric keypad.	Any numeric value that is greater than the KeypadMinValue property value
ValueEntryMethod	Input	Specifies the method for entering values in the graphic element. The default is to inherit the value entry method from the project. Selecting the virtual keyboard value entry method overrides the default setting of the project.	• InheritProjectSetting • VirtualKeyboard Bind to the name of a value or the associated number: • 0 (InheritProjectSetting) • 1 (VirtualKeyboard)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

- Change the text in a graphic element on page 140
- Text Display on page 202
- CommonControls on page 180
- Search for and select a data type on page 373
- Search for and select a tag

Flags

The **Flags** category in the **Toolbox** contains graphic elements of the flags of various countries. These graphic elements share properties common to all graphic elements.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

GeneralEquipment

The **GeneralEquipment** category in the **Toolbox** contains tanks, containers, lab equipment, conveyors, instrumentation, and pipes that represent this equipment in a manufacturing system. The graphic elements in **GeneralEquipment** are organized into categories:

- Cabinets
- Computers
- Conveyors
- Fans
- Feeders
- Fixtures
- Gauges
- Indicators
- Instrumentation
- Laboratory

- Miscellaneous
- Motors
- Pallets
- Pipes
- Pumps
- Sensors
- Separators
- Spools
- TanksAndContainers
- Textures
- Tick Marks
- Valves

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

Cabinets

The **Cabinets** category under **GeneralEquipment** in the **Toolbox** contains small, medium and large cabinet graphic elements.

Use a cabinet on the screen to depict a storage area in a manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
DoorOpacity	Appearance	Specifies the transparency of the cabinet door.	0 (fully transparent) - 100 (fully opaque)
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Computers

The **Computers** category under **GeneralEquipment** in the **Toolbox** contains a computer work station and server.

Use a computer or server on the screen to depict a monitoring or computer server area associated with the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

Conveyors

The **Conveyors** category in the **Toolbox** contains conveyor belts and conveyor rollers commonly used in a manufacturing system. The **Conveyors** category has graphic elements in additional **Belt** and **Roller** categories.

Use a conveyor to depict ingredients and products moving in a manufacturing system.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have built-in animation properties.

Name	Category	Purpose	Accepted values
DiverterPosition	General	Specifies the current position of the conveyor diverter.	Bound tag
MaxDiverterPosition	General	Specifies the value for a completely open diverter.	Any numeric value greater than the MinDiverterPosition property value
MaxPusherPosition	General	Specifies the value for a maximum extended conveyor pusher.	Any numeric value greater than the MinPusherPosition property value
MinDiverterPosition	General	Specifies the value for a completely closed diverter.	Any numeric value less than the MaxDiverterPosition property value
MinPusherPosition	General	Specifies the value for a minimum extension of the conveyor pusher.	Any numeric value less than the MaxPusherPosition property value
PusherPosition	General	Specifies the current position of the pusher arm.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
DiverterColor	Appearance	Specifies the color of the conveyor diverter.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
RailColor	Appearance	Specifies the color of the rail.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

What types of HMI screens do I need? on page 47

Find a graphic element in the Toolbox on page 135

Belt on page 213

Roller on page 215

GeneralEquipment on page 208

Belt

The **Belt** category under **GeneralEquipment > Conveyors** in the **Toolbox** contains conveyor belts commonly used in a manufacturing system.

Use a conveyor belt on the screen to depict where and how products or ingredients are moved in the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values

BeltColor	Appearance	Specifies the color of the conveyor belt.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LegColor	Appearance	Specifies the color of the conveyor belt legs.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

Roller

The **Roller** category under **GeneralEquipment > Conveyors** in the **Toolbox** contains conveyor rollers commonly used in a manufacturing system.

Use a conveyor roller on the screen to depict where and how products or ingredients are moved in the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LegColor	Appearance	Specifies the color of the conveyor belt legs.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
RollerColor	Appearance	Specifies the fill color of the conveyor rollers.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

Fans

The **Fans** category under **GeneralEquipment** in the **Toolbox** contains fans, including a box fan with built-in animation properties, commonly used in a manufacturing system.

Use a fan to depict the cooling process on the manufacturing site. Certain fans have built-in animation properties. Animate the fan by binding the built-in animation properties of the graphic element to tags in the controllers.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
BladeColor	Appearance	Specifies the color of the fan blades.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FinColor	Appearance	Specifies the color of the fan fins.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Search for and select a data type on page 373

Search for and select a tag

Add a graphic element to a screen on page 136

What is an event? on page 476

GeneralEquipment on page 208

Feeders

The **Feeders** category under **GeneralEquipment** in the **Toolbox** contains vibrating feeders commonly used in a manufacturing process.

Use a feeder to depict at what point a product or ingredientis inserted in the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
SlotColor	Appearance	Specifies the color of the feeder slots.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values

Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Fixtures

The **Fixtures** category under **GeneralEquipment** in the **Toolbox** contains an industrial shelf and a table commonly used in a manufacturing system.

Use a shelf or a table to depict where products and ingredients are placed in a manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Gauges

The **Gauges** category under **GeneralEquipment** in the **Toolbox** contains bar graphs, including spider charts, and gauges commonly used in a manufacturing system.

Use a bar graph or gauge to display a value from a controller by moving the needle or filling a bar on a graph. Animate the graphic element to

display values or move a needle. Bind the built-in animation properties of the graphic element to tags in the controllers.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected. For graphic elements with more than one indicator, a value pertains to a certain side of a graphic element. For example the MaxValue property for certain graphic elements may be LeftMaxValue or RightMinValue and Value may be LeftValue. Configure left and right value properties to affect a needle or bar on the indicated side of the graphic element.

Name	Category	Purpose	Accepted values
LeftMaxValue	General	Specifies the maximum value for left side of the graphic element.	Any numeric value greater than the LeftMinValue property value
LeftMinValue	General	Specifies the minimum value for the left side of the graphic element.	Any numeric value less than the LeftMaxValue property value
LeftValue	General	Specifies the current position of the needle on the left side of the gauge.	Bound tag
MaxValue	General	Specifies the maximum value on the graphic element.	Any numeric value greater than the MinValue property value
MinValue	General	Specifies the minimum value on the graphic element.	Any numeric value less than the MaxValue property value
RightMaxValue	General	Specifies the maximum value for the right side of the graphic element.	Any numeric value greater than the RightMinValue property value
RightMinValue	General	Specifies the minimum value for the right side of the graphic element.	Any numeric value less than the RightMaxValue property value
RightLevel	General	Specifies the level of the bar on the right side of the graph.	Bound tag
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category share the same unique properties. The unique properties of a graphic element depend on the graphic element selected.

Name	Category	Purpose	Accepted values

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillOpacity	Appearance	Specifies the transparency of the fill color.	0 (fully transparent) - 100 (fully opaque)
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
HighColor	Appearance	Specifies the color of the high zone on the gauge.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
HousingColor	Appearance	Specifies the color of the housing.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LeftLevelColor	Appearance	Specifies the level color of the bar on the left side of the graph.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LowColor	Appearance	Specifies the color of the low zone.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

MediumColor	Appearance	Specifies the color of the medium zone on the gauge.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
NeedleColor	Appearance	Specifies the color of the needle.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
RightLevelColor	Appearance	Specifies the color of the bar on the right side of the graph.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TextOpacity	Appearance	Specifies the transparency of the text.	0 (fully transparent) - 100 (fully opaque)
TickMarkColor	Appearance	Specifies the color of the tick marks.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TickMarkOpacity	Appearance	Specifies the transparency of the tick marks.	0 (fully transparent) - 100 (fully opaque)
WarningColor	Appearance	Specifies the color of the warning zone.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Search for and select a data type on page 373

Search for and select a tag

GeneralEquipment on page 208

Indicators

The **Indicators** category in the **Toolbox** contains graphic elements that represent equipment such as lights and poles.

Use an indicator to depict the status of a machine on the plant floor, to symbolize start and stop on the HMI device, or to indicate when a certain value is reached. The **Indicators** category has graphic elements in additional categories:

- StackLights
- TrafficLights
- WallMountLights

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values

InputTag	General	Specifies the tag in a controller that represents the input data of the device.	Bound tag
On	General	Specifies the on or off state of the LED.	• On (selected) • Off (cleared)

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
BaseColor	Appearance	Specifies the color of the base of the graphic element.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
HousingColor	Appearance	Specifies the color of the housing.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared

Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

StackLights

The **StackLights** category under **GeneralEquipment > Indicators** in the **Toolbox** contains stack light modules as well as poles, bases, and caps for the modules. Stack lights are commonly used in a manufacturing system.

Use a stack light to display the status of a machine on the plant floor. For example, illuminate the green light when the machine is operating correctly, the red light when the machine is not operating correctly, and the blue light when the machine is being serviced. To animate the graphic element, bind the built-in animation properties to tags. The values in a controller illuminate the lights when certain values in the controller are read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected. For example, the LightOn property for certain stack lights may be Light1On, Light2On, Light3On, Light4On, or Light5On, depending on the number of flights on the module. Configure the LightOn properties for a stack light to animate the indicated light on the graphic element.

Name	Category	Purpose	Accepted values
LightOn	General	Specifies the on and off state of the light.	• On - selected • Off - cleared

Light1On	General	Specifies the one and off state of the single or bottom light.	• On (selected) • Off (cleared)
Light2On	General	Specifies the on and off state of the second light from the bottom.	• On (selected) • Off (cleared)
Light3On	General	Specifies the on and off state of the third light from the bottom.	• On (selected) • Off (cleared)
Light4On	General	Specifies the on and off state of the fourth light from the bottom.	• On (selected) • Off (cleared)
Light5On	General	Specifies the on and off state of the fifth light from the bottom.	• On (selected) • Off (cleared)

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected. For example, LightColor properties may include Light1Color, Light2Color, Light3Color, Light3Color, or Light5Color, depending on the stack light selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LightColor	Appearance	Specifies the color of the light.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light1Color	Appearance	Specifies the color the single or bottom light.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light2Color	Appearance	Specifies the color of the second light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Light3Color	Appearance	Specifies the color of the third light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light4Color	Appearance	Specifies the color of the fourth light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light5Color	Appearance	Specifies the color the of the fifth light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

What is an event? on page 476

Search for and select a data type on page 373

Search for and select a tag

TrafficLights

The **TrafficLights** category under **GeneralEquipment > Indicators** in the **Toolbox** contains traffic lights with two and three lights.

Use a traffic light to symbolize stop and start on the HMI device. To animate the graphic element, bind the built-in animation properties to tags. The values from a controller illuminate the lights when certain values in the controller are read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Light1On	General	Specifies the one and off state of the single or bottom light.	• On (selected) • Off (cleared)
Light2On	General	Specifies the on and off state of the second light from the bottom.	• On (selected) • Off (cleared)
Light3On	General	Specifies the on and off state of the third light from the bottom.	• On (selected) • Off (cleared)

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values

Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

What is an event? on page 476

Search for and select a data type on page 373

- Search for and select a tag

WallMountLights

The **WallMountLights** category under **GeneralEquipment > Indicators** in the **Toolbox** contains wall mounted lights with two to five lights. These lights are commonly used in a manufacturing system.

Use a wall mount light to indicate when a certain value in a controller is reached by illuminating the light. To animate the graphic element, bind the built-in animation properties to tags. The values from a controller illuminate the lights when certain values in the controller are read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected. For example, the built-in animation

properties for a wall mount light with two modules are Light1On and Light2On. For a wall mount light with five modules, these properties include Light1On through Light5On.

Name	Category	Purpose	Accepted values
Light1On	General	Specifies the one and off state of the single or bottom light.	• On (selected) • Off (cleared)
Light2On	General	Specifies the on and off state of the second light from the bottom.	• On (selected) • Off (cleared)
Light3On	General	Specifies the on and off state of the third light from the bottom.	• On (selected) • Off (cleared)
Light4On	General	Specifies the on and off state of the fourth light from the bottom.	• On (selected) • Off (cleared)
Light5On	General	Specifies the on and off state of the fifth light from the bottom.	• On (selected) • Off (cleared)

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not every graphic element in this category has the same unique properties. The unique properties of a graphic element depend on the graphic element selected. For example, LightColor properties may include Light1Color, Light2Color, Light3Color, Light3Color, or Light5Color, depending on the wall mount light selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light1Color	Appearance	Specifies the color the single or bottom light.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light2Color	Appearance	Specifies the color of the second light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Light3Color	Appearance	Specifies the color of the third light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light4Color	Appearance	Specifies the color of the fourth light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Light5Color	Appearance	Specifies the color the of the fifth light from the bottom.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

What is an event? on page 476

Search for and select a data type on page 373

Search for and select a tag

Instrumentation

The **Instrumentation** category in the **Toolbox** contains graphic elements that represent digital indicators and panel meters. The graphic elements in **Instrumentation** are organized into a category named **Process**.

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Process

The **Process** category under **GeneralEquipment > Instrumentation** in the **Toolbox** contains a digital indicator and panel meters commonly used in a manufacturing system.

Use a digital indicator or panel meter to display a value on a piece of equipment in the manufacturing system. To display a value, bind the built-in animation property of the graphic element to a tag in a controller. The Value built-in animation property exists in the **General** category of the **Properties** window.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontName	Appearance	Specifies the font of the text.	Any selected font
FontSize	Appearance	Specifies the size of the text.	Positive numbers
HousingColor	Appearance	Specifies the color of the housing.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number

Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

What is an event? on page 476

Search for and select a data type on page 373

Search for and select a tag

Bind a property to a data item on page 508

Laboratory

The **Laboratory** category under **GeneralEquipment** in the **Toolbox** contains equipment, such as beakers, a flask, funnel, test tube, and thermometers.

Use laboratory graphic elements as symbols on the HMI device or to depict a laboratory environment. To animate the graphic element, bind the built-in animation properties of the graphic element to tags in the controllers. Not all of the graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Level	General	Specifies the value for the fill level.	Bound tag
MaxLevel	General	Specifies the value for the maximum fill level.	Any numeric value greater than the MinLevel property value
MinLevel	General	Specifies the value for the minimum fill level.	Any numeric value less than the MaxLevel property value
ShowFlame	General	Specifies the on or off state for the flame.	• Show flame - selected • Do not show flame - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values

BaseColor	Appearance	Specifies the color of the base of the graphic element.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

What is an event? on page 476

Search for and select a data type on page 373

Search for and select a tag

GeneralEquipment on page 208

Miscellaneous

The **Miscellaneous** category under **GeneralEquipment** in the **Toolbox** contains graphic elements that represent equipment such as brackets, blades, blowers, flames, gears, hydraulic arms, thermometers, levers, lift tables, paper rolls, wheels, and so forth. The graphic elements in **Miscellaneous** are organized into a **Frames** category.

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Frames on page 237

GeneralEquipment on page 208

Frames

The **Frames** category under **GeneralEquipment > Miscellaneous** in the **Toolbox** contains a non-beveled panel and a beveled panel that resemble control panels.

Place a frame on the screen and add buttons and indicators to the frame.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values

Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

Motors

The **Motors** category in the **Toolbox** contains graphic elements that represent servo and control matched motors. The graphic elements in **Motors** are organized into **ControlMatched** and **Servo** categories.

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

ControlMatched on page 238

Servo on page 239

ControlMatched

The **ControlMatched** category under **GeneralEquipment > Motors** in the **Toolbox** contains motors commonly used in a manufacturing system.

Use a control matched motor to depict the location of the motor in the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

Servo

The **Servo** category under **GeneralEquipment > Motors** in the **Toolbox** contains motors used in a manufacturing system. Servo motors

include rotary and linear motors commonly used to control robotics at high rates of speed.

Use a servo motor to depict the location of the motor in the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category share the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
RailColor	Appearance	Specifies the color of the rail.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

Pallets

The **Pallets** category under **GeneralEquipment** in the **Toolbox** contains pallets commonly used in a manufacturing system.

Use a pallet on the screen to depict the placement of product and ingredients in the manufacturing process.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value

Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Pipes

The **Pipes** category in the **Toolbox** contains graphic elements that represent pipes, tubes, and flanges commonly used in a manufacturing system. The graphic elements in **Pipes** are organized into categories:

- Flanges
- FlexibleTubes
- Piping

See also

Toolbox on page 131

Add a graphic element to a screen on page 136

Flanges on page 242

FlexibleTubes on page 243

Piping on page 245

Flanges

The **Flanges** category under **GeneralEquipment > Pipes** in the **Toolbox** contains pipe flanges commonly used in a manufacturing system.

Use a flange to connect pipes in the application on the HMI device.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

FlexibleTubes

The **FlexibleTubes** category under **GeneralEquipment > Pipes** in the **Toolbox** contains tubes at a variety of angles commonly used in a manufacturing system.

Use a flexible tube to indicate where a pipe bends and to show the flow of liquid material through the pipes. To animate the graphic element, bind the built-in animation property of the graphic element to a tag. The value

from the controller shows the flow when a certain value in the controller is read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have this built-in animation property:

Name	Category	Purpose	Accepted values
ShowFlow	General	Specifies the on or off state for flow.	• Show flow - selected • Do not show flow - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FlowColor	Appearance	Specifies the color of the flow.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

- Search for and select a tag

Piping

The **Piping** category under **GeneralEquipment > Pipes** in the **Toolbox** contains pipes at a variety of angles, as well as connectors, that are commonly used in a manufacturing system.

Use pipes and connectors to show the flow of liquid material within a manufacturing system. To animate the graphic element, bind the built-in animation property of the graphic element to a tag. The value from a controller shows the flow when a certain value in the controller is read.

Built-in animation properties

Built-in animation properties appear under the General category of the Properties window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device. Not all graphic elements in this category have built-in animation properties.

Name	Category	Purpose	Accepted values
ShowFlow	General	Specifies the on or off state for flow.	• Show flow - selected • Do not show flow - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FlowColor	Appearance	Specifies the color of the flow.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FlowOpacity	Appearance	Specifies the transparency of the flow color.	0 (fully transparent) - 100 (fully opaque)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number

Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

- Search for and select a tag

Pumps

The **Pumps** category under **GeneralEquipment** in the **Toolbox** contains a pump and a submersible pump commonly used in a manufacturing system.

Use a pump to depict the flow of liquid material. To animate the graphic element, bind the built-in animation property of the graphic element to a tag. The value from a controller shows the flow when a certain value in the controller is read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have this built-in animation property:

Name	Category	Purpose	Accepted values
ShowFlow	General	Specifies the on or off state for flow.	• Show flow - selected • Do not show flow - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

FlowColor	Appearance	Specifies the color of the flow.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FlowOpacity	Appearance	Specifies the transparency of the flow color.	0 (fully transparent) - 100 (fully opaque)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

- GeneralEquipment on page 208

Sensors

The **Sensors** category under **GeneralEquipment** in the **Toolbox** contains sensors such as a barcode scanner, flow meter, photo eye

sensors and a scale. These elements are commonly used in a manufacturing system.

Use a sensor graphic element to depict where products and ingredients are detected and measured in the manufacturing system. If you place the Flow Meter graphic element on the screen, animate the graphic element by binding the built-in animation property of the graphic element to a tag. The value from a controller shows the flow when a certain value in the controller is read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have this built-in animation property:

Name	Category	Purpose	Accepted values
ShowFlow	General	Specifies the on or off state for flow.	• Show flow - selected • Do not show flow - cleared

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
BeamColor	Appearance	Specifies the color of the laser beam.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
BeamOpacity	Appearance	Specifies the transparency of the laser beam.	0 (fully transparent) - 100 (fully opaque)
DisplayColor	Appearance	Specifies the color of the display unit.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

DisplayFaceColor	Appearance	Specifies the color of the face of the display unit.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FlowColor	Appearance	Specifies the color of the flow.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FlowOpacity	Appearance	Specifies the transparency of the flow color.	0 (fully transparent) - 100 (fully opaque)
IndicatorColor	Appearance	Specifies the color of the indicator light.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common Properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

GeneralEquipment on page 208

Separators

The **Separators** category under **GeneralEquipment** in the **Toolbox** contains a separator commonly used in a manufacturing system.

Use a separator to depict where products or ingredients are separated in the manufacturing process.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Spools

The **Spools** category under **GeneralEquipment** in the **Toolbox** contains spools commonly used in a manufacturing system.

Use a spool to show how items such as electrical cable or hose are housed before use in a manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

TanksAndContainers

The **TanksAndContainers** category in the **Toolbox** contains graphic elements that represent tanks and container equipment in the plant. The graphic elements in **TanksAndContainers** are organized into categories:

- Agitators
- Containers
- Cutouts
- Other
- Tanks

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Agitators

The **Agitators** category under **GeneralEquipment > TanksAndContainers** in the **Toolbox** contains agitators and mixing hoppers commonly used in a manufacturing system.

Use an agitator or mixing hopper to depict combining ingredients in a manufacturing system. If you place a mixing hopper on the screen, change the built-in animation properties to show the initial, maximum, and minimum levels in the hopper.

Built-in animation properties

Built-in animation properties appear under the General category of the Properties window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device. Not all graphic elements in this category have built-in animation properties.

Name	Category	Purpose	Accepted values
Level	General	Specifies the value for the fill level.	Bound tag
MaxLevel	General	Specifies the value for the maximum fill level.	Any numeric value greater than the MinLevel property value
MinLevel	General	Specifies the value for the minimum fill level.	Any numeric value less than the MaxLevel property value

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
AgitatorColor	Appearance	Specifies the color of the hopper agitator.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
AxleColor	Appearance	Specifies the color of the agitator axle.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
MotorColor	Appearance	Specifies the color of the motor.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

Containers

The **Containers** category under **GeneralEquipment > TanksAndContainers** in the **Toolbox** contains bins, bottles, cans, boxes, crates, jars, on and so forth. Containers are commonly used in a manufacturing system.

Use a container to depict packaging in the manufacturing system. If you place a container on the screen that can depict data such as fill levels, change the built-in animation properties for the graphic element.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have built-in animation properties. The built-in animation properties for a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
Cap	General	Specifies if the cap is on or off.	• Cap on - selected • Cap off - cleared
Level	General	Specifies the value for the fill level.	Bound tag
MaxLevel	General	Specifies the value for the maximum fill level.	Any numeric value greater than the MinLevel property value
MinLevel	General	Specifies the value for the minimum fill level.	Any numeric value less than the MaxLevel property value
ShowOpen	General	Specifies the open or closed state of the cardboard box.	• Open - selected • Closed - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values

CapColor	Appearance	Specifies the color of the cap.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

Cutouts

The **Cutouts** category under **GeneralEquipment > TanksAndContainers** in the **Toolbox** contains tank cutouts commonly depict levels of ingredients and products in a manufacturing system.

Use a tank cutout to depict the level of an ingredient or product in a manufacturing system.For any tank cutout you place on the screen, change the built-in animation properties to show the initial, maximum, and minimum levels in the tank.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Level	General	Specifies the value for the fill level.	Bound tag
MaxLevel	General	Specifies the value for the maximum fill level.	Any numeric value greater than the MinLevel property value
MinLevel	General	Specifies the value for the minimum fill level.	Any numeric value less than the MaxLevel property value

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

Other

The **Other** category under **GeneralEquipment > TanksAndContainers** in the **Toolbox** contains tubes and tube fill indicators commonly depict levels of ingredients in a manufacturing system.

Use a tube or tube fill indicator to depict the level of an ingredient in a manufacturing system.Change the built-in animation properties to show the initial, maximum, and minimum levels of the graphic element.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Level	General	Specifies the value for the fill level.	Bound tag
MaxLevel	General	Specifies the value for the maximum fill level.	Any numeric value greater than the MinLevel property value
MinLevel	General	Specifies the value for the minimum fill level.	Any numeric value less than the MaxLevel property value

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
KnobColor	Appearance	Specifies the color of the knobs.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
PipeColor	Appearance	Specifies the color of the pipes that connect to the fill indicator.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
TickMarkOpacity	Appearance	Specifies the transparency of the tick marks.	0 (fully transparent) - 100 (fully opaque)
TubeColor	Appearance	Specifies the color of the tube.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

Tanks

The **Tanks** category under **GeneralEquipment > TanksAndContainers** in the **Toolbox** contains tanks, silos, boilers, and cooling tanks commonly used in a manufacturing system.

Use a tank or cooling tower to depict products or ingredients housed in a manufacturing system. If you place a tank or other graphic element on the screen that depicts fill level, change the built-in animation properties for the graphic element.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to

animate the graphic element or change the information the graphic element shows on the HMI device.

Not every graphic element in this category has built-in animation properties. The built-in animation properties for a graphic element depend on the graphic element selected.

Name	Category	Purpose	Accepted values
Level	General	Specifies the value for the fill level.	Bound tag
MaxLevel	General	Specifies the value for the maximum fill level.	Any numeric value greater than the MinLevel property value
MinLevel	General	Specifies the value for the minimum fill level.	Any numeric value less than the MaxLevel property value

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties for a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
JacketColor	Appearance	Specifies the color of the tank jacket.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values

Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

Textures

The **Textures** category under **GeneralEquipment** in the **Toolbox** contains concrete pads and stainless steel plates commonly used in a manufacturing system.

Use a concrete pad or stainless steel plate to enhance or more accurately depict a piece of equipment in the manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

Find a graphic element in the Toolbox on page 135

GeneralEquipment on page 208

Tick Marks

The **Tick Marks** category under **GeneralEquipment** in the **Toolbox** contains marks commonly shown on gauges and graphs or any other graphic element used to depict a value in a manufacturing system.

Use a tick mark to show a value on a gauge, graph, or other graphic element.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number

Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

- eneralEquipment on page 208

Valves

The **Valves** category under **General Equipment** in the **Toolbox** contains valves commonly used in a manufacturing system.

Add a valve, spray nozzle, or lever to a piece of equipment in the manufacturing system. Animate a spray nozzle or lever by binding the built-in animation properties of the graphic element to tags. The values from a controller show the spray or open the lever when a certain value in the controller is read.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
ShowOpen	General	Specifies the open or closed state of the cardboard box.	• Open - selected • Closed - cleared
ShowSpray	General	Specifies the on or off state of the spray.	• Show spray - selected • Do not show spray - cleared
SprayOpacity	Appearance	Specifies the transparency of the spray.	0 (fully transparent) - 100 (fully opaque)

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values

BodyColor	Appearance	Specifies the color of the valve body.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
HousingColor	Appearance	Specifies the color of the housing.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
SpindleColor	Appearance	Specifies the spindle color of the valve.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
SprayColor	Appearance	Specifies the color of the spray.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value

Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

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Search for and select a tag

GeneralEquipment on page 208

Graph

The **Graphs** category under **GeneralEquipment** in the **Toolbox** contains graphic elements to display data on bar graphs and spider charts. These graphic elements are commonly used to display data in a manufacturing system.

Add a bar graph that shows the amount filled or a spider chart that displays the status of three to seven tag values, depending on the spider chart selected. For example, to display the status of four tag values, add the Spider Chart 4 graphic element and bind the built-in animation properties of the graphic element to a tag. The values from a controller are plotted on the chart or graph when the values are read from the controller.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Not all graphic elements in this category have the same properties. The built-in animation properties for a graphic element in this category depend on the graphic element selected. For example, the Input values for a Spider Chart 4 include Input1 through Input4, Input1Min through Input4Min, and Input1Max through Input4Max.

Name	Category	Purpose	Accepted values
Input1	General	Specifies the value for the first dimension in the spider chart.	Bound tag
Input2	General	Specifies the value for the second dimension in the spider chart.	Bound tag

Input3	General	Specifies the value for the third dimension in the spider chart.	Bound tag
Input4	General	Specifies the value for the fourth dimension in the spider chart.	Bound tag
Input5	General	Specify the value for the fifth dimension in the spider chart.	Bound tag
Input6	General	Specifies the value for the sixth dimension in the spider chart.	Bound tag
Input7	General	Specifies the value for the seventh dimension of the spider chart.	Bound tag
Input1Max	General	Specifies the maximum value for the first dimension in the spider chart.	Any value greater than the Input1Min property value
Input2Max	General	Specifies the maximum value for the second dimension in the spider chart.	Any value greater than the Input2Min property value
Input3Max	General	Specifies the maximum value for the third dimension in the spider chart.	Any value greater than the Input3Min property value
Input4Max	General	Specifies the maximum value for the fourth dimension in the spider chart.	Any value greater than the Input4Min property value
Input5Max	General	Specifies the maximum value for the fifth dimension of the spider chart.	Any value greater than the Input5Min property value
Input6Max	General	Specifies the maximum value for the sixth dimension of the spider chart.	Any value greater than the Input6Min property value
Input7Max	General	Specifies the maximum value for the seventh dimension in the spider chart.	Any value greater than the Input7Min property value
Input1Min	General	Specifies the minimum value for the first dimension in the spider chart.	Any value less than the Input1Max property value
Input2Min	General	Specifies the minimum value for the second dimension in the spider chart.	Any value less than the Input2Max property value
Input3Min	General	Specifies the minimum value for the third dimension in the spider chart.	Any value less than the Input3Max property value
Input4Min	General	Specifies the minimum value for the fourth dimension in the spider chart.	Any value less than the Input4Max property value
Input5Min	General	Specifies the minimum value for the fifth dimension of the spider chart.	Any value less than the Input5Max property value
Input6Min	General	Specifies the minimum value for the sixth dimension in the spider chart.	Any value less than the Input6Max property value
Input7Min	General	Specifies the minimum value for the seventh dimension of the spider chart.	Any value less than the Input7Max property value
MaxValue	General	Specifies the maximum value on the graphic element.	Any numeric value greater than the MinValue property value
MinValue	General	Specifies the minimum value on the graphic element.	Any numeric value less than the MaxValue property value
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the Toolbox share. Not all graphic elements in this category have the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values

Color	Appearance/Axis	Specifies the color of the lines on the spider chart.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
LevelColor	Appearance	Specifies the color of the fill level.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Axis	Specifies the style of the lines on the spider chart.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Axis	Specifies the width of the lines on the spider chart.	• None • 1 pixel • 2 pixels • 4 pixels • 8 pixels
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

Search for and select a tag

Security

The **Security** category under **GeneralEquipment** in the **Toolbox** contains buttons predefined to log on and log off the application on the HMI device:

- Log Off Button
- Log On Button

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Log Off Button on page 274

Log On Button on page 272

Log On Button

The Log On Button is a graphic element predefined to open the **Logon** dialog box. The Log On Button appears in the **Security** category of the **Toolbox**.

Use the **Log On** button to:

- Open the **Logon** dialog box on the HMI device.
- Log on to the project on the HMI device using your user name and password or PIN.

Tips:

- Guest and and logged on user accounts see only those screens on the HMI device for which their security role is granted access.
- By default, a **Log On** button appears in the **System Banner** at the top of each screen.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Text	General	Specifies the text on the graphic element. Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.	Alpha-numeric characters

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified

Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a Security Administration user account on page 688

Log Off Button on page 274

Security on page 271

Log Off Button

The Log Off Button is a graphic element predefined to log you off the application on the HMI device. The Log Off Button appears in the **Security** category of the **Toolbox**.

Use the **Log Off** button to:

- Log off the project on the HMI device.
- Automatically log on using the Guest user role. A Guest user can access only those screens on the HMI device for which the Guest user role is granted access.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
Text	General	Specifies the text on the graphic element. Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.	Alpha-numeric characters

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specifies the curve of the corners.	0 or a positive number
TextAlignment	Appearance	Specifies the vertical and horizontal alignment of the text.	Vertical alignment: • Top • Center • Bottom Horizontal alignment: • Left justified • Centered • Right justified
Color	Appearance/Border	Specifies the color of the border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style - None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style - Flat, Round, or Square • Any selected Join style - Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 point • 2 point • 4 point • 8 point
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a Security Administration user account on page 688

Log On Button on page 272

Security on page 271

SignsAndSymbols

The **SignsAndSymbols** category in the **Toolbox** contains graphic elements that represent symbols such as electrical symbols as well as hazard and alert signs and symbols. The graphic elements in **SignsAndSymbols** are organized into categories:

- ElectricalSymbols
- FluidPower
- Flowcharts
- Icons
- Indicators
- ISASymbols

- ISOHazardAlertSigns
- ISOHazardAlertSymbols
- ISOMandatorySigns
- ISOMandatorySymbols
- ISOSignTemplates
- SignTemplates

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

ElectricalSymbols

The **ElectricalSymbols** category under **SignsAndSymbols** in the **Toolbox** contains electrical symbols such as lines, meters, circuits breakers, contacts, connections, breaks, and so forth. These shapes commonly used to depict an electrical system.

Add symbols to the screen to depict an electrical system in a manufacturing plant.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
BorderColor	Appearance	Specifies the border color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

Flowcharts

The **Flowcharts** category under **GeneralEquipment > SignsAndSymbols** in the **Toolbox** contains miscellaneous shapes as well as shapes used to create flowcharts. These shapes are commonly used in the processes of a manufacturing system.

Use flowchart symbols to depict work flow or process in a manufacturing system.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

FluidPower

The **FluidPower** category under **SignsAndSymbosl** in the **Toolbox** contains valves and pneumatic symbols. These graphic elements are commonly used to depict a fluid power system.

Add values and the pneumatic symbols to depict a power system that uses water.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values

BorderColor	Appearance	Specifies the border color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

Icons

The **Icons** category under **SignsAndSymbols** in the **Toolbox** contains icons used throughout the manufacturing system.

Use an icon to create a button or sign. You can also configure an icon to perform an event. Graphic elements configured with an event perform the configured task on the HMI device.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Trigger an action on a Button Behavior event on page 444

What is binding? on page 502

SignsAndSymbols on page 276

Indicators

The **Indicators** category under **SignsAndSymbols** in the **Toolbox** contains icons used throughout the manufacturing system.

Use an icon to create a button, sign, or an overlay for another graphic element. Configure an indicator to perform an event. Graphic elements configured with an event perform the configured task on the HMI device.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a controller reference on page 85

ISOHazardAlertSigns

The **ISOHazardAlertSigns** category under **SignsAndSymbols** in the **Toolbox** contains various ISO® signs such as Electrical Shock sign, High Voltage Sign, Toxic sign, and so forth. These signs are commonly used in a manufacturing system.

Use an ISO sign on the screen indicate a potential hazard in the manufacturing process.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
SignColor	Appearance	Specifies the fill color of the sign.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number

X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

ISOHazardAlertSymbols

The **ISOHazardAlertSymbols** category under **SignsAndSymbols** in the **Toolbox** contains various ISO symbols such as Electrical Shock sign, High Voltage Sign, Toxic sign, and so forth. These symbols are commonly used to create ISO Hazard Alert signs.

Use an ISO symbol on the screen or to create a sign.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360

Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

ISOMandatorySigns

The **ISOMandatorySigns** category under **SignsAndSymbols** in the **Toolbox** contains various ISO signs such as Hard Hat Required to be posted in a manufacturing system.

Use an ISO mandatory sign on the screen to indicate a potential hazard in the manufacturing process.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
SignColor	Appearance	Specifies the fill color of the sign.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

ISOMandatorySymbols

The **ISOMandatorySymbols** category under **SignsAndSymbols** in the **Toolbox** contains various ISO symbols such as Hard Hat Required. These symbols are commonly used to create mandatory ISO signs.

Use an ISO mandatory symbol on the screen or to create a sign.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

ISOSignTemplates

The **ISOSignTemplates** category under **SignsAndSymbols** in the **Toolbox** contains sign shapes and colors commonly used to create ISO signs.

Use a sign template to change a sign or create a new sign. To create a custom sign, add text or an icon to the template.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
SignColor	Appearance	Specifies the fill color of the sign.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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SignsAndSymbols on page 276

ISASymbols

The **ISASymbols** category under **SignsAndSymbols** in the **Toolbox** contains symbols that depict equipment such as valves, agitators, blowers, and furnaces used in a manufacturing system.

Use ISA symbols to have line drawings depict manufacturing equipment.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
BorderColor	Appearance	Specifies the border color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared

Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

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Toolbox on page 131

Find a graphic element in the Toolbox on page 135

SignsAndSymbols on page 276

SignTemplates

The **SignTemplates** category under **SignsAndSymbols** in the **Toolbox** contains signs with default content.

Use a sign template on the screen to create a sign. Add a graphic element or symbols to the sign. Change the header, text, sign color and other unique properties to customize the sign template.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Not all graphic elements in this category share the same properties. The unique properties of a graphic element in this category depend on the graphic element selected.

Name	Category	Purpose	Accepted values
BorderColor	Appearance	Specifies the border color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
FooterFontColor	Appearance	Specifies the color of the text in the footer.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FooterFontSize	Appearance	Specifies the size of the text in the footer.	Positive numbers
FooterText	Appearance	Specifies the text in the footer.	Alpha-numeric characters
HeaderColor	Appearance	Specifies the fill color of the header.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
HeaderFontColor	Appearance	Specify the color of the text in the header.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
HeaderFontSize	Appearance	Specifies the size of the text in the header.	Positive numbers
HeaderText	Appearance	Specifies the text in the header.	Alpha-numeric characters
SignColor	Appearance	Specifies the fill color of the sign.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
StripesColor	Appearance	Specifies the color of the striped border.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Text	General	Specifies the text on the graphic element. Do not place text against the border of a graphic element. Allow for a small difference in space, such as one or two characters. If you place text against the border of a graphic element, the text may wrap differently or appear clipped on the HMI device.	Alpha-numeric characters

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

- SignsAndSymbols on page 276

System

The **System** category in the **Toolbox** contains graphic elements used in the system by default. Some of the graphic elements in this category are elements without built-in animation properties. Other graphic elements in this category are pre-configured to perform a task. The graphic elements in **System** are organized into categories:

- Activity Indicator
- Alarm Status Indicator
- Checkbox
- Controller Status Indicator
- Error
- List Box Indicator
- List Box Selector
- Navigation Menu
- Network Status Indicator

- PDF Viewer
- Radio Button
- Success

See also

What types of HMI screens do I need? on page 47

Toolbox on page 131

Add a graphic element to a screen on page 136

Find a graphic element in the Toolbox on page 135

Activity Indicator

The Activity Indicator is predefined to show the completeness of an activity. This graphic element appears in the **System** category of the **Toolbox**.

Use the Activity Indicator to show that a task is being performed in the manufacturing system. For example, place the Activity Indicator next to a tank that is filling on the screen. Bind the **Visible** box in the **Properties** window of the Activity Indicator graphic element to a tag in a controller. The Activity Indicator shows when the tag value is true and does not show when the tag value is false.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Find a graphic element in the Toolbox on page 135

System on page 292

Alarm Status Indicator

The **Alarm Status Indicator** button is pre-defined to open the **Alarm Summary** screen. This graphic element appears in the **System** category of the **Toolbox**.

Use the **Alarm Status Indicator** to:

- Open the **Alarm Summary** screen on the HMI device. By default, this button opens the **AlarmSummary** screen.
- Change the screen the Alarm Status Indicator opens. With the Alarm Status Indicator selected, change the screen name in the **NavigateTo** box of the **Properties** window.

Tips:

- An **Alarm Status Indicator** button appears in the **System Banner** at the top of each screen. The button is red and flashing when there are active alarms that are unacknowledged.
- The button remains red as long as there are active alarms (acknowledged or unacknowledged).
- The button returns to default state with gray icon when all alarms are normal, even if alarms are unacknowledged.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
NavigateTo	General	Specifies the screen to open on a touch release event.	Screen name in project

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared

Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

System on page 292

Alarm faults and alarm quality on page 565

Resolve alarm faults on page 567

Alarms overview on page 563

Find a graphic element in the Toolbox on page 135

Checkbox

The Checkbox is a graphic element pre-defined to show a check mark. This graphic element appears selected or cleared based on the value of a boolean tag. It can be used as a control that toggles the value of a boolean tag between 1 and 0. The Checkbox graphic element appears in the **System** category of the **Toolbox**.

Use the Checkbox graphic element to:

- Display the state of a boolean tag.
- Toggle the state of a boolean tag.

Tip: To use the Checkbox to toggle the state of a tag, on the **Events** tab, create a **Button Behavior** event. Set the button behavior to **Toggle a tag on release** and bind it to the same tag value in the **ShowMark** box of the **Properties** window. When you tap the checkbox on the HMI device, the button behavior event triggers, toggling the tag value in the **ShowMark** box to either select or clear the check box.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
ShowMark	General	Specifies the selected or cleared state of the check box.	• Show mark - selected • Do not show mark - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
MarkColor	Appearance	Specifies the color of the checkmark.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

System on page 292

Trigger an action on a Button Behavior event on page 444

What is an event? on page 476

Change the properties of a graphic element on page 139

Find a graphic element in the Toolbox on page 135

Controller Status Indicator

The Controller Status Indicator is a graphic element pre-defined to show controller communication issues and open the screen for configuring controllers. This graphic element appears in the **System** category of the **Toolbox**.

Use the Controller Status Indicator to:

- See a visual indicator when there is an issue with the communication of any controller in the project.
- Open the **Controllers** popup. This popup shows details about the communication status of all referenced controllers in the project.
- Change the screen the Controller Status Indicator opens. When selecting the Controller Status Indicator, change the screen name in the **NavigateTo** box of the **Properties** window.

Tips:

- By default, the Controller Status Indicator appears in the **System Banner** at the top of the screen. The same controller details appear when selecting **Controller** from the **Settings** screen.
- The Controller Status Indicator changes appearances based on the issue:
  - **Controller error.** Any controller in the project has no power or connection.
  - **Controller caution.** Any controller in the project has a fault or is in **Program** mode.
  - **Controller unknown.** No controller is visible or it is unclear if a controller should be visible to the HMI device. This occurs when any controller referenced in the project is disconnected, powered down, or is on a disconnected side of the network.

Built-in Animation Properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
NavigateTo	General	Specifies the screen to open on a touch release event.	Screen name in project

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

System on page 292

What is the System Banner? on page 97

System Banner contents on page 127

Find a graphic element in the Toolbox on page 135

Change the properties of a graphic element on page 139

Error

The Error graphic element is an icon used to indicate that an error has occurred. This graphic element appears in the **System** category of the **Toolbox**.

Add an **Error** graphic element to indicate that a task did not complete successfully in the manufacturing system. For example, use the Error graphic element to indicate if a product passed inspection at a test stand. Bind the **Visible** box in the **Properties** window for the Error graphic element to a tag in a controller. The Error graphic element shows when the tag value is True, indicating the product did not pass. The Error graphic element does not show when the tag value is False, indicating the product passed. For a successful test, you can bind a tag to the Success graphic element.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values

Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

System on page 292

Events tab on page 447

What is an event? on page 476

List Box Indicator

The List Box Indicator graphic element is a read-only list box with built-in animation properties to highlight an item in the list. This graphic element appears in the **System** category of the **Toolbox**.

Use the List Box Indicator graphic element to create a list of items highlighted by the system. The List Box Indicator highlights the item in the list that matches the value of the tag in a controller. For example, the list could highlight the bottling line that is filled. The item must exist in the list in order for the List Box Indicator to highlight the item. Items in the list must have unique names. If an item does not have a unique name, the system highlights any one of the items that has a duplicate name.

Have the List Box Indicator highlight different text based on different values in the controller. There are two common tag types in a Logix controller to bind to the **Value** property of the List Box Indicator:

- **String tag.** Separate the strings in the **Items** box using commas. For example, in the **Items** box enter: No Part,Part Entering,Part In Place,Machining Part,Part Exiting. Do not enter spaces between the commas and the items. Bind the **Value** box in the **Properties**

window to the tag containing the items. When the string tag bound to the **Value** box has the Part Entering value, the List Box Indicator highlights the Part Entering row.

- **Numeric tag.** Separate the strings in the **Item** box and the numeric value you want to associate with each string in parentheses. Separate those items using commas. Do not enter spaces between the commas and the items. For example, in the **Items** box, enter: No Part (1),Part Entering (2),Part in Place (3),Machining Part (4),Part Exiting (5). Bind the **Value** box in the **Properties** window to the numeric tag. For example, bind to the DINT tag containing the items. When the DINT tag bound to the **Value** box has a value of 4, the List Box Indicator highlights the Machining Part row.

  Tip: The List Box Indicator does not support Boolean expressions.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
DisplaySpecialCharacters	General	Select to display parentheses in Items when the text in the Item is enclosed in quotation marks. For example, "Low Speed (10 RPM)" Note: You can still read numbers from the Value property by using numbers in parentheses after the Item in quotation marks. For example, if you use the following for the Items property: "Low Speed (10 RPM)"(10),"Medium Speed (30 RPM)"(30),"High Speed (50 RPM)"(50), the List Box Indicator will indicate Low Speed (10 RPM) when the Value property is 10.	• Parenthesis displayed on Items when the Item is enclosed in quotation marks – selected • Parentheses in Items always interpreted as containing a number matching a value in the Value property - cleared
Items	General	Specifies the items for the list, separated by commas.	One or more alphanumeric strings separated by commas
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the Color Picker or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
ItemPadding	Appearance	Specifies the amount of space before list items.	Numeric values
SelectionColor	Appearance	Specifies the color of the selected list item.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

System on page 292

List Box Selector on page 302

What is the Settings screen? on page 97

List Box Selector

The List Box Selector is a read-write graphic element with built-in animation properties to write a list item to the controller. This graphic element appears in the **System** category of the **Toolbox**.

Use the List Box Selector graphic element to create a list of items to select on the HMI device. The List Box Selector writes the different value to the tag as items are selected on the HMI device. Items in the list must have unique names. If an item does not have a unique name, select an item that has a duplicate name.

Have the List Box Selector write different values to the tag in the controller. These are the common tag types in the Logix controller for binding the **Value** property of the List Box Selector:

- **String tag.** Separate the strings in the **Items** box using commas. For example, in the **Items** box enter: No Part,Part Entering,Part In Place,Machining Part,Part Exiting. Do not enter spaces between the commas and the items. Bind the **Value** box in the **Properties** window to the tag containing the items. When selecting the Part Entering row in the List Box Selector on the HMI device, write the value Part Entering to the tag in the controller.
- **Numeric tag.** Separate the strings in the **Item** box and the numeric value to associate with each string in parentheses. Separate those items using commas. Do not enter spaces between the commas and the items. For example, in the **Items** box, enter: No Part (1),Part Entering (2),Part in Place (3),Machining Part (4),Part Exiting (5). Bind the **Value** box in the **Properties** window to the numeric tag. For example, bind to the DINT tag containing the items. When selecting the Machining Part row in the List Box Selector on the HMI device, write the the value 4 to the tag in the controller.

  Tip: The List Box Selector does not support Boolean expressions.

IMPORTANT	Do not rotate the List Box Selector graphic element. Rotating the List Box Selector graphic element prevents touch input selection of the items on the HMI device.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values

DisplaySpecialCharacters	General	Select to display parentheses in Items when the text in the Item is enclosed in quotation marks. For example, "Low Speed (10 RPM)" Note: You can still send numbers to the Value property by using numbers in parentheses after the Item in quotation marks. For example, if you use the following for the Items property: "Low Speed (10 RPM)"(10),"Medium Speed (30 RPM)"(30),"High Speed (50 RPM)"(50), the List Box Selector will write a value of 10, 30, or 50 to the Value property when the corresponding Item is selected at runtime.	• Parenthesis displayed on Items when the Item is enclosed in quotation marks – selected • Parenthesis in Items always interpreted as containing a number to write to the Value property - cleared
Items	General	Specifies the items for the list, separated by commas.	One or more alphanumeric strings separated by commas
Value	General	Specifies the value of the graphic element.	Bound tag

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
FontName	Appearance	Specifies the font of the text.	Any selected font
FontColor	Appearance	Specifies the color of the text.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FontSize	Appearance	Specifies the size of the text.	Positive numbers
Bold	Appearance	Makes the text or value on the graphic element bold.	• Bold - selected • Not bold - cleared
CaretColor	Appearance	Specifies the color of the selection caret.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
ItemPadding	Appearance	Specifies the amount of space before list items.	Numeric values
ScrollBarFillColor	Appearance	Specifies the color of the scroll bar.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

SelectionColor	Appearance	Specifies the color of the selected list item.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

CommonControls on page 180

List Box Indicator on page 299

hat is the Settings screen? on page 97

Navigation Menu

The Navigation Menu is a button pre-defined to open the **Navigation menu** on the HMI device. This graphic element appears in the **System** category of the **Toolbox**.

Use the Navigation Menu graphic element to:

- Open the **Navigation menu** at the bottom of the HMI device screen.
- Display only those items to which the logged on user or Guest user has security access.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
CornerRadius	Appearance	Specified the curve of the corners	0 for a positive number
Color	Appearance/Border	Specifies the color of the border	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Style	Appearance/Border	Specifies the style of the border line.	• Any selected Line style -- None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot • Any selected Cap style -- Flat, Round, or Square • Any selected Join style -- Miter, Bevel, or Round
Width	Appearance/Border	Specifies the width of the border line.	• None • 1 pixel • 2 pixels • 4 pixels • 8 pixels
FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.

Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Project navigation on page 551

Navigation menu on page 732

System on page 292

Network Status Indicator

The Network Status Indicator is predefined to show network communication issues and open the screen for configuring the network. This graphic element appears in the **System** category of the **Toolbox**.

Use the Network Status Indicator to:

- See a visual indicator when there is an issue with the communication of the network.
- Open the **Network** popup from the **Settings** screen.
- Change the screen the **Network Status Indicator** opens. To do this, change the screen name in the **NavigationTo** box of the **Properties** window for the graphic element.

Tips:

- By default, the Network Status Indicator appears in the System Banner at the top of the screen.
- The Network Status Indicator changes appearance based on the issue:
  - **Network caution.** The network is functioning. However, one or more, but not all, of the controllers associated with the project are not communicating properly. For example, a device may be powered-down. In a 2-port unit, one Ethernet port may be disconnected.
  - **Network error.** The network is not functioning. No Ethernet port is connected, none of the controllers associated with the project are communicating properly, or there is a duplicate IP address.

Built-in Animation Properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
NavigateTo	General	Specifies the screen to open on a touch release event.	Screen name in project

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

What is the System Banner? on page 97

System Banner contents on page 127

Controller Status Indicator on page 297

System on page 292

Project Events Status Indicator

The Project Events Status Indicator is predefined to open an error list displaying project event errors. This graphic element appears in the **System** category of the **Toolbox**.

Use the Project Events Status Indicator to:

- See a visual indicator when there is an issue with project events.
- Display an error list showing project event errors.

Common Properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Search for and select a data type on page 373

- Search for and select a tag

Radio Button

The Radio Button is a graphic element with built-in animation properties to select and clear radio button. This graphic element appears in the **System** category of the **Toolbox**.

Use a Radio Button to select options on the HMI device. Group multiple radio buttons to present a list of mutually exclusive options from which to select. Implementing this functionality requires additional functionality.

EXAMPLE

Create two radio buttons to switch a process between running a machine automatically or manually (for example, to jog a conveyor manually during maintenance). For this example, assume there is a tag in the controller named Mode. This tag specifies manual versus automatic mode. The value 1 specifies Automatic mode and the value 0 specifies Manual mode. Pressing a radio button selects it and clears the other radio button. Pressing a selected radio button keeps the radio button selected.

1. Add two Radio Button graphic elements to the screen.
2. Next to each radio button, add a Text Display graphic element with text describing the option you are selecting. For example, type **Manual** after one radio button and type **Automatic** after the other radio button.
3. For each radio button, add a **Touch Release** event with a **Value Write** command.
4. Select the Automatic radio button and for the **Value Write** command, in the **Write To** box, browse to select the Mode tag in the controller. In the box below the **Write To** box, type **1**. Pressing the Automatic button on the HMI device writes a 1 to the Mode tag and runs the machine automatically.
5. Select the Manual radio button and for the **Value Write** command, in the **Write To** box, browse to select the Mode tag in the controller. In the box below the **Write To** box, type **0**. Pressing the Manual button on the HMI device writes a 0 to the Mode tag and runs the machine manually.
6. For each radio button, on the **Properties** tab, in the **ShowMark** box, browse to select the Mode tag. In the **Expression** box below the **ShowMark** box, enter the expression for each graphic element. For example, select the Automatic radio button and in the **Expression Editor**, type **Mode == 1**. Select the Manual radio button and in the **Expression Editor**, type **Mode == 0**. When the result of the expression is 1, this selectes the Automatic radio button. When the result of the expression is 0, this selected the Manual radio button. Selecting the Manual radio button when the machine is in Automatic mode writes a 0 to the controller and places the machine in manual mode.

Built-in animation properties

Built-in animation properties appear under the **General** category of the **Properties** window. Specify values for these properties in order to animate the graphic element or change the information the graphic element shows on the HMI device.

Name	Category	Purpose	Accepted values
ShowMark	General	Specifies the selected or cleared state of the check box.	• Show mark - selected • Do not show mark - cleared

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values

FillColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
MarkColor	Appearance	Specifies the color of the checkmark.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
UsePredefinedDisabled	Appearance	Specifies if a crosshatch overlay shows on the control element when you disable the element.	• Use predefined disabled appearance (selected) • Do not use predefined disabled appearance (cleared)

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

System on page 292

Checkbox on page 295

Success

The Success graphic element indicates that an activity is complete. This graphic element appears in the **System** category of the **Toolbox**.

Add a Success graphic element to indicate that a task completed successfully in the manufacturing system. For example, use the Success graphic element to indicate if a product passed inspection at a test stand. Bind the **Visible** box in the **Properties** window for the Success graphic element to a tag in a controller. The Success graphic element shows when the tag value is True, indicating the product passed. The Success graphic element does not show when the tag value is False, indicating the product did not pass. For a failed test, bind a tag to the Error graphic element.

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared
Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

Toolbox on page 131

Events tab on page 447

What is an event? on page 476

Trend Charts

The **Trend Charts** category in the **Toolbox** contains a trend chart with a vertical Y Axis that represents data and a horizontal X Axis that represents time. This category also contains a Trend Legend graphic element that provides the means to identify the traces on the trend chart.

Use the trend chart to plot data for up to eight tags from the controllers referenced in the project. To depict data on the trend chart, bind the **Tag** box on the **Traces** tab to the tag in a controller. Values from the tag are plotted on the trace. Add up to eight traces to a trend chart. Customize the line of a trace by changing the properties in the **Appearance** category on the **Traces** tab. Use the Trend Legend graphic element to identify the traces on the trend chart.

Unique properties

Unique properties are properties that not all graphic elements in the **Toolbox** share.

Name	Category	Purpose	Accepted values
BackgroundColor	Appearance	Specifies the fill color.	Any selected color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
Timespan	General	Specifies the span of time, in seconds, of data to display on the time axis of the trend chart.	Positive numbers between 10 and 3600

Common properties

Common properties exist for all graphic elements.

Property	Category	Purpose	Accepted Values
Access	Security	Specifies if all users have access to the control element, or if access is inherited from the screen.	• Inherit - Access inherited from screen. • Full Access - Access granted to all users.
Angle	Position and Size	Specifies the rotation angle. Enter 180 to display the graphic element upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.	• Numbers 0 to 360
Enabled	Appearance	Specifies if the graphic element is available on the HMI device and if the graphic element accepts touch and key input.	• Enabled - selected • Not Enabled - cleared
Height	Position and Size	Specifies the height in pixels.	Any positive numeric value
Opacity	Appearance	Specifies the transparency of the graphic element.	0 (fully transparent) - 100 (fully opaque)
Visible	Appearance	Specifies if the graphic element is visible on the HMI device.	• Visible - selected • Not visible - cleared

Width	Position and Size	Specifies the width in pixels.	Any positive number
X	Position and Size	Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.	Any positive number
Y	Position and Size	Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.	Any positive number

See also

Add a graphic element to a screen on page 136

What is an event? on page 476

Search for and select a data type on page 373

Search for and select a tag

Work with groups

Combine graphic elements into a group to work with them as if they were a single graphic element.

Work with the graphic elements as a group or manipulate the individual graphic elements within the group. Groups can be created within groups to form sub-groups.

When you ungroup elements within a group, animations, events, and the binding properties of the group are lost. Bindings and expressions that reference graphic elements and Add-On Graphics that are a part of the group still work.

You can work with groups or individual elements within a group by selecting an item on the screen (canvas) or in the Graphic Explorer. Some operations are available directly on the screen or in the Graphic Explorer while others require highlighting an item and editing its properties in the Properties window.

See also

Add a graphic element to a screen on page 136

Group graphic elements on page 151

Graphic Explorer on page 132

Toolbox on page 131

Group graphic elements

Combine graphic elements and Add-On Graphics into a group to work with them as a single element. Work with the elements as a group or manipulate the individual elements within the group. Groups can contain groups.

To group graphic elements:

1. On the screen or in the **Graphic Explorer**, select the graphic elements and Add-On Graphics to include in the group.

2. Right-click one of the selected elements and select **Group**.

View Designer names each group. Rename groups using the **Name** box in the **Properties** tab. The **Properties** tab displays the properties to change for the group. View and work with the contents of a group in the **Graphic Explorer**.

Tip: Alternate methods of grouping:
- On the **Drawing** toolbar, select **Group**.
- On the **Standard** menu, select **Arrange > Group**.
- Press **Ctrl+G**.

See also

Graphic Explorer on page 132

Work with individual graphic elements in a group on page 315

Work with groups on page 313

Add a graphic element or a group to a group

Add graphic elements or groups to a group.

To add a graphic element or group to a group on the screen:

1. Add an element or group to the screen.
2. Copy or cut the element.
3. Double-click any element in a target group to put the group in the editing mode.
4. Paste the new element or group.

IMPORTANT Clicking anywhere on the canvas when the group is in the editing mode unselects the group.

To add a graphic element or group to a group in Graphic Explorer:

1. Add an element or group to the screen. It automatically appears in the Graphic Explorer.
2. Select an element or elements you want to add to a group.
3. Drag and drop the element or elements in the desired group.

See also

Work with groups on page 313

Graphic Explorer on page 132

Remove a graphic element or a group from a group

You can remove graphic elements and groups from a group.

To remove a graphic element or a group from a group:

1. Double-click a graphic elements or a group you want to remove.

2. Right-click the selected graphic elements or a group and select **Delete**.

Tip: Removing the last element from the group, removes the group. Clicking Undo restores the element and all groups (parent and nested) if they were deleted.

See also

Work with groups on page 313

Graphic Explorer on page 132

Work with individual graphic elements or groups in a group

You can change the appearance, position, and size of individual graphic elements or groups in a group. You can bind to the individual properties and attach events or animations.

To work with individual graphic elements or groups in a group:

1. In the Graphic Explorer, expand the group and select the graphic element.
   - To select multiple graphic elements, press and hold Ctrl while you click each graphic element.
2. Use the tabs on the Properties window to change the properties and create animations and events for the selected graphic element.

Tip:You can also edit the size and angle of individual elements or groups on the screen:
1. Double-click any element in a group to put the group in the editing mode.
2. Select the element you want to edit.
3. Use the arrows to change the size, angle, and position of the element or group.

Tip:You can change the position of elements or groups by selecting, dragging and dropping them in the Graphic Explorer.

Tip: Multiselect is only possible for the elements on the same level of nesting.

Lock or unlock groups

Lock groups to keep them from moving while you are developing a screen.

Locking applies to groups which are directly on the canvas, you cannot lock nested groups. When a group or element is locked, you cannot perform any operations on canvas. You can still adjust some settings in the Properties window when an element is selected in the Graphic Explorer.

Locking a group does not affect the application during runtime.

Tip:You can select and group a locked group with other elements or groups in the Graphic Explorer.. The group remains locked and the property of any grouped element is unselected.

Locking elements or groups within a parent group is not allowed. You can edit individual elements or groups properties in the Properties window.

1. In Graphic Explorer, select a locked group , press CTRL and select group or elements you want to group together.
2. Right-click selected elements or groups and select **Group**.

To lock a group:

- In the **Graphic Explorer**, point to the group you want to lock and click the unlock icon . The unlock icon changes to the lock icon to indicate the group is locked.

Tip: Alternate methods of locking a group:
- In the **Graphic Explorer**, right-click the group and click **Lock**.
- Select the group and then from the **Menu** bar, click **Edit > Lock**.

To unlock a group:

- In the **Graphic Explorer**, point to the group you want to unlock and click the lock icon . The lock icon changes to the unlock icon to indicate the group is unlocked.

Tip: Alternate methods of unlocking a group:
- In the **Graphic Explorer**, right-click the group and click **Unlock**.
- In the **Graphic Explorer**, click the group and then from the **Menu** bar, click **Edit > Unlock**.

See also

Work with groups on page 313

Graphic Explorer on page 132

Resize a group

You can resize any group. The Height and Width values of a resized group display in the **Properties** tab.

IMPORTANT Resizing a group while not maintaining the aspect ratio can cause the graphic elements to skew. Skewing can cause the graphic elements to become disconnected when ungrouped.

To resize a group:

1. On the screen or in the **Graphic Explorer**, select the group.
2. On the screen, position the cursor on a sizing handle until it turns into a double-arrow.

- To change the width or the height of the group, drag a side sizing handle.
- To change the width and the height of the group, drag a corner sizing handle.
- To maintain the aspect ratio, press and hold **Shift** as you drag a sizing handle.
- To maintain the center point of a group, press and hold **Alt** as you drag a sizing handle.
- To maintain the aspect ratio and center point of a group, press and hold **Shift+Alt** as you drag a corner sizing handle.

Tips:

- A tooltip shows the height and width of the group as you resize it.
- When you resize a group, the ScaleHorizontal and ScaleVertical properties show the percentage by which a selected graphic element within the group was resized horizontally and vertically. The horizontal or vertical scale value for a graphic element within a group that has not been resized is 100.
- If you resize a graphic element in a group, the Height and Width properties display the new size of the element, but the proportion is maintained. That is, the ScaleHorizontal and ScaleVertical values for the graphic elements in the group do not change.
- The font size configured for an element with a text value determines the height of the element. For example, if you resize or rotate a Text Input element, the font size does not change.

See also

Work with groups on page 313

Graphic Explorer on page 132

Flip a group or an element in a group

Flip a group or an element in a group to create a reverse image of it. Graphic elements in a group that contain text do not flip.

The Angle property displays the new rotation angle. The new angle is calculated using the following equation: NewAngle = 360 - OldAngle. For example, a group with an Angle value of 45 (45 degrees) before being flipped displays an Angle value of 315 (315 degrees) after being flipped.

To flip a group:

1. On the screen or in the **Graphic Explorer**, right-click the group or a graphic element and click **Flip**.
2. Select one of the options:
   - **Horizontal**. Flips the group along its horizontal axis.
   - **Vertical**. Flips the group along its vertical axis.

Tip: Alternate methods to flip a group:

- On the **Drawing** toolbar, click the **Flip** down arrow, and select an option.
- On the **Menu** bar, click **Arrange > Flip**, and select an option.

See also

Work with groups on page 313

Graphic Explorer on page 132

Rotate a group or an individual element

Change the angle of a group by rotating it.

IMPORTANT Rotating elements in a group and then resizing the group without maintaining its aspect ratio may cause the rotated elements to deform.

To rotate a group or an individual element:

1. Select the group.
2. Position the cursor on a corner sizing handle until it turns into a curved double-arrow.
3. Drag to rotate the group. A tooltip displays the angle as you rotate the group. The rotation angle is based on the center point of the group.

Tips:

- The top left sizing handle is a circle that identifies the original top left corner after rotating a graphic element or group.
- You can rotate multiple groups simultaneously. Press and hold **Ctrl** while you click on each group to select them. Use any corner sizing handle and drag to rotate all of the groups.
- You can rotate a group by changing the value of the **Angle** property in the **Properties** tab. 180 displays the group upside down. If you enter a value larger than 360, the portion of numeric value that is over 360 becomes the value. For example, enter 380 to see a value of 20. If you enter a value less than 0, the negative value is subtracted from 360. For example, enter -30 to see a value of 330.
- You can rotate a graphic element within a group. In the **Graphic Explorer**, select the graphic element and rotate it using any corner sizing handle. The rotation angle is based on the center point of the graphic element.
- Alternatively, in the Properties window, you can change the angle of a group or graphic element to a desired value.

See also

Work with groups on page 313

Group graphic elements on page 151

Move a group or an individual element

Move a group by using a mouse, a keyboard, or by changing its properties.

- Select a group or an element on the screen or in the Graphic Explorer.
  - By mouse:
    - Drag and drop the group or an element in a desired location
  - By keyboard:
    - Use the arrow keys to move the object to a desired position.

      Tips:
      - To move the group 1 pixel, press an arrow key in the preferred direction.
      - To move the group 10 pixels at a time, press **Shift** + an arrow key.
  - By changing properties:
    - On the **Properties** tab, expand the **Position and Size** category
    - Enter any positive number in the X and y properties:

- **X**. Specifies the horizontal coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the X property value does not change.
- **Y**. Specifies the vertical coordinate, in pixels, from the upper left corner of screen to the upper left corner of a graphic element or group with no rotation. If the graphic element or group is rotated, the Y property value does not change.

Tips: The green lines that appear when you move a group using the mouse are called Smart Guides. Use Smart Guides to help position a group on the screen with precision. Smart Guides do not appear when you use the keyboard or the X and Y properties to move a group.

See also

Work with groups on page 313

Graphic Explorer on page 132

Lock or unlock groups

Align groups or elements in a group

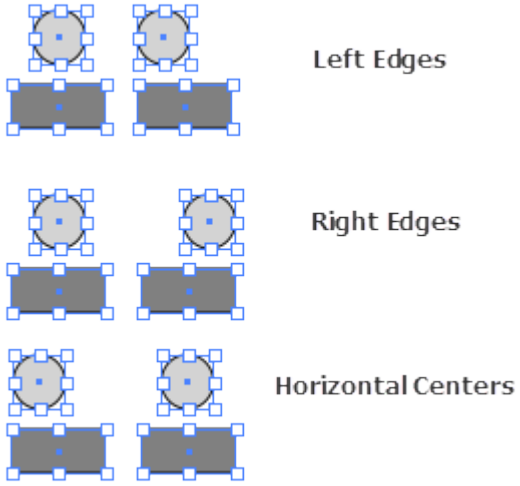
Align selected groups vertically and horizontally based on the edges of the groups or their center points. When a group is in the editing mode, you can align elements in that group.

To align groups:

1. Press and hold **Ctrl** to select groups or elements in a group.

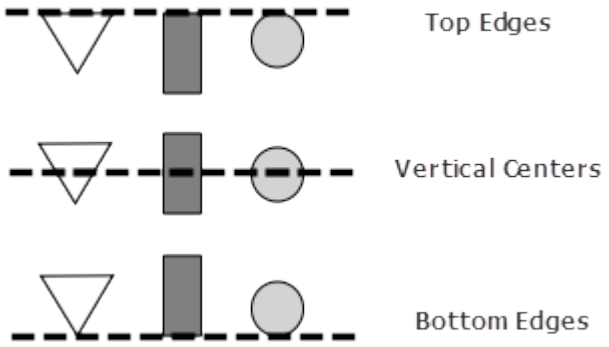
   Tip:Press Ctrl+A to select all of the graphic elements and groups on the screen.It allows you to align groups, not elements in a group.

2. Right-click the selection, click **Align**, and select an option:
   - **Left Edges**. Align the left edges of the groups.
   - **Right Edges**. Align the right edges of the groups.
   - **Horizontal Centers**. Align the center points of the groups vertically.



   - **Top Edges**. Align the top edges of the groups.

- **Bottom Edges**. Align the bottom edges of the groups.
- **Vertical Centers**. Align the center points of the groups horizontally.



Tip: Green lines called Smart Guides appear to help move a graphic element with precision.

See also

Group graphic elements on page 151

Move a group on page 318

Lock or unlock groups on page 315

Change the stacking order of graphic elements and groups on page 148

Change the stacking order of graphic elements and groups

Stack graphic elements and groups so that one graphic element or group appears in front of another. Change the stacking order by moving an item forward, backward, or in front of all of the other items on the screen or Add-On Graphic. The order is reflected in the **Graphic Explorer**. Change the stacking order of groups. Changing the graphic elements contained in a group is not supported.

To change the stacking order of graphic elements and groups:

1. On the screen or Add-On Graphic, right-click the graphic element or group and select **Order**.

   Tips:
   - When a group is in the editing mode, you can select elements inside the group.
   - Select a graphic element or group in the **Graphic Explorer**.

2. Select one of the following options:
   - **Bring to Front.** Move the selected graphic element or group to the top of the stack.
   - **Bring Forward.** Move the selected graphic element or group one level forward.
   - **Send Backward.** Move the selected graphic element or group one level backward.

- **Send to Back.** Move the selected graphic element or group to the bottom of the stack.

  Tip:
  Alternate methods of changing the stacking order:
  - On the **Drawing** toolbar, select the **Order** down arrow, and select an option.
  - Select **ARRANGE > Order**, and then select an option.

See also

Graphic Explorer on page 132

Align graphic elements on page 145

Distribute graphic elements on page 149

Group graphic elements on page 151

Cut, copy, paste, or delete a group or an element in a group

Cut, copy, and paste a group on a single screen, across multiple screens, and between projects.

Important: Copying and pasting a group of graphic elements that reference properties of those graphic elements will break copied groups. This is because copying and pasting a graphic element increments the name of the element, incl group. However, the reference remains unchanged. If you update bindings and expressions that reference the na changes to graphic element names are not propagated automatically.

Tip: You can paste graphic elements stored in the clipboard to an edited group directly on the screen or in the Graphic Explorer by selecting any element in the target group destination.

To cut, copy, paste or delete a group or an element in a group

- Right-click an item on the screen or in the Graphic Explorer and select the option:
  - **Cut.** From the context menu, select **Cut**.

    Tip: Alternate methods for cutting:
    - On the keyboard, press **Ctrl+X**
    - On the **Menu** bar, click **EDIT > Cut**.

    On the **Standard** toolbar, click **Cut** . Alternate methods for cutting:
    - On the keyboard, press **Ctrl+X**
    - On the **Menu** bar, click **EDIT > Cut**.

    On the **Standard** toolbar, click **Cut** . Alternate methods for cutting:
    - On the keyboard, press **Ctrl+X**
    - On the **Menu** bar, select **EDIT > Cut**.
    - On the **Standard** toolbar, select **Cut** .
  - **Copy.** From the context menu, select **Copy**.

Tip: Alternate methods for copying:
- On the keyboard, press **Ctrl+C**.
- On the **Menu** bar, select **EDIT > Copy**.
- On the **Standard** toolbar, click **Copy**.

- **Paste.** From the context menu, select **Paste**.

Tip: Alternate methods for pasting:
- On the keyboard, press **Ctrl+V**.
- On the **Menu** bar, click **EDIT > Paste**.

On the **Standard** toolbar, click **Paste**. Alternate methods for pasting:
- On the keyboard, press **Ctrl+V**.
- On the **Menu** bar, click **EDIT > Paste**.

On the **Standard** toolbar, click **Paste**. Alternate methods for pasting:
- On the keyboard, press **Ctrl+V**.
- On the **Menu** bar, click **EDIT > Paste**.

On the **Standard** toolbar, click **Paste**. Alternate methods for pasting:
- On the keyboard, press **Ctrl+V**.
- On the **Menu** bar, click **EDIT > Paste**.

On the **Standard** toolbar, click **Paste**. Alternate methods for pasting:
- On the keyboard, press **Ctrl+V**.
- On the **Menu** bar, click **EDIT > Paste**.

On the **Standard** toolbar, click **Paste**.

- **Delete.** From the context menu, select **Delete**.

Tip:
Alternate methods for deleting:
- On the keyboard, press **Ctrl+X**
- On the **Menu** bar, click **EDIT > Delete**.

See also

Work with groups on page 313

Graphic Explorer on page 132

Duplicate a group

Use the **Duplicate** command to make a copy of a group. Duplicating a group duplicates the property values, animations, and events associated with the group.

IMPORTANT Duplicating a group of graphic elements that reference properties of those graphic elements breaks the property references in the duplicated groups. This is because duplicating a group increments the name of the elements contained in the group. The reference remains unchanged. Due o the incremented names, update the bindings and expressions that reference the elements within the new group. Changes to graphic element names do not propagate automatically.

To duplicate a group:

- Select the group and press **Ctrl+D**.

Tips:
- Continue to create copies until de-selecting the group.
- Duplicated contents are not placed in the clipboard.

See also

Work with groups on page 313

Graphic Explorer on page 132

Ungroup graphic elements

Ungroup graphic elements and Add-On Graphics when you no longer need to work with multiple elements as a group.

IMPORTANT You cannot undo an Ungroup operation. When ungrouping, animations and events configured for the group, as well as the bindings to properties of the group, are lost. Bindings and expressions that reference graphic elements and Add-On Graphics that are part of the group still function.

To ungroup graphic elements:

- On the screen, right-click the group and select **Ungroup**.
  - If you ungroup a rotated group, the Angle value is applied to the graphic elements within the group.

See also

Work with groups on page 132

Graphic Explorer on page 132

Work with images

Add an Image graphic element to a screen to display an image. Referencing the same image in multiple Image graphic elements saves memory. Preview an image from the **Project Explorer** before adding the image to a screen. Existing Image graphic elements appear in the **Images** folder of the **Project Explorer**.

See also

Add an image to a project on page 327

Add a graphic element to a screen on page 136

Preview an image on page 328

Toolbox on page 131

Project Explorer on page 95

Add an image to the Images folder

Add an image to the **Images** folder of the project to be able to add an image to a screen.

To add an image to the Images folder:

1. In the **Project Explorer**, expand the **Assets** folder, right-click the **Images** folder, and select **New Images**.
2. Browse to and select one or more image files.

The image appears alphabetically in the **Images** folder and becomes part of the project. The folder displays images as icons.

Tips:

- Image files must be in BMP, JPG, PNG or SVG format, and resolution no larger than 7.91 megapixels (3840 x 2160 pixels).
- For best screen and popup performance, use images optimized for size.
- The HMI application includes an image cache that shortens the loading time of the most frequently used images.
- Supported SVG files include Tiny 1.1 SVG files and Tiny 1.2 SVG files.
- Adding an image that begins with a numeric character pre-pends "FILE" at the beginning of the image name. For example, 1Tank.img appears as FILE1Tank.img in the **Images** folder.

3. To see the image file name, file type, and file size, select the image in the **Images** folder and expand the **General** category in the **Properties** window.

Tips:

Browsing to a new image in the **Select Image** dialog box adds the image to the **Images** folder of the **Project Explorer**.

View Designer does not support the following within the SVG image definition:

- Scripting
- Animation
- Units of %, pica, or cm
- Linked images

To ensure the Image graphic element displays the SVG image, when creating an SVG file:

- Use Adobe Illustrator CS6 to create the image and save it as an SVG type.
- In the **SVG Options** dialog box, complete:
  - **SVG Profiles**. Select SVG Tiny 1.2 Location. Select **Embed**.

Fonts Type. If including text in the SVG image, select Convert to outline. Rockwell Automation recommends that you do not include text in an SVG image.

See also

Add an image to a screen on page 326

Delete an image from a project on page 329

Rename an image on page 329

Replace an image throughout a project on page 330

Image naming conventions on page 331

Copy an image between View Designer projects

Copy an image between View Designer projects to ensure consistency or when access to the original image file does not exist.

Prerequisites

- Open the source View Designer project containing the content to copy.

- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy an image between projects

1. Copy the image from the source project images folder to the target project **Images** folder. Alternatively, copy the image from the source screen to the target screen.
2. If the target project contains an image file with the same image file name, overwrite the existing image file or cancel the copy operation.
   - Select **Replace** to overwrite the existing image file.

Tips:

- When copying an image file that already exists in the target project when that image file contains a different graphic, View Designer adds an increment number to the name of the image in the target project. For example, if you copy an image named Tank1 and that image contains tank.bmp, and the target project also has an image file named Tank1 but that image contains watertank.bmp, the name of the image in the target project increments to Tank1_001.
- Copying an image that has a removed graphic element shows a red X for the removed graphic element. If the image appears in an Add-On Graphic, the red X appears in both the definition of the Add-On Graphic and in instances of the Add-On Graphic.
- Content pasted between projects of different terminal sizes is converted using the **Do not scale** scaling option. The screen content remains the same size and position as on the original screens.
- Cut an image by selecting **Cut** instead of **Copy**.
- Copying a screen or popup that contains an Image graphic element from one project to another, copies the image file associated with the graphic element and places the image file in the **Assets** folder of the target project.

See also

Copy a graphic element on page 138

Add an image to a screen on page 326

Replace an image throughout a project on page 330

Copy an image assets folder on page 432

Select Image dialog box

How do I open the Select Image dialog box?

In **Toolbox > CommonControls**, double-click the Image graphic element.

Use the **Select Image** dialog box to reference a new or existing image that the Image graphic element displays on the screen.

The **Select Image** dialog box lists the existing images in the **Images** folder of the **Project Explorer** and and enables browsing to new images. Selected images appear in the **Images** folder.

The **Images** folder is in the **Assets** folder of the **Project Explorer**.

See also

Add an image to a project on page 327

Add an image to a screen on page 326

Add an image to a screen

Add an Image graphic element to a screen to display an image. Existing Image graphic elements appear in the **Images** folder of the **Project Explorer**.

To add an image to a screen

1. In the **Toolbox**, expand the **Common Controls** category.
2. Double-click or drag the Image graphic element onto the screen. The **Select Image** dialog box opens.

   Tips:
   - Pressing **Enter** when an Image graphic element is selected opens the **Select Image** dialog box.
   - Preview an image before opening the **Select Image** dialog box, by double-clicking the image in the **Assets > Images** folder of the **Project Explorer** or right-click the image and select **Open**.
3. On the **Select Image** dialog box either:
   - Select an existing image and select **OK**.
   - Select **Browse**, select a new image or multiple images, select **Open** to add the image to the **Select Image** dialog box, select the image to add to the screen, and then select **OK**.

   The Image graphic element appears on the screen and is linked to the image in the **Images** folder of the **Project Explorer**.

   Tips:
   - Browsing to and selecting multiple images from the **Select Image** dialog box highlights the last selected image.
   - Browsing to an image in the **Select Image** dialog box adds the image to the **Images** folder of the **Project Explorer**.
   - Adding an image to the **Images** folder of the **Project Explorer** displays the image in the **Select Image** dialog box.
   - Selecting **Cancel** on the **Select Image** dialog box places a 100 pixel by 100 pixel Image graphic element on the screen. The Image graphic element displays a red X to indicate there is no referenced image.
   - Add an image from the **Project Explorer** by expanding the **Assets > Images** folders and dragging the image to the screen, or right-clicking an image and then selecting **Add to (screen name)**.
   - If the original image is larger than 100 pixels in width or height, the larger dimension value is set to 100 pixels. The smaller dimension is set to a value that maintains the aspect ratio of the original image. If the original image is 100 pixels or smaller, the Image graphic element uses the actual dimensions of the original image.
   - Resize image graphic elements with the sizing handles. Each instance of an image is sized independent of any other instance. Multiple images on multiple screens can each have a different image size. Resizing an image by binding the height and width properties is not recommended as it may result in poor performance.

IMPORTANT
- Too much content on screens can result in the HMI device running out of memory. The **Properties** tab displays the size of the image. Use the predefined **HMI Device** screen to monitor memory usage. If the HMI device runs out of memory while running an application, the HMI device restarts and provides an error message indicating that an out-of-memory condition occurred.
- If the computer running View Designer runs out of memory, View Designer shuts down and provides a message indicating that an out-of-memory condition occurred. View Designer retains the last saved version of the project.
- Changing the aspect ratio of the original image and then re-importing it does not automatically rescale all Image graphic elements linked to that image.

See also

Add an image to a project on page 327

Preview an image on page 328

Replace an image throughout a project on page 330

Replace an image on a screen on page 330

Copy an image between View Designer projects on page 324

Add an image to a project

Add an image to the **Images** folder of the project to be able to add the image to a screen.

To add an image to a project

1. In the **Project Explorer**, expand the **Assets** folder, right-click the **Images** folder, and click **New Images**.
2. Browse to and select one or more image files.

   The image appears alphabetically in the **Images** folder and becomes part of the project. The folder displays images as icons.

   Tips:
   - Image files must be in BMP, JPG, PNG or SVG format, and have a resolution that is no larger than 6 MP.
   - For best screen and popup performance, use images optimized for size.
   - The HMI application includes an image cache that shortens the time to load the most frequently used images.
   - Supported SVG files include Tiny 1.1 SVG files and Tiny 1.2 SVG files.
   - Adding an image that begins with a numeric character pre-pends "FILE" at the beginning of the image name. For example, 1Tank.img appears as FILE1Tank.img in the **Images** folder.
3. To view the image filename, type, and size, click the image in the **Images** folder and expand the **General** category in the **Properties** window.

Tips:

Browsing to a new image in the **Select Image** dialog box adds the image to the **Images** folder of the **Project Explorer**.

View Designer does not support the following within the SVG image definition:

- Scripting
- Animation
- Units of %, pica, or cm
- Linked images

To ensure the Image graphic element displays the SVG image, when creating an SVG file:

- Use Adobe Illustrator CS6 to create the image and save it as an SVG type.
- In the **SVG Options** dialog box, complete:
  - **SVG Profiles**. Select SVG Tiny 1.2 Location. Select **Embed**.

Fonts Type. If including text in the SVG image, select Convert to outline. Rockwell Automation recommends that you do not include text in an SVG image.

See also

Add an image to a screen on page 326

Delete an image from a project on page 329

Rename an image on page 329

Replace an image throughout a project on page 330

Image naming conventions on page 331

Preview an image

Open a read-only version of the image to preview the image before adding it to a screen. Preview images exist in the **Assets > Images** folder of the project.

To preview an image

1. In the **Project Explorer**, expand the **Assets > Images** folder.
2. Double-click the image. A tab opens with a read-only version of the image.

Tips:

- The property values for the file name, type, size, and the memory the image requires on the HMI device are read-only.
- Right-clicking an image in the Assets > Images folder and selecting Open previews an image.

See also

Add an image to a screen on page 326

Add an image to a project on page 327

Rename an image on page 329

Image naming conventions on page 331

Select Image dialog box on page 325

Delete an image from a project

Deleting an image from a project:

- Removes the image from all screens in the project that use the image.
- Deletes the references to the image wherever it is used in the project.
- Clears the ImageName property in the **Properties** tab for each Image graphic element that references the ImageName.

The Image graphic element displays a red X on the screen when it has no referenced image.

IMPORTANT Deleting an image deletes the references to the image. Adding the image back to the **Images** folder does not restore the configuration.

To delete an image from a project

1. In the **Project Explorer**, open the **Assets > Images** folder.
2. Right-click the image and click **Delete**. A prompt appears if an Image graphic element in the project uses the image.
3. Click **Yes** to delete the image file. Click **No** to and keep the file.

See also

Add an image to a project on page 327

Add an image to a screen on page 326

Rename an image on page 329

Replace an image in a project on page 330

Rename an image

Renaming an image in the **Images** folder renames every instance of the image in the project.

To rename an image

1. In the **Assets** folder in the **Project Explorer**, locate the image in the **Images** folder.
2. Click the image once to select the item.
3. Click the image again and type the new name.

Tips:

- Right-clicking the name, clicking **Rename**, and entering a new name also renames the image.
- The name must contain only numbers, letters, and underscores.
- The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.

IMPORTANT Renaming an image in the **Images** folder does not change the file name of the image. Click the image in the **Images** folder and expand the **General** category in the **Properties** window to see the file name.

See also

Add an image to a project on page 327

Add an image to a screen on page 326

Delete an image from a project on page 329

Replace an image on a screen

Replacing an image on a screen references the new image in the Image graphic element. Link an image to an Image graphic element that has no referenced image. An Image graphic element shows a red X when it has no referenced image. Change the image referenced by an Image graphic element.

To replace an image on a screen

1. Select the Image graphic element on the screen.
2. In the **Properties** window, select the **Properties** tab and expand the **General** category.
3. Select the down arrow in the **ImageName** box. A list of the images in the **Images** folder appears.
4. Select an image name. The image scales to fit the Image graphic element but does not maintain its aspect ratio.

See also

Add an image to a project on page 327

Add an image to a screen on page 326

Replace an image throughout a project on page 330

Replace an image throughout a project

Replace an image in the **Images** folder to replace the image wherever it is referenced in the project.

To replace an image in the Images folder:

1. In the **Project Explorer**, right-click the **Images** folder and select **New Images.**
2. Browse to and select the replacement image. The replacement image must have the same file name as the existing image.
3. Select **Yes**. The image is replaced and all instances of the referenced image are replaced with the latest version.

See also

Add an image to the Images folder on page 323

Add an image to a screen on page 326

Replace an image on a screen on page 330

Delete an image from a project on page 329

Rename an image on page 329

Image naming conventions

Image names have the following considerations:

- Invalid characters in file names are removed from the file name.
- Characters after the 40-character limit in a file name are removed.
- Underscores replace spaces in the file name.
- Files created with the same name as a system-defined file name have file names that increment with an underscore and a number from 001 to 999.

  For example, adding an image file named 01_picture.png adds an image named picture.png to the the **Images** folder. Adding an image file named 02_picture.png adds an image named picture_001.png to the **Images** folder.

See also

Add an image to a project on page 327

Rename an image on page 329

Work with PDF documents

Display a PDF document on an HMI device to view documentation, operating procedures, and machine setup. Each screen or popup can display up to two PDF documents. Add a PDF document to the project in the **Assets > Documents** folder of the **Project Explorer**. Then display the PDF document on a screen or popup using either a:

- **PDF Viewer Add-On Graphic.** A PDF Viewer Add-On Graphic is pre-configured with buttons that have event commands to display, navigate, and zoom the referenced PDF document on the HMI device. A PDF Viewer Add-On Graphic requires no further customization.
- **PDF graphic element.** A PDF graphic element has touch support for navigating and panning pages within the referenced PDF document. A PDF graphic element has no pre-configured buttons to navigate or zoom the PDF document.Customize a PDF graphic element to add buttons and event commands to navigate and zoom the PDF document on the HMI device.

Adding a PDF document from the **Project Explorer** lists PDF Viewer Add-On Graphics and PDF graphic elements to display the PDF document on the HMI device.

Change values in the DocumentName, CurrentPage, and Zoom properties of the PDF graphic element or PDF Viewer Add-On Graphic to specify the PDF document, the initial page that opens, and the initial zoom setting on the HMI device.

Tips:
- To have bookmarks appear in the PDF document on the HMI device, create bookmarks for the PDF document prior to adding the document in View Designer.
- PDF files that contain complex drawings take longer to render. For example, if a PDF document contains an image comprised of individual shapes such as lines, circles, and rectangles, that image takes longer to render than a drawing that is a single image.

See also

Add a PDF document to a project on page 332

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Change the PDF document that appears on an HMI device on page 346

Add a PDF document to a project

Add a PDF document to the **Documents** folder of the **Project Explorer** to add that PDF document to the project. To view the PDF document on an HMI device, add a PDF graphic element or PDF Viewer Add-On Graphic to the screen or popup and reference the PDF document.

To add a PDF document to a project

1. In the **Project Explorer**, expand the **Assets** folder, right-click the **Documents** folder, and click **New Documents** to browse for PDF files.
2. Select one or more PDF documents, and click **Open**. The PDF document appear alphabetically in the **Documents** folder.

Tips:

- Adding a PDF graphic element to a screen and browsing to select a new PDF document to display adds the PDF document to the **Documents** folder of the project.
- When adding a PDF document with the same file name as another PDF document in the **Documents** folder, a prompt appears asking to replace the existing PDF or click **Cancel**. To keep both PDF documents, rename the PDF document before adding it to the **Documents** folder.
- After adding the PDF document, to see the PDF file name, type, and size, select the PDF in the **Documents** folder and expand the **General** category in the **Properties** window.
- View Designer removes invalid characters and characters over the limit are 40 from the name of a PDF document. For example, 1 Document.PDF becomes Document.PDF and 1.PDF becomes File_1.PDF. If a file name only contains invalid characters, File_ is pre-pended to the name.

See also

Select Document dialog box on page 335

Add a graphic element to the definition of an Add-On Graphic on page 388

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Add a graphic element to the System Banner on page 123

PDF naming conventions on page 346

Rename a PDF document

Renaming a PDF document in the **Documents** folder renames every instance of the PDF document in the project. The name of the PDF document changes in each instance of a PDF graphic element and PDF Viewer Add-On Graphic in the project.

To rename a PDF

1. In the **Assets** folder in the **Project Explorer**, locate the PDF document in the **Documents** folder.

2. Click the PDF document once to select the item.
3. Click the PDF document again and type the new name.

Tips:

- Right-clicking the name of the PDF, clicking **Rename**, and entering a new name also renames the PDF.
- The name must contain only numbers, letters, and underscores.
- The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.
- Renaming an existing PDF document applies the new name to all PDF graphic elements and PDF Viewer Add-On Graphics that reference the PDF document.

IMPORTANT Renaming a PDF document in the **Documents** folder does not change the file name of the PDF document. Expand the folder and select the PDF document. Expand the **General** category in the **Properties** window to see the name of the PDF document.

See also

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Add a PDF document to a project on page 332

Delete a PDF document from a project on page 334

PDF naming conventions on page 346

Replace a PDF document

Replace a PDF document in the **Documents** folder of the **Project Explore**r. This replaces each instance of the PDF document in the project.

To replace a PDF document

1. In the **Project Explorer**, right-click the **Documents** folder and click **New Documents.**
2. Browse to and select the replacement PDF document. The replacement PDF document must have the same file name as the existing PDF document.
3. Click **Yes** to replace the PDF document throughout the project.

See also

Add a PDF document to a project on page 332

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Change the PDF document that appears on an HMI device on page 346

Delete a PDF document from a project on page 334

Rename a PDF document on page 332

Copy a PDF document between projects

Copy a PDF document across View Designer projects:

- To ensure consistency.
- When access to the original PDF file does not exist.
- To use a PDF document in another project.

Prerequisites

- Open the source View Designer project containing the PDF document to copy.
- If pasting content into another project, open another instance of View Designer with the target project. Open no more than three instances of View Designer at one time.

To copy a PDF document between projects

1. Copy the PDF document from the **Documents** folder in the source project and paste it in the **Documents** folder of the target project.
2. If the target project contains a PDF document with the same PDF file name, select **Replace** to overwrite the existing PDF document or select **Cancel** to not paste the PDF document.

Tips:

- Copying a PDF graphic element or a PDF Viewer Add-On Graphic copies the PDF document between projects.
- When copying a PDF document that already exists in the target project and that PDF contains a different document, View Designer adds an increment number to the name of the PDF document. Copying a PDF named Document1 that contains InstructionManual1.pdf to a target project that already has a PDF named Document1 but contains a different document called InstructionManual2.pdf creates a PDF document named Document1_001.
- Copying a PDF graphic element that contains a removed PDF document shows a red border with a message indicating that no PDF document is specified in the **DocumentName** property. If the PDF appears in an Add-On Graphic, the red border with a message indicating no PDF document appears in the definition of the Add-On Graphic and in instances of the Add-On Graphic.
- Content pasted across projects of different terminal sizes is converted using the scaling option. The screen content remains the same size and position as on the original screens.
- Copying a screen or popup that contains a PDF graphic element or PDF Viewer Add-On Graphic from one project to another copies the referenced PDF document to the **Documents** folder of the target project.

See also

Copy a graphic element on page 138

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Replace a PDF document on page 333

Delete a PDF document from a project

Deleting a PDF from the **Documents** folder:

- Removes the PDF document from all screens, popups, and Add-On Graphics in the project that reference the PDF.
- Deletes the references to the PDF from instances of PDF graphic elements and PDF Viewer Add-On Graphics in the project.

- Removes the name from the **DocumentName** property in the **Properties** tab for each PDF graphic element and PDF Viewer Add-On Graphic in the project.

The screen containing the PDF graphic element and PDF Viewer Add-On Graphic displays a red outline and a message to select a PDF document when there is no referenced PDF.

IMPORTANT Deleting a PDF document cannot be undone. Re-adding a deleted PDF document to a project does not restore the configuration of the PDF document in instances of the PDF graphic element or PDF Viewer Add-On Graphic in the project.

To delete a PDF document from a project

1. In the **Project Explorer**, open the **Assets > Documents** folder.
2. Right-click the PDF document and select **Delete**. A prompt appears if a PDF graphic element or PDF Viewer Add-On Graphic in the project references the PDF document.
3. Select **Yes** to delete the PDF document or **No** to not delete the PDF document from the project.

See also

Add a PDF document to a project on page 332

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Rename a PDF document on page 332

Select Document dialog box

How do I open the Select Document dialog box?

In **Toolbox > System**, double-click the PDF graphic element.

Use the **Select Document** dialog box to reference a PDF document for the selected PDF graphic element or PDF Viewer Add-On Graphic on the screen.

The **Select Document** dialog box lists the PDF documents that exist in the **Documents** folder of the **Project Explorer** and enables browsing to new documents. Selected documents appear in the **Documents** folder.

The **Documents** folder is in the **Assets** folder of the **Project Explorer**.

See also

Add a PDF document to a project on page 332

Add a graphic element to the definition of an Add-On Graphic on page 388

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Add a graphic element to the System Banner on page 123

Add a PDF document to a screen or popup

Add a PDF document to a screen or popup from the **Project Explorer**. When adding a PDF document from the **Documents** folder of the **Project Explorer**, select the PDF Viewer Add-On Graphic or PDF graphic element to display the PDF document on the HMI device. A PDF Viewer Add-On Graphic has touch, navigation, and zoom commands. PDF documents appear directly in an Add-On Graphic. An Add-On Graphic cannot contain another Add-On Graphic.

Prerequisites

- (optional) Create bookmarks for the PDF document prior to adding the document to the project.

To add a PDF document to a screen or popup

1. In the **Project Explorer**, expand the **Assets > Documents** folder.
2. Right-click the PDF document and select **Add to (screen name)** or drag the PDF document to the screen or popup. The **Select PDF Viewer** dialog box opens listing PDF Viewers and PDF graphic elements.

   Tip: The **Select PDF Viewer** dialog box lists Add-On Graphics when only one PDF graphic element in the Add-On Graphic has a user-defined property aliased to the DocumentName property of the Add-On Graphic.
3. Select the PDF Viewer or graphic element to display the PDF document on the HMI device and click **OK**.
4. In the **Properties** window of the PDF Viewer or Add-On Graphic, click the **Properties** tab.
5. Expand a category to display a property and change the value or bind a property.

   Tips:
   - Each screen has a limit of displaying two PDF documents. This includes both PDF Viewer Add-On Graphics and PDF graphic elements.
   - PDF documents on the HMI device support internal links for navigation within the PDF document. PDF documents on the HMI device do not support external links. PDF links cannot navigate outside of the PDF document on the HMI device.
   - PDF files that contain complex drawings take longer to render. For example, if a PDF document contains an image comprised of individual shapes such as lines, circles, and rectangles, that image takes longer to render than a drawing that is a single image.
   - Do not rotate the PDF graphic element or a PDF Viewer Add-On Graphic. Rotating an element containing a PDF document reduces the clarity of content in the PDF document and prevents zooming and navigating the PDF document on the HMI device.

See also

Bind bookmark properties of a PDF graphic element on page 343

Add an event command to interact with a PDF graphic element on page 344

Add a PDF document to a project on page 332

Add a PDF document to an Add-On Graphic on page 337

Add a PDF document to an Add-On Graphic

Add a PDF document to an Add-On Graphic to have the Add-On Graphic display the PDF document on the HMI device.

Prerequisites

- (optional) Create bookmarks for the PDF document prior to adding the document to the project.

To add a PDF document to an Add-On Graphic

1. Open the definition of the Add-On Graphic.
2. In the **Project Explorer**, expand the **Assets > Documents** folder.
3. Drag the PDF document to the definition of the Add-On Graphic. A PDF graphic element appears in the definition of the Add-On Graphic and shows the PDF document.

Tips:
- The **Select PDF Viewer** dialog does not open when adding a PDF document to an Add-On Graphic. View Designer does not support adding a PDF Viewer Add-On Graphic to anther Add-On Graphic.
- Dragging the PDF graphic element from the **System** category of the **Toolbox** opens the **Select PDF Viewer** dialog box.

See also

Bind bookmark properties of a PDF graphic element on page 343

Add an event command to interact with a PDF graphic element on page 344

Add a PDF document to a project on page 332

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

Add a PDF document to an Add-On Graphic on page 337

Add a PDF Viewer Add-On Graphic to a screen or popup

PDF Viewer Add-On Graphics contain a PDF graphic element and the predefined commands for navigating and zooming the PDF document on the HMI device. Add the PDF Viewer Add-On Graphic and specify the PDF document that opens on the HMI device.

Prerequisites

- Create bookmarks for the PDF document prior to adding the PDF document in View Designer.

To Add a PDF Viewer Add-On Graphic to a screen or popup

1. In the **Toolbox**, expand the **Add-On Graphics** category and double-click a PDF Viewer Add-On Graphic:

- **PDF_Viewer.** Occupies the entire screen on a seven-inch or nine-inch HMI device.
- **PDF_Viewer_Landscape.** Occupies the entire screen on a 10-inch HMI device and a portion of larger HMI devices. The PDF_Viewer_Landscape Add-On Graphic is not available on seven-inch or nine-inch HMI devices.
- **PDF_Viewer_Portrait.** Occupies half of the screen on a 10-inch HMI device. The PDF_Viewer_Portrait Add-On Graphic is available on 10-inch or larger HMI devices.

Tips:

- Each screen has a limit of displaying two PDF documents. This includes both PDF Viewer Add-On Graphics and PDF graphic elements.
- PDF documents on the HMI device support internal links for navigation within the PDF document. PDF documents on the HMI device do not support external links. PDF links cannot navigate outside of the PDF document on the HMI device.
- PDF files that contain complex drawings take longer to render. For example, if a PDF document contains an image comprised of individual shapes such as lines, circles, and rectangles, that image takes longer to render than a drawing that is a single image.

2. In the **Properties** window, expand the **General** category.
3. Configure the required properties:

- **DocumentName** - The PDF document shown on the HMI device. Select the PDF document for the Add-On Graphic.
- **PageNumber** - Type the page number of the PDF document to initially open on the HMI device.
- **Zoom** - Select the zoom factor.

Tips:

- Add a PDF Viewer Add-On Graphic to a screen or popup from the **Project Explorer** by expanding the **Assets > Add-On Graphics** folders and then dragging the PDF_Viewer Add-On Graphic or right-clicking the PDF_Viewer Add-On Graphic and selecting **Add Add-on Graphic to (screen name)**.
- Adding a PDF document from the **Assets > Documents** folder of the **Project Explorer** opens the **Select PDF Viewer** dialog box to select the PDF Viewer or PDF graphic element to display the PDF graphic element on the HMI device. If the definition of an Add-On Graphic contains only one PDF graphic element that has an alias for the DocumentName property of the PDF graphic element, that Add-On Graphic appears in the **Select PDF Viewer** dialog box.
- Do not rotate the PDF graphic element or a PDF Viewer Add-On Graphic. Rotating an element containing a PDF document reduces the clarity of content in the PDF document and prevents zooming and navigating the PDF document on the HMI device.

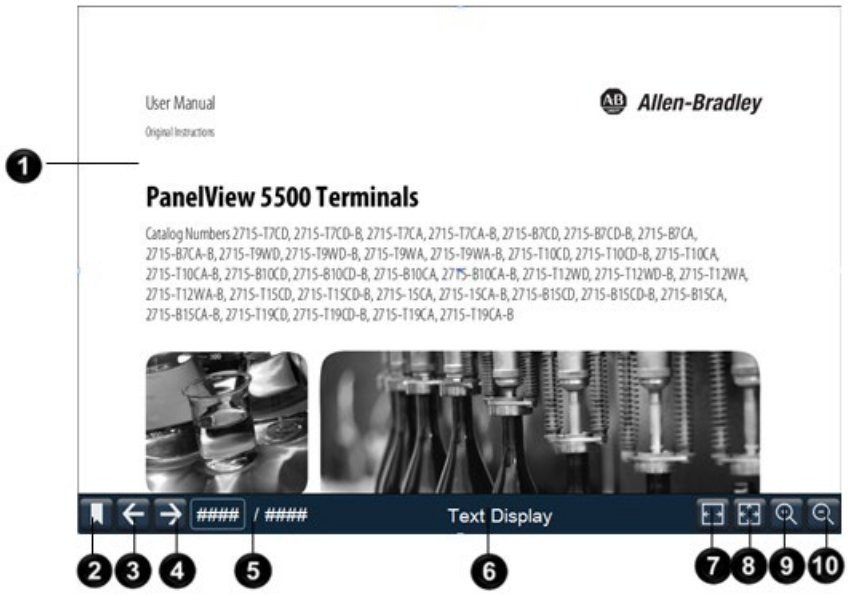
See also

Change the PDF document that appears on an HMI device on page 346

Work with PDF documents on page 331

PDF Viewer Add-On Graphic

A PDF Viewer Add-On Graphic with default content and a PDF document added contains items for navigating and zooming.



Item	Description
1	The PDF document added to the PDF Viewer Add-On Graphic through the **DocumentName** property.
2	**Bookmarks** displays the bookmarks on the left side of the PDF document on the HMI device.
3	**Previous** opens the previous page of the PDF document. This button appears unavailable on the HMI device when on the first page of the PDF document PDF document.
4	Next opens the next page of the PDF document. This button appears unavailable when on the last page of the PDF document on the HMI device.
5	The currently displayed **Page Number** of the PDF on the HMI device and the total **Page Count** or number of pages of the PDF document.
6	The value in the **Text** property of the PDF Viewer Add-On Graphic that displays the name of the PDF document on the HMI device.
7	**Fit Width** expands the width of the PDF document.
8	**Fit Window** expands the entire page of the PDF document to fit the PDF graphic element.
9	**Zoom In** increases the PDF document magnification by the percentage specified in the ByPercent property of the Zoom In event command.
10	**Zoom Out** decreases the PDF document magnification by the percentage specified in the ByPercent property of the Zoom In event command.

See also

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

Change the definition of a PDF Viewer Add-On Graphic on page 340

Add a PDF document to a project on page 332

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Change the definition of a PDF Viewer Add-On Graphic

Add, remove, rearrange, and configure content in the definition of a PDF Viewer Add-On Graphic. Do this to modify a predefined PDF Viewer Add-On Graphic instead of using a PDF graphic element and adding required functionality to that graphic element.

To change the definition of a PDF Viewer Add-On Graphic

1. Double-click the definition of the PDF Viewer Add-On Graphic in the **Project Explorer**. The definition of the Add-On Graphic opens.
2. Change the PDF Viewer Add-On Graphic:
   - **Add content.** Add graphic elements to the PDF Viewer Add-On Graphic.
   - **Remove content.** Select and delete graphic elements from the PDF Viewer Add-On Graphic to remove buttons from the Add-On Graphic.
   - **Rearrange content.** Drag to resize or change the order of content in the PDF Viewer Add-On Graphic. Do this to change the order and size of buttons in the Add-On Graphic.
   - **Configure content.** Change attributes of content in the Add-On Graphic by changing the property values, binding, animations, and events for a graphic element within the open definition of the Add-On Graphic.
3. To close and save the definition of the PDF Viewer Add-On Graphic, on the tab of the open Add-On Graphic, select **Close** .

See also

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

PDF Viewer Add-On Graphic on page 338

Select PDF Viewer dialog box

How do I open the Select PDF Viewer dialog box?

Drag the PDF document from **Project Explorer > Assets > Documents**.

Use the **Select PDF Viewer** dialog box to select a PDF Viewer or PDF graphic element when adding a PDF document from the **Project Explorer** to a screen or popup.

The **Select PDF Viewer** dialog box lists PDF graphic elements that appear in the **System** category of the **Toolbox**. The **Select PDF Viewer** dialog box lists the PDF Viewer Add-On Graphics that exist in **Project Explorer > Assets > Add-On Graphics**. The **Select PDF Viewer** dialog box lists any Add-On Graphic for which a user-defined property alias exists for the DocumentName property of only one PDF document in the definition of that Add-On Graphic.

See also

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

PDF Viewer Add-On Graphic on page 338

Change the definition of a PDF Viewer Add-On Graphic on page 340

Work with PDF documents on page 331

Add a PDF graphic element to a screen, popup, or Add-On Graphic

Add a PDF graphic element to a screen, popup, or Add-On-Graphic from the **Toolbox** to display the PDF document on the HMI device. PDF graphic elements exist in the **Toolbox**. The PDF document that a PDF graphic element references exists in the **Documents** folder of the **Project Explorer**.

Prerequisites

- (optional) Create bookmarks for the PDF document prior to adding the document to the project.

To add a PDF graphic element to a screen or popup, or Add-On Graphic

1. From the **Toolbox**, expand the **System** category and then double-click or drag the PDF graphic element to a screen, popup, or definition of an Add-On Graphic.
2. On the **Select Document** dialog box, either:
   - Select an existing PDF document and select **OK**.
   - Select **Browse**, select a new PDF document or multiple PDF documents, select **Open** to add the documents to the **Select Image** dialog box, select the PDF document to add to the screen, and then select **OK**.

   The PDF graphic element appears on the screen and references the PDF document.

   Tips:
   - Browsing to and selecting multiple PDF documents in the **Select Document** dialog box highlights the last selected PDF document.
   - Selecting **Cancel** on the **Select Document** dialog box places a PDF graphic element on the screen. The PDF graphic element displays a message to add a PDF document to the PDF graphic element.
3. In the **Properties** window, select the **Properties** tab. The properties for that item appear in categories.
4. Expand a category to display a property and change the value or bind a property.

Tips:

- To add a PDF Viewer Add-On Graphic configured with touch navigation and zoom commands, add a PDF Viewer Add-On Graphic from the **Add-On Graphics** category of the **Toolbox**.
- Adding a PDF document from the **Assets > Documents** folder of the **Project Explorer** opens the **Select PDF Viewer** dialog box to select the PDF Viewer Add-On Graphic or PDF graphic element to display the PDF document on the HMI device.
- PDF documents on the HMI device support internal links for navigation within the PDF document. PDF documents on the HMI device do not support external links. PDF links cannot navigate outside of the PDF document on the HMI device.
- PDF files that contain complex drawings take longer to render. For example, if a PDF document contains an image comprised of individual shapes such as lines, circles, and rectangles, that image takes longer to render than a drawing that is a single image.
- Do not rotate the PDF graphic element or a PDF Viewer Add-On Graphic. Rotating an element containing a PDF document reduces the clarity of content in the PDF document and prevents zooming and navigating the PDF document on the HMI device.

See also

Bind bookmark properties of a PDF graphic element on page 343

Add an event command to interact with a PDF graphic element on page 344

Add a PDF document to a project on page 332

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

Change a property value for a PDF graphic element on page 342

Change a property value for a PDF graphic element

Change the property values of a PDF graphic element to change its appearance and behavior on the HMI device. Bind a property to a tag to update the property on the HMI device. For example, bind PageNumber to open a specified page dynamically when a state or alarm condition is reached. Use property-to-property binding to write a value to the property from another element or command event. For example, use a Numeric Input to write to the PageNumber property to change the PDF document to a specific page.

To change a property value for a PDF graphic element

1. Select the PDF graphic element on the screen, popup, or in the definition of an Add-On Graphic.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** category to display a property and change:
   - **DocumentName.** Select the document the PDF graphic element displays on the HMI device.
   - **PageNumber.** Enter the initial page number to show in View Designer and to open in the PDF document on the HMI device. Binding opens a specific page in the PDF document when the controller reaches the tag in the controller or by writing a value to the PageNumber property from another graphic element. The specified page in the PDF graphic element opens to resolve the issue, such as a state or alarm condition.
   - **Zoom.** Select the default zoom setting for the PDF document on the HMI device. The value of the Zoom property when the

screen with the PDF graphic element opens determines the initial zoom settings. Binding zooms by reaching a tag in the controller or by writing a value to the Zoom property from another graphic element.

- **Fit width.** Expand the width of the PDF document.
- **Fit page.** Expand the size of the PDF document to fit the PDF to the size of the PDF graphic element.
- **Actual Size.** Change the size of the PDF document to the actual size of the document. This may require scrolling on the HMI device.

Tip: The **PageCount** property displays the total number of pages in the PDF document on the HMI device. Changing the value in the **PageCount** property is not supported. This property value is View only.

See also

Bind bookmark properties of a PDF graphic element on page 343

Property-to-property binding on page 510

Bind bookmark properties of a PDF graphic element

Bind PDF bookmark properties to display and navigate bookmarks in a PDF document on the HMI device. Bind the **Bookmarks** property to display the bookmarks in a PDF document. Bind the **BookmarkIndex** property to navigate to a specific bookmark in a PDF document.

Prerequisites

- Create bookmarks in the PDF document before adding to the PDF document to the project.
- Verify that the screen, popup, or AOG contains the PDF graphic element.

To bind bookmark properties of a PDF graphic element

1. Drag a **List Box Selector** onto the screen, popup, or Add-On Graphic.
2. Use property-to-property binding to bind the **Items** box of the List Box Selector to the **Bookmarks** property of the PDF graphic element. Bind the Items property of the List Box Selector to the Bookmarks property of the PDF graphic element. Use the format PDFGraphicElementName.Bookmarks. On the HMI device, the List Box Selector displays all of the bookmarks in the PDF document.
3. Use property-to-property binding to bind the **Value** box of the List Box Selector to the **BookmarkIndex** property of the PDF graphic element. Bind the Value property of the List Box Selector to the BookmarksIndex property of the PDF graphic element. Use the format PDFGraphicElementName.BookmarksIndex. On the HMI device, selecting a bookmark opens the bookmark in the PDF document.

See also

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

Add a PDF Viewer Add-On Graphic to a screen or popup on page 337

Property-to-property binding on page 510

PDF graphic element on page 194

Add an event command to interact with a PDF graphic element

Create an event to navigate pages or change the view in a PDF document. Add a PDF navigation command to a touch or key event to navigate to the previous page, next page, or a specific page in a PDF.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To create an event command to interact with a PDF Viewer graphic element

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **PDF** category and select and configure the command:
   - **Next Page**. Navigates to the next page in the PDF when the event triggers.
   - **Previous Page.** Navigates to the previous page in the PDF when the event triggers.
   - **Go to Page**. Navigates to the specified page in the PDF. In the **Page** box, enter the page number to display when the event triggers.
   - **Zoom In**. Increases the document magnification by a percentage of the preset level in a PDF document. In the **ByPercent** box, enter a value to increase magnification.
   - **Zoom Out**. Decreases the document magnification by a percentage of the preset level in a PDF document. In the **ByPercent** box, enter a value to decrease magnification.
   - **Zoom To**. Adjusts the magnification of the PDF to fit an entire page, fit the width of the page, or show the page at 100% in the PDF Viewer. In the **Zoom** list, select a magnification option.

Tips:

- Bind a PDF command property value to a tag in a controller to change the PDF property dynamically on the HMI device. If there is a problem with a tank, bind the specific page number of the PDF document to a tag for user assistance. The controller opens the document to the specified page explaining how to fix the issue.
- Project events do not support PDF commands.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Copy a PDF graphic element or PDF Viewer Add-On Graphic

Copy a single or multiple PDF graphic elements or PDF Viewer Add-On Graphics to reuse the PDF on screens and popups within a project or across View Designer projects. Copying a PDF graphic element or PDF Viewer Add-On Graphic copies all of the property values of the graphic element or Add-On Graphic.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If pasting content into another project, start another instance of View Designer to open the target project. Open no more than three instances of View Designer at one time.

To copy a PDF graphic element or PDF Viewer Add-On Graphic

1. In the **Graphic Explorer**, right-click the PDF graphic element or a PDF Viewer Add-On Graphic and then select **Copy**.

   Tip: To select multiple PDF graphic elements or Add-On Graphics, hold **Ctrl** and select multiple items.

2. On the target screen, right-click the location to paste and select **Paste**.

   Tips:

   - If the target screen contains a PDF graphic element or PDF Viewer Add-On Graphic with the same name, the name of the new graphic element or Add-On Graphic appears with an increment number.
   - Copying a PDF graphic element or PDF Viewer Add-On Graphic copies the referenced PDF document. When a PDF document with the same name already exists in the target project, replace the PDF document or cancel copying the PDF document.
   - To cut a PDF graphic element or a PDF Viewer Add-On Graphic, right-click the graphic element and select **Cut**.
   - Copying a PDF graphic element or a PDF Viewer Add-On Graphic copies the property values of the graphic element or Add-On Graphic, including the name of the PDF document.

See also

Graphic Explorer on page 132

Duplicate a graphic element on page 150

Copy an instance of an Add-On Graphic within a project on page 397

Copy an instance of an Add-On Graphic between projects on page 398

Change the PDF document that appears on an HMI device

Change the PDF document referenced on a screen, popup, or Add-On Graphic to view a different PDF document on the HMI device.

To change the PDF document that appears on an HMI device

1. On the screen, select the PDF graphic element or PDF_Viewer Add-On Graphic that references the PDF document.
2. In the **Properties** window, select the **Properties** tab and expand the **General** category.
3. In the **DocumentName** box, select a different PDF document.

Tip: A *No document assigned* message appears when the PDF graphic element or a PDF Viewer Add-On Graphic does not reference a PDF document.

See also

Add a PDF document to a project on page 332

Add a PDF graphic element to a screen, popup, or Add-On Graphic on page 341

PDF naming conventions

The names of PDF documents, PDF graphic elements, and PDF Viewer Add-On Graphics change automatically to:

- Remove invalid characters.
- Remove characters over the 40-character limit.
- Replace spaces with underscores.
- Increment duplicate names with a number. Adding a PDF file named 01_picture.png adds a PDF named picture.png to the the **Documents** folder. Adding a PDF file named 02_picture.png adds a PDF named picture_001.png to the **Documents** folder.

Tips:

- Changing the name of a PDF document does not change the name of a PDF graphic element or PDF Viewer Add-On Graphic that references the PDF document.
- Changing the name of a PDF graphic element or PDF Viewer Add-On Graphic does not change the name of the referenced PDF document.

See also

Add a PDF document to a project on page 332

Screens

Work with screens

Use a screen to contain content and create shortcuts that appear in the application on the HMI device. After adding a screen to a project, build the content and design the behavior to see on the HMI device. A View Designer project for a PanelView 5310 can contain no more than a total of 100 screens and popups. A View Designer project for a PanelView 5510 can contain no more than a total of 500 screens and popups. Projects must have a minimum of one screen.

Once the screen is created, add content to and configure the behavior of the screen to provide interactivity on the HMI device.

See also

Screen tab on page 347

Create a screen on page 348

Open a screen on page 348

Change the background color of a screen on page 349

Delete a screen on page 352

Screen tab

How do I open the Screen tab?

When you open a project the screen designated as the **Home** screen opens. To open a different screen for the project, in the **Project Explorer**, expand the **User-Defined Screens** folder, and double-click the screen. Screen names are preceded by a **Screen** icon .

The **Screen** tab is the drawing area that you use to create or edit the screens and popups viewed on the HMI device. A View Designer project for a PanelView 5310 can contain no more than a total of 100 screens and popups. A View Designer project for a PanelView 5510 can contain no more than a total of 500 screens and popups. Projects must have a minimum of one screen.

Use the **Screen** tab to:

- Create and change graphic elements.
- Cut, copy, paste, and delete graphic elements.
- Group, ungroup, or change the order of graphic elements.
- Align or distribute graphic elements horizontally or vertically.
- Lock a graphic element so it cannot be moved by the HMI designer.

To design a screen that depicts a bottling line, add graphic elements representing bottles, conveyors, and other associated graphic elements and text.

See also

Create a screen on page 348

Create a popup on page 110

Specify a Home screen on page 553

Rename a screen on page 351

Change the background color of a screen on page 349

Create a screen

A screen in View Designer contains the items to appear on the screen on the HMI device. After adding a screen to a project, build the content and design the behavior to see on the HMI device. A View Designer project for a PanelView 5310 can contain no more than a total of 100 screens and popups. A View Designer project for a PanelView 5510 can contain no more than a total of 500 screens and popups. Projects must have a minimum of one screen.

To create a screen:

- In the **Project Explorer**, right-click the **User-Defined Screens** folder and click **New Screen**. A screen named Screen_002 or increment number is added to the folder.

Tip: After adding the screen, create content for it by adding graphic elements.

See also

Add a graphic element to a screen on page 136

Screen tab on page 347

Popup tab on page 109

Project Explorer on page 95

Open a screen

Open a screen to display its contents.

To open a screen:

1. In the **Project Explorer**, expand the **User-Defined Screens** or **Predefined Screens** folder.
2. Double-click the screen. The screen opens on its own tab.

See also

Create a screen on page 348

Change the background color of a screen on page 349

Project Explorer on page 95

Screen tab on page 347

Change the background color of a screen

Change the background color of a screen to a different color, gradient color, or custom color.

To change the background color of a screen:

1. In the **Project Explorer**, expand the **User-Defined Screens** or **Predefined Screens** folder.
2. Select the screen, or double-click the screen to open it.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **Appearance** category.
5. In the **FillColor** box, select a color using one of these methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.
   - In the **Color Picker**, create a color gradient.

   The selected color appears in the **Fill Color** box.

See also

Project Explorer on page 95

Create a screen on page 348

Color Picker overview on page 495

Create a color gradient on page 498

Bind a color property to a tag or expression on page 500

Change the background color of a popup

Change the background color of a popup to a different color, gradient color, or custom color. Radial gradients are not supported for popup fill color.

To change the background color of a popup

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Double-click the popup to open the popup.
3. In the **Properties** window, click the **Properties** tab.
4. Expand the **Appearance** category.
5. In the **FillColor** box, select a color using one of these methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.

See also

Create a popup on page 110

Change the opacity of a popup on page 114

Create a color gradient on page 498

Select a fill color on page 141

Create a custom color using the Color Picker on page 497

Copy a screen

Copy a screen to reuse it within or across View Designer projects. Paste a screen into the same folder in the **Project Explorer** to create a copy of the screen and append the name with an increment number. Paste screens from the **Predefined Screens** folder only into the **User-Defined Screens** folder within or across projects. Content copied to a project with a different HMI screen size maintains its original size and position.

Prerequisites:

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a screen

1. In the source project, in the **Project Explorer**, right-click the screen and select **Copy**.

   Tip: To select multiple screens, hold **Ctrl** and select the items.

2. Right-click the target folder and select **Paste**. If the target folder contains a screen with the same name, select one of two options:
   - Select **Replace** to overwrite the existing screen.
   - Select **Keep Both** to keep both screens. The name of the new screen is appended with a number that increments with each copy.

Tips:

- Copying a screen that contains an instance of an Add-On Graphic to a different project that does not contain an Add-On Graphic with the same name adds the definition of the Add-On Graphic to the **Assets > Add-On Graphics** folder of the **Project Explorer** and adds the Add-On Graphic to the **Toolbox** category indicated for the Add-On Graphic.
- Copying a screen that contains an instance of an Add-On Graphic to a different project that contains an Add-On Graphic with the same name provides three options:
  - **Keep Both.** Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
  - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On Graphic are updated with the new definition of the Add-On Graphic.
  - **Cancel.** Do not paste the copied Add-On Graphic definition into the project.
- If pasting a screen with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is linked in an instance, the alias property shows in the **Properties** window of the instance, and the alias remains linked to the value of the base property in the definition.
- If pasting a screen with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is unlinked in an instance, the alias property shows in the **Properties** window of the instance, but the alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
- Copying a screen that has an Add-On Graphic with an image that exists in both the source and target projects displays a prompt to replace the image. Images are copied to the **Assets > Images** folder of the **Project Explorer**.
- When copying a screen, any localized data associated with the screen and its children is also copied.

See also

Create a screen on page 348

Rename a screen on page 351

Delete a screen on page 352

Reuse content on page 359

Project Explorer on page 95

Rename a screen

By default, each project contains a screen named Screen_001. This number increments with each new screen created with the same name.

Rename a screen to make the name more meaningful. For example, give the screen a name that reflects its purpose, content, or targeted use. Names within a folder must be unique and are not case sensitive. For example, Bottling_Line and bottling_line are considered identical names. Renaming any screen in the **Predefined Screens** folder is not allowed.

To rename a screen:

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Click the screen once to select the item.
3. Click the screen again and type the new name.

Tip: Right-clicking the name, selecting **Rename**, and entering a new name also renames the screen.

See also

Change the background color of a screen on page 349

Delete a screen on page 352

Project Explorer on page 95

Screen tab on page 347

Restore the default content of a predefined item

Restore the default content of a screen, popup, or **Banner** item in the **Predefined Screens** folder of the **Project Explorer** to overwrite any changes made to the item. For example, restore the content of the **Banner** item to have the default content appear at the top of screens.

To restore the default content of a predefined item

1. With the revised item open, press **CTRL+A** to select all remaining content in the item and press **Delete**.
2. Open another View Designer project and open the unchanged version of the item.
3. With the unchanged item open, press **CTRL+A** to select all of the default content.
4. Right-click a selected item and select **Copy** to copy the content to the clipboard.
5. Right-click the empty revised item and select **Paste**. The default content of the item is restored.

See also

Predefined Screens folder on page 96

What is the System Banner? on page 97

What is the Settings screen? on page 97

What is the Alarm Summary? on page 99

What is the Alarm Manager? on page 99

Delete a screen

Delete a screen to remove it from the project. Delete screens from the **User-Defined Screens** folder in the **Project Explorer**. To delete a screen that is referenced by shortcuts, first delete the shortcuts. Deleting a screen from the **Predefined Screens** folder is not allowed. You cannot undelete a screen.

Prerequisites

- In the **Navigation Menu** folder, delete any shortcuts based on the screen to delete.

To delete a screen

1. In the **Project Explorer**, expand the **User-Defined Screens** folder.
2. Right-click the screen, and select **Delete**. The screen is removed from the **Project Explorer**.

See also

Create a screen on page 348

Change the background color of a screen on page 349

Project Explorer on page 95

Screen tab on page 347

Close a screen

Close a screen to close items in a project that no longer need to be open. For example, close items that currently do not require viewing or editing.

To close a screen

- On the tab of the item, select **Close** .

See also

Close all screens on page 353

Change the background color of a screen on page 349

Project Explorer on page 95

Screen tab on page 347

Close all screens

Close all screens in a project simultaneously to not close each screen individually. Closing all documents closes only screens. All other windows and tabs remain open.

To close all screens

1. Select **Window > Close All Documents**.
2. If prompted to save changes to the screens, select **Yes** to save changes, or select **No** to not save changes.

See also

Screen tab on page 347

Close a screen on page 353

Delete a screen on page 352

Rename a screen on page 351

Project Explorer on page 95

Restrict access to an item on the HMI device

By default, all users on HMI devices have access to these items in the **Project Explorer:**

- Shortcuts in the **Navigation Menu** folder.
- Screens and popups in the **User-Defined Screens** and **Predefined Screens** folders. Navigate to these items on the HMI device by triggering an event with a navigation command. Users who do not have the Administrator role have read-only access to the **Settings** screen and related popups in the **Predefined Screens** folder.

Change the access level for any item in the **Project Explorer**. Restrict access to an item for any role except the **Administrator** role. The **Administrator** role always has Inherit access, and the role inherits Full Access from the root folder.

To restrict access to an item on the HMI device

1. In the **Project Explorer**, expand the folder that contains the item to restrict access:
   - To select a screen or popup, expand the **User-Defined Screens** folder or the **Predefined Screens** folder.
   - To select a shortcut, expand the **Navigation Menu** folder.
2. Select or double-click the item. The **Properties** window for the item opens.
3. In the **Properties** window for the selected item, expand the **Security** category.
4. After each role (Engineer, Maintenance, Operator, Restricted, and Supervisor), select the access option for each role.
   - **Inherit.** Grants the same access assigned to the parent folder.
   - **Full Access.** Grants access to open and interacts with the item, and shows the item in the **Navigation menu** on the HMI device.
   - **Read Only.** Grants access to open the item, but denies interaction with it. The item appears in the **Navigation menu** on the HMI device. Users assigned to a role with read-only access can still interact with the **Navigation menu** and alarm tables. For example, a user with read-only access to an alarm table can still perform read operations, such as viewing alarms and details, selecting alarms and conditions, filtering alarms, and pausing alarms. The user cannot perform write commands that change the state of an alarm.
   - **No Access.** Denies access to open or interact with the item. The item does not appear in the **Navigation menu** on the HMI device.
5. To set individual role access to a shortcut, independent of the access to the screen on which the shortcut is based:

a. Select the shortcut.

b. In the **Properties** window of the selected shortcut, clear the **UseScreenSecurity** check box.

c. Select the access level for each role.

Do not base the security for a shortcut on its defining screen if the user has access to some shortcuts of a screen but should not have access to a particular shortcut.

See also

Restrict access to the HMI device on page 695

Restrict access to a graphic element on page 695

Project Explorer on page 95

Properties tab on page 494

Security overview on page 698

Change the update rate of a screen, popup, or the System Banner

Screens, popups and the **System Banner** have a default update rate of 500 milliseconds. Use the **UpdateRate** property to change the frequency rate for an element.

Tip: If the high update rate negatively impacts performance, the HMI device automatically lowers the update rate value.

To change the update rate of a screen, popup, or the System Banner

1. In the **Project Explorer**, expand the **User-Defined Screens** or the **Predefined Screens** folder.
2. Select the item to change.
3. In the **Properties** window, select the **Properties** tab.
4. Expand the **General** category.
5. In **UpdateRate**, select the rate.
   - 100 ms
   - 250 ms
   - 500 ms

Tips:
- For best performance, on a PanelView 5310 HMI device use:
  - Up to 600 tag references on a screen at 500 ms update rate
  - Up to 200 tag references on a screen at 250 ms update rate
  - Up to 100 tag references on a screen at 100 ms update rate
- For best performance, on a PanelView 5510 HMI device use:
  - Up to 800 tag references on a screen at 500 ms update rate
  - Up to 300 tag references on a screen at 250 ms update rate
  - Up to 150 tag references on a screen at 100 ms update rate
- It is possible to use up to 2000 tag references on one screen, however, using more references than listed above may cause the HMI device to skip updates.

See also

What is a Popup? on page 118

What is the System Banner? on page 97

Create an alias property on page 361

Undo and redo an action

Undo an action

Undo the most recent edits made to a screen, popup, or the definition of an Add-On Graphic. View Designer tracks edits made to an open screen, popup, or definition of an Add-On Graphic. Each screen, popup, and Add-On Graphic definition has its own undo history. Changes made to the definition of an Add-On Graphic after deleting an instance of the Add-On Graphic apply to the instance when undoing the deletion of the instance.

Closing a screen, popup, or Add-On Graphic definition clears the undo actions to perform on that screen, popup, or Add-On Graphic definition. When re-opening the screen, popup, or Add-On Graphic definition, the previous actions are not available to undo.

Tips:
- Undo is not available for some actions, such as finding and replacing text in a project or ungrouping grouped graphic elements.
- Undoing changes made to **Project Explorer** (for example, deleting a screen), **Project Properties** (for example, deleting a controller), or **Security Administration** (for example, deleting a user) is not supported.

To undo an action:

- On the **Standard** toolbar, select **Undo** . The most recent action is undone.

  Tips:
  - Place the cursor over the button to show the action to be undone.
  - Alternative methods for undoing an action include:
    - Press **Ctrl+Z.**
    - Select **Edit > Undo**.
    - Changes to the definition of an Add-On Graphic appear in a previously deleted instance of the Add-On Graphic when deleting an instance, changing the definition, and then undeleting the instance. For example, any changes to the content, an alias, a binding, or a value appear in the undeleted instance of the Add-On Graphic.

See also

- Graphic Explorer on page 132

Redo an action

Redo the most recent edit to a screen, popup, or the definition of an Add-On Graphic. View Designer tracks edits made to an open screen, popup, or definition of an Add-On Graphic. Each screen, popup, and Add-On Graphic definition has its redo history.

Closing a screen, popup, or Add-On Graphic definition clears redo actions to perform on that screen, popup, or Add-On Graphic definition. When re-opening the screen, popup, or Add-On Graphic definition, the previous actions are not available to redo.

To redo an action

- On the **Standard** toolbar, select **Redo** . The last undone action is redone.

  Tips:

  - Place the cursor over the button to show the action to be redone.
  - Alternative methods for redoing an action include:
    - Press **CTRL+Y**.
    - Select **Edit > Redo**.

See also

- Graphic Explorer on page 132

Reuse content

Reuse content in a View Designer project to save time and create consistency within the project. Reuse:

- **Screens and popups.** Convey the same information on a screen or popup in another screen or popup. Depict information about different parts of a manufacturing system with consistency.
- **Add-On Graphics.** Create custom graphic elements to depict a manufacturing system. Reuse Add-On Graphics to save time and create consistent content for screens.
- **Content from other projects.** Reuse content from another View Designer project to save time when creating a new project.

See also

Reuse screens and popups on page 359

Add-On Graphics on page 375

Reuse content from other View Designer projects on page 422

Reuse screens and popups

Pass tag values from the controllers to a screen or popup by defining properties and exposing them for reuse. These user-defined properties can be aliases of existing screen properties or properties that have a data type. Use the data type properties in place of a specific Logix Designer tag instance when configuring bindings and expressions on the screen.

To pass the correct tag context to use at runtime, create a navigation event or a shortcut to the screen. This enables using a screen multiple times by passing different values to the user-defined properties through a shortcut or navigation command.

See also

Create an alias property on page 361

Create a user-defined property with a data type on page 365

User-defined property on page 370

Example of content reuse

Assume a plant that has three tanks making soda and requires:

- One screen that provides an overview of the plant showing all three tanks.
- Screens that show details for each individual tank.

Creating one tank detail screen, duplicating it three times, and changing all the tag bindings on the screen for each screen would require:

- Additional time.
- Extra memory for four screens.
- Additional maintenance because adding or removing any element requires modifying all of the detail screens.

Using View Designer requires only:

- One overview screen that displays all of the tanks.
- One tank detail screen reused to display information for each tank on request. Changes to the screen design requires changing only one screen.

The tank detail screen essentially acts as a template. Create user-defined properties to act as placeholders for the values or data to pass to the template screen. Pass values into the reusable screen through two different types of properties:

- An alias property that references an existing property of the screen and its content.
- A data type property that is tied to a specific data type of a controller tag, such as a DINT, REAL, or a Logix Designer user-defined data type. For example, create a Logix Designer user-defined data type called Tank that has members representing all the data for a tank. The data type properties are used in place of a specific Logix Designer tag instance when you configure bindings and expressions on the screen.

A user-defined property is a property of the screen. Screen properties appear on the **Property Definition** tab.

To pass the correct tag context to use at runtime, use a Navigation event or a shortcut. For example, create three shortcuts to the tank detail screen. The first shortcut provides the values specific to tank 1, the second for tank 2, and the third for tank 3.

On each shortcut, bind the user-defined properties to the appropriate Logix tags to provide values to the reusable screen.

On the HMI device, the shortcuts appear as icons on the **Navigation menu**. Pressing the tank 1 screen icon opens the tank detail screen. The values for the tank 1 screen properties are passed to the screen.

In addition to passing tag values from the controller to a screen, pass the values of non-alias screen properties from one screen to non-alias screen properties of another screen with each target screen acting on the data associated with its source screen. In other words, chain reusable screens together by passing tag values to the first screen, which are then passed to subsequent screens.

IMPORTANT
- Chaining alias properties together is not recommended.
- Binding the property of a graphic element in a Navigation event displays the property value of the graphic element from the target screen. It does not display the property value of the graphic element from the source screen. Passing properties of graphic elements between screens is not supported.

The same principle applies to reusing popups. To pass the correct tag context to use at runtime, create a Navigation event with a **Popup Open** command.

See also

Property Definition tab on page 361

User-defined property on page 370

Shortcut customization on page 107

Data Type Browser on page 373

Property Definition tab

How do I open the Property Definition tab?

The **Property Definition** tab is located below the **Screen** area. Click **Expand** below the screen to display the **Property Definition** tab if it is not open.

The **Property Definition** tab contains the properties you create for the current screen, popup, or Add-On Graphic definition. Create a user-defined property to act as a placeholder for a value or data on a screen, Add-On Graphic definition, or popup. This enables you to use a screen multiple times by passing different values to the user-defined properties using a shortcut or navigation command.

Using custom properties in View Designer increases the time it takes PanelView 5000 HMI devices to synchronize with changes to the controller program. When using custom properties in View Designer, expect increased synchronization time when downloading a revised controller program to the controller or making online changes to the controller program.

Use the **Property Definition** tab to create, change, or delete a user-defined property.

See also

Create a user-defined property with a data type on page 365

Search for and select a data type on page 373

User-defined property on page 370

Reuse Add-On Graphics on page 402

Create an alias property

Create an alias property to create a reference to a property contained in a screen, popup, or Add-On Graphic definition. At runtime, when the screen or popup displays as a result of a navigation event or shortcut, the value of the referenced property is passed to the aliased property on the screen or popup. Alias property values for an instance of an Add-On Graphic are passed to the definition of the Add-On Graphic. Alias property values for an instance of an Add-On Graphic are not passed through a navigation event or to a shortcut unless the the alias property values are aliased on the screen that contains the Add-On Graphic instance. It is recommended to have no more than 20 alias and user-defined properties defined for an Add-On Graphic.

To create an alias property

1. Select the screen, popup, or Add-On Graphic definition that contains the property to alias.

   Tips:
   - Aliased properties do not appear on the **Properties** tab of the definition of an Add-On Graphic. Aliased properties appear only on the **Properties** tab of an Add-On Graphic instance.
   - Creating an alias on a screen for a user-defined data type property of an Add-On Graphic instance is not supported.
   - Create an alias on a screen for a user-defined alias property of an Add-On Graphic instance.

2. In the **Properties** tab, right-click the property and select **New Alias**. The new property appears on the **Property Definition** tab below the screen. Edit the name and description of the property.

   Tip: Creating more than one alias for the same property of a graphic element is not supported.

3. (optional) Click in the **Category** column for the property and select the category of the new property.

   Tips:
   - As an alternative, create a new category by typing a unique name in the **Category** column. Category names are not case-sensitive.
   - The new property appears in the **Properties** tab for the screen, not the graphic element.
   - User-defined properties appear in the **Properties** tab for the instances of the Add-On Graphic within a project, not within the definition of the Add-On Graphic. Change values for user-defined properties for an instance of an Add-On Graphic. Changing values for a user-defined property within the definition of the Add-On Graphic is not allowed.

After creating the alias properties, configure the runtime implementation. Use shortcuts or navigation commands, such as Navigate To and Open Popup, to define the appropriate tag instances to use. Define tag instances for the alias properties of an Add-On Graphic instance added to the screen.

See also

Property Definition tab on page 361

Properties that do not support aliasing on page 362

User-defined property on page 370

Example of content reuse on page 359

Alias a property in an Add-On Graphic on page 412

Properties that do not support aliasing

Certain objects have properties that do not support aliasing:

Object	Properties
Add-On Graphic	• Category • Description • Extended • Icon • Major • Minor • Note • Vendor
Alarm table	• Icon • SelectedAlarmName • ShowDefaultBanner

Object	Properties
Banner	• FillColor • Height
Popup	• BackgroundOpacity • Caption • CaptionVisible • CloseVisible • Height • Width
Screen and shortcut	• Icon • ShowDefaultBanner
Trace	• Label • Color • Marker • Width
Trend chart	• TimeSpan • SampleRate • GridColor • AxesColor • ShowGridVertical • ShowGridHorizontal • ShowAxes • ShowButtons

See also

Property Definition tab on page 361

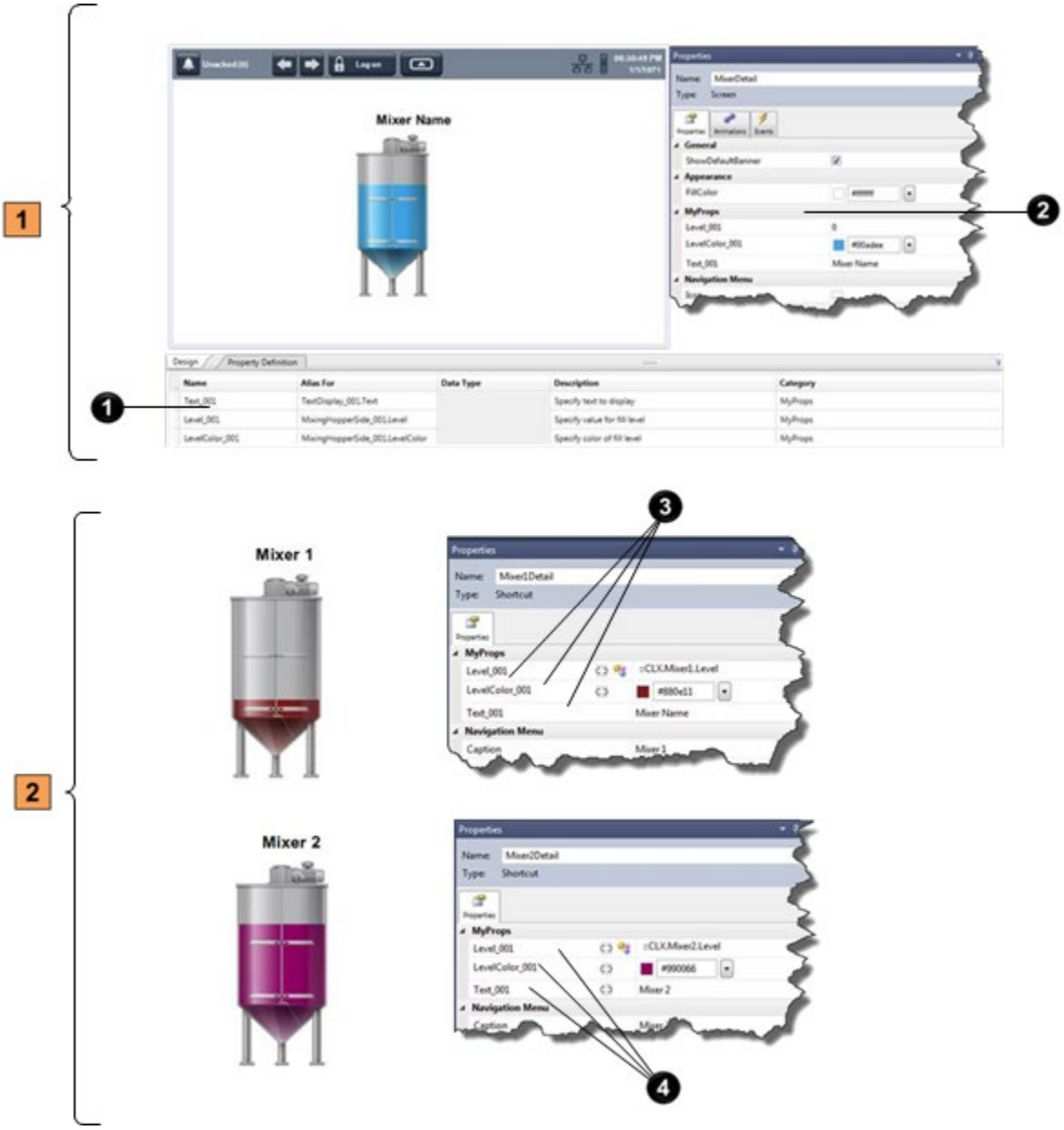
Create an alias property on page 361

User-defined property on page 370

Example of content reuse on page 359

User-defined alias type property binding

In this example, alias properties on the screen appear in each shortcut. Entering a value or binding changes the value of the aliased property in the shortcut on the HMI device.



1 Add-On Graphic definition

Item	Description

1	A user-defined alias property for the screen which includes: • **Name.** The name of the alias. By default, the name of the alias property in the **Property Definition** tab is the name of the property appended with _001 or increment number. Type the name of the property to appear in the **Properties** window for the screen and any shortcut. • **Alias For.** Automatically specifies the selected graphic element name and property. The format for the alias is ElementName.PropertyName. For example, if the selected graphic element is a mixing hopper and the aliased property is LevelColor, the **Alias For** column may contain MixingHopperSide_001.LevelColor. • **Description.** An optional description for the alias property. Type a description to appear as a tooltip when hovering over the box in the **Properties** window. • **Category.** The category where the alias property appears in the **Properties** window.
2	Alias properties. In this example, the alias properties are Level_001, LevelColor_001, and Text_001. Create an alias property by right-clicking the property and selecting New Alias. The alias property appears in the Property Definition tab below the screen.

2 Shortcuts

Item	Description
3	The **Properties** window for a shortcut. The Level_001 alias is bound to the level of the mixer. The LevelColor_001 alias is burgundy. The Text_001 alias labels Mixer 1.
4	The **Properties** window for a second shortcut. The Level_001 alias is bound to the level of mixer 2. The LevelColor_001 alias is purple. The Text_001 alias labels Mixer 2.

See also

Property Definition tab on page 361

Create an alias property on page 361

Properties that do not support aliasing on page 362

User-defined property on page 370

Create a user-defined property with a data type

Create a user-defined property with a data type so that you can modify your screen, Add-On Graphic definition, or popup contents using a specific type of tag in your Logix Designer project (.acd) file. When the screen, instance of the Add-On Graphic, or popup displays as a result of a navigation event or shortcut, the value of a tag of the specified type is passed to the data type property on the screen. Add-On Graphic instance, or popup. It is recommended to have no more than 20 alias and user-defined properties defined for an Add-On Graphic.

User-defined properties are stored in the **Property Definition** tab and become properties of the screen.

IMPORTANT	To avoid confusion, do not create a user-defined property with the same name as a property of a graphic element on the screen. Using a user-defined property name in an expression or binding in a graphic element containing a property with the same name, causes that the expression or binding uses the value of the graphic element property, not the value of the user-defined property.

To create a user-defined property with a data type:

1. Select the screen for which you want to create a data type property.
2. In the **Name** box of the **Property Definition** tab, type a name for the property.
   - Click **Expand** below the screen to display the **Property Definition** tab if it is not open.
3. Click in the **Data Type** box and click **Browse** to select a data type:
   - **User-Defined.** A structure data type that you defined in Logix Designer.
   - **Predefined.** An atomic or structure data type that is defined by the controller.
   - **Module-Defined.** A structure data type defined by a module when you create it. Tags of these types are created to store input, output, and configuration data for the module.

   The data type you select is used as a filter criteria for the **Tag Browser**. Only items in the Logix Designer project (.acd) file that meet the filter criteria appear when you open the browser.
4. (optional) In the **Description** column, enter a description for the property.

Tips:
- As an alternative, you can create a new category by typing a name in the **Category** column. Category names are not case-sensitive. For example, you cannot have a General category and a general category.
- The new property appears in the **Properties** tab for the screen, not the graphic element.
- User-defined properties that you create appear in the **Properties** tab for the instances of the Add-On Graphic within a project, not within the definition of the Add-On Graphic. You can change values for user-defined properties for an instance of an Add-On Graphic. You cannot change values for a user-defined property within the definition of the Add-On Graphic.

See also

Property Definition tab on page 361

User-defined property on page 370

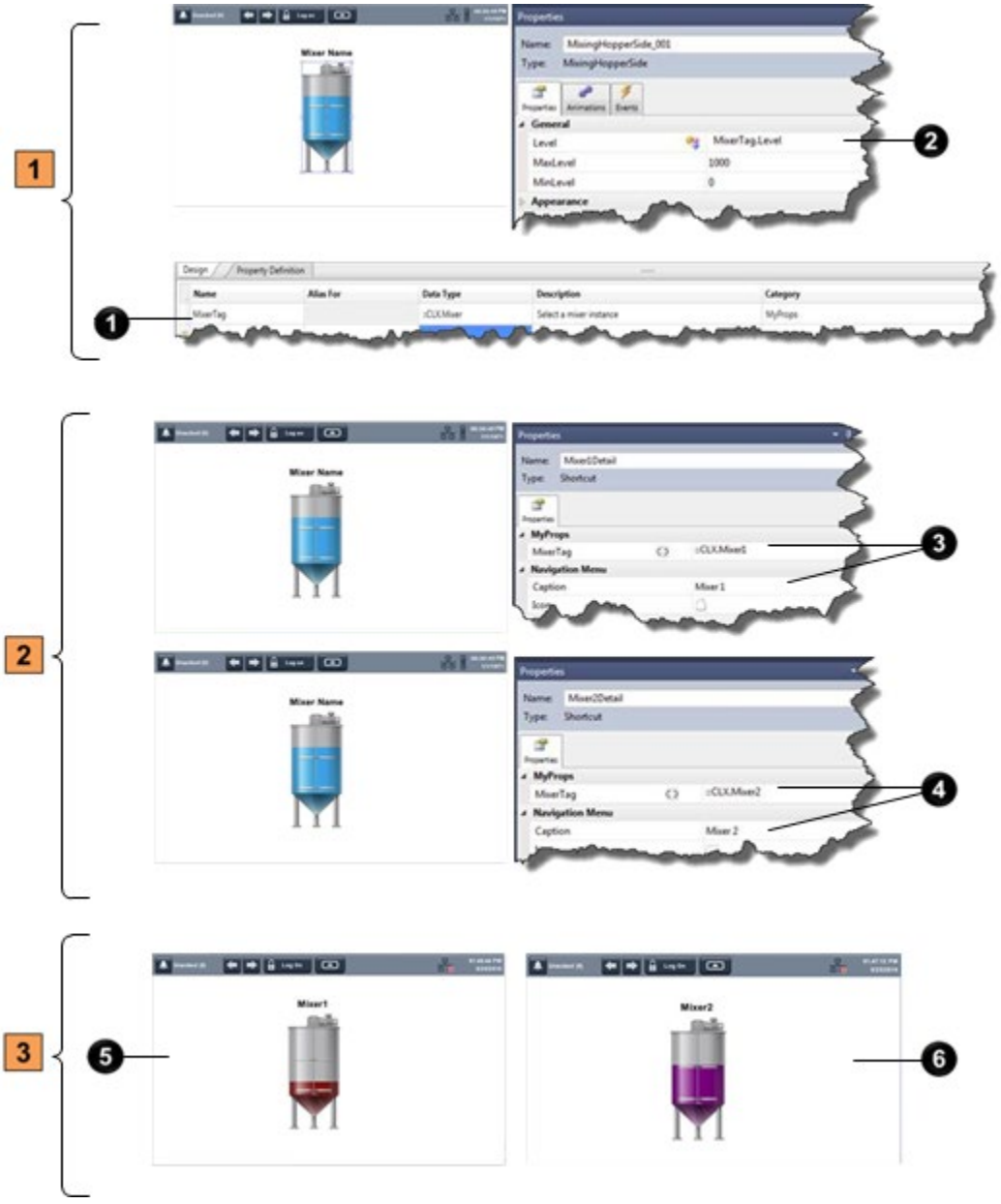
Example of content reuse on page 359

Create a user-defined data type property for an Add-On Graphic on page 378

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

User-defined data type property binding

This example depicts a mixer graphic with a level property bound to a user-defined data type property of the screen. It shows how a shortcut of the screen passes the controller tag to the user-defined data type property on the screen. The data type and member specified on the screen show the value on the shortcuts on the HMI device.



1 Screen

Item	Description

1	A user-defined data type property for the screen. User-defined data type properties and their members appear in the **Tag Browser** when browsing for tags on a screen. User-defined data type properties include: • **Name.** The name of the user-defined property. In this example, the name of the user-defined property is MixerTag. • **Data Type.** The data type of the user-defined property. This is the data type in the controller. Select the Data Type cell to select **Browse** and navigate to the controller and data type. In this example, the data type is Mixer. • **Description.** An optional description for the user-defined property. This description appears as a tooltip when hovering over the property in the **Properties** window. • **Category**. The category where the user-defined property appears in the **Properties** window.
2	The binding for a selected graphic element. When creating the binding, type or browse to the name of the user-defined data type property and the member of a tag in the data type. In this example, the member is the Level. The value of the level shows on the HMI device.

2 Shortcuts

Item	Description
3	The **Properties** window for Mixer_001 in a shortcut. The user-defined data type property on the shortcut is bound to the Mixer1 tag The Mixer1 tag is passed to the screen. The Level member applied to the graphic element then shows the level for Mixer1 on the HMI device.
4	The **Properties** window for Mixer_002 in a shortcut. The user-defined data type property on the shortcut is bound to the Mixer2 tag. The Mixer2 tag is passed to the screen. The Level member applied to the graphic element then shows the level for Mixer2 on the HMI device.

3 HMI device

Item	Description
5	The shortcut on the HMI device that shows the level of Mixer1.
6	The shortcut on the HMI device that shows the level of Mixer2.

See also

Reuse screens and popups on page 359

Create a user-defined property with a data type on page 365

Property Definition tab on page 361

User-defined property on page 370

Change a user-defined property

After creating a user-defined property, it appears on the **Property Definition** tab and the **Properties** tab for the screen or popup. User defined properties created for the definition of an Add-On Graphic appear on the **Properties** tab for an instance of the Add-On Graphic. Use the **Property Definition** tab to change the definition of a user-defined property. Use the **Properties** tab to change the value of a user-defined property rather than the property itself.

To change a user-defined property

1. Select the screen, Add-On Graphic definition, or popup that contains the user-defined property to change.
2. Make changes to the property:
   - Use the **Property Definition** tab to change the Name, Data Type, Description, or Category of the user-defined property.
   - Use the **Properties** tab to change the value or binding.

   Changes to user-defined properties take effect immediately and are saved when the project is saved.

Tip: A value or binding for an Add-On Graphic cannot change on the **Properties** tab for the definition of an Add-On Graphic. Change a value or binding for an instance of the Add-On Graphic on the **Properties** tab.

See also

Property Definition tab on page 361

Create a user-defined property with a data type on page 365

Delete a user-defined property on page 370

User-defined property on page 370

Remove a binding on page 513

Propagation of changes to a user-defined property

Changes to user-defined properties take effect immediately and are saved when the project is saved. How changes to user-defined properties are propagated depend on the item for which the user-defined property is created:

Add-On Graphics

- Changing the name of a user-defined property for an Add-On Graphic changes the name of the property in every instance of the Add-On Graphic. The names of properties in bindings and expressions do not change.
- Changes made to the definition of a user-defined property for an Add-On Graphic definition are applied to any instances of the Add-On Graphic.
- Changing the value of an alias property on an instance of an Add-On Graphic disconnects the property from the user-defined property on the definition of the Add-On Graphic. To reconnect the user-defined property to the base property, select **Link** next to the property in the **Properties** tab. User-defined data type properties are always unlinked for an Add-On Graphic.

Screens

- Changing the name of a user-defined property changes the property name for the current screen only. Changing the property name for a screen or shortcut does not change the name of the property in all of the places that property name is used in the

project. The names of properties in bindings and expressions do not change.
- Changes made to a user-defined property on a screen are applied to any shortcuts on which the shortcut is based.

Shortcuts and events

- Changing the value of a user-defined property on a shortcut or navigation command disconnects the user-defined property from its base property.
- Binding an alias property or aliasing a bound property for a graphic element within the definition of an Add-on Graphic is not supported.

See also

Change a user-defined property on page 368

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Create a user-defined data type property for an Add-On Graphic on page 378

Alias a property in an Add-On Graphic on page 412

Delete a user-defined property

Deleting a user-defined property deletes it from the project and all commands or screen shortcuts with which it is associated.

To delete a user-defined property

1. Select the screen, popup, or Add-On Graphic definition that contains the user-defined property.
2. In the **Property Definition** tab below the open screen, select the box to the left of the property.
   - To select all of the properties in the table, select **Select All** .
3. Right-click and select **Delete Selected Row(s)**.

See also

Property Definition tab on page 361

Create an alias property on page 361

Create a user-defined property with a data type on page 365

User-defined property on page 370

Example of content reuse on page 359

User-defined property

Create a user-defined property to act as a placeholder for a value or data on a screen, popup, or Add-On Graphic definition. This enables using a

screen multiple times by passing different values to the user-defined properties using a shortcut or navigation command.

There are two types of user-defined properties:

- **Alias**. Create an alias property to reference the property of a screen or definition of an Add-On Graphic, or the property of a graphic element. The alias name is comprised of the element name and the specific property to expose separated by a period:

  ElementName.PropertyName
  Using an alias property in an expression is not supported.
- **Data type**. Create a user-defined property with a data type to associate it with a data type contained in a Logix Designer project (.acd) file. Data type properties replace a specific Logix Designer tag instance when configuring bindings and expressions on the screen. The data type is Predefined, Module-defined, or User-defined (UDT).

See also

Property Definition tab on page 361

Create an alias property on page 361

Create a user-defined property with a data type on page 365

Example of content reuse on page 359

Reuse Add-On Graphics on page 402

Link a user-defined property to its base property

A user-defined property on a:

- screen shortcut
- Screen Navigate command
- Button Behavior event that navigates to a screen on a release
- Popup Open command

inherits its value from a base property.The base property is the property as defined on the screen or popup called by the shortcut or navigation command.

Link next to a property in the **Properties** tab indicates that the value of the property is linked to its associated base property. If **Unlink** is displayed, the property is unlinked from the base property and is no longer inheriting the value of the base property.

To link a user-defined property to its base property

- Next to the property in the **Properties** tab, select **Unlink** and select **Link to base property**. **Link** appears, and the screen property inherits the value of the base property.

Tips:
- If you create a screen navigation to a shortcut, you create a link to the property on the shortcut, not to the base property.
- The Border property does not support linking and unlinking.
- User-defined data type properties are always unlinked for an Add-On Graphic. User-defined properties on an instance of an Add-On Graphic cannot link to the definition of the Add-On Graphic because there is no default value for the user-defined property on the definition.

See also

Property Definition tab on page 361

Unlink a user-defined property from its base property on page 372

Create an alias property on page 361

Create a user-defined property with a data type on page 365

Shortcut customization on page 107

Unlink a user-defined property from its base property

A user-defined property on a:

- screen shortcut
- Screen Navigate command
- Button Behavior event that navigates to a screen on a release
- Popup Open command

inherits its value from a base property.The base property is the property as defined on the screen or popup called by the shortcut or navigation command.

Link next to a property in the **Properties** tab indicates that the value of the property is linked to its associated base property. If **Unlink** is displayed, the property is unlinked from the base property and is no longer inheriting the value of the base property.

To unlink a user-defined property from its base property

- Use one of the following methods:
  - Next to the property in the **Properties** tab, select **Link** and select **Unlink from base property**. **Unlink** appears and the screen property no longer inherits the value of the base property.
  - Change the value of the linked property.
  - Change the binding status of the linked property from bound to unbound or vice versa.
  - If the property is bound, change the Initial value or the Binding value of the property.

Tip: The Border property does not support linking and unlinking.

See also

Property Definition tab on page 361

Link a user-defined property to its base property on page 371

Create an alias property on page 361

Create a user-defined property with a data type on page 365

Shortcut customization on page 107

Select a data type

Create a user-defined property with a data type so that you can modify a screen or popup contents using a specific type of tag in your Logix Designer project (.acd) file.

Use the **Data Type Browser** in the **Property Definition** tab to search for and select a data type to associate with a user-defined property.

See also

Example of content reuse on page 359

Create a user-defined property with a data type on page 365

Search for and select a data type on page 373

Property Definition tab on page 361

User-defined property on page 370

Data Type Browser

How do I open the Data Type Browser?

In the **Property Definition** tab, click in the **Data Type** box and click **Browse** .

Use the **Data Type Browser** in the **Property Definition** tab to search for and select a data type to associate with a user-defined property.

The **Data Type Browser** uses the data type you select as a filter criteria for the **Tag Browser**. When you open the **Tag Browser** to select an item to bind to the user-defined property, it displays only the items in the referenced Logix Designer project (.acd) file that meet the data type filter criteria.

See also

Search for and select a data type on page 373

Create a user-defined property with a data type on page 365

Property Definition tab on page 361

Search for and select a data type

Use the **Data Type Browser** in the **Property Definition** tab to search for and select a data type to associate with a user-defined property.

The **Data Type Browser** uses the data type you select as a filter criteria for the **Tag Browser**. When you open the **Tag Browser** to select an item to bind to the user-defined property, it displays only the items in the referenced Logix Designer project (.acd) file that meet the data type filter criteria.

Prerequisites

- On the **Project Properties** dialog box, verify that the View Designer project references the Logix Designer project file (.acd) that contains the tags to use.

To search for and select a data type

1. Select a screen, popup, or the definition of an Add-On Graphic.
2. On the **Property Definition** tab, type a property name, select the **Data Type** box, and select **Select data type** ... to open the **Data Type Browser**. The **Data Type Browser** displays the result the last browsing session.
3. Select the drill-in arrow next to the desired **Data Types** category.
4. Expand a controller to the desired level and browse to the data type.
5. Double-click the data type to select it and close the **Data Type Browser**.

Tips:

To use **Search** to search for a data type:

- In the **Search** box, type a keyword and press **Enter**. Search text can contain alphanumeric characters and can be full words, fragments of a word, or a single letter or number. The **Data Type Browser** searches the **Name** and **Description** columns.
- Use operators to narrow the search. Type one or more operators with the keywords. Entering a search string in the **Search** box displays results in the **Data Type Browser** without pressing **Enter**.
- Use one or more filters to narrow the search. Select to display the filters. Select a filter name to add it to the search box and type the keyword or keywords.
- Combine operators and filters. For example: `n:BOOL AND l:::Plant_1` returns a list of data types named BOOL located in controller ::Plant_1.
- Select the down arrow on the right side of the **Search** box to see a list of previous searches. Select a search to add it to the **Search** box.
- In the results window, start typing the name of the data type. If a data type by that name exists, the browser navigates to the relevant row.
- The **Location** column only appears in the results window.
- The **Location** filter is not available when browsing at the controller level.

See also

Data Type Browser on page 373

Data Type Browser operators

Data Type Browser filters

User-defined property on page 370

Tag Browser

Logix Datatype

View Designer supports the following Logix data types:

- **DT** (Date/Time) - is a 64-bit data type. It provides information in microseconds for the **DateTime Display** control.
- **LDT** (Long Date/Time) - is a 64-bit data type. It provides information in nanoseconds for the **DateTime Display** control.

- **LTime** - is a 64-bit data type. It provides information about the duration of an event or between events in nanoseconds for the **Numeric Input** and **Numeric Display** controls.
- **Time** - is a 64-bit data type. It provides information about the duration of an event or between events in microseconds for the **Numeric Input** and **Numeric Display** controls.
- **Time32** - is a 32-bit data type. It provides information about the duration of an event or between events in microseconds for the **Numeric Input** and **Numeric Display** controls.

You can check the data on a main display or in more detail (every bit) by unfolding the chosen row.

Add-On Graphics

Create Add-On Graphics to:

- Create custom graphic elements.
- Combine graphic elements into a single graphic element.
- Ensure consistency for all instances by changing the definition from one location.
- Reuse graphic elements through user-defined properties.

Add-On Graphics are self-contained graphics elements. From within the definition of an Add-On Graphic, bind to the properties of graphic elements in that definition. Add-On Graphics do not support adding graphic elements that have internal tag bindings to controller tags.

The predefined PDF_Viewer_Landscape and PDF_Viewer_Portrait Add-On Graphics in **Project Explorer** display, zoom, and navigate a PDF document on the HMI device.

Functionality within the definition of an Add-On Graphic is the same as any screen. The functionality of an instance of an Add-On Graphic is the same as any graphic element.

See also

Create an Add-On Graphic on page 375

Change the definition of an Add-On Graphic on page 386

Work with instances of an Add-On Graphic on page 394

Reuse Add-On Graphics on page 402

Create an Add-On Graphic

Create an Add-On Graphic to create a custom graphic element. Add-On Graphics are empty by default. Add graphic elements to the definition of an Add-On Graphic like any other other screen or popup. View Designer does not allow adding another Add-On Graphic to the definition of an Add-On Graphic.

To create an Add-On Graphic

1. In the **Project Explorer**, expand the **Assets** folder.

2. Right-click the **Add-On Graphics** folder and select **New Add-On Graphic**. An initial Add-On Graphic named *AddOnGraphic_001* appears.
3. Type a new name for the Add-On Graphic:
   - The name must not exist for another Add-On Graphic in the **Add-On Graphics** folder.
   - The name must contain only numbers, letters, and underscores.
4. The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.Press **Enter**.

Tips:
- Add-On Graphics appear alphabetically in the **Add-On Graphics** folder in the **Project Explorer**. Renaming or deleting the **Add-On Graphics** folder from the **Project Explorer** is not allowed.
- Properties for the definition of the Add-On Graphic appear in the **Properties** window.
- Add-On Graphics appear in the **Toolbox** in the **Add-On Graphics** category.
- To add content to an Add-On Graphic, double-click to open the Add-On Graphic, and then add graphic elements to the definition of the Add-On Graphic as if it were any other screen.

See also

Change the property values for the definition of an Add-On Graphic on page 376

Rename an Add-On Graphic on page 380

Change the definition of an Add-On Graphic on page 386

Work with instances of an Add-On Graphic on page 394

Reuse Add-On Graphics on page 402

Change the property values for the definition of an Add-On Graphic

Change the property values for the definition of an Add-On Graphic. All properties for the definition of an Add-On Graphic are optional.

To change the property values for the definition of an Add-On Graphic

1. If the definition of the Add-On Graphic is open, select the background of the Add-On Graphic.
2. In the **Properties** window, change the property values.

Tip: In the **Project Explorer**, expand the **Assets** and **Add-On Graphics** folders to navigate to and select the **Add-On Graphic.**

See also

Change the vendor of an Add-On Graphic on page 377

Change the revision information of an Add-On Graphic on page 377

Change the definition of an Add-On Graphic on page 386

Change the vendor of an Add-On Graphic

Change the vendor of an Add-On Graphic to change the name of the company that owns the Add-On Graphic.

To change the vendor of an Add-On Graphic

1. In the **Project Explorer**, expand the **Assets** and **Add-On Graphics** folders to navigate to and select the Add-On Graphic.

   Tip: If the definition of the Add-On Graphic is open, you can select the background of the Add-On Graphic.

2. In the **Properties** window, expand the **General** category.
3. In the **Vendor** box, type the name of the company that owns the Add-On Graphic.

See also

Change the revision information of an Add-On Graphic on page 377

Change the property values for the definition of an Add-On Graphic on page 376

Rename an Add-On Graphic on page 380

Change the definition of an Add-On Graphic on page 386

Change the revision information of an Add-On Graphic

Change revision information to track changes made to the definition of an Add-On Graphic. Change version numbers to indicate major and minor changes. For example, 2.1 may indicate a first minor change to a second major revision of an Add-On Graphic. Change extended information to include information, such as the validation state of an Add-On Graphic, or a note that describes the differences between versions of the Add-On Graphic.

To change the revision information of an Add-On Graphic

1. In the **Project Explorer**, expand the **Assets** and **Add-On Graphics** folders to navigate to and select the Add-On Graphic.

   Tip: If the definition of the Add-On Graphic is open, you can select the background of the Add-On Graphic.

2. In the **Properties** window, expand the **Revision** category.
3. Change the following revision information:
   - **Major.** Type a number between 0 and 65535 for the major version of the Add-On Graphic. Change the version number when major changes are made to the definition of the Add-On Graphic. For example, change the major version when additional graphic elements are added to the definition of the Add-On Graphic.
   - **Minor.** Type a number between 0 and 65535 for the minor version of the Add-On Graphic. Change the version number when minor changes are made to the definition or contents of the Add-On Graphic. For example, change the minor version when property values are changed for the existing definition of the Add-On Graphic.

- **Extended.** Type any additional information about the revision of the Add-On Graphic. For example, enter the validation state of the definition of the Add-On Graphic. Pasting text in this field causes any line breaks of the pasted text to appear as spaces.
- **Note.** Type a single paragraph description of the differences between revisions of the Add-On Graphic. For example, describe a change in tag type for a graphic element in the definition of the Add-On Graphic.

See also

Change the property values for the definition of an Add-On Graphic on page 376

Change the vendor of an Add-On Graphic on page 377

Rename an Add-On Graphic on page 380

Change the definition of an Add-On Graphic on page 386

Create a user-defined data type property for an Add-On Graphic

Create a user-defined data type property to bind an Add-On Graphic to a controller tag. An Add-On Graphic element cannot bind directly to a controller tag because different projects may not reference the same controllers. View Designer allows reusing Add-On Graphics between projects.

To create a user-defined data type property for an Add-On Graphic

1. In the **Property Definition** tab of the Add-On Graphic, type a name for the user-defined property in the **Name** box.

   Tip: If the **Property Definition** tab is not open, below the screen, click **Expand** .

2. Click in the **Data Type** box and click **Select data type** . The **Data Type Browser** opens.
3. Select a data type:
   - **User-Defined.** A structure data type defined in Logix Designer.
   - **Predefined.** An atomic or structure data type defined by a controller.
   - **Module-Defined.** A structure data type defined by a module when creating the module. Tags of these types store input, output, and configuration data for the module.

   The data type is used as a filter criteria for the **Data Type Browser**. Only items in the Logix Designer project (.acd) file that meet the filter criteria appear when opening the **Data Type Browser**.
4. Click the drill-in arrow next to a controller.
5. Navigate to the desired level in the controller and select the data type.
6. (optional) In the **Description** column, type a description for the property to appear when hovering over the property on the **Properties** window.

7. In the **Category** column, type the category where the property appears in the **Properties** window for an instance of the Add-On Graphic.
8. Select a graphic element in the definition of the Add-On Graphic.
9. To bind a property of the selected graphic element, click **Browse** to browse to a data type property.
10. Click the drill-in arrow to select the member of the property.

Tips:

- Selecting a user-defined data type displays all of the members within the property and any nested properties. Expand a nested user-defined data type to display all of the members of the nested data type.
- To type the binding instead of browsing to it, use the format:
  PropertyName.Member
  For example, if the user-defined data type property is named MixerTag and the data type in the controller has a Level member that is the value to show, type MixerTag.Level.

See also

Reuse Add-On Graphics on page 402

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

User-defined data type property binding for an Add-On Graphic on page 410

Property Definition tab on page 361

User-defined property on page 370

Delete an Add-On Graphic from a project

Delete an Add-On Graphic from a project to no longer add it to a screen or popup. It is not possible to undelete an Add-On Graphic.

Prerequisites

- Delete all instances of the Add-On Graphic in the project. If the Add-On Graphic is used in the open project, it appears in the **Graphic Explorer**.

To delete an Add-On Graphic from a project

1. In the Project Explorer, open the **Assets** and **Add-On Graphics** folders to navigate to the Add-On Graphic.
2. Right-click the Add-On Graphic and select **Delete**. The Add-On Graphic is removed from the project.

Tip: If the Add-On Graphic is currently used in the project, a warning message appears indicated that the Add-On Graphic cannot be deleted. Delete all instances of the Add-On Graphic in the project and then delete the Add-On Graphic from the **Project Explorer**.

See also

Rename an Add-On Graphic on page 380

Create an Add-On Graphic on page 375

Change the definition of an Add-On Graphic on page 386

Rename an Add-On Graphic

Rename an Add-On Graphic when the definition or purpose of the Add-On Graphic changes. For example, if an Add-On Graphic with a single tank for a beverage line now contains two tanks, change the name from Single_Tank to Double_Tank. Changing the name of an Add-On Graphic does not break the link to any instances of the Add-On Graphic.

To rename an Add-On Graphic

1. In the **Project Explorer**, expand the **Assets** and **Add-On Graphics** folders and then navigate to select the Add-On Graphic.
2. Select the Add-On Graphic to select the item.
3. Select the item again and type the new name.

   Tips:
   - Rename an Add-On Graphic by right-clicking the name and selecting **Rename**. Then type a new name and press **Enter**.
   - To rename the Add-On Graphic, type a new name in the **Name** box of the **Properties** window.
   - The name must not exist for another Add-On Graphic in the Add-On Graphics folder.
4. Press **Enter**.

See also

Change the property values for the definition of an Add-On Graphic on page 376

Delete an Add-On Graphic from a project on page 379

Change the definition of an Add-On Graphic on page 386

Copy the definition of an Add-On Graphic within a project

Copy the definition of an Add-On Graphic to reuse the Add-On Graphic within the same project. The properties and behavior of the Add-On Graphic are copied. Copying the definition of an Add-On Graphic allows for the creation of additional versions of the Add-On Graphic. Change the property values and behavior of the copied definition.

Add-On Graphics must have unique names. When copying the definition of an Add-On Graphic within a project, an increment number is appended to the name of the copied definition. The content of the Add-On Graphic is handled in the same manner.

To copy the definition of an Add-On Graphic within a project

1. In the open project in the **Project Explorer,** expand the **Assets** folder.
2. Expand the **Add-On Graphics** folder.
3. Right-click the Add-On Graphic and select **Copy**.
4. Right-click the **Add-On Graphics** folder in the **Project Explorer** and then select **Paste**.

Tips:

- Pasting the definition of an Add-On Graphic that has a name that already exists increments the name of the copied definition with _001 or increment number.
- Copying the definition of an Add-On Graphic that contains an image increments the name of the Add-On Graphic but does not create a new image.

5. Change the properties and behavior of the copied Add-On Graphic to create a new version of the Add-On Graphic.

See also

Copy the definition of an Add-On Graphic between projects on page 381

Change the property values for the definition of an Add-On Graphic on page 376

Rename an Add-On Graphic on page 380

Copy the definition of an Add-On Graphic between projects

Copy the definition of an Add-On Graphic between projects to reuse the Add-On Graphic in another project. The content, properties, and behavior of the Add-On Graphic definition are copied. Any changes to the definition of the Add-On Graphic are copied to every instance of the Add-On Graphic in the project.

Add-On Graphics must have unique names. When copying the definition of an Add-On Graphic with the same name between projects, keep both Add-On Graphic definitions, replace the existing Add-On Graphic definition, or choose not to paste the Add-On Graphic definition.

Contents of the Add-On Graphic are handled in the same manner as the contents of any other screen copied between projects.

To copy the definition of an Add-On Graphic between projects

1. Open the project containing the Add-On Graphic to copy.
2. In the **Project Explorer,** expand the **Assets** folder.
3. Expand the **Add-On Graphics** folder.
4. Right-click the Add-On Graphic to copy and select **Copy**.
5. Open the project where to contain the pasted Add-On Graphic.
6. In the **Project Explorer,** expand the **Assets** folder.
7. Expand the **Add-On Graphics** folder.
8. Right-click the **Add-On Graphics** folder and select **Paste**.

   If a definition of an Add-On Graphic with the same name does not already exist in the project, the definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
9. Pasting the definition of the Add-On Graphic in a different project where an Add-On Graphic definition with the name already exists displays options:
   - **Keep Both**. Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
   - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On

Graphic are updated with the new definition of the Add-On Graphic.

- **Cancel.** Do not paste the copied Add-On Graphic definition into the project.

Tips:

- Replacing an alias property in the definition of an Add-On Graphic as a result of a paste when that alias is linked in an instance displays the alias property in the **Properties** window of the instance. The alias remains linked to the value of the base property in the definition.
- Replacing an alias property in the definition of an Add-On Graphic as a result of a paste when that alias is unlinked in an instance displays the alias property in the **Properties** window of the instance. The alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
- Copying the definition of an Add-On Graphic that has an image that exists in both the source and target projects displays a prompt to replace the image or cancel. Images in a copied Add-On Graphic appear in the **Assets > Images** folder of the **Project Explorer**.

The Add-On Graphic is available for use in the project.

See also

Work with instances of an Add-On Graphic on page 394

Copy the definition of an Add-On Graphic within a project on page 380

Change the property values for the definition of an Add-On Graphic on page 376

Rename an Add-On Graphic on page 380

Reuse of images in an Add-On Graphic between projects

If the copied definition of the Add-On Graphic contains an image that already exists in the target project, replace the image in the target project or cancel.

Copying the definition of an Add-On Graphic that has an image file that already exists in the target project, but with a different image, adds an increment number to the name of the image in the target project. For example, if copying the definition of an Add-On Graphic that has an image named Tank1 and that image contains tank.bmp, and the target project also has an image file named Tank1 but that image contains watertank.bmp, the name of the image in the target project is incremented to Tank1_001.

Not replacing an image in the Add-On Graphic in the target project copies the Add-On Graphic to the target project, but an empty image appears on the canvas of the definition of the Add-On Graphic.

See also

Copy the definition of an Add-On Graphic between projects on page 381

Copy an image between View Designer projects on page 324

Reuse of user-defined properties in an Add-On Graphic between projects

User-defined properties are copied with the definition of an Add-On Graphic when copying the definition to another project. The user-defined properties of the source Add-On Graphic replace the user-defined properties of the target Add-On Graphic.

If the definition of an Add-On Graphic contains a certain user-defined property, replacing that definition with a version that does not contain that same user-defined property removes the property from the definition and any instances of the Add-On Graphic. The property does not exist in the **Property Definition** tab for the definition of the Add-On Graphic. The property values and any bindings or expressions for that property no longer exist in the **Properties** window for instances of the Add-On Graphic.

If the definition of an Add-On Graphic does not contain a user-defined property, replacing that definition with a version that does contain the user-defined property adds that property to the definition and instances of the Add-On Graphic. The property appears in the **Property Definition** tab for the definition of the Add-On Graphic. The property values and any bindings or expressions for that property appear in the **Properties** window for instances of the Add-On Graphic.

User-defined properties that exist in the existing and replaced versions of an Add-On Graphic remain unchanged.

See also

Copy the definition of an Add-On Graphic between projects on page 381

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Property Definition tab on page 361

Benefits of using Add-On Instructions with Add-On Graphics

An Add-On Instructions in Logix Designer complements an Add-On Graphic in Studio 5000 View Designer.

- **Add-On Instructions** in Logix Designer provide commonly used functions or device control. They allow creating sets of commonly-used logic and provide a common interface to the logic and documentation for the instruction.
- **Add-On Graphics** in Studio 5000 View Designer allow creating commonly-used graphic elements, defining their properties, and associating those properties with a Logix Designer user-defined data types. Reuse the Add-On Graphic with any tag from the same version of .acd file configured with that user-defined data type.

If there is an Add-On Instruction in Logix Designer that represents a mixer, create a corresponding Add-On Graphic in View Designer to visually depict the mixer. Bind the properties of the graphic elements in the definition of the Add-On Graphic to members of the user-defined tag type by navigating to a single tag reference.

For example, if there is a Mixer tag type that has Level and Temperature members, recreating the tag type and members for every mixer is not necessary. Create the Add-On Instruction in Logix Designer once and

reuse it. If there are several mixers in the system, creating a graphic element to depict each mixer is not necessary. Create an Add-On Graphic once and reuse it.

Use the Add-On Instruction with the Add-On Graphic by binding the the user-defined Mixer type to the Add-On Graphic by reusing the single Mixer tag reference. Binding tags when using the Add-On Graphic each time is not necessary. Bind once by selecting the instance of the user-defined type within Logix. Bind to the Mixer tag path to Mixer 1 for the first instance of the Add-On Graphic. All of the members of the Mixer tag type appear for the instance of the Add-On Graphic. Bind the Mixer tag path ito Mixer 2 for the second instance of the Add-On Graphic, and so forth.

Later, if Agitator speed is added to the Add-On Instruction, the Agitator tag member appears for all Tank tags in the user-defined type. In View Designer, to depict the agitator on the Add-On Graphic, change the definition of the Tank Add-On Graphic to contain a numeric display, and bind that numeric display to the Agitator member of the Mixer tag type. The agitator and its data then appear on every instance of the Mixer Add-On Graphic.

The benefits of using Add-On Instructions with Add-On Graphics are:

- **Code reuse.** Save time recreating tag types and graphic elements by creating Add-On Instructions with Add-On Graphics.
- **Consistency.** Promote consistency between projects by reusing Add-On Instructions with Add-On Graphics.
- **User friendly interface.** Place complicated algorithms inside an Add-On Instruction and make only essential parameters visible or required. Place complicated visualizations inside an Add-On Graphic and make only essential properties visible.

See also

Change the definition of an Add-On Graphic on page 386

Add-On Graphics on page 375

Create an Add-On Graphic on page 375

Predefined Add-On Graphics

Predefined Add-On Graphics exist in the **Add-On Graphics** folder under **Assets** in the **Project Explorer**. These Add-On Graphics display, zoom, and navigate PDF documents on the HMI device:

- **PDF_Viewer.** Occupies the entire screen of a six-inch or nine-inch HMI device.
- **PDF_Viewer_Landscape.** Occupies the entire screen of a 10-inch HMI device and a portion of larger HMI devices. The PDF_Viewer_Landscape Add-On Graphic is not available on six-inch or nine-inch HMI devices.
- **PDF_Viewer_Portrait.** Occupies half of the screen of an HMI device. The PDF_Viewer_Portrait Add-On Graphic is not available on six-inch or nine-inch HMI devices.

See also

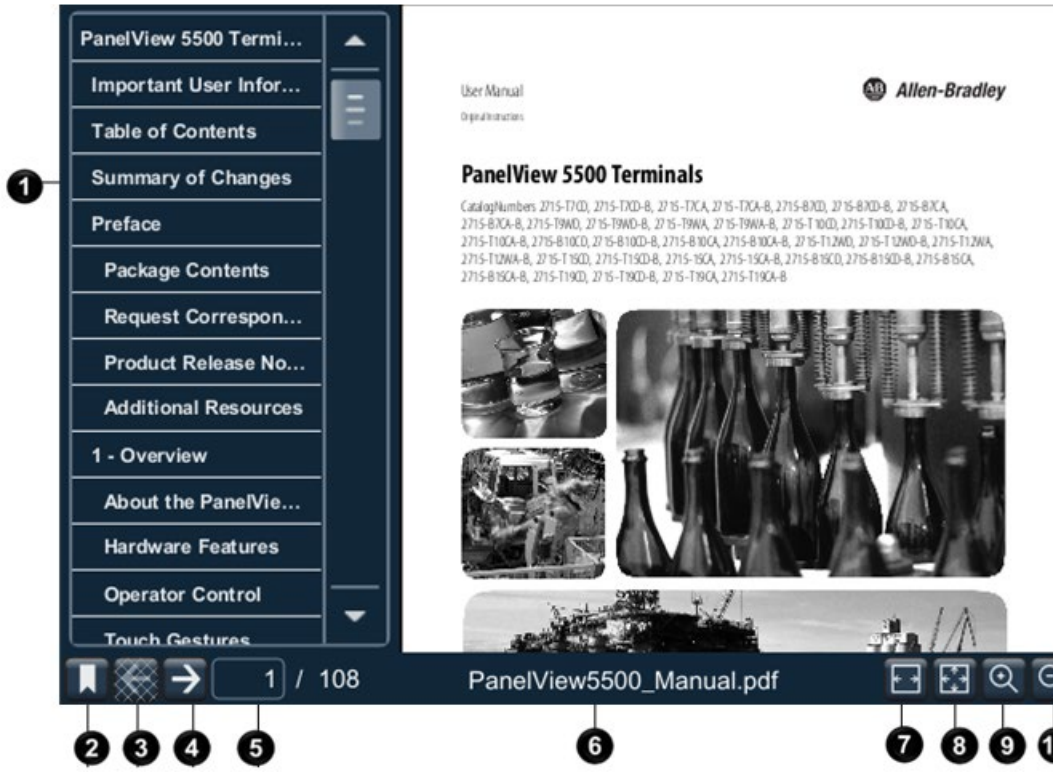
View the default content of a project on page 59

Add an Add-On Graphic to a screen on page 394

Add-On Graphics on page 375

PDF Viewer

On the HMI device, an example PDF_Viewer_Landscape includes:



Item	Description
1	Bookmarks for the PDF document in the PDF_Viewer_Landscape.
2	**Bookmarks** displays the bookmarks of the PDF document. To display bookmarks, configure bookmarks for the PDF before adding the PDF to the View Designer project.
3	**Previous** opens the previous page in the PDF document. If there is no previous page to open, the button appears unavailable.
4	**Next** opens the next page in the PDF document. When on the last page, the button appears unavailable.
5	The open page in the PDF document. Specify a different page number to open a different page in the PDF document.
6	The name of the PDF document in the PDF Viewer.
7	**Fit Width** expands the width of the PDF document to the width of the PDF Viewer.
8	**Fit Window** expands the size of the PDF document to the size of the PDF Viewer.
9	**Zoom In** increases the PDF document magnification by the percentage specified in the event command.
10	**Zoom Out** decreases the PDF document magnification by the percentage specified in the event command.
11	The PDF document specified for the PDF Viewer. In View Designer, the PDF document must exist in the **Documents** folder of the **Project Explorer**.

See also

Select a graphic element on page 759

Trigger action to interact with a screen on page 760

Change the definition of an Add-On Graphic

Every instance of an Add-On Graphic is linked to the definition of the Add-On Graphic in the **Project Explorer**. Changing the definition of an Add-On Graphic changes every instance of the Add-On Graphic in a project. To change the definition of an Add-On Graphic, change the following:

- **Content.** Add, remove, move or resize graphic elements in the Add-On Graphic.
- **Property values.** Change the property values in the **Properties** window for the Add-On Graphic, or change property values for a graphic element in the Add-On Graphic.
- **User-defined properties.** Change user-defined properties in the **Property Definition** tab of the Add-On Graphic.
- **Behavior.** Add animations and events to graphic elements in an Add-On Graphic.

Tips:

- The only way to resize the definition of an Add-On Graphic is to add, remove, or move graphic elements within the definition.
- Changing the size of the definition of an Add-On Graphic by changing content within the definition changes does not affect the size of any instances of the Add-On Graphic.
- Resizing graphic elements in the definition of an Add-On Graphic changes the size of the background of the Add-On Graphic. The graphic elements in the definition of the Add-On Graphic scale in each instance of the Add-On Graphic in the project.
- Change user-defined properties for an instance of an Add-On Graphic.
- Add animations and events to an instance of an Add-On Graphic, or a graphic element within an Add-On Graphic. Adding animations and events to an Add-On Graphic itself is not allowed.
- Changes to the definition of an Add-On Graphic appear in a previously deleted instance of the Add-On Graphic if you delete an instance, change the definition, and then undelete the instance. For example, any changes to the content, an alias, a binding, or a value appear in the undeleted instance of the Add-On Graphic.

See also

Events and Add-On Graphics on page 400

Change the property values for the definition of an Add-On Graphic on page 376

Open the definition of an Add-On Graphic

Open the definition of an Add-On Graphic to add or change the content of the Add-On Graphic. For example, change the property values of graphic elements, the property definitions of the Add-On Graphic, or the behavior of the content of an Add-On Graphic.

To open the definition of an Add-On Graphic

1. In the Project Explorer, expand the **Assets** and **Add-On Graphics** folders.
2. Right-click the Add-On Graphic and select **Open**. You can also double-click the Add-On Graphic. The definition of the Add-On Graphic opens in a separate tab.

Tips:

- Right-click the Add-On Graphic and select **Open** or press **Enter** when the Add-On Graphic is selected to open the definition.
- If an instance of the Add-On Graphic exists on a screen, right-click the Add-On Graphic on the screen or in the **Graphic Explorer** and then select **Open Graphic Definition** to open the definition. The **Open Graphic Definition** option is unavailable for selected groups and multiple selected graphic elements, even if the selection contains an Add-On Graphic.

See also

Create an Add-On Graphic on page 375

Change the definition of an Add-On Graphic on page 386

Close the definition of an Add-On Graphic on page 394

Add-On Graphics on page 375

Add-On Graphic tab

How do I open the Add-On Graphic tab?

In the **Project Explorer**, expand the **Assets** and **Add-On Graphics** folders to navigate to the Add-On Graphic and then perform one of the following:

- Double-click the Add-On Graphic.
- Right-click the Add-On Graphic and then select **Open**.

  A tab with the name of the Add-On Graphic opens.

The **Add-On Graphic** tab displays the definition of an Add-On Graphic. The definition includes:

- Graphic elements contained in the Add-On Graphic.
- Property values, animations, and events of graphic elements contained in the Add-On Graphic.
- User-defined properties for the Add-On Graphic.

Use the **Add-On Graphic** tab to:

- Display the content of the Add-On Graphic.
- Add a graphic element to or remove a graphic element from the Add-On Graphic.
- Move, flip, or rotate a graphic element in the Add-On Graphic.
- Change property values for the Add-On Graphic.
- Change property values for a graphic element in the Add-On Graphic.
- Change property definitions for the Add-On Graphic.
- Add animations or events to a graphic element in the Add-On Graphic.

See also

Open the definition of an Add-On Graphic on page 386

Change the definition of an Add-On Graphic on page 386

Change property values for a graphic element in the definition of an Add-On Graphic on page 389

Propagation of Add-On Graphic changes on page 393

Close the definition of an Add-On Graphic on page 394

Add a graphic element to the definition of an Add-On Graphic

Add-On Graphics are empty by default. Add a single or multiple graphic elements to the definition of the Add-On Graphic. For example, an Add-On Graphic can contain a tank or several tanks, each with its own Numeric Display graphic element. Adding content from the definition of an Add-On Graphic affects every instance of the Add-On Graphic in the project. Rockwell Automation recommends using no more than 500 elements on a screen. Each AOG instance adds the number of elements contained in that AOG toward the recommended limit of 500 elements. For example, assume there is an AOG defined that contains 10 elements. Now assume we instance that AOG 10 times on a screen. That accounts for 100 elements on the screen.

To add a graphic element to the definition of an Add-On Graphic

1. In the Project Explorer, expand the **Assets** and **Add-On Graphics** folders.
2. Double-click the Add-On Graphic. The definition of the Add-On Graphic opens in a separate tab.

   Tips:
   - Right-click the Add-On Graphic and select **Open** or press **Enter** when the Add-On Graphic is selected to open the definition.
   - If an instance of the Add-On Graphic exists on a screen, right-click the Add-On Graphic on the screen or in the **Graphic Explorer** and then select **Open Graphic Definition** to open the definition. The **Open Graphic Definition** option is unavailable for selected groups and multiple selected graphic elements, even if the selection contains an Add-On Graphic.
3. In the **Toolbox**, select a category to display the graphic elements in that category.
4. Drag a graphic element onto the screen of the Add-On Graphic. Double-click a graphic element in the **Toolbox** to add it to the center of the checkered background of the Add-On Graphic.

   Tip:
   - Add-On Graphics are self-contained elements that cannot reference external controllers tags. Adding graphic elements that have internal tag bindings to the definition of an Add-On Graphic results in errors in the **Errors** pane upon project verification. Graphic elements with internal tag bindings include:
     - Alarm Summary
     - Alarm Manager
     - Alarm Indicator
     - Controller Indicator
     - Network Indicator
   - If a graphic element is selected on the Add-On Graphic screen when double-clicking to add another graphic element, the new graphic element appears on top of the selected graphic element.
   - The background of the Add-On Graphic becomes larger when adding graphic elements to the definition.
   - As you add graphic elements to the definition of the Add-On Graphic, any instances of the Add-On Graphic already in the project maintain their current size on the screen but include the additional graphic elements.

   You can now change the property values, binding, animations, and events for a graphic element within the open Add-On Graphic.

5. To close and save the definition of the Add-On Graphic Element on the tab of the open Add-On Graphic Element, select **Close** .

See also

Create an Add-On Graphic on page 375

Delete a graphic element from the definition of an Add-On Graphic on page 392

Change the definition of an Add-On Graphic on page 386

What is an event? on page 476

Animation using a Color Table or State Table on page 401

Change property values for a graphic element in the definition of an Add-On Graphic

Change the properties for a graphic element in the definition of an Add-On Graphic to change the appearance of only that graphic element.

To change property values for a graphic element in the definition of an Add-On Graphic

1. In the Project Explorer, expand the **Assets** and **Add-On Graphics** folders.
2. Double-click the Add-On Graphic. The definition of the Add-On Graphic opens in a separate tab.

   Tips:
   - Right-click the Add-On Graphic and select **Open** or press **Enter** when the Add-On Graphic is selected to open the definition.
   - If an instance of the Add-On Graphic exists on a screen, right-click the Add-On Graphic on the screen or in the **Graphic Explorer** and then select **Open Graphic Definition** to open the definition. The **Open Graphic Definition** option is unavailable for selected groups and multiple selected graphic elements, even if the selection contains an Add-On Graphic.
3. Select the graphic element in the Add-On Graphic. The properties for the selected graphic element appear in the **Properties** window.
4. In the **Properties** window, change the property values.

   Tip: If a graphic element with an aliased property in the definition of an Add-On Graphic is unlinked, the unlinked property is not changed in the instances of the Add-On Graphic.

See also

Change the definition of an Add-On Graphic on page 386

Create a user-defined data type property for an Add-On Graphic on page 378

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

Events tab on page 447

Animations tab on page 435

Resize a graphic element in the definition of an Add-On Graphic

Resize graphic elements within an Add-On Graphic to change the appearance of the Add-On Graphic. Resizing graphic elements may change the size of the definition of the Add-On Graphic. Instances of the resized Add-On Graphic contain the resized graphic element; however, the size of the Add-On Graphic instances does not change.

If resizing graphic elements in the definition of an Add-On Graphic changes the size of the background for the Add-On Graphic, the graphic elements in the definition are stretched to fit in each instance of the Add-On Graphic in the project. Resizing a graphic element in the definition of an Add-On Graphic does not maintain aspect ratio.

To resize a graphic element in the definition of an Add-On Graphic

1. In the Project Explorer, expand the **Assets** and **Add-On Graphics** folders.
2. Double-click the Add-On Graphic. The definition of the Add-On Graphic opens in a separate tab.

   Tips:
   - Right-click the Add-On Graphic and select **Open** or press **Enter** when the Add-On Graphic is selected to open the definition.
   - If an instance of the Add-On Graphic exists on a screen, right-click the Add-On Graphic on the screen or in the **Graphic Explorer** and then select **Open Graphic Definition** to open the definition. The **Open Graphic Definition** option is unavailable for selected groups and multiple selected graphic elements, even if the selection contains an Add-On Graphic.
3. Select a graphic element and resize it like any other graphic element on a screen. The size and position of the graphic element update while dragging to resize the graphic element.

   Tips:

   The Add-On Graphic may resize as graphic elements in the definition are moved:
   - Making a graphic element smaller, when that graphic element is the only graphic element near the border of the background, makes the background of the Add-On Graphic smaller.
   - Making a graphic element larger, so that it appears off the border of the background, makes the background of the Add-On Graphic larger.

See also

Move a graphic element in the definition of an Add-On Graphic on page 390

Change property values for a graphic element in the definition of an Add-On Graphic on page 389

Delete a graphic element from the definition of an Add-On Graphic on page 392

Change the definition of an Add-On Graphic on page 386

Propagation of Add-On Graphic changes on page 393

Move a graphic element in the definition of an Add-On Graphic

Move graphic elements within an Add-On Graphic to change the appearance of the definition of the Add-On Graphic. Move graphic elements in the definition of an Add-On Graphic like any other screen.

Moving a graphic element in the definition of an Add-On Graphic may change the size of the Add-On Graphic. All instances of an Add-On Graphic are updated with the changes to the definition. The size of

instances of an Add-On Graphic do not change. There content in the definition of an Add-On Graphic is stretched to fit the size of the instance.

To move a graphic element in the definition of an Add-On Graphic

1. In the Project Explorer, expand the **Assets** and **Add-On Graphics** folders.
2. Double-click the Add-On Graphic. The definition of the Add-On Graphic opens in a separate tab.

   Tips:
   - Right-click the Add-On Graphic and select **Open** or press **Enter** when the Add-On Graphic is selected to open the definition.
   - If an instance of the Add-On Graphic exists on a screen, right-click the Add-On Graphic on the screen or in the **Graphic Explorer** and then select **Open Graphic Definition** to open the definition. The **Open Graphic Definition** option is unavailable for selected groups and multiple selected graphic elements, even if the selection contains an Add-On Graphic.
3. Select a graphic element and move it like any other graphic element on a screen. The size and position of the graphic element updates when dragging to resize the graphic element. Smart Guides assist in the alignment of graphic elements within the definition of the Add-On Graphic.

   Tips:

   The Add-On Graphic may resize as graphic elements in the definition are moved:
   - Moving a graphic element closer to the center of the definition of the Add-On Graphic when that graphic element is the only graphic element near the edge of the background of the Add-On Graphic makes the Add-On Graphic smaller.
   - Moving a graphic element off the edge of the background of the Add-On Graphic makes the Add-On Graphic larger.

See also

Resize a graphic element in the definition of an Add-On Graphic on page 390

Delete a graphic element from the definition of an Add-On Graphic on page 392

Change the definition of an Add-On Graphic on page 386

Propagation of Add-On Graphic changes on page 393

Copy a graphic element

Copy a graphic element to reuse it on screens within a project or across View Designer projects. Copying a graphic element copies all of its properties, animations, and events. Copy single, multiple, or groups of graphic elements.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a graphic element

1. On the source screen or in the **Graphic Explorer**, right-click the graphic element and then select **Copy**.
   - To select multiple graphic elements or groups, hold **Ctrl** and select the items.
2. On the target screen, right-click the location to paste the items and then select **Paste**.

Tips:
- If the target screen contains a graphic element with the same name, the name of the new graphic element is appended with a number that increments with each copy.
- To cut a graphic element, right-click the graphic element and select **Cut**.
- When copying a graphic element, any localized data associated with the graphic element is also copied.

See also

Graphic Explorer on page 132

Duplicate a graphic element on page 150

Reuse content on page 359

Copy an instance of an Add-On Graphic within a project on page 397

Copy an instance of an Add-On Graphic between projects on page 398

Delete a graphic element from the definition of an Add-On Graphic

Delete a graphic element from the definition of an Add-On Graphic to change the appearance of the Add-On Graphic. The graphic element is removed from every instance of the Add-On Graphic in the project.

Deleting graphic elements may change the size of the Add-On Graphic. The size of Add-On Graphic instances is not affected by deleting a graphic element from the definition. Instances of the Add-On Graphic are scaled to fit the content changed in the definition of the Add-On Graphic.

To delete a graphic element from the definition of an Add-On Graphic

1. In the Project Explorer, expand the **Assets** and **Add-On Graphics** folders.
2. Double-click the Add-On Graphic. The definition of the Add-On Graphic opens in a separate tab.

Tips:
- Right-click the Add-On Graphic and select **Open** or press **Enter** when the Add-On Graphic is selected to open the definition.
- If an instance of the Add-On Graphic exists on a screen, right-click the Add-On Graphic on the screen or in the **Graphic Explorer** and then select **Open Graphic Definition** to open the definition. The **Open Graphic Definition** option is unavailable for selected groups and multiple selected graphic elements, even if the selection contains an Add-On Graphic.

3. Select the graphic element to delete and press **Delete**.

Tip: Deleting the graphic element that is closest to the boundary of the Add-On Graphic causes the background of the Add-On Graphic to resize to fit the remaining graphic elements.

See also

Add a graphic element to the definition of an Add-On Graphic on page 388

Resize a graphic element in the definition of an Add-On Graphic on page 390

Move a graphic element in the definition of an Add-On Graphic on page 390

Change the definition of an Add-On Graphic on page 386

Propagation of Add-On Graphic changes

Changes to the definition of an Add-On Graphic apply to the definition as well as any instances of the Add-On Graphic throughout the project.

Changes to the definition of an Add-On Graphic are propagated throughout a project when:

- Saving the project.
- Closing the definition of the Add-On Graphic.
- Taking focus away from the tab of the Add-On Graphic definition (for example, setting focus on another tab or window in View Designer).

All instances of the Add-On Graphic in the project update to reflect changes to the definition.

Any changes made to an instance of an Add-On Graphic do not affect the definition of the Add-On Graphic or any other instances of the Add-On Graphic.

Changes to the definition of an Add-On Graphic appear in a previously deleted instance of the Add-On Graphic. This occurs when deleting an instance, changing the definition, and then undeleting the instance. Any changes to the content, an alias, a binding, or a value appear in the undeleted instance of the Add-On Graphic.

Changes to size

If the size of the definition of an Add-On Graphic changes when content changes within the definition, this does not change the size of any instances of the Add-On Graphic. The size of instances remains unchanged. The content in the definition of an Add-On Graphic is stretched to fit the size of the instance.

If the size of an instance within the project changes, the size of the other instances in the project are not affected. The size of an Add-On Graphic definition does not change when an instance of an Add-On Graphic is resized.

Changes to user-defined properties

Changes to user-defined properties for the definition of an Add-On Graphic appear in the **Properties** window for the instances of the Add-On Graphic. Changes to user-defined properties appear only for instances of an Add-On Graphic, not the definition of the Add-On Graphic.

Changes to aliased properties

When changing the base property value of an alias for a graphic element in the Add-On Graphic, the change is propagated to an instance of the Add-On Graphic only if that alias on the instance is linked to the definition of the Add-On Graphic. If the instance is not linked to the definition, the instance does not change.

See also

Change the definition of an Add-On Graphic on page 386

Add a graphic element to the definition of an Add-On Graphic on page 388

Change property values for a graphic element in the definition of an Add-On Graphic on page 389

Resize a graphic element in the definition of an Add-On Graphic on page 390

Close the definition of an Add-On Graphic on page 394

Close the definition of an Add-On Graphic

Close an Add-On Graphic like any other screen when changes to the definition of the Add-On Graphic are complete.

To close the definition of an Add-On Graphic

- On the tab of the open Add-On Graphic definition, select **Close** .

See also

Open the definition of an Add-On Graphic on page 386

Change the definition of an Add-On Graphic on page 386

Propagation of Add-On Graphic changes on page 393

Work with instances of an Add-On Graphic

Work with instances of an Add-On Graphic in a project like any other graphic element. Resize, position, group, and copy and paste instances of an Add-On Graphic. Rockwell Automation recommends using no more than 500 elements on a screen. Each AOG instance adds the number of elements contained in that AOG toward the recommended limit of 500 elements. For example, assume there is an AOG defined that contains 10 elements. Now assume we instance that AOG 10 times on a screen. That accounts for 100 elements on the screen.

See also

Add an Add-On Graphic to a screen on page 394

Copy an instance of an Add-On Graphic between projects on page 398

Copy an instance of an Add-On Graphic within a project on page 397

Add an Add-On Graphic to a screen

Add an Add-On Graphic to a screen from either the Toolbox or the Project Explorer. Add no more than 500 elements on a screen. Each Add-On Graphic instance adds the number of elements contained in that Add-On Graphic toward the recommended limit of 500 elements. If there is an Add-On Graphic defined that contains 10 elements and that that Add-On Graphic appears 10 times on a screen, this accounts for 100

elements on the screen. After adding an Add-On Graphic to a screen, change its appearance and behavior by changing the properties of the Add-On Graphic, associating the Add-On Graphic with an animation or event, or binding the Add-On Graphic to a user-defined tag. Directly binding the definition of an Add-On Graphic to a controller tag is not allowed.

Prerequisites

- Verify that the definition of the Add-On Graphic exists in the **Assets > Add-On Graphics** folder of the **Project Explorer**.

  Tips:
  - The **Add-On Graphics** folder contains two predefined Add-On Graphics to display, zoom, and navigate a PDF document on the HMI device:
    - **PDF_Viewer_Landscape.** Occupies the entire screen of an HMI device.
    - **PDF_Viewer_Portrait.** Occupies half of the screen of an HMI device.
  - The PDF_Viewer_Portrait Add-On Graphic is not available on six-inch or seven-inch HMI devices.

To add an Add-On Graphic to a screen

1. In the **Toolbox**, expand the **Add-On Graphic** category.
2. Drag or double-click the Add-On Graphic or press **Enter** when the Add-On Graphic is selected.

   The Add-On Graphic appears on the screen and links to the definition in the **Add-On Graphics** folder.

   Tips:
   - Double-clicking adds the Add-On Graphic to the center of the screen.
   - If a graphic element is selected on the screen when adding the Add-On Graphic, the Add-On Graphic is placed on top of the selected graphic element.
   - If the outline of an empty Add-On Graphic appears on the screen, the definition of the Add-On Graphic is empty. Add graphic elements to the Add-On Graphic by changing the definition of the Add-On Graphic. All instances of the Add-On Graphic update to display the contents of the Add-On Graphic.
   - Add an Add-On Graphic from a different project by copying and pasting the Add-On Graphic between the projects.
   - Search for a known name of the Add-On Graphic to add using the search feature of the **Toolbox**.
   - The name of each Add-On Graphic added to a screen is appended with a number that increments with each instance. For example, MyPlantMixer_002 indicates a second instance of the MyPlantMixer Add-On Graphic on a screen.
   - It is recommended to have no more than 200 Add-On Graphic definitions in a project.
   - To add an Add-On Graphic from the **Project Explorer**, drag the Add-On Graphic from the **Assets > Add-On Graphics** folder to the screen, or right-click the Add-On Graphic and select **Add Add-On Graphic to (screen name)**.

IMPORTANT
- Too much content on screens can result in the HMI device running out of memory. The **Properties** tab displays the size of the image. Use the predefined **HMI Device** screen to monitor memory usage. If the HMI device runs out of memory while running an application, the HMI device restarts and provides an error message indicating that an out-of-memory condition occurred.
- If the computer running View Designer runs out of memory, View Designer shuts down and provides a message indicating that an out-of-memory condition occurred. View Designer retains the last saved version of the project.

See also

Create an Add-On Graphic on page 375

Work with instances of an Add-On Graphic on page 394

Change the properties of a graphic element on page 139

Resize a graphic element on page 144

Reuse Add-On Graphics on page 402

Change the properties of a graphic element

Change the attributes of a graphic element or Add-On Graphic, such as position and size, using the **Properties** tab in the **Properties** window.

To change the properties of a graphic element

1. On the screen or in the **Graphic Explorer**, select the graphic element.
   - To select multiple elements, press and hold **Ctrl** while selecting each graphic element.
   - To select all of the graphic elements, press **Ctrl+A.**
2. In the **Properties** window, select the **Properties** tab to display the properties for the selected graphic element

   Tip: Select multiple instances of Add-On Graphics to change the properties common to each instance instead of having to select and change the property values of each Add-On Graphic instance individually.
3. Change any or all of the properties:
   - Type or select a value.
   - Bind the property to a data item.

See also

Add an Add-On Graphic to a screen on page 394

Properties tab on page 494

Graphic Explorer on page 132

Bind a property to a data item on page 508

Propagation of Add-On Graphic changes on page 393

Resize a graphic element

Resize any graphic element or instance of an Add-On Graphic. The Height and Width values of a resized graphic element appear in the **Properties** tab.

To resize a graphic element

1. Select the graphic element to resize.
2. Position the cursor on a sizing handle until it turns into a double-arrow.
   - To change the width or height of a graphic element, drag a side sizing handle.

- To change both the width and height of a graphic element, drag a corner sizing handle.
- To maintain the aspect ratio between width and height, hold **Shift** as you drag a sizing handle.
- To maintain the center point of a graphic element, hold **Alt** as you drag a sizing handle.
- To maintain the aspect ratio and center point of a graphic element, hold **Shift+Alt** as you drag a corner sizing handle.
- To resize the text within a graphic element while you resize the graphic element, hold **Ctrl** as you drag a sizing handle.

Tips:

- A tooltip shows the height and width of the graphic element as you resize it.
- The font size configured for a graphic element with a text value determines the height of the graphic element. If you resize or rotate a Text Input graphic element, the font size does not change.
- If you resize an element while multiple graphic elements are selected, each element is resized and the proportion is maintained. The height and width shown in pixels are for the selection you are resizing.
- Resizing an instance of an Add-On Graphic scales the text of any graphic element contained in the definition of the Add-On Graphic.
- Changing the size of an instance of an Add-On Graphic does not change any other instance of the Add-On Graphic in the project. The proportion of each graphic element within the Add-On Graphic is maintained as the instance of the Add-On Graphic is resized. Resizing an instance of an Add-On Graphic does not affect the definition of the Add-On Graphic.

See also

Add an Add-On Graphic to a screen on page 394

Graphic Explorer on page 132

Group graphic elements on page 151

Lock or unlock graphic elements on page 132

Work with groups on page 313

Copy an instance of an Add-On Graphic within a project

Copy an instance of an Add-On Graphic to reuse the Add-On Graphic in the same project. Copying multiple instances of Add-On Graphics that are linked to different Add-On Graphic definitions is allowed. Copied instances of Add-On Graphics may be contained in groups.

When copying the instance of an Add-On Graphic within a project, the instance is linked to the existing definition of the Add-On Graphic.

To copy an instance of an Add-On Graphic within a project

1. On the screen, right-click the Add-On Graphic instance and select **Copy**.
2. Open the target screen.
3. Right-click the screen canvas and select **Paste**. Another instance of the Add-On Graphic is created and copied to the screen.

Tips:

- Pasting an instance of an Add-On Graphic for which there is no definition is not allowed. Pasting an instance of an Add-On Graphic is not supported when deleting the definition of the Add-On Graphic before pasting the instance.
- Copying an instance of an Add-On Graphic that is linked to an Add-On Graphic definition that contains an image, does ont create a new image asset in the **Assets > Images** folder in the **Project Explorer**.

Any changes to an instance of an Add-On Graphic do not affect any other instances of the Add-On Graphic.

See also

Add an Add-On Graphic to a screen on page 394

Work with instances of an Add-On Graphic on page 394

Copy the definition of an Add-On Graphic between projects on page 381

Rename an Add-On Graphic on page 380

Copy an instance of an Add-On Graphic between projects

Copy an instance of an Add-On Graphic between projects to reuse the Add-On Graphic in another project. Copied instances of Add-On Graphics may be contained in groups.

Add-On Graphics must have unique names. Copying an instance of an Add-On Graphic between projects copies the definition of the Add-On Graphic. If a definition of an Add-On Graphic with the same name already exists in the target project, keep both Add-On Graphic definitions, replace the existing Add-On Graphic definition, or choose not to paste the Add-On Graphic definition.

To copy an instance of an Add-On Graphic between projects

1. Open the source project and screen containing the Add-On Graphic to copy.
2. On the screen, right-click the Add-On Graphic and select **Copy**.
3. Open the target project and screen to contain the pasted Add-On Graphic.
4. Right-click the screen canvas in the target project and then select **Paste**.

   Tip: If the instance of the Add-On Graphic is linked to a definition of an Add-On Graphic that does not exist in the target project, the definition is added to the **Add-On Graphics** folder, and the Add-On Graphic is added to the **Toolbox** of the target project.
5. Pasting an instance of an Add-On Graphic in a different project where a definition of an Add-On Graphic has the same name displays options:
   - **Keep Both.** Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the **Add-On Graphics** folder and the Add-On Graphic appears in the **Toolbox**.
   - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any existing instances of the Add-On Graphic are updated with the new definition of the Add-On Graphic.

- **Cancel.** Do not paste the copied Add-On Graphic definition into the project. Paste the instance of the Add-On Graphic into the target project and link the instance to the existing Add-On Graphic definition with the same name.

  Tip:
  - When copying multiple Add-On Graphics that are linked to multiple Add-On Graphic definitions that have the same names as existing Add-On Graphic definitions in the target project, select the **Do this for the x remaining items** checkbox to apply the selected option to each copied Add-On Graphic definition.
  - When copying the definition of an Add-On Graphic that has an image that exists in the source and target projects, replace the image or cancel. Images are copied to the **Assets > Images** folder of the **Project Explorer**.

Change the properties and behavior of the Add-On Graphic in the target project. Any changes to an instance of an Add-On Graphic do not affect any other instances of the Add-On Graphic.

See also

Change the properties of a graphic element on page 139

Copy the definition of an Add-On Graphic between projects on page 381

Resize a graphic element on page 144

Copy the definition of an Add-On Graphic between projects

Copy the definition of an Add-On Graphic between projects to reuse the Add-On Graphic in another project. The content, properties, and behavior of the Add-On Graphic definition are copied. Any changes to the definition of the Add-On Graphic are copied to every instance of the Add-On Graphic in the project.

Add-On Graphics must have unique names. When copying the definition of an Add-On Graphic with the same name between projects, keep both Add-On Graphic definitions, replace the existing Add-On Graphic definition, or choose not to paste the Add-On Graphic definition.

Contents of the Add-On Graphic are handled in the same manner as the contents of any other screen copied between projects.

To copy the definition of an Add-On Graphic between projects

1. Open the project containing the Add-On Graphic to copy.
2. In the **Project Explorer,** expand the **Assets** folder.
3. Expand the **Add-On Graphics** folder.
4. Right-click the Add-On Graphic to copy and select **Copy**.
5. Open the project where to contain the pasted Add-On Graphic.
6. In the **Project Explorer,** expand the **Assets** folder.
7. Expand the **Add-On Graphics** folder.
8. Right-click the **Add-On Graphics** folder and select **Paste**.

   If a definition of an Add-On Graphic with the same name does not already exist in the project, the definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
9. Pasting the definition of the Add-On Graphic in a different project where an Add-On Graphic definition with the name already exists displays options:

- **Keep Both**. Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
- **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On Graphic are updated with the new definition of the Add-On Graphic.
- **Cancel.** Do not paste the copied Add-On Graphic definition into the project.

Tips:

- Replacing an alias property in the definition of an Add-On Graphic as a result of a paste when that alias is linked in an instance displays the alias property in the **Properties** window of the instance. The alias remains linked to the value of the base property in the definition.
- Replacing an alias property in the definition of an Add-On Graphic as a result of a paste when that alias is unlinked in an instance displays the alias property in the **Properties** window of the instance. The alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
- Copying the definition of an Add-On Graphic that has an image that exists in both the source and target projects displays a prompt to replace the image or cancel. Images in a copied Add-On Graphic appear in the **Assets > Images** folder of the **Project Explorer**.

The Add-On Graphic is available for use in the project.

See also

Work with instances of an Add-On Graphic on page 394

Copy the definition of an Add-On Graphic within a project on page 380

Change the property values for the definition of an Add-On Graphic on page 376

Rename an Add-On Graphic on page 380

Events and Add-On Graphics

Add events to an instance of an Add-On Graphic on a screen or to a graphic element in the definition of an Add-On Graphic. As with groups, events for the content in the definition of an Add-On Graphic trigger in a specific order.

Adding events to an Add-On Graphic in the **Toolbox** is not allowed. Selecting an Add-On Graphic in the **Toolbox** does not show the the **Events** tab in the **Properties** window.

Events created for an instance of an Add-On Graphic take precedence over events created for a graphic element within the definition of the Add-On Graphic. For example, if the same event type exists in both the definition of an Add-On Graphic and an instance of that Add-On Graphic, the event for the instance of the Add-On Graphic is performed on the HMI device.

See also

In what order are touch events triggered? on page 478

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a State Enter or State Exit event on page 454

Trigger an action on a Touch Press or a Touch Release event on page 453

Animation using a Color Table or State Table

A **Color Table** or **State Table** searches its list of states from top to bottom for the first state that matches the value of the input expression. Rules applied to how the value of the input expression is compared to the Expression Values in the table include:

- Integer numbers containing 15 digits or less are compared to Expression Values directly.
- Integer numbers containing more than 15 digits are rounded to a 15-significant-digit double value in Engineering Format and then compared to the Expression Value.
- Floating point numbers are rounded to five significant digits and then compared to Expression Values using fuzzy comparison.
- Strings are compared to the actual content of the Expression Value.

Using a **Color Table** or a **State Table** can affect more than one property simultaneously when the tag value or expression changes. Create **Color Tables** and **State Tables** on the **Animations** tab in the **Properties** window. The tables are similar in design and behavior, but the **Color Table** is used exclusively for color animation.

- Use a **Color Table** to affect only the color properties of a graphic element. This option is available on the **Animations** tab only if the selected graphic element has a color property. Unlike **State Tables**, **Color Tables** cannot be used with State Enter or State Exit events.
- Use a **State Table** to affect the Appearance, Position and Size, or General properties of a graphic element or to drive an animation with a State Enter or a State Exit event.

Use multiple **State Tables** and **Color Tables** for a graphic element or screen.

The tables reduce the need for custom scripting. To animate a graphic element, select the element and use a **State Table** or a **Color Table** to:

- Set the condition to drive the animation. The condition is the input to the state table. Bind directly to a tag or build an expression using the integrated **Expression Editor**. Use numeric, range, and/or string values within the same table.
- Identify the states the animation is to indicate, such as running, stopped, or temperature levels.
- Select the properties of the graphic element to affect for each state, such as FillColor or Visibility. Only the properties to animate are available. Select multiple properties.
- Specify the value to trigger the animation associated with each state (Expression Value).

Whenever the input value to a **Color Table** or a **State Table** changes, the table searches the Expression Values from top to bottom. The first

Expression Value that matches the input value triggers the corresponding color or state change.

If the input value does not match any of the Expression Values, the animation uses the values in the Default row of the table. The Default values reflect the values of their corresponding properties in the **Properties** tab. Changing the value of the property in the **Properties** tab changes its value in the Default row of the **Color Table**. The Default row cannot be edited or removed.

IMPORTANT
- Do not use a **State Table** or **Color Table** to modify a property that is already bound to a tag or expression. This can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
- Modifying a property across multiple **State Tables** or **Color Tables** can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
-

See also

Animation using property binding on page 442

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Bind a color property to a tag or expression on page 500

How the output value of a Color Table or a State Table is calculated on page 443

Reuse Add-On Graphics

Assume a plant has 50 tanks. Depicting the plant requires 50 tank graphic elements. This requires a tank graphic element, a text display, and a value display for each tank. Create an Add-On Graphic that contains all three graphic elements and then reuse that Add-On Graphic 50 times to avoid changing the tag bindings on each instance of the Add-On Graphic.

To reuse an Add-On Graphic and not change tag bindings for each instance, create user-defined properties. User-defined properties act as placeholders for the values to pass from the instances of the Add-On Graphic to the definition of the Add-On Graphic. These values appear on the HMI device.

There are several different methods to reuse Add-On Graphics:

- User-defined data type property. A property in the definition of an Add-On Graphic tied to a specific data type in a controller. Bind a graphic element in the definition of the Add-On Graphic to a member of the data type. Then from Properties window in an instance of the Add-On Graphic, bind to an instance of the Logix data type. The binding passes the tag from the instance of the specified Logix data type to the instance of the Add-On Graphic. The Add-On Graphic displays the value on the HMI device.
- Alias property. A user-defined property in the definition of an Add-On Graphic that appears in the Properties window of an instance of the Add-On Graphic. Alias a property within the definition of an Add-On Graphic so the property appears in an

instance of the Add-On Graphic where the value can change. View Designer passes the value of the aliased property to the instance of the Add-On Graphic. The Add-On Graphic displays the value on the HMI device.

- Property to property binding. Bind the properties of one graphic element in the definition of an Add-On Graphic to the properties of another graphic element in the definition. The graphic elements in the definition can show the same value in different formats. For example, bind the Value property of a Numeric Display graphic element to the FillLevel property of a tank graphic element, and bind the FillLevel property of the tank to the tag that represents the fill level of the tank. The fill level displays graphically and numerically on the HMI device.

See also

User-defined data type property binding for an Add-On Graphic on page 410

User-defined alias property for an Add-On Graphic on page 413

Property to property binding in an Add-On Graphic on page 405

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic

Bind the properties of different graphic elements in the definition of an Add-On Graphic. Property to property binding shows the same value on different graphic elements, showing the value in different formats. For example, show the level property for a mixer graphic element and a numeric display so the level appears graphically and numerically on the HMI device.

A controller tag must be passed to a user-defined data type property in the definition of the Add-on Graphic. For example, bind the Value property of a Numeric Display graphic element to the FillLevel property of a tank graphic element, and bind the FillLevel property of the tank to the tag that represents the fill level of the tank. The fill level displays graphically and numerically on the HMI device.

To bind properties of graphic elements in an Add-On Graphic

1. In the **Property Definition** tab of the Add-On Graphic, type a name for the user-defined property in the **Name** box.

   Tip: If the **Property Definition** tab is not open, below the screen, select **Expand**.

2. Select the **Data Type** box and select **Select data type**. The **Data Type Browser** opens.
3. Select a data type:
   - **User-Defined.** A structure data type defined in Logix Designer.
   - **Predefined.** An atomic or structure data type defined by a controller.
   - **Module-Defined.** A structure data type defined by a module when creating the module. Tags of these types store input, output, and configuration data for the module.

The data type is used as a filter criteria for the **Data Type Browser**. Only items in the Logix Designer project (.acd) file that meet the filter criteria appear when opening the **Tag Browser**.

4. Select the drill-in arrow next to a controller.
5. Navigate to the desired level in the controller and select the data type.
6. (optional) In the **Description** column, type a description for the property to appear when hovering over the property on the **Properties** window.
7. In the **Category** column, type the category where the property is to appear in the **Properties** window for an instance of the Add-On Graphic.
8. Select a graphic element in the definition of the Add-On Graphic.
9. In the property to bind to the selected graphic element, browse to select the user-defined data type property, and then navigate to select the member with the value to show on an instance of the Add-On Graphic.

   Tips:
   - Selecting a user-defined data type displays all of the members within the property and any nested properties. Expand a nested user-defined data type to display all of the members of the nested data type.
   - To type the binding, use the format:
     PropertyName.Member
     For example, if the user-defined data type is named MixerTag and the data type in the controller has a Level member that is the value to show on the Add-On Graphic, type MixerTag.Level.

10. Select another graphic element in the definition of the Add-On Graphic.
11. In the same property as the first graphic element, select **Browse** to browse to and select the name of the same member to which the first graphic element is bound. When typing the binding, use the format ElementName.PropertyName. For example, to bind to the level of a first graphic element named MixingSideHopper, browse to or type the binding MixingSideHopper.Level.

    Tips:
    - When binding to a property, do not bind to properties within a category. For example, binding to the Color, Style, and Width under the Border category is not supported.
    - To ensure accuracy of the graphic element name when binding the second graphic element, copy the name of the first graphic element from the **Name** box in the **Properties** window of the first graphic element.

12. Add an instance of the Add-On Graphic to a screen.
13. In the **Properties** window for the instance, expand the category of the user-defined property and then in the user-defined property, browse to select the controller tag.

    On the HMI device, the Add-On Graphic shows the value of the controller tag.

See also

Property to property binding in an Add-On Graphic on page 405

Reuse Add-On Graphics on page 402

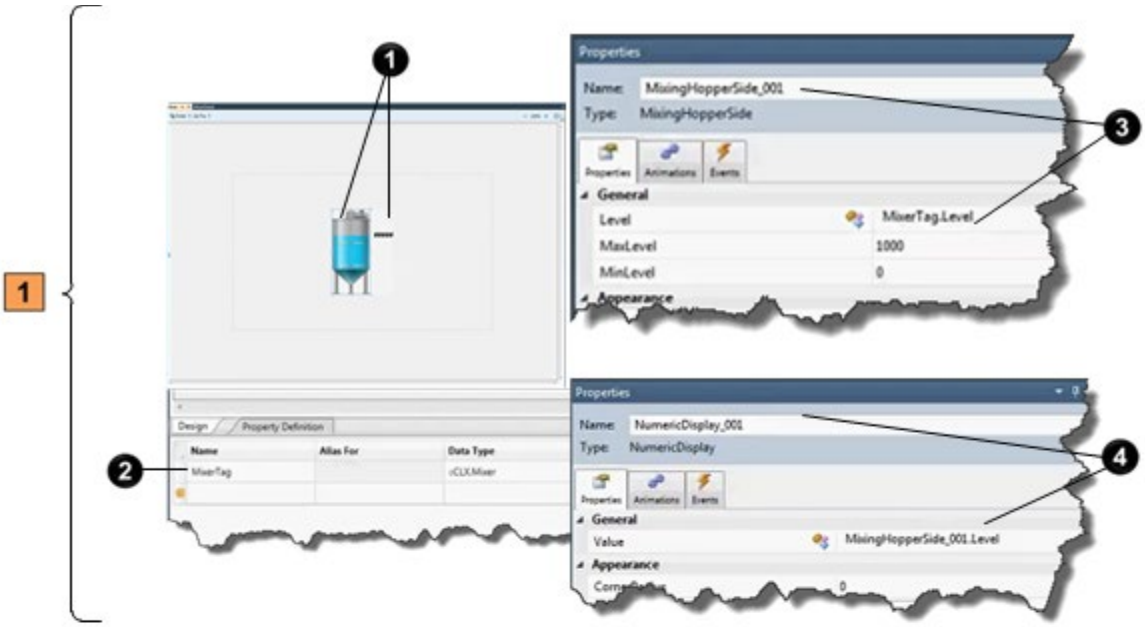
Controller tags and Add-On Graphics on page 420

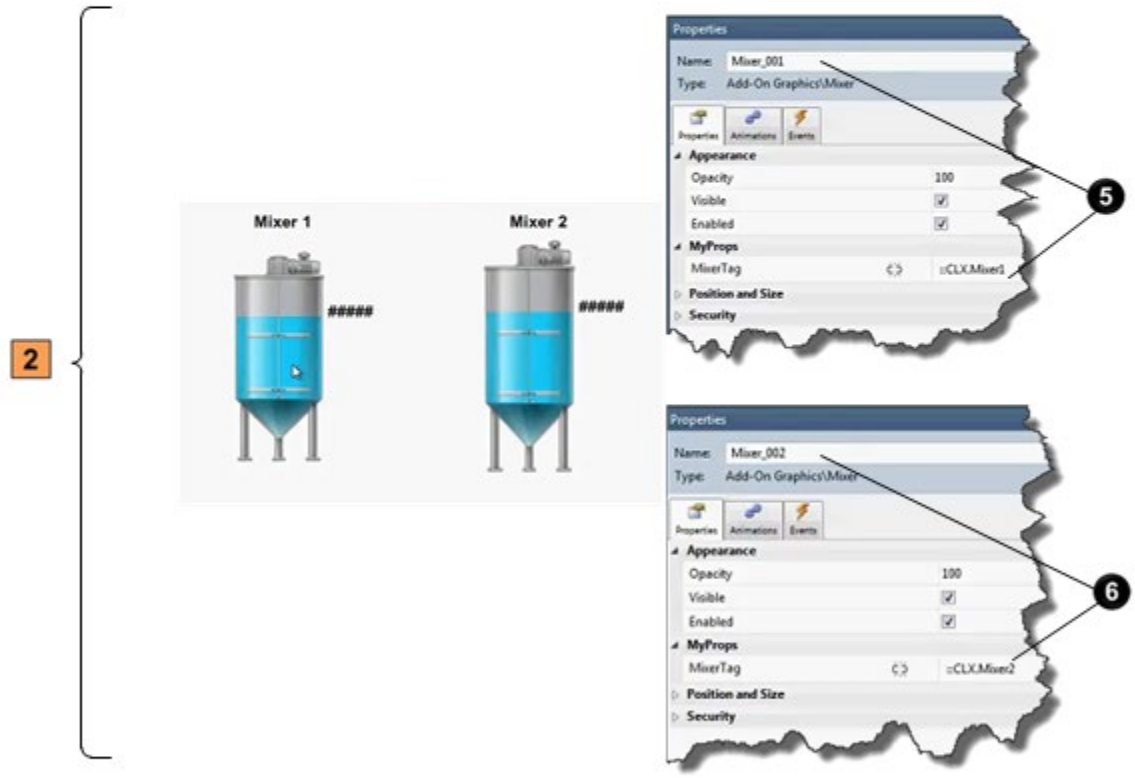
Create a user-defined data type property for an Add-On Graphic on page 378

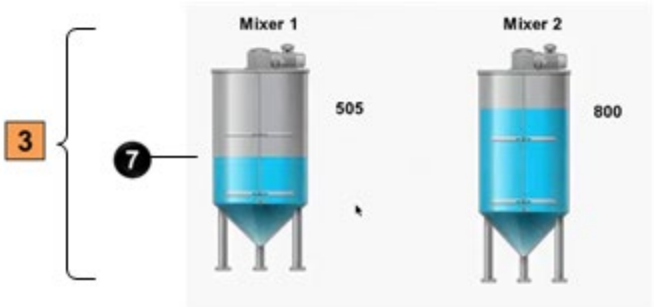
What is binding? on page 502

Property to property binding in an Add-On Graphic

This example depicts property to property binding within the definition of an Add-On Graphic. Property to property binding binds the property of one graphic element to another graphic element in the definition. Even if the graphic elements display a value in different formats, the graphic elements show the same value on the HMI device. In this example, a user-defined data property exists for the level of a mixer graphic element in the definition of an Add-On Graphic. Binding the property of the numeric display to the Level property of the mixer then shows the level graphically on the mixer, and numerically on a numeric display.


1
2
3
4
Properties
Name: MixingHopperSide_001
Type: MixingHopperSide
General
Level
MixerTag.Level
MaxLevel
1000
MinLevel
0
Appearance
Design
Property Definition
Name
Alias For
Data Type
MixerTag
Properties
Name: NumericDisplay_001
Type: NumericDisplay
General
Value
MixingHopperSide_001.Level
Appearance


2
5
6
Mixer 1
Mixer 2
#####
#####
Properties
Name: Mixer_001
Type: Add-On Graphics\Mixer
Appearance
Opacity
100
Visible
Enabled
MyProps
MixerTag
CLX.Mixer1
Position and Size
Security
Properties
Name: Mixer_002
Type: Add-On Graphics\Mixer
Appearance
Opacity
100
Visible
Enabled
MyProps
MixerTag
CLX.Mixer2
Position and Size
Security


3
7
Mixer 1
Mixer 2
505
800

1 Add-On Graphic definition

Item	Description
1	The definition of an Add-On Graphic containing two graphic elements. In this example, there is one mixing hopper and one numeric display in the definition.
2	A user-defined data type property for the definition of the Add-On Graphic. User-defined properties include: • **Name.** The name of the user-defined property. In this example, the name of the user-defined property is MixerTag. • **Data Type.** The data type of the user-defined property. This is the data type in the controller. Browse to the controller and data type. In this example, the data type is Mixer. • **Description.** An optional description for the user-defined property. This description appears as a tooltip when hovering over the box in the **Properties** window for an instance of the Add-On Graphic. • **Category**. The category where the user-defined property appears in the **Properties** window for an instance of the Add-On Graphic.
3	The properties of MixingHopperSide_001 when that graphic element is selected in the definition. The Level property of the mixing hopper is bound to the user-defined data property and the Level member of the Mixer data type in the user-defined property. Type or browse to create the binding. Use the format PropertyName.Member. The value of the Level member shows on the mixing hopper on the HMI device.
4	The properties of NumericDisplay_001 when that graphic element is selected in the definition. The Value property of the numeric display is bound to the mixing hopper graphic element in the definition. The binding is the name of the graphic element followed by the member that has the value to show on the numeric display. The format is ElementName.Member. The value of the Level member shows on the numeric display on the HMI device.

2 Add-On Graphic instances

Item	Description
5	The **Properties** window for the Mixer_001 Add-On Graphic instance. The instance is bound to the Mixer1 controller tag. The Mixer1 tag is passed to the definition of the Add-On Graphic. The Level member applied to the graphic elements in the definition of the Add-On Graphic show the level for Mixer1 on the HMI device.
6	The **Properties** window for the Mixer_002 Add-On Graphic instance. The instance is bound to the Mixer2 controller tag. The Mixer2 tag is passed to the definition of the Add-On Graphic. The Level member applied to the graphic elements in the definition of the Add-On Graphic show the level for Mixer2 on the HMI device.

3 Add-On Graphics on HMI device

Item	Description
7	Each Add-On Graphic shows the level of the mixer.

See also

Reuse Add-On Graphics on page 402

Controller tags and Add-On Graphics on page 420

Create a user-defined data type property for an Add-On Graphic on page 378

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

Bind an Add-On Graphic to a user-defined data type property

Create a user-defined data type property to bind an Add-On Graphic to a controller tag. An Add-On Graphic element cannot bind directly to a controller tag. All projects do not reference the same controllers, and View Designer allows reusing Add-On Graphics between projects.

To bind an Add-On Graphic to a user-defined data type property

1. In the **Property Definition** tab of the Add-On Graphic, type a name for the user-defined property in the **Name** box.

   Tip: If the **Property Definition** tab is not open, below the screen, select **Expand** .

2. Select the **Data Type** box and select **Browse** to select a data type:
   - **User-Defined.** A structure data type defined in Logix Designer.
   - **Predefined.** An atomic or structure data type that is defined by the controller.
   - **Module-Defined.** A structure data type defined by a module when you create it. Tags of these types are created to store input, output, and configuration data for the module.

   The data type is used as a filter criteria for the **Tag Browser**. Only items in the Logix Designer project (.acd) file that meet the filter criteria appear when opening the **Tag Browser**.
3. (optional) In the **Description** column, type a description for the property to appear when hovering over the property on the **Properties** window.
4. In the **Category** column, type the category where the property will appear in the **Properties** window for an instance of the Add-On Graphic.
5. Select a graphic element in the definition of the Add-On Graphic.
6. In the property to bind to the selected graphic element, select **Browse** to select the user-defined data type property, and then navigate to select the member of the property.

   Tips:
   - Selecting a user-defined data type displays all of the members within the property as well as any nested properties. Expand a nested user-defined data type to display all of the members of the nested data type.
   - View Designer does not support browsing to an .@AlarmSet member of a data type property for an Add-On Graphic. Manually enter .@AlarmSet members when binding within an Add-On Graphic.
   - To type the binding instead of browsing to it, use the format:
     PropertyName.Member
     For example, if the user-defined data type property is named MixerTag and the data type in the controller has a Level member that is the value to show, type MixerTag.Level.
7. Add an instance of the Add-On Graphic to a screen.
8. In the **Properties** window of the instance, expand the category of the user-defined property.
9. In the user-defined property, select **Browse** to select an instance of the data type (for example, Mixer1), or a controller tag.

   On the HMI device, the Add-On Graphic shows the value of the controller tag.

See also

Reuse Add-On Graphics on page 402

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

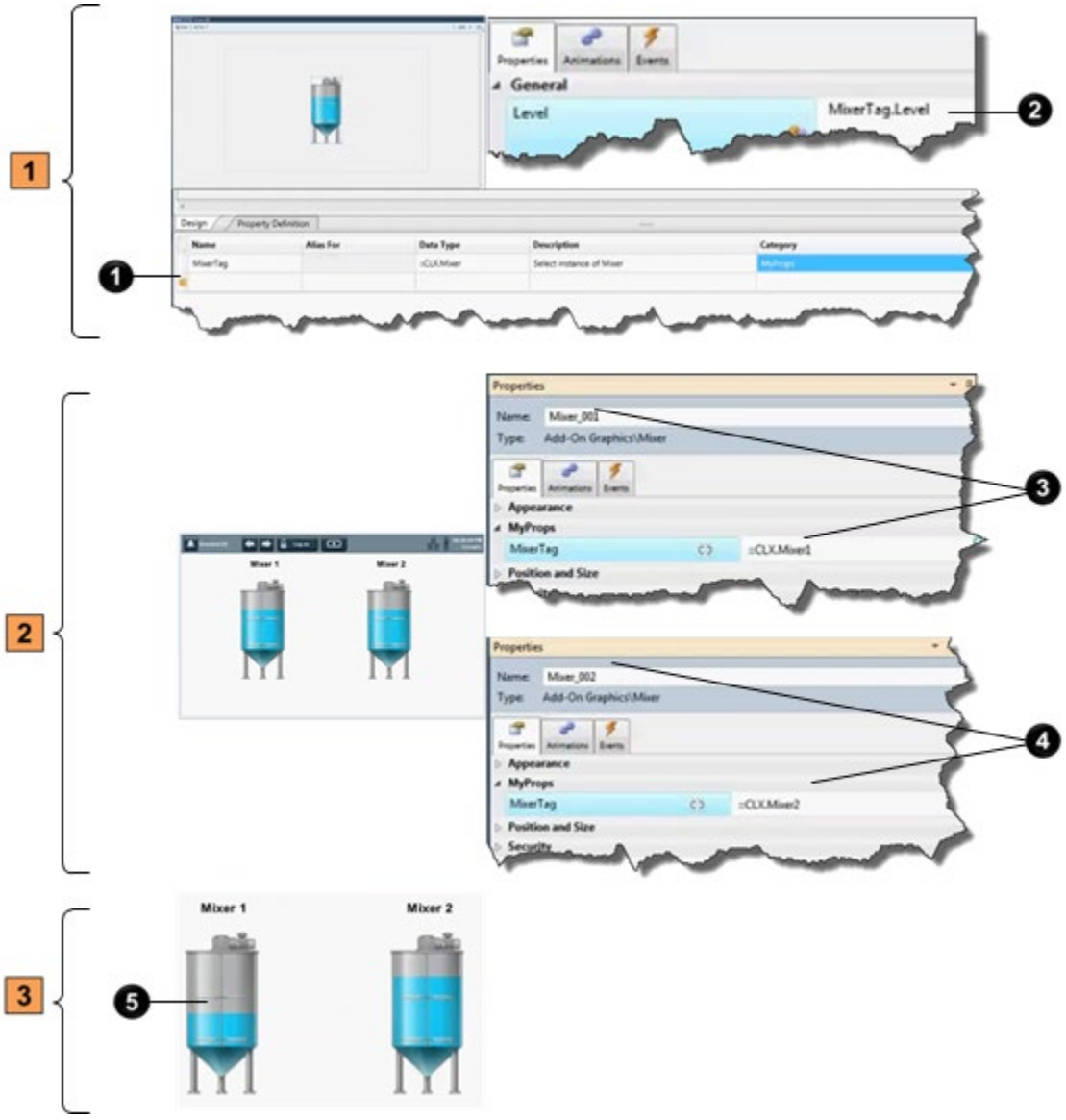
User-defined data type property binding for an Add-On Graphic on page 410

Property Definition tab on page 361

User-defined property on page 370

User-defined data type property binding for an Add-On Graphic

This example depicts a user-defined data type that is bound to a property in an instance of an Add-On Graphic to a controller tag. It shows how the instance of the Add-On Graphic passes the controller tag to the user-defined data type property in the definition of the Add-On Graphic. The data type and member specified in the definition then shows the value on the HMI device.



1 Add-On Graphic definition

Item	Description
1	A user-defined data type property for the definition of the Add-On Graphic. User-defined properties appear in the **Tag Browser** when browsing for tags for an instance of an Add-On Graphic. User-defined properties include: • **Name.** The name of the user-defined property. In this example, the name of the user-defined property is MixerTag. • **Data Type.** The data type of the user-defined property. This is the data type in the controller. Select **Select data type** ... to navigate to the controller and data type. In this example, the data type is Mixer. • **Description.** An optional description for the user-defined property. This description appears as a tooltip when hovering over the property in the **Properties** window for an instance of the Add-On Graphic. • **Category**. The category where the user-defined property appears in the **Properties** window for an instance of the Add-On Graphic.
2	The binding for a selected graphic element in the definition of the Add-on Graphic. Type or browse to the name of the user-defined data type property and the member of a tag in the data type. In this example, the member is the Level. The value of the level shows on the HMI device.

2 Add-On Graphic instances

Item	Description
3	The **Properties** window for the Mixer_001 Add-On Graphic instance. The instance is bound to the Mixer1 tag. The Mixer1 tag is passed to the definition of the Add-On Graphic. The Level member applied to the graphic element in the definition of the Add-On Graphic then shows the level for Mixer1 on the HMI device.
4	The **Properties** window for the Mixer_002 Add-On Graphic instance. The instance is bound to the Mixer2 tag. The Mixer2 tag is passed to the definition of the Add-On Graphic. The Level member applied to the graphic element in the definition of the Add-On Graphic then shows the level for Mixer2 on the HMI device.

3 Add-On Graphics on HMI device

Item	Description
5	The Add-On Graphics on the HMI device. Each shows the level of the respective mixer.

See also

Reuse Add-On Graphics on page 402

Create a user-defined data type property for an Add-On Graphic on page 378

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

Property to property binding in an Add-On Graphic on page 405

Change a user-defined property

After creating a user-defined property, it appears on the **Property Definition** tab and the **Properties** tab for the screen or popup. User defined properties created for the definition of an Add-On Graphic appear on the **Properties** tab for an instance of the Add-On Graphic.

Use the **Property Definition** tab to change the definition of a user-defined property. Use the **Properties** tab to change the value of a user-defined property rather than the property itself.

To change a user-defined property

1. Select the screen, Add-On Graphic definition, or popup that contains the user-defined property to change.
2. Make changes to the property:
   - Use the **Property Definition** tab to change the Name, Data Type, Description, or Category of the user-defined property.
   - Use the **Properties** tab to change the value or binding.

   Changes to user-defined properties take effect immediately and are saved when the project is saved.

   Tip: A value or binding for an Add-On Graphic cannot change on the **Properties** tab for the definition of an Add-On Graphic. Change a value or binding for an instance of the Add-On Graphic on the **Properties** tab.

See also

Property Definition tab on page 361

Create a user-defined property with a data type on page 365

Delete a user-defined property on page 370

User-defined property on page 370

Remove a binding on page 513

Alias a property in an Add-On Graphic

Alias a property in the definition of an Add-On Graphic to specify a unique value for the property on an Add-On Graphic instance. Otherwise, the property does not appear on an instance of the Add-On Graphic. Reuse the Add-On Graphic by changing the value of the aliased property on an instance of an Add-On Graphic.

To alias a property in an Add-On Graphic

1. In the definition of the Add-On Graphic, select a graphic element.
2. In the **Properties** window for the selected graphic element, right-click the property to alias and select **New Alias**. This creates an alias property in the **Property Definition** tab below the definition of the Add-On Graphic.

   Tip: View Designer allows creating an alias for a property only if the property is not bound.
3. In the **Name** column, type the name of the alias to appear in the **Properties** window of an instance of the Add-On Graphic.

   Tips:
   - By default, the name of the aliased property in the **Property Definition** tab is the name of the property appended with _001 or increment number.
   - The **Alias For** column automatically specifies the selected graphic element name and property. The format for the alias is ElementName.PropertyName. For example, if the selected graphic element is a mixing hopper and the aliased property is LevelColor, the **Alias For** column displays MixingHopperSide_001.LevelColor.

4. (optional) In the **Description** column for the aliased property in the **Property Definition** tab, enter a description for the aliased property.
5. In the **Category** column for the aliased property, type the category in which the aliased property is to appear in the **Properties** window for an instance of the Add-On Graphic.
6. Add instances of the Add-On Graphic to a screen.
7. In the **Properties** window for each instance, expand the category for the aliased property and then enter a value for the property.

   Tips:
   - Creating more than one alias for the same property of a graphic element is not supported.
   - Binding the property of a graphic element or Add-on Graphic instance to an alias of a screen, popup or Add-On Graphic definition is not allowed

   Each instance of the Add-On Graphic shows the value of the aliased property on the HMI device.

See also

User-defined alias property for an Add-On Graphic on page 413

Reuse Add-On Graphics on page 402

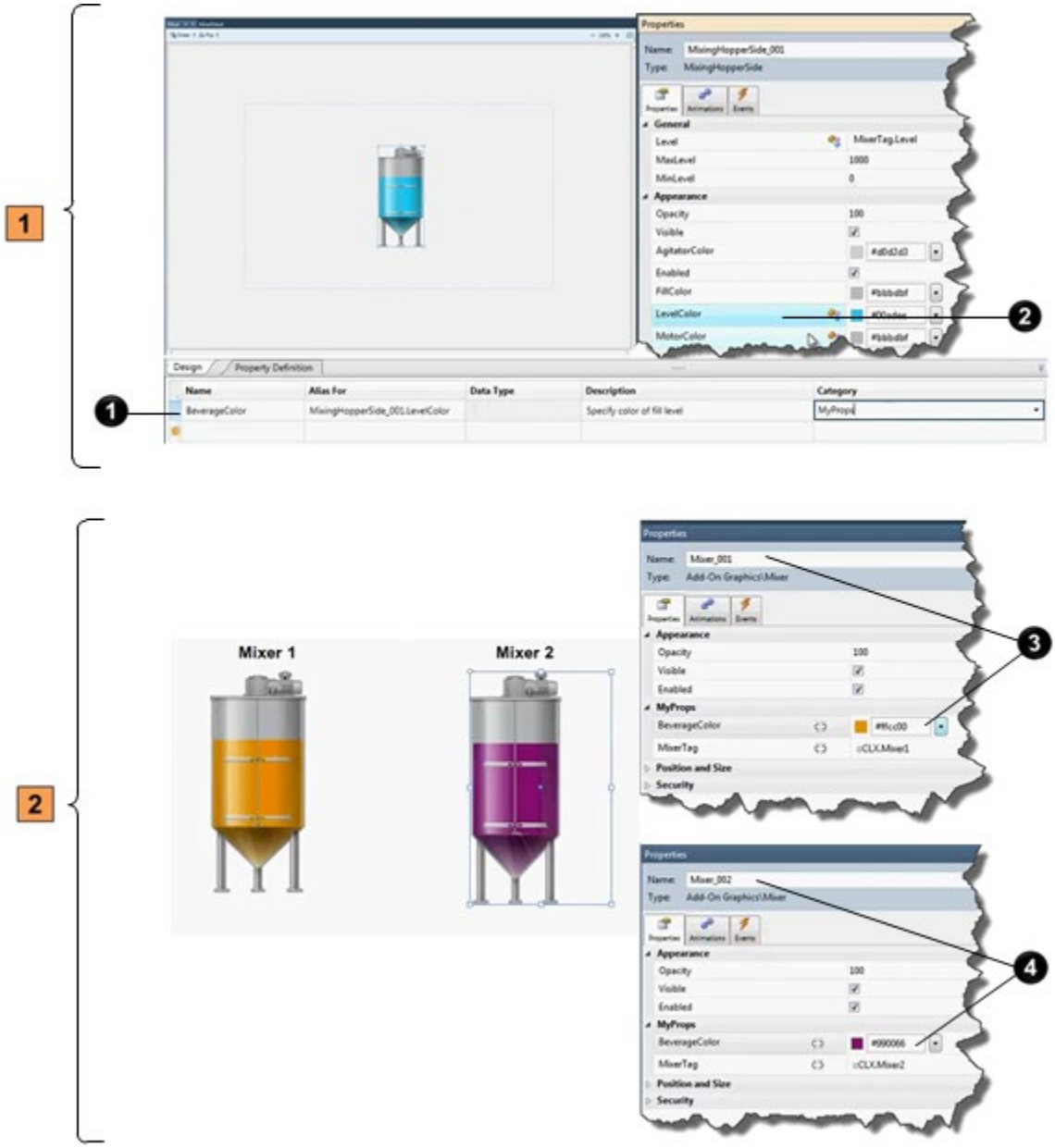
User-defined alias property for an Add-On Graphic on page 413

Bind properties of graphic elements to properties of other graphic elements in an Add-On Graphic on page 403

Property Definition tab on page 361

User-defined alias property for an Add-On Graphic

In this example, alias properties in the definition of an Add-On Graphic appear on each instance of the Add-On Graphic. Entering a value or binding changes the value of the aliased property on an instance of the Add-On Graphic.



1 Add-On Graphic definition

Item	Description
1	The alias property. In this example, the alias is for the LevelColor. Create an alias property by right-clicking the property and selecting **New Alias**. The alias property appears in the **Property Definition** tab below the definition of the Add-On Graphic.

2	The user-defined alias property for the definition of the Add-On Graphic: • **Name.** The name of the alias. By default, the name of the alias property in the **Property Definition** tab is the name of the property appended with _001 or increment number. Type the name of the property to appear on each instance of the Add-On Graphic. In this example, the alias for the LevelColor is named BeverageColor. • **Alias For.** This box automatically specifies the selected graphic element name and property. The format for the alias is ElementName.PropertyName. For example, if the selected graphic element is a mixing hopper and the aliased property is LevelColor, the **Alias For** column may contain MixingHopperSide_001.LevelColor. • **Description.** An optional description for the alias property. This description appears as a tooltip when hovering over the box in the **Properties** window for an instance of the Add-On Graphic. • **Category.** The category where the alias property appears in the **Properties** window for an instance of the Add-On Graphic.

2 Add-On Graphic instances

Item	Description
3	The **Properties** window for the first instance of the Add-On Graphic on a screen. The BeverageColor alias property for Mixer_001 is set to orange and appears orange on the HMI device.
4	The **Properties** window for the second instance of the Add-On Graphic on a screen. The BeverageColor alias property for Mixer_002 is set to purple and appears purple on the HMI device.

See also

Reuse Add-On Graphics on page 402

Alias a property in an Add-On Graphic on page 412

Propagation of changes to a user-defined property

Changes to user-defined properties take effect immediately and are saved when the project is saved. How changes to user-defined properties are propagated depend on the item for which the user-defined property is created:

Add-On Graphics

- Changing the name of a user-defined property for an Add-On Graphic changes the name of the property in every instance of the Add-On Graphic. The names of properties in bindings and expressions do not change.
- Changes made to the definition of a user-defined property for an Add-On Graphic definition are applied to any instances of the Add-On Graphic.
- Changing the value of an alias property on an instance of an Add-On Graphic disconnects the property from the user-defined property on the definition of the Add-On Graphic. To reconnect the user-defined property to the base property, select **Link** next to the property in the **Properties** tab. User-defined data type properties are always unlinked for an Add-On Graphic.

Screens

- Changing the name of a user-defined property changes the property name for the current screen only. Changing the property name for a screen or shortcut does not change the name of the property in all of the places that property name is used in the project. The names of properties in bindings and expressions do not change.
- Changes made to a user-defined property on a screen are applied to any shortcuts on which the shortcut is based.

Shortcuts and events

- Changing the value of a user-defined property on a shortcut or navigation command disconnects the user-defined property from its base property.
- Binding an alias property or aliasing a bound property for a graphic element within the definition of an Add-on Graphic is not supported.

See also

Change a user-defined property on page 368

Create a user-defined property with a data type on page 365

Create an alias property on page 361

Create a user-defined data type property for an Add-On Graphic on page 378

Alias a property in an Add-On Graphic on page 412

Link a user-defined property to its base property

A user-defined property on a:

- screen shortcut
- Screen Navigate command
- Button Behavior event that navigates to a screen on a release
- Popup Open command

inherits its value from a base property.The base property is the property as defined on the screen or popup called by the shortcut or navigation command.

Link next to a property in the **Properties** tab indicates that the value of the property is linked to its associated base property. If **Unlink** is displayed, the property is unlinked from the base property and is no longer inheriting the value of the base property.

To link a user-defined property to its base property

- Next to the property in the **Properties** tab, select **Unlink** and select **Link to base property**. **Link** appears, and the screen property inherits the value of the base property.

Tips:
- If you create a screen navigation to a shortcut, you create a link to the property on the shortcut, not to the base property.
- The Border property does not support linking and unlinking.
- User-defined data type properties are always unlinked for an Add-On Graphic. User-defined properties on an instance of an Add-On Graphic cannot link to the definition of the Add-On Graphic because there is no default value for the user-defined property on the definition.

See also

Property Definition tab on page 361

Unlink a user-defined property from its base property on page 372

Create an alias property on page 361

Create a user-defined property with a data type on page 365

Shortcut customization on page 107

Unlink a user-defined property from its base property

A user-defined property on a:

- screen shortcut
- Screen Navigate command
- Button Behavior event that navigates to a screen on a release
- Popup Open command

inherits its value from a base property.The base property is the property as defined on the screen or popup called by the shortcut or navigation command.

Link next to a property in the **Properties** tab indicates that the value of the property is linked to its associated base property. If **Unlink** is displayed, the property is unlinked from the base property and is no longer inheriting the value of the base property.

To unlink a user-defined property from its base property

- Use one of the following methods:
  - Next to the property in the **Properties** tab, select **Link** and select **Unlink from base property**. **Unlink** appears and the screen property no longer inherits the value of the base property.
  - Change the value of the linked property.
  - Change the binding status of the linked property from bound to unbound or vice versa.
  - If the property is bound, change the Initial value or the Binding value of the property.

Tip: The Border property does not support linking and unlinking.

See also

Property Definition tab on page 361

Link a user-defined property to its base property on page 371

Create an alias property on page 361

Create a user-defined property with a data type on page 365

Shortcut customization on page 107

Property Definition tab

How do I open the Property Definition tab?

The **Property Definition** tab is located below the **Screen** area. Click **Expand** below the screen to display the **Property Definition** tab if it is not open.

The **Property Definition** tab contains the properties you create for the current screen, popup, or Add-On Graphic definition. Create a user-defined property to act as a placeholder for a value or data on a screen, Add-On Graphic definition, or popup. This enables you to use a screen multiple times by passing different values to the user-defined properties using a shortcut or navigation command.

Using custom properties in View Designer increases the time it takes PanelView 5000 HMI devices to synchronize with changes to the controller program. When using custom properties in View Designer, expect increased synchronization time when downloading a revised controller program to the controller or making online changes to the controller program.

Use the **Property Definition** tab to create, change, or delete a user-defined property.

See also

Create a user-defined property with a data type on page 365

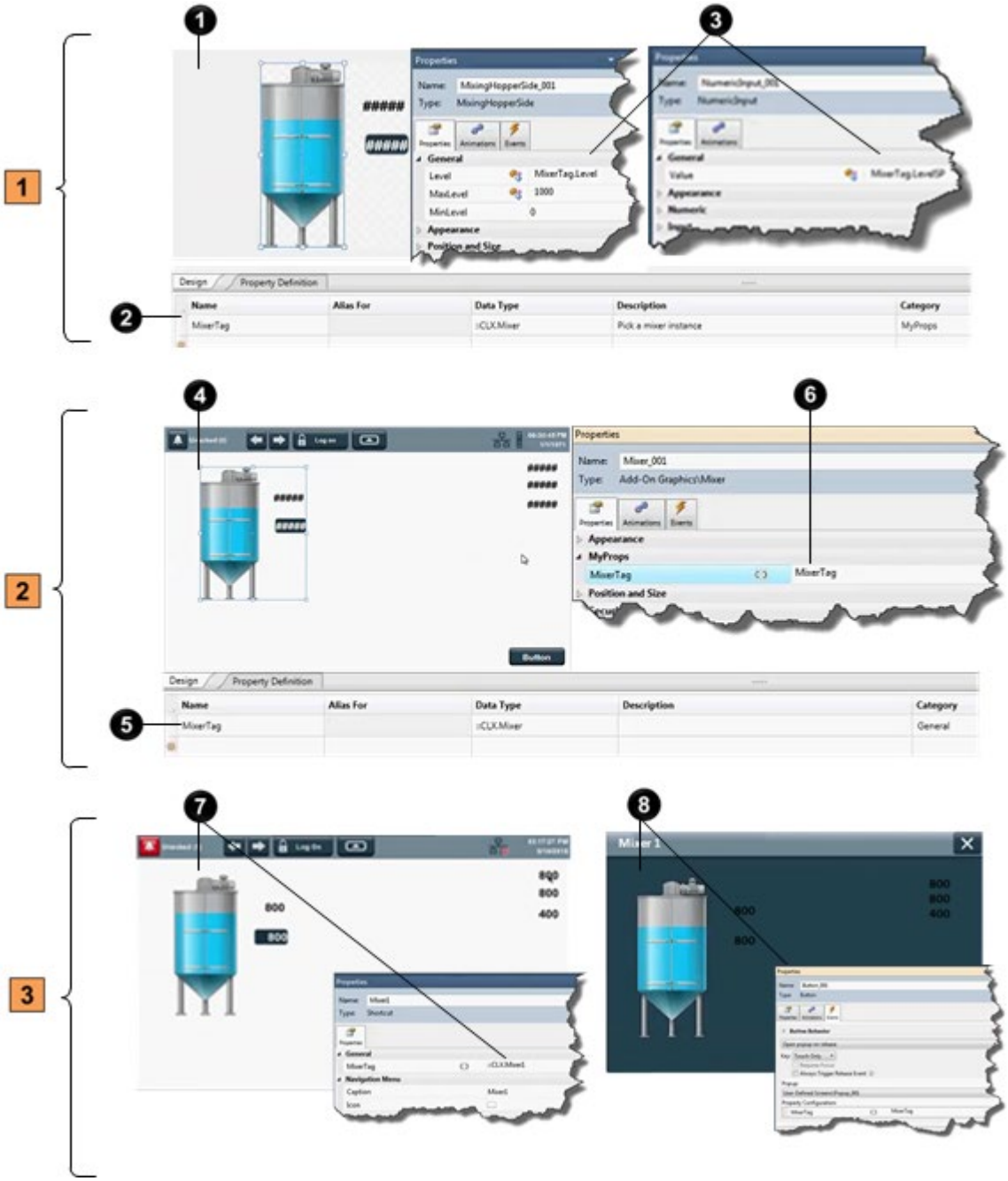
Search for and select a data type on page 373

User-defined property on page 370

Reuse Add-On Graphics on page 402

Add-On Graphics on reusable screens

This example depicts an Add-On Graphic with a mixer and a screen with additional mixer graphic elements. To have the screen and the Add-On Graphic on the screen show the values for the same mixer, bind the user-defined data type property that appears on an instance of the Add-On Graphic to the user-defined data type property of the screen. When a shortcut or navigation command passes a value into the user-defined property of the screen, graphic elements in the Add-On Graphic and on the screen show values from the same mixer. A Mixer1 shortcut or popup shows the values of Mixer1, and a Mixer2 shortcut or popup shows the values of Mixer2.



1 Add-On Graphic definition

Item	Description
1	Graphic elements in the definition of the Add-On Graphic.
2	A user-defined data type property named MixerTag in the **Property Definition** tab of the Add-On Graphic definition.
3	The **Properties** windows for graphic elements in the definition of the Add-On Graphic. The value of each graphic element is bound to a member of the MixerTag data type in the user-defined property using the format PropertyName.MemberName. For example, the mixer graphic element is bound to MixerTag.Level and the input graphic element is bound to MixerTag.LevelSP. Search for user-defined data type properties created for the definition of an Add-On Graphic and the members of that property through the **Tag Browser**.

2 Reusable screen

Item	Description
4	A screen containing an instance of the Add-On Graphic.
5	A user-defined data type property named MixerTag created in the **Property Definition** tab of the screen.
6	The **Properties** window of the selected instance of the Add-On Graphic on the screen. The Add-On Graphic is bound to the MixerTag user-defined data type property of the screen.

3 HMI device

Item	Description
7	The binding of a shortcut to the Mixer1 instance of the controller tag. This binding passes the value of the user-defined property from the shortcut to the screen. On the HMI device, the graphic elements on the screen and on the Add-On Graphic show the values for Mixer1.
8	The binding of a navigation command to the MixerTag user-defined property of the screen. This binding passes the value of the user-defined data type property to the screen when the event occurs. When the popup opens on the HMI device, the popup shows the values of Mixer1.

See also

Controller tags and Add-On Graphics on page 420

Create a user-defined data type property for an Add-On Graphic on page 378

Create a user-defined property with a data type on page 365

User-defined property on page 370

Controller tags and Add-On Graphics

Binding directly to a controller tag from an Add-On Graphic is not allowed. Binding an Add-On Graphic to a controller tag by passing the tag from an instance of the Add-On Graphic to the definition of the Add-On Graphic is supported. The user-defined data type property in the definition is associated with a Logix data type. Bind a graphic element in the definition of the Add-On Graphic to reference a property of that graphic element. Browse to properties and their extended properties, including members, using the Tag Browser or type the binding using the format PropertyName.Member.

For example, if creating a user-defined data property called MixerTag for a data type called Mixer, bind a graphic element in the definition of the Add-On Graphic to any member of that Mixer data type, such as Level. Each instance of the data type in Studio 5000 Logix Designer contains the same tag members. For example, the Mixer data type may have a member named Level. The Level member then exists for each instance of the data type (for example, Mixer1, Mixer2, Mixer3, and so forth). Bind an instance of an Add-On Graphic to the Mixer1 controller tag through the user-defined data type property. The Add-On Graphic then shows the level of Mixer 1. Bind another instance of the Add-On Graphic to the Mixer2 tag to show the level of Mixer 2, and so forth.

Binding an instance of an Add-On Graphic to a controller tag through a user-defined tag property allows for reuse of an Add-On Graphic to show

a different value for each instance of the Add-On Graphic. The instance of the Add-On Graphic passes the name of the controller tag to the definition of the Add-On Graphic. The definition of the Add-On Graphic reads the member of the data type to show the value of the tag on the HMI device.

See also

Create a user-defined data type property for an Add-On Graphic on page 378

Property Definition tab on page 361

User-defined property on page 370

Alias versus data type user-defined properties

Create user-defined properties for a screen, popup, or the definition of an Add-On Graphic. User-defined properties appear in the **Properties** window of a screen, popup, or instance of an Add-On Graphic. The value of a user-defined property applies to a screen when opening the screen using a shortcut or navigation command, or the value applies to the instance of an Add-On Graphic when opening the screen that contains the instance. Bind the properties of graphic elements on a screen, popup, or in the definition of an Add-On Graphic to user-defined properties. The value appears on the HMI device.

Create two types of user-defined properties:

- **Data type.** Data type properties generally tie elements on a screen popup, or Add-On Graphic to the member of a user-defined data type in the controller. Expose a Logix data type defined in the controller program on a reusable screen or in the definition of an Add-On Graphic. Properties of elements on a screen, popup or Add-On Graphic are bound to members of the data type in the controller. Select the instance of the Logix data type that the property is to use when reusing the screen or Add-On Graphic in a project. Change the data type property value for a reusable screen through shortcuts or navigation commands to the screen. Change the data type value property for an Add-On Graphic through instances of the Add-On Graphic. For example, if there is a Mixer type in a controller that is a data type property for the definition of an Add-On Graphic, use the **Tag Browser** to bind properties of elements within the definition of the Add-On Graphic definition to members of the Logix data type, such as mixer level and mixer temperature. When adding an instance of the Add-On Graphic to a screen, bind the data type property value to the instance of the Mixer type, such as Mixer 2, that the graphic element represents.
- **Alias.** Alias properties generally change the value of graphic element properties that are not based on a tag in the controller. Expose a property of a graphic element on a reusable screen or in the definition of an Add-On Graphic. Change the property value when reusing the screen or Add-On Graphic in the project. Change alias properties for a reusable screen through shortcuts or navigation commands to the screen. Change alias properties for an Add-On Graphic through instances of the Add-On Graphic. Alias properties are either bound or static. For example, set a text label on a graphic element.

User-defined alias properties do not require binding or a data type structure in the controller.

See also

Reuse Add-On Graphics on page 402

User-defined data type property binding for an Add-On Graphic on page 410

User-defined alias property for an Add-On Graphic on page 413

User-defined property

Create a user-defined property to act as a placeholder for a value or data on a screen, popup, or Add-On Graphic definition. This enables using a screen multiple times by passing different values to the user-defined properties using a shortcut or navigation command.

There are two types of user-defined properties:

- **Alias**. Create an alias property to reference the property of a screen or definition of an Add-On Graphic, or the property of a graphic element. The alias name is comprised of the element name and the specific property to expose separated by a period:

  ElementName.PropertyName
  Using an alias property in an expression is not supported.
- **Data type**. Create a user-defined property with a data type to associate it with a data type contained in a Logix Designer project (.acd) file. Data type properties replace a specific Logix Designer tag instance when configuring bindings and expressions on the screen. The data type is Predefined, Module-defined, or User-defined (UDT).

See also

Property Definition tab on page 361

Create an alias property on page 361

Create a user-defined property with a data type on page 365

Example of content reuse on page 359

Reuse Add-On Graphics on page 402

Reuse content from other View Designer projects

Create a project using content from one or more existing View Designer projects. This can reduce the risk of error, ensure consistency, and save time.

For example, assume that you have multiple different projects, and the same users will be accessing them. You can configure the security access for each user in one project and then copy them to the other projects.

See also

Reuse content on page 359

Copy a controller reference on page 87

Copy an image between View Designer projects on page 324

Copy a Security Administration user account on page 432

Copy a controller reference

Copy a controller reference within a View Designer project or from one View Designer project to another. This eliminates the need to manually enter the information in a project. Copy individual items from a controller reference or the entire controller reference. Paste controller references that are of the same version of Logix Designer.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If pasting content into another project, start an instance of View Designer and open the target project. Open no more than three instances of View Designer at one time.

To copy a controller reference

1. In the source project, select **Project > Project Properties** and select the **References** tab.
2. Right-click the controller reference and select **Copy**.

Tip: To copy a single item from a controller reference card, select the controller reference, select the item to copy, and then right-click and select **Copy**.

3. In each target project:

a. Select **Project > Project Properties** and select the **References** tab.

b. Right-click the new controller reference card and select **Paste**. Pasting assigns the next available controller reference number.

c. Select **Apply** to save changes and remain on the **Project Properties** dialog box, or select **OK** to save changes and close the **Project Properties** dialog box.

Tips:

- Pasted controller references appear after the last controller reference card. Each controller reference card has a controller reference number that identifies the position on the **References** tab and the name of the referenced controller. When reopening the **References** tab, reference cards appear in order by controller reference number that appears in the **Controller[#] Reference Name** box.
- After saving controller references, reference cards appear in order by controller reference number.
- For PanelView 5310 HMI devices, View Designer does not support pasting a controller reference in a project that already contains a controller reference.
- For PanelView 5510 HMI devices, paste up to four controller references in a project.
- For multiple controllers and their tags to appear in the **Tag Browser** for a PanelView 5510 HMI device, the project file (.acd) for each referenced controller requires the same version of Logix Designer.
- View Designer does not support pasting a number of controller references that exceeds the total allowed for an HMI device. A prompt appears to paste the copied controller references that do not exceed the maximum for the HMI device.
- The maximum number of controller references appears at the top of the **References** tab and on the **Usage & Capacity** tab. Deleting the required number of controller references from the **References** tab removes the errors.

See also

Project Properties dialog box on page 68

References tab on page 87

Add a controller reference on page 85

Remove a controller reference on page 88

Reuse content on page 359

Cut or copy table content

Cut or copy table content within or across View Designer projects. Copy table rows or cells from **State Tables** and **Color Tables**. Copy rows from the table on the **Property Definition** tab. Single cells cannot be cut.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. Open up to three instances of View Designer at one time.

To cut or copy table content

1. Cut or copy the content:
   - To cut a table row, right-click the row to cut and select **Cut**. Only an entire row can be cut.
   - To copy a table row or cell, right-click the row or cell to copy and select **Copy**. Copy a single cell or a range of cells.
2. Right-click on the row or cell to paste the content and select **Paste**.

Tips:

- The yellow star burst indicates a new row.
- When pasting an entire row, the destination row must have the same number of columns as the source row.
- Paste content into cells that have the same type of content.
- Pasting data copied from an external program into a table is not recommended.
- Pasting data copied from a table into an external program is supported.

See also

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Reuse content on page 359

Copy a graphic element

Copy a graphic element to reuse it on screens within a project or across View Designer projects. Copying a graphic element copies all of its properties, animations, and events. Copy single, multiple, or groups of graphic elements.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a graphic element

1. On the source screen or in the **Graphic Explorer**, right-click the graphic element and then select **Copy**.
   - To select multiple graphic elements or groups, hold **Ctrl** and select the items.
2. On the target screen, right-click the location to paste the items and then select **Paste**.

   Tips:
   - If the target screen contains a graphic element with the same name, the name of the new graphic element is appended with a number that increments with each copy.
   - To cut a graphic element, right-click the graphic element and select **Cut**.
   - When copying a graphic element, any localized data associated with the graphic element is also copied.

See also

Graphic Explorer on page 132

Duplicate a graphic element on page 150

Reuse content on page 359

Copy an instance of an Add-On Graphic within a project on page 397

Copy an instance of an Add-On Graphic between projects on page 398

Copy a popup

Copy a popup to reuse it within or across View Designer projects. Paste a popup into the same folder in the **Project Explorer** to create a copy of the popup and append the name with an increment number. Pasting a popup into the **Predefined Screens** folder is not allowed.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a popup

1. In the source project, in the **Project Explorer**, right-click the popup and select **Copy**.

   Tip: To select multiple popups, hold **Ctrl** and select the items.

2. Right-click the target folder and select **Paste**. If the target folder contains a popup with the same name, select one of two options:
   - Select **Replace** to overwrite the existing popup.
   - Select **Keep Both** to keep both popups. The name of the new popup is appended with a number that increments with each copy.

Tips:

- Copying a popup that contains an instance of an Add-On Graphic to a different project that does not contain a popup with the same name adds the definition of the Add-On Graphic to the **Assets > Add-On Graphics** folder of the **Project Explorer** and adds the Add-On Graphic to the **Toolbox** category indicated for the Add-On Graphic.
- Copying a popup that contains an instance of an Add-On Graphic to a different project that contains an Add-On Graphic with the same name provides three options:
  - **Keep Both.** Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
  - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On Graphic are updated with the new definition of the Add-On Graphic.
  - **Cancel.** Do not paste the copied Add-On Graphic definition into the project.
- If pasting a popup with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is linked in an instance, the alias property shows in the **Properties** window of the instance, and the alias remains linked to the value of the base property in the definition.
- If pasting a popup with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is unlinked in an instance, the alias property shows in the **Properties** window of the instance, but the alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
- Copying a popup that has an Add-On Graphic with an image that exists in both the source and target projects displays a prompt to replace the image. Images are copied to the **Assets > Images** folder of the **Project Explorer**.
- When copying a popup, any localized data associated with the popup and its children is also copied.

See also

Create a popup on page 110

Rename a popup on page 115

Delete a popup on page 116

What is a popup? on page 118

Reuse content on page 359

Copy a screen

Copy a screen to reuse it within or across View Designer projects. Paste a screen into the same folder in the **Project Explorer** to create a copy of the screen and append the name with an increment number. Paste screens from the **Predefined Screens** folder only into the **User-Defined Screens** folder within or across projects. Content copied to a project with a different HMI screen size maintains its original size and position.

Prerequisites:

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a screen

1. In the source project, in the **Project Explorer**, right-click the screen and select **Copy**.

   Tip: To select multiple screens, hold **Ctrl** and select the items.

2. Right-click the target folder and select **Paste**. If the target folder contains a screen with the same name, select one of two options:
   - Select **Replace** to overwrite the existing screen.
   - Select **Keep Both** to keep both screens. The name of the new screen is appended with a number that increments with each copy.

     Tips:
     - Copying a screen that contains an instance of an Add-On Graphic to a different project that does not contain an Add-On Graphic with the same name adds the definition of the Add-On Graphic to the **Assets > Add-On Graphics** folder of the **Project Explorer** and adds the Add-On Graphic to the **Toolbox** category indicated for the Add-On Graphic.
     - Copying a screen that contains an instance of an Add-On Graphic to a different project that contains an Add-On Graphic with the same name provides three options:
       - **Keep Both.** Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
       - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On Graphic are updated with the new definition of the Add-On Graphic.
       - **Cancel.** Do not paste the copied Add-On Graphic definition into the project.
     - If pasting a screen with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is linked in an instance, the alias property shows in the **Properties** window of the instance, and the alias remains linked to the value of the base property in the definition.
     - If pasting a screen with an Add-On Graphic replaces an alias property in the definition of an Add-On Graphic and that alias is unlinked in an instance, the alias property shows in the **Properties** window of the instance, but the alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
     - Copying a screen that has an Add-On Graphic with an image that exists in both the source and target projects displays a prompt to replace the image. Images are copied to the **Assets > Images** folder of the **Project Explorer**.
     - When copying a screen, any localized data associated with the screen and its children is also copied.

See also

Create a screen on page 348

Rename a screen on page 351

Delete a screen on page 352

Reuse content on page 359

Project Explorer on page 95

Copy a folder

Copy a folder in the **Project Explorer** to reuse it within or across View Designer projects. Copying a folder also copies all of its subfolders.

IMPORTANT Copying a folder to a different project does not copy screens or popups that contain user-defined properties.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a folder

1. In the source project, in the **Project Explorer**, right-click the folder to copy and select **Copy**.
2. In the target folder, right-click the location to paste the folder and select **Paste**.

Tips:

- Copying a root-level folder (for example, **Navigation Menu**, **User-Defined Screens**, and **Predefined Screens**) is not allowed.
- Copying a folder in the **Navigation menu** between projects is not allowed.
- Copying and pasting subfolders between root-level folders.
- Paste folders three levels deep. The new folder appears at the same level as the item on which the folder is pasted. Folders at the same level must have unique names. Pasting a folder with the same name as an existing folder appends a number to the name of the pasted folder. For example, FolderName_002.
- Only content from the **Predefined Screens** folder can be copied into a **Predefined Screens** folder. Copying the **System Banner** is not allowed.
- Cut a folder by selecting **Cut** instead of **Copy**.
- Copying a folder copies any children of the folder as well as any localized data associated with the folder.

See also

Create a folder on page 558

Delete a folder on page 560

Rename a folder on page 561

Reuse content on page 359

Copy a shortcut

Copy a shortcut to reuse it within a project.

To copy a shortcut

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Right-click the shortcut and select **Copy**.

Tip: To select multiple shortcuts, hold **Ctrl** and select the items.

3. Right-click the location in the target **Navigation Menu** folder and select **Paste**.
4. If the target folder contains a shortcut with the same name, select **Keep Both** to keep both shortcuts. The name of the new shortcut is appended with a number to distinguish it from the original.

Tips:

- Copying an item from a folder in the **Project Explorer** and then pasting it in the same folder in the same project creates a copy of the item. The name of the pasted item is appended with a number that increments with each copy.
- Copy and paste shortcuts in the **Navigation Menu** folder only.

See also

Create a shortcut to an existing screen on page 102

Rename a shortcut on page 104

Open the defining screen of a shortcut on page 105

Delete a shortcut on page 106

Copy the definition of an Add-On Graphic between projects

Copy the definition of an Add-On Graphic between projects to reuse the Add-On Graphic in another project. The content, properties, and behavior of the Add-On Graphic definition are copied. Any changes to the definition of the Add-On Graphic are copied to every instance of the Add-On Graphic in the project.

Add-On Graphics must have unique names. When copying the definition of an Add-On Graphic with the same name between projects, keep both Add-On Graphic definitions, replace the existing Add-On Graphic definition, or choose not to paste the Add-On Graphic definition.

Contents of the Add-On Graphic are handled in the same manner as the contents of any other screen copied between projects.

To copy the definition of an Add-On Graphic between projects

1. Open the project containing the Add-On Graphic to copy.
2. In the **Project Explorer,** expand the **Assets** folder.
3. Expand the **Add-On Graphics** folder.
4. Right-click the Add-On Graphic to copy and select **Copy**.
5. Open the project where to contain the pasted Add-On Graphic.
6. In the **Project Explorer,** expand the **Assets** folder.
7. Expand the **Add-On Graphics** folder.
8. Right-click the **Add-On Graphics** folder and select **Paste**.

   If a definition of an Add-On Graphic with the same name does not already exist in the project, the definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
9. Pasting the definition of the Add-On Graphic in a different project where an Add-On Graphic definition with the name already exists displays options:
   - **Keep Both**. Append the name of the copied Add-On Graphic definition with _001 or increment number. The definition appears in the folder and the Add-On Graphic appears in the **Toolbox**.
   - **Replace.** Replace the existing Add-On Graphic definition with the copied definition. Any instances of the existing Add-On Graphic are updated with the new definition of the Add-On Graphic.

- **Cancel.** Do not paste the copied Add-On Graphic definition into the project.

Tips:

- Replacing an alias property in the definition of an Add-On Graphic as a result of a paste when that alias is linked in an instance displays the alias property in the **Properties** window of the instance. The alias remains linked to the value of the base property in the definition.
- Replacing an alias property in the definition of an Add-On Graphic as a result of a paste when that alias is unlinked in an instance displays the alias property in the **Properties** window of the instance. The alias property retains its value from the original Add-On Graphic definition. The value of the alias property is not linked to the base property of the pasted Add-On Graphic definition.
- Copying the definition of an Add-On Graphic that has an image that exists in both the source and target projects displays a prompt to replace the image or cancel. Images in a copied Add-On Graphic appear in the **Assets > Images** folder of the **Project Explorer**.

The Add-On Graphic is available for use in the project.

See also

Work with instances of an Add-On Graphic on page 394

Copy the definition of an Add-On Graphic within a project on page 380

Change the property values for the definition of an Add-On Graphic on page 376

Rename an Add-On Graphic on page 380

Copy an image between View Designer projects

Copy an image between View Designer projects to ensure consistency or when access to the original image file does not exist.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy an image between projects

1. Copy the image from the source project images folder to the target project **Images** folder. Alternatively, copy the image from the source screen to the target screen.
2. If the target project contains an image file with the same image file name, overwrite the existing image file or cancel the copy operation.
   - Select **Replace** to overwrite the existing image file.

Tips:

- When copying an image file that already exists in the target project when that image file contains a different graphic, View Designer adds an increment number to the name of the image in the target project. For example, if you copy an image named Tank1 and that image contains tank.bmp, and the target project also has an image file named Tank1 but that image contains watertank.bmp, the name of the image in the target project increments to Tank1_001.
- Copying an image that has a removed graphic element shows a red X for the removed graphic element. If the image appears in an Add-On Graphic, the red X appears in both the definition of the Add-On Graphic and in instances of the Add-On Graphic.
- Content pasted between projects of different terminal sizes is converted using the **Do not scale** scaling option. The screen content remains the same size and position as on the original screens.
- Cut an image by selecting **Cut** instead of **Copy**.
- Copying a screen or popup that contains an Image graphic element from one project to another, copies the image file associated with the graphic element and places the image file in the **Assets** folder of the target project.

See also

Copy a graphic element on page 138

Add an image to a screen on page 326

Replace an image throughout a project on page 330

Copy an image assets folder on page 432

Copy an image assets folder

Copy an image assets folder to add the image to the **Images** folder and make it part of the target project.

To copy an image assets folder

1. In the **Project Explorer** of the source project, open the **Images** folder located in the **Assets** folder.
2. Right-click the image and select **Copy**.
3. In the **Project Explorer** of the target project, expand the **Assets** folder.
4. Right-click the **Images** folder and select **Paste**.

See also

Copy an image between View Designer projects on page 324

Copy a Security Administration user account

Copy a Security Administration user account to reuse the information within and across View Designer projects. Copy individual items from the user account or copy an entire user account card including the password and PIN.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is

recommended to open no more than three instances of View Designer at one time.

To copy a Security Administration user account

1. In the source project, select **Tools > Security Administration**.
2. Select the **Users** tab to display the **User Accounts** box.
3. In the **User Accounts** box, select a user account card, and then right-click and select **Copy**.
   - To copy a single item, highlight the item, and then right-click and select **Copy**.
4. In each target project in the **User Accounts** box, select a card (outside of the **User Name** box), right-click and select **Paste**. The card pastes below the currently selected card.
   - If a new user card is selected, the card pastes above it.
   - To paste a single item, right-click the appropriate box on the user account card and select **Paste**.
5. Select **OK** to apply the changes and close the dialog box.

Tips:

- Copy only one user card at a time.
- A red outline around a box on a user account card indicates an error condition, such as a duplicate name or PIN. You must correct all errors before you can save the changes.
- Cut a **Security Administration** user account by selecting **Cut** instead of **Copy**.

See also

Security Administration dialog box on page 685

Users tab on page 686

Add a Security Administration user account on page 688

Security overview on page 698

Animate a graphic element or screen

Use animation to enhance the graphical representation of the state of a machine or process on the HMI device. Animate screens by binding properties of graphic elements to tags or expressions. As the value of a tag or expression changes, the appearance or behavior of the graphic element changes.

Animate screens by binding properties of graphic elements to tags or expressions so that the appearance or behavior of the graphic elements change as the values of the tag or expression change.

Attach animations to groups of graphic elements and screens as well as to graphic elements and groups in a popup. Attaching an animation to the popup itself is not supported.

Create animations for both the graphic elements within the definition of an Add-On Graphic, as well as instances of an Add-On Graphic.

View Designer provides three methods for configuring animations:

- Binding properties
- Using a **Color Table**
- Using a **State Table**

See also

[Configure an animation using a Color Table](#) on page 437

[Configure an animation using a State Table](#) on page 438

Animations tab

How do I open the Animations tab?

On the **Properties** window, click the **Animations** tab.

Use animation to enhance the graphical representation of the state of a machine or process on the HMI device. This can mean hiding or showing graphic elements, including Add-On Graphics, and changing the appearance of the elements or moving them on the screen.

Use the **Animations** tab to:

- Use a **Color Table** or a **State Table** to animate a graphic element or screen.
- Add or delete an animation.
- Configure or change an animation.
- View the animations associated with a graphic element or screen.

Use a **Color Table** to:

- Affect only the color properties of a graphic element or screen (for example, fill color, button color, border color).

Use a **State Table** to:

- Affect the Appearance, Position and Size, or General properties (for example, height, width, rotation angle) for a graphic element or screen.
- Use a State Enter or State Exit event to trigger a command (for example, write a tag value to a controller when the **State Table** enters a specific state).

See also

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Events tab on page 447

Color Table Definition dialog box

How do I open the Color Table Definition dialog box?

On the **Properties** window, click the **Animations** tab. Click **Add Animation** and click **Color Table.**

Use a **Color Table** to configure animations that can affect any or all of the color properties (for example, fill color, color, font color) of a graphic element, Add-On Graphic, or screen.

Configure multiple color states and multiple **Color Tables** for a graphic element or Add-On Graphic.

Use the **Color Table Definition** dialog box to:

- Specify the number of states.
- Select the properties to animate.

See also

Configure an animation using a Color Table on page 437

Animations tab on page 435

State Table Definition dialog box

How do I open the State Table Definition dialog box?

On the **Properties** window, click the **Animations** tab. Click **Add Animation** and click **State Table.**

Use the **State Table** to configure animations to affect the Appearance, Position and Size, or General properties (for example, visibility, rotation angle, fill color) of a graphic element, Add-On Graphic, or screen. To use a State Enter or a State Exit event to drive animation, create a **State Table** before creating the event.

Configure multiple states for each graphic element and Add-On Graphic. Configure more than one **State Table** per graphic element and Add-On Graphic.

Use the **State Table Definition** dialog box to:

- Specify the number of states to animate.
- Select the properties to animate.

See also

Configure an animation using a State Table on page 438

Animation using a Color Table or State Table on page 401

Animations tab on page 435

Configure an animation using a Color Table

Configure an animation to change the color of a graphic element, Add-On Graphic, or screen based on the value of an associated tag or expression. Color animation can be applied to any color property of a selected element.

IMPORTANT
- Do not use a **State Table** or **Color Table** to modify a property that is already bound to a tag or expression. This can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
- Modifying a property across multiple **State Tables** or **Color Tables** can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
- When renaming a graphic element that is referenced by a **State Table** or a **Color Table**, change the reference to reflect the new graphic element name. View Designer does not automatically update the references with the new name.

To configure an animation using a Color Table

1. Select the screen or graphic element to animate.
2. On the **Properties** window, select the **Animations** tab.
3. Select **Add Animation > Color Table.**
4. In the **Name** box of the **Color Table Definition** dialog box, enter a name for the **Color Table**.
5. In the **Number of states** box, enter or select the desired number of states. For example, to use color to indicate two different states, such as running or stopped, type or select the number 2.

   Tip: The maximum supported number of states for one element on a screen is 2500. If any screen in the project exceeds 42000 states across all its elements, it is not possible to later convert the project to a newer version.
6. Select the properties to affect and select **OK.** The **Color Table** card appears in the **Animations** tab of the **Properties** window.
7. In the **Expression** box on the card, select **Select tag** to select a tag, or type a tag name, to base an expression on.
   - Edit the expression, if necessary, to define the condition that will drive the animation. On the HMI device, the result of this expression is compared to the **Expression Values** (entered in the next step), and the appropriate color changes are applied.

     Tip: An Expression Value can be:
     - **An integer number.** Any positive or negative number up to 15 digits.
     - **A floating point number.** Any positive or negative number up to 15 significant digits in the range of $\pm$ 1.7 x $10^{\pm 308}$.
     - **A string.** Any sequence of alpha-numeric characters enclosed in quotation marks.
8. In the **Color Table**, for each state, complete these boxes:
   - **Expression Value**. Type the value, range of values, or string value (in surrounding quotation marks) to trigger the color change for the state.
   - **Color Value.** The actual column titles correspond to the color properties selected. Type the Hex value in the format

#RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow. Alternatively, select the down arrow or color swatch to open the **Color Picker**, and select or create a color.

See also

Configure an animation using a State Table on page 438

Create an expression on page 520

Animations tab on page 435

Configure an animation using a State Table

Configure an animation to change the properties of a graphic element, Add-On Graphic, or screen based on the value of an associated tag or expression.

IMPORTANT

- Do not use a **State Table** or **Color Table** to modify a property that is already bound to a tag or expression. This can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
- Modifying a property across multiple **State Tables** or **Color Tables** can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
- Do not use any of the following words as a state name:
  - state
  - states
  - properties
  - readonly
  - parent
  - type
  - name
  - id
  - persisted
  - objectname

  When renaming a graphic element that is referenced by a **State Table** or a **Color Table**, change the reference to reflect the new graphic element name. View Designer does not automatically update the references with the new name.
- Do not configure a **State Table** that causes its states to act on each other in an infinite loop. Doing so may cause slow performance.
- Continual tag writes using State Enter or State Exit events may cause slow performance. It is recommended to not continually write more than 10 tags per second.

To configure an animation using a State Table

1. Select the graphic element, Add-On Graphic, or screen to animate.
2. On the **Properties** window, click the **Animations** tab.
3. Click **Add Animation > State Table.**
4. In the **Name** box of the **State Table Definition** dialog box, enter a name for the **State Table**.
5. In the Number of states field, enter or select the desired number of states. For example, to animate three states (such as idle, running, and stopped) type or select the number 3.

Tip: The maximum number of states for one element on a screen is 2500.
If any screen in the project exceeds 42000 states across all its elements, it is not possible to later convert the project to a newer version.

6. Select the properties to affect and select **OK**. The **State Table** card appears in the **Animations** tab of the **Properties** window.
7. In the **Expression** box on the card, select **Select tag** to select a tag, or type a tag name, to base an expression on.
8. Edit the expression, if necessary, to define the condition to drive the animation. On the HMI device, the result of this expression is compared to the values of the expression and changes the properties.
9. For each state, complete the following:
   - **Expression Value**. Type the value, range of values, or string value (in surrounding quotation marks) to trigger the property changes for the state.

     Tips:
     - An Expression Value can be:
       - **An integer number.** Any positive or negative number up to 15 digits.
       - **A floating point number.** Any positive or negative number up to 15 significant digits in the range of $\pm 1.7 \times 10^{\pm 308}$.
       - **A string.** Any sequence of alpha-numeric characters enclosed in quotation marks.
     - Expressions can contain Unicode characters. View Designer supports Unicode characters that appear in the Arial Unicode MS font.
     - When inserting text that contains Unicode characters in a graphic element, select **Arial Unicode MS** in the **FontName** property of the graphic element. Supported Unicode characters appear on the HMI device.
   - **State Name.** Enter the name of the state (for example, Idle, Running, Stopped).
   - **Property values.** For color-related properties, type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow. Alternatively, select the down arrow or color swatch to open the **Color Picker**, and select or create a color.

     Tips:
     - Property values do not support bindings or expressions.
     - To display and edit the entire **State Table**, select **Open table editor**.
     - Changes are saved automatically.

See also

Configure an animation using a Color Table on page 437

Create an expression on page 520

What is binding? on page 502

Change an animation

After creating an animation for a graphic element, including an Add-On Graphic, or screen, modify it. For example, adjust the value that drives the animation.

Tip: If an event references a **State Table** and then the name of the table changes, change the reference to reflect the new **State Table** name. View Designer does not automatically update references with the new name.

To change an animation

1. Select the graphic element, Add-On Graphic, or screen that contains the animation to change.
2. On the **Properties** window, select the **Animations** tab.
3. Select the appropriate **State Table** or **Color Table**.
4. Change any or all of the properties in the table. Changes are saved automatically.

See also

Animations tab on page 435

Delete an animation on page 440

Delete an animation

Delete an animation from a graphic element, Add-On Graphic, or screen to no longer have it appear on the HMI device. Deleting an animation does not delete any State Enter or State Exit events configured for the animation.

To delete an animation

1. Select the graphic element, Add-On Graphic, or screen.
2. On the **Properties** window, select the **Animations** tab.
3. In the upper right corner of the appropriate **State Table** or **Color Table** card, select **Delete Animation** .

See also

Change an animation on page 439

Animations tab on page 435

Animation using a Color Table or State Table

A **Color Table** or **State Table** searches its list of states from top to bottom for the first state that matches the value of the input expression. Rules applied to how the value of the input expression is compared to the Expression Values in the table include:

- Integer numbers containing 15 digits or less are compared to Expression Values directly.
- Integer numbers containing more than 15 digits are rounded to a 15-significant-digit double value in Engineering Format and then compared to the Expression Value.
- Floating point numbers are rounded to five significant digits and then compared to Expression Values using fuzzy comparison.
- Strings are compared to the actual content of the Expression Value.

Using a **Color Table** or a **State Table** can affect more than one property simultaneously when the tag value or expression changes. Create **Color Tables** and **State Tables** on the **Animations** tab in the **Properties** window. The tables are similar in design and behavior, but the **Color Table** is used exclusively for color animation.

- Use a **Color Table** to affect only the color properties of a graphic element. This option is available on the **Animations** tab only if the selected graphic element has a color property. Unlike **State Tables**, **Color Tables** cannot be used with State Enter or State Exit events.
- Use a **State Table** to affect the Appearance, Position and Size, or General properties of a graphic element or to drive an animation with a State Enter or a State Exit event.

Use multiple **State Tables** and **Color Tables** for a graphic element or screen.

The tables reduce the need for custom scripting. To animate a graphic element, select the element and use a **State Table** or a **Color Table** to:

- Set the condition to drive the animation. The condition is the input to the state table. Bind directly to a tag or build an expression using the integrated **Expression Editor**. Use numeric, range, and/or string values within the same table.
- Identify the states the animation is to indicate, such as running, stopped, or temperature levels.
- Select the properties of the graphic element to affect for each state, such as FillColor or Visibility. Only the properties to animate are available. Select multiple properties.
- Specify the value to trigger the animation associated with each state (Expression Value).

Whenever the input value to a **Color Table** or a **State Table** changes, the table searches the Expression Values from top to bottom. The first Expression Value that matches the input value triggers the corresponding color or state change.

If the input value does not match any of the Expression Values, the animation uses the values in the Default row of the table. The Default values reflect the values of their corresponding properties in the **Properties** tab. Changing the value of the property in the **Properties** tab changes its value in the Default row of the **Color Table**. The Default row cannot be edited or removed.

IMPORTANT
- Do not use a State Table or Color Table to modify a property that is already bound to a tag or expression. This can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
- Modifying a property across multiple State Tables or Color Tables can cause undesired results. Property values change based on which input modifies the property first. There is no way to determine the order of inputs.
-

See also

Animation using property binding on page 442

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Bind a color property to a tag or expression on page 500

How the output value of a Color Table or a State Table is calculated on page 443

Animation using property binding

Animate a property of a graphic element by binding the property directly to a tag or expression.

Bind color properties only to string tags. Binding to an integer tag, a floating point tag, or an expression is not supported and will not produce a change in the color.

IMPORTANT
- Changes to a graphic element name are not propagated to a State table or Color table when the graphic element is referenced in the State table or Color table expression. For example, if a Color table expression is bound to NumericDisplay_001.value and the element name changes to NumericDisplay_002, update the table manually in order for the table to work with the renamed graphic element.
- State Enter events do not execute when navigating to a screen if the expression in the state table uses element property binding.

See also

Animation using a Color Table or State Table on page 401

Animation types and their configuration methods

The methods to configure each animation type include:

Use this animation type	For this effect	Using one of these methods			Using these properties or tags
		Color Table	State Table	Property binding	
Color	Draw attention to a graphic element or to indicate status.	✓	✓	✓	Add one or more color properties to the **Color Table** or **State Table** or bind directly to them. **Tip:** Bind color properties only to string tags. Binding to an integer tag, a floating point tag, or an expression is not supported and will not produce a change in the color.
Fill	Show the level of the contents of a tank or other graphic element with a Level property.		✓	✓	Add a tank level property to the **State Table** or bind directly to it.
Position	Show motion, such as a product moving down a conveyor belt. Combine this method with size to show a perspective view of a graphic element moving.		✓	✓	Add the X, Y properties to the **State Table** or bind directly to them.
Rotation	Show angular motion, such as the hands moving on a clock.		✓	✓	Add the Angle property to the **State Table** or bind directly to it.
Opacity	Gradually show or hide a graphic element.		✓	✓	Add an opacity property to the **State Table** or bind directly to it.
Visibility	Show or hide screen content.		✓	✓	Add the Visible property to the **State Table** or bind directly to it.
Size	Use Size animation in combination with Position animation to show a perspective view of a graphic element moving. (The object becomes smaller as it moves away).		✓	✓	Add the Height, Width properties to the **State Table** or bind directly to them.
Blink	Draw attention to an element.			✓	Bind the selected property (typically Visibility) to one of the Display system tags: Display.BlinkFast, Display.BlinkMedium, Display.BlinkSlow.
Availability	Prevent user interaction with a graphic element.			✓	Bind to the Enabled property of a graphic element.

See also

- Configure an animation using a Color Table on page 437
- Configure an animation using a State Table on page 438
- Bind a color property to a tag or expression on page 500
- Animation using a Color Table or State Table on page 401
- Animations tab on page 435

Animations and groups

When creating animations for graphic elements and Add-On Graphics within groups, consider that:

- Invisibility overrides visibility. If a group is made invisible, all graphic elements within the group are invisible.This is true even if a graphic element has an individual visibility animation that normally makes that graphic element visible.
- If a group is made visible, all graphic elements within the group are visible unless their visibility property is set to false. Set the visibility property to false by using animation, binding, an event, or the property value.
- Color animations for individual graphic elements in a group override color animations for the entire group.

See also

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Animations tab on page 435

What can be used as an Expression Value in a Color Table or State Table

Specify a single value or a value range for an Expression Value in a **Color Table** or in a **State Table**. An Expression Value can be:

- **An integer number.** Any positive or negative number up to 15 digits.
- **A floating point number.** Any positive or negative number up to 15 significant digits in the range of $\pm 1.7 \times 10^{\pm 308}$.
- **A string.** Any sequence of alpha-numeric characters enclosed in quotation marks.

See also

- Animations tab on page 435
- Configure an animation using a Color Table on page 437
- Configure an animation using a State Table on page 438
- How the output value of a Color Table or a State Table is calculated on page 443

How the output value of a Color Table or a State Table is calculated

A **Color Table** or **State Table** searches its list of states from top to bottom for the first state that matches the value of the input expression. Rules applied to how the value of the input expression is compared to the Expression Values in the table include:

- Integer numbers containing 15 digits or less are compared to Expression Values directly.
- Integer numbers containing more than 15 digits are rounded to a 15-significant-digit double value in Engineering Format and then compared to the Expression Value.

- Floating point numbers are rounded to five significant digits and then compared to Expression Values using fuzzy comparison.
- Strings are compared to the actual content of the Expression Value.

See also

Animations tab on page 435

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Fuzzy comparison and output values of a state table on page 445

Trigger an action on a Button Behavior event

Add a Button Behavior event to a graphic element or Add-On Graphic to have the element perform typical button actions. Button Behavior events apply typical button behaviors to a graphic element by performing pre-configured commands. For example, you can create a Button Behavior event that sets a tag to 1 on a touch press and sets the same tag to 0 on a touch release. This is useful for creating events for a button to start and stop a conveyor belt. Button behavior events include internal commands that you do not have to configure. Graphic elements and Add-On Graphics can have only one Button Behavior event.

You can use an external keyboard with the HMI device. The **L1** through **L10** keys listed when creating Key Press and Key Release events correspond with pressing **Shift+F1** through **Shift+F10** keys on an external keyboard. The **R1** through **R10** keys listed when creating Key Press and Key Release events correspond with pressing **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

To trigger an action on a Button Behavior event

1. On the screen, right-click the graphic element or Add-On Graphic and then select **Button Behavior**.

   Tip: Adding a Button Behavior event for the selected element is also done through the **Events** tab of the **Properties** window.

2. Select the button behavior.

   Tip: An instance of an Add-On Graphic cannot bind directly to a controller tag. Bind an instance of an Add-On Graphic to a controller tag by creating a user-defined data type property in the definition of the Add-On Graphic.

3. To have the event occur even if focus is not first set by tabbing to the graphic element, clear the **Requires Focus** check box.
4. For momentary button behaviors such as **Set a tag to 1 on press, 0 on release** and **Set a tag to 0 on press, 1 on release**, check the **Always Trigger Release Event** box.

Tips:

- Selecting the behavior type after entering a tag leaves the selected tag in the **Tag** box. This occurs unless the selected behavior is HMIBC or navigation. For example, selecting Tag_1 for the Set a tag to 1 on release behavior and changing to Set a tag to 0 on release, leaves Tag_1 configured for the new selection.
- By default, Button Behavior events work with touch only. To have a key press activate the Button Behavior event, in the **Key** box, select an HMI device key. Press the selected key or touch the graphic element to trigger the event.
- Clear the **Always Trigger Release Event** check box to not commit to a press action. This allows a finger to slide off the graphic element without triggering the release event.

See also

Button behaviors on page 449

Create a high-speed HMIBC button on page 490

Bind an Add-On Graphic to a user-defined data type property on page 409

What is HMI Button Control? on page 489

In what order are touch events triggered? on page 478

How View Designer converts values that are transmitted to numeric tags

View Designer converts values that are being transmitted to numeric tags in the controllers, such as DIN, SINT, or REAL, into a number based on the following rules:

- If the first character is 0 and the second character is an x, the rest of the data is treated as a hexadecimal number (base 16).
- If the first character is 0 and the second character is a digit from 0 to 7, the rest of the data is treated as an octal number (base 8).
- If the value contains a decimal point, the value is treated as a floating point input. Based on the target tag type, the value may be rounded.
- If the first character is a digit from 1 to 9, the rest of the value is treated as a base 10 number.
- If value contains the letter e, the characters that follow it are treated as the exponent (base 10) for the number.
- If the first character is a + or -, it is treated as a sign for the number. The resulting number is based on the rules described above. For example, -020 is treated as a negative octal number.
- If the value contains any character except digits (0 to 9), ., +, -, or e, it is treated as an error.

See also

Bind a property to a data item on page 508

Fuzzy comparison and output values of a state table

Fuzzy comparison is used to compare uncertain or imprecise data. For example: .1 + .1 + .1 + .1 + .1 + .1 + .1 + .1 + .1 + .1 (.1 added 10 times) does not equal 1.0 because .1 cannot be stored exactly in floating point format. (The value is represented as a repeating bit pattern, like 1/3 = .333... in decimal.)

Fuzzy comparison provides a way to ensure that input expression values are consistently calculated and compared with the Expression Values to ensure predictable output values.

For example, two values are determined equal if the following inequality is true:

| value1 - value2 | <= 0.00001 * Min(| value1 |, | value2 |)

or stated another way:

AbsoluteValue("0.00001"(value1 - value2) <= (1.0 E-5) * SmallerValueOf(AbsoluteValue(value1), AbsoluteValue(value2))

The fuzzy comparison algorithm uses the resolution factor of 0.00001 because Logix controllers use the REAL data type to store floating point data. The REAL data type stores values to seven or eight significant digits of precision. When using floating point numbers:

- Do not specify more than five significant digits for the Expression Value.
- Because 32-bit floating point values have, at most, approximately 7.2 significant digits, and Logix 5000 encodes its real value as an eight-digit string, the least significant digit (LSD) may be an invalid digit. However, the LSD is still compared as if it is a valid digit. Verify that the eighth digit is valid.

  For example, typing 3123.45111 into a Logix 5000 tag value is saved as 3123.4512. If the eighth digit (LSD) is valid, it saves as 3123.4511.

See also

Animations tab on page 435

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

How the output value of a Color Table or a State Table is calculated on page 443

How View Designer converts values that are transmitted to numeric tags on page 445

Configure an event to trigger an action

Configure an event to trigger an action

An event triggers an action on the HMI device. The operator on the HMI device or the system can trigger an event.

Events can be added and configured to trigger an action when a:

- Graphic element behaves like a button
- Graphic element or screen is pressed or released
- Key on an external keyboard is pressed or released
- Graphic element enters or exits a selected state

Graphic elements on the HMI device include Add-On Graphics.

See also

What is an event? on page 476

Events tab on page 447

Events and Add-On Graphics on page 400

Events tab

How do I open the Events tab?

On the **Menu** bar, click **VIEW > Properties Window**, and click the **Events** tab.

Import the desired languages before changing the language that appears on the HMI device.

Use the **Events** tab to:

- **Add an event.** Define what occurs to trigger an action. For example, add an event for when releasing a graphic button or key, or when pressing or releasing the screen or key. Add events typically performed by a button. For example, a Button Behavior event can configure a graphic element to act as a momentary push button or high-speed HMIBC button.

  Add events to a graphic element, Add-On Graphic, screen, popup, or the System Banner. For each event, configure the action that triggers when the event takes place. For example, an event of pressing a graphic element could trigger the action of opening a specific screen.
- **Configure a command.** Define the action triggered when the event occurs. For example, the command can log off the project, navigate to a screen, increment a value, or calibrate the HMI device screen for touch.
- **Change the command an event performs**. Delete the command and add a new command for the event.

- **Delete a command.** Delete a command from an event so the command does not trigger when the event occurs.

See also

What is an event? on page 476

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Key Press or a Key Release event on page 451

Import a language file on page 671

Export text strings for language translation on page 670

Trigger an action on a Button Behavior event

Add a Button Behavior event to a graphic element or Add-On Graphic to have the element perform typical button actions. Button Behavior events apply typical button behaviors to a graphic element by performing pre-configured commands. For example, you can create a Button Behavior event that sets a tag to 1 on a touch press and sets the same tag to 0 on a touch release. This is useful for creating events for a button to start and stop a conveyor belt. Button behavior events include internal commands that you do not have to configure. Graphic elements and Add-On Graphics can have only one Button Behavior event.

You can use an external keyboard with the HMI device. The **L1** through **L10** keys listed when creating Key Press and Key Release events correspond with pressing **Shift+F1** through **Shift+F10** keys on an external keyboard. The **R1** through **R10** keys listed when creating Key Press and Key Release events correspond with pressing **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

To trigger an action on a Button Behavior event

1. On the screen, right-click the graphic element or Add-On Graphic and then select **Button Behavior**.

   Tip: Adding a Button Behavior event for the selected element is also done through the **Events** tab of the **Properties** window.

2. Select the button behavior.

   Tip: An instance of an Add-On Graphic cannot bind directly to a controller tag. Bind an instance of an Add-On Graphic to a controller tag by creating a user-defined data type property in the definition of the Add-On Graphic.

3. To have the event occur even if focus is not first set by tabbing to the graphic element, clear the **Requires Focus** check box.
4. For momentary button behaviors such as **Set a tag to 1 on press, 0 on release** and **Set a tag to 0 on press, 1 on release**, check the **Always Trigger Release Event** box.

Tips:

- Selecting the behavior type after entering a tag leaves the selected tag in the **Tag** box. This occurs unless the selected behavior is HMIBC or navigation. For example, selecting Tag_1 for the Set a tag to 1 on release behavior and changing to Set a tag to 0 on release, leaves Tag_1 configured for the new selection.
- By default, Button Behavior events work with touch only. To have a key press activate the Button Behavior event, in the **Key** box, select an HMI device key. Press the selected key or touch the graphic element to trigger the event.
- Clear the **Always Trigger Release Event** check box to not commit to a press action. This allows a finger to slide off the graphic element without triggering the release event.

See also

Button behaviors on page 449

Create a high-speed HMIBC button on page 490

Bind an Add-On Graphic to a user-defined data type property on page 409

What is HMI Button Control? on page 489

In what order are touch events triggered? on page 478

Button behaviors

An event where a graphic element or Add-On Graphic behaves like a button triggers specific button behavior. When creating a Button Behavior event for a graphic element or Add-On Graphic, select a behavior:

Behavior	Description
Set a tag to 1 on release	Set the value of the selected tag to 1 by releasing the button. To configure this command, in the **Tag** box, enter or browse to select the tag.
Set a tag to 0 on release	Set the value of the selected tag to 0 by releasing the button. To configure this command, in the **Tag** box, enter or browse to select the tag.
Set a tag to 1 on press, 0 on release	Set the value of the selected tag to 1 by pressing the button and then setting the value to 0 by releasing the button. Select a minimum hold time for this button behavior. To configure this command, in the **Tag** box, enter or browse to select the tag. For momentary button behaviors, press the button for a minimum length of time. The button stays pressed even when releasing the button before the minimum hold time. To set a minimum hold time for the momentary button, select the **Minimum Hold Time** box, and then select a minimum hold time. Pressing the button again before the minimum hold time expires is not allowed. If a screen or popup containing the button closes before the hold time expires, the hold time resets. The minimum hold time does not support binding.
Set a tag to 0 on press, 1 on release	Set the value of the selected tag to 0 by pressing the button and then setting the value to 1 by releasing the button. Select a minimum hold time for this button behavior. To configure this command, in the **Tag** box, enter or browse to select the tag. For momentary button behaviors, keep the button pressed for a minimum length of time. The button stays pressed even when releasing the button before the minimum hold time. To set a minimum hold time for the momentary button, select the **Minimum Hold Time** box, and then select a minimum hold time. Pressing the button again before the minimum hold time expires is not allowed. If a screen or popup containing the button closes before the hold time expires, the hold time resets. The minimum hold time does not support binding.

Toggle a tag on release	Toggle the value of the selected BOOL tag from 0 to 1, or from 1 to 0, by releasing the button. To configure this command, in the **Tag** box, enter or browse to select the BOOL tag.
Write to a tag on release	Write a value to the selected tag by releasing the button. Specify the value with a number, a tag, or an expression. To configure this command, in the **Tag** box, enter or browse to select the tag. In the expression box, create the expression value to write to the tag when you release the button.
Incrementally change a tag on release	Increment the value of the selected tag by releasing the button. Specify the value with a number, a tag, or an expression. To configure this command, in the **Tag** box, enter or browse to select the tag. In the **By** box, create the expression value by which to increment the tag when releasing the mouse button. The increment can be either negative or positive.
Logix HMIBC set to 1 on press, 0 on release	Use high priority communication to set the value of the .ButtonState member of the selected HMIBC tag to 1 when pressing the button, and to 0 when releasing the button. To configure this command, in the **HMIBC Tag** box, select an HMIBC type tag. The Tag Browser filters HMIBC type tags from the Logix Designer project file (.acd). Select the HMIBC type tag only. Creating an HMIBC button using the Logix HMIBC **set to 1 on press, 0 on release** Button Behavior option automatically uses the .ButtonState member of the HMIBC tag.
Logon on release	Open the **Log On** dialog box to log on to the HMI device. When the **Log On** dialog box opens, any open popup closes.
Logoff on release	Log the current user off the HMI device. This logs on the Guest user role automatically to show only the items to which the Guest role has access.
Open popup on release	Open a specific popup when the event occurs. To configure this command, in the **Open Popup** box, navigate to and select the popup the event is to open. The popups listed exist in the **User-Defined Screens** and **Predefined Screens** folders of the **Project Explorer**. Only popups appear for the **Popup Open** command. Only one popup at a time can open on the HMI device. When a popup opens, any previously open popup closes. If the selected popup has a user-defined data type property, a **Property Configuration** box appears under the command. To pass a value to the popup on the HMI device when the popup opens, bind the value in the **Property Configuration** box to the user-defined data type property of the popup.
Close popup on release	Close the popup on the HMI device when the event occurs. Only one popup at a time can open on the HMI device.
Navigate to screen on release	Open the specified screen or shortcut by releasing the button. To configure this command, in the **Navigate To** box, select the shortcut or screen the event is to open. Navigate to the contents of the Navigation Menu, User-Defined Screens, and Predefined Screens folders of the **Project Explorer**. If the selected screen has a user-defined data type property, a **Property Configuration** box appears under the command. To pass a value to the screen on the HMI device when the screen opens, bind the value in the **Property Configuration** box to the user-defined data type property of the screen.
Navigate backward on release	Navigate back in history to open the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
Navigate forward on release	Navigate forward in history to open the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
Show Navigation Menu on release	Open the **Navigation** menu on the HMI device screen by releasing the button.

Switch language on release	Switch to a specific language when the event occurs. **Tip:** Import the desired languages before switching to a specific language.

See also

Trigger an action on a Button Behavior event on page 444

Events tab on page 447

What is an event? on page 476

Import a language file on page 671

Export text strings for language translation on page 670

Trigger an action on a Key Press or a Key Release event

Configure an action to occur when touching or releasing a key on the HMI device. For example, create a Key Press event so that pressing **L1** on the HMI device opens a specific screen.

You can use an external keyboard with the HMI device. The **L1** through **L10** keys listed when creating Key Press and Key Release events correspond with pressing **Shift+F1** through **Shift+F10** keys on an external keyboard. The **R1** through **R10** keys listed when creating Key Press and Key Release events correspond with pressing **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

To trigger an action on a Key Press or a Key Release event

1. Select the item to have the event. The item can be a graphic element, a graphic element in the definition of an Add-On Graphic, an Add-On Graphic instance, a group of elements, a screen, a popup, or the System Banner.
   Tip: Select items on either the **Screen** area, **Project Explorer**, or **Graphic Explorer**.
2. In the **Properties** pane, click the **Events** tab.
3. Select **Add Event** and select an event from the list.
   - **Key Press.** Occurs when pressing a designated key on the HMI device or on an external keyboard.
   - **Key Release.** Occurs when releasing a designated key on the HMI device or an external keyboard.
4. In the **Key** box, select the key to use for the event.
5. To have the event occur even if the graphic element does not have focus when the event triggers, clear the **Requires Focus** checkbox. By default, this check box is not selected. Therefore, the event still triggers even when the graphic element does not have focus. This may occur when pressing **Tab** to highlight another graphic element on the screen. Placing focus on a graphic element requires pressing **Tab** to highlight the graphic element.
6. If a **Release** event requires that the event of the graphic element triggers not only when releasing the element or key, but even if another screen opens, select the **Always Trigger Release Event** checkbox. This setting is useful for having the element act like a momentary push button where a **Press** event sets a tag to 1 to

start a conveyor belt, and a **Release** event sets the same tag to 0 to stop the conveyor belt.

7. Select **Add Command**.
8. Expand a command category to list the commands in that category:
   - **Alarm History.** Cancel export of the alarm history, clear alarm history, or export alarm history.
   - **Data Log.** Cancel export of data log, clear data log, or export data log to a USB or SD card.
   - **HMI Device Configuration.** Configure screen calibration, load a runtime application from removable media to the HMI device, reboot the HMI device, and safely remove media.
   - **Language**. Change the language that displays on the HMI device.

     Tips:
     - Import the desired languages before changing the language that displays on the HMI device.
     - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the string that is translated for the download language is also blank, View Designer defaults to the language used for designing the project.
   - **Navigation.** Navigate to screens on the HMI device.

     Tip: Multiple screen navigation commands can exist for an event. All other types of commands for the event are executed before the navigation command. Only one navigation command is executed for an event. This is generally the first navigation command. The remaining navigation commands are ignored on the HMI device. To ensure the navigation command is the navigation command executed, Rockwell Automation recommends adding only one navigation command to an event.
   - **Notification**. Send an email notification.
   - **PDF**. Commands that zoom or navigate pages in a PDF file.
   - **Security**. Log on or log off the HMI device.
9. **Value.** Commands that increment, toggle, or write a value to the selected tag.Select and configure the command the event is to perform.

   Tips:
   - Create multiple commands for each event. The order of execution may not correspond with the order of commands listed on the **Event** card.
   - Creating many tag write commands for an event may pause screen updates while the writes occur.
   - When an event performs multiple commands that write to multiple tags, all of the write commands occur sequentially. Therefore, you may not see all of the tag values in the Logix controllers at the same time.

See also

Event commands on page 456

Events tab on page 447

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Trigger an action on a Touch Press or a Touch Release event

Configure an action to occur when pressing or releasing a graphic element or the screen on the HMI device. For example, create a **Touch Press** event so that a specific screen opens when touching a graphic element.

To trigger an action on a Touch Press or a Touch Release event

1. Select the item to have the event. The item can be a graphic element, a graphic element in the definition of an Add-On Graphic, an Add-On Graphic instance, a group of elements, a screen, a popup, or the System Banner.

   Tip: Select items on either the Screen area, Project Explorer, or Graphic Explorer.

2. In the **Properties** pane, click the **Events** tab.
3. Select **Add Event** and select an event from the list.
   - **Touch Press**. Occurs when pressing a screen or element on the HMI device.
   - **Touch Release**. Occurs when releasing a screen or graphic element on the HMI device.
4. If a Touch Release event requires that the event of the element trigger even if a finger slides off the element before releasing the element, the graphic element becomes disabled or invisible, or a screen navigation opens a different screen, select the **Always Trigger Release Event** checkbox. This setting is useful for having the element act like a momentary push button. For example, a Touch Press sets a tag to 1 to start a conveyor belt, and a Touch Release event sets the same tag to 0 to stop the conveyor belt.
5. Select **Add Command**.
6. Expand a command category to list the commands in that category:
   - **Alarm History.** Cancel export of the alarm history, clear alarm history, or export alarm history.
   - **Data Log.** Cancel export of data log, clear data log, or export data log to a USB or SD card.
   - **HMI Device Configuration.** Configure screen calibration, load a runtime application from removable media to the HMI device, reboot the HMI device, and safely remove media.
   - **Language**. Change the language that displays on the HMI device.

     Tips:
     - Import the desired languages before changing the language that displays on the HMI device.
     - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the string that is translated for the download language is also blank, View Designer defaults to the language used for designing the project.
   - **Navigation.** Navigate to screens on the HMI device.

     Tip: Multiple screen navigation commands can exist for an event. All other types of commands for the event are executed before the navigation command. Only one navigation command is executed for an event. This is generally the first navigation command. The remaining navigation commands are ignored on the HMI device. To ensure the navigation command is the navigation command executed, Rockwell Automation recommends adding only one navigation command to an event.
   - **Notification**. Send an email notification.
   - **PDF**. Commands that zoom or navigate pages in a PDF file.

- **Security**. Log on or log off the HMI device.

7. **Value.** Commands that increment, toggle, or write a value to the selected tag.Select the command the event is to perform.

Tips:

- Create multiple commands for each event. The order of execution may not correspond with the order of commands listed on the **Event** card.
- Creating many tag write commands for an event may pause screen updates while the writes occur.
- When an event performs multiple commands that write to multiple tags, all of the write commands occur sequentially. Therefore, you may not see all of the tag values in the Logix controllers at the same time.

See also

Event commands on page 456

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Button Behavior event on page 444

Trigger an action on a State Enter or State Exit event on page 454

In what order are touch events triggered? on page 478

Trigger an action on a State Enter or State Exit event

Configure an action to occur when a graphic element, Add-On Graphic, screen, popup, or System Banner enters or exits a specified state. Configure states using the **State Table** on the **Animations** tab.

Prerequisites

- Verify that the graphic element, screen, popup, or System Banner is configured for **State Table** animation.

To trigger an action on a State Enter or State Exit event

1. Select the item to have the event. The item can be a graphic element, a graphic element in the definition of an Add-On Graphic, an Add-On Graphic instance, a group of elements, a screen, a popup, or the System Banner.

Tip: Select items on either the **Screen** area, **Project Explorer**, or **Graphic Explorer**.

2. In the **Properties** pane, click the **Events** tab.
3. Select **Add Event** and select an event from the list.
   - **State Enter.** Occurs when a graphic element, Add-On Graphic, screen, popup, or the System Banner transitions into the selected state through an animation.
   - **State Exit.** Occurs when a graphic element, Add-On Graphic, screen, popup, or the System Banner transitions out of the selected state through an animation.
4. In the **State Table** box, select the State Table containing the desired state.
5. In the **State Name** box, select the state to trigger the event.
6. Select **Add Command**.

7. Expand a command category to list the commands in that category:
   - **Alarm History.** Cancel export of the alarm history, clear alarm history, or export alarm history.
   - **Data Log.** Cancel export of data log, clear data log, or export data log to a USB or SD card.
   - **HMI Device Configuration.** Configure screen calibration, load a runtime application from removable media to the HMI device, reboot the HMI device, and safely remove media.
   - **Language**. Change the language that displays on the HMI device.

     Tips:
     - Import the desired languages before changing the language that displays on the HMI device.
     - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the string that is translated for the download language is also blank, View Designer defaults to the language used for designing the project.
   - **Navigation.** Navigate to screens on the HMI device.

     Tip: Multiple screen navigation commands can exist for an event. All other types of commands for the event are executed before the navigation command. Only one navigation command is executed for an event. This is generally the first navigation command. The remaining navigation commands are ignored on the HMI device. To ensure the navigation command is the navigation command executed, Rockwell Automation recommends adding only one navigation command to an event.
   - **Language**. Command that changes the language that displays on the HMI device.
   - **Notification**. Send an email notification.
   - **State.** Commands that apply a state from the selected State Table.

     Tips:
     - Import the desired languages before changing the language that displays on the HMI device.
     - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the translated string for the download language is also blank, View Designer defaults to the language used for designing the project.
   - **PDF**. Commands that zoom or navigate pages in a PDF file.
   - **Security**. Log on or log off the HMI device.
8. **Value.** Commands that increment, toggle, or write a value to the selected tag.
9. Select and configure the command the event is to perform.

   Tips:
   - Create multiple commands for each event. The order of execution may not correspond with the order of commands listed on the **Event** card.
   - Creating many tag write commands for an event may pause screen updates while the writes occur.
   - When an event performs multiple commands that write to multiple tags, all of the write commands occur sequentially. Therefore, you may not see all of the tag values in the Logix controllers at the same time.

See also

Event commands on page 456

Configure an animation using a State Table on page 438

Change a command that an event performs on page 474

Delete a command from an event on page 475

Delete an event on page 476

Event commands

Select a command under a category to perform when an event triggers:

Category	Command	Description
Alarm History	Cancel Alarm History Export	Cancels the export of the alarm history.
	Clear Alarm History	Removes all alarm events stored on the HMI device.
	Export Alarm History	Exports a .csv file for the alarm history in the project to a .zip file and places the .zip file on a USB drive or SD card to review the alarm history on a computer.
Certificates	Delete Certificate	Deletes a digital certificate stored on the HMI device. This command requires entering the fingerprint of a specific certificate.
	Import Certificate	Imports a digital certificate with a specified file name.
Data Log	Cancel Data Log Export	Cancels the export of the data log.
	Clear Data Log	Clears the contents of all data logs or selected data logs.
	Export Data Log	Exports a .csv file for each data log in the project to a .zip file and places the .zip file on a USB drive or SD card to review the data log on a computer.
HMI Device Configuration	Calibrate Touch Screen	Calibrates the HMI device screen for touch. This command displays a red target on the screen. Press and hold the center of the target until the target turns white and another red target appears. Continue pressing and holding the centers of all remaining targets as they appear. All processed targets are replaced with white targets. A green circle with a check indicates successful calibration. A red circle with an X indicates a failed calibration. If a red circle with an X appears, perform the event again to calibrate the screen.
	Load Application	Loads the specified runtime application file to the HMI device from either a USB storage or an SD card.
	Reboot Terminal	Reboots the HMI device immediately.
	Safely Remove Media	Prepares the SD card for safe removal from the HMI device so the files do not become corrupt or read-only.
Language	Switch Language	Changes the language that displays on the HMI device. **Tip:** Import the desired languages before changing the language that displays on the HMI device.
Navigation	Navigate Backward	Navigates back in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
	Navigate Forward	Navigates forward in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
	Open web browser	Opens the web browser in a new window.
	Close web browser	Closes the web browser.
	Popup Close	Closes the popup on the HMI device when the event occurs. Only one popup can be open on the HMI device at a time.
	Popup Open	Opens a specific popup when the event occurs. Only one popup can be open on the HMI device at a time. In the **Open Popup** box, navigate to and select the popup the event is to open. If the selected popup has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the popup. This passes the value to the popup when it opens on the HMI device. If a graphic element on the popup to open has an aliased property with a value, the Popup Open command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the popup with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target popup.

Category	Command	Description
	Screen Navigate	Opens the specified shortcut or screen when the event occurs. In the **Navigate To** box, select the screen or shortcut that the event is to open. If the selected screen or shortcut has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the screen or shortcut. This passes the value to the screen when it opens on the HMI device. If a graphic element on the screen to open has an aliased property with a value, the Screen Navigate command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the screen with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target screen.
	Show Navigation Menu	Opens the **Navigation** menu on the HMI device screen when the event occurs.
Notification	Send Email	Sends an email with a configurable subject and message to one or more recipients. First configure the email server connection from the Settings screen on the HMI device.
PDF	Previous Page	Navigates to the previous page in a PDF document.
	Next Page	Navigates to the next page in a PDF document.
	Go To Page	Navigates to a specified page in a PDF document.
	Zoom in	Increases the document magnification by a percentage of the preset level in a PDF document.
	Zoom out	Decreases the document magnification by a percentage of the preset level in a PDF document.
	Zoom to	Adjusts the magnification to fit the page, fit the width of the page, or display the page at 100% magnification.
Security	Logon	Opens the **Log On** dialog box when the event occurs. When the **Log On** dialog box opens, any open popup closes.
	Logoff	Logs you off the project. If the Guest user role has security access to the current screen, the screen remains open. If the Guest user role does not have security access to the current screen, the **Home** screen opens.
State	State Previous	Applies the previous state in the selected State Table to the graphic element when the event occurs. To configure this command, in the box in the command card, select the name of the desired State Table. Select **Wrap Around** to continue to apply states when the event occurs, even if the beginning or end of the State Table is reached. If you create a **State** event with a **State Previous** command with **Wrap Around** selected, the graphic element loops through states in the State Table as the event occurs.
	State Next	Applies the next state in the selected State Table to the graphic element when the event occurs. To configure this command, in the box in the command card, select the name of the desired State Table. Select **Wrap Around** to continue to apply states when the event occurs, even if the beginning or end of the State Table is reached. If you create a **State** event with a **State Next** command with **Wrap Around** selected, the graphic element loops through states in the State Table as the event occurs.
Value	Increment	Increments the value of the selected tag when the event occurs. Specify the value with a number, a tag, an expression, an element property, or the property of a screen or Add-On Graphic. In the **Increment** box, enter or browse to select the tag or property of a screen or Add-On Graphic. In the **By** box, create the expression value by which to increment the tag when the event occurs. The increment can be either negative or positive.
	Toggle	Toggles the value of the selected tag from 0 to 1, or from 1 to 0, when the event occurs. In the **Tag** box, enter or browse to select the tag or property of a screen or Add-On Graphic.

Category	Command	Description
	Write	Writes a value to the selected tag when the event occurs. Specify the value with a number, a tag, an expression, an element property, or the property of a screen or Add-On Graphic. In the **Write To** box, enter or browse to select the tag or property of a screen or Add-On Graphic. In the Expression box, create the expression value to write to the tag when the event occurs.

Tips:

- For best performance, create commands that evaluate no more than 20 tags.
  For example, it is best for a Write command to have an expression containing no more than 20 tags or a Send Email command to embed no more than 20 tags in the message.
- For commands with expressions using many tags in a reference, have 10 or fewer such commands in an event for best performance.
- Using larger numbers of tag references in many commands may cause slow screen performance while those commands evaluate.
- Reference 1000 or fewer tags across all the project events. Using a larger number of tag references may cause delays in PanelView 5000 recovery from controller disconnects.
- If the HMI device processes a large number of background tasks, like multiple triggered alarms, you may need to repeat a button press to execute the button commands.

See also

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Import a language file on page 671

Export text strings for language translation on page 670

Add an event command for navigation on the HMI device

Add an event command to navigate a screen or popup on the HMI device. Do this to open a screen, navigate screen history, open or close a popup, or open the Navigation menu on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command for navigation on the HMI device

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Navigation** category and select the command:

- **Navigate Backward.** Navigates back in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command.
- **Navigate Forward.** Navigates forward in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command.

  Tip: Logging off the HMI device erases the navigation history.

- **Show Navigation Menu.** Opens the **Navigation** menu on the HMI device screen when the event occurs.
- **Popup Close.** Closes the popup on the HMI device when the event occurs. Only one popup at a time can open on the HMI device.
- **Popup Open.** In the **Open Popup** box, navigate to and select the popup the event is to open.
- **Screen Navigate.** Opens the specified screen when the event occurs. In the **Navigate To** box, select the shortcut or screen that the event is to open.

  Tips:
  - If the selected screen or popup for a Screen Navigate or Popup Open command has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the shortcut or popup. This passes the value to the screen or popup when it opens on the HMI device.
  - If a graphic element on the screen or popup to open for a Screen Navigate or Popup Open command has an aliased property with a value, the Screen Navigate command or Popup Open command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the screen or popup with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target screen or popup.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to calibrate the touch screen

Add an event command to calibrate the touch screen of the HMI device. The **Calibrate Touch Screen** command displays a red target on the screen of the HMI device. At runtime, press and hold the center of the target until the target turns white and another red target appears. Continue pressing and holding the centers of all remaining targets as they appear. All processed targets are replaced with white targets. A green circle with a check indicates a successful calibration.

A red circle with an X indicates a failed calibration. If a red circle with an X appears, perform the event again to calibrate the screen.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to calibrate the touch screen

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** category and select **Calibrate Touch Screen**.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to change the language on the HMI device

Create an event command to change that language that displays the runtime application on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to change the language on the HMI device

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the Language category and select **Switch Language**.
4. In the **Switch Language To** list, select a language.

See also

Add a language to a View Designer project on page 672

Import a language file on page 671

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

About changing the project language on page 675

Add an event command to change the state of a graphic element

Add an event command to change the state of a graphic element. For example, have a graphic element fill with color or change colors when the event is triggered by a state change on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to change the state of a graphic element

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **State** category and select the command:
   - **State Previous.** Applies the previous state in the selected State Table to the graphic element when the event occurs. Select the name of the desired State Table.
   - **State Next.** Applies the next state in the selected State Table to the graphic element when the event occurs. Select the name of the desired State Table.

     Tips:
     - Select **Wrap Around** to continue to apply states when the event occurs, even when reaching the beginning or end of the State Table.
     - Creating a **State** event with a **State Previous** command with **Wrap Around** selected loops the graphic element through states in the State Table as the event occurs.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to change the value of a tag

Add an event command to change the value of a tag. Do this to change the appearance of or the displayed value on a graphic element on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to change the value of a tag

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Value** category and select the command:
   - **Increment.** Increments the value of the selected tag when the event occurs. Specify the value with a number, a tag, or an expression. In the **Increment** box, enter or browse to select the tag and in the **By** box, create the expression value by which to increment the tag when the event occurs. Increment by either a negative or positive value.
   - **Toggle.** Toggles the value of the selected tag from 0 to 1, or from 1 to 0, when the event occurs. In the **Tag** box, enter or browse to select the tag.
   - **Write.** Specify the value with a number, a tag, or an expression. In the **Write To** box, enter or browse to select the tag. In the expression box, create the expression value to write to the tag when the event occurs.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to interact with a PDF graphic element

Create an event to navigate pages or change the view in a PDF document. Add a PDF navigation command to a touch or key event to navigate to the previous page, next page, or a specific page in a PDF.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To create an event command to interact with a PDF Viewer graphic element

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **PDF** category and select and configure the command:
   - **Next Page**. Navigates to the next page in the PDF when the event triggers.
   - **Previous Page.** Navigates to the previous page in the PDF when the event triggers.
   - **Go to Page**. Navigates to the specified page in the PDF. In the **Page** box, enter the page number to display when the event triggers.
   - **Zoom In**. Increases the document magnification by a percentage of the preset level in a PDF document. In the **ByPercent** box, enter a value to increase magnification.
   - **Zoom Out**. Decreases the document magnification by a percentage of the preset level in a PDF document. In the **ByPercent** box, enter a value to decrease magnification.
   - **Zoom To**. Adjusts the magnification of the PDF to fit an entire page, fit the width of the page, or show the page at 100% in the PDF Viewer. In the **Zoom** list, select a magnification option.

Tips:

- Bind a PDF command property value to a tag in a controller to change the PDF property dynamically on the HMI device. If there is a problem with a tank, bind the specific page number of the PDF document to a tag for user assistance. The controller opens the document to the specified page explaining how to fix the issue.
- Project events do not support PDF commands.

See also

Event commands on page 456

Change a command that an event performs on page 474

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Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to load a runtime application

Create an event to load a runtime application from a USB storage device or SD card. Add a **Load Application** command to a touch or key event to load the application. When triggered on the HMI device, the event with the command loads the .vpdr file from the specified removable media. If required, the **Load Application** command updates the firmware version on the PanelView 5000 HMI device before loading the runtime application file. To enable updating firmware, copy the correct version of the .dmk firmware file to the removable media along with the .vpdr application file.

Tip: Firmware update using the Load Application command only works in two cases:

1. When the firmware on the HMI device is already V6 or later, and the firmware you want to load is V6 or later.
2. When the HMI device is running out-of-the-box manufacturing firmware, was manufactured after the V6 release date, and the firmware you want to load is V6 or later.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to load a runtime application

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** command category and select **Load Application**.
4. Under **Load Application from** on the command card, in the **Source** box, select **USB** or **SD Card**.
5. In the **FileName** box, type the name of the runtime application to load.

   Tip: Bind the **FileName** box of the Load Application event command to a graphic element property or a tag in the controller. Binding the file name specifies the file name to load on the HMI device. For example, bind the **FileName** box of the **Load Application** event command to the text property of Text Input graphic element. Use the Text Input graphic element to then enter the name of the .vpdr file to load from the removable media to the HMI device.
6. In the **HMItoControllerPath** box, specify the controller path to use by selecting either:
   - **Keep paths on HMI device.** Use the HMI to controller path currently in use on the HMI device.

- **Load path in VPDR file.** Use the HMI to controller path in the runtime application file that is loading.

7. In each box, select **Select tag** to open the **Tag Browser** and browse to select the tag or manually enter a graphic element property to receive the value to display on the HMI device when the event command triggers:
   - **FirmwareUpdateRequired**. Whether or not a firmware update is required on the HMI device to load the runtime application file from the removable media.
   - **VPDRMajorVersion**. The major version of the runtime application file on the removable media.
   - **FirmwareVersionToInstall**. The version of the firmware that the **Load Application** command installs on the HMI device from the removable media.

   Tip: Rockwell Automation recommends binding to tags of graphic element properties in the FirmwareUpdateRequired, VPDRMajorVersion, and FirmwareVersonToInstall boxes to display updated firmware version information on the HMI device when loading the runtime application file.

See also

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Touch Press or a Touch Release event on page 453

Event commands on page 456

What is an event? on page 476

Save a runtime application to removable media on page 63

Add an event command to send an email

Add a command to an event to automatically send an email notification when the event triggers on the HMI device. For example, send an email automatically when a tank reaches or drops below a certain level by adding a **Send email** command to a State Enter or State Exit event. To send an email after pressing a button, add a **Send email** command to a touch press event on the graphic element.

Prerequisites

- Create an event to automatically trigger the command:
  - **Touch Press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch Release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key Press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.
  - **State Enter.** Occurs when a graphic element, screen, popup, or the System Banner transitions into the selected state through an animation.

- **State Exit.** Occurs when a graphic element, screen, popup, or the System Banner transitions out of the selected state through an animation.

IMPORTANT To send an email when a State Enter or State Exit event triggers, verify that the graphic element, screen, popup, or System Banner is configured for **State Table** animation.

To add an event command to send an email

1. Select the graphic element configured with the event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Messaging** command category and select **Send email**.
4. Complete the property boxes on the command card:
   - **Recipient**. The email addresses of the email recipients, separated by commas or semicolons.
   - **Subject**. The subject of the email.
   - **Message**. The complete text of the email to send.
   - **Status**. The status of the sent email in Numeric format (DINT). Status does not support binding to element properties. Bind this property to a controller tag to display the status code of the last email sent by the command:
     - Successfully sent: 10. This code indicates the email was successfully sent to all recipients.
     - Error returned from email server: 20. This code indicates multiple errors such as a timeout while sending the email, an incorrect email address, or a communication error with the email server.
     - Unable to reach email server: 30. This code indicates multiple errors such as an invalid password, invalid user name, or invalid server name.
     - Sending is in progress (email added to queue): 40. This code indicates an email is in progress to a recipient.
     - Email request rejected: 50. This code indicates the maximum buffer size of 120 email requests are in queue. Decrease the number of email commands that execute simultaneously.

Tips:
- Manually enter values in the property boxes to send a pre-configured static message when the event triggers. Use this method when sending only one or two emails and when entering information directly in the command is preferred.
- To send a large number of emails with updated information from the system when the event triggers, bind the property boxes to tags in a controller.

See also

Event commands on page 456

What is an event? on page 476

Bind a property to a data item on page 508

Configure the SMTP server to send email on page 747

Add an event command to log on or log off the HMI device

Add an event command to either log on or log off the HMI device. Do this navigate a screen or popup on the HMI device. Do this to open a screen, navigate screen history, open or close a popup, or open the Navigation menu on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to navigate screens

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Security** category and select the command:
   - **Logon.** Opens the **Log On** dialog box and closes any open popup when the event occurs.
   - **Logoff.** Logs off the project.

     Tip: When logging off, if the Guest user role has security access to the current screen, the screen remains open. If the Guest user role does not have security access to the current screen, the **Home** screen opens.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to reboot the HMI device

Add an event command to reboot the HMI device. Rebooting the HMI device is also performed through the Settings screen on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.

- **Key press.** Occurs when pressing the specified key.
- **Key release.** Occurs when releasing the specified key.

To add an event command to reboot the HMI device

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** category and select **Reboot Terminal**.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to safely remove media

Create an event that prepares the SD card that is in the HMI device for safe removal. When triggered, the event prevents the files on the SD card from becoming corrupt or read-only.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to safely remove media

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** command category and select **Safely Remove Media**.

Tip: To create an indication of when the SD card is safe to remove, use the status from the DataLogStatus system tag.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to export a data log

Create an event command to export a data log to view the tag values collected on the HMI device. When triggered on the HMI device, the event exports all of the data logs in the View Designer project. Data logs export to a USB storage device or SD card for a PanelView project as a .zip file. The .zip file contains a .csv file for each data log.

For a PanelView project, create an additional event to allow the safe removal of the removable media from the HMI device so that files on the media do not become corrupt.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add event commands to export a data log

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Data Log** category and configure the command:
   - **Export Data Log**. Creates and exports each data log in .csv format to a .zip file:
     - In the **Destination** box of the command card, select **USB** or **SD Card** for a PanelView project.
     - In the **FileName** box, type the name of the export .zip file for the data log.
   - **Cancel Data Log Export.** Cancels the export of the data log to the HMI device. Partial data logs do not export. No .zip file appears in the destination.

Tips:

- Bind the **FileName** box of the Export Data Log event command to a graphic element property or a tag in a controller. Binding the file name specifies the data log to export on the HMI device. For example, bind the **FileName** box of the Export Data Log event command to the text property of Text Input graphic element. This displays the name of the data log on the Text Input graphic element that exports the data log from the HMI device.
- Exporting the same data log file to the same removable media creates a new export file each time. The file name increments by one. This may cause the USB storage device, SD card, or destination to reach capacity. For example, DataLog_002 indicates a second instance of an exported data log named DataLog.
- When the data log is exporting, the **Data Export** icon appears in the **System Banner**. If there is an error exporting a data log, the **Data Export Error** icon appears in the **System Banner.**
- Data log exports do not complete or create a .zip file on removable media if a ControlFLASH, reboot, or power cycle to the HMI device occurs during the export.
- The data log file contains tag values from all controllers.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Add an event command to clear one or more data logs

Create an event to clear data logs. Add a clear data log command to clear one or more data logs, or all data logs at once.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add event commands to clear a data log

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Data Log** category and select and configure the command:

a. **Data Log**. Select **All data logs** or select a specific data log name.

b. **Status**. The status of the data log in Numeric format (DINT). Status does not support binding to element properties. Bind this

property to a controller tag to display the status code of the data log:

- Data log clearing in progress: 10.
- Data log successfully cleared: 20.
- Unable to clear data log. Data log is not configured: 30.
- Unable to clear data log. Data log is not running: 40.
- Selected data log does not exist: 50.
- Clear data log command is already in progress: 60.
- Unable to clear data log. Export is in progress: 70.
- Unable to clear data log. Insert SD card: 80.
- Unable to restart the cleared data log. Remove and replace the SD card: 90.
- Unable to clear the data log. Try again or restart terminal: 100.

4. Configure another command to clear additional data logs.

See also

Data log tab on page 665

Data log contents on page 665

Add an event command to open the web browser

Create an event command to open the web browser and access a specified URL.

IMPORTANT The web browser is not supported by the PanelView 53xx HMI device family.

Configure a command to allow the HMI device operator to access content on the intranet, the Internet, remote file servers, devices with built-in web pages, removable SD cards or USB drives, or IP cameras.

Tips:
- By default, the web browser blocks access to all locations. Configure the allowed locations list for the HMI device users.
- Some locations do not use the default ports 80 and 433. To enable access, setup open ports specific to these locations.

The web browser supports the following protocols:

- HTTP
- HTTPS
- BLOB, WS, WSS (included in HTTP and HTTPS)

To access removable media use these schemas:

- sd:/
- usb:/

EXAMPLE SD:/videos/video1.mp3.

You can run only one instance of web browser at a time. To run a different instance of the web browser (for example, to access a different location) first close the running instance. The web browser supports only one window or tab at a time. Links that open a page in a new tab or new window may not function. Bookmarks, file downloads and uploads are

disabled. The HMI device does not retain browsing history, login data, or cookies.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to open Web Bowser

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Navigation** category, select **Open Web Browser**, and configure the command:
   - **URL**. Specifies the first location to open when the web browser starts. Use http://, https://, sd:/, or usb:/ schemes.
   - **TopBar**. Select the look and the behavior of the top bar of the web browser:
     - **None**. Hides the address bar and navigation buttons.
     - **Slim (read-only)**. Displays only the address bar.
     - **Normal (read-only)**. Displays full top bar. The address bar is read-only.
     - **Normal (editable)**. Displays full top bar. The operator can enter URLs in the address bar.
   - **CloseOnLostFocus**. Closes the web browser when the focus shifts to other screen elements. For example, the web browser closes when you select an element outside the web browser. This property is selected by default.
   - **X**, **Y**. Set the initial position of the top-left corner of the web browser canvas in pixels.
   - **Width**, **Height**. Set the dimensions of the web browser canvas in pixels.

     Tip: Set the values of **X**, **Y**, **Width**, and **Height** to 0 to make the web browser fit the entire available space below the System Banner.

See also

Event commands on page 456

Add an event command to close the web browser on page 473

Configure Auto-Logoff on page 688

Add ports to the list of open ports on page 703

Add locations to the allowed locations list on page 701

Add an event command to close the web browser

Create an event command to close the web browser.

IMPORTANT The PanelView 53xx family of HMI devices does not support the web browser.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to close the web browser

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Navigation** category, and then select **Close Web Browser**.

See also

What is an event? on page 476

Event commands on page 456

Add an event command to open the web browser on page 471

Add an event command to import a certificate

Import a certificate to allow encrypted communication between the web browser on the HMI device and a remote server.

Tip: When creating a self-signed certificate, verify that the **Subject Alternative Name** property of the certificate contains the IP address of the device or server that you are connecting to.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to import a certificate

1. Select the graphic element configured with the touch or key event.

2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Certificate** command category and select **Import Certificate**.
4. Under **Import Certificate** on the command card, in the **Source** box, select **USB** or **SD Card**.
5. In the **FileName** box, type the file name of the certificate or or create a binding to a string which contains the file name of the certificate.

See also

What is an event? on page 476

Event commands on page 456

Add an event command to delete a certificate on page 474

Add an event command to delete a certificate

Delete a certificate to no longer store the certificate on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to delete a certificate

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Certificate** command category and select **Delete Certificate**.
4. In the **Fingerprint** box, type the fingerprint of the certificate or create a binding to a string containing the fingerprint of the certificate.

See also

What is an event? on page 476

Event commands on page 456

Add an event command to import a certificate on page 473

Change a command that an event performs

Make changes to the command of an event after creating the event. For example, change the destination screen for a **Screen Navigate** command. Changing the type of event after creating the event is not supported. For example, changing a **Touch Press** event to a **Key**

Release event is not supported. Delete an event if an event of that type is no longer required.

IMPORTANT If an event references a **State Table** and then the name of the table changes, change the reference to reflect the new **State Table** name. View Designer does not automatically update references with the new name.

To change a command that an event performs

1. Select the element or screen in the **Project Explorer** or **Graphic Explorer**, or in the **Screen** area.
2. In the **Properties** pane, select the **Events** tab.
3. To the left of the event, select **Show/Hide** to expose the commands associated with the event.
4. Change the commands of the event. For example, change the expression, value, or destination of the command.

See also

Events tab on page 447

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Delete a command from an event

Delete a command to no longer have the event perform the command. For example, delete a navigation command from the event of a button to no longer have the **Touch Press** event of the button open a popup.

To delete a command from an event

1. Select the graphic element, Add-On Graphic, or screen in the **Project Explorer**, **Graphic Explorer**, or in the **Screen** area.
2. In the **Properties** pane, select the **Events** tab.
3. To the left of the event, select **Show/Hide** to display the commands associated with the event.
4. Next to the command in the card, select **Delete Command** . The event no longer performs the deleted command. Deleting all commands means the event no longer performs any commands when the event triggers.

See also

Delete an event on page 476

Change a command that an event performs on page 474

Events tab on page 447

Delete an event

Delete an event or multiple events from the **Events** tab. Deleted events no longer perform on the HMI device screen.

To delete an event

1. Select the graphic element, Add-On Graphic, or screen in the **Project Explorer**, **Graphic Explorer**, or in the **Screen** area.
2. In the **Properties** pane, select the **Events** tab.
3. Next to the event, select **Delete Event** . The **Events** tab no longer lists the event.

See also

Events tab on page 447

Change a command that an event performs on page 474

Delete a command from an event on page 475

What is an event?

An event is something that occurs to trigger an action. Events initiate on the HMI device. An example of an event is touching a graphic element or key. The system can also initiate events. An example event is a tag changing values in a controller.

Create events for a graphic element, an instance of an Add-On Graphic, a graphic element within the definition of an Add-On Graphic, or a screen. There are four types of events:

- **Button Behavior**. Touch or release a button or key on the HMI device, or configure a graphic element or Add-On Graphic with typical button behaviors.
- **Touch Press and Touch Release**. Touch or release a graphic element, Add-On Graphic, screen, popup, or System Banner on the HMI device.
- **Key Press and Key Release**. Touch or release a key on the HMI device keypad or an external keyboard.
- **State Enter and State Exit**. Perform an event when a graphic element or Add-On Graphic transitions into or out of a selected state. For example, perform the event when the value of a tag in a controller changes from 50 to 100.

Access **Project Explorer > Project Events** to create events for a project. Project events execute commands after evaluating an expression from false to true, or pressing a key. A project event triggers regardless of the screen or popup on the HMI device.

Each event requires configuring one or more actions or commands that the event triggers. When the event occurs, the event performs the configured command. Depending on the type of event, commands from different categories can perform tasks. These categories and their commands are:

- **Alarm History.** Remove all alarm events stored on the HMI device. Export alarm history to a .csv file on a USB device or an SD card in order to view the information on a computer, or cancel the export.

- **Certificates.** Import a digital certificate from removable media, or delete a certificate from the HMI device. A digital certificate allows the HMI device to access locations on the Internet using the secured HTTPS and WSS protocols.
- **Data Logs.** Clear one or more data logs. Export a data log to a .csv file on a USB device or an SD card in order to view the information on a computer, or cancel the export.
- **HMI Device Configuration.** Calibrate touch for the HMI device screen, load a runtime application from the HMI device, reboot the HMI device, or safely remove media when the event occurs.
- **Language**. Change the language that displays on the HMI device.
- **Navigation.** Open the next or previous screen in your navigation history, a popup on the screen, a specific screen on the HMI device, or the **Navigation menu** on the HMI device when the event occurs. Open or close the web browser.
- **Notification.** Send an email with a configurable subject and message to one or more recipients.
- **PDF**. Navigate through the pages of PDF documents.
- **Security.** Open the **Logon** dialog box or log off when the event occurs.
- **State.** Apply the previous or next state in the selected State Table to the graphic element or Add-On Graphic when the event occurs.
- **Value.** Increment a tag value by a configured value or expression, toggle a tag value between True and False, or change a tag value by a configured value or expression when the event occurs.

Tips:

- Import the desired languages before changing the language that displays on the HMI device.
- If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the translated string for the download language is also blank, View Designer defaults to the language used for designing the project.

See also

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a State Enter or State Exit event on page 454

Import a language file on page 671

Export text strings for language translation on page 670

Example event

To create an event, assume that a screen named **Bottling Line A** opens when the operator releases **L10** on the physical keypad of the HMI device. To accomplish this:

1. Open the project containing the **Bottling Line A** screen.
2. Select the screen from which to navigate to the **Bottling Line A** screen. Select the screen in the **Project Explorer** or the **Graphic Explorer**, or open the **Screen** and select its canvas.
3. In the **Properties** window, select the **Events** tab.
4. Add an event and select a **Key Release** event.
5. Select the **L10** key as the key to prompt the event. When using an external keyboard instead of the physical keypad of the HMI

device, **L10** corresponds with pressing **Shift+F10** on an external keyboard.

6. Add a **Navigation** command to the event and select **Screen Navigate**.
7. In the **Navigate To** box, select the **Bottling Line A** screen to open when releasing **L10** on the HMI device physical keypad, or **Shift+F10** on an external keyboard, from the currently selected screen.

See also

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Multiple events

Create multiple events of the same type to change the same property value for a graphic element or write to the same tag value. This shows only the result of the last event configured for the element. For example, create two events for a graphic element. One event changes the FillColor property of a bottle to white. The other event changes the FillColor property of the same bottle to yellow. The HMI device shows only the contents of the bottle that turn yellow.

Create multiple events that change a different property for a graphic element or write to a different tag value. This shows the result of each of the events for the graphic element. For example, create two events for a graphic element. One event changes the FillColor property of a bottle to yellow. The other event changes the CapColor property of the same bottle to gray. The HMI device shows the contents of the bottle turning yellow and the bottle cap turning gray.

See also

Events tab on page 447

In what order are touch events triggered? on page 478

In what order are touch events triggered?

The order in which touch events trigger depends on the events configured for a screen and its graphic elements. When configuring multiple graphic elements or Add-On Graphics with touch events, touch events trigger for items in the following order:

- Screen events
- Group events
- Graphic element events

Tips:

- Press events trigger before release events.
- An overlay over a group or graphic element does not affect the events of the group or graphic element, unless the overlay has an event of its own. If an overlay has an event of its own, that event takes place rather than the event of the group of graphic element.
- Events created for an instance of an Add-On Graphic take precedence over events created for a graphic element within the definition of the Add-On Graphic. If the same event type exists in both the definition of an Add-On Graphic and an instance of that Add-On Graphic, the event for the instance of the Add-On Graphic on the screen is performed on the HMI device.

See also

Events tab on page 447

Change a command that an event performs on page 474

Delete a command from an event on page 475

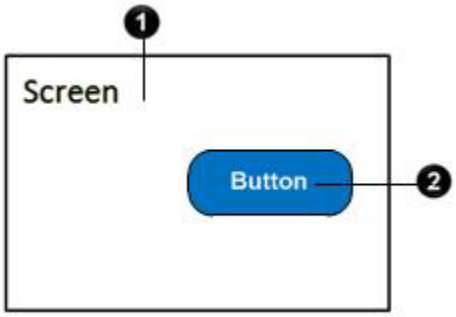
Delete an event on page 476

Events and Add-On Graphics on page 400

Example: Screen events trigger before graphic element events

A screen can have an event and also contain a graphic element with its own event. Touching the screen triggers the event. Touching the graphic element triggers the event of the screen and the event of the graphic element.

In this example, there is an event associated with the screen, and an event associated with the button.



Press Event	Triggered action
1	Press here to trigger the event associated with the screen.
2	Press here to trigger the event associated with the screen and then trigger the event associated with the button.

See also

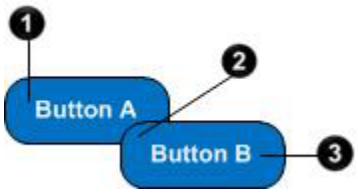
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Events of overlapping graphic elements trigger individually

A graphic element may lie partially over another graphic element on the screen. Each graphic element can have its own event. Touching a graphic element triggers the event of that graphic element. This is true even when touching the portion of a graphic element that is on top of the other.

In this example, there is a unique event associated with each button. Part of Button B lies on top of Button A.



Press Event	Triggered action
1	Press here to trigger the event associated with Button A.
2	Press here to trigger the event associated with Button B.
3	Press here to trigger the event associated with Button B.

See also

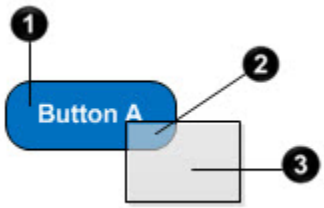
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Graphic element events trigger through an overlay element without events

A graphic element with a touch event may lie underneath an overlay element. If the overlay element does not have an event, pressing the portion of the element under the overlay triggers the event of the graphic element.

In this example, there is an event associated with Button A. However, there is no event associated for the rectangle overlay lying on top of a portion of Button A.



Press Event	Triggered action
1	Press here to trigger the event associated with Button A.
2	Press here to trigger the event associated with Button A.
3	Press here to trigger no event.

See also

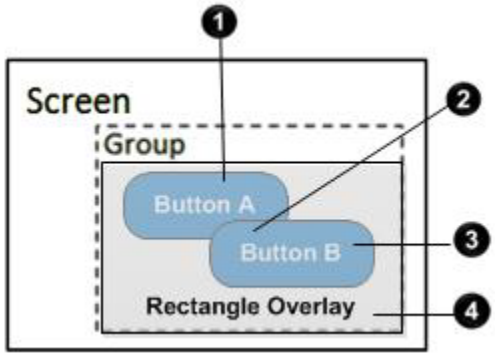
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Group events trigger before graphic element events

When a group with a touch event contains graphic elements with their own touch events, touching the group triggers the event of the group. Pressing a graphic element in the group triggers the event of the group, and the event of the graphic element. An overlay element that does not have an event does not affect triggered events.

In this example, there is an event associated with the group consisting of Button A and Button B, an event associated with Button A, and an event associated with Button B positioned partially over Button A. There is no event associated with the rectangle overlay.



Press Event	Triggered action
1	Press here to trigger the event associated with the group and then trigger the event associated with Button A.
2	Press here to trigger the event associated with the group and then trigger the event associated with Button B.
3	Press here to trigger the event associated with the group and then trigger the event associated with Button B.
4	Press here to trigger the event associated with the group.

See also

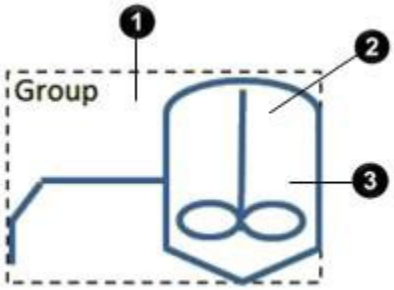
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Group events trigger regardless of touch location

If a group of line art contains a touch event, it triggers the event of the group regardless of the touch location on the group.

In this example, there is an event associated with the group that contains the line art.



Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group.
3	Press here to trigger the event associated with the group.

See also

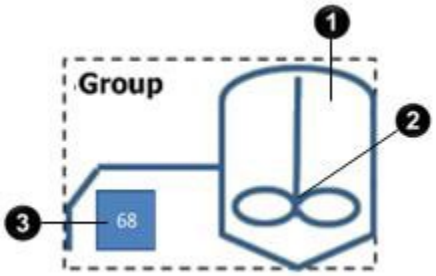
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Group events trigger before events for input graphic elements open a keypad or keyboard

If a group contains line art and an input graphic element, the event of the group triggers regardless of the touch location on the group. Pressing the input graphic element triggers the event of the group and opens the virtual numeric keypad or virtual standard keyboard.

In this example, there is an event associated with the group. The group contains line art and a text input graphic element.



Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group.
3	Press here to trigger the event associated with the group and then open the virtual numeric keypad or virtual standard keyboard to enable input.

See also

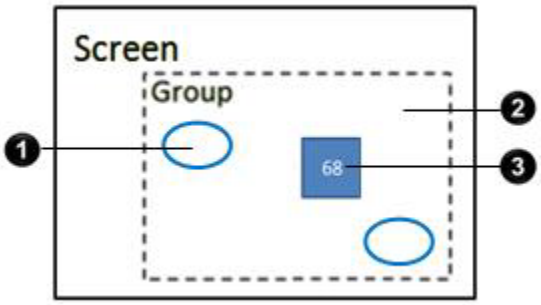
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Events for graphic elements below groups do not trigger

If a group lies on top of an input graphic element, touching the group triggers the event of the group. Pressing the input graphic element does not open a virtual numeric keypad or virtual standard keyboard.

In this example, a group that has an event associated lies on top of an input graphic element that is not part of the group.



Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group.
3	Press here to trigger the event associated with the group. The virtual numeric keypad or the virtual standard keyboard does not open.

See also

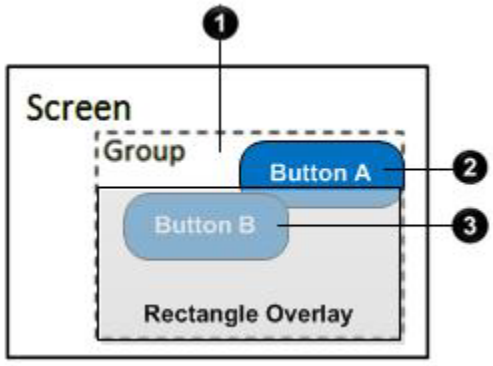
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Overlay events take precedence over group events

A group with a touch event may contain two graphic elements with their own touch events. A graphic element with its own touch event lies on top of the group. Touching a graphic element not under the overlay element triggers the event of the group and the event of the graphic element. Pressing a graphic element under the overlay element triggers only the event of the overlay element.

In this example, there is an event associated with the group. The two buttons in the group each have a unique event associated with them. There is also an event associated with an overlay element.



Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group and then trigger the event associated with Button A.
3	Press here to trigger the event associated with the rectangle overlay.

See also

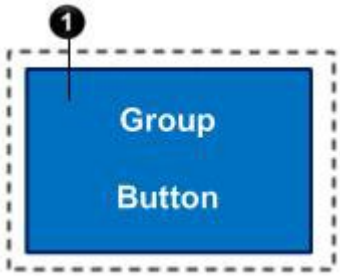
In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Example: Press events trigger before release events

A group may have a **Touch Release** event that contains a button with its own press and release events. The events of the button change the state of the button upon press and release. Pressing the button triggers the press event of the button to show the press state. Releasing the button triggers the **Touch Release** event of the group and the **Touch Release** event of the button to show the release state.

In this example, a group contains only a button. There is a Touch Release event associated with the group. A Touch Press event and a Touch Release event are associated with the button.



Press Event	Triggered action
1	Press the button to trigger the touch press event associated with the button. Release the button to trigger the Touch Release event associated with the group, and then trigger the touch release event associated with the button.

See also

In what order are touch events triggered? on page 478

Trigger an action on a Touch Press or a Touch Release event on page 453

Add an event to a project (Project Event)

Add an event to a project to execute commands on the HMI device after:

- Evaluating an expression from false to true
- Pressing a key

Tips:
- Project events trigger regardless of the screen or popup displayed on the HMI device.
- View Designer supports adding up to 1000 project events.

To add an event to a project

1. In the **Project Explorer**, navigate to the **Project Events** folder.
2. Right-click the **Project Events** folder and click **New Project Event**. The event has the default name ProjectEvent_001.
3. In the **Properties** pane, click the **Properties** tab.
4. Expand a category to change a property value or bind a property of the project event.

- **Enabled**. Select or bind this property to enable the evaluation of the event. If the **Enabled** property is false, the event is not evaluated and the commands of the event do not perform.
- **ExecuteWhen**. Bind this property to enter a tag or expression to trigger the event. The event triggers when the expression evaluates from false to true.
- **ExecuteOnKey**. Select the key to trigger the event. **Touch Only** is the default. Select **None** if not using a key to trigger an event.
- **EvaluationPeriod**. Select the rate to evaluate events.

Tip: Any **ExecuteOnKey** project event configured for a specific key does not trigger on the HMI device if the open screen or a graphic element on that screen on the HMI device has a **Key Press**, **Key Release**, or **Button Behavior** event configured for the same key.

5. Click the **Events** tab

Tip: The **Events** tab only contains one project event card. View Designer does not allow deleting or adding project event cards.

6. Click **Add Command**.
7. Expand a command category to list the commands in that category:
   - **HMI Device Configuration.** Commands that configure screen calibration and reboot the HMI device.
   - **Navigation.** Commands that navigation to screens on the HMI device.

     Multiple screen navigation commands can exist for an event. All other types of commands for the event are executed before the navigation command. Only one navigation command is executed for an event. This is generally the first navigation command. The remaining navigation commands are ignored on the HMI device. To ensure the navigation command is the navigation command executed, Rockwell Automation recommends adding only one navigation command to an event.
   - **Security**. Commands that log on or log off the HMI device.
   - **Value.** Commands that increment, toggle, or write a value to the selected tag.
   - **Language**. Command that changes the language that displays on the HMI device.
   - Window.

     Tip: If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the translated string for the download language is also blank, View Designer defaults to the language used for designing the project.

Select and configure the command that the event will perform.

Tip:
- You can create multiple commands for each event. The order of execution may not correspond with the order of commands listed on the **Event** card.
- If the events for an item include more than one screen navigation command, only the first screen navigation is performed on the HMI device. The screen navigation occurs after all other commands for the events are performed.
- When an event performs multiple commands that write to multiple tags, all of the write commands occur sequentially. Therefore, you may not see all of the tag values in the Logix controller at the same time.

See also

Trigger an action on a Key Press or a Key Release event on page 451

Bind a property to a data item on page 508

Create an expression on page 520

Event commands on page 456

What is a project event? on page 486

Copy a project event between projects

Copy a project event between View Designer projects to ensure consistency.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a project event between projects

1. Copy the project event from the source folder to the target **Project Events** folder.
2. If the target project contains a project event with the same name:
   - Click **Replace** to overwrite the existing file.
   - Click **Keep both** to rename the project event copied from the source folder
   - Click **Cancel** to not copy the the project event.

See also

Add an event to a project on page 484

Delete an event on page 476

Rename a project event on page 487

What is a project event? on page 486

What is a project event?

Create a project event to trigger an action for an entire project. Events created for a specific item, such as a graphic element, Add-On Graphic, or a screen, trigger an action only for that item. A project event triggers regardless of the screen or popup on the HMI device.

Project events execute commands on the HMI device after:

- Evaluating an expression from false to true
- Pressing a key

Tip: You can use an external keyboard with the HMI device. The **L1** through **L10** keys listed when creating Key Press and Key Release events correspond with pressing **Shift+F1** through **Shift+F10** keys on an external keyboard. The **R1** through **R10** keys listed when creating Key Press and Key Release events correspond with pressing **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

For example, use project events to display a specific screen or popup when a machine enters a specific state and needs operator attention. These events trigger automatically without operator intervention.

Tip: A matching key press event for the currently displayed screen or graphic element with focus takes precedence over the project event.

Add one or more commands to a project event to execute those commands when the event triggers. Each event has a bindable **Enabled** property for evaluating the event. If the **Enable** property is false, the event is not evaluated and the commands of the event do not perform.

See also

What is an event? on page 476

Add an event to a project on page 484

Copy a project event between projects on page 486

Rename a project event

Rename a project event to reflect the purpose, content, or targeted use of the event. Names within a folder must be unique and are not case sensitive. For example, Monthly_ProjectEvent and monthly_projectevent are considered identical names.

To rename a project event

1. In the **Project Explorer**, expand the **Project Events** folder.
2. Click the project event once to select the item.
3. Click the project event again and type the new name.

Tips:

- Rename a project event by right-clicking the name and clicking **Rename**. Then type a new name and press **Enter**.
- Change the name of the project event through the **Name** box in the **Properties** window of the project event.

See also

Add an event to a project on page 484

Copy a project event between projects on page 486

Delete an event on page 476

What is a project event? on page 486

Create an HMIBC Button

Create a high-speed HMIBC button in an HMI project to initiate machine control operations, such as jogging a motor, with a high-degree of precision and determinism.

Any graphic element can be configured to function as a high-speed HMIBC button. Each Logix controller can support up to 256 HMIBC tags.

See also

What is HMI Button Control? on page 489

Create a high-speed HMIBC button on page 490

Configure visual feedback for an HMIBC button on page 491

What is HMI Button Control?

Use HMI Button Control (HMIBC) in Logix Designer to communicate between an HMI device and a Logix controller over a high-speed I/O connection. Machine controls including jogging a motor or opening and closing a valve are more precise with an HMIBC than a standard HMI device button. Configure any graphic element to function as an HMIBC. Each Logix controller supports up to 256 HMIBC tags.

Include an HMIBC instruction for each button. The HMIBC instruction communicates with a PanelView 5000 HMI device only if the HMI device appears in the I/O Configuration tree in Logix Designer.

There are three HMIBC tag members for an HMI Button Control:

- **ButtonState.** Writes to the Logix controller during the button press.
- **ProgFB.** Provides feedback to the HMI device when the device that the HMIBC controls changes states.
- **Out.** Provides feedback to the HMI device when the command to the HMI device changes states. Use the Out tag member to indicate that the Logix controller detects the button press or that device the HMIBC controls does not have a feedback signal.

Tip: For multiple HMI devices, pressing the HMIBC on any HMI device sets the Out member of the HMIBC instruction.

IMPORTANT Do not write to other tags on the screen when writing to the HMIBC tag. Do not write to additional write commands on the HMIBC or perform State Enter or State Exit events on the screen, including the System Banner.

See also

Create a high-speed HMIBC button on page 490

Configure visual feedback for an HMIBC button on page 491

Create a high-speed HMIBC button

Create a high-speed HMIBC button in an HMI project to initiate machine control operations, such as jogging a motor, with a high-degree of precision and determinism. A high-speed HMIBC button communicates to the controller over a high-priority I/O connection. Any graphic element can be configured to function as a high-speed HMIBC button. Each Logix controller can support up to 256 HMIBC tags.

Prerequisites

- Verify that the Logix Designer project includes an HMIBC instruction for each tag to use.
- Verify that the **I/O Configuration** tree in Logix Designer includes the PanelView 5000 device to use in the application. This is required for the HMIBC buttons to communicate with the Logix controller. It is recommended to have no more than four HMI devices communicating with the controller.

To create a high-speed HMIBC button

1. On the screen, right-click the graphic element and click **Button Behavior > Logix HMIBC set to 1 on press, 0 on release**. A **Button Behavior Event** card opens on the **Events** tab on the **Properties** pane.
2. In the **Key** box, select an option from the list:
   - Select **Touch Only** to trigger the command when pressing only the graphic element.
   - Select a key on the HMI device to trigger the command when pressing the selected key or the graphic element.
3. (optional) Select **Requires Focus** if the graphic element for which HMIBC button behavior is configured requires focus to trigger the command. Placing focus on a graphic element requires pressing **Tab** on the keypad to highlight the graphic element or pressing the element.
4. In the **HMIBC Tag** box, type the name of the HMIBC tag or click **Browse** and select the tag.

IMPORTANT

- For best performance, setup no more than 300 total tag references on a screen when using a HMIBC button.
- For the connection to the PanelView 5000 HMI devices, setup short RPI times in Studio 5000 Logix Designer.
- For best performance, it is recommended that on a screen that uses HMIBC buttons, do not write to other tags on the screen at the same time as the write to the HMIBC tag. This includes additional write commands on the HMIBC button and writes on the screen or the **System Banner** using State Enter or State Exit events.
- When configuring the HMIBC button using a Press and Release event instead of a Button Behavior, for the best performance, ensure that the command to write to the .ButtonState member of the HMIBC tag is the only command in the event. Using multiple commands in addition to the command to write to the .ButtonState member may slow down the write to the controller.
- Do not not animate graphic elements in a View Designer project using alias tags created in Logix Designer to members of the HMIBC data structure. Aliased Logix Designer HMIBC tags are not supported in View Designer.
- For best performance, it is recommended to not use HMIBC buttons on the same screen as an alarm summary or alarm manager.
- When a PanelView 5000 HMI device is in the I/O tree of the Logix controller and the Logix controller becomes overloaded to the point where it can no longer process communication of tag data with the PanelView, a loss of the I/O connection between the Logix controller and the PanelView 5000 HMI device may occur. The I/O connection re-establishes once the Logix controller has the bandwidth to handle tag data communications.
- A large number of alarms triggered at once may impact the performance of the HMIBC button. The performance returns to normal after the HMI device processes the alarms.
- For best performance, do not perform tag writes using project events at the same time you use an HMIBC button.

See also

Configure visual feedback for an HMIBC button on page 491

What is HMI Button Control? on page 489

Trigger an action on a Button Behavior event on page 444

Configure visual feedback for an HMIBC button

Configure any property of a graphic element to provide visual feedback from the device being controlled by the HMIBC instruction. The .ProgFB member of the HMIBC tag provides feedback to the HMI device when the device controlled by the HMIBC instruction changes state. The .ProgFB member communicates over a high-priority I/O connection.

Prerequisites

- Verify that the Logix Designer project includes an HMIBC instruction with the .ProgFB member as an input from the device or machine.
- Create a high-speed HMIBC button in View Designer.

To configure feedback for an HMIBC button

1. On the screen, select a graphic element to use for indicating the state of the device being controlled by the HMIBC instruction.

2. In the **Properties** window, bind a property of the graphic element, such as Visibility, to the .ProgFB member of the HMIBC tag.

Tip: If the device controlled by the HMIBC instruction does not have a feedback signal, show feedback in the HMI project by binding a property of an element to the .Out member of the HMIBC instruction. When the .ButtonState member is set, the HMIBC instruction also sets the .Out member and indicates that the instruction received the button press from the HMI device. The .Out member communicates over a high-priority I/O connection.

See also

Create a high-speed HMIBC button on page 490

What is HMI Button Control? on page 489

Change a property

Change a property

Change the properties in graphic elements, instances of an Add-On Graphics, screens, popups, shortcuts, and folders. For example, change the **Security** property of a screen to limit access to it, or change the **FillColor** property of a graphic element to change the color of the item.

To change a property

1. In the **Toolbox,** or on an open screen, select an item or multiple items.
2. In the **Properties** window, select the **Properties** tab. The properties for that item are displayed in categories.

   Tips:
   - Select multiple items to display the common properties of the items.
   - Select multiple items of the same type in the **Project Explorer** to display their common properties.
3. Expand a category to display a property and change the value of the property.

See also

List of properties on page 494

Properties tab on page 494

Properties window on page 493

Bind a property to a data item on page 508

Create an alias property on page 361

Properties window

How do I open the Properties window?

On the **Menu** bar, select **View > Properties Window**.

The **Properties** window consists of several tabs that may include **Properties**, **Animations**, **Columns**, **Filters**, and **Events**. The tabs on the **Properties** window depend on the item selected. The types of items include:

- A screen, popup, shortcut, or Add-On Graphic definition
- An element on a screen, popup, or shortcut, or Add-On Graphic definition
- An item in the **Project Explorer**
- An graphic element in the **Graphic Explorer**

Each tab displays the attributes and behaviors you can configure for the selected item. The name of the selected item appears at the top of the **Properties** window.

See also

Properties tab on page 494

Animations tab on page 435

Columns tab on page 580

Filters tab on page 609

Events tab on page 447

Properties tab

How do I open the Properties tab?

On the **Properties** window, click the **Properties** tab.

The **Properties** tab contains the attributes of an item and the values assigned to that attribute. For example, the selected graphic element may have properties that define its color and position on the screen. Graphic elements, Add-On Graphics, screens, popups, shortcuts, and folders all have properties. These properties are categorized by type, such as Security, Appearance, and Position and Size.

Graphic elements share some common properties. Some graphic elements also have properties that are not common to all graphic elements. Graphic elements may also have built-in animation properties in the **General** category that animate the graphic element or change the information the graphic element shows on the HMI device.

Use the **Properties** tab to:

- View or change the values of:
  - A property
  - Common properties between multi-selected graphic elements on a screen or popup
  - Common properties between multi-selected objects of the same type in **Project Explorer**.
- Secure screens, popups, shortcuts, or folders.
- Bind a property to a tag or expression so that the property value changes as the tag or expression value changes in a controller.
- Link the value of a user-defined property to the value of its associated base property.

See also

List of properties on page 494

Change a property on page 493

Restrict access to an item on the HMI device on page 354

Bind a property to a data item on page 508

Create an alias property on page 361

List of properties

Use properties to change the appearance or behavior of graphic elements, screens, shortcuts, popups, and folders. Properties also change the behavior of a project event.

See also

Properties window on page 493

Properties tab on page 494

Change a property on page 493

Bind a property to a data item on page 508

Create an alias property on page 361

Select or create a color

Use the **Color Picker** to select or create colors and gradients to apply to graphic elements and screens.

Bind a color property to a tag or expression to dynamically change a color.

See also

Color Picker overview on page 495

Select a color using the Color Picker on page 497

Create a color gradient on page 498

Supported color keywords and RGB values on page 501

Change a property on page 493

Color Picker

How do I open the Color Picker?

Select an item on the screen or the screen background. On the **Properties** tab (**VIEW > Properties Window > Properties tab)**, in any color-related property box, click the down arrow or the color swatch.

Use the **Color Picker** to select or create a color for items such as graphic elements, lines, and text on the screen or the background of the screen. Item colors for changing appear in color-related properties in the **Appearance** category of the **Properties** tab.

Use the **Color Picker** to:

- Select from a set of pre-configured and custom colors.
- Create and save custom colors.
- Create and save gradient colors. Use gradients for fill-color properties only.

See also

Select a color using the Color Picker on page 497

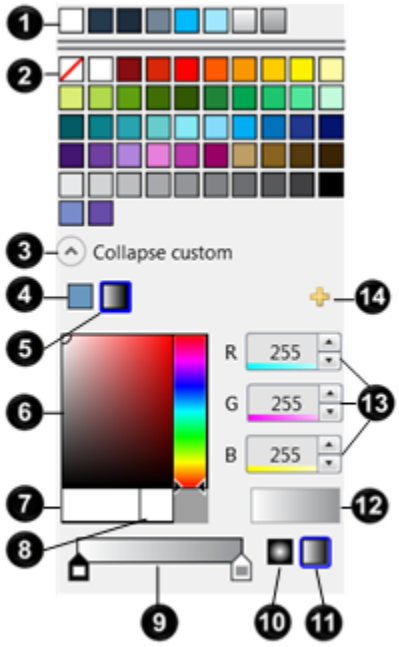
Create a custom color using the Color Picker on page 497

Create a color gradient on page 498

Color Picker overview on page 495

Color Picker overview

An overview of the **Color Picker:**



Item	Name	Purpose
1	System color swatches	Standard system colors.
2	Favorite swatches	A set of pre-configured colors. Colors and gradients that you create are also stored here.
3	Custom/Collapse custom	Shows or hides the spectrum color picker and the gradient color selector.
4	Create solid color	Applies a single color evenly.
5	Create gradient color	Opens the gradient color selector located below the spectrum color picker.
6	Spectrum color picker	Provides the means to select a custom color.
7	Spectrum color	Shows the color selected in the spectrum color picker.
8	Current color	Shows the currently selected color.
9	Gradient selector	Provides the means to create a gradient color. Stops at either end of the gradient selector to provide the means to select the starting and ending color.
10	Radial Gradient	Creates a radial gradient using the selected gradient stop colors. Fades and blends colors in a circular path outward from a center point. The leftmost stop selects the center color.
11	Linear Gradient	Creates a linear gradient using the selected gradient stop colors. Fades and blends color along a straight line.
12	Selected color	Shows the selected color or gradient.
13	R, G, B	Shows the proportion of red, green, and blue in the selected color. Also allows manual adjustment of the proportion value.
14	Add color swatch	Adds a custom color or gradient to the Favorite swatches.

See also

Color Picker on page 495

Select a color using the Color Picker on page 497

Create a custom color using the Color Picker on page 497

Create a color gradient on page 498

Select a color using the Color Picker

Use the Color Picker to select a color from a set of pre-configured colors or user-created colors that were saved as swatches.

To select a color using Color Picker

1. On the screen, select the item or the screen background.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.

   If the selected item has color properties you can change, those properties appear in this category. The currently applied color for a property appears as a swatch on the **Property** tab.
4. Click the down arrow or the color swatch to open the **Color Picker**, and click a new color swatch. The new color is applied to the item and displays in the swatch on the **Property** tab.
5. Close the **Color Picker** by clicking the color swatch.

Tip: Colors and gradients of some graphic elements may look different on the HMI device due to screen type and resolution.

See also

Create a color gradient on page 498

Color Picker overview on page 495

Color Picker on page 495

Create a custom color using the Color Picker

Use the **Color Picker** to create a custom color.

To create a custom color using the Color Picker

1. In the **Properties** window, select the **Properties** tab.
2. Expand the **Appearance** category.

   If the selected item has color properties you can change, those properties appear in this category. The currently applied color for a property appears as a swatch on the **Property** tab.
3. Select the down arrow or the color swatch to open the **Color Picker**, and select the arrow next to **Custom** to display the spectrum color picker. The spectrum color picker displays the currently selected color in the spectrum color picker.
4. Adjust the color using the following methods:
   - To select a color family, use the slider to the right of the spectrum color picker.
   - To adjust the color saturation level, click and drag the cursor left and right (x-axis).
   - To adjust the brightness level, click and drag the cursor up and down (y-axis).

- To make granular color changes or for precise color selection, adjust the RGB values. These values represent the proportion of red, green, and blue in the selected color. Use the up and down arrows or enter a integer number between 0 - 255.

5. Close the **Color Picker** by selecting the color swatch.

Tips:

- Directly below the spectrum are two panes. The small pane on the right shows the current color. The larger pane to the left displays a preview when clicking and holding the mouse while moving the cursor over the spectrum. This enables you to compare the current color to a new color. Releasing the mouse button selects the color.
- To save the selected color as a swatch, select **Add** .
- To remove a swatch, right-click on it and select **Remove color swatch**. System color swatches cannot be removed.
- Colors and gradients of some graphic elements may look different on the HMI device due to screen type and resolution.

See also

Create a color gradient on page 498

Select a color using the Color Picker on page 497

Color Picker overview on page 495

Color Picker on page 495

Supported color keywords and RGB values on page 501

Create a color gradient

A gradient starts with one color and then merges into and finishes with an end color. Use a gradient to add lighting or shading to graphic elements, screens, or popups.

To create a color gradient

1. In the **Properties** window, select the **Properties** tab.
2. Expand the **Appearance** category.

   If the selected item has color properties you can change, those properties appear in this category. The currently applied color for a property appears as a swatch on the **Property** tab.
3. Select the down arrow or the color swatch to open the **Color Picker**.
4. Select the arrow next to **Custom** to open the spectrum color picker.
5. Select **Define Gradient Color** . Gradient colors can be created only for a FillColor property. If this button is not displayed, then a gradient color cannot be created for the selected item.
6. Below the spectrum color picker, select a gradient pattern:
   - **Radial Gradient** : Radial pattern creating a circular gradient from the center. This option is not available for popups.
   - **Linear Gradient** : Linear pattern changing and blending from left to right.
7. Select the left color stop . The triangle above the stop becomes solid black to indicate it is the active stop.

8. Use the spectrum color picker to create a color or select a color swatch to select a color for that stop.
9. Select the right color stop and select or create a color for that stop.
10. Close the **Color Picker** by selecting the color swatch.

Tips:
- To save the selected color as a swatch, select **Add** .
- There are only two color stops, and the stops are not adjustable.
- Colors and gradients of some graphic elements may look different on the HMI device due to screen type and resolution.
- Radial gradients are not supported for popup FillColor.

See also

Select a color using the Color Picker on page 497

Create a custom color using the Color Picker on page 497

Color Picker overview on page 495

Color Picker on page 495

Select a fill color

Select a solid or gradient color to fill a graphic element or the background of a screen or popup.

To select a fill color

1. In the **Properties** window, select the **Properties** tab.
2. Expand the **Appearance** category.

   If the selected item has color properties you can change, those properties appear in this category. The currently applied color for a property appears as a swatch on the **Property** tab.
3. In the **FillColor** property box, select a color using one of the following methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.
   - Create a color gradient.

     Tips:
     - To save the selected color as a swatch, select **Add** .
     - Colors and gradients of some graphic elements may look different on the HMI device due to screen type and resolution.
     - Radial gradients are not supported for popup FillColor.

See also

Color Picker on page 495

Create a color gradient on page 498

Select a text color on page 140

Bind a color property to a tag or expression on page 500

Create a custom color using the Color Picker on page 497

Select a text color

Change the color of the text that appears in a graphic element or Add-On Graphic.

To select a text color

1. Select the graphic element on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** node.
4. In the **FontColor** box, select a text color using one of the following methods:
   - Type the Hex value in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
   - Select the arrow or color swatch to open the **Color Picker**, and select or create a color.

Tip: To save the selected color as a swatch, select **Add** .

See also

Color Picker on page 495

Create a color gradient on page 498

Select a fill color on page 141

Bind a color property to a tag or expression on page 500

Color Picker overview on page 495

Bind a color property to a tag or expression

Bind a color property to a tag or expression to dynamically change a color.

To bind a color property to a tag or an expression

- Use one of the following methods:
  - Bind to a string tag or an expression that resolves to a string in the format #RRGGBB. R, G, B are the Hex digits that represent the values for the red, green, and blue color channels. For example, the string "#ffff00" produces yellow.
  - Bind to a string tag or to an expression that resolves to a string of a supported color name. For example, the string "yellow" produces yellow.

IMPORTANT
- Bind color properties only to string tags. Binding to an integer tag, a floating point tag, or an expression is not supported and does not change a color.
- Selecting a default color is required. Selecting NoFill does not apply the bound tag value at runtime.

See also

Supported color keywords and RGB values on page 501

What is binding? on page 502

Create an expression on page 520

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Supported color keywords and RGB values

Keywords to use as a string to select a color when binding a color property include:

Color Name	#RRGGBB
aliceblue	F0F8FF
antiquewhite	FAEBD7
aqua	00FFFF
aquamarine	7FFFD4
azure	F0FFFF
beige	F5F5DC
bisque	FFE4C4
black	000000
blanchedalmond	FFEBCD
blue	0000FF
blueviolet	8A2BE2
brown	A52A2A
burlywood	DEB887
cadetblue	5F9EA0
chartreuse	7FFF00
chocolate	D2691E
coral	FF7F50
cornflowerblue	6495ED
cornsilk	FFF8DC
crimson	DC143C
cyan	00FFFF
darkblue	00008B
darkcyan	008B8B
darkgoldenrod	B8860B
darkgray	A9A9A9
darkgreen	006400
darkgrey	A9A9A9
darkkhaki	BDB76B
darkmagenta	8B008B
darkolivegreen	556B2F
darkorange	FF8C00
darkorchid	9932CC
darkred	8B0000
darksalmon	E9967A
darkseagreen	8FBC8F
darkslateblue	483D8B
darkslategray	2F4F4F
darkslategrey	2F4F4F
darkturquoise	00CED1
darkviolet	9400D3
deeppink	FF1493
deepskyblue	00BFFF
dimgray	696969
dimgrey	696969
dodgerblue	1E90FF
firebrick	B22222
floralwhite	FFFAF0
forestgreen	228B22
fuchsia	FF00FF

Color Name	#RRGGBB
gainsboro	DCDCDC
ghostwhite	F8F8FF
gold	FFD700
goldenrod	DAA520
gray	808080
grey	808080
green	008000
greenyellow	ADFF2F
honeydew	F0FFF0
hotpink	FF69B4
indianred	CD5C5C
indigo	4B0082
ivory	FFFFF0
khaki	F0E68C
lavender	E6E6FA
lavenderblush	FFF0F5
lawngreen	7CFC00
lemonchiffon	FFFACD
lightblue	ADD8E6
lightcoral	F08080
lightcyan	E0FFFF
lightgoldenrodyellow	FAFAD2
lightgray	D3D3D3
lightgreen	90EE90
lightgrey	D3D3D3
lightpink	FFB6C1
lightsalmon	FFA07A
lightseagreen	20B2AA
lightskyblue	87CEFA
lightslategray	778899
lightslategrey	778899
lightsteelblue	B0C4DE
lightyellow	FFFFE0
lime	00FF00
limegreen	32CD32
linen	FAF0E6
magenta	FF00FF
maroon	800000
mediumaquamarine	66CDAA
mediumblue	0000CD
mediumorchid	BA55D3
mediumpurple	9370DB
mediumseagreen	3CB371
mediumslateblue	7B68EE
mediumspringgreen	00FA9A
mediumturquoise	48D1CC
mediumvioletred	C71585
midnightblue	191970
mintcream	F5FFFA

Color Name	#RRGGBB
mistyrose	FFE4E1
moccasin	FFE4B5
navajowhite	FFDEAD
navy	000080
oldlace	FDF5E6
olive	808000
olivedrab	6B8E23
orange	FFA500
orangered	FF4500
orchid	DA70D6
palegoldenrod	EEE8AA
palegreen	98FB98
paleturquoise	AFEEEE
palevioletred	DB7093
papayawhip	FFEFD5
peachpuff	FFDAB9
peru	CD853F
pink	FFC0CB
plum	DDA0DD
powderblue	B0E0E6
purple	800080
red	FF0000
rosybrown	BC8F8F
royalblue	4169E1
saddlebrown	8B4513
salmon	FA8072
sandybrown	F4A460
seagreen	2E8B57
seashell	FFF5EE
sienna	A0522D
silver	C0C0C0
skyblue	87CEEB
slateblue	6A5ACD
slategray	708090
slategrey	708090
snow	FFFAFA
springgreen	00FF7F
steelblue	4682B4
tan	D2B48C
teal	008080
thistle	D8BFD8
tomato	FF6347
turquoise	40E0D0
violet	EE82EE
wheat	F5DEB3
white	FFFFFF
whitesmoke	F5F5F5
yellow	FFFF00
yellowgreen	9ACD32

See also

Bind a color property to a tag or expression on page 500

Bind properties

When a property is bound to a data item, the value of the property is specified dynamically at runtime. A data item can be a tag, an extended property of a tag, a property of a graphic element or screen, or an expression.

If a property can be bound, a **Binding** button appears next to the property name when you point to it.

See also

What is binding? on page 502

Bind a property to a data item on page 508

Assign the extended properties of a tag to a graphic element on page 514

Create an expression on page 520

What is binding?

Binding is the process of specifying the value of a property dynamically. Graphic element properties that are bound to data update automatically when the value of the data changes.

Bind a property of a graphic element or instance of an Add-On Graphic to a data item:

- A tag, including system tags. Browse for tags to bind to after you configure a controller reference on the **Project Properties** dialog box.
- Extended properties of tags.
- An expression. For example, to bind the property to the value of the expression, you can enter ::controller\program.tag1+::controller\program.tag2.
- A property of a graphic element or screen. For example, you can bind the Text property of TextDisplay_003 to TextDisplay_001.Text.
- Each referenced analog tag has eu/min/max.
- Each BOOLEAN tag references has state identifiers
- All tags have descriptions

From within the definition of an Add-On Graphic, you can only bind to an external data type property or the property of another graphic element within the definition of an Add-On Graphic.

Properties that you can bind display a **Binding** button when you point to them.

IMPORTANT The HMI device updates data from controllers at a fixed rate of 100, 250, or 500 milliseconds. This update is asynchronous to any scan in a controller.

See also

Bind a property to a data item on page 508

Bind a color property to a tag or expression on page 500

Remove a binding on page 513

Properties tab on page 494

Expression examples

Examples of combinations to use for creating an expression:

Numeric literals in expressions

Name	Description	Example
Integers	Numbers 0-9 specified in base-10 format. Leading zeros are not supported. 0 is supported, 01 is not supported.	`123`
Floating point	Numbers that begin with zero or more base-10 digits, then the period character as decimal separator, followed by one or more base-10 digits. Leading zeros are not supported to the left of the decimal point, unless it is just a single zero immediately preceding the decimal point. Examples: 1.23 .23 0.23	`1.23, .23, and 123.45`
Exponential	Numbers that begin with an integer or floating point number, followed by the character 'e' (or 'E') and an integer. A negation operator '-' is supported before the exponent; other operators are not.	`6.02e23` means $6.02 * 10^{23}$ `1.66e-27` means $1.66 * 10^{-27}$

String values (literal or tags) in expressions

Name	Description	Example: If tag1 = "SOME" and tag2 + "THING", then:
String	A string literal begins with a double-quote character and ends with a double-quote character. Anything between the two double-quotes is part of the string literal. You can use strings as operands with the plus (+) operator and with relational operators. The + operator joins string operands. String tags and string literals behave the same way. Keep the following in mind when using string tags with the relational operators: • All relational operators are case-sensitive. • Strings are compared on a character-by-character basis. • Individual letters are compared based on their Unicode value. This means that a lowercase letter is greater than its corresponding uppercase letter. • If two strings are different lengths and the characters are the same, then the longer string is considered to be greater than the shorter string.	`tag1+tag2` returns "SOMETHING"

Tags in expressions

Name	Description	Example: In a controller named Packing, if tag1 = 5 and tag2 = 7, then:
Tag	A tag can stand alone as an expression or be included as part of an expression that is made up of other components. An expression that is a tag name returns the value of the tag. Tags begin with either "::" or "\". Use the format `::ControllerName.TagName.` You can type the tag name or open the Tag Browser and select a tag.	::Packing.tag1 returns 5 ::Packing.tag1 + 25 returns 30 ::Packing.tag1 % ::Packing.tag2 returns 5 ::Packing.tag1>::Packing.tag2 returns 0 (false) (::Packing.tag1<::Packing.tag2) &&(::Packing.tag1==5) returns 1 (both statements are true)

Numeric operators in expressions

IMPORTANT
- Using strings in numeric operations is not recommended. The exception is the + operator, which is used for string concatenation.
- Using LINT tags in expressions, write commands, or increment commands is not recommended. This is because the values may lose resolution as a result of performing the expression calculations.
- Ensure that any tag value you use as a divisor cannot at some point have a value of zero. Expressions that attempt to divide a number by zero produce an error at runtime.

Symbol (Operation)	Description	Example: If tag1 = 5 and tag2 = 7, then:
+ (Addition)	Returns the sum of the values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed. If any operand is a string, it is concatenated.	`tag1 + tag2` returns a value of 12 MyDINT + "SomeString" returns a value of 5SomeString, if MyDINT = 5
- (Subtraction)	Returns the difference of the two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 - tag2` returns a value of -2
- (Negation)	Inverts the sign of the operand, making a positive number into a negative number or a negative number into a positive number.	`-tag2` returns -7
* (Multiplication)	Returns the product of two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 * tag2` returns a value of 35
/ (Division)	Returns the quotient of the two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 / tag2` returns a value of 0.71
% (Modulus)	Returns the remainder of one number divided by another. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 % tag2` returns a value of 5

Math Function in expressions

Function	Description	Example
ABS, Abs, or abs	Returns the absolute value of the expression.	`ABS(-1.23)` returns 1.23. `ABS(1.23)` returns 1.23.
ARCCOS, arccos, ACOS, or acos	Returns the arc cosine of the expression in radians.	`ACOS(-1.0)` returns 3.14159.
ARCSIN, arcsin, ASIN, or asin	Returns the arc sine of the expression in radians.	`ARCSIN(1)` returns 1.570796.
ARCTAN, arctan, ATAN, or atan	Returns the arc tan of the expression in radians.	`ATAN(-45.01)` returns -1.54858.
COS, Cos, or cos	Returns the cosine of the expression in radians.	`COS(14.78)` returns -0.599465.
LOG, Log, or log	Returns the natural log of the expression.	`LOG(2)` returns 0.69314718
LOG10, Log10, or log10	Returns the base-10 log of the parameter.	`LOG10(100)` returns `2.`
SIN, Sin, or sin	Returns the sine of the expression in radians.	`SIN(45.175643)` returns `0.929607.`
SQRT, Sqrt, or sqrt	Returns the square root of an expression.	`SQRT(144)` returns `12.`

TAN, Tan, or tan	Returns the tangent of the expression in radians.	`TAN(1)` returns 1.5574077246549023.
TRUNC, Trunc, or trunc	Returns the value of the parameter with any digits to the right of the decimal point removed.	`TRUNC(10.8282)` returns `10.`
POW, pow	Returns the result of raising the first value to the power of the second value. All values are converted to double-precision floating point first, and then the operation is performed.	`POW(10,3)` returns `1000.`

String functions in expressions

Function	Description	Example
TOLOWER, ToLower, or tolower	Converts any uppercase characters to lower lowercase. Converts a numeric to a string containing that number.	`TOLOWER("New York")` returns "new york". This expression converts a numeric to a string containing that number: `TOLOWER(32) + TOLOWER(34)` returns "3234".
TOUPPER, ToUpper, or toupper	Converts any lowercase characters to uppercase.	`TOUPPER("hello")` returns "HELLO".

Conditional statements in expressions

IMPORTANT Keep the following in mind when using conditional statements:

- The condition portion of the statement can be any numeric or Boolean expression.
- If the condition is a numeric expression, including a tag, zero is treated as false and any non-zero value is treated as true.
- Using a string operand (string Literals, string properties, string tags, or the result of a String Operation) as the condition of a conditional statement is not supported.
- All parts of a conditional statement are required.

The value if true and value if false portions of the conditional statement can be any valid expression, including another conditional statement.

Function	Description	Example: If tag1 = 5 and tag2 = 7, then:
IIF, Iif, iif	Evaluates with the same rules as numeric operands. If the condition evaluates to 0 (false), the second value is used. If the condition evaluates to non-zero (true), the first value is used. Use this format: `IIF(condition, value if true, value if false)`	`IIF (tag1 > tag2, tag1, tag2)` returns 7 (the value of tag2) because tag1 is not greater than tag2
?:	The following requirements are specific to the ?: statement: • The conditional operator is right-associative. Therefore, `a ? b : c ? d : e` is evaluated as a ? b : (c ? d : e). • The segments of a conditional operation must be surrounded by white space or parentheses. • A new line counts as white space. Use this format: `condition ? value if true : value if false`	`(tag1 > tag2) ? tag1 : tag2` returns 7 (the value of tag2) because tag1 is not greater than tag2

Relational operators in expressions

Symbol (Function)	Description	Example: If tag1 = 5 and tag2 = 7, then:

== (Equal to)	Compares the two values and returns a 1 (true) if they are equal. Returns a 0 (false) if they are not equal. Performs a case-sensitive string comparison. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 == tag2` is false, so the expression returns 0
!= (Not equal to)	Compares the two values and returns a 1 (true) if they are not equal. Returns a 0 (false) if they are equal. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 != tag2` is true, so the expression returns 1
< (Less than)	Compares two values and returns a 1 (true) if the value on the left is smaller than the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 < tag2` is true, so the expression returns 1
> (Greater than)	Compares two values and returns a 1 (true) if the value on the left is larger than the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 > tag2` is false, so the expression returns 0
<= (Less than or equal to)	Compares two values and returns a 1 (true) if the value on the left is smaller or the same as the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 <= tag2` is true, so the expression returns 1
>= (Greater than or equal to)	Compares two values and returns a 1 (true) if the value on the left is larger or the same as the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 >= tag2` is false, so the expression returns 0

Logical operators in expressions

Symbol (Function)	Description	Example: If tag1 = 5 and tag2 = 7, then:
&& (Logical AND)	Returns a value of 1 if the statements to the right and to the left of the operator are both true (non-zero).	(tag1 < tag2) && (tag1 == 5) returns a 1 because both statements are non-zero (true) tag1 && tag2 returns a 1 because both tag1 and tag2 are non-zero (true)
|| (Logical OR)	Returns a value of 1 if either the statement to the left or to the right of the operator is true (non-zero).	(tag1 > tag2) || (tag1 == 5) returns a value of 1 because tag1 == 5 is true
! (Logical NOT)	Inverts the Boolean value of an expression. Returns true if the expression is false and returns false if the expression is true. If the expression (a>b) evaluates to true, then !(a>b) evaluates to false.	!(tag1 < tag2) The expression tag1 < tag2 evaluates to true and returns a value of 1, but the NOT operator reverses the logical value, and 0 is returned.

Bitwise operators in expressions

Symbol (Function)	Description	Example: If tag1 = 5 (binary 0000 0000 0000 0101) and tag2 = 3 (binary 0000 0000 0000 0011), then:
& (Bitwise AND)	Returns an integer with a bit set to 1 if both of the corresponding bits in the original numbers are 1. Otherwise, the resulting bit is 0.	`tag1 & tag2` returns 1 (binary 0000 0000 0000 0001)
| (Bitwise inclusive OR)	Returns an integer with a bit set to 1 if either or both of the corresponding bits in the original numbers are 1. If both bits are 0, the resulting bit is 0.	`tag1 | tag2` returns 7 (binary 0000 0000 0000 0111)
^ (Bitwise exclusive XOR)	Returns an integer with a bit set to 1 if either of the corresponding bits in the original numbers is 1. If both bits are 1 or both are 0, the resulting bit is 0.	`tag1 ^ tag2` returns 6 (binary 0000 0000 0000 0110)

>> (Right Shift)	Shifts the bits within the left operand by the amount specified in the right operand. The bit on the right disappears. Either a 0 or a 1 is shifted in on the left depending on whether the integer is signed or unsigned. With unsigned integers, 0 is always shifted in on the left. With signed integers, a 0 is shifted in when the number is positive (that is, the leftmost bit--the sign bit--is 0), and a 1 is shifted in when the number is negative (that is, the leftmost bit--the sign bit--is 1). In other words, with signed integers, the sign of the number is always maintained.	`tag1 >> 1` returns 2 (binary 0000 0000 0000 0010)
<< (Left Shift)	Shifts the bits within the left operand by the amount specified in the right operand. The bit on the left disappears and a 0 is shifted in on the right. If the left bit is a 1, an overflow occurs, and an error message appears. To prevent this, use the bitwise AND (&&) operator in an expression. For example, (dev << 1) && 65535, where 65535 is 1111 1111 1111 1111 in binary form. Where dev is a tag name whose value is being shifted left.	`tag1 << 1` returns 10 (binary 0000 0000 0000 1010)
~ (Complement)	Gives the ones complement of a number. For example, use this operator to reverse every bit within the number so that every 1 bit becomes a 0 and vice versa.	`~ tag1` returns -6 (binary 1111 1111 1111 1010)

Properties of graphic elements in expressions

IMPORTANT
- Avoid setting up circular references using graphic element property bindings because this can result in unpredictable values or a runtime error.
  An example of a circular reference would be having three elements on the screen such that, for example, Element1.Opacity is bound to Element2.Opacity, Element2.Opacity is bound to Element3.Opacity, and Element3.Opacity is bound to Element1.Opacity.
- A numeric display's .Value property is treated as a string when using the "+" operator, causing a concatenation to occur instead of an addition. To force an addition of .Value properties, first multiply .Value by 1.
  For example, (NumericDisplay_001.Value*1) + (NumericDisplay_002.Value*1) will perform an addition of the .Value properties. However, NumericDisplay_001.Value + NumericDisplay_002.Value will perform a concatenation of the .Value properties.

Name	Description	Example
Property name	Property names refer to components of the current application. This differs from tags, which refer to data items in a controller. The graphic elements must all be on the same screen, popup, or **System Banner**. You cannot use an alias property in an expression. Use the syntax: ElementName.PropertyName An expression can contain: • Bindable properties. • Multiple graphic element properties. • Graphic element property bindings AND tags AND user-defined properties or any combination.	MyElement.X + MyElement.Y / MyElement.Opacity MyElement.X + ::MyController.MyTag + MyCustomProperty

Punctuators in expressions

Symbol	Description	Example

( )	Opening and closing parentheses. Use parentheses around any subexpression to specify the order of operations. Subexpressions inside parentheses are evaluated prior to any operators outside the parentheses being applied.	`3 + 2 * 6` returns `15` `(3 + 2) * 6` returns `30`

See also

Create an expression on page 520

Bind a property to a data item

When a property is bound to a data item, it receives its value dynamically. A data item can be a tag, an extended property of a tag, or an expression. Data items are also properties of screens, project events, and graphic elements, including instances of Add-On Graphics. If a property can be bound, a **Binding** button appears next to the property name when you point to it.

To bind a property to a data item

1. Select the graphic element or instance of the Add-On Graphic.
   Tip: Select multiple elements to bind a common property of each element simultaneously.
2. Expand the categories in the **Properties** tab to locate the property to bind to a tag.
3. Point to the property box, click the **Binding** button when it appears, and select **Bind property to item**.
4. Click **Select tag**. The **Tag Browser** opens.
5. Create the binding by performing one of the following:
   - Select **Browse** to open the **Tag Browser** and then navigate to select the graphic element and property. Selecting a graphic element in the **Tag Browser** lists of properties of the selected graphic element.
     Tip: Binding to user-defined alias properties of an Add-On Graphic is not supported. Bind only to user-defined data type properties in an Add-On Graphic.
   - Type an expression in the **Enter binding** box or to create or edit lengthy or complex expression, select **Open Expression Editor**.

IMPORTANT

- When binding an enumerated property to a string tag, ensure that the content of the string tag, including case, matches the content and case on the user interface. For example, the rounding property value Nearest is different than the rounding property nearest.
- When binding to a property that consists of a list (for example, FontName, Format, Rounding) use a string tag that exactly matches the text of the item in the list. For example, to bind and use the Saturday Sans font, the string must contain Saturday Sans ICG to be considered an exact match. If the value of the tag does not match a value in the list, the first item in the list is used.
- References to graphic element properties in a binding do not update automatically if a graphic element is renamed.
- Binding to the property of any screen or graphic element outside of the definition of an Add-On Graphic is not supported. Add-On Graphics are self-contained elements. From within the definition of an Add-On Graphic, bind to the properties of that definition, the properties of graphic elements in that definition, and properties passed into the definition through user-defined properties.
- Bind the properties of graphic element or the instance of an Add-On Graphic only to properties of graphic elements and Add-On Graphics that are on the same screen, popup, or System Banner.
- When changing the value of a graphic element or instance of an Add-On Graphic property on a *screen* by binding to it, the changed value is not retained when closing and re-opening the screen.
- When changing the value of a graphic element or instance of an Add-On Graphic property on a *popup* by binding to it, the changed value is retained when closing and re-opening the popup.
- When binding tags to numeric properties, keep the following in mind:
  - If a numeric property is bound to a REAL tag, the resulting value is rounded.
  - If a numeric property is bound to a STRING tag or property source, the resulting value is truncated.

See also

What is binding? on page 502

Bind a color property to a tag or expression on page 500

Remove a binding on page 513

Search for and select a tag

Create an expression on page 520

Bind a color property to a tag or expression

Bind a color property to a tag or expression to dynamically change a color.

To bind a color property to a tag or an expression

- Use one of the following methods:
  - Bind to a string tag or an expression that resolves to a string in the format #RRGGBB. R, G, B are the Hex digits that represent the values for the red, green, and blue color channels. For example, the string "#ffff00" produces yellow.
  - Bind to a string tag or to an expression that resolves to a string of a supported color name. For example, the string "yellow" produces yellow.

IMPORTANT
- Bind color properties only to string tags. Binding to an integer tag, a floating point tag, or an expression is not supported and does not change a color.
- Selecting a default color is required. Selecting NoFill does not apply the bound tag value at runtime.

See also

Supported color keywords and RGB values on page 501

What is binding? on page 502

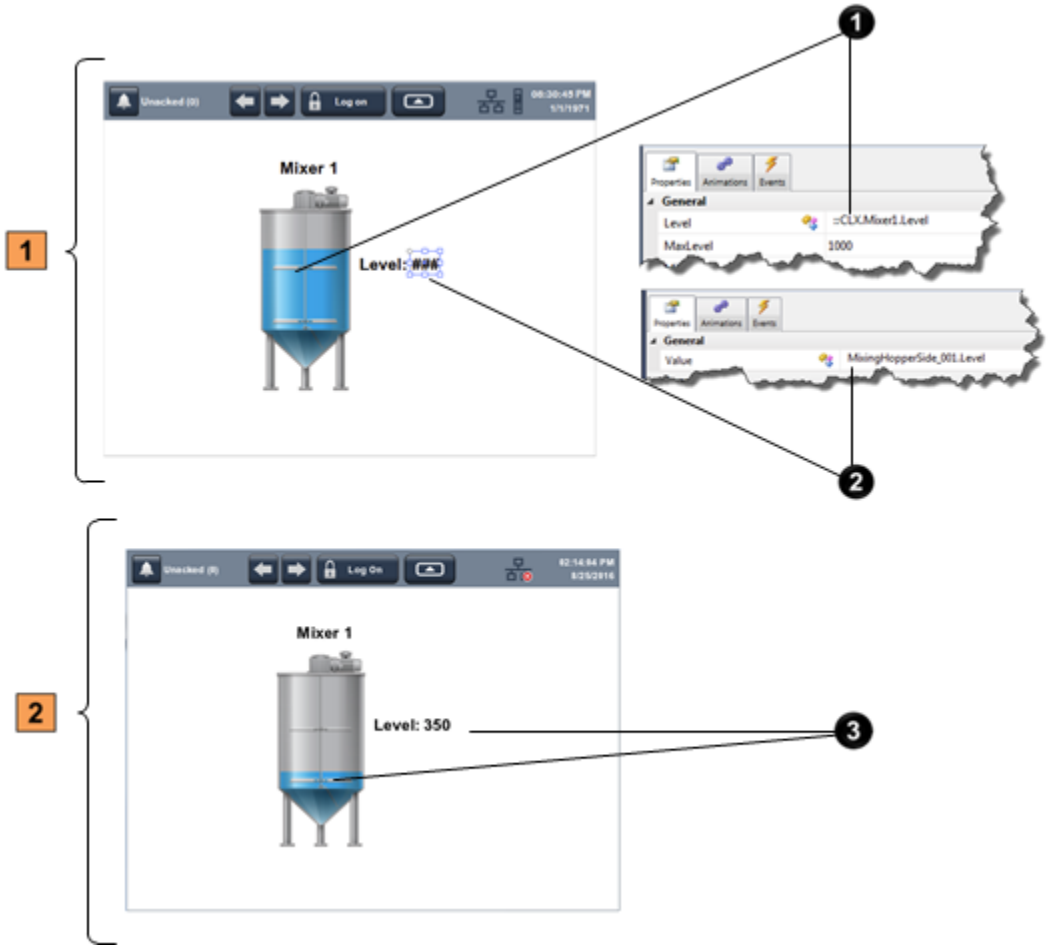
Create an expression on page 520

Configure an animation using a Color Table on page 437

Configure an animation using a State Table on page 438

Property-to-property binding

Property-to-property binding binds the property of one graphic element to the same property of another graphic element on the screen. If the graphic elements display a value in different formats, the graphic elements show the same value on the HMI device. This example depicts binding the value property of a numeric display to the Level property of a mixer to show the level graphically and numerically on the HMI device.



1 Graphic elements on a screen

Item	Description
1	A MixingHopperSide_001 graphic element on a screen. The value of the MixingHopperSide_001 graphic element is bound to the Level tag. Browse to the controller tag to show the value on the HMI device. The value of the Level shows graphically on the mixing hopper on the HMI device.
2	A NumericDisplay_001 graphic element on the same screen. The value of the NumericDisplay_001 graphic element is bound to the Level property of the mixing hopper graphic element. To bind the property of one graphic element to the property of another graphic element, use the format ElementName.PropertyName. The value of Level shows numerically on the numeric display on the HMI device.

2 Graphic elements on the HMI device

Item	Description
3	The mixing hopper graphic element and the numeric display graphic element show the level of the mixer on the HMI device.

See also

Bind a property to a data item on page 508

Properties that do not support binding on page 512

Remove a binding on page 513

What is binding? on page 502

Supported color keywords and RGB values

Keywords to use as a string to select a color when binding a color property include:

Color Name	#RRGGBB
aliceblue	F0F8FF
antiquewhite	FAEBD7
aqua	00FFFF
aquamarine	7FFFD4
azure	F0FFFF
beige	F5F5DC
bisque	FFE4C4
black	000000
blanchedalmond	FFEBCD
blue	0000FF
blueviolet	8A2BE2
brown	A52A2A
burlywood	DEB887
cadetblue	5F9EA0
chartreuse	7FFF00
chocolate	D2691E
coral	FF7F50
cornflowerblue	6495ED
cornsilk	FFF8DC
crimson	DC143C
cyan	00FFFF
darkblue	00008B
darkcyan	008B8B
darkgoldenrod	B8860B
darkgray	A9A9A9
darkgreen	006400
darkgrey	A9A9A9
darkkhaki	BDB76B
darkmagenta	8B008B
darkolivegreen	556B2F
darkorange	FF8C00
darkorchid	9932CC
darkred	8B0000
darksalmon	E9967A
darkseagreen	8FBC8F
darkslateblue	483D8B
darkslategray	2F4F4F
darkslategrey	2F4F4F
darkturquoise	00CED1
darkviolet	9400D3
deeppink	FF1493
deepskyblue	00BFFF
dimgray	696969
dimgrey	696969
dodgerblue	1E90FF
firebrick	B22222
floralwhite	FFFAF0
forestgreen	228B22
fuchsia	FF00FF

Color Name	#RRGGBB
gainsboro	DCDCDC
ghostwhite	F8F8FF
gold	FFD700
goldenrod	DAA520
gray	808080
grey	808080
green	008000
greenyellow	ADFF2F
honeydew	F0FFF0
hotpink	FF69B4
indianred	CD5C5C
indigo	4B0082
ivory	FFFFF0
khaki	F0E68C
lavender	E6E6FA
lavenderblush	FFF0F5
lawngreen	7CFC00
lemonchiffon	FFFACD
lightblue	ADD8E6
lightcoral	F08080
lightcyan	E0FFFF
lightgoldenrodyellow	FAFAD2
lightgray	D3D3D3
lightgreen	90EE90
lightgrey	D3D3D3
lightpink	FFB6C1
lightsalmon	FFA07A
lightseagreen	20B2AA
lightskyblue	87CEFA
lightslategray	778899
lightslategrey	778899
lightsteelblue	B0C4DE
lightyellow	FFFFE0
lime	00FF00
limegreen	32CD32
linen	FAF0E6
magenta	FF00FF
maroon	800000
mediumaquamarine	66CDAA
mediumblue	0000CD
mediumorchid	BA55D3
mediumpurple	9370DB
mediumseagreen	3CB371
mediumslateblue	7B68EE
mediumspringgreen	00FA9A
mediumturquoise	48D1CC
mediumvioletred	C71585
midnightblue	191970
mintcream	F5FFFA

Color Name	#RRGGBB
mistyrose	FFE4E1
moccasin	FFE4B5
navajowhite	FFDEAD
navy	000080
oldlace	FDF5E6
olive	808000
olivedrab	6B8E23
orange	FFA500
orangered	FF4500
orchid	DA70D6
palegoldenrod	EEE8AA
palegreen	98FB98
paleturquoise	AFEEEE
palevioletred	DB7093
papayawhip	FFEFD5
peachpuff	FFDAB9
peru	CD853F
pink	FFC0CB
plum	DDA0DD
powderblue	B0E0E6
purple	800080
red	FF0000
rosybrown	BC8F8F
royalblue	4169E1
saddlebrown	8B4513
salmon	FA8072
sandybrown	F4A460
seagreen	2E8B57
seashell	FFF5EE
sienna	A0522D
silver	C0C0C0
skyblue	87CEEB
slateblue	6A5ACD
slategray	708090
slategrey	708090
snow	FFFAFA
springgreen	00FF7F
steelblue	4682B4
tan	D2B48C
teal	008080
thistle	D8BFD8
tomato	FF6347
turquoise	40E0D0
violet	EE82EE
wheat	F5DEB3
white	FFFFFF
whitesmoke	F5F5F5
yellow	FFFF00
yellowgreen	9ACD32

See also

Bind a color property to a tag or expression on page 500

Properties that do not support binding

Certain objects have properties that do not support binding:

Object	Properties
Alarm table	• SelectedAlarmName • SortOrder
Banner	• Height
Graphic element	• Border • TextAlignment
Popup	• BackgroundOpacity • CaptionVisible • CloseVisible • Height • Width

Object	Properties
Screen and shortcut	• Icon • ShowDefaultBanner
Trace	• Label • Color • Marker • Width
Trend chart	• TimeSpan • SampleRate • GridColor • AxesColor • ShowGridVertical • ShowGridHorizontal • ShowAxes • ShowButtons

See also

Properties tab on page 494

What is binding? on page 502

Bind a property to a data item on page 508

Remove a binding

Remove a binding between a property and a data item to associate the property with a static value or a different data item, or to leave the property unbound.

To remove a binding

1. Select the graphic element on the screen or in the **Graphic Explorer**.
2. On the **Properties** window, click the **Properties** tab.
3. Select **Binding** for the bound property.
4. Select **Remove binding from property**.

See also

What is binding? on page 502

Bind a property to a data item on page 508

Search for and select a tag

Bind to the extended properties of a tag

If an individual tag is configured in Logix Designer with extended properties, use the extended properties on this tag to display the name, description, engineering units, limits, and state values of the tag.

By binding graphic elements to the extended properties of tags, you no longer need to hard-code specific values, such as limits, in the graphic element.

See also

[What are extended properties?](#) on page 514

[Assign the extended properties of a tag to a graphic element](#) on page 514

[What is binding?](#) on page 502

[Bind a property to a data item](#) on page 508

Assign the extended properties of a tag to a graphic element

Bind an extended property of a tag to a graphic element. Extended properties are added to tags in Logix Designer and are available to use in View Designer.

Prerequisites

- In Logix Designer, use the **Tag Editor Properties** pane to add extended properties to tags in the .acd project file and save the file.
- In View Designer verify that the Logix Designer .acd project file with the extended properties is configured as a controller reference on the **References** tab of the **Project Properties** dialog box.

To assign an extended property to a graphic element

1. Add a graphic element to the screen.
2. Expand the categories in the **Properties** tab to locate the property to bind to a tag.
3. Point to the property box, click the **Binding** button when it appears, and select **Bind property to item**.
4. Click **Select tag** . The **Tag Browser** opens. to browse to the tag with the extended property. All extended properties begin with @.
5. Select the extended property.

See also

[What are extended properties?](#) on page 514

[Add a graphic element to a screen](#) on page 136

Search for and select a tag

[Graphic element configured with extended properties](#) on page 516

What are extended properties?

Extended properties are properties added to tags and data types in Logix Designer. Extended properties help reduce the number of tags to create in Logix Designer. If an individual tag is configured in Logix Designer with extended properties, use the extended properties on this tag to display the name, description, engineering units, limits, and state values of the tag. Binding graphic elements and Add-On Graphics to the extended properties of tags means not having to hard-code specific values, such as limits, in the graphic element or Add-On Graphic.

Downloading extended properties to the controller makes the properties available to use in View Designer. For example, adding an engineering unit property to a tag in Logix Designer makes the engineering unit property available to use when browsing to the tag in View Designer. If the engineering unit changes in Logix Designer, updating the project file (.acd) and downloading it to the controller changes the extended property value while the Logix controller is online.

Bind extended properties to graphic elements and Add-On Graphics. For example, bind a text property of a graphic element to the extended property on a member of a tag. Include extended properties as values within expressions. Use both General and Data extended properties from Logix Designer in View Designer.

General properties include:

- **Name**. The name of the tag or data type which is limited to 40 characters.
- **Description**. The description of the tag or data type which is limited to 128 characters.

Data properties include:

- **Engineering Units**. The units of measurement, such as degrees Celsius, pounds, and pounds per square inch, associated with a tag or tag structure or array member. The Engineering unit is limited to 80 characters.
- **Minimum**. The minimum (low) value of a tag or tag structure or array member. This may be used with the Maximum property to create a high and low limit for a DINT, INT, LINT, SINT, REAL, LREAL, UDINT, UINT, ULINT, and USINT tag. The Minimum property value must be less than or equal to the Maximum property value.
- **Maximum**. Only the decimal display style is supported for the Minimum value. The minimum limit is not enforced in the Logix controller. There is no controller fault if the value exceeds the minimum limit.

  Tips:
  - Only the decimal display style is supported for the Minimum value.
  - Minimum and maximum limits are not enforced in the Logix controller. There is no controller fault if the value does not meet the minimum limit or exceeds the maximum limit.
  - Only the decimal display style is supported for the Maximum value.
  - The maximum limit is not enforced in the Logix controller. There is no controller fault if the value exceeds the maximum limit.
- **State 0**. The State 0 identifier associated with the tag or tag structure or array member. Use this with the State 1 property to describe two states of a BOOL tag. For example, State0 is Start and State1 is Stop for a status state. The identifier is limited to 80 characters.
- **State 1**. The State 1 identifier associated with the tag or tag structure or array member. Use this with the State 0 property to describe two states for a BOOL tag. The identifier is limited to 80 characters.

The extended properties available for a selected tag depend on the data type of the tag.

IMPORTANT The HMI device does not display passed-through extended properties of aliased Logix Designer tags.

See also

Graphic element configured with extended properties on page 516

Add a graphic element to a screen on page 136

Assign the extended properties of a tag to a graphic element on page 514

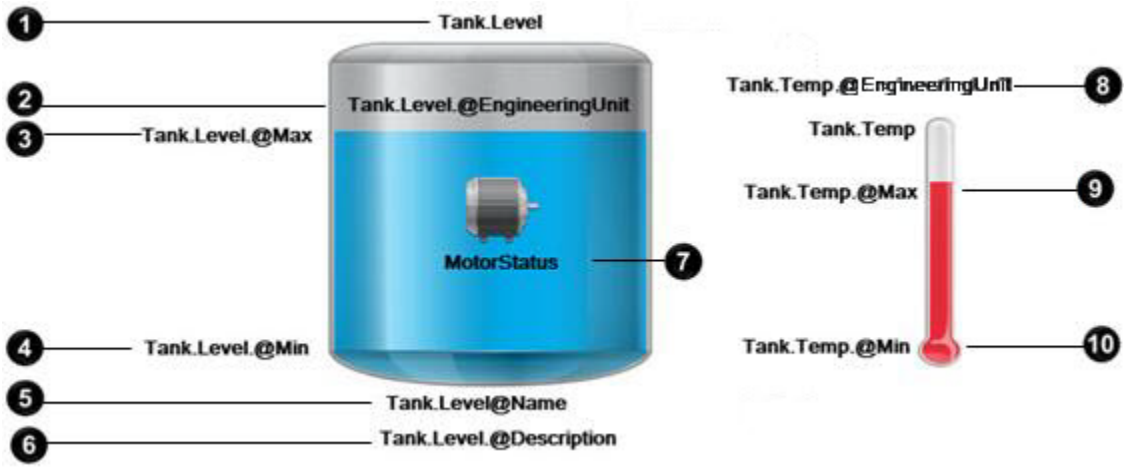
Search for and select a tag

Extended properties and aliases on page 517

Graphic element configured with extended properties

To display the level and temperature of a tank, instead of assigning multiple tags to display the information, select the tags that have the extended properties configured in Logix Designer. To display the on or off status of the motor on the tank, select the tag configured with the State 0 and State 1 extended properties.

In this example, the Tank.Level and Tank.Temp tags are bound to graphic elements. This displays the tag and extended property values for the name, description, minimum and maximum limits, and engineering units. The tag, MotorStatus, is bound to the Motor graphic element. This displays the State 0 and State 1 extended properties.



Item	Name	Description
1	Tank.Level	Displays the value of the Tank.Level tag.
2	Tank.Level.@EngineeringUnit	Displays the unit of measurement, such as gallons, for the Tank.Level tag.
3	Tank.Level.@Max	Displays the maximum value of the Tank.Level tag.
4	Tank.Level.@Min	Displays the minimum value of the Tank.Level tag.
5	Tank.Level@Name	Displays the name of the Tank.Level tag.
6	Tank.Level.@Description	Displays the description of the Tank.Level tag.

7	MotorStatus	Displays the status, On or Off, of the motor with the expression, for example: `IIF(MotorStatus.Running==1,MotorStatus.Running.@State1, MotorStatus.Running.@State0)`
8	Tank.Temp.@EngineeringUnit	Displays the unit of measurement, such as degrees in Celsius, for the Tank.Temp tag.
9	Tank.Temp.@Max	Displays the maximum value of the Tank.Temp tag.
10	Tank.Temp.@Min	Displays the minimum value of the Tank.Temp tag.

See also

What are extended properties? on page 514

Assign the extended properties of a tag to a graphic element on page 514

Extended properties and aliases

For a SINT, INT, DINT, LINT, REAL, LREAL, UDINT, UINT, ULINT and USINT tag:

Tag extended property referenced	Base tag	Alias of base tag using pass-through for all extended properties	Alias of base tag using entered value for textual extended properties. You cannot enter a value for the numeric extended properties.
.@Name	Displays value	Displays value	Displays value
.@Description	Displays value	Displays a blank with no error	Displays value
.@EngineeringUnit	Displays value	Displays an error	Displays value
.@Max	Displays value	Displays an error	Displays an error
.@Min	Displays value	Displays an error	Displays an error

For a BOOL tag:

Tag extended property referenced	Base tag	Alias of base tag using pass-through for all extended properties	Alias of base tag using entered value for textual extended properties.
.@Name	Displays value	Displays value	Displays value
.@Description	Displays value	Displays a blank with no error	Displays value
.@EngineeringUnit	Displays value	Displays an error	Displays value
.@State0	Displays value	Displays an error	Displays value
.@State1	Displays value	Displays an error	Displays value

See also

What are extended properties? on page 514

Use expressions

An expression is a tag name or an equation that returns a numeric value, true or false value, or text string.

Use expressions to improve the data gathered from devices by comparing it to other values, combining it with other values, or creating cause-and-effect relationships between values.

See also

Create an expression on page 520

Expressions overview on page 518

Search for and select a tag

Bind a property to a data item on page 508

Expressions overview

An expression is a tag name or an equation that returns a numeric value, true or false value, or text string. Use expressions to make the data you gather from devices more meaningful by comparing it to other values, combining it with other values, or creating cause-and-effect relationships between values.

You can also use expressions to write or increment values in the controller by including them in events.

Most expressions consist of one or more tag references combined with numbers, mathematical operators, or built-in functions. However, a tag is not required in an expression.

To create an expression, you can:

- Type it directly into the expression/binding box.
- Open the **Expression Editor** and create the expression in the editor.

View Designer checks the expression syntax as you create the expression. A red outline appears around the expression when invalid syntax is detected. The red outline disappears when the syntax becomes valid.

View Designer also verifies the syntax for all expressions in a project before it is downloaded to the HMI device. In addition, it verifies that tag references exist in the controller projects. It also verifies that the property of a graphic element referenced in an expression exists in the screen where it exists. If there are invalid expressions, the download process stops, and the invalid expressions appear in the **Errors** window. Verify expressions any time during the project development process by using the **PROJECT > Verify Project** command.

Expressions can contain:

- Numeric literals
- String literals
- Tags
- Numeric operators
- Functions
- String functions
- Conditional statements
- Relational operators
- Logical operators
- Bitwise operators
- Properties of graphic elements

You can add white space to expressions in the form of spaces and new lines. Use white space to format expressions so that they are easier to

read. For example, add new lines to separate conditions in a complex expression.

Use expressions in:

- Events (Value commands only)
- Animations (State Tables and Color Tables)
- Properties (Any bindable property)

IMPORTANT
- Using LINT tags in expressions, write commands, or increment commands is not recommended. This is because the values may lose resolution as a result of performing the expression calculations.
- Using strings in numeric operations is not recommended. The exception is the + operator, which is used for string concatenation.
- The Value property of a Numeric Display graphic element evaluates as a string value in an expression. For example, if the value of NumericDisplay_001.value is 25, and the value of NumericDisplay_003.value is 30, then NumericDisplay_001.value + NumericDisplay_003.value will return 2530, not 55.
- Using an alias property in an expression is not supported.
- The HMI device updates data from controllers at a fixed rate of 100, 250, or 500 milliseconds. This update is asynchronous to any scan in a controller.

See also

Expression Editor on page 519

Create an expression on page 520

Errors window on page 522

How are expressions evaluated? on page 529

Expression Editor

How do I open the Expression Editor?

From any input box where you can apply an expression, click **Open Expression Editor** .

Use the **Expression Editor** to create or edit lengthy or complex expressions in a resizable window.

Most expressions consist of one or more tag references combined with numbers, mathematical operators, or built-in functions. However, a tag is not required in an expression.

View Designer checks the expression syntax as you create the expression. A red outline appears around the expression when invalid syntax is detected. The red outline disappears when the syntax becomes valid.

View Designer also verifies the syntax for all expressions in a project before it is downloaded to the HMI device. In addition, it verifies that tag references exist in the controller projects. It also verifies that the property of a graphic element referenced in an expression exists in the screen where it exists. If there are invalid expressions, the download process stops, and the invalid expressions appear in the **Errors** window. Verify expressions any time during the project development process by using the **PROJECT > Verify Project** command.

See also

Create an expression on page 520

Change an expression on page 521

Expressions overview on page 518

How are expressions evaluated? on page 529

Create an expression

To create an expression, you can:

- Type it directly into the expression/binding box.
- Open the **Expression Editor** and create the expression in the editor.

View Designer checks the expression syntax while the expression is created. A red outline appears around the expression when invalid syntax is detected. The red outline disappears when the syntax becomes valid.

To create an expression

1. Type the expression using any combination of the following:
   - Numeric Literals. Use positive and negative numbers.
   - Literal or tag string values. Combine string values that result in a single string value or assign a value to a text property.
   - Tags. Use tags as part of an expression or as the entire expression.
   - Numeric operators. Perform math on two or more numeric values and calculate the result.
   - Math functions. Perform operations such as trigonometric or logarithmic calculations on a tag or expression.
   - String functions. Change the case of characters in a string.
   - Conditional statements. Use these IIF functions to evaluate to true (1) or false (0).
   - Relational operators. Compare two numeric or string values to provide a true (1) or false (0) result.
   - Logical operators. Determine the validity of one or more statements and return a true (1) or false (0) result.
   - Bitwise operators. Examine and manipulate individual bits within a value.
   - Properties of graphic elements. Use the values of graphic element properties in expressions so that if the property values change, the result of the expression evaluation changes. The property values of graphic elements that reference this property also change when the result of the expression evaluation changes.
   - Punctuators. Specify the order of operations.
   - White space. Format an expression using spaces, tabs, and new lines so that it is easier to understand.
2. (optional) When creating the expression using the **Expression Editor**, click **OK** to save the expression.

IMPORTANT
- To avoid confusion, do not create a user-defined property with the same name as a property of a graphic element on the screen. When using a user-defined property name in an expression or binding in a graphic element that contains a property with the same name, the expression or binding uses the value of the graphic element property, not the value of the user-defined property.
- Using an alias property in an expression is not supported.
- The HMI device updates data from controllers at a fixed rate of 100, 250, or 500 milliseconds. This update is asynchronous to any scan in a controller.

Tips:
- Negation is supported for tags, numbers, and anything in parentheses.
- Cutting, copying, and pasting expressions or parts of expressions between editors is not supported.
- Function names are case sensitive. In general, all upper case, all lower case, and Pascal case are accepted.
- Verify the syntax of all expressions in a project by clicking **PROJECT > Verify Project** any time during the project development process. The results of project verification display in the **Errors** window.
- Expressions can contain Unicode characters. View Designer supports Unicode characters that appear in the Arial Unicode MS font.
- When inserting text that contains Unicode characters in a graphic element, select **Arial Unicode MS** in the **FontName** property of the graphic element. Supported Unicode characters appear on the HMI device.

See also

Change an expression on page 521

Nest conditional expressions on page 522

Expression Editor on page 519

Expressions overview on page 518

Expression examples on page 503

Change an expression

Change an expression, for example, to select a different tag. Changes to an expression save automatically.

To change an expression

- Type the changes directly into the expression/binding box.
- Open the **Expression Editor** and make changes to the expression in the editor.

  Tip: To change a tag in an expression from within the definition of an Add-On Graphic, click the tag link in the expression to open the **Tag Browser**. The tag in the expression is selected in the **Tag Browser** automatically. Select a different tag to change the expression.

See also

Create an expression on page 520

Expressions overview on page 518

Errors window

How do I open the Errors window?

The **Errors** window opens automatically to display the invalid tags or expressions detected during project verification.

To open the **Errors** window manually, on the **Menu** bar, click **VIEW > Errors**.

The **Errors** window displays the results of project verification. It opens when View Designer detects invalid tags or expressions. Downloading a project automatically verifies that project. Verify a project at any time during project development. For example, verify a project if a controller is defined for the project.

Project verification verifies:

- The syntax of all expressions contained in the View Designer project
- The validity of parameters passed from one item to another and required error messages
- The existence of elements and properties referenced in an expression
- The existence of tags in the View Designer project in the referenced controller projects
- That Add-On Graphics do not contain direct bindings to controller tags or system tags
- That property bindings in the definition of an Add-On Graphic are formatted as ElementName.PropertyName
- That aliased properties of graphic elements in the definition of an Add-On Graphic are not bound
- That all tags in the data logs are valid.

Use the **Errors** window to:

- View the errors and warnings detected during project verification.
- Navigate to the source of the error or warning so that you can resolve the problem.
- Sort the results to group them by severity level, description, or location in the project.

See also

Verify a project on page 718

Verify Project dialog box on page 544

Sort the contents of the Errors window on page 718

Download a runtime application to an HMI device on page 710

Nest conditional expressions

Create more complex expressions by nesting conditional statements inside one another to handle situations requiring complex branching.

For example, assume MyTag1 = 1, MyTag2 = 2, and MyTag3 = 3.

This example evaluates to 3:

```
IIF( ::MyController.MyTag1 > ::MyController.MyTag2, 1,
IIF( ::MyController.MyTag2> ::MyController.MyTag3, 2, 3
) )
```

OR

This example evaluates to 3:

```
::MyController.MyTag1 > ::MyController.MyTag2 ? 1 :
::MyController.MyTag2> ::MyController.MyTag3 ? 2 : 3
```

See also

Create an expression on page 520

Expression Editor on page 519

Expressions overview on page 518

Verify expressions

Expression verification checks the syntax of all expressions in your project. It also verifies that the property of a graphic element referenced in an expression exists in the screen where it is used. In addition, it verifies that tag references exist in the controller project. View Designer verifies expressions automatically upon downloading a project. Verify expressions at any time during project development. For example, verify a project if a controller is defined for the project. The **Errors** window displays the results.

View Designer identifies invalid expression syntax as an error. The expression does not work for the project when downloaded to the HMI device. Resolve errors before downloading a project to the HMI device.

To verify expressions:

1. On the **Menu** bar, click **Project > Verify Project**. The **Verify Project** dialog box opens and verification begins.
2. If there are invalid expressions listed in the **Errors** window, double-click an entry to navigate to the source of the error in the project, and make the necessary changes. The list updates each time the verification process runs for the project.
3. Repeat the verification process until there are no errors listed in the **Errors** window.

See also

Errors window on page 522

Verify a project on page 718

Verify Project dialog box on page 544

Expression examples

Examples of combinations to use for creating an expression:

Numeric literals in expressions

Name	Description	Example
Integers	Numbers 0-9 specified in base-10 format. Leading zeros are not supported. 0 is supported, 01 is not supported.	`123`

Floating point	Numbers that begin with zero or more base-10 digits, then the period character as decimal separator, followed by one or more base-10 digits. Leading zeros are not supported to the left of the decimal point, unless it is just a single zero immediately preceding the decimal point. Examples: 1.23 .23 0.23	`1.23, .23, and 123.45`
Exponential	Numbers that begin with an integer or floating point number, followed by the character 'e' (or 'E') and an integer. A negation operator '-' is supported before the exponent; other operators are not.	`6.02e23` means $6.02 * 10^{23}$ `1.66e-27` means $1.66 * 10^{-27}$

String values (literal or tags) in expressions

Name	Description	Example: If tag1 = "SOME" and tag2 + "THING", then:
String	A string literal begins with a double-quote character and ends with a double-quote character. Anything between the two double-quotes is part of the string literal. You can use strings as operands with the plus (+) operator and with relational operators. The + operator joins string operands. String tags and string literals behave the same way. Keep the following in mind when using string tags with the relational operators: • All relational operators are case-sensitive. • Strings are compared on a character-by-character basis. • Individual letters are compared based on their Unicode value. This means that a lowercase letter is greater than its corresponding uppercase letter. • If two strings are different lengths and the characters are the same, then the longer string is considered to be greater than the shorter string.	`tag1+tag2` returns "SOMETHING"

Tags in expressions

Name	Description	Example: In a controller named Packing, if tag1 = 5 and tag2 = 7, then:
Tag	A tag can stand alone as an expression or be included as part of an expression that is made up of other components. An expression that is a tag name returns the value of the tag. Tags begin with either "::" or "\". Use the format `::ControllerName.TagName`. You can type the tag name or open the Tag Browser and select a tag.	::Packing.tag1 returns 5 ::Packing.tag1 + 25 returns 30 ::Packing.tag1 % ::Packing.tag2 returns 5 ::Packing.tag1>::Packing.tag2 returns 0 (false) (::Packing.tag1<::Packing.tag2) &&(::Packing.tag1==5) returns 1 (both statements are true)

Numeric operators in expressions

IMPORTANT
- Using strings in numeric operations is not recommended. The exception is the + operator, which is used for string concatenation.
- Using LINT tags in expressions, write commands, or increment commands is not recommended. This is because the values may lose resolution as a result of performing the expression calculations.
- Ensure that any tag value you use as a divisor cannot at some point have a value of zero. Expressions that attempt to divide a number by zero produce an error at runtime.

Symbol (Operation)	Description	Example: If tag1 = 5 and tag2 = 7, then:
+ (Addition)	Returns the sum of the values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed. If any operand is a string, it is concatenated.	`tag1 + tag2` returns a value of 12 MyDINT + "SomeString" returns a value of 5SomeString, if MyDINT = 5
- (Subtraction)	Returns the difference of the two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 - tag2` returns a value of -2
- (Negation)	Inverts the sign of the operand, making a positive number into a negative number or a negative number into a positive number.	`-tag2` returns -7
* (Multiplication)	Returns the product of two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 * tag2` returns a value of 35
/ (Division)	Returns the quotient of the two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 / tag2` returns a value of 0.71
% (Modulus)	Returns the remainder of one number divided by another. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 % tag2` returns a value of 5

Math Function in expressions

Function	Description	Example
ABS, Abs, or abs	Returns the absolute value of the expression.	`ABS(-1.23)` returns 1.23. `ABS(1.23)` returns 1.23.
ARCCOS, arccos, ACOS, or acos	Returns the arc cosine of the expression in radians.	`ACOS(-1.0)` returns 3.14159.
ARCSIN, arcsin, ASIN, or asin	Returns the arc sine of the expression in radians.	`ARCSIN(1)` returns 1.570796.
ARCTAN, arctan, ATAN, or atan	Returns the arc tan of the expression in radians.	`ATAN(-45.01)` returns -1.54858.
COS, Cos, or cos	Returns the cosine of the expression in radians.	`COS(14.78)` returns -0.599465.
LOG, Log, or log	Returns the natural log of the expression.	`LOG(2)` returns 0.69314718
LOG10, Log10, or log10	Returns the base-10 log of the parameter.	`LOG10(100)` returns `2.`
SIN, Sin, or sin	Returns the sine of the expression in radians.	`SIN(45.175643)` returns `0.929607.`
SQRT, Sqrt, or sqrt	Returns the square root of an expression.	`SQRT(144)` returns `12.`
TAN, Tan, or tan	Returns the tangent of the expression in radians.	`TAN(1)` returns 1.5574077246549023.
TRUNC, Trunc, or trunc	Returns the value of the parameter with any digits to the right of the decimal point removed.	`TRUNC(10.8282)` returns `10.`
POW, pow	Returns the result of raising the first value to the power of the second value. All values are converted to double-precision floating point first, and then the operation is performed.	`POW(10,3)` returns `1000.`

String functions in expressions

Function	Description	Example
TOLOWER, ToLower, or tolower	Converts any uppercase characters to lower lowercase. Converts a numeric to a string containing that number.	`TOLOWER("New York")` returns "new york". This expression converts a numeric to a string containing that number: `TOLOWER(32) + TOLOWER(34)` returns "3234".
TOUPPER, ToUpper, or toupper	Converts any lowercase characters to uppercase.	`TOUPPER("hello")` returns "HELLO".

Conditional statements in expressions

IMPORTANT Keep the following in mind when using conditional statements:

- The condition portion of the statement can be any numeric or Boolean expression.
- If the condition is a numeric expression, including a tag, zero is treated as false and any non-zero value is treated as true.
- Using a string operand (string Literals, string properties, string tags, or the result of a String Operation) as the condition of a conditional statement is not supported.
- All parts of a conditional statement are required.

The value if true and value if false portions of the conditional statement can be any valid expression, including another conditional statement.

Function	Description	Example: If tag1 = 5 and tag2 = 7, then:
IIF, Iif, iif	Evaluates with the same rules as numeric operands. If the condition evaluates to 0 (false), the second value is used. If the condition evaluates to non-zero (true), the first value is used. Use this format: `IIF(condition, value if true, value if false)`	`IIF (tag1 > tag2, tag1, tag2)` returns 7 (the value of tag2) because tag1 is not greater than tag2
?:	The following requirements are specific to the ?: statement: • The conditional operator is right-associative. Therefore, `a ? b : c ? d : e` is evaluated as a ? b : (c ? d : e). • The segments of a conditional operation must be surrounded by white space or parentheses. • A new line counts as white space. Use this format: `condition ? value if true : value if false`	`(tag1 > tag2) ? tag1 : tag2` returns 7 (the value of tag2) because tag1 is not greater than tag2

Relational operators in expressions

Symbol (Function)	Description	Example: If tag1 = 5 and tag2
== (Equal to)	Compares the two values and returns a 1 (true) if they are equal. Returns a 0 (false) if they are not equal. Performs a case-sensitive string comparison. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 == tag2` is false, so the expression returns 0
!= (Not equal to)	Compares the two values and returns a 1 (true) if they are not equal. Returns a 0 (false) if they are equal. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 != tag2` is true, so the expression returns 1
< (Less than)	Compares two values and returns a 1 (true) if the value on the left is smaller than the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 < tag2` is true, so the expression returns 1

> (Greater than)	Compares two values and returns a 1 (true) if the value on the left is larger than the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 > tag2` is false, so the expression returns 0
<= (Less than or equal to)	Compares two values and returns a 1 (true) if the value on the left is smaller or the same as the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 <= tag2` is true, so the expression returns 1
>= (Greater than or equal to)	Compares two values and returns a 1 (true) if the value on the left is larger or the same as the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 >= tag2` is false, so the expression returns 0

Logical operators in expressions

Symbol (Function)	Description	Example: If tag1 = 5 and tag2 = 7, then:
&& (Logical AND)	Returns a value of 1 if the statements to the right and to the left of the operator are both true (non-zero).	(tag1 < tag2) && (tag1 == 5) returns a 1 because both statements are non-zero (true) tag1 && tag2 returns a 1 because both tag1 and tag2 are non-zero (true)
|| (Logical OR)	Returns a value of 1 if either the statement to the left or to the right of the operator is true (non-zero).	(tag1 > tag2) || (tag1 == 5) returns a value of 1 because tag1 == 5 is true
! (Logical NOT)	Inverts the Boolean value of an expression. Returns true if the expression is false and returns false if the expression is true. If the expression (a>b) evaluates to true, then !(a>b) evaluates to false.	!(tag1 < tag2) The expression tag1 < tag2 evaluates to true and returns a value of 1, but the NOT operator reverses the logical value, and 0 is returned.

Bitwise operators in expressions

Symbol (Function)	Description	Example: If tag1 = 5 (binary 0000 0000 0000 0101) and tag2 = 3 (binary 0000 0000 0000 0011), then:
& (Bitwise AND)	Returns an integer with a bit set to 1 if both of the corresponding bits in the original numbers are 1. Otherwise, the resulting bit is 0.	`tag1 & tag2` returns 1 (binary 0000 0000 0000 0001)
| (Bitwise inclusive OR)	Returns an integer with a bit set to 1 if either or both of the corresponding bits in the original numbers are 1. If both bits are 0, the resulting bit is 0.	`tag1 | tag2` returns 7 (binary 0000 0000 0000 0111)
^ (Bitwise exclusive XOR)	Returns an integer with a bit set to 1 if either of the corresponding bits in the original numbers is 1. If both bits are 1 or both are 0, the resulting bit is 0.	`tag1 ^ tag2` returns (binary 0000 0000 0000 0110)
>> (Right Shift)	Shifts the bits within the left operand by the amount specified in the right operand. The bit on the right disappears. Either a 0 or a 1 is shifted in on the left depending on whether the integer is signed or unsigned. With unsigned integers, 0 is always shifted in on the left. With signed integers, a 0 is shifted in when the number is positive (that is, the leftmost bit--the sign bit--is 0), and a 1 is shifted in when the number is negative (that is, the leftmost bit--the sign bit--is 1). In other words, with signed integers, the sign of the number is always maintained.	`tag1 >> 1` returns 2 (binary 0000 0000 0000 0010)

<< (Left Shift)	Shifts the bits within the left operand by the amount specified in the right operand. The bit on the left disappears and a 0 is shifted in on the right. If the left bit is a 1, an overflow occurs, and an error message appears. To prevent this, use the bitwise AND (&&) operator in an expression. For example, (dev << 1) && 65535, where 65535 is 1111 1111 1111 1111 in binary form. Where dev is a tag name whose value is being shifted left.	`tag1 << 1` returns 10 (binary 0000 0000 0000 1010)
~ (Complement)	Gives the ones complement of a number. For example, use this operator to reverse every bit within the number so that every 1 bit becomes a 0 and vice versa.	`~ tag1` returns -6 (binary 1111 1111 1111 1010)

Properties of graphic elements in expressions

IMPORTANT
- Avoid setting up circular references using graphic element property bindings because this can result in unpredictable values or a runtime error.
  An example of a circular reference would be having three elements on the screen such that, for example, Element1.Opacity is bound to Element2.Opacity, Element2.Opacity is bound to Element3.Opacity, and Element3.Opacity is bound to Element1.Opacity.
- A numeric display's .Value property is treated as a string when using the "+" operator, causing a concatenation to occur instead of an addition. To force an addition of .Value properties, first multiply .Value by 1.
  For example, (NumericDisplay_001.Value*1) + (NumericDisplay_002.Value*1) will perform an addition of the .Value properties. However, NumericDisplay_001.Value + NumericDisplay_002.Value will perform a concatenation of the .Value properties.

Name	Description	Example
Property name	Property names refer to components of the current application. This differs from tags, which refer to data items in a controller. The graphic elements must all be on the same screen, popup, or **System Banner**. You cannot use an alias property in an expression. Use the syntax: ElementName.PropertyName An expression can contain: • Bindable properties. • Multiple graphic element properties. • Graphic element property bindings AND tags AND user-defined properties or any combination.	MyElement.X + MyElement.Y / MyElement.Opacity MyElement.X + ::MyController.MyTag + MyCustomProperty

Punctuators in expressions

Symbol	Description	Example
( )	Opening and closing parentheses. Use parentheses around any subexpression to specify the order of operations. Subexpressions inside parentheses are evaluated prior to any operators outside the parentheses being applied.	`3 + 2 * 6` returns `15` `(3 + 2) * 6` returns `30`

See also

Create an expression on page 520

How are expressions evaluated?

The operations in an expression are performed in a prescribed order. Operations of equal order are performed from left to right. High precedence operators are evaluated before low precedence operators. The following lists the order in which the operations are performed, from highest to lowest.

- Parenthetical expressions and functions
- Unary Negation, Logical Not, Bitwise Complement Operator
- Multiplication, Division, Modulus
- Addition, Subtraction
- Bitwise Shift Left, Bitwise Shift Right
- Greater Than, Less Than, Greater Than or Equal To, Less Than or Equal To
- Equal To, Not Equal To
- Bitwise And
- Bitwise Exclusive Or
- Bitwise Or
- Logical And
- Logical Or
- Conditional operator ?:
- Comma (separating function arguments)

IMPORTANT The HMI device updates data from controllers at a fixed rate of 100, 250, or 500 milliseconds. This update is asynchronous to any scan in a controller.

Tip: If an expression contains multiple operators or functions, group the conditions in parenthesis "( )". This ensures the correct order of execution and makes it easier to read the expression.

See also

Create an expression on page 520

Change an expression on page 521

Expression Editor on page 519

Expressions overview on page 518

Supported expression components on page 529

Supported expression components

View Designer supports the following expression components:

- Bitwise operators in expressions
- Conditional statements in expressions
- Logical operators in expressions
- Math functions in expressions
- Numeric literals in expressions
- Numeric operators in expressions
- Property names in expressions
- Punctuators in expressions
- Relational operators in expressions
- String functions in expressions
- String values in expressions
- Tags in expressions

See also

Create an expression on page 520

How are expressions evaluated? on page 529

Expressions overview on page 518

Expression Editor on page 519

These are the examples of bitwise operators in expressions.

Symbol (Function)	Description	Example: If tag1 = 5 (binary 0000 0000 0000 0101) and tag2 = 3 (binary 0000 0000 0000 0011), then:
& (Bitwise AND)	Returns an integer with a bit set to 1 if both of the corresponding bits in the original numbers are 1. Otherwise, the resulting bit is 0.	`tag1 & tag2` returns 1 (binary 0000 0000 0000 0001)
| (Bitwise inclusive OR)	Returns an integer with a bit set to 1 if either or both of the corresponding bits in the original numbers are 1. If both bits are 0, the resulting bit is 0.	`tag1 | tag2` returns 7 (binary 0000 0000 0000 0111)
^ (Bitwise exclusive XOR)	Returns an integer with a bit set to 1 if either of the corresponding bits in the original numbers is 1. If both bits are 1 or both are 0, the resulting bit is 0.	`tag1 ^ tag2` returns 6 (binary 0000 0000 0000 0110)
>> (Right Shift)	Shifts the bits within the left operand by the amount specified in the right operand. The bit on the right disappears. Either a 0 or a 1 is shifted in on the left depending on whether the integer is signed or unsigned. With unsigned integers, 0 is always shifted in on the left. With signed integers, a 0 is shifted in when the number is positive (that is, the leftmost bit--the sign bit--is 0), and a 1 is shifted in when the number is negative (that is, the leftmost bit--the sign bit--is 1). In other words, with signed integers, the sign of the number is always maintained.	`tag1 >> 1` returns 2 (binary 0000 0000 0000 0010)
<< (Left Shift)	Shifts the bits within the left operand by the amount specified in the right operand. The bit on the left disappears and a 0 is shifted in on the right. If the left bit is a 1, an overflow occurs, and an error message appears. To prevent this, use the bitwise AND (&&) operator in an expression. For example, (dev << 1) && 65535, where 65535 is 1111 1111 1111 1111 in binary form. Where dev is a tag name whose value is being shifted left.	`tag1 << 1` returns 10 (binary 0000 0000 0000 1010)
~ (Complement)	Gives the ones complement of a number. For example, use this operator to reverse every bit within the number so that every 1 bit becomes a 0 and vice versa.	`~ tag1` returns -6 (binary 1111 1111 1111 1010)

Example: Conditional statements in expressions

- These are the examples of conditional statements in expressions.

IMPORTANT Keep the following in mind when using conditional statements:

- The condition portion of the statement can be any numeric or Boolean expression.
- If the condition is a numeric expression, including a tag, zero is treated as false and any non-zero value is treated as true.
- Using a string operand (string Literals, string properties, string tags, or the result of a String Operation) as the condition of a conditional statement is not supported.
- All parts of a conditional statement are required.
- The value if true and value if false portions of the conditional statement can be any valid expression, including another conditional statement.

Function	Description	Example: If tag1 = 5 and tag2 = 7, then:
IIF, Iif, iif	Evaluates with the same rules as numeric operands. If the condition evaluates to 0 (false), the second value is used. If the condition evaluates to non-zero (true), the first value is used. Use this format: `IIF(condition, value if true, value if false)`	IIF (tag1 > tag2, tag1, tag2) returns 7 (the value of tag2) because tag1 is not greater than tag2
?:	The following requirements are specific to the ?: statement: • The conditional operator is right-associative. Therefore, `a ? b : c ? d : e` is evaluated as a ? b : (c ? d : e). • The segments of a conditional operation must be surrounded by white space or parentheses. • A new line counts as white space. Use this format: `condition ? value if true : value if false`	(tag1 > tag2) ? tag1 : tag2 returns 7 (the value of tag2) because tag1 is not greater than tag2

These are the examples of logical operators in expressions.

Symbol (Function)	Description	Example: If tag1 = 5 and tag2 =7, then:
&& (Logical AND)	Returns a value of 1 if the statements to the right and to the left of the operator are both true (non-zero).	(tag1 < tag2) && (tag1 == 5) returns a 1 because both statements are non-zero (true) tag1 && tag2 returns a 1 because both tag1 and tag2 are non-zero (true)
II (Logical OR)	Returns a value of 1 if either the statement to the left or to the right of the operator is true (non-zero).	(tag1 > tag2) II (tag1 == 5)returns a value of 1 because tag1 == 5 is true
! (Logical NOT)	Inverts the Boolean value of an expression. Returns true if the expression is false and returns false if the expression is true. If the expression (a>b) evaluates to true, then !(a>b) evaluates to false.	!(tag1 < tag2) The expression tag1 < tag2 evaluates to true and returns a value of 1, but the NOT operator reverses the logical value, and 0 is returned.

Example: Math functions in expressions

These are the examples of math functions in expressions.

Function	Description	Example
ABS, Abs, or abs	Returns the absolute value of the expression.	`ABS(-1.23)` returns 1.23. `ABS(1.23)` returns 1.23.
ARCCOS, arccos, ACOS, or acos	Returns the arc cosine of the expression in radians.	`ACOS(-1.0)` returns 3.14159.
ARCSIN, arcsin, ASIN, or asin	Returns the arc sine of the expression in radians.	`ARCSIN(1)` returns 1.570796.
ARCTAN, arctan, ATAN, or atan	Returns the arc tan of the expression in radians.	`ATAN(-45.01)` returns -1.54858.
COS, Cos, or cos	Returns the cosine of the expression in radians.	`COS(14.78)` returns -0.599465.
LOG, Log, or log	Returns the natural log of the expression.	`LOG(2)` returns 0.69314718
LOG10, Log10, or log10	Returns the base-10 log of the parameter.	`LOG10(100)` returns `2.`
SIN, Sin, or sin	Returns the sine of the expression in radians.	`SIN(45.175643)` returns `0.929607.`
SQRT, Sqrt, or sqrt	Returns the square root of an expression.	`SQRT(144)` returns `12.`

TAN, Tan, or tan	Returns the tangent of the expression in radians.	`TAN(1)` returns 1.5574077246549023.
TRUNC, Trunc, or trunc	Returns the value of the parameter with any digits to the right of the decimal point removed.	`TRUNC(10.8282)` returns `10.`
POW, pow	Returns the result of raising the first value to the power of the second value. All values are converted to double-precision floating point first, and then the operation is performed.	`POW(10,3)` returns `1000.`

These are the examples of numeric literals in expressions.

Name	Description	Example
Integers	Numbers 0-9 specified in base-10 format. Leading zeros are not allowed. 0 is allowed, 01 is not allowed.	`123`
Floating point	Numbers that begin with zero or more base-10 digits, then the period character as decimal separator, followed by one or more base-10 digits. Leading zeros are not allowed to the left of the decimal point, unless it is just a single zero immediately preceding the decimal point. Examples: 1.23 .23 0.23	`1.23, .23, and 123.45`
Exponential	Numbers that begin with an integer or floating point number, followed by the character 'e' (or 'E') and an integer. A negation operator '-' is allowed before the exponent; other operators are not.	`6.02e23` means $6.02 * 10^{23}$ `1.66e-27` means $1.66 * 10^{-27}$

Example: Numeric operators in expressions

These are the examples of numeric operators in expressions.

IMPORTANT
- Using strings in numeric operations is not recommended. The exception is the + operator, which is used for string concatenation.
- Using LINT tags in expressions, write commands, or increment commands is not recommended. This is because the values may lose resolution as a result of performing the expression calculations.
- Ensure that any tag value you use as a divisor cannot at some point have a value of zero. Expressions that attempt to divide a number by zero produce an error at runtime.

Symbol (Operation)	Description	Example: If tag1 = 5 and tag2 = 7, then:
+ (Addition)	Returns the sum of the values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed. If any operand is a string, it is concatenated.	tag1 + tag2 returns a value of 12 MyDINT + "SomeString" returns a value of 5SomeString, if MyDINT = 5
- (Subtraction)	Returns the difference of the two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 - tag2` returns a value of -2
- (Negation)	Inverts the sign of the operand, making a positive number into a negative number or a negative number into a positive number.	`-tag2` returns -7
* (Multiplication)	Returns the product of two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 * tag2` returns a value of 35

/ (Division)	Returns the quotient of the two values. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 / tag2` returns a value og 0.71
% (Modulus)	Returns the remainder of one number divided by another. SINT, INT, DINT, LINT, and REAL tags can be used in any order. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 % tag2` returns a value of 5

These are the examples of property names in expressions.

IMPORTANT Avoid setting up circular references using graphic element property bindings because this can result in unpredictable values or a runtime error.
An example of a circular reference would be having three elements on the screen such that, for example, Element1.Opacity is bound to Element2.Opacity, Element2.Opacity is bound to Element3.Opacity, and Element3.Opacity is bound to Element1.Opacity.

Name	Description	Example
Property name	Property names refer to components of the current application. This differs from tags, which refer to data items in a controller. The graphic elements must all be on the same screen, popup, or **System Banner**. Using an alias property in an expression is not supported. Use the syntax: ElementName.PropertyName An expression can contain: • Bindable properties. • Multiple graphic element properties. • Graphic element property bindings AND tags AND user-defined properties or any combination.	MyElement.X + MyElement.Y / MyElement.Opacity MyElement.X + ::MyController.MyTag + MyCustomProperty

Example: Punctuators in expressions

These are the examples of punctuators in expressions.

Symbol	Description	Example
( )	Opening and closing parentheses. Use parentheses around any subexpression to specify the order of operations. Subexpressions inside parentheses are evaluated prior to any operators outside the parentheses being applied.	`3 + 2 * 6` returns `15` `(3 + 2) * 6` returns `30`

These are the examples of relational operators in expressions.

Symbol (Function)	Description	Example: If tag1 = 5 and tag2
== (Equal to)	Compares the two values and returns a 1 (true) if they are equal. Returns a 0 (false) if they are not equal. Performs a case-sensitive string comparison. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 == tag2` is false, so the expression returns 0
!= (Not equal to)	Compares the two values and returns a 1 (true) if they are not equal. Returns a 0 (false) if they are equal. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 != tag2` is true, so the expression returns 1
< (Less than)	Compares two values and returns a 1 (true) if the value on the left is smaller than the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 < tag2` is true, so the expression returns 1

> (Greater than)	Compares two values and returns a 1 (true) if the value on the left is larger than the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 > tag2` is false, so the expression returns 0
<= (Less than or equal to)	Compares two values and returns a 1 (true) if the value on the left is smaller or the same as the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 <= tag2` is true,so the expression returns 1
>= (Greater than or equal to)	Compares two values and returns a 1 (true) if the value on the left is larger or the same as the value on the right. Returns a 0 (false) if not. All values are converted to double-precision floating point first, and then the operation is performed.	`tag1 >= tag2` is false, so the expression returns 0

Example: String functions in expressions

These are the examples of string functions in expressions.

Function	Description	Example
TOLOWER, ToLower, or tolower	Converts any uppercase characters to lower lowercase. Converts a numeric to a string containing that number.	`TOLOWER("New York")` returns "new york". This expression converts a numeric to a string containing that number: `TOLOWER(32) + TOLOWER(34)` returns "3234".
		`TOUPPER("hello")` returns "HELLO".

These are the examples of string values in expressions.

Name	Description	Example: If tag1 = "SOME" and tag2 + "THING", then:
String	A string literal begins with a double-quote character and ends with a double-quote character. Anything between the two double-quotes is part of the string literal. You can use strings as operands with the plus (+) operator and with relational operators. The + operator joins string operands. String tags and string literals behave the same way. Keep the following in mind when using string tags with the relational operators: • All relational operators are case-sensitive. • Strings are compared on a character-by-character basis. • Individual letters are compared based on their Unicode value. This means that a lowercase letter is greater than its corresponding uppercase letter. • If two strings are different lengths and the characters are the same, then the longer string is considered to be greater than the shorter string.	`tag1+tag2` returns "SOMETHING"

Example: Tags in expressions

These are the examples of tags in expressions.

Name	Description	Example: In a controller named Packing, if tag1 = 5 and tag2 = 7, then:

Tag	A tag can stand alone as an expression or be included as part of an expression that is made up of other components. An expression that is a tag name returns the value of the tag. Tags begin with either "::" or "\". Use the format `::ControllerName.TagName.` You can type the tag name or open the Tag Browser and select a tag.	::Packing.tag1 returns 5 ::Packing.tag1 + 25 returns 30 ::Packing.tag1 % ::Packing.tag2 returns 5 ::Packing.tag1>::Packing.tag2 returns 0 (false) (::Packing.tag1<::Packing.tag2) &&(::Packing.tag1==5) returns 1 (both statements are true)

How View Designer converts values that are transmitted to numeric tags

View Designer converts values that are being transmitted to numeric tags in the controllers, such as DIN, SINT, or REAL, into a number based on the following rules:

- If the first character is 0 and the second character is an x, the rest of the data is treated as a hexadecimal number (base 16).
- If the first character is 0 and the second character is a digit from 0 to 7, the rest of the data is treated as an octal number (base 8).
- If the value contains a decimal point, the value is treated as a floating point input. Based on the target tag type, the value may be rounded.
- If the first character is a digit from 1 to 9, the rest of the value is treated as a base 10 number.
- If value contains the letter e, the characters that follow it are treated as the exponent (base 10) for the number.
- If the first character is a + or -, it is treated as a sign for the number. The resulting number is based on the rules described above. For example, -020 is treated as a negative octal number.
- If the value contains any character except digits (0 to 9), ., +, -, or e, it is treated as an error.

See also

Bind a property to a data item on page 508

Bind to system tags

System tags are predefined tags that provide information, such as the current date and time of the HMI device, or the number of active and acknowledged alarms in the runtime application.

See also

What are system tags? on page 535

Bind a property to a data item on page 508

What is binding? on page 502

Search for and select a tag

What are system tags?

System tags are predefined tags that provide information, such as the current date and time of the HMI device, or the number of active and acknowledged alarms in the runtime application. System tags are automatically created when you create an HMI project and can be

accessed from the Tag Browser in View Designer. View Designer provides several system tags in these categories:

- **Alarms.** Includes system tags that provide count, status information, and export information about the alarms in the runtime application.
- **AutoLogoff.** Includes system tags that provide status and configuration information about automatically logging off the user.
- **Controller.** Includes system tags that provide status information about the controllers referenced in the HMI project.
- **DataLogs.** Includes system tags that provide status information and export information.
- **DateTime.** Includes system tags that provide current date and time values of the HMI device, and enables you to configure date, time, time zone values in the HMI device.
- **Device.** Includes system tags that provide information about the HMI device, and enables you to configure the name of the HMI device and enable downloads and firmware updates to the HMI device.
- **Display.** Includes system tags that provide information, such as the name of the currently displayed screen on the HMI device, and enables you to configure display settings such as the brightness level of the screen.
- **Enet.** Includes system tags that display information such as the name or IP address of the Ethernet network, and enables you to configure the IP, DNS, MAC address and subnet mask of the Ethernet network.
- **EnetLink1 and EnetLink2.** Includes system tags that display information on the connection status and speed of the Ethernet links on the HMI device, and enables you to configure the communication channel (Full Duplex) and connection speed.
- **ProjectEvents.** Includes system tags that provide the number of errors in project events.
- **Security.** Includes system tags that provide name and role of the currently logged on user.
- **SMTP.** Includes system tags that provide configuration for the SMTP server.
- **VNC.** Displays information about the VNC server.

See also

Bind to system tags on page 535

Settings screen on page 740

System tags: Alarms

The Alarms system tags display information about the number and status of alarms in the runtime application. These have the **::Local:HMIDevice.Alarms** prefix.

Tag name	Type	Provides this data	Read or Write
FaultedCount	DINT	Displays the number of alarms with a fault	Read-only
InAlarmAckCount	DINT	Displays the number of active alarms that are acknowledged, not including shelved and suppressed.	Read-only
InAlarmUnackCount	DINT	Displays the number of alarms that are active, but unacknowledged, including shelved and suppressed.	Read-only

NormalUnackCount	DINT	Displays the number of alarms that are inactive and unacknowledged, including shelved and suppressed.	Read-only
UnknownCount	DINT	Displays the number of unknown alarms that are unable to display on the HMI device.	Read-only
ExportInProgress	BOOL	Indicates an active export.	Read-only
CurrentRecordExported	DINT	Displays the number of exported records.	Read-only
TotalRecordsToExport	DINT	Displays the total number of records to export.	Read-only
LastExportTime	LINT	Displays the time and date of the last attempted export.	Read-only
ExportErrorStatus	STRING	Displays the error that occurred during the last attempted export.	Read-only

See also

Bind to system tags on page 535

Alarms overview on page 563

System tags: AutoLogoff

AutoLogoff system tags provide status and configuration information about the Auto-Logoff function in the runtime application. AutoLogoff system tags have the **::Local:HMIDevice.AutoLogoff** prefix.

Tag name	Type	Provides this data	Read or Write
Enable	BOOL	Enables automatic logging off.	Read-write
Delay	DINT	Displays the duration of inactivity before logging off.	Read-write
RemainingTime	DINT	Displays the remaining time to lapse before logging off.	Read-only

System tags: Controller

The Controller system tags display status information about the controllers referenced in the HMI project. These tags are prefaced with **::Local:HMIDevice.Controller[0]**.

Tag name	Type	Provides this data	Read or Write
ActiveDataItems	DINT	Displays the number of active data items that are being read from the controller.	Read-only
ActivityCounter	LINT	Displays the number of communication packets received from the controller.	Read-only
AlarmConnectionCount	DINT	Displays the number of Alarm CIP connections to the controller.	Read-only
Class1ConnectionCount	DINT	Displays the number of Class 1 CIP connections to the controller.	Read-only
Class3ConnectionCount	DINT	Displays the number of Class 3 CIP connections to the controller.	Read-only
ControllerName	STRING	Displays the name of the controller configured in Logix Designer.	Read-only
Enabled	BOOL	Indicates the controller is configured in the current runtime application.	Read-only
FailedDataItems	DINT	Displays the number of active data items that currently could not be read from the controller.	Read-only
MajorRev	DINT	Major revision of the controller firmware.	
MinorRev	DINT	Minor revision of the controller firmware.	
Mode	STRING	Displays the operating mode of the controller. The modes are Run, Program, Fault, Remote Run, and Remote Program.	Read-only
OptimizedBlocks	DINT	Displays the number of optimized data blocks sent between the controller and the HMI device.	Read-only
Path	STRING	Displays the communication path to the controller.	Read-only
Present	BOOL	Indicates if the controller is on the network.	Read-only
RecoverableMajorFaults	BOOL	Indicates if the controller has detected a recoverable major fault.	Read-only
RecoverableMinorFaults	BOOL	Indicates if the controller has detected a recoverable minor fault.	Read-only
ReferenceName	STRING	Displays the name of the controller reference configured in View Designer.	Read-only
RunMode	BOOL	Indicates if the controller is in run mode.	Read-only

Synchronized	BOOL	Indicates if the data in the controller is synchronized with the data in the runtime application.	Read-only
SyncState	STRING	Shows the synchronization status of data between the runtime application and the Logix 5000 controller. In the runtime application, one of these values displays on the graphic element bound to this system tag:	Read-only
UnrecoverableMajorFaults	BOOL	Indicates that the controller has detected an unrecoverable major fault.	Read-only
UnrecoverableMinorFaults	BOOL	Indicates that the controller has detected an unrecoverable minor fault.	Read-only

See also

Bind to system tags on page 535

View information for configured controllers on page 749

System tag - Sync state: values on page **Error! Bookmark not defined.**

System tags - Controller: SyncState values

The following are the values of the SyncState tag from the Controller category:

System tag - Sync state: values	Description
SYNCHED	The data in the runtime application on the HMI device matches the data in the Logix 5000 controller.
NEEDSUPDATING	The synchronization service detects new data in the Logix 5000 controller.
UPDATING	The synchronization service is synchronizing data between the runtime application on the HMI device and the Logix 5000 controller.
INDETERMINATE	The synchronization status is unknown. The synchronization service cannot communicate with the Logix 5000 controller.
RESYNCHRONIZING:	The synchronization service is re-synchronizing data between the runtime application on the HMI device and the Logix 5000 controller.
SYNCHLOST	The synchronization service detects new data in the Logix 5000 controller but is unable to synchronize.
EXTRACTING	The synchronization service is extracting data from the Logix 5000 controller.

See also

System tags: Controller on page 537

System tags: DataLogs

DataLogs system tags provide status information and export information on the data log in the runtime application. DataLogs system tags have the **::Local:HMIDevice.DataLogs** prefix.

Tag name	Type	Provides this data	Read or Write
ExportInProgress	BOOL	Indicates an active export.	Read-only
TagsInError	BOOL	Displays if the tags in the Data Log are in error.	Read-only
CurrentRecordExported	DINT	Displays the number of exported records.	Read-only
TotalRecordsToExport	DINT	Displays the total number of records to export.	Read-only
LastExportTime	LINT	Displays the time and date of the last attempted export.	Read-only
DataLoggingError	STRING	Displays an error in the Data Logging service.	Read-only
DataLoggingStatus	STRING	Displays a message if the Data Logging service is collecting data.	Read-only
ExportErrorStatus	STRING	Displays the error that occurred during the last attempted export.	Read-only

System tags: DateTime

The Date and Time system tags display and enable you to configure the data and time on the HMI device. These tags are prefaced with **::Local:HMIDevice.DateTime**.

Tag name	Type	Provides this data	Read or Write
CurrentValue	LINT	Displays the current date and time of the HMI device in microseconds.	Read-only
DateConfig	STRING	Configures the HMI device date.	Read/Write
TimeConfig	STRING	Configures the HMI device time.	Read/Write
TimeZoneConfig	STRING	Configures the HMI device time zone.	Read/Write

See also

Bind to system tags on page 535

Set the date and time on the HMI device on page 748

System tags: Device

The Device system tags display information about the HMI device. For example, the Device.ApplicationName system tag displays the name of the runtime application downloaded to the HMI device. These system tags also enable you to configure the name of the HMI device and set up application downloads and firmware updates to the HMI device. These tags are prefaced with **::Local:HMIDevice.Device**.

Tag name	Type	Provides this data	Read or Write
AmbientTemp	DINT	Displays the ambient temperature of the HMI device in centigrade.	Read-only
ApplicationName	STRING	Displays the name of the runtime application downloaded to the HMI device.	Read-only
AutoLogoffDelay	DINT	Configures the amount of inactivity time before an operator is automatically logged off.	Read/Write
AutoLogoffEnable	BOOL	Enables automatically logging off operators on an HMI device after a period of inactivity.	Read/Write
AutoLogoffRemaining Time	DINT	Displays the time remaining in seconds before automatic logoff occurs.	Read only
ControllerCount	DINT	Displays the number of controllers configured in the runtime application.	Read-only
CPUFrequency	DINT	Displays the frequency at which the CPU is running (in megahertz).	Read-only
CPUTemperature	DINT	Displays the temperature of CPU (in centigrade).	Read-only
CPUUtilization	DINT	Displays the percentage of CPU processing power used in the last second.	Read-only
DLRBroken	BOOL	Indicates one or more links on the Device Level Ring (DLR) network may be broken.	Read-only
DLRTopology	BOOL	Indicates that the network is in a Device Level Ring (DLR) topology.	Read-only
DownloadsEnabled	BOOL	Enables application downloads and firmware updates to the HMI device.	Read/Write
EnetNetworkCount	DINT	Indicates the number of Ethernet networks supported by the HMI device.	Read-only
FirmwareMajorRev	DINT	Displays the major revision of the HMI device firmware.	Read-only
FirmwareMinorRev	DINT	Displays the minor revision of the HMI device firmware.	Read-only
HardwareMajorRev	DINT	Displays the major revision of the HMI device hardware.	Read-only
HardwareMinorRev	DINT	Displays the minor revision of the HMI device hardware.	Read-only
HardwareProductCode	DINT	Displays the hardware product code of the HMI device.	Read-only
HardwareProductType	DINT	Displays the hardware product type of the HMI device.	Read-only
HostName	STRING	Displays the name of the HMI device on the network.	Read-only
HostNameConfig	STRING	Configures the name of the HMI device on the network.	Read/Write
LastBootupTime	LINT	Displays the time at which the HMI device was last booted.	Read-only
LastDownloadTime	LINT	Displays the time at which HMI project was last downloaded to the HMI device.	Read-only

MemoryFree	DINT	Displays the amount of unused RAM memory in the HMI device (in kilobytes).	Read-only
MemoryTotal	DINT	Displays the total amount of RAM memory in the HMI device (in kilobytes).	Read-only
MemoryUsed	DINT	Displays the amount of used RAM memory in the HMI device (in kilobytes).	Read-only
ProductName	STRING	Displays the model and catalog number of the HMI device.	Read-only
StorageFree	DINT	Displays the amount of unused nonvolatile storage in the HMI device (in kilobytes).	Read-only
StorageTotal	DINT	Displays the total amount of nonvolatile storage in the HMI device (in kilobytes).	Read-only
StorageUsed	DINT	Displays the amount of used nonvolatile storage in the HMI device (in kilobytes).	Read-only
TotalOnTime	DINT	Displays the total power on time of the HMI device in hours.	Read-only

See also

Bind to system tags on page 535

Change the name of the HMI device on page 746

Disable downloads to the HMI device on page 746

System tags: Display

The Display system tags show information, such as the vertical resolution of the HMI device screen, or the blink rate that can be used to bind the **Visible** property of graphic elements to make the graphic elements appear as if they are blinking. These system tags also enable you to configure display settings, such as the brightness level of the HMI device screen. These tags are prefaced with **::Local:HMIDevice.Display**.

Tag name	Type	Provides this data	Read or Write
BacklightIntensity	DINT	Configures the backlight brightness level when the screen saver is not active.	Read/Write
BlinkFast	BOOL	Shows the tag value alternating between set for 1 second and cleared for 0.5 seconds.	Read-only
BlinkMedium	BOOL	Shows the tag value alternating between set for 2 seconds and cleared for 1 second.	Read-only
BlinkSlow	BOOL	Shows the tag value alternating between set for 3 seconds and cleared for 1.5 seconds.	Read-only
BlueAdjustment	DINT	Specifies the intensity of the blue color channel. The allowed values are between 0 and 100. The default value is 50 (no adjustment).	Read/Write
GreenAdjustment	DINT	Specifies the intensity of the green color channel. The allowed values are between 0 and 100. The default value is 50 (no adjustment).	Read/Write
CurrentScreenName	STRING	Displays the name of the screen currently displayed on the HMI device.	Read-only
RedAdjustment	DINT	Specifies the intensity of the red color channel. The allowed values are between 0 and 100. The default value is 50 (no adjustment).	Read/Write
ResolutionHorizontal	DINT	Displays the horizontal resolution of the HMI device display (in pixels).	Read-only
ResolutionVertical	DINT	Displays the vertical resolution of the HMI device display (in pixels).	Read-only
ScreenSaverEnabled	BOOL	Enables screen saver display when the HMI device is inactive for longer than the set screen saver time.	Read/Write
ScreenSaverImagePath	STRING	Displays the file name of the image (JPEG) displayed when the screen saver is active.	Read/Write
ScreenSaverIntensity	DINT	Specifies the backlight brightness level when the screen saver is active.	Read/Write
ScreenSaverTime	DINT	Specifies the time (in minutes) before the screen saver appears.	Read/Write

See also

Bind to system tags on page 535

Adjust screen brightness on page 744

Configure the screen saver on page 744

Calibrate the touch screen on page 745

System tags: Enet

The Enet system tags display information, such as the MAC address and subnet mask, of the Ethernet network. These system tags also enable you to configure the IP, DNS, MAC address, and the subnet mask of the Ethernet network. These tags are prefaced with **::Local:HMIDevice.Enet[n]**.

Tag name	Type	Provides this data	Read or Write
DHCPConfig	BOOL	Configures DHCP for the Ethernet network and automatically assigns IP addresses using DNS.	Read/Write
Domain	STRING	Displays the domain name of the Ethernet network.	Read-only
DuplicateIP	BOOL	Indicates a duplicate IP address exists.	Read-only
Gateway	STRING	Displays the IP address of the Ethernet network gateway.	Read-only
GatewayConfig	STRING	Configures the IP address of the Ethernet network gateway.	Read/Write
IPAddress	STRING	Displays the IP address of the Ethernet network.	Read-only
IPAddressConfig	STRING	Configures the IP address of the Ethernet network.	Read/Write
MACAddress	STRING	Displays the MAC address of the Ethernet network.	Read-only
PrimaryDNS	STRING	Displays the primary DNS address of the Ethernet network.	Read-only
PrimaryDNSConfig	STRING	Configures the primary DNS address of the Ethernet network.	Read/Write
SecondaryDNS	STRING	Displays the secondary DNS address of the Ethernet network.	Read-only
SecondaryDNSConfig	STRING	Configures the secondary DNS address of the Ethernet network.	Read/Write
SubnetMask	STRING	Displays the subnet mask of the Ethernet network.	Read-only
SubnetMaskConfig	STRING	Configures the subnet mask of the Ethernet network.	Read/Write
TertiaryDNS	STRING	Displays the tertiary DNS address of the Ethernet network.	Read-only
TertiaryDNSConfig	STRING	Configures the tertiary DNS address of the Ethernet network.	Read/Write

See also

Bind to system tags on page 535

Assign an IP and DNS address on page 741

View network diagnostics on page 743

System tags: EnetLink1 and EnetLink2

The EnetLink1 and EnetLink2 system tags provide status information about the two ethernet links on the HMI device. They also enable you to configure the speed and communication channel of the ethernet links. These tags are prefaced with **::Local:HMIDevice.**

Tag name	Type	Provides this data	Read or Write
EnetLink1.Disconnected	BOOL	Indicates if the Ethernet Link of the HMI device is connected to any powered network device.	Read-only
EnetLink1.FullDuplex	BOOL	Indicates if Full Duplex is configured for the Ethernet link.	Read-only
EnetLink1.FullDuplexConfig	BOOL	Configures Full Duplex for the Ethernet link.	Read/Write
EnetLink1.LinkEnabled	BOOL	Enables the Ethernet link.	Read/Write
EnetLink1.LinkSpeed	STRING	Indicates the speed of the Ethernet link.	Read-only
EnetLink1.LinkSpeedConfig	STRING	Configures the speed of the Ethernet link. The options are Auto, 100, or 10.	Read/Write

EnetLink2.Disconnected	BOOL	Indicates if the Ethernet Link of the HMI device is connected to any powered network device.	Read-only
EnetLink2.FullDuplex	BOOL	Indicates if Full Duplex is configured for the Ethernet link.	Read-only
EnetLink2.FullDuplexConfig	BOOL	Configures Full Duplex for the Ethernet link.	Read/Write
EnetLink2.LinkEnabled	BOOL	Enables the Ethernet link.	Read/Write
EnetLink2.LinkSpeed	STRING	Indicates the speed of the Ethernet link.	Read-only
EnetLink2.LinkSpeedConfig	STRING	Configures the speed of the Ethernet link. The options are Auto, 100, or 10.	Read/Write

See also

Bind to system tags on page 535

Configure Ethernet ports on page 742

System tags: ProjectEvents

ProjectEvents system tags provide the number of errors in project events. ProjectEvents system tags have the **::Local:HMIDevice.ProjectEvents** prefix.

Tag name	Type	Provides this data	Read or Write
ErrorCount	DINT	Displays the number of errors in Project Events.	Read-only

System tags: Security

The Security system tags display information about the logged on user. These tags are prefaced with **::Local:HMIDevice.Security**.

Tag name	Type	Provides this data	Read or Write
CurrentUserName	STRING	Displays the name of the logged on user.	Read-only
CurrentUserRole	STRING	Displays the role of the logged on user.	Read-only

See also

Bind to system tags on page 535

Security overview on page 698

System tags: SMTP

The SMTP system tags display information about the email server to which the HMI device connects to send emails. For example, the HMIDevice.ServerName system tag displays the name of the email server. These system tags enable configuring the port of the server and enable secure communication to the email server. These tags are prefaced with **::Local:HMIDevice.SMTP**.

Tag name	Type	Provides this data	Read or Write
AuthenticatonMethod	DINT	Enables password authentication for sending emails to the email server.	Read/Write
ServerName	STRING	The name of the email server.	Read/Write
IsPasswordSet	BOOL	Indicates a user password is entered for sending emails to the email server.	Read-only
Port	DINT	The port number of the email server.	Read/Write
SenderName	STRING	The name of the sender that appears in emails.	Read/Write
UserName	STRING	The email address of the user sending emails.	Read/Write
UseSSL	BOOL	Enables secure communication to the email server.	Read/Write

See also

Add an event command to send an email on page 465

Configure the SMTP server to send email on page 747

System tags: VNC

The VNC system tags display information about the VNC server. These tags are prefaced with **::Local:HMIDevice.VNCServer**.

Tag name	Type	Provides this data	Read or Write
AccessMode	STRING	Configures the state and access mode of the VNC Server. Valid values include: • "off" = The VNC is disabled • "view" = Read-only access • "full" = The VNC is configured for full remote control **Tips:** • Valid values are not case sensitive. • When VNCServer.AccessMode changes states between Full and Read, the VNC Server stops and restarts with the selected state. VNC connections automatically close, and disconnect any remotely connected users.	Full/Read
ActiveConnections	DINT	Displays the number of remote clients currently connected to the VNC Server. • 0 = No active connections • n = Number of remote users connected to the VNC server.	Read-only

See also

Bind to system tags on page 535

What are system tags? on page 535

Search for and select a tag

Verify controller tags

Tag verification checks that tags in a View Designer project are present in the referenced controller projects. Verification for tags occurs automatically upon downloading a project. Verify tags any time during project development. For example, verify tags after defining controllers for a project. The **Errors** window shows the results.

An invalid tag reference shows as a warning. The project may work when downloading the project to an HMI device after fixing the tags in the controllers using Logix Designer. Resolving warnings is not required to download a project.

To verify controller tags

1. On the **Menu** bar, select **Project > Verify Project**. The **Verify Project** dialog box opens and verification begins.
2. If there are invalid tags listed in the **Errors** window, double-click an entry to navigate to the source of the warning in the project, and make the necessary changes.
3. Repeat the verification process until there are no warnings listed in the **Errors** window. The list updates each time the verification process runs for the project.

Tips:
- Alternate methods of navigating to the source of a warning in the **Errors** window:
  - Click the hyperlink in the **Location** box.
  - Select a warning in the list and press **Enter**.
- Alternate methods of starting the verification process:
  - In the **Project Explorer**, right-click the project name and click **Verify Project**.
  - On the **Standard** toolbar, click **Verify Project**.

See also

Verify Project dialog box on page 544

Errors window on page 522

Verify Project dialog box

How do I open the Verify Project dialog box?

On the **Menu** bar, click **PROJECT > Verify Project**.

The **Verify Project** dialog box displays the progress of the project verification process.

Project verification verifies:

- The syntax of all expressions contained in the View Designer project
- The validity of parameters passed from one item to another and required error messages
- The existence of elements and properties referenced in an expression
- The existence of tags in the View Designer project in the referenced controller projects
- That Add-On Graphics do not contain direct bindings to controller tags or system tags
- That property bindings in the definition of an Add-On Graphic are formatted as ElementName.PropertyName
- That aliased properties of graphic elements in the definition of an Add-On Graphic are not bound
- That all tags in the data logs are valid.

The **Errors** window displays the invalid tags and expressions detected by the project verification process.

See also

Verify controller tags on page 543

Errors window on page 522

Errors window

How do I open the Errors window?

The **Errors** window opens automatically to display the invalid tags or expressions detected during project verification.

To open the **Errors** window manually, on the **Menu** bar, click **VIEW > Errors**.

The **Errors** window displays the results of project verification. It opens when View Designer detects invalid tags or expressions. Downloading a project automatically verifies that project. Verify a project at any time during project development. For example, verify a project if a controller is defined for the project.

Project verification verifies:

- The syntax of all expressions contained in the View Designer project
- The validity of parameters passed from one item to another and required error messages
- The existence of elements and properties referenced in an expression
- The existence of tags in the View Designer project in the referenced controller projects
- That Add-On Graphics do not contain direct bindings to controller tags or system tags
- That property bindings in the definition of an Add-On Graphic are formatted as ElementName.PropertyName
- That aliased properties of graphic elements in the definition of an Add-On Graphic are not bound
- That all tags in the data logs are valid.

Use the **Errors** window to:

- View the errors and warnings detected during project verification.
- Navigate to the source of the error or warning so that you can resolve the problem.
- Sort the results to group them by severity level, description, or location in the project.

See also

Verify a project on page 718

Verify Project dialog box on page 544

Sort the contents of the Errors window on page 718

Download a runtime application to an HMI device on page 710

Find and replace

Find and replace

Use the **Find and Replace** utility to find and replace alphanumeric characters, words, phrases, project events, and numbers on a screen, screen shortcut, popup, or graphic element within a project.

The **Find Results** window displays the results of a **Find and Replace** command.

See also

Find text in a project on page 547

Find and replace text in a project on page 548

Find Results window on page 549

Find and Replace dialog box on page 547

Find and Replace dialog box

How do I open the Find and Replace dialog box?

Open a project and on the **Menu** bar, click **EDIT > Find and Replace**.

Use the **Find and Replace** dialog box to search for properties with values that match specified criteria. Search an entire project or limit the search to a screen within the project. The **Find and Replace** dialog box searches the content of a project, including screens, popups, data logs, Add-On Graphic types, and the graphic elements that are part of the screens, popups, and Add-On Graphic definitions.

See also

Find and replace text in a project on page 548

Find text in a project on page 547

Find text in a project

Use **Find All** on the **Find and Replace** dialog box to search and display all properties that match specified criteria. Find text and content such as graphic elements on a screen, popup, data log, or in the definition of an Add-On Graphic.

To find text in a project

1. Press **CTRL+F**.
2. In the **Find what** box, type the text to find, or select the text of a previous search.

   Tip: Search text can contain alphanumeric characters and can be full words, fragments of a word, or a single letter or number.
3. In the **Find where** box, select the scope of the search:

- **Entire Project**. Search the entire open project.
- **Current Tab**. Search the open screen, popup, data log, or definition of an Add-On Graphic.
- **Selected Graphic Elements.** Search the selected graphic elements on the open screen, popup, or definition of an Add-On Graphic.

4. (optional) Narrow the search scope by selecting an option:
   - **Match case**
   - **Find whole words only**
5. Select **Find All**. Results appear in the **Find Results** window.

IMPORTANT To stop the Find and Replace operation, under **Close**, select **Stop Find**. The **Stop Find** button appears briefly and only during the current find and replace operation. Closing the **Find and Replace** dialog does not stop the find and replace operation. It continues to run in the background.

Tips:
- To navigate to an entry in the **Find Results** window, double-click the entry.
- To replace a single instance of an entry, navigate to the entry and manually make the necessary changes.

See also

Find and Replace dialog box on page 547

Find and replace text in a project on page 548

Find and replace text in a project

Use the **Replace All** option in the **Find and Replace** dialog box to replace all values for all of the properties that match search criteria simultaneously.

To find and replace values in a project

1. Press **CTRL+F**. The **Find and Replace** dialog box opens.
2. In the **Find what** box, type the text to find or select the text of a previous search.

   Tip: Search text can contain alphanumeric characters and can contain full words, fragments of a word, or a single letter or number.
3. In the **Replace With** box, type the replacement text, or select the text of a previous replace operation.
4. In the **Find where** box, select the scope of the search.
   - **Entire Project**. Search the entire open project.
   - **Current Tab**. Search the open screen, popup, data log, or definition of an Add-On Graphic.
   - **Selected Graphic Elements.** Search the selected graphic elements on the open screen, popup, or definition of an Add-On Graphic.
5. (optional) Narrow the search scope by selecting the following:
   - **Match case**
   - **Find whole words only**
6. Select **Replace All**.

IMPORTANT

- Invalid replace operations appear in the **Replaced** section of the **Find Results** window. These changes are not made. Replace operations are considered invalid when the item is Read-Only or a tag value is invalid.
- The Find All operation may report more occurrences of an alias property value found than the Replace All operation reports. This is because the Find All operation reports all instances of an alias property value it finds. The Replace All operation reports and replaces only the first instance of the alias property value it finds. Other instances are linked to the first instance and are updated automatically within the software, not by the Replace All operation.
- The Replace All operation may report more occurrences replaced than the Find All operation reports found. This is because the Find All operation reports the number of places, such as an expression or State Table, in which it finds the item. The Replace All operation reports the number of instances of the item it replaces. Therefore, a Find and Replace operation that finds multiples of the same string in an expression reports one location found, but multiple instances replaced.
- To stop the Find and Replace operation, under **Close**, select **Stop Find**. The **Stop Find** button appears briefly and only during the current find and replace operation. Closing the **Find and Replace** dialog does not stop the find and replace operation. It continues to run in the background.

Tips:

- To navigate to an entry in the **Find Results** window, double-click the entry.
- To replace a single instance of an entry, navigate to the entry and manually make the necessary changes.

See also

Find and Replace dialog box on page 547

Find text in a project on page 547

Find Results window

How do I open the Find Results window?

The **Find Results** window opens automatically to display the items found as a result of a **Find and Replace** command.

On the **Menu** bar, click **VIEW > Find Results**.

The **Find Results** window displays the results of a **Find and Replace** command.

Use the **Find Results** window to:

- View the found property values and graphic elements.
- Navigate to the source of an item on the list.
- Sort the search results to group them by Container, Element, Property, or Found.

See also

Find and Replace dialog box on page 547

Find text in a project on page 547

Find and replace text in a project on page 548

Project Navigation

Project navigation

The **Navigation menu** provides a means of navigating to and opening shortcuts on the HMI device.

Arrange items in the **Navigation Menu** folder, and any subfolders within it, to depict the order of items to appear in the **Navigation menu** on the HMI device. Determine which item is the **Home** screen, which icon represents an item in the **Navigation menu**, which items to omit from navigation, and which user roles can access items.

See also

Navigation menu on page 551

Navigation menu contents on page 553

Specify a Home screen on page 553

Move an item in the Project Explorer on page 556

Create a folder on page 558

Navigation menu

How do I open the Navigation menu?

On the HMI device, tap **Navigation** in the **System Banner** at the top of the screen, press **Alt/n** on an external keyboard, or press the physical **Navigation** button on the HMI device.

Use the **Navigation menu** to navigate to and open shortcuts to screens created in Studio 5000 View Designer. The **Navigation menu** on the HMI device displays the contents of the **Navigation Menu** folder in the **Project Explorer** of Studio 5000 View Designer. The **Navigation menu** appears at the bottom or left side of the HMI device screen.

The menu items displayed in the **Navigation menu** depend on the security access granted to the security role assigned to the logged on user. Security is set in Studio 5000 View Designer. If assigned the Operator role, the **Navigation menu** displays only the items to which the Operator has access.

See also

Navigation menu contents on page 553

Specify a Home screen on page 553

Select an icon for a shortcut in the Navigation menu on page 554

Omit an item from the Navigation menu on page 555

Restrict access to an item on the HMI device on page 354

Change the position of the navigation menu

In station projects, you have an option to choose between a bottom or side menu. By default, the projects are uploaded with the side menu.

To set the side navigation menu:

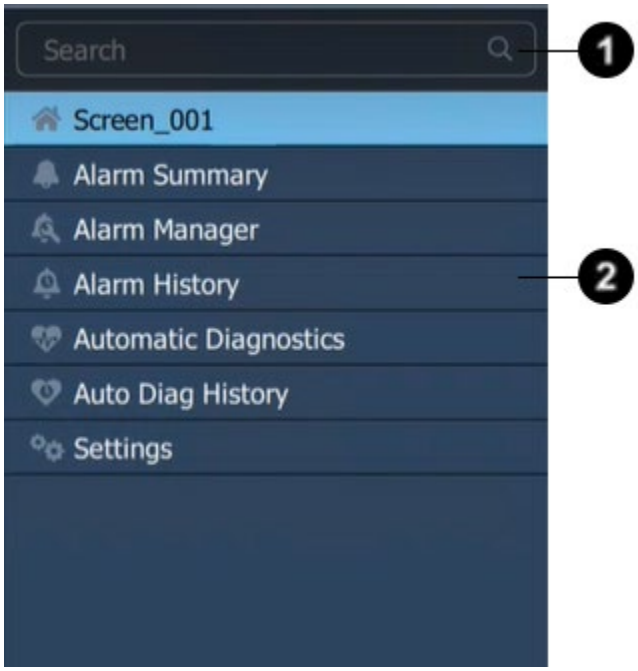
1. In the **Project Explorer**, select **Navigation Menu**.
2. In the **Properties** section, select the **Navigation Menu** section.
3. From the **Menu Location** drop-down menu, select **SideMenu** or **BottomMenu**.
4. (optional for the side menu) In the **Width** section, set the width of the menu.

   Tip: You can select the values between 150 and 500 to set the width of the side menu.

Side navigation menu contents

Folders and shortcuts in the **Navigation Menu** folder of the Project Explorer to which you are granted security access appear in the **Navigation Menu** on the HMI device.

The side navigation menu shows up to four levels of nesting.



Item	Description
❶	Finds the strings in the whole **Navigation menu**, regardless of the level of nesting and highlights it yellow.
❷	The navigation menu contains the **Home** screen for the project and folders and shortcuts placed at the root level of the **Navigation Menu** folder in the **Project Explorer**. By default, the main menu includes **Alarm Summary**, **Alarm Manager**, **Alarm History**, **Automatic Diagnostics**, **Auto Dial History**, and **Settings** items. These items appear in the Predefined Screens folder of the Project Explorer. These items open tables to view and manage alarms, and a screen to configure settings for the HMI device.

Tip: You can use your keyboard to navigate through the menu:
- Tab - activates the menu keyboard navigation.
- Arrows - enable moving up and down through the menu.
- Enter - opens the screen, selected from the menu.

After opening a selected screen, the navigation menu item is marked blue.

Bottom navigation menu contents

Folders and shortcuts in the **Navigation Menu** folder of the **Project Explorer** to which you are granted security access appear in the **Navigation menu** on the HMI device.

Item	Description
1	The main row of the **Navigation menu** contains the **Home** screen for the project and any folders and shortcuts placed at the root level of the **Navigation Menu** folder in the **Project Explorer**. Tapping the **Home** item opens the initial screen on the HMI device when the HMI device restarts. By default, this main row also includes **AlarmSummary**, **AlarmManager**, **Alarm History** and **Settings** items. These items appear in the **Predefined Screens** folder of the **Project Explorer**. These items open tables to view and manage alarms, and a screen to configure settings for the HMI device.
2	Tapping a folder shows the contents of the folder in an upper row of the **Navigation menu**. The upper row appears blank for empty folders. The open item is highlighted. To open an item, tap it, or on an external keyboard, tab to the item and press **Enter**. Carets appear around an item to which you tab. An upper row does not appear when a folder in the bottom row of the **Navigation menu** is not selected.
3	The back arrow in an upper row of the **Navigation menu** navigates back one folder at a time.
4	The current folder path, in the form of breadcrumbs, appears in an upper row of the **Navigation menu**.
5	The number of items in the **Navigation menu** depends on the width of the HMI device. When there are more items than can appear in the **Navigation menu**, arrows appear at either end of the **Navigation menu**. The **Next** arrow pointing right appears after the number of menu items surpasses the width of the **Navigation menu**. The **Previous** arrow pointing left appears when the first page of items is no longer in view. Use the arrows to scroll to additional pages of menu items.
6	Dots indicate which page of the **Navigation menu** items is open. The dot for the open page is highlighted.

See also

Navigation menu on page 732

Specify a Home screen on page 553

Select an icon for a shortcut in the Navigation menu on page 554

Omit an item from the Navigation menu on page 555

Restrict access to an item on the HMI device on page 354

Specify a Home screen

The **Home** screen is the initial screen that opens when the HMI device starts. For a new project, the default **Home** screen is Screen_001. The **Home** icon in the **Navigation Menu** folder of the **Project Explorer**

indicates that Screen_001 is the **Home** screen. Screen_001 in the **Navigation Menu** folder of the **Project Explorer** is a shortcut based on Screen_001 in the **User-Defined Screens** folder. Designate any shortcut in the **Navigation Menu** folder as the **Home** screen of the project.

To specify a Home screen

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Right-click the shortcut and select **Set as Home**. The **Home** icon appears next to the shortcut. This is the **Home** screen that opens automatically when the HMI device restarts.

See also

Select an icon for a shortcut in the Navigation menu on page 554

Omit an item from the Navigation menu

Move an item in the Project Explorer on page 556

Rename a screen on page 351

Project Explorer on page 95

Select an icon for a shortcut in the Navigation menu

An icon represents each screen in the **Navigation menu** on the HMI device. The default icon is the standard **Screen** icon supplied by Studio 5000 View Designer. Change the icon to a snapshot of the screen or use another graphic as the icon.

To select an icon for a shortcut in the Navigation menu

1. In the **Project Explorer**, expand the **Navigation Menu** folder and select the shortcut.

   The properties for the shortcut appear on the **Properties** tab. Opening the shortcut also displays the properties of the shortcut. For example, open a screen and click a blank portion of the screen. The properties of the open screen appear on the **Properties** tab.
2. In the **Properties** window, expand the **Navigation Menu** category.
3. In the **Icon** list, select an option:
   - **Screen Snapshot.** Displays a snapshot of the shortcut's defining screen in the **Navigation menu.** In the **Screen Snapshot** box, select the graphic of the snapshot. Select the snapshot only if you have the screen open in View Designer. If the screen is not open, "Screen is not loaded" appears. To update the picture in the **Navigation menu** after changing the appearance of the screen, select the snapshot graphic again.
   - **Predefined icon.** Displays an icon for the screen in the **Navigation menu**. In the **Predefined Icons** box, select the desired icon.

- **Folder.** Displays an image from the hard drive for the screen in the **Navigation menu**. In the **Folder** box, select the desired image. To select an image in a location other than the default **Pictures** folder, browse to select the desired image. Select any .BMP, .JPG, .GIF, .PNG, or .TIF image from the hard drive for an item in the **Navigation menu**. An .SVG image is not a valid format for the icon of a shortcut.

  The selected image appears in the **Icon** box.

  Tips:
  - All items in the **Navigation menu** on the HMI device appear white when unselected and blue when selected. To view both the selected and unselected versions of the icon to appear in the **Navigation menu**, in the **Properties** window, mouse over the selection in the **Icon** box.
  - The icon assigned to an item from the **Properties** tab appears in the **Navigation menu** on the HMI device.
  - The icon that appears next to the item in the **Project Explorer** indicates the type of item -- screen, shortcut, folder, or the **Home** screen.

See also

Omit an item from the Navigation menu on page 555

Restrict access to an item on the HMI device on page 354

Specify a Home screen on page 553

Move a graphic element on page 142

Create a folder on page 558

Omit an item from the Navigation menu

By default, all shortcuts and folders in the **Navigation Menu** folder of the **Project Explorer** are represented as items in the **Navigation menu** on the HMI device. Omit any item from the **Navigation menu** on the HMI device by deleting it from the **Navigation Menu** folder. Do this if a screen in a project depicts a line in your system that is no longer in production. Deleting the shortcut designated as the **Home** screen for a project is not allowed. You cannot delete the shortcut with the **Home** icon from the **Navigation Menu** folder.

Prerequisites

- To delete a shortcut designated as the **Home** screen of the project, designate a new shortcut as the **Home** screen.

To omit an item from the Navigation menu

1. In the **Project Explorer**, expand the **Navigation Menu** folder.
2. Right-click the shortcut and select **Delete**. The shortcut no longer appears in the **Navigation Menu** folder or the **Navigation menu** on the HMI device.

   Tip: Have an item not appear in the **Navigation menu** by restricting access to the item. Only items to which the assigned user role has access appear in the **Navigation menu** on the HMI device.

See also

Specify a Home screen on page 553

Project Explorer on page 95

Restrict access to an item on the HMI device on page 354

Move a graphic element on page 142

Delete a folder on page 560

Move an item in the Project Explorer

Arrange the contents in the **Project Explorer** to depict your system. The order of items, including any subfolders, in the **Navigation Menu** folder is depicted in the **Navigation menu** on the HMI device. Arrange the items in the **Navigation Menu** folder of the **Project Explorer** in the hierarchy to show in the **Navigation menu** on the HMI device.

To move an item in the Project Explorer

1. Select ▶ or ◢ before the folder to expand or collapse its contents.
2. Drag and drop the item to the desired location. The name of the item being moved and a description of its new location appears as you drag. Dragging an item above or below another item displays a line that indicates the new location. Releasing the mouse button moves the item to its new location.

   Dragging an item to a location where it cannot exist displays a 🚫 sign. Releasing the mouse button leaves the item in its original location.

   Tips:
   - Drag a screen, but not a popup, from the **Predefined Screens** folder to the **Navigation Menu** folder.
   - Move a screen or popup between subfolders within the **User-Defined Screens** folder.
   - Drag a screen from the **User-Defined Screens** folder to the **Navigation Menu** folder to create a shortcut.
   - Moving an item out of the **Navigation Menu** folder is not allowed. Move an item to another folder in the **Navigation Menu** folder.
   - Right-click an item to cut, copy, or paste the item. Pasting a screen in the **Navigation Menu** folder to create a shortcut is not allowed. If pasting a cut item in the new location is not allowed, paste the item in its original location to not remove the item from the project.

See also

Project Explorer on page 95

Select an icon for a shortcut in the Navigation menu on page 554

Specify a Home screen on page 553

Omit an item from the Navigation menu on page 555

Restrict access to an item on the HMI device

By default, all users on HMI devices have access to these items in the **Project Explorer:**

- Shortcuts in the **Navigation Menu** folder.
- Screens and popups in the **User-Defined Screens** and **Predefined Screens** folders. Navigate to these items on the HMI

device by triggering an event with a navigation command. Users who do not have the Administrator role have read-only access to the **Settings** screen and related popups in the **Predefined Screens** folder.

Change the access level for any item in the **Project Explorer**. Restrict access to an item for any role except the **Administrator** role. The **Administrator** role always has Inherit access, and the role inherits Full Access from the root folder.

To restrict access to an item on the HMI device

1. In the **Project Explorer**, expand the folder that contains the item to restrict access:
   - To select a screen or popup, expand the **User-Defined Screens** folder or the **Predefined Screens** folder.
   - To select a shortcut, expand the **Navigation Menu** folder.
2. Select or double-click the item. The **Properties** window for the item opens.
3. In the **Properties** window for the selected item, expand the **Security** category.
4. After each role (Engineer, Maintenance, Operator, Restricted, and Supervisor), select the access option for each role.
   - **Inherit.** Grants the same access assigned to the parent folder.
   - **Full Access.** Grants access to open and interacts with the item, and shows the item in the **Navigation menu** on the HMI device.
   - **Read Only.** Grants access to open the item, but denies interaction with it. The item appears in the **Navigation menu** on the HMI device. Users assigned to a role with read-only access can still interact with the **Navigation menu** and alarm tables. For example, a user with read-only access to an alarm table can still perform read operations, such as viewing alarms and details, selecting alarms and conditions, filtering alarms, and pausing alarms. The user cannot perform write commands that change the state of an alarm.
   - **No Access.** Denies access to open or interact with the item. The item does not appear in the **Navigation menu** on the HMI device.
5. To set individual role access to a shortcut, independent of the access to the screen on which the shortcut is based:

a. Select the shortcut.

b. In the **Properties** window of the selected shortcut, clear the **UseScreenSecurity** check box.

c. Select the access level for each role.

Do not base the security for a shortcut on its defining screen if the user has access to some shortcuts of a screen but should not have access to a particular shortcut.

See also

Restrict access to the HMI device on page 695

Restrict access to a graphic element on page 695

Project Explorer on page 95

Properties tab on page 494

Security overview on page 698

Create a folder for Project Explorer contents

A folder in the **Project Explorer** organizes the contents of a project. Folders and subfolders and their contents in the **Navigation Menu** folder appear in the **Navigation menu** on the HMI device.

Create, copy, delete, and rename folders to organize contents in the **Project Explorer**.

See also

Create a folder on page 558

Copy a folder on page 428

Delete a folder on page 560

Rename a folder on page 561

Create a folder

Organize the contents of a project by creating folders in the **Project Explorer**. For example, create a folder in the **User-Defined Screens** folder to contain screens, popups, and other folders. Create a folder in the **Navigation Menu** folder to contain shortcuts and other folders. Create up to three levels of folders, including two levels of subfolders. The structure in the **Navigation Menu** folder of the **Project Explorer** is depicted in the **Navigation menu** on the HMI device.

To create a folder

1. In the **Project Explorer**, right-click the **Navigation Menu** folder. You can create a folder in the **User-Defined Screens** folder or a subfolder of the folder.
2. Click **New Folder**. A new folder appears at the bottom of the folder with the default name Folder_001 or increment number. Folders at the same level must have unique names.

See also

Rename a folder on page 561

Delete a folder on page 560

Restrict access to an item on the HMI device on page 354

Omit an item from the Navigation menu

Project Explorer on page 95

Copy a folder

Copy a folder in the **Project Explorer** to reuse it within or across View Designer projects. Copying a folder also copies all of its subfolders.

IMPORTANT Copying a folder to a different project does not copy screens or popups that contain user-defined properties.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a folder

1. In the source project, in the **Project Explorer**, right-click the folder to copy and select **Copy**.
2. In the target folder, right-click the location to paste the folder and select **Paste**.

Tips:

- Copying a root-level folder (for example, **Navigation Menu**, **User-Defined Screens**, and **Predefined Screens**) is not allowed.
- Copying a folder in the **Navigation menu** between projects is not allowed.
- Copying and pasting subfolders between root-level folders.
- Paste folders three levels deep. The new folder appears at the same level as the item on which the folder is pasted. Folders at the same level must have unique names. Pasting a folder with the same name as an existing folder appends a number to the name of the pasted folder. For example, FolderName_002.
- Only content from the **Predefined Screens** folder can be copied into a **Predefined Screens** folder. Copying the **System Banner** is not allowed.
- Cut a folder by selecting **Cut** instead of **Copy**.
- Copying a folder copies any children of the folder as well as any localized data associated with the folder.

See also

Create a folder on page 558

Delete a folder on page 560

Rename a folder on page 561

Reuse content on page 359

Create a caption for a shortcut or folder in the Navigation menu

Creating a shortcut or folder assigns a unique name, such as Shortcut_001 or Folder_001, to the item. Use a caption instead of a system-defined name to accommodate more text, line breaks, spaces, and non-ASCII characters. Create a caption to display a more meaningful description for a screen or a folder on the HMI device.

To create a caption for a shortcut or folder in the Navigation menu

1. In the **Project Explore**r, expand the **Navigation Menu** folder.
2. Select the shortcut or folder. The properties of the shortcut or folder appear on the **Properties** tab.
3. In the **Properties** tab, expand the **Navigation Menu** category.
4. In the **Caption** box, type the caption text. The entire caption appears on the title bar of the **Navigation menu** upon selecting the folder. Only the first two lines appear in the **Navigation menu** below the icon.

IMPORTANT Keep the following in mind when creating a caption:

- By default, changing the name of the shortcut or folder, either by using the **Rename** command or by typing a new name into **Name** box on the **Properties** window, changes the name in the **Caption** box.
- View Designer shows the text in the **Caption** box on the HMI device. Changing the name of the shortcut or folder in the **Navigation Menu** folder or in the **Name** box on the **Properties** window does not change the name on the HMI device.
- The caption is not reflected in the **Navigation Menu** folder or the **Name** box on the **Properties** window.

See also

Navigation menu on page 551

Delete a folder

Delete a folder to remove it from the **Project Explorer**. When you delete a folder from the **Navigation Menu** folder or **User-Defined Screens** folder, the content of the folder is removed. Deleting the root level project is not allowed. Deleting certain folders is also not allowed:

- Folder that contains the **Home** screen
- Folder that contains screens with existing shortcuts
- Default folder -- **Navigation Menu**, **User-Defined Screens**, or **Predefined Screens**.

To delete a folder

1. In the **Project Explorer**, expand the **Navigation Menu** folder or the **User-Defined Screens** folder.
2. Right-click the folder and select **Delete**. The folder no longer appears in the **Project Explorer**. If you delete the folder from the **Navigation Menu** folder, the folder no longer appears on the **Navigation menu** on the HMI device.

See also

Create a project on page 53

Create a folder on page 558

Rename a folder on page 561

Move an item in the Project Explorer

Project Explorer on page 95

Rename a folder

Creating a folder gives the folder unique name such as Folder_001 or Folder_002. Change the name of the folder to reflect the purpose or contents of the folder. A folder in the **Navigation Menu** folder of the **Project Explorer** appears as a folder item in the **Navigation menu** on the HMI device.

To rename a folder

1. In the **Project Explorer**, expand the **Navigation Menu** folder or the **User-Defined Screens** folder.
2. Right-click the folder and click **Rename**.
3. Type a new name for the folder and press **Enter**.

Tips:

- Folder names at the same level must have unique names.
- Renaming the **Navigation Menu**, **User-Defined Screens**, or **Predefined Screens** root level folders is not allowed.
- Create a caption for the folder to display more than eight characters and spaces.

See also

Create a caption for a shortcut or folder in the Navigation menu on page 559

Create a folder on page 558

Delete a folder on page 560

Move an item in the Project Explorer

Project Explorer on page 95

Display alarms

Display alarms to monitor and manage control system alarms. View Designer provides a default **Alarm Summary** screen, **Alarm Manager** screen, and **Alarm History** screen. Change an alarm screen or add an alarm table graphic element to a new screen to create your own alarm screen.

View Designer requires no configuration or tag binding to display alarms on the HMI device. Use Logix Designer to program alarm detection instructions and create tag-based alarms in a Logix 5000 controller.

Each controller in a View Designer project displays a combination of up to 4,000 tag-based or 1000 instruction-based alarms. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms. A View Designer project with four controllers displays a maximum of 16,000 tag-based alarms.

See also

Alarms overview on page 563

Create an alarm screen on page 565

What is the Alarm Summary? on page 99

What is the Alarm Manager? on page 99

Alarm table filters on page 612

Alarms overview

By default, new projects contain an **AlarmSummary** screen with an Alarm Summary table, an **AlarmManager** screen with an Alarm Manager table, and an **AlarmHistory** screen with an Alarm History Viewer table. These screens exist in the **Predefined Screens** folder of the **Project Explorer**. New projects have shortcuts to the predefined **AlarmSummary**, **AlarmManager**, and **AlarmHistory** screens.

You can also create your own alarm screens by using **Alarm Summary**, **Alarm Manager**, and **Alarm History Viewer** graphic elements from the Toolbox. Rockwell Automation recommends having no more than 4000 tag-based alarms, or 1000 instruction-based alarms in a Logix controller. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms.

Alarms defined in your Logix controllers automatically appear on the Alarm Summary, Alarm Manager, and Alarm History. No additional configuration in View Designer is needed.

Rockwell Automation recommends that an alarm table be the only graphic element on a screen.

Available operations depend on the alarm screen:

Operation	Alarm Summary	Alarm Manager	Alarm History
Acknowledge alarms	✓		
Disable alarms	✓	✓	
Enable alarms		✓	
Filter alarms by Event Time			✓
Pause the display of incoming alarms	✓		
Reset a digital alarm	✓		
Reset alarm counts		✓	
Select alarms	✓	✓	✓
Shelve individual alarm conditions	✓	✓	
Shelve entire alarm (all conditions)		✓	
Sort and filter alarms	✓	✓	✓
View alarms	✓	✓	✓
View alarm condition details	✓	✓	✓
View alarm quality		✓	✓
Unshelve alarm conditions		✓	
Unshelve alarms		✓	

In View Designer, alarm tables contain sample data representative of the data an alarm table may display. The sample data inserts data of average length into the default columns in the alarm table. Sample data appears for the purposes of configuring the alarm table. Use sample data to determine and change column width, font, font size, and padding around content. Changes to font and padding properties do not appear in the **Details** pane of an alarm table.

Alarm tables scale to the size of the target HMI device. When downloading a project to a different size HMI device, default alarm tables may not provide the best results on the new HMI device screen.

Large alarm tables are for HMI device screens ten-inch or larger, while medium alarm tables are for six-inch to nine-inch HMI device screens. The size of an alarm table does not affect the number of alarms the table displays. When downloading a project to an HMI of a different size, Rockwell Automation recommends replacing the alarm tables in the project. Open the existing alarm screens, delete the existing alarm tables from the screens, and add the appropriate sized alarm tables for the new HMI device.

Tip: You can use Logix extended tag properties in alarm messages. If you include an extended property that is not defined in Studio 5000 Logix Designeras a part of alarm message, non-existing extended property content will be replaced by three asterisks (***).

See also

Alarm Summary on page 571

Alarm Manager on page 586

Create an alarm screen on page 565

Alarm faults and alarm quality

Alarms have good or bad quality. Good quality indicates the alarm is functioning correctly. Bad quality indicates that there is a problem with the alarm.

The current state may not be detected or accurate. Bad quality occurs from abnormal scenarios, such as a disconnect in the network, or a controller in **Program** mode, or by configuration issues. If the alarm has bad quality due to an abnormal scenario, all conditions of the alarm fault because evaluating or detecting the alarm is not possible. If the alarm has a configuration error, such as invalid limit, only the affected conditions have bad quality. The unaffected conditions have good quality and continue to function. View alarms with bad quality in an **Alarm Manager** only. Quality details appear in the **Details** pane of the Alarm Manager table.

For configuration-related faults, level conditions (HIHI, HI, LO, and LOLO) and ROC conditions (ROC Positive and ROC Negative) are evaluated independently. With the exception of severity, only affected conditions are faulted. If the ROC Positive limit is invalid, only the ROC Positive condition faults. The ROC Negative condition and all level conditions maintain good quality. If the ROC_Period is invalid, both the ROC Positive and ROC Negative conditions fault, but all level conditions maintain good quality. Level condition limits have dependent relationships. The HIHI limit must be greater than HI, HI must be greater than LO, and LO must be greater than LOLO. If any level limit is out of range, all levels fault.

In an **Alarm Manager**, inhibit states from all alarm conditions roll up for a single alarm. If the level or ROC conditions fault for an alarm, the alarm is of bad quality. The conditions that are of good quality continue to function normally and appear in an **Alarm Summary** when they are in the *interesting* state. When the alarm is of bad quality due to an abnormal scenario, all conditions for the alarm are of bad quality.

See also

Resolve alarm faults on page 567

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Create an alarm screen

Create an alarm screen to view alarms configured in Logix Designer on the HMI device. Alarm screens receive alarm data automatically. There is no configuration or tag binding required in View Designer.

By default, an **AlarmSummary** screen and an **AlarmManager** screen exist in the **Predefined Screens** folder of each **Project Explorer** for each project. When creating a custom alarm screen, for best results, make the alarm table the only graphic element on the screen. Do not add an alarm table to a popup or the **System Banner**. Add an alarm table to a screen only.

Prerequisites

- Configure ALMA and ALMD alarm instructions in Logix Designer or add tag-based alarms in a Logix Designer. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms.

To create an alarm screen

- In the **Alarms** category of the **Toolbox**, drag and drop the appropriately sized alarm table graphic element onto the screen.

  Tips:
  - Change the appearance of an alarm table through the **Properties** pane.
  - To ensure an alarm table contains readable content and has a row height tall enough to tap on the HMI device, change the font size and padding of the table cells. For an **Alarm Summary**, change the number and content of columns. Create filters to return alarms meeting filter criteria on **the AlarmSummary** and **AlarmManager** screens on the HMI device.
  - Open a specific screen on the HMI device for the alarm selected on the Alarm Summary or Alarm Manager by either adding an event that writes the value of the **SelectedAlarmName** property to the tag in a controller and then use the value when creating a project event, or create a Navigation event that uses a state table.

See also

Disable touch and key input for an alarm table on page 566

Change the opacity of an alarm table on page 569

Specify the default sort order of alarm table contents on page 570

Configure alarm table rows for readability and touch on page 568

Resize a graphic element on page 144

Disable touch and key input for an alarm table

Disable touch and key input for an alarm table to prevent interaction with the table on the HMI device. For example, disable touch and key input for an alarm table to prevent selecting alarms on the HMI device.

To disable touch and key input for an alarm table

1. On the screen, select the alarm table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** node.
4. Clear **Enabled**.

See also

Specify the visibility of an alarm table on page 570

Disable a button on an Alarm Summary table on page 573

Disable a button on an Alarm Manager table on page 586

Configure alarm table rows for readability and touch on page 568

Specify the visibility of an alarm table on page 570

Alarm faults and quality indicators

Alarm faults and their qualities appear in the **Quality Details** row in the **Details** pane of an alarm table. An alarm indicates good quality if all alarm conditions (High High, High, Low, Low Low, ROC Positive, ROC Negative, Deviation High, Deviation Low, TRIP, and TRIP_L) are in good quality.

Fault	Cause of Fault	Quality Indicator	Affected alarm conditions
No fault	N/A	Good	All
Status from controller not read yet	Abnormal Conditions	Bad	All
Instruct fault only (specific fault not set)	Configuration	Bad	All
In faulted	Configuration	Bad	All
Severity invalid	Configuration	Bad	All
Alarm limits invalid	Configuration	Bad	High High, High, Low, Low Low
Deadband invalid	Configuration	Bad	High High, High, Low, Low Low
ROC Positive limit invalid	Configuration	Bad	ROC Positive
ROC Negative limit invalid	Configuration	Bad	ROC Negative
ROC period invalid	Configuration	Bad	ROC Positive, ROC Negative
Old Logix firmware	Abnormal Conditions	Bad	All
Controller in Program mode	Abnormal Conditions	Bad	All
Major controller program fault (recoverable)	Abnormal Conditions	Bad	All
Communication failure (last value known)	Abnormal Conditions	Bad	All
Communication failure (no last value known)	Abnormal Conditions	Bad	All
Connection with controller lost	Abnormal Conditions	Bad	All
Major controller program fault (unrecoverable)	Abnormal Conditions	Bad	All
Failed to subscribe to controller	Abnormal Conditions	Bad	All
Detected hazard of overwriting old notifications in Alarm Log	Abnormal Conditions	Bad	All
Arithmetic overflow	Abnormal Conditions	Bad	All

See also

Resolve alarm faults on page 567

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Resolve alarm faults

Alarm faults occur for two reasons:

- **Condition related issues**. Abnormal conditions are events that

occur outside normal operations. A disconnected network, power cycles to a controller or HMI device, project downloads to the controller, major faults on a controller, or a controller in Program mode can all cause alarm faults.

- **Configuration related issues**. Alarms exist in Logix Designer with enforced valid configuration values. Configuration errors generally occur when alarm parameters change by writing to a member of the alarm. An alarm with a member named *AlarmName.Severity* indicates the severity of its associated alarm condition. Changing the severity tag member to an invalid value shows the alarm as bad quality until the severity changes to a valid value.

To resolve alarm faults

1. Open the **Alarm Manager** screen.
2. In the **Inhibit State** column, select an alarm row that has a **Bad Quality** icon .
3. To view the details of the alarm, select **Details** . A **Details** pane with additional information for the last selected alarm appears.

   Tip: The **Details** pane opens at the bottom of an alarm table for ten-inch or larger HMI devices and replaces the alarm table on six-inch to nine-inch HMI devices.
4. In the **Details** pane review the reasons for a faulted alarm or condition in the last row -- Quality Details.
5. Resolve the alarm fault.
   - Correct the condition causing the alarm fault.
   - Correct the configuration causing the alarm fault.

See also

Open an alarm screen on page 800

Alarm faults and alarm quality on page 565

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Configure alarm table rows for readability and touch

Configure properties to affect the displayed font, font size, and row padding (the distance between cell contents and cell borders) in a table. Font size affects row height. Padding is required to make tapping rows feasible on an HMI device. Using a small font size and no padding makes it difficult to tap a single row in an alarm table on the HMI device. Row height is determined by the **FontSize** property value and twice the value of the **RowPadding** property. The default combined **FontSize** (nine points) and **RowPadding** (14 pixels) property values result in an approximate row height of one-third inch. There is no minimum or maximum font size or row padding. To be able to tap single alarm rows on the HMI device, specify reasonable font sizes and row padding for a table.

To configure alarm table rows for readability and touch

1. On the screen, select the alarm table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** node.
4. To make sure the alarm table is readable and allows enough room within rows for touch, configure the properties:
   - **FontName**. Select a font.
   - **FontSize**. Enter a font size readable for users on the HMI device.
   - **RowPadding**. Enter the distance, in pixels, between cell content and the cell border.

     The selected **FontName**, **FontSize**, and **RowPadding** property values are reflected in the sample data of the alarm table. The changes are also reflected in the alarm table on the HMI device. Changes to these properties are not reflected in the **Details** pane of an alarm table.

See also

Specify the visibility of an alarm table on page 570

Disable a button on an Alarm Summary table on page 573

Disable a button on an Alarm Manager table on page 586

Specify the default sort order of alarm table contents on page 570

Specify the visibility of an alarm table on page 570

Change the opacity of an alarm table

Change the opacity level of an alarm table to make it more or less transparent.

To change the opacity of an alarm table

1. On the screen, select the alarm table.
2. In the **Properties** window, click the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **Opacity** box, enter a percentage. 0 is fully transparent and 100 is fully opaque.

See also

Specify the visibility of an alarm table on page 570

Move a graphic element on page 142

Specify the default sort order of alarm table contents on page 570

Disable touch and key input for an alarm table on page 566

Resize a graphic element on page 144

Specify the visibility of an alarm table

Specify if an alarm table is always visible on the HMI device screen. Bind the visibility of an alarm table to a tag value to display the alarm table only when the specified tag value is true. For example, bind visibility to a tag to indicate there is a problem in the system. If binding the alarm table to a tag value, the table appears on the HMI device screen only when the tag is true.

To specify the visibility of an alarm table

1. On the screen, select the alarm table.
2. In the **Properties** window, click the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **Visible** box, select an option:
   - **Visible** (selected)
   - **Not visible** (cleared)

See also

Disable touch and key input for an alarm table on page 566

Change the opacity of an alarm table on page 569

Specify the default sort order of alarm table contents on page 570

Move a graphic element on page 142

Configure alarm table rows for readability and touch on page 568

Specify the default sort order of alarm table contents

Determine how alarm table content is initially sorted on the HMI device screen. Specify which columns to sort and in which order, and whether to sort the contents of a column in ascending or descending order.

To specify the default sort order of alarm table contents

1. On the screen, select the alarm table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category. In the **SortOrder** box, enter columns and their order:
   - A valid column number, colon, and a D for descending or A for ascending. For example, 1:D,2:D provides a primary sort of Column 1 in descending order, and a secondary sort of Column 2 in descending order. You can enter a value for each column in the table.

See also

Disable touch and key input for an alarm table on page 566

Change the opacity of an alarm table on page 569

Specify the visibility of an alarm table on page 570

Move a graphic element on page 142

Resize a graphic element on page 144

Alarm Summary

The **Alarm Summary** lists the alarms in a project or configured HMI device. Each project contains an **AlarmSummary** screen by default. Create an additional screen with an Alarm Summary graphic element to create a custom **Alarm Summary** screen.

The **Alarm Summary** lists alarms in the project that have the status of either **In Alarm** or **Unacknowledged**. View the **Details** pane of the **Alarm Summary** screen to see data such as Current Value, In Alarm Time, Out of Alarm Time, and tag values for the last selected alarm.

Tip: For tag-based alarms, the Alarm Summary only displays alarms with **Use and evaluate alarm** selected in Logix Designer.

Use the **Alarm Summary** on an HMI device to:

- Acknowledge alarms.
- Disable alarms.
- Shelve alarms.
- Sort alarms.
- Filter alarms.
- Pause alarms.
- Reset latched alarms.
- View alarm details.

See also

Alarm Summary contents for a large HMI device screen on page 577

Alarm Summary contents for a medium HMI device screen on page 575

Alarm Summary table columns on page 579

Details pane for an Alarm Summary on page 580

What is the Alarm Summary? on page 99

Add a column to an Alarm Summary table

New columns in an Alarm Summary table appear at the right side of the table with sample data inserted into each column. Sample data is representative of the length of data anticipated for a column. Use sample data to determine the column width to use for a column.

To add a column to an Alarm Summary table

1. On the screen, select the Alarm Summary table.
2. In the **Properties** window, select the **Columns** tab.
3. Select **Add Column**.
4. Select the data to display in the column. The selected column appears in the new card heading. Change the width of a column to display the data.

See also

Change the width of a column in an Alarm Summary table on page 572

Change the order of columns in an Alarm Summary table on page 572

Alarm Summary table columns on page 579

Columns tab on page 580

Change the width of a column in an Alarm Summary table

Change the width of a column in an Alarm Summary table if the data in the column is wider than the current width of the column. Use the sample data inserted in a column to determine the column width. The sample data is representative of the length of data anticipated for a column.

To change the width of a column in an Alarm Summary table

1. On the screen, select the Alarm Summary table.
2. In the **Properties** window, select the **Columns** tab.
3. In the column card, click **Show/Hide** to expand the column card. The selected column card is outlined in blue.
4. In the **Width** field at the bottom of the column card, enter the value:
   - A positive number, representing the width of the column, in pixels

   Changes to column width are saved automatically. The last column added fills the remaining space in the row. If the total width of all columns exceeds the width of the table, a horizontal scroll bar appears at the bottom of the table.

Tip: When resizing a column in an Alarm Summary table, leave some space between the text of the column heading and the border of the column. If the text of a column heading appears at the column border, the text of the column heading may appear clipped in the Alarm Summary table on the HMI device

See also

Change the order of columns in an Alarm Summary table on page 572

Delete a column from an Alarm Summary table on page 573

Alarm Summary table columns on page 579

Columns tab on page 580

Resize a graphic element on page 144

Change the order of columns in an Alarm Summary table

The columns of the alarm table on the predefined **AlarmSummary** screen appear in a default order. This screen is located in the **Predefined Screens** folder of the **Project Explorer**.

To change the order of columns in an Alarm Summary table

1. On the screen, select the Alarm Summary table.
2. In the **Properties** window, select the **Columns** tab.
3. Point to the column card heading and select **Move column up** or **Move column down** to move the column higher (to the left) or lower (to the right) in the table. Changes made to the order of columns are depicted in the Alarm Summary table on the screen.

See also

Add a column to an Alarm Summary table on page 571

Change the width of a column in an Alarm Summary table on page 572

Alarm Summary table columns on page 579

Columns tab on page 580

Delete a column from an Alarm Summary table

Delete a column to remove it from the Alarm Summary table. This removes unwanted data from the table and provides room for other data that may be more pertinent. You cannot change the data a column shows. By default, Column 2 in predefined Alarm Summary table of a project shows the alarm state. You cannot change column data from Alarm State to Comments or any other data.

To delete a column from an Alarm Summary table

1. On the screen, select the Alarm Summary table.
2. In the **Properties** window, select the **Columns** tab.
3. In the heading of the column card, select **Delete**. Deleted columns are removed from the Alarm Summary table on the screen.

See also

Add a column to an Alarm Summary table on page 571

Change the order of columns in an Alarm Summary table on page 572

Alarm Summary table columns on page 579

Columns tab on page 580

Disable a button on an Alarm Summary table

Prevent users from performing certain operations on an Alarm Summary table on the HMI device. To do this, disable the appropriate button on the alarm table. For example, to prevent disabling alarms, disable **Disable** for the Alarm Summary table.

On the HMI device, a disabled button has diagonal hash marks across it.

Tapping the button displays an **Error** icon. Tap the **Error** icon to open an Error list that describes the button as disabled.

To disable a button on an Alarm Summary table

1. On the screen, select the Alarm Summary table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** node.
4. Clear the check box to disable the button and the associated operation on the HMI device:
   - **AcknowledgeEnabled**. Clear this check box to disable **Acknowledge** on the selected alarm table. This prevents indicating awareness of the alarm and changing the alarm state from unacknowledged to acknowledged.
   - **DisableEnabled**. Clear this check box to disable **Disable** on the selected alarm table. This prevents stopping an alarm condition from being evaluated, effectively turning off the alarm.
   - **ResetLatchedEnabled**. Clear this check box to disable **Reset Latched Selected** on the selected alarm table. This prevents resetting a latched alarm that is latched in the In Alarm state.
   - **ShelveEnabled**. Clear this check box to disable **Shelve** on the selected alarm table. This prevents stopping the notification of new state changes for an alarm or alarm condition.

See also

Specify the visibility of an alarm table on page 570

Disable touch and key input for an alarm table on page 566

Change the width of a column in an Alarm Summary table on page 572

Specify access to operations performed on an Alarm Summary table

Specify which users have access to perform certain operations on an Alarm Summary table. To enable all users to perform an operation, set security access to **Full Access**. For example, determine that all users have access to acknowledge an alarm. In this case, set the access for **Acknowledge** to **Full Access**. Alternatively, determine that security access for acknowledging an alarm depends on the role of user. In this case, set the Access properties to **Inherit**. Inherited access levels include **Full Access**, **Read-Only** access, or **No Access**.

To specify access to operations performed on an Alarm Summary table

1. On the screen, select the Alarm Summary table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Security** node.
4. Locate the property for the button to set access:
   - **AcknowledgeAccess**. Set access for **Acknowledge** on the selected Alarm Summary table. This button changes the alarm state from unacknowledged to acknowledged.

- **DisableAccess**. Set access to **Disable** on the selected Alarm Summary table. This button stops an alarm condition from being evaluated, effectively turning off the alarm.
- **ResetLatchedAccess**. Set access to **Reset Latched** on the selected Alarm Summary table. This button resets a latched alarm in the In Alarm state.
- **ShelveAccess**. Set access to **Shelve** on the selected Alarm Summary table. This button prevents the notification of new state changes for an alarm or alarm condition.

5. In the field, select an option:
   - **Full Access**. Specify that all users have access to the button.
   - **Inherit**. Specify that the button inherits access from the screen.

     Inherited access for a user role can be Full Access, Read-Only access, or No Access. If a button inherits Read-Only access, hash marks appear across the button on the HMI device. An error appears if the user presses the button. If a button inherits No Access from the screen, the user does not have access to the screen containing the alarm table. In this case, the screen does not appear in the **Navigation menu**.

See also

Specify the visibility of an alarm table on page 570

Disable touch and key input for an alarm table on page 566

Change the width of a column in an Alarm Summary table on page 572

Change the order of columns in an Alarm Summary table on page 572

Alarm Summary contents for a medium HMI device screen

This screen depicts the default appearance and content of the Alarm Summary Medium alarm table on the predefined **AlarmSummary** screen for a six-inch to nine-inch HMI device. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table exists for medium, six-inch to nine-inch HMI device screens. Create an Alarm Summary Medium table with customized appearance and content, or change the Alarm Summary Medium table on the predefined **AlarmSummary** screen.

Item	Description
1	The list of In Alarm and/or Unacknowledged alarms in the project. Each row contains a single alarm condition. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
2	Buttons to perform operations on alarms in the Alarm Summary table:
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.

	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
3	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.
4	The number of Normal/Unacknowledged, In Alarm/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms in the alarm table.

See also

Alarm Summary table columns on page 579

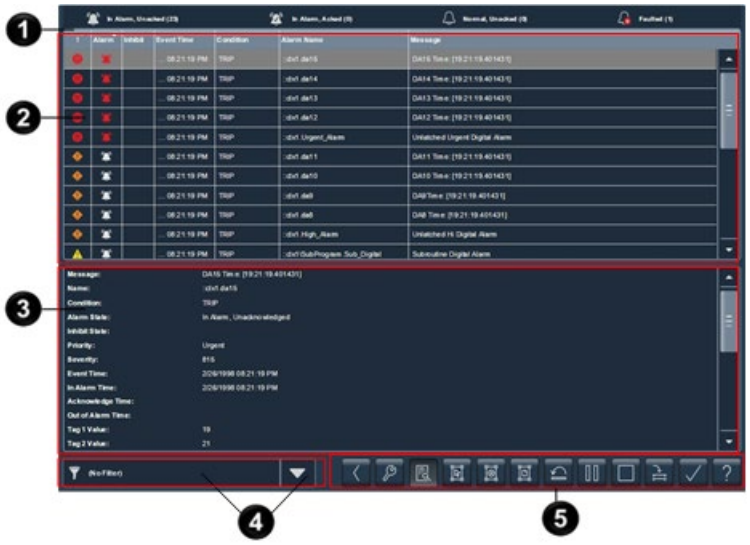
Add a column to an Alarm Summary table on page 571

Delete a column from an Alarm Summary table on page 573

Disable a button on an Alarm Summary table on page 573

Alarm Summary contents for a large HMI device screen

The **Alarm Summary Large** alarm table appears on the predefined **AlarmSummary** screen for a ten-inch or larger HMI device. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table exists for large, ten-inch or larger HMI device screens. Create an **Alarm Summary Large** table with customized appearance and content, or change the **Alarm Summary Large** table on the predefined **AlarmSummary** screen.



Item	Description

❶	The number of In Alarm/Unacknowledged, In Alarm/Acknowledged, Normal/Unacknowledged, and Faulted alarms.
❷	The list of In Alarm and/or Unacknowledged alarms in the project. Each row contains a single alarm condition. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
❸	The **Details** pane with additional details for the selected alarm. This pane displays data, such as Current Value, In Alarm Time, Out of Alarm Time, and tag values. When selecting multiple alarms, details shown are for the last selected alarm. On medium HMI devices, this **Details** pane replaces the Alarm Summary table.
❹	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.
❺	Buttons to perform operations on alarms in the Alarm Summary table:
	Back opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.

See also

Alarm Summary table columns on page 579

Delete a column from an Alarm Summary table on page 573

Disable a button on an Alarm Summary table on page 573

Alarm Summary table columns

On the **Alarm Summary Large** and **Alarm Summary Medium** tables, alarm data appears in columns. To change an Alarm Summary table or when creating an Alarm Summary table, add columns (for example, add Severity or a row shown in the **Details** pane of the alarm table as a column in an Alarm Summary table), remove columns, or rearrange columns. This table shows the default columns used in the Alarm Summary table on the predefined **AlarmSummary** screen.

Column	Description	Medium Alarm Summary	Large Alarm Summary
! (Priority)	The urgency of the event: • Low • Medium • High • Urgent	✓	✓
Alarm State	The state of the alarm condition: • Normal, Unacknowledged and Urgent • In Alarm, Acknowledged and Urgent • In Alarm, Unacknowledged and Urgent	✓	✓
Inhibit State	The value applied to an alarm that inhibits the alarm at some level. These states include: • Disabled • Suppressed • Shelved If no icon appears for Inhibit State, the alarm is of good quality and is not disabled, suppressed, or shelved.		✓
Event Time	The time the alarm condition or sub-condition changed to the currently displayed state.	✓	✓
Condition Name	A name that describes the alarm condition. Condition names vary by event category. For example: • Analog conditions include DEV_HI, DEV_LO, HIHI, HI, LO, LOLO, ROC_POS, and ROC_NEG • Level: LO, LOLO, HI, HIHI, ROC_POS, and ROC_NEG • Discrete: TRIP, TRIP_L (Latched)		✓
Alarm Name	The list of alarms, in all states, for the controllers referenced in the View Designer project. Each row contains an alarm and the conditions. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.		✓
Message	The message assigned to the alarm in the alarm instruction.	✓	✓

See also

Add a column to an Alarm Summary table on page 571

Change the width of a column in an Alarm Summary table on page 572

Change the order of columns in an Alarm Summary table on page 572

Delete a column from an Alarm Summary table on page 573

Columns tab

How do I open the Columns tab?

Select the table on the screen and in the **Properties** pane, click the **Columns** tab.

A table graphic element displays columns of data.

Use the **Columns** tab to:

- Add or delete columns.
- Change the order of columns.
- Change the width of columns.

See also

Add a column to an Alarm Summary table on page 571

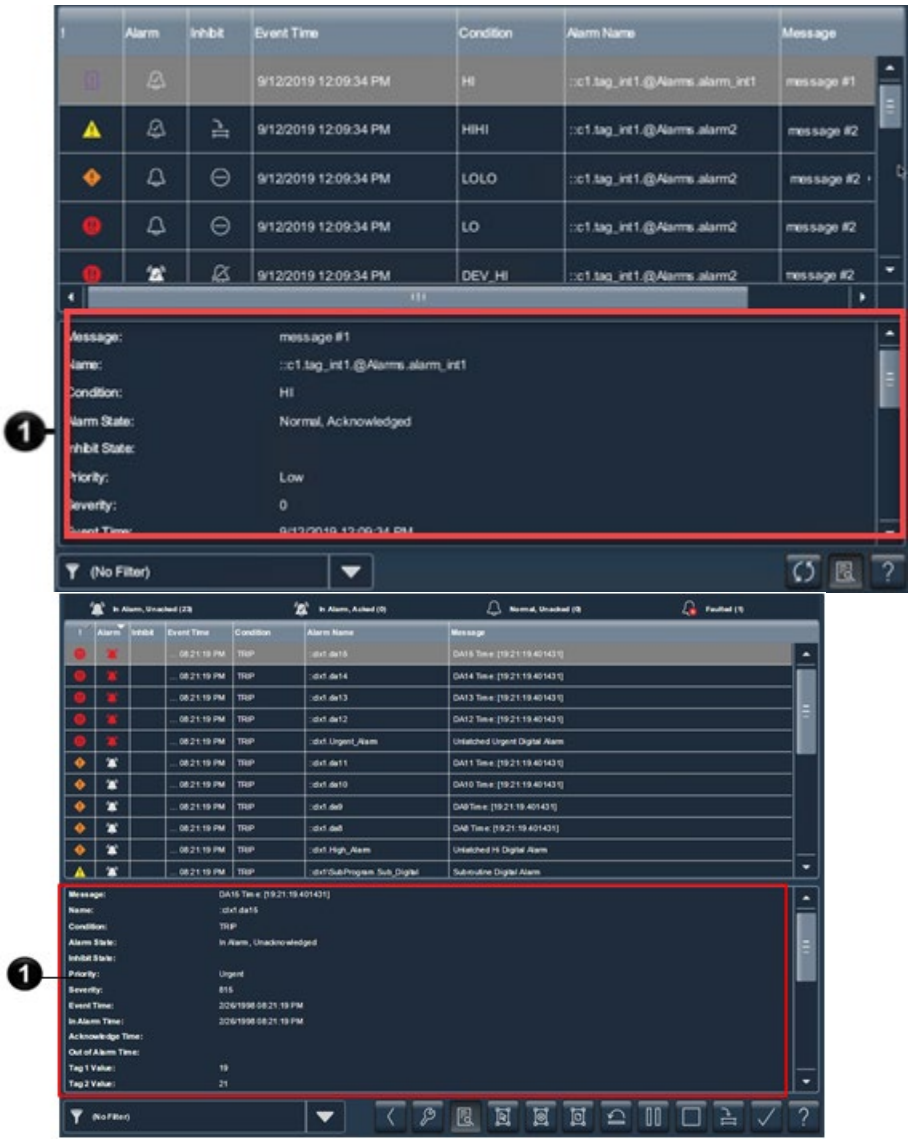
Change the width of a column in an Alarm Summary table on page 572

Change the order of columns in an Alarm Summary table on page 572

Delete a column from an Alarm Summary table on page 573

Details pane for an Alarm Summary

In a medium Alarm Summary table intended for HMI devices with seven-inch to nine-inch screens, the **Details** pane replaces the list of alarms in the table. In a large Alarm Summary table exists for HMI devices with ten-inch or larger screens, the **Details** pane opens at bottom of the table.



Item	Description
1	The **Details** pane with additional details for the selected alarm. This pane displays data, such as Current Value, In Alarm Time, Out of Alarm Time, and tag values. When multiple alarms are selected, details display for the last selected alarm.

See also

Details pane rows on page 581

Alarm Summary for a large HMI device on page 779

Alarm Summary for a medium HMI device on page 777

Alarm faults and alarm quality on page 565

Details pane rows

Selecting **Details** on an alarm table opens the **Details** pane in the lower half of:

- Large Alarm Summary table
- Large Alarm Manager table
- Large Alarm History table

The **Details** pane replaces the list of alarms in medium alarm tables. The **Details** pane shows details for the selected alarm condition of a selected alarm. Condition details display the selected alarm condition in the Alarm Manager table. The contents of the **Details** pane appears in rows.

Row	Description
Priority	The urgency of the alarm condition: • Low • Medium • High • Urgent
Severity	The numeric value mapped to the assigned priority of the alarm condition: • 1-250 (Low) • 251-500 (Medium) • 501-750 (High) • 751-1000 (Urgent)
Alarm State	The state of the alarm condition: • Normal Unacknowledged • In Alarm Acknowledged • In Alarm Unacknowledged • Normal Acknowledged
Inhibit State	The value applied to the alarm condition that inhibits the alarm at some level. These states, indicated by an icon in the alarm table, include: • Bad Quality • Disabled • Suppressed • Shelved • Faulted These states can be combined. When an alarm has more than one inhibit state applied, the icon of the highest inhibit state shown above appears in the table.
Event Time	The date and time the alarm event occurred.
Condition	• Analog conditions include: DEV_HI, DEV_LO, HIHI, HI, LO, LOLO, ROC_POS, and ROC_NEG • Discrete conditions include: TRIP and TRIP_L
Expression	The expression configured in Logix Designer for the selected condition. The expression appears only for tag-based alarms.
Alarm Name	The name of the alarm. This name includes the controller name of the alarm and the tag name. It can also include the name of the program if the tag is defined at the program level. Depending on how it was configured, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName. For tag-based alarms, the alarm name can appear as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
Message	The message assigned to the alarm in the Logix Designer project.
In Alarm Time	The time the selected alarm entered the In Alarm state.
Acknowledge Time	The time the selected alarm was acknowledged.
Out of Alarm Time	The time the selected alarm entered the Normal or Out of Alarm state.
Enabled Time	The time the selected alarm was enabled.
Disable Time	The time the selected alarm was disabled.

Suppress Time	The time the selected alarm was suppressed.
Unsuppress Time	The time the selected alarm was unsuppressed.
Shelve Time	The time the selected alarm was shelved.
Unshelve Time	The time the selected alarm was unshelved. If the alarm is currently shelved, this is the time the alarm is unshelved automatically when the shelve duration expires.
Alarm Class	The user-defined class assigned to the alarm in the Logix Designer project.
Alarm Group	Displays the alarm group from Logix Designer to help classify and sort alarms. Displayed only for tag-based alarms.
Limit Value Exceeded	The condition limit assigned to the alarm in the Logix Designer project.
Tag 1 Value	The value of the associated tag parameter 1.
Tag 2 Value	The value of the associated tag parameter 2.
Tag 3 Value	The value of the associated tag parameter 3.
Tag 4 Value	The value of the associated tag parameter 4.
Alarm Count	The number of times the alarm condition has entered the In Alarm state.
Current Value	The current tag input value resulting in the alarm state.
Event Category	Digital events are categorized as Discrete. Analog events are categorized as Level.
Shelve duration	The default time for which the selected alarm condition is shelved to prevent the notification of new state changes. Shelve duration is assigned to the alarm in the Logix Designer project.
Max Shelve Duration	The maximum time the alarm can be shelved.
Quality Details	Displays information of a fault in case of faulted alarms.
State Change Type	This row applies to Alarm History only and displays the type of alarm state change for the currently selected alarm record: • In Alarm • Return to Normal • Acknowledged • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Configuration Changed • Fault • Alarm Counter Reset

Tip: The Alarm History table does not contain the following details pane rows:

- In Alarm Time
- Acknowledge Time
- Out of Alarm Time
- Enabled Time
- Disables Time
- Suppress Time
- Unsuppress Time
- Shelve Time
- Unshelve Time
- Shelve Duration

Max Shelve Duration

See also

Details pane for an Alarm Summary on page 580

Alarm faults and alarm quality on page 565

Alarm Summary contents for a large HMI device screen on page 577

Alarm Manager contents for a large HMI device screen on page 589

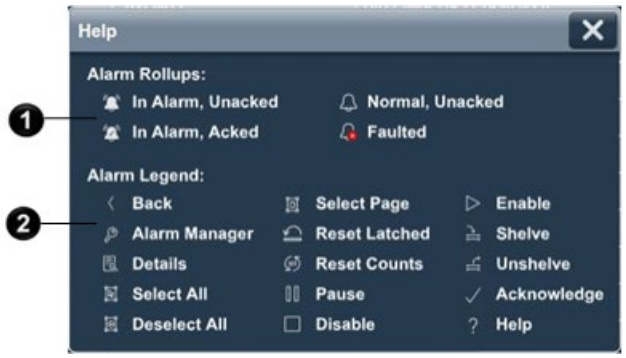
Help popup for alarm tables

How do I open the Help popup?

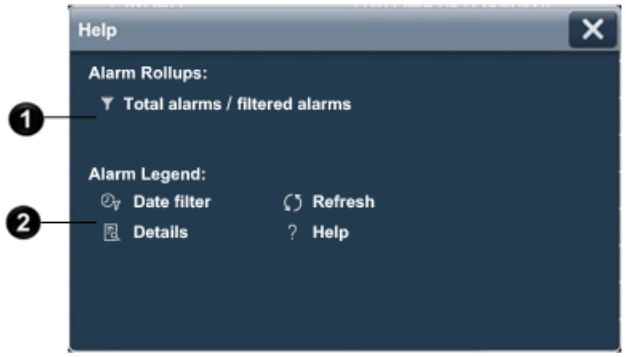
1. Open an alarm table:
   - In the **System Banner** at the top of the screen, tap **Alarm Status Indicator** to open the **Alarm Summary**.
   - At the top of the Alarm Summary table, tap **Alarm Manager** to open the **Alarm Manager**.
2. From either the **Alarm Summary** or the **Alarm Manager**, tap **Help**.

The **Help** popup opens when pressing **Help** on an HMI device. This popup shows a legend of icons that appear on the alarm screens and the task each button on an alarm table performs. The functions vary depending on the selected alarm table.

Help popup for Alarm Summary and Alarm Manager tables:



Help popup for Alarm History table:



Item	Description
1	A legend for icons in the alarm table.

❷	A legend for alarm functions you can perform on the alarm table. The alarm functions represent buttons on the alarm table. The functions you can perform vary depending on the selected alarm table:
❸	**Back** opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
	Refresh loads the latest alarm state changes from the alarm history. You can also exit and enter the screen with the Alarm History again to refresh with the latest changes.
	Help opens this **Help** popup.

See also

Alarm Summary contents for a medium HMI device screen on page 575

Alarm Manager contents for a medium HMI device screen on page 588

Create an alarm screen on page 565

Resize a graphic element on page 144

Alarms overview on page 563

Alarm Manager

The **Alarm Manager** lists all alarms configured in a system and their current states. By default, each project includes an **AlarmManager** screen. Create an additional screen with a graphic element to create a custom Alarm Manager table.

Tip: For tag-based alarms, Alarm Manager displays alarms marked as active and ready for evaluation.

Use the **Alarm Manager** to monitor and interact with the alarms on the HMI device. View the **Details** pane of the **Alarm Manager** screen to show all of the details of the selected condition.

Tip: Refer to Logix Designer Help for the information about tag-based alarms.

See also

Alarms overview on page 563

Create an alarm screen on page 565

Alarm Manager contents for a large HMI device screen on page 589

Alarm Manager contents for a medium HMI device screen on page 588

What is the Alarm Manager? on page 99

Disable a button on an Alarm Manager table

Prevent users from performing certain operations on an Alarm Manager table on the HMI device. For example, to prevent disabling alarms, disable the appropriate button on the alarm table.

On the HMI device, a disabled button has diagonal hash marks across it. If the button is tapped, an **Error** icon appears. Tap the **Error** icon to open an **Error list** that describes the button that is disabled.

To disable a button on an Alarm Manager table

1. On the screen, select the Alarm Manager table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** node.
4. Select the check box to disable the desired button and associated operation on the HMI device:
   - **DisableEnabled**. Clear this check box to disable **Disable** on the selected alarm table. This prevents stopping an alarm condition from being evaluated, effectively turning off the alarm.
   - **EnableEnabled**. Clear this check box to disable **Enable** on the selected alarm table. This prevents allowing an alarm

condition from being evaluated again, effectively turning on the alarm.

- **ResetCountsEnabled**. Clear this check box to disable **Reset Alarm Counts** on the selected alarm table. This prevents resetting the Alarm Count value of the alarm table to zero. The alarm count indicates the number of times an alarm has gone into the In Alarm State.
- **ShelveEnabled**. Clear this check box to disable **Shelve** on the selected alarm table. This stops any instance of preventing the notification of new state changes for an alarm or alarm condition.
- **UnshelveEnabled**. Clear this check box to disable **Unshelve** on the selected alarm table. This prevents resuming the notification of the new state changes of an alarm.

See also

Specify the visibility of an alarm table on page 570

Disable touch and key input for an alarm table on page 566

Alarm Summary on page 571

Alarm Manager on page 586

Specify access to operations performed on an Alarm Manager table

Specify which users have access to perform certain operations on an Alarm Manager table. For example, determine that all users, regardless of their assigned security role, have access to enable an alarm. To do this, set the **EnableAccess** property to **Full Access**. Alternatively, determine that security access to enabling alarms depends on the role assigned to the logged in user. In this case, set the **EnableAccess** property to **Inherit**.

To specify access to operations performed on an Alarm Manager table

1. On the screen, select the Alarm Manager table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Security** node.
4. Locate the property for the button to set access:
   - **DisableAccess**. Set access to **Disable** on the selected Alarm Manager table. This button stops an alarm condition from being evaluated, effectively turning off the alarm.
   - **EnableAccess**. Set access to **Enable** on the selected Alarm Manager table. This button allows an alarm condition to be evaluated, effectively turning on the alarm.
   - **ResetCountAccess**. Set access to **Reset Alarm Counts** on the selected Alarm Manager table. This button resets the Alarm Count value to zero on the alarm table. The alarm count indicates the number of times an alarm has gone into the In Alarm State.

- **ShelveAccess**. Set access to **Shelve** on the selected Alarm Manager table. This button prevents the notification of new state changes for an alarm or alarm condition.
- **UnshelveAccess**. Set access to **Unshelve** on the selected Alarm Manager table. This button resumes the notification of new state changes for an alarm.

5. In the box, select an option:
   - **Inherit**. Specify that access to the button is inherited from the screen.
   - **Full Access**. Specify that all users have access to the button.

     Inherited access for a user role can be Full Access, Read-Only access, or No Access. If a button inherits Read-Only access, hash marks appear across the button on the HMI device. Pressing the button displays an error. If a button inherits No Access from the screen, there is no access to the screen containing the alarm table. In this case, the screen does not appear in the **Navigation menu** on the HMI device.

See also

Specify the visibility of an alarm table on page 570

Disable touch and key input for an alarm table on page 566

Disable a button on an Alarm Manager table on page 586

Alarm Manager contents for a medium HMI device screen

The **Alarm Manager Medium** alarm table appears on the predefined **AlarmManager** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table exists for medium, six-inch to nine-inch HMI device screens. Create an **Alarm Manager Medium** table with customized appearance and content.

Item	Description
1	The list of alarms, in all states, for the controllers referenced in the View Designer project. The Alarm Manager displays tag-based alarms marked for use and evaluation. Each row contains an alarm and the conditions. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.

❷	Buttons to perform operations on alarms in the Alarm Manager table:
	Back opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty. The **Details** pane on an Alarm Manager table shows a list of conditions. Buttons to shelve and unshelve individual alarm conditions appear above the list of conditions.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
❸	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.

See also

Alarm Manager on page 586

Alarm Manager contents for a large HMI device screen on page 589

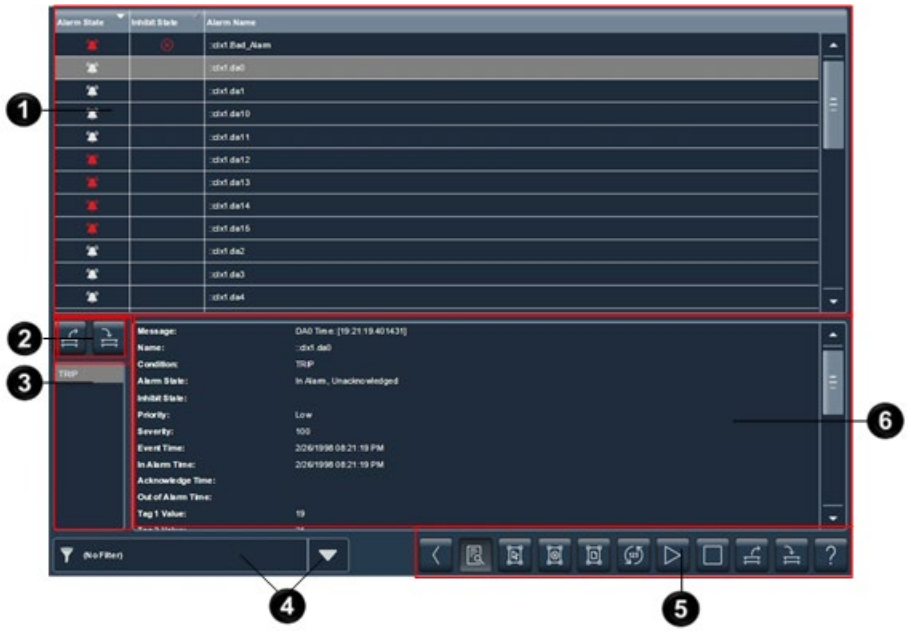
Create an alarm screen on page 565

Alarm Manager table columns on page 591

Disable a button on an Alarm Manager table on page 586

Alarm Manager contents for a large HMI device screen

The **Alarm Manager Large** alarm table appears on the predefined **Alarm Manager** screen. This screen is in the **Predefined Screens** folder in the **Project Explorer**. The table exists for large, ten-inch or larger HMI device screens. Create an **Alarm Manager Large** table with customized appearance and content instead of using the predefined **Alarm Manager** screen.



Item	Description
1	The list of alarms, in all states, for the controllers referenced in the View Designer project. The Alarm Manager displays tag-based alarms marked for use and evaluation. Each row contains an alarm and the conditions. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
2	Buttons to shelve and unshelve the alarm condition selected in the **Details** pane. The **Details** pane appears at the bottom of the Alarm Manager table.
	Shelve shelves the alarm condition selected in the **Details** pane. Shelving a condition prevents notification of new state changes to the alarm.
	Unshelve unshelves the alarm condition selected in the **Details** pane. Unshelving a condition allows notification of new state changes to the alarm.
3	In the list of conditions, select a condition to show all of the details for that conditionin the **Details** pane. For example, to show details for the TRIP condition for the selected alarm, scroll to and tap TRIP.
4	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.
5	Buttons to perform operations on alarms in the Alarm Manager table:
	Back opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.

	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
6	The **Details** pane lists condition details for the selected alarm. Each row lists details for one alarm condition. The details include when the alarm condition was enabled or disabled, suppressed or unsuppressed, or shelved. Selecting multiple alarms in the Alarm Manager table shows condition details for the last alarm selected.

See also

Alarm Manager on page 586

Alarm Manager contents for a medium HMI device screen on page 588

Create an alarm screen on page 565

Alarm Manager table columns on page 591

Disable a button on an Alarm Manager table on page 586

Alarm Manager table columns

The Alarm Manger table provides alarm information in columns:

Column	Description

Alarm State	The conditions of the alarm: • Normal, Unacknowledged and Urgent • In Alarm, Acknowledged and Urgent • In Alarm, Unacknowledged and Urgent • Normal, Acknowledged The Alarm Manager table displays a combination of all the conditions of an alarm. If any condition in the alarm is In Alarm or Unacknowledged, the alarm appears as In Alarm or Unacknowledged in the Alarm Manager.
Inhibit State	The value applied to an alarm that inhibits the alarm. These states include: • Bad Quality • Disabled • Suppressed • Shelved When an alarm has more than one inhibit state, the icon of the highest inhibit state appears in the table. If no icon appears, the alarm has good quality, and is not disabled, suppressed, or shelved.
Alarm Name	The name of the alarm created in Logix Designer. For instruction-based alarms, it includes the alarm controller and tag. It can also include the name of the program if the tag is going to be defined at the program level. The Alarm Name can be configured as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.AlarmName.

See also

Alarm Manager on page 586

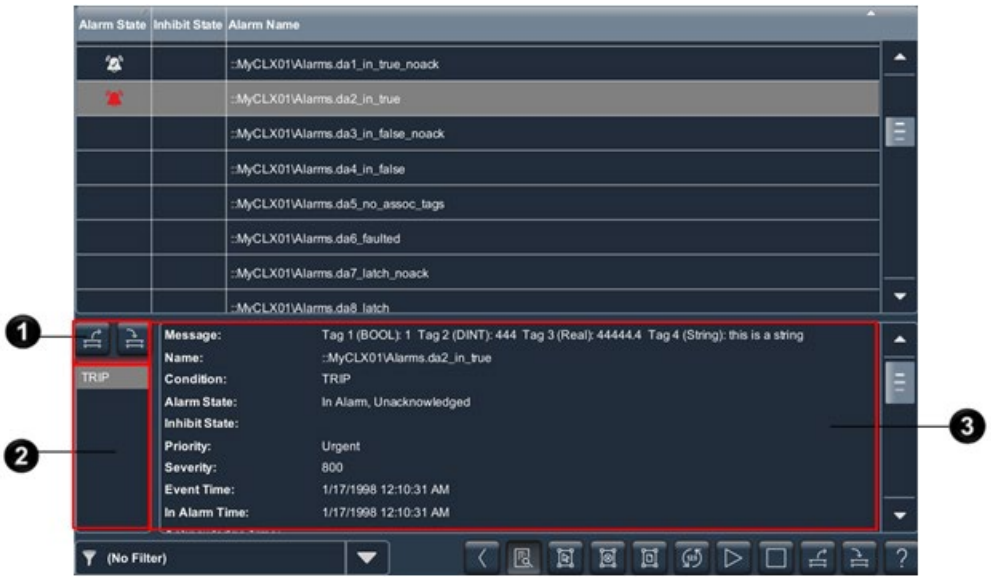
Details pane rows on page 581

Alarm Manager contents for a large HMI device screen on page 589

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager

In a medium Alarm Manager table intended for HMI devices with six-inch to nine-inch screens, the **Details** pane replaces the list of alarms in the table. In a large Alarm Manager table intended for HMI devices with ten-inch or larger screens, the **Details** pane opens at bottom of the table.



Item	Description
1	Buttons to shelve and unshelve the selected alarm condition in the **Details** pane when it is displayed at the bottom of the Alarm Manager table.
	Shelve shelves the selected alarm condition in the **Details** pane. Shelving a condition prevents notification of new state changes to the alarm. Change the Shelve Duration and Max Shelve Duration through Logix Designer. If changes to the Shelve Duration and Max Shelve Duration values are not made through Logix Designer, the updated values are not propagated to the Alarm Summary and Alarm Manager clients. In this case, the previous Shelve Duration and Max Shelve Duration values are used when shelving alarms in Studio 5000 alarm tables.
	Unshelve unshelves the selected alarm condition in the **Details** pane. Unshelving a condition allows notification of new state changes to the alarm.
2	Select a condition to show all of the details of the condition in the **Details** pane. For example, to show details for the TRIP condition for the selected alarm, scroll to and select TRIP.
3	The condition details for the selected alarm. The details include when the alarm condition was enabled or disabled, suppressed or unsuppressed, or shelved. When multiple alarms are selected in the Alarm Manager table, condition details are displayed for the last alarm selected.

See also

Details pane rows on page 581

Alarm Manager for a medium HMI device on page 783

Alarm Manager for a large HMI device on page 784

Alarm faults and alarm quality on page 565

Details pane rows

Selecting **Details** on an alarm table opens the **Details** pane in the lower half of:

- Large Alarm Summary table

- Large Alarm Manager table
- Large Alarm History table

The **Details** pane replaces the list of alarms in medium alarm tables. The **Details** pane shows details for the selected alarm condition of a selected alarm. Condition details display the selected alarm condition in the Alarm Manager table. The contents of the **Details** pane appears in rows.

Row	Description
Priority	The urgency of the alarm condition: • Low • Medium • High • Urgent
Severity	The numeric value mapped to the assigned priority of the alarm condition: • 1-250 (Low) • 251-500 (Medium) • 501-750 (High) • 751-1000 (Urgent)
Alarm State	The state of the alarm condition: • Normal Unacknowledged • In Alarm Acknowledged • In Alarm Unacknowledged • Normal Acknowledged
Inhibit State	The value applied to the alarm condition that inhibits the alarm at some level. These states, indicated by an icon in the alarm table, include: • Bad Quality • Disabled • Suppressed • Shelved • Faulted These states can be combined. When an alarm has more than one inhibit state applied, the icon of the highest inhibit state shown above appears in the table.
Event Time	The date and time the alarm event occurred.
Condition	• Analog conditions include: DEV_HI, DEV_LO, HIHI, HI, LO, LOLO, ROC_POS, and ROC_NEG • Discrete conditions include: TRIP and TRIP_L
Expression	The expression configured in Logix Designer for the selected condition. The expression appears only for tag-based alarms.
Alarm Name	The name of the alarm. This name includes the controller name of the alarm and the tag name. It can also include the name of the program if the tag is defined at the program level. Depending on how it was configured, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName. For tag-based alarms, the alarm name can appear as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
Message	The message assigned to the alarm in the Logix Designer project.
In Alarm Time	The time the selected alarm entered the In Alarm state.
Acknowledge Time	The time the selected alarm was acknowledged.
Out of Alarm Time	The time the selected alarm entered the Normal or Out of Alarm state.

Enabled Time	The time the selected alarm was enabled.
Disable Time	The time the selected alarm was disabled.
Suppress Time	The time the selected alarm was suppressed.
Unsuppress Time	The time the selected alarm was unsuppressed.
Shelve Time	The time the selected alarm was shelved.
Unshelve Time	The time the selected alarm was unshelved. If the alarm is currently shelved, this is the time the alarm is unshelved automatically when the shelve duration expires.
Alarm Class	The user-defined class assigned to the alarm in the Logix Designer project.
Alarm Group	Displays the alarm group from Logix Designer to help classify and sort alarms. Displayed only for tag-based alarms.
Limit Value Exceeded	The condition limit assigned to the alarm in the Logix Designer project.
Tag 1 Value	The value of the associated tag parameter 1.
Tag 2 Value	The value of the associated tag parameter 2.
Tag 3 Value	The value of the associated tag parameter 3.
Tag 4 Value	The value of the associated tag parameter 4.
Alarm Count	The number of times the alarm condition has entered the In Alarm state.
Current Value	The current tag input value resulting in the alarm state.
Event Category	Digital events are categorized as Discrete. Analog events are categorized as Level.
Shelve duration	The default time for which the selected alarm condition is shelved to prevent the notification of new state changes. Shelve duration is assigned to the alarm in the Logix Designer project.
Max Shelve Duration	The maximum time the alarm can be shelved.
Quality Details	Displays information of a fault in case of faulted alarms.
State Change Type	This row applies to Alarm History only and displays the type of alarm state change for the currently selected alarm record: • In Alarm • Return to Normal • Acknowledged • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Configuration Changed • Fault • Alarm Counter Reset

Tip: The Alarm History table does not contain the following details pane rows:

- In Alarm Time
- Acknowledge Time
- Out of Alarm Time
- Enabled Time
- Disables Time
- Suppress Time
- Unsuppress Time
- Shelve Time
- Unshelve Time
- Shelve Duration

Max Shelve Duration

See also

Details pane for an Alarm Summary on page 580

Alarm faults and alarm quality on page 565

Alarm Summary contents for a large HMI device screen on page 577

Alarm Manager contents for a large HMI device screen on page 589

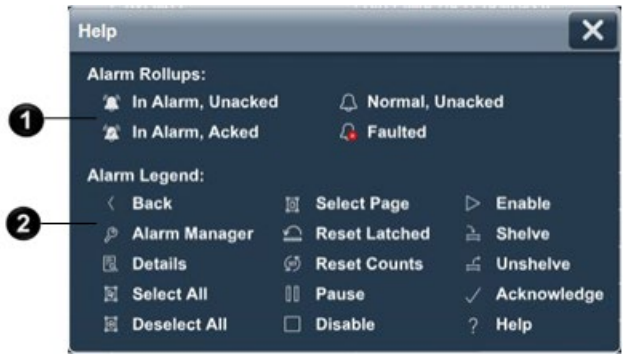
Help popup for alarm tables

How do I open the Help popup?

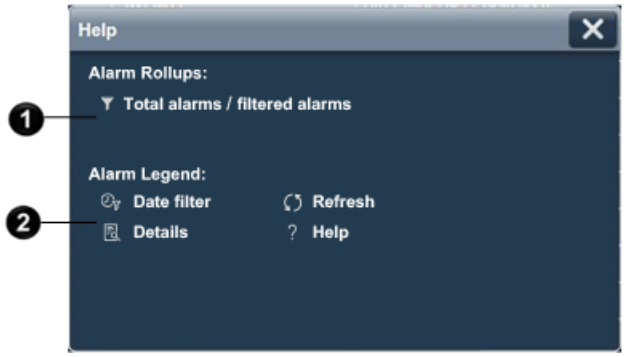
1. Open an alarm table:
   - In the **System Banner** at the top of the screen, tap **Alarm Status Indicator** to open the **Alarm Summary**.
   - At the top of the Alarm Summary table, tap **Alarm Manager** to open the **Alarm Manager**.
2. From either the **Alarm Summary** or the **Alarm Manager**, tap **Help**.

The **Help** popup opens when pressing **Help** on an HMI device. This popup shows a legend of icons that appear on the alarm screens and the task each button on an alarm table performs. The functions vary depending on the selected alarm table.

Help popup for Alarm Summary and Alarm Manager tables:



Help popup for Alarm History table:



Item	Description
1	A legend for icons in the alarm table.

❷	A legend for alarm functions you can perform on the alarm table. The alarm functions represent buttons on the alarm table. The functions you can perform vary depending on the selected alarm table:
❸	**Back** opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
	Refresh loads the latest alarm state changes from the alarm history. You can also exit and enter the screen with the Alarm History again to refresh with the latest changes.
	Help opens this **Help** popup.

See also

Alarm Summary contents for a medium HMI device screen on page 575

Alarm Manager contents for a medium HMI device screen on page 588

Create an alarm screen on page 565

Resize a graphic element on page 144

Alarms overview on page 563

Alarm History

How do I open the Alarm History table?

In the **System Banner** at the top of the screen, open the **Navigation menu** by tapping **Navigation** . Select the **Alarm History** item in the **Navigation menu** that appears at the bottom of the screen.

The Alarm History lists alarm state change records from the alarm log. One alarm log record appears in a row.

Use the Alarm History on an HMI device to:

- Review the historical alarm records showing alarm state changes.
- Filter alarm state changes.

The Alarm History displays the history of alarm state changes available at the moment you open the screen. Close and reopen the screen or select Refresh to load the latest alarm state changes.

View Designer retains alarm state history after:

- Rebooting or powering off the HMI device.
- Loading a new project.
- Disconnecting a controller from the HMI device.
- Replacing a controller.
- Having a controller recover from a fault.
- Downloading a new program from a controller connected to the HMI device.
- Clearing the alarm log on a controller connected to the HMI device.

Tip:
In the rare case the alarm history database is corrupted, the operator does not see any records in the Alarm History Viewer, although the alarm state changes are still happening. In such case, reboot the HMI device.

PanelView terminals display up to 40,000 historical alarm state changes. This limit does not change with the number of controllers connected to the PanelView terminal. After exceeding the limit, new records replace the oldest alarm records.

See also

Alarm History Viewer contents for a large HMI device screen on page 601

Alarm History Viewer contents for a medium HMI device screen on page 602

Alarm History Viewer table columns on page 603

Add a column to Alarm History Viewer

New columns in an **Alarm History** appear on the right side of the table with sample data in each column. Use the sample data to determine the column width of a column.

To add a column to an Alarm History table

1. On the screen, select the **Alarm History**.
2. In the **Properties** window, select the **Columns** tab.
3. Select **Add Column**.
4. Select the data to display in the column. The selected column appears in the heading of the new card.
5. Change the width of a column to display the data.

See also

Delete a column from an Alarm History Viewer table on page 600

Change the order of columns in an Alarm History Viewer table on page 600

Change the width of a column in an Alarm History table

Change the width of a column in an Alarm History table if the data in the column is wider than the current width of the column. Use the sample data in a column to determine the required column width. The sample data represents the length of data anticipated for a column.

To change the width of a column in an Alarm History table

1. On the screen, select A**larm History**.
2. In the **Properties** window, select the **Columns** tab.
3. In the column card, click **Show/Hide** to expand the column card. The selected column card is outlined in blue.
   - In the **Width** field at the bottom of the column card, enter a positive number for the column width, in pixels.

   Changes to column width are saved automatically. The last column added fills the remaining space in the row. If the total width of all columns exceeds the width of the table, a horizontal scroll bar appears at the bottom of the table.

Tip: When resizing a column in an Alarm History table, leave some space between the text of the column heading and the border of the column. If the text of a column heading appears at the column border, the text of the column heading may appear clipped in the **Alarm History** on the HMI device

See also

Change the order of columns in an Alarm History table on page 600

Delete a column from an Alarm History table on page 600

Alarm History table columns on page 603

Columns tab on page 580

Resize a graphic element on page 144

Change the order of columns in Alarm History table

The columns in the table on the predefined **Alarm History** screen appear in a default order. This screen is in the **Predefined Screens** folder of the **Project Explorer**.

To change the order of columns in an Alarm History table

1. On the screen, select **Alarm History**.
2. In the **Properties** window, select the **Columns** tab.
3. Point to the column card heading and click **Move column up** to move the column to the left or **Move column down** to move the column to the right. Reordered columns appear in the Alarm History table on the screen.

See also

Add a column to an Alarm History table on page 598

Delete a column from an Alarm History table on page 600

Delete a column from Alarm History Viewer

Delete a column to remove it from the Alarm History table. This removes unwanted data from the table and provides room for more pertinent data. Once you make a data assignment to a column, it is not possible to change it. By default, Column 2 in the predefined **Alarm History** shows the alarm state.

To delete a column from an Alarm History table

1. On the screen, select the **Alarm History**.
2. In the **Properties** window, select the **Columns** tab.
3. On the column card, select **Delete** . Deleted columns no longer appear in the Alarm History table.

See also

Add a column to an Alarm History table on page 598

Change the order of columns in an Alarm History table on page 600

Create an Alarm History table

Add an Alarm History graphic element to a screen to create a screen on the HMI device to view the history of alarm state changes.

Prerequisites

- Configure ALMA and ALMD alarm instructions in Logix Designer or add tag-based alarms in a Logix Designer. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms.

To create an Alarm History screen

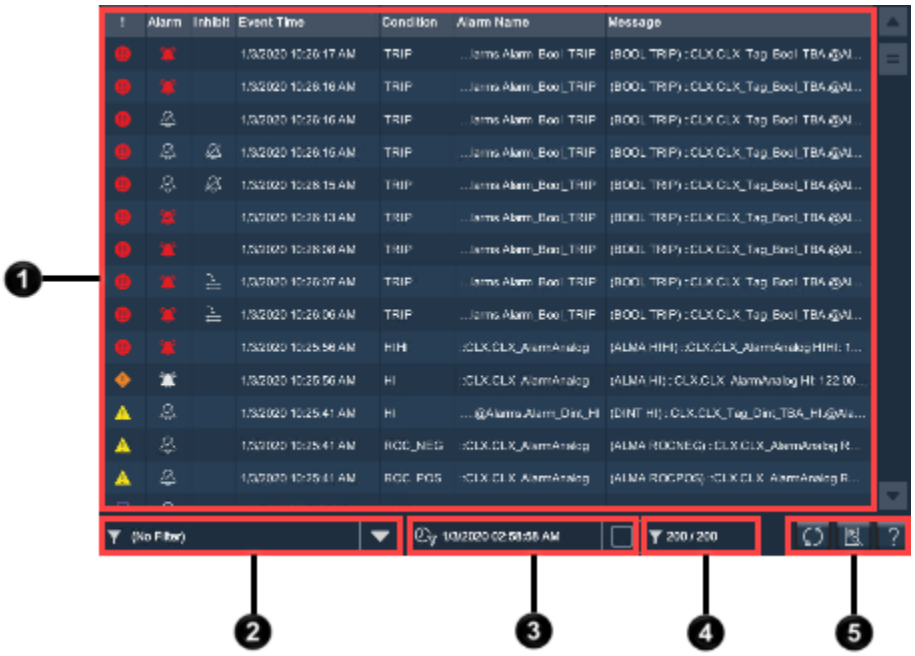
- In the **Alarms** category of the **Toolbox**, double-click or drag and drop the **Alarm History Large** or the **Alarm History Medium** graphic element onto the screen.

See also

Resize a graphic element on page 144

Alarm History contents for a large HMI device screen

The **Alarm History Large** alarm table appears on the predefined **Alarm History** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table is recommended for large, ten-inch or larger HMI device screens.



Item	Description
1	The list of alarm state changes records from the alarm log.
2	Buttons to perform operations on alarms in the Alarm History table:
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Refresh loads the latest alarm state changes from the alarm history. You can also exit and enter the screen with the Alarm History again to refresh with the latest changes.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
3	Filter list. Select a filter in the HMI device to list only the alarm state change records containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarm state changes with a high priority. Configure filters in View Designer.

See also

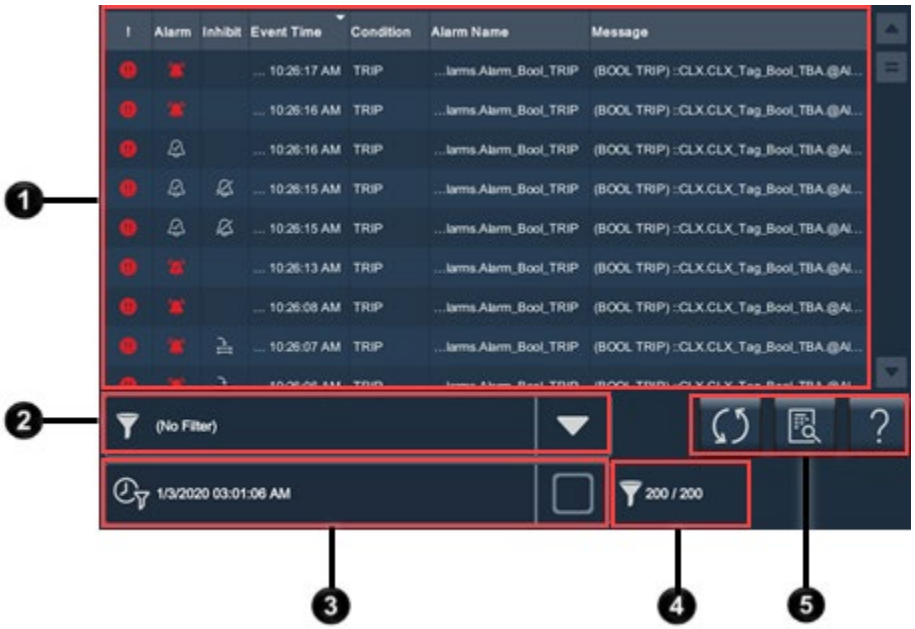
Alarm History on page 598

Alarm History table columns on page 603

Alarm History for a large HMI device screen on page 789

Alarm History Viewer Medium

The **Alarm History Viewer Medium** alarm table appears on the predefined **Alarm History** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table is recommended for six-inch to nine-inch HMI device screens.



Item	Description
1	The list of alarm state changes records from the terminal.
2	Filter list. Select a filter in the HMI device to list only the alarm state change records containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarm state changes with a high priority. Configure filters in View Designer.
3	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
4	Number of filtered records and total number of records.
5	Buttons to perform actions available for the Alarm History Viewer:
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm state change record. The Details pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no record is selected, the Details pane is empty.
	Refresh loads the latest alarm state changes from the alarm history. The operator has to refresh the table to see the latest changes. The operator can also exit and enter the screen with the Alarm History again to refresh.
	Help opens the **Help** popup. This popup displays a legend of icons and the task each button on an alarm table performs.

See also

Alarm History on page 598

Alarm History table columns on page 603

Alarm History for a medium HMI device screen on page 788

Alarm History table columns

Data fields in the **Alarm History** table appear in columns with descriptions of alarm information. The configuration in View Designer determines the columns and the order of the columns. View Designer enables adding, removing or rearranging the columns.

Column	Description
! (Priority)	The urgency of the event: • Low • Medium • High • Urgent
Alarm	The state of the alarm condition: • Normal, Acknowledged • Normal, Unacknowledged and Urgent • In Alarm, Acknowledged and Urgent • In Alarm, Unacknowledged and Urgent
Inhibit	The value applied to an alarm that inhibits the alarm at some level. These states include: • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Faulted • Alarm Count Reset If no icon appears for Inhibit State, the alarm is of good quality and is not disabled, suppressed, or shelved.
Event Time	The time the alarm condition or sub-condition changed to the currently displayed state. The alarm state changes are sorted by default using this column, from the newest, to the oldest.
Condition Name	A name that describes the alarm condition. Condition names vary by event category. For example: • Level: LO, LOLO, HI, HIHI, ROC_POS, ROC_NEG • Discrete: TRIP, TRIP_L (Latched)
Alarm Name	The name of the alarm. This name includes the controller name of the alarm and the tag name. It can also include the name of the program if the tag is defined at the program level. Depending on how it was configured, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName. For tag-based alarms, the alarm name can appear as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
Message	The message assigned to the alarm in the alarm instruction or tag-based alarm configuration.

Column	Description
State Change	The types of state changes for an alarm include: • Triggered • Untriggered • Acknowledged • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Configuration Changed • Fault • Alarm Counter Reset
Tag 1 Value	The value of tag 1.
Tag 2 Value	The value of tag 2.
Tag 3 Value	The value of tag 3.
Tag 4 Value	The value of tag 4.

See also

Alarm History on page 598

Alarm History contents for a large HMI device screen on page 601

Alarm History contents for a medium HMI device screen on page 602

Details pane rows

Selecting **Details** on an alarm table opens the **Details** pane in the lower half of:

- Large Alarm Summary table
- Large Alarm Manager table
- Large Alarm History table

The **Details** pane replaces the list of alarms in medium alarm tables. The **Details** pane shows details for the selected alarm condition of a selected alarm. Condition details display the selected alarm condition in the Alarm Manager table. The contents of the **Details** pane appears in rows.

Row	Description
Priority	The urgency of the alarm condition: • Low • Medium • High • Urgent

Severity	The numeric value mapped to the assigned priority of the alarm condition: • 1-250 (Low) • 251-500 (Medium) • 501-750 (High) • 751-1000 (Urgent)
Alarm State	The state of the alarm condition: • Normal Unacknowledged • In Alarm Acknowledged • In Alarm Unacknowledged • Normal Acknowledged
Inhibit State	The value applied to the alarm condition that inhibits the alarm at some level. These states, indicated by an icon in the alarm table, include: • Bad Quality • Disabled • Suppressed • Shelved • Faulted These states can be combined. When an alarm has more than one inhibit state applied, the icon of the highest inhibit state shown above appears in the table.
Event Time	The date and time the alarm event occurred.
Condition	• Analog conditions include: DEV_HI, DEV_LO, HIHI, HI, LO, LOLO, ROC_POS, and ROC_NEG • Discrete conditions include: TRIP and TRIP_L
Expression	The expression configured in Logix Designer for the selected condition. The expression appears only for tag-based alarms.
Alarm Name	The name of the alarm. This name includes the controller name of the alarm and the tag name. It can also include the name of the program if the tag is defined at the program level. Depending on how it was configured, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName. For tag-based alarms, the alarm name can appear as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
Message	The message assigned to the alarm in the Logix Designer project.
In Alarm Time	The time the selected alarm entered the In Alarm state.
Acknowledge Time	The time the selected alarm was acknowledged.
Out of Alarm Time	The time the selected alarm entered the Normal or Out of Alarm state.
Enabled Time	The time the selected alarm was enabled.
Disable Time	The time the selected alarm was disabled.
Suppress Time	The time the selected alarm was suppressed.
Unsuppress Time	The time the selected alarm was unsuppressed.
Shelve Time	The time the selected alarm was shelved.
Unshelve Time	The time the selected alarm was unshelved. If the alarm is currently shelved, this is the time the alarm is unshelved automatically when the shelve duration expires.
Alarm Class	The user-defined class assigned to the alarm in the Logix Designer project.
Alarm Group	Displays the alarm group from Logix Designer to help classify and sort alarms. Displayed only for tag-based alarms.
Limit Value Exceeded	The condition limit assigned to the alarm in the Logix Designer project.
Tag 1 Value	The value of the associated tag parameter 1.
Tag 2 Value	The value of the associated tag parameter 2.

Tag 3 Value	The value of the associated tag parameter 3.
Tag 4 Value	The value of the associated tag parameter 4.
Alarm Count	The number of times the alarm condition has entered the In Alarm state.
Current Value	The current tag input value resulting in the alarm state.
Event Category	Digital events are categorized as Discrete. Analog events are categorized as Level.
Shelve duration	The default time for which the selected alarm condition is shelved to prevent the notification of new state changes. Shelve duration is assigned to the alarm in the Logix Designer project.
Max Shelve Duration	The maximum time the alarm can be shelved.
Quality Details	Displays information of a fault in case of faulted alarms.
State Change Type	This row applies to Alarm History only and displays the type of alarm state change for the currently selected alarm record: • In Alarm • Return to Normal • Acknowledged • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Configuration Changed • Fault • Alarm Counter Reset

Tip: The Alarm History table does not contain the following details pane rows:
- In Alarm Time
- Acknowledge Time
- Out of Alarm Time
- Enabled Time
- Disables Time
- Suppress Time
- Unsuppress Time
- Shelve Time
- Unshelve Time
- Shelve Duration

Max Shelve Duration

See also

Details pane for an Alarm Summary on page 580

Alarm faults and alarm quality on page 565

Alarm Summary contents for a large HMI device screen on page 577

Alarm Manager contents for a large HMI device screen on page 589

Help popup for alarm tables

How do I open the Help popup?

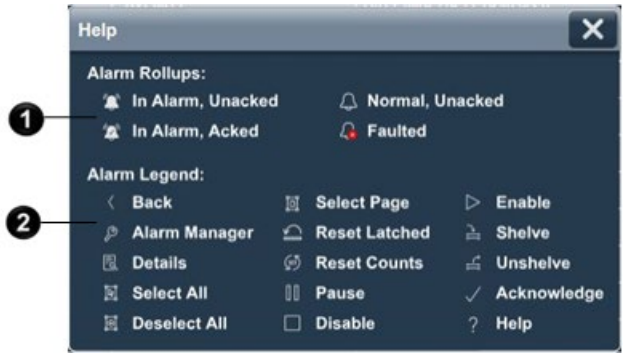
1. Open an alarm table:

- In the **System Banner** at the top of the screen, tap **Alarm Status Indicator** to open the **Alarm Summary**.
- At the top of the Alarm Summary table, tap **Alarm Manager** to open the **Alarm Manager**.

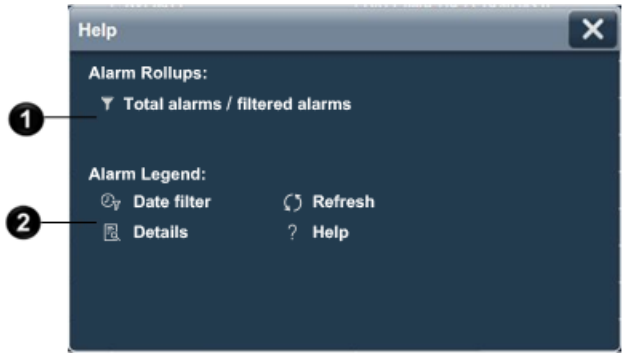
2. From either the **Alarm Summary** or the **Alarm Manager**, tap **Help**.

The **Help** popup opens when pressing **Help** on an HMI device. This popup shows a legend of icons that appear on the alarm screens and the task each button on an alarm table performs. The functions vary depending on the selected alarm table.

Help popup for Alarm Summary and Alarm Manager tables:



Help popup for Alarm History table:



Item	Description
1	A legend for icons in the alarm table.
2	A legend for alarm functions you can perform on the alarm table. The alarm functions represent buttons on the alarm table. The functions you can perform vary depending on the selected alarm table:
3	**Back** opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.

	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
	Refresh loads the latest alarm state changes from the alarm history. You can also exit and enter the screen with the Alarm History again to refresh with the latest changes.
	Help opens this **Help** popup.

See also

Alarm Summary contents for a medium HMI device screen on page 575

Alarm Manager contents for a medium HMI device screen on page 588

Create an alarm screen on page 565

Resize a graphic element on page 144

Alarms overview on page 563

Filter the contents of an alarm table

A filter is applied to a table to show only the data values for records that match specified criteria.

Apply one filter at a time to a table to show the data you want to see in the table. In alarm tables, view data values not included in the table from the **Details** pane of the table.

See also

Create a filter for a table on page 609

Change the value of a filter on page 611

Delete a filter from a table on page 612

Filters tab on page 609

Alarm table filters on page 612

Filters tab

How do I open the Filters tab?

Select the table on the screen and in the **Properties** window, click the **Filters** tab.

Apply filters one at a time to a table. Filters show only the items in a table that match the specified criteria. For example, for a large alarm table graphic element, create an **Alarm State** filter with the value **Urgent**. When a table filter is applied on the HMI device, only those alarms in an urgent state appear in the table.

Create a filter for data values even if the data is not configured to appear as a column in the table. For alarm tables, look in the **Details** pane to see the data values available for the selected alarm.

Use the **Filters** tab to:

- Create a filter
- Change the value of a filter
- Delete a filter

See also

Create a filter for a table on page 609

Change the value of a filter on page 611

Delete a filter from a table on page 612

Alarm Manager on page 586

Alarm Summary on page 571

Create a filter for a table

Create filters to display only those records or rows in a table that match specified criteria. For example, create an **Alarm State** filter and specify **Unacknowledged** as the value for the filter. On the HMI device, when the user applies the **Alarm State: Unacknowledged** filter, the table returns only unacknowledged alarms. If a filter is created without a value, the filtered table returns only those records that have no value for the filter data. For example, in an Alarm Summary table, create a **Message** filter without specifying a value. The filter returns only the alarms where the message is blank. If no alarm in the table has a blank message, the filter returns no alarms.

Filters are available in the **Filter** list of the table on the HMI device. There is no limit to the number of filters for a table. Apply only one filter at a time.

To create a table filter

1. On the screen, select the table.
2. In the **Properties** window, select the **Filters** tab.
3. Select **Add Filter**.
4. Scroll to select the data item to filter the table. A filter card appears. The selected filter card is outlined in blue.
5. Select or enter the value of the filter.
   - **Select a value**. For filters requiring a selected value, a **Select filter value** list appears below the filter. Select the value. For example, to display only alarms in the In Alarm state, for an Alarm State filter, select **In Alarm**. The filter returns any record with an In Alarm state (including In Alarm, Acknowledged and In Alarm, Unacknowledged alarms).
   - **Enter a value**. For filters requiring a manually entered value, an empty box appears below the selected filter. Type the value. For example, for an **Alarm Name** filter, type the value "Bottling_Line_A." This filter returns any alarm named Bottling_Line_A. Typing only a portion of the value, such as "Bottling," returns rows containing "Bottling_Line_A." Spaces are considered characters. Consider this when creating a filter for a field such as Message, which supports spaces.

Tips:
- Filters for a table are saved automatically.
- The value field is in error when the filter does not have a valid value. Close and reopen the **Filters** tab to see the value field outlined in red.
- If the value of the filter is too long to display in the card heading, ellipses (...) appear at the end of the filter name.
- Set the default filter for an alarm table by entering the number of the filter in the **FilterIndex** property for the alarm table. The number of a filter is the order the filter appears on the **Filters** tab. The third filter is filter 3. Entering 3 in the **FilterIndex** property initially filters the alarm table by that filter on the HMI device.

See also

Change the value of a filter on page 611

Delete a filter from a table on page 612

Filters tab on page 609

Alarm Manager on page 586

Alarm Summary on page 571

Specify the default filter for a table

Set the default filter for an alarm table to initially display certain alarms on the HMI device. When the alarm table opens on the HMI device, only those records or rows that match the criteria of the filter appear in the table. Select another filter on the HMI device to filter other alarms or display all alarms.

Prerequisite

- Create a filter for the table.

To specify the default filter for a table

1. On the screen, select the table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **FilterIndex** property, enter the numeric value of the filter.

Tip: The number of a filter is the order the filter appears on the **Filters** tab. The third filter is filter 3. Entering 3 in the **FilterIndex** property initially filters the alarm table by that filter on the HMI device.

See also

[Create a filter for a table](#) on page 609

[Create an alarm screen](#) on page 565

[Display alarms](#) on page 563

[Alarm table filters](#) on page 612

Change the value of a filter

Change a filter value to change the displayed alarm rows. The table returns rows when selecting a filter on the HMI device, such as a **Priority** filter that returns urgent alarms in an alarm table. For example, change value of that filter to return high priority alarms instead. Deleting or selecting no value for a filter filters the table to return only those records that have no value for the filter data. For example, in an Alarm Summary table, change a **Message** filter to have no value. The filter returns only the alarms with message data that is blank. If no alarm in the table has a blank message, the filter returns no alarms.

Changing the data on which a filter is based is not supported. For example, a **Priority** filter is unable to change to a **Message** filter. Only change the value used to return table rows when the filter is applied. To change data for a filter, delete the filter and create a new one.

To change the value of a filter

1. On the screen, select the alarm table.
2. In the **Properties** window, select the **Filters** tab. Collapsed filter cards show both the filter and the value in the card heading.
3. To expand the filter card, select **Show/Hide** next to the filter card. The selected filter card is outlined in blue and contains only the filter in the card heading.
4. To change the value of a filter, select or enter a new value for the filter:
   - **Select a value**. For filters requiring a selected a value, a list appears after the current value of the filter. Select a different value for the filter.
   - **Enter a value**. For filters requiring a manually entered value, in the list, select the current value and type a new value.

Tips:
- Changes made to filters are applied to the table automatically.
- If there is not a valid value entered for the filter, the value field is in error. Close and reopen the **Filters** tab to observe the value field outlined in red.
- If the value of the filter is too long to display in the card heading, ellipses (...) appear at the end of the filter name.

See also

Create a filter for a table on page 609

Delete a filter from a table on page 612

Filters tab on page 609

Alarm Manager on page 586

Alarm Summary on page 571

Delete a filter from a table

On an HMI device, filters are displayed in a **Filter** list in a table. Delete filters that no longer apply to a table. For example, delete a Priority filter that allows users to sort an alarm table based on alarm priority.

To delete a filter from a table

1. On the screen, select the table.
2. In the **Properties** window, select the **Filters** tab. Collapsed filter cards display the filter and its value in the card heading. This eliminates the need to expand the card to verify the value of the filter before deleting the filter.
3. In the heading of the filter card to delete, select **Delete** .

Tip: Changes to filters are applied to the table automatically.

See also

Create a filter for a table on page 609

Change the value of a filter on page 611

Filters tab on page 609

Alarm Manager on page 586

Alarm Summary on page 571

Alarm table filters

Create filters for an alarm table added to the screen from the **Toolbox**. Add and delete filters from both user-created and predefined alarm tables. These are the filters for the **Alarm Summary**, **Alarm Manager** and **Alarm History** tables to add to the screen. The records returned depend on the criteria selected when creating the filter. For example, creating a Priority filter with the value **Urgent** returns rows with urgent priority alarms. Filter alarms using these fields:

- Alarm Class
- Alarm Name
- Alarm Group

- Alarm State
- Condition Name
- Event Category
- Inhibit State
- Limit Value Exceeded
- Message
- Priority
- Quality
- Severity
- State Change Type (Alarm History Viewer only)
- Tag 1 Value
- Tag 2 Value
- Tag 3 Value
- Tag 4 Value

Alarm tables in the predefined **AlarmSummary**, **AlarmManager** and the **Alarm History** screens contain default filters with predefined criteria to return alarm rows on the HMI device.

The filters and their criteria (filter: criteria) for alarm tables on the predefined Alarm Summary and Alarm Manager tables are:

- Alarm State: In Alarm
- Alarm State: In Alarm, Acknowledged
- Alarm State: In Alarm, Unacknowledged
- Alarm State: Normal, Unacknowledged
- Alarm State: Unacknowledged
- Inhibit State: Bad Quality (Alarm Manager only)
- Inhibit State: Disabled
- Inhibit State: Shelved
- Inhibit State: Suppressed
- Priority: High
- Priority: Low
- Priority: Medium
- Priority: Urgent

The filters and their criteria (filter: criteria) for the predefined Alarm History table are:

- Alarm State - In Alarm
- Inhibit State - Bad Quality
- Inhibit State - Disabled
- Inhibit State - Shelved
- Inhibit State - Suppressed
- Priority - High
- Priority - Urgent
- State Change Type - Acknowledged
- State Change Type - Alarm Counter Reset
- State Change Type - Configuration Changed
- State Change Type - Disabled
- State Change Type - Enabled
- State Change Type - Fault
- State Change Type - In Alarm
- State Change Type - Return to Normal
- State Change Type - Shelved

- State Change Type - Unshelved
- State Change Type - Unsuppressed

See also

Create a filter for a table on page 609

Change the value of a filter on page 611

Delete a filter from a table on page 612

Filters tab on page 609

Display Automatic Diagnostics

Display Automatic Diagnostics

Display automatic diagnostics to monitor and manage Rockwell Automation hardware diagnostics. View Designer provides a default **Automatic Diagnostics** screen, and an **Automatic Diagnostics History** screen. Change **Automatic Diagnostics** screen or add automatic diagnostics table graphic element to a new screen to create your own automatic diagnostics screen.

View Designer requires no configuration to display automatic diagnostics on the HMI device. The HMI device automatically collects diagnostic events from Logix 5000 controllers. Use Logix 5000 controller and Studio 5000 Logix Designer to configure hardware or to turn off **Automatic Diagnostics**.

See also

Automatic Diagnostics overview on page 615

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Automatic Diagnostics on page 621

Automatic Diagnostics History on page 625

Automatic Diagnostics overview

By default, new projects contain an **Automatic Diagnostics** screen with an Automatic Diagnostics table, and an **Automatic Diagnostics History** screen with an Automatic Diagnostics History table. These screens exist in the **Predefined Screens** folder of the **Project Explorer**. New projects have shortcuts to the predefined **Automatic Diagnostics** and **Automatic Diagnostics History** screens.

You can create your own diagnostics screens by using **Automatic Diagnostics** and **Automatic Diagnostics History** graphic elements from the Toolbox.

Automatic Diagnostics of hardware configured in your Logix controllers automatically appear on the Automatic Diagnostics and Automatic Diagnostics History. No additional configuration in View Designer is needed.

Rockwell Automation recommends that an automatic diagnostics table be the only graphic element on a screen.

Available operations depend on the **Automatic Diagnostics** screen:

Operation	Automatic Diagnostics
Suppress	✓

Operation	Automatic Diagnostics
Unsuppress	✓

In View Designer, automatic diagnostics tables contain sample data representative of the data an automatic diagnostics table may display. The sample data inserts data of average length into the default columns in the automatic diagnostics table. Sample data appears in order to configure the automatic diagnostics table. Use sample data to determine and change column width, font, font size, and padding around content. Changes to font and padding properties do not appear in the **Details** pane of an automatic diagnostics table.

Automatic Diagnostics tables scale to the size of the target HMI device. When you download a project to a different size HMI device, default automatic diagnostics tables may not provide the best results on the new HMI device screen.

Large automatic diagnostics tables are designed for ten-inch or larger HMI device screens, while medium automatic diagnostics tables are designed for six- to nine-inch HMI device screens. The size of an automatic diagnostics table does not affect the number of automatic diagnostics the table displays. When you download a project to an HMI of a different size, Rockwell Automation recommends replacing the automatic diagnostics tables in the project. Open the existing automatic diagnostics screens, delete the existing automatic diagnostics tables from the screens, and add the correct size automatic diagnostics tables for the new HMI device.

See also

Display Automatic Diagnostics on page 615

Create an Automatic Diagnostics screen on page 616

Automatic Diagnostics statuses on page 621

Create an Automatic Diagnostics screen

Create an **Automatic Diagnostics** screen to view Rockwell Automation hardware diagnostics on the HMI device. **Automatic Diagnostics** screens receive diagnostics data automatically. There is no configuration required in View Designer.

By default, an **Automatic Diagnostics** screen and an **Automatic Diagnostics History** screen are included in the **Predefined Screens** folder of each **Project Explorer** for each project. When creating a custom automatic diagnostics screen, make the automatic diagnostics table the only graphic element on the screen. Do not add an automatic diagnostics table to a popup or the **System Banner**. Add an automatic diagnostics table to a screen only.

To create an Automatic Diagnostics screen

- In the **Automatic Diagnostics** category of the **Toolbox**, drag and drop the automatic diagnostics table graphic element onto the screen.

Tips:

- Change the appearance of an automatic diagnostics table in the **Properties** pane. For example, to ensure an automatic diagnostics table contains readable content and has a row height that you can tap on the HMI device, change the font size and padding of the table cells. For an **Automatic Diagnostics**, change the number and content of columns.
- Select filters to return automatic diagnostics meeting filter criteria on **Automatic Diagnostics** screen on the HMI device.

See also

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Properties for Automatic Diagnostics and Automatic Diagnostics History tables

How do I open Properties tab

On the **Properties** window, click the **Properties** tab.

Use these properties to customize the Automatic Diagnostics or Automatic Diagnostics History table. These properties are categorized by Type, General, Security, Appearance, and Position and Size.

Configure automatic diagnostics table rows for readability and touch

Configure properties to change the displayed font, font size, and row padding (the distance between cell content and cell borders) in a table. Font size affects row height. Padding makes tapping rows feasible on an HMI device. Using a small font size and no padding makes it difficult to tap a single row in an alarm table on the HMI device. Row height is determined by the **FontSize** property value and twice the value of the **RowPadding** property. The default **FontSize** (nine points) and **RowPadding** (14 pixels) property values result in an approximate row height of one-third inch. There is no minimum or maximum font size or row padding. To be able to tap single alarm rows on the HMI device, specify optimal font sizes and row padding for a table.

To configure Automatic Diagnostics table rows for readability and touch

1. On the screen, select the **Automatic Diagnostics** or **Automatic Diagnostics History** table.
2. In the **Properties** window, click the **Properties** tab.
3. Expand the **Appearance** node.
4. Ensure that the automatic diagnostics table is readable and allows enough room within rows for touch.
5. Configure the properties:
   - **Font Name**. Select a font.
   - **Font Size**. Enter a font size readable for users on the HMI device.
   - **Row Padding**. In pixels, enter the distance between the cell content and the cell border.

The sample data of the automatic diagnostics table reflects the selected **FontName**, **FontSize**, and **RowPadding** property values. The changes also appear in the automatic diagnostics table on the HMI device. The

Details pane of an automatic diagnostics table does not reflect changes to these properties.

See also

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Change the opacity of Automatic Diagnostics or Automatic Diagnostics History table

Change the opacity level of a table to adjust the transparency.

To change the opacity of a table

1. On the screen, select the **Automatic Diagnostics** or **Automatic Diagnostics History** table.
2. In the **Properties** window, click the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **Opacity** box, enter a percentage, where 0 is fully transparent and 100 is fully opaque.

See also

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Specify the visibility of Automatic Diagnostics or Automatic Diagnostics History table

Specify if an automatic diagnostics table is always visible on the HMI device screen.

To specify the visibility of a table

1. On the screen, select the **Automatic Diagnostics** or **Automatic Diagnostics History** table.
2. In the **Properties** window, click the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **Visible** box, select an option:
   - **Visible** (selected)
   - **Not visible** (cleared)

See also

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Specify the default sort order of Automatic Diagnostics or Automatic Diagnostics History table contents

Determine how table content is initially sorted on the HMI device screen. Specify which columns to sort and in which order, and whether to sort the contents of a column in ascending or descending order.

To specify the default sort order of table contents

1. On the screen, select the **Automatic Diagnostics** or **Automatic**

Diagnostics History table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. Enter columns and their order, in the **SortOrder** box
   - A valid column number, colon, and a D for descending or A for ascending. For example, 1:D,2:D provides a primary sort of Column 1 in descending order, and a secondary sort of Column 2 in descending order. You can enter a value for each column in the table.

See also

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Columns tab

How do I open the Columns tab?

Select the table on the screen and in the **Properties** pane, click the **Columns** tab.

A table graphic element displays columns of data.

Use the **Columns** tab to:

- Add or delete columns.
- Change the order of columns.
- Change the width of columns.

See also

Properties for Automatic Diagnostics and Automatic Diagnostics History tables on page 617

Add a column to the Automatic Diagnostics or Automatic Diagnostics History tables on page 619

Change the width of a column in Automatic Diagnostics or Automatic Diagnostics History table on page 620

Change the order of columns in Automatic Diagnostics or Automatic Diagnostics History table on page 620

Delete a column from a table on page 620

Add a column to the Automatic Diagnostics or Automatic Diagnostics History tables

New columns in tables appear on the right side of the table with sample data inserted into each column. Sample data is a representative of the length of data in a column. Use sample data to determine the column width.

To add a column to the Automatic Diagnostics or Automatic Diagnostics History tables

1. On the screen, select the **Automatic Diagnostics** or **Automatic Diagnostics History** table.
2. In the **Properties** window, select the **Columns** tab.

3. Select **Add Column**.
4. Select the data to display in the column. The selected column appears in the new card heading. Change the width of a column to display the data.

Change the width of a column in Automatic Diagnostics or Automatic Diagnostics History table

Change the width of a column in either Automatic Diagnostics or Automatic Diagnostics History table if the data in the column is wider than the width of the column. Use the sample data inserted in a column to determine the column width. The sample data is representative of the length of data anticipated for a column.

To change the width of a column in a table

1. On the screen, select the **Automatic Diagnostics** or **Automatic Diagnostics History** table.
2. In the **Properties** window, select the **Columns** tab.
3. In the column card, click **Show/Hide** to expand the column card. The selected column card is outlined in blue.
4. In the **Width** field at the bottom of the column card, enter a positive number, representing the width of the column, in pixels.

   Changes to column width are saved automatically. The last column added fills the remaining space in the row. If the total width of all columns exceeds the width of the table, a horizontal scroll bar appears at the bottom of the table.

   Tip: When resizing a column in a table, leave some space between the text of the column heading and the border of the column. If the text of a column heading appears at the column border, the text of the column heading may appear clipped in the Automatic Diagnostics or Automatic Diagnostics History table on the HMI device.

Change the order of columns in Automatic Diagnostics or Automatic Diagnostics History table

The columns of the automatic diagnostics tables on the predefined **Automatic Diagnostics** and **Automatic Diagnostics History** screens appear in a default order. The screen is located in the **Predefined Screens** folder of the **Project Explorer**.

To change the order of columns in a table

1. On the screen, select the **Automatic Diagnostics** or **Automatic Diagnostics History** table.
2. In the **Properties** window, select the **Columns** tab.
3. Point to the column card heading and select **Move column up** or **Move column down** to move the column higher (to the left) or lower (to the right) in the table. Changes made to the order of columns are depicted in the table on the screen.

Delete a column from a table

Delete a column to remove it from the Automatic Diagnostics or Automatic Diagnostics History table. This removes unwanted data from the table and provides room for other data that may be more pertinent. You cannot change the data a column shows. By default, Column 1 in the predefined Automatic Diagnostics or Automatic Diagnostics History table of a project shows the automatic diagnostics state. You cannot change column data from Automatic Diagnostics State to Comments or any other data.

To delete a column from a table

1. On the screen, select the Automatic Diagnostics or Automatic Diagnostics History table.
2. In the **Properties** window, select the **Columns** tab.
3. In the heading of the column card, select **Delete** .

Automatic Diagnostics statuses

Automatic Diagnostics tables display 4 diagnostics statuses:

- **Active, Unsuppressed** that shows the default state where the message appears for the first time. This state informs that a fault is present and requires immediate action.
- **Active, Suppressed** shows the state where the fault still exists, but it has already been noticed and suppressed by using the **Suppress** command, so it may not require immediate intervention. This is useful for control system equipment which is under maintenance to temporarily ignore the faults from that equipment.
- **Inactive, Suppressed** shows that the fault no longer exists, but the diagnostics remains in the list until an **Unsuppress** operation is performed, usually without maintenance intervention.
- **Inactive, Unsuppressed** shows that the fault does not occur and the diagnostics is not in suppressed state. It appears only in the historical diagnostic data for information about fault resolution time.

Automatic Diagnostics

View Designer has an Automatic Diagnostics lists that displays the diagnostics in a project or configured HMI device. Each project contains an **Automatic Diagnostics** screen by default. Create an additional screen with an Automatic Diagnostics graphic element to create a custom **Automatic Diagnostics** screen.

Diagnostics in the project have the status of either **Active** or **Inactive, Suppressed**. View the **Details** pane of the **Automatic Diagnostics** screen to see data such as Message, Event Time, Diagnostic Code.

Use automatic diagnostics on an HMI device to:

- Suppress a diagnostic.
- Unsuppress a diagnostic.

See also

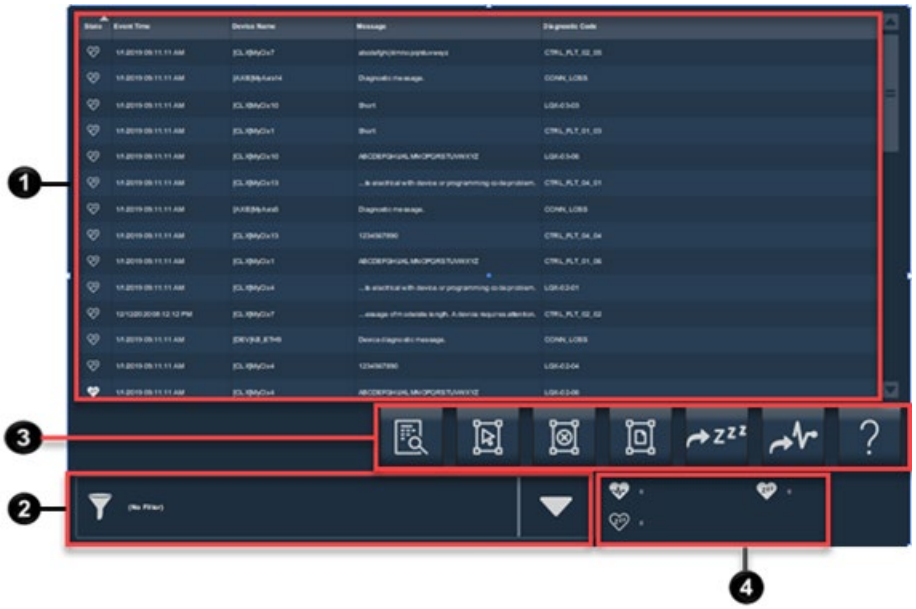
Display Automatic Diagnostics on page 615

Automatic Diagnostics overview on page 615

Automatic Diagnostics statuses on page 621

Automatic Diagnostics contents for a medium HMI device screen

The **Automatic Diagnostics Viewer Medium** table appears on the predefined **Automatic Diagnostics** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table is recommended for six- to nine-inch HMI device screens. Create an **Automatic Diagnostics Medium** table with customized appearance and content, or change the **Automatic Diagnostics Medium** table on the predefined **Automatic Diagnostics** screen.

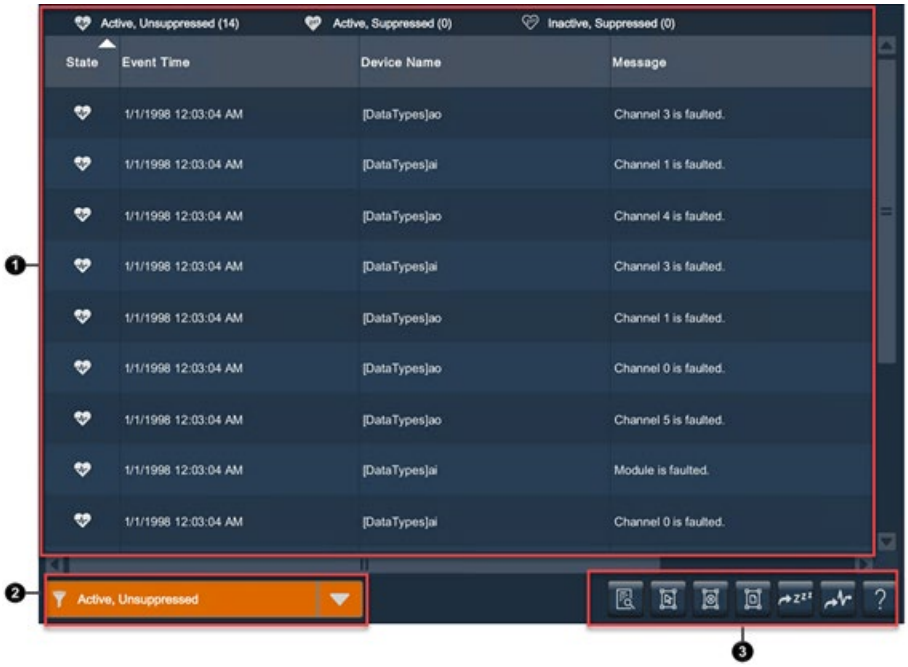


Item	Description
1	The list of automatic diagnostics state change records from the HMI device.
2	Filter list. Select a filter on the HMI device to switch between the list of diagnostics in the respective state. For example, select **Suppressed** to show only those diagnostics that are in the suppressed state.
3	Buttons to perform actions available for the Automatic Diagnostics Viewer:
	Details hides or shows the **Details** pane, which contains the details of the last selected automatic diagnostics. The **Details** pane replaces the list of diagnostics in medium automatic diagnostics tables. If no record is selected, the **Details** pane is empty.
	Select All selects all of the diagnostics in the **Automatic Diagnostics** table, including those not displayed on the current page of diagnostics.
	Deselect All deselects all diagnostics in the **Automatic Diagnostics** table, including those not displayed on the current page of diagnostics.
	Select Page selects all of the diagnostics displayed on the current page of diagnostics.
	Suppress places the selected diagnostics event in the suppressed state.
	Unsuppress places the selected diagnostics event in the unsuppressed state.
	Help opens the **Help** popup. This popup displays a legend of icons and the task each button on a diagnostics table performs.
4	The number of Active, Unsuppressed; Active, Suppressed and Inactive, Suppressed diagnostics in the **Automatic Diagnostics** table.

Automatic Diagnostics contents for a large HMI device screen

The **Automatic Diagnostics Viewer Large** table appears on the predefined **Automatic Diagnostics** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table exists for ten-inch or larger HMI device screens. Create an **Automatic Diagnostics Large** table with customized appearance and content, or

change the **Automatic Diagnostics Large** table on the predefined **Automatic Diagnostics** screen.

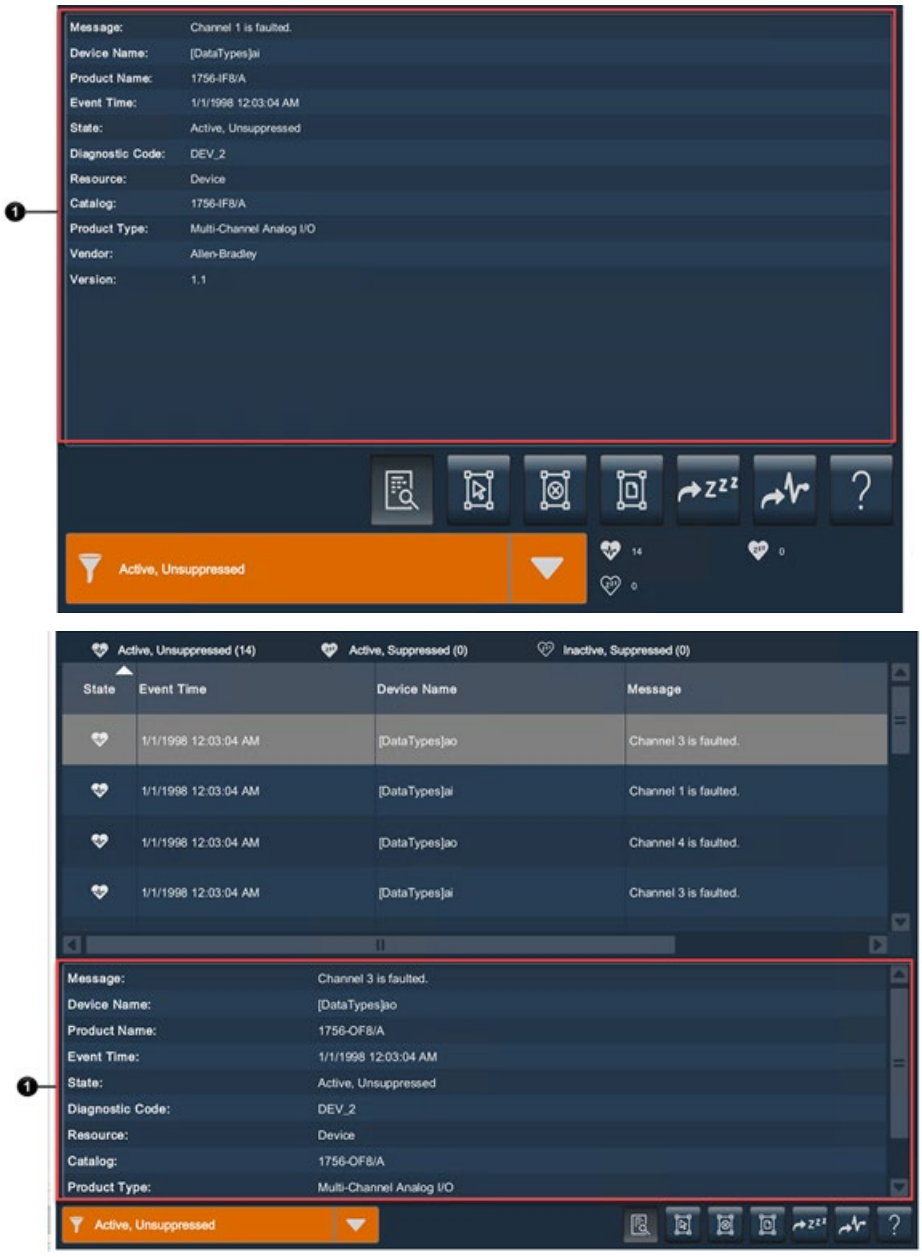


Item	Description
1	The list of automatic diagnostics state changes records from the terminal.
2	Filter list. Select a filter on the HMI device to switch between the list of diagnostics in the respective state. For example, select **Suppressed** to show only diagnostics in the suppressed state.
3	Buttons to perform actions available for the Automatic Diagnostics Viewer:
	Details hides or shows the **Details** pane, which contains the details of the last selected automatic diagnostics. The **Details** pane appears on the bottom half of large diagnostics tables. If no record is selected, the **Details** pane is empty.
	Select All selects all of the diagnostics in the diagnostics table, including those not displayed on the current page of diagnostics.
	Deselect All deselects all diagnostics in the diagnostics table, including those not displayed on the current page of diagnostics.
	Select Page selects all of the diagnostics displayed on the current page of diagnostics.
	Suppress places the selected diagnostics event in the suppressed state
	Unsuppress places the selected diagnostics event in the unsuppressed state
	Help opens the **Help** popup. This popup displays a legend of icons and the task each button on an diagnostics table performs.

Details pane for Automatic Diagnostics

Select **Details** on an automatic diagnostics table to open the **Details** pane.

In a medium Automatic Diagnostics table intended for HMI devices with seven- to nine-inch screens, the **Details** pane replaces the list of automatic diagnostics in the table. In a large Automatic Diagnostics table intended for HMI devices with ten-inch or larger screens, the **Details** pane opens at bottom of the automatic diagnostics table.



Item	Description
1	The **Details** pane with additional details for the selected automatic diagnostics. This pane displays data, such as Message, Event Time, Diagnostic Code. When multiple diagnostics are selected, details display for the last selected automatic diagnostics.

The contents of the **Details** pane appears in rows.

Row	Description
Message	The message with a fault description.
Device Name	The name of the controller for which automatic diagnostics occurred.
Product Name	The name of the Rockwell Automation application for which automatic diagnostics occurred.
Event Time	The date and time the automatic diagnostics event occurred.

Row	Description
State	The state of an automatic diagnostic.
Diagnostics Code	The message defining what type of diagnostics occurred.
Resource	The resource that reports a fault.
Catalog	The device catalog number.
Product Type	The type of a product that provides detailed information about the device that reports a fault.
Vendor	The vendor of a device that reports a fault.
Version	The firmware version of a device for which automatic diagnostics are reported.

Specify access to operations performed on Automatic Diagnostics table

Specify which users have access to perform certain operations in an Automatic Diagnostics table. To enable all users to perform an operation, set security access to **Full Access**. For example, determine that all users have access to suppress an automatic diagnostic. In this case, set the access for **SuppressAccess** to **Full Access**. Alternatively, determine that security access for suppressing an automatic diagnostic depends on the user role. In this case, set the Access properties to **Inherit**. Inherited access levels include **Full Access**, **Read-Only**, or **No Access**.

To specify access to operations performed on an Automatic Diagnostics table

1. On the screen, select the **Automatic Diagnostics** table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Security** node.
4. Locate the property for the button to set access:
   - **SuppressAccess**. Sets access for Suppress on the selected Automatic Diagnostics table. This button changes the automatic diagnostics state to suppressed.
   - **UnsuppressAccess**. Sets access to Unsuppress on the selected Automatic Diagnostics table. This button changes the automatic diagnostics state to unsuppressed.
5. For both properties, select an option:
   - **Full Access**. Grants all users access to the button.
   - **Inherit**. Specifies that the button inherits access from the screen.

     Inherited access for a user role can be Full Access, Read-Only, or No Access. If a button inherits Read-Only access, hash marks appear across the button on the HMI device. An error appears if the user selects the button. If a button inherits No Access from the screen, the user does not have access to the screen containing the Automatic Diagnostics table. In this case, the screen does not appear in the **Navigation menu**.

Automatic Diagnostics History

Use the Automatic Diagnostics History on an HMI device to review the historical diagnostics records showing diagnostics state changes. **Automatic Diagnostics History** lists diagnostics state change records

from the diagnostics log. A diagnostic log record appears in a row.

The Automatic Diagnostics History displays the history of diagnostics state changes available when you open the **Automatic Diagnostics History** screen. Close and reopen the screen or select Refresh to load the latest diagnostics state changes.

View Designer retains diagnostics state history after:

- Rebooting or powering off the HMI device.
- Loading a new project.
- Disconnecting a controller from the HMI device.
- Replacing a controller.
- Having a controller recover from a fault.
- Downloading a new program from a controller connected to the HMI device.
- Clearing the diagnostics log on a controller connected to the HMI device.

Tip: In the rare case of the diagnostics history database being corrupted, the operator does not see any records in the Automatic Diagnostics History viewer. Diagnostic state changes still occur. If you do not see any records, remote the HMI device.

PanelView terminals display up to 1,000 historical diagnostics state changes. This limit does not change with the number of controllers connected to the PanelView terminal. After exceeding the limit, new records replace the oldest diagnostics records.

See also

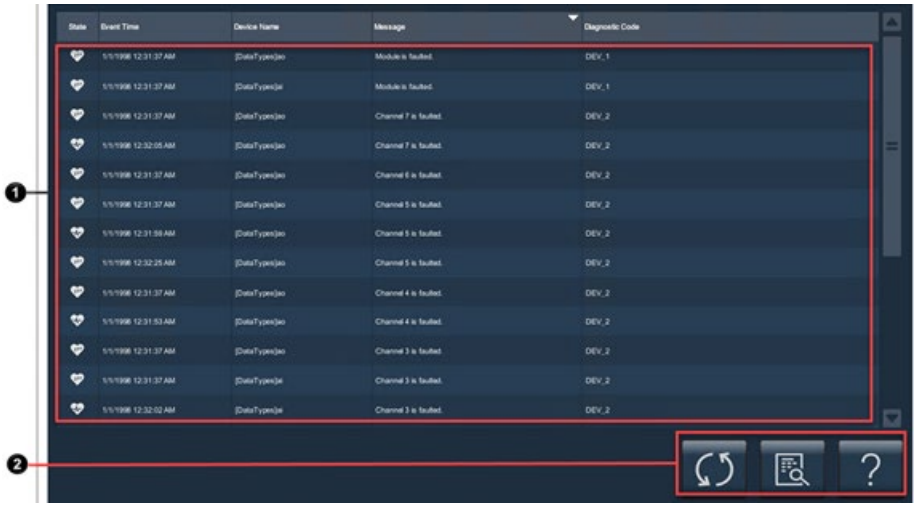
Display Automatic Diagnostics on page 615

Automatic Diagnostics overview on page 615

Automatic Diagnostics statuses on page 621

Automatic Diagnostics History contents for a medium HMI device screen

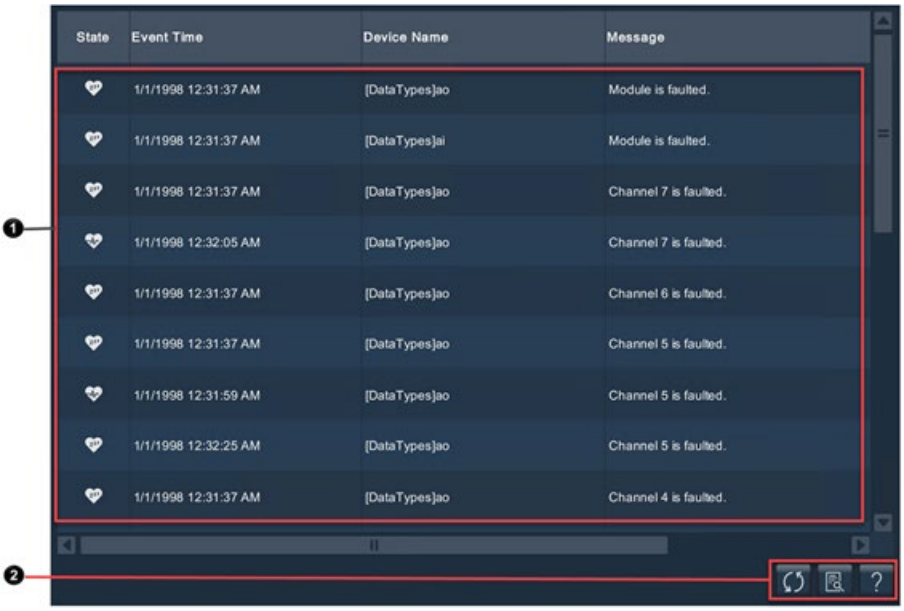
The **Automatic Diagnostics History Viewer Medium** table appears on the predefined **Automatic Diagnostics History** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table is recommended for six- to nine-inch HMI device screens. Create an **Automatic Diagnostics History Medium** table with customized appearance and content or change the **Automatic Diagnostics History Medium** table on the predefined **Automatic Diagnostics History** screen.



Item	Description	
1	The list of automatic diagnostics state changes records from the terminal.	
2	Buttons to perform actions available for the Automatic Diagnostics History Viewer:	
		Details hides or shows the **Details** pane, which contains the details of the last selected automatic diagnostics state change record. The Details pane replaces the list of diagnostics in medium automatic diagnostics tables. If no record is selected, the Details pane is empty.
		Refresh loads the latest diagnostics state changes from the automatic diagnostics history. The operator has to refresh the table to see the latest changes. To display the latest state changes, close and reopen the Automatic Diagnostics History viewer.
		Help opens the **Help** popup. This popup displays a legend of icons and the task each button on an automatic diagnostics history table performs.

Automatic Diagnostics History contents for a large HMI device screen

The **Automatic Diagnostics History Viewer Large** table appears on the predefined **Automatic Diagnostics History** screen. This screen is in the **Predefined Screens** folder of the **Project Explorer**. The table exists for ten-inch or larger HMI device screens. Create an **Automatic Diagnostics History Large** table with customized appearance and content or change the **Automatic Diagnostics History Large** table on the predefined **Automatic Diagnostics History** screen.

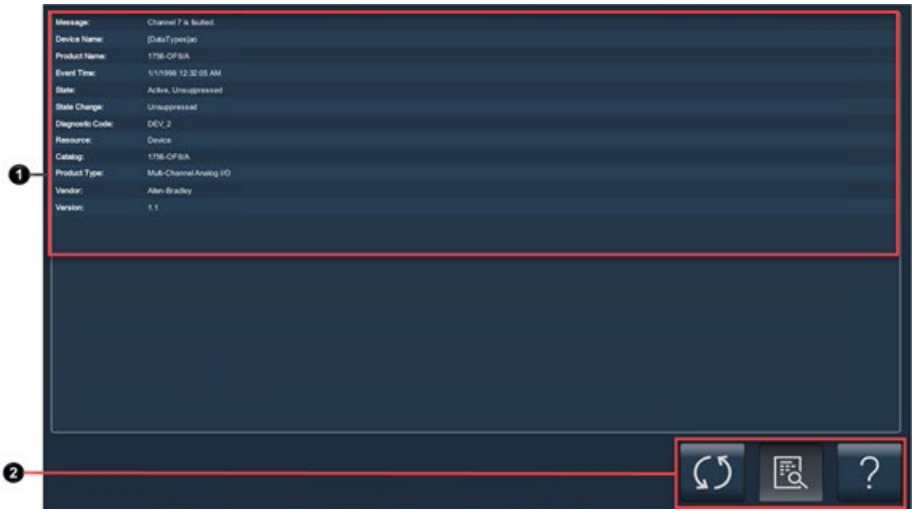


Item	Description	
1	The list of automatic diagnostics state changes records from the terminal.	
2	Buttons to perform actions available on the Automatic Diagnostics History table:	
		Details hides or shows the **Details** pane, which contains the details of the last selected automatic diagnostics state change record. The **Details** pane appears on the bottom half of large automatic diagnostics history tables. If no record is selected, the **Details** pane is empty.
		Refresh loads the latest diagnostics state changes from the automatic diagnostics history. The operator has to refresh the table to see the latest changes. To display the latest state changes, close and reopen the Automatic Diagnostics History viewer.
		Help opens the **Help** popup. This popup displays a legend of icons and the task each button on an automatic diagnostics table performs.

Details pane for Automatic Diagnostics History

Select **Details** on an automatic diagnostics history table to open the **Details** pane.

In a medium Automatic Diagnostics History table intended for HMI devices with seven-inch to nine-inch screens, the **Details** pane replaces the list of automatic diagnostics in the table. In a large Automatic Diagnostics History table intended for HMI devices with ten-inch or larger screens, the **Details** pane opens at bottom of the automatic diagnostics table.



Item	Description
1	The **Details** pane with additional details for the selected automatic diagnostics history. This pane displays data, such as Message, Event Time, Diagnostic Code and State Change. When multiple diagnostics are selected, details display for the last selected automatic diagnostics.
2	Buttons to perform operations on diagnostics in the Automatic Diagnostics History table.

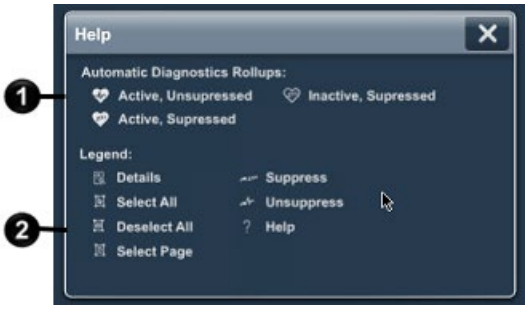
The contents of the **Details** pane appears in rows.

Row	Description
Message	The message with a fault description.
Device Name	The name of a controller for which the automatic diagnostics occurred for.
Product Name	The Rockwell Automation product for which the diagnostics occurred for.
Event Time	The date and time the automatic diagnostics event occurred.
State	The state of an automatic diagnostic.
State Change	The last state change performed on the diagnostics.
Diagnostics Code	The type of diagnostics that occurred.
Resource	The resource that reports a fault.
Catalog	The device catalog number.
Product Type	The detailed information about the device that reports the fault.
Vendor	The vendor of the reporting device.
Version	The firmware version of the reporting device.

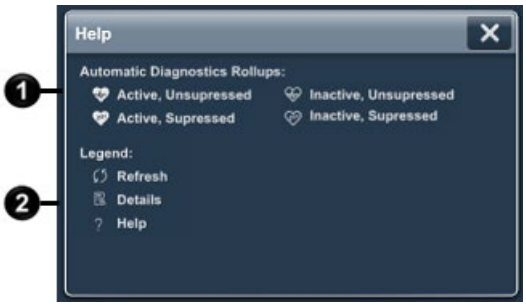
Help popup

The **Help** popup opens when pressing **Help** on an HMI device. This popup shows a legend of icons that appear on the automatic diagnostics screens and the task each button on an automatic diagnostics table performs. The functions vary depending on the selected diagnostics table.

Help popup for Automatic Diagnostics table:



Help popup for Automatic Diagnostics History table:



Item	Description
1	Help popup.
2	A legend for automatic diagnostics functions you can perform on the automatic diagnostics table.The functions you can perform vary depending on the selected automatic diagnostics table:

	Active, Unsuppressed displays the default state in which the message appears for the first time. This state informs that a fault occurs and requires immediate action.
	Active, Suppressed displays the state in which the fault still exists. This state has already been viewed and suppressed by the user, so it may not require immediate attention,
	Inactive, Unsuppressed indicates that the fault does not occur and that diagnostics are not in the suppressed state. The fault appears only in the historical diagnostic data regarding fault resolution time.
	Inactive, Suppressed displays that the fault no longer exists, but the diagnostics remains in the list until an **Unsuppress** operation is performed, usually without maintenance intervention.
	Details hides or displays the **Details** pane, which contains the details of the last selected automatic diagnostics state change record. The **Details** pane replaces the list of diagnostics in medium automatic diagnostics tables. If no record is selected, the **Details** pane is empty.
	Select All selects all of the diagnostics in the automatic diagnostics table, including those diagnostics displayed on the current page of diagnostics.
	Deselect All deselects all diagnostics in the automatic diagnostics table, including those diagnostics displayed on the current page of diagnostics.
	Select Page selects all of the diagnostics on the current page of diagnostics.

Item	Description	
		Suppress places the diagnostics event in the suppressed state.
		Unsuppress places the diagnostics event in the unsuppressed state.
		Refresh loads the latest automatic diagnostics state changes from the automatic diagnostics history. To display the latest state changes, close and reopen the **Automatic Diagnostics History** viewer.
		Help opens the **Help** popup. This popup displays a legend of icons and the task each button on a diagnostics table performs.

See also

Display Automatic Diagnostics on page 615

Automatic Diagnostics overview on page 615

Filter the contents of Automatic Diagnostics

A filter is applied to a table to show only the automatic diagnostics records that match specified statuses.

Apply one filter at a time to a table to show the data that you want to see in the table. In automatic diagnostics tables, view data values not included in the table from the **Details** pane of the table.

See also

Specify the default filter for an automatic diagnostics table on page 631

Filter Automatic Diagnostics on page 632

Automatic Diagnostics on page 621

Automatic Diagnostics History on page 625

Specify the default filter for an automatic diagnostics table

Set the default filter for an automatic diagnostics table to initially display certain diagnostics on the HMI device. When the automatic diagnostics table opens on the HMI device, only those records or rows that match the status appear in the table. Select another filter on the HMI device to list other automatic diagnostics.

To specify the default filter for a table

1. On the screen, select the table.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **FilterIndex** property, enter the numeric value of the filter.

Tip: The number of a filter is the order that the filter appears on the **Filters** tab. The third filter is filter 3. Entering 3 in the **FilterIndex** property initially filters the automatic diagnostics table by that filter on the HMI device. Rockwell Automation recommends using the first filter in the status **Active, Unsuppressed** as a default filter.

Filter Automatic Diagnostics

Select filters to display only those records or rows in a table that match specified criteria.

Select **(No Filter)** to show all messages regardless of their status.

Select an **Active, Unsuppressed** automatic diagnostics status to display only diagnostics that are active, and informs about a fault that occurs and requires immediate action.

Select **Suppressed** automatic diagnostics status to display all diagnostics that has already been noticed and suppressed by using the **Suppress** command. The diagnostics on this list may or may not require immediate intervention.

Display data on a trend chart

A trend chart displays data over time in a graphical format. Trend charts can display values from tags in a controller, user-defined properties, or properties of a graphic element. For example, a trend chart can monitor tank pressure and tank temperature over the course of an hour.

Use a trend chart to display data on a trace. Specify how data is displayed by setting the range of the data and how often the trend chart requests data.

View tag values from a data log on a trend chart by creating traces for the tags. Trend charts automatically display data from a data log for the specified tag. View the historical data on the HMI device by interacting with the trend chart.

Use a trend chart to:

- Monitor processes in a manufacturing system
- Display data from a tag, user-defined property, or the property of a graphic element
- Display up to eight traces that plot data over time to graphically present data
- View, pan, and pause data on the HMI device

See also

View trend charts on page 819

Traces tab on page 633

Create a basic trend chart on page 634

Trend chart contents on page 641

Specify the visibility of a trend chart on page 639

Traces tab

How do I open the Traces tab?

Click the trend chart on the screen, and in the **Properties** pane, click the **Traces** tab.

Use traces to visually display values on a trend chart. Each trace represents a set of data points collected over time.

Use the **Traces** tab to:

- Add or delete traces on a trend chart.
- Bind to a tag, user-defined property, or property of a graphic element containing the data to depict on the trace.
- Change the appearance of a trace.
- Label a trace for diagnostic purposes.

For example, using the **Traces** tab, add a blue trace to monitor the pressure of water filling a tank and a red trace to monitor the temperature of the water. The resulting trend chart shows, in real-time, the current water pressure and water temperature for the tank.

See also

Create a basic trend chart on page 634

Add traces to a trend chart on page 636

Change the appearance of a trace on page 646

Delete a trace from a trend chart on page 640

Traces

The trend chart updates every second. Updates occur even if there is no sample data to display for the current time span. The time span is the length of time shown on the trend chart.

Each trend chart can display data for up to eight traces. Samples, or data values at specific points in time captured at the specified rate, are plotted on the trend chart in the specified time span. Traces automatically display data from a data log for the specified tag. Samples connect to create a linear trace. If there are multiple traces and one or more traces are in error, the traces that are in error are not plotted on the trend chart. Traces that are not in error plot data on the trend chart.

For each trace on a trend chart, samples are plotted using a horizontal axis representing time and a vertical axis representing the value. By default, labels appear on each axis. The time axis shows placeholder labels for time and the y-axis shows labels based on the minimum value and maximum value of the trend chart. View Designer does not support configuring these labels.

Tips:

- If data is not available for a specific time period, the trend chart displays a gap in the trace. For example, the HMI device may temporarily lose connection with a controller.
- For applications already downloaded to the HMI device, it may take up to the length of the sample rate before data shows on the trend chart. For example, if the trend chart has a sample rate of 30000 milliseconds or 30 seconds, it may take up to 30 seconds before any data shows on the trend chart. In some cases, it can take twice the sample rate before data shows on the trend chart. For example, if the sample rate is one minute and the application is just being downloaded to the HMI device and communication to a controller is being established, it may take an additional minute to plot data. No trace appears until there are two data points to plot.

See also

Trend chart contents on page 641

Create a basic trend chart on page 634

Add traces to a trend chart on page 636

Change the background color of a trend chart on page 643

Create a basic trend chart

Create a trend chart to display data over time in graphical format. Display data on a trend chart by:

- Setting the minimum and maximum values

- Adding traces
- Specifying the tag containing the data to depict
- Changing the appearance of a trend chart

IMPORTANT A trend chart clears all traces and resumes when the MaxValue, MinValue, or Visible property of a trend chart changes on the HMI device. For example, changing the MaxValue, MinValue, or Visible property value of a trend chart through a Text Input graphic element causes the trend chart, even while paused, to resume at the current time. Historical data, if available in a data log, appears for data before the current time. The trend chart discards all other data and plots new data.

To create a basic trend chart

1. In the **Trend Charts** category of the **Toolbox**, double-click or drag and drop the **Trend Chart** graphic element onto the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** category.
4. In the **MaxValue** box, type any numeric value greater than the **MinValue** property value.
5. In the **MinValue** box, type any numeric value less than the **MaxValue** property value.
6. Select the **Traces** tab.
7. Select **Add Trace**.
8. In the **Value** box, select **Browse** and navigate to the tag containing the data to depict on the trace, or enter the tag manually using the exact tag name and format.
9. To add additional traces, below the last **Trace** card, select **Add Trace**, and in the **Tag** box select the tag for the trace.

Tips:

- The **Value** box does not have an initial value. Bind the **Value** box to a tag in a controller, a user-defined property, or a property of a graphic element. Unbinding this property is not supported.
- To customize the appearance of a trend chart, change the properties in the **Appearance** category on the **Properties** tab in the **Properties** window.
- To customize the appearance of a trace on a trend chart, change the properties in **Appearance** category on the **Traces** tab in the **Properties** window.
- Trend charts automatically display data from a data log for the specified tag. Tags may exist in more than one data log. The trend chart uses the data log that contains a matching sample rate. If there is more than one data log with a matching sample rate or there is no data log with a matching sample rate, the trend chart uses the first data log.
- The range of signed integers that is represented without losing precision is -(2^53)..(2^53). All integer values outside this range are rounded to 15 significant digits. For example, 8765432109876543210 is rounded to 8765432109876540000, losing the precision for the last four least significant digits.

See also

What is a trend chart? on page 642

Change the range of data displayed on a trend chart on page 636

Change the appearance of a trace on page 646

Change the background color of a trend chart on page 643

Change how often a trend chart requests data from controllers on page 640

Add traces to a trend chart

To display data in a trend chart, add up to eight traces to the trend chart in View Designer. Associate each trace with a tag, user-defined property, or a property of a graphic element. The trace displays the values of the tag on the trend chart on the HMI device. Traces automatically display data from a data log for the specified tag.

To add traces to a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Traces** tab.
3. Select **Add Trace**. A **Trace** card appears.
4. In the **Value** box, select **Browse** to navigate to and select the tag, or enter the exact tag name and format.

Tip: Do not select a STRING or LINT data type. Trend charts do not support these data types. Traces with a STRING or LINT data type display an error.

See also

Change the range of data displayed on a trend chart on page 636

Change the appearance of a trace on page 646

Delete a trace from a trend chart on page 640

Trend chart contents on page 641

Delete a trace from a trend chart on page 640

Label a trace for diagnostic purposes

Label a trace to identify that trace in error messages. When a trace is in error, the error message in the **Error list** displays the trace label and the name of the property placing the trace in error.

To label a trace for diagnostic purposes

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Traces** tab.
3. Expand the **Trace** card of the trace.
4. In the **Label** box, type a name for the trace.

See also

Create a basic trend chart on page 634

Add traces to a trend chart on page 636

Delete a trace from a trend chart on page 640

Change the range of data displayed on a trend chart on page 636

Hide the axes on a trend chart on page 645

Change the range of data displayed on a trend chart

Change the minimum data value, maximum data value, and time span of a trend chart to change the range of data displayed. By default, trend charts show data with values between 0 and 100. The default span of

time of a trend chart is one second or 1000 milliseconds.

IMPORTANT A trend chart clears all traces and resumes when the MaxValue or MinValue property of a trend chart changes on the HMI device. For example, changing the MaxValue or MinValue property value of a trend chart through a Text Input graphic element causes the trend chart, even while paused, to resume at the current time. Historical data, if available in a data log, appears for data before the current time. The trend chart discards all other data and plots new data.

To change the range of data displayed on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** category.
4. In the **MaxValue** box, type any numeric value greater than the **MinValue** property value.
5. In the **MinValue** box, type any numeric value less than the **MaxValue** property value.

   Tip: The value in the **MinValue** box must be less than the value in the **MaxValue** box.

6. In the **TimeSpan** box, type the span in seconds. A valid time span is between 1 and 3600 seconds. 3600 seconds equals one hour.
7. In the **SampleRate** box, type the rate, in milliseconds, at which the trend chart requests data from the controller. Valid sample rates are between 500 and 60000 milliseconds which equal one-half second and 60 seconds.

   Tips:
   - If the trend chart requests data more frequently than data updates in the controller, the data plotted may not appear in a linear fashion on the trend chart.
   - To avoid slow panning on a trend chart that has a time span over 30 minutes, enter a minimum of 1000 milliseconds, or 1 second, in the **SampleRate** box.
   - Trend charts automatically display data from a data log for the specified tag. Tags may exist in more than one data log. The trend chart uses the data log that contains a matching sample rate. If there is more than one data log with a matching sample rate or there is no data log with a matching sample rate, the trend chart uses the first data log.
   - Data displaying in real time on the HMI device uses the sample rate of the trend chart.
   - Data displaying historical values on the HMI device uses the sample rate of the data log for the project.
   - The range of signed integers that is represented without losing precision is -(2^53)..(2^53). All integer values outside this range are rounded to 15 significant digits. For example, 87654321098765432l0 is rounded to 8765432109876540000, losing the precision for the last four least significant digits.

See also

Configure property binding to pan to the start time of a trend chart on page 638

Add an event to pan to the start time of a trend chart on page 638

Add traces to a trend chart on page 636

What is an event? on page 476

Configure property binding to pan to the start time of a trend chart

Bind the property of a graphic element to the time span of the trend chart. The graphic element and trend chart must exist on the same screen. Tapping the graphic element on the HMI device pans to the start time of the trend chart.

Configure property binding to pan to the start time of a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** category.
4. In the **TimeSpanStart** box, select the date and time format.
5. On the same screen as the trend chart, bind the property of a graphic element that can write values to the **TimeSpanStart** property of the trend chart. Bind using the format Element.Property.

   For example, bind the **Text** property of a Text Input graphic element on the screen to the **TimeSpanStart** property of the trend chart. Use the format TrendChartName.TimeSpanStart. On the HMI device, the Text Input displays the time and date of the trend chart. Clicking the Text Input graphic element on the HMI device opens the virtual keypad and displays the trend chart date and time. The format of the date and time depend on the format specified in the **TimeSpanStart** box:

TimeSpanStart	Date format	Time format
M/dd/yyyy h:mm:ss AP	M/dd/yyyy	h:mm:ss ap
dd/M/yyyy hh:mm:ss	dd/M/yyyy	hh:mm:ss
yyyy-MM-dd hh:mm:ss	yyyy-MM-dd	hh:mm:ss
d MMM yyyy hh:mm:ss	d MMM yyyy	hh:mm:ss
M/d/yyyy	M/dd/yyyy	h:mm:ss ap
d/M/yyyy	dd/M/yyyy	hh:mm:ss
yyyy-MM-dd	yyyy-MM-dd	hh:mm:ss
d MMM yyyy	d MMM yyyy	hh:mm:ss

Tips:
- Data displaying in real time on the HMI device uses the sample rate of the trend chart.
- Data displaying historical values on the HMI device uses the sample rate of the data log for the project.

See also

Add an event to pan to the start time of a trend chart on page 638

Add traces to a trend chart on page 636

Property-to-property binding on page 510

Add an event to pan to the start time of a trend chart

Add an event to pan to the start time of the trend chart. Create the event for a graphic element that is on the same screen as the trend chart. Performing the event on the HMI device pans to the start time of the trend chart.

To add an event to pan to the start time of a trend charts

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** category.
4. In the **TimeSpanStart** box, select the date and time format.
5. Create an event for a graphic element on the screen.
6. Add a **Value Write** command to the event.
7. In the **Write To** box of the command, enter the binding using the format TrendChartName.TimeSpanStart.
8. In the **Expression** box, type the start time using the same format specified in the **TimeSpanStart** box, or bind to a tag with that same date and time format.

Tips:
- Data displaying in real time on the HMI device uses the sample rate of the trend chart.
- Data displaying historical values on the HMI device uses the sample rate of the data log for the project.

See also

Change the range of data displayed on a trend chart on page 636

Add traces to a trend chart on page 636

Configure property binding to pan to the start time of a trend chart on page 638

What is an event? on page 476

Specify the visibility of a trend chart

Specify if a trend chart is always visible on the HMI device screen. To display the trend chart only when the specified tag value is true, bind the visibility of the trend chart. For example, bind the **Visible** box to a tag to indicate a problem in the manufacturing system. Binding the **Visible** box of a trend chart to a tag value displays the trend chart on the HMI device when the tag is true.

IMPORTANT A trend chart clears all traces and resumes when the MaxValue or MinValue property of a trend chart changes on the HMI device. For example, changing the MaxValue or MinValue property value of a trend chart through a Text Input graphic element causes the trend chart, even while paused, to resume at the current time. Historical data, if available in a data log, appears for data before the current time. The trend chart discards all other data and plots new data.

To specify the visibility of a trend chart

1. On the screen, select the trend chart.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. Specify the visibility:
   - Select the **Visible** box to make the trend chart visible on the HMI device.
   - Clear the **Visible** box to make the trend chart not visible on the HMI device.

See also

Change the appearance of a trace on page 646

Change the background color of a trend chart on page 643

Delete a trace from a trend chart on page 640

Delete a trace from a trend chart on page 640

Change how often a trend chart requests data from controllers

Change how often a **Trend chart** graphic element requests data from a controllers by changing its sample rate. The default sample rate is every 1000 milliseconds or every second. Change the sample rate to match the interval to sample data for the trend chart. For example, change the sample rate to match the rate at which data updates in the controllers.

To change how often a trend chart requests data from controllers

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **General** category.
4. In the **SampleRate** box, enter the rate, in milliseconds, at which the trend chart requests data from the controllers. Enter positive numbers between 500 and 60000 to represent one-half second to 60 seconds.

Tips:

- If the trend chart requests data more frequently than data updates in the controllers, the data plotted may not appear in a linear fashion on the trend chart.
- To avoid slow panning on a trend chart that has a time span over 30 minutes, enter a minimum of 1000 milliseconds, or one second.
- Trend charts automatically display data from a data log for the specified tag. Tags may exist in more than one data log. The trend chart uses the data log that contains a matching sample rate. If there is more than one data log with a matching sample rate or there is no data log with a matching sample rate, the trend chart uses the first data log.

See also

Change the range of data displayed on a trend chart on page 636

Add traces to a trend chart on page 636

Delete a trace from a trend chart

Delete a trace from a trend chart to no longer display the values associated with the trace on the trend chart. For example, delete a trace if its data depicts a bottling line being discontinued from the manufacturing system.

To delete a trace from a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Traces** tab.
3. In the upper right corner of the **Trace** card of the trace to delete, select **Delete Trace** . The trace no long appears on the trend chart.

Tip: Deleting a trace does not delete the tag from a data log.

See also

Add traces to a trend chart on page 636

Change the appearance of a trace on page 646

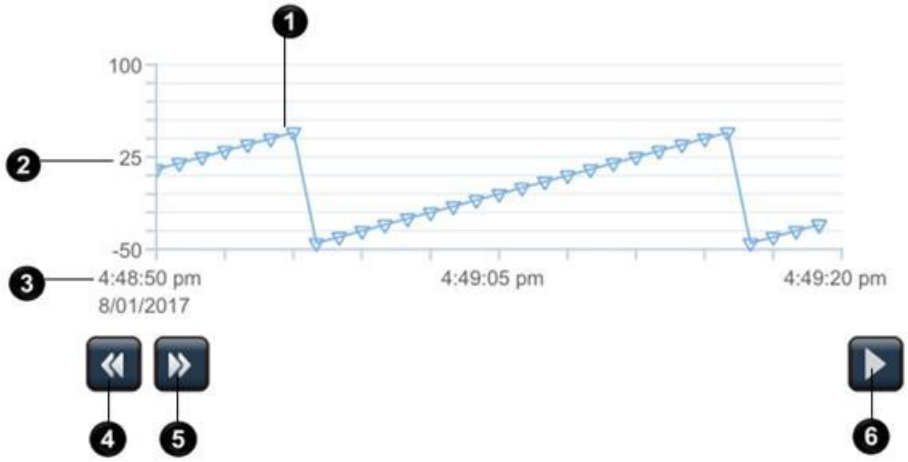
Change the range of data displayed on a trend chart on page 636

Trend chart contents on page 641

View trend charts on page 819

Trend chart contents

A trend chart depicts data from up to eight traces and plots those values across the chart:



Item	Description
1	Traces on the trend chart consist of lines and markers. Each trace plots data over the specified time span. Add up to eight traces to a trend chart. Customize the appearance of a trace. The trend chart updates every second to display the most recent values, even if there are no values plotted during that time span.
2	The y-axis that represents data. This axis displays the values of the **MinValue** and **MaxValue** properties of the trend chart.
3	The axis that represents time. The value on the right side of this axis represents the current time. The time is not synchronized with the HMI device and may be a few seconds ahead or behind. The value on the left side of this axis represents the current time minus the time span. This axis displays the date by default. The date is the left-most point of the axis. The date changes once the left-most point of the axis displays data for the next day.
4	**Pan Backward** displays previous data one-half time span at a time. This button appears only when there is data collected prior to the data displayed in the current time span.
5	**Pan Forward** displays more recent data one-half time span at a time. This button appears only when there is data collected after the data displayed in the current time span.
6	**Resume** updates data after the trend chart is paused. **Pause** replaces **Resume** when the trend chart is scrolling. When a trend chart is paused, the trend chart is static at the time the trend chart was paused and data is not updated. Data is collected in the background.

See also

View trend charts on page 819

Create a basic trend chart on page 634

Add traces to a trend chart on page 636

Traces tab on page 633

What is a trend chart?

A trend chart is a graph of data from the system. For example, a trend chart can monitor tank pressure and tank temperature over the course of an hour.

Use a trend chart to:

- Monitor processes in a manufacturing system
- Display data from a tag, user-defined property, or the property of a graphic element
- Display up to eight traces that plot data over time to graphically present data
- View, pan, and pause data on the HMI device

See also

Create a basic trend chart on page 634

Traces tab on page 633

Trend chart contents on page 641

Change the appearance of a trend chart

The data on a trend chart represents the data in the system. The appearance of a trend chart and its data may also represent the system. For example, if a bottling line is blue, the data for that line may be configured to appear blue in the trend chart.

Change the appearance of a trend chart to customize the trend chart.

See also

Change the background color of a trend chart on page 643

Specify the grid lines on a trend chart on page 644

Change the color of text on a trend chart on page 644

Change the appearance of a trace on page 646

Hide the axes on a trend chart on page 645

Change the appearance of a trend chart border

Change the border of a trend chart to customize the trend chart to appear on the HMI device. Specify the color, style, and width of the border.

To change the appearance of a trend chart border

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** and **Border** categories.
4. In the **Color** box, select any color using the **Color Picker** or enter a Hex color value manually.

   Tip: Hex values must be in #RRGGBB format. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
5. In the **Style** box, select a style for the border:

- **Line.** None, Solid, Dash, Dot, Dash Dot, or Dash Dot Dot
- **Cap.** Flat, Round, or Square
- **Join.** Miter, Bevel, or Round

6. In the **Width** box, select the width of the border or select **None**.

See also

Change the background color of a trend chart on page 643

Change the appearance of a trace on page 646

Change the color of the axes on a trend chart on page 645

Change the color of the grid on a trend chart on page 643

Change the background color of a trend chart

Change the background color of a trend chart to change the fill color behind the traces. The default background color for the **Trend Chart** graphic element is white.

To change the background color of a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **FillColor** box, select any color. Select any color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

See also

Add traces to a trend chart on page 636

Change the color of the grid on a trend chart on page 643

Change the appearance of a trace on page 646

Delete a trace from a trend chart on page 640

Change the color of the grid on a trend chart

Change the color of the grid to customize the appearance of a trend chart.

To change the color of the grid on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **GridColor** box, In the **Color** box, select any color using the **Color Picker** or enter a Hex color value manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

See also

Change the appearance of a trace on page 646

Change the background color of a trend chart on page 643

Hide the axes on a trend chart on page 645

Prevent interaction with a trend chart on page 647

Specify the grid lines on a trend chart

Hide or show grid lines to customize the appearance of a trend chart. By default, horizontal grid lines appear on a trend chart while vertical grid lines do not. Hiding the grid lines shows only the background color of the trend chart behind the traces.

To specify the grid lines on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. Select the **ShowGridVertical** box to show the vertical lines on the grid of the trend chart. Clear this box to hide the vertical lines.
5. Clear the **ShowGridHorizontal** box to hide the horizontal lines on the grid of the trend chart. Select this box to show the horizontal lines.

See also

Change the background color of a trend chart on page 643

Change the color of the grid on a trend chart on page 643

Change the color of the axes on a trend chart on page 645

Hide the axes on a trend chart on page 645

Prevent interaction with a trend chart on page 647

Change the color of text on a trend chart

Change the color of text on a trend chart to change the color of the labels on both axes. Do this to customize the appearance of the trend chart to make the data and time labels easier to read.

To change the color of text on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **FontColor** box, select a color. Select any color in the **Color Picker** or a Hex color value entered manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

See also

Change the background color of a trend chart on page 643

Change the color of the grid on a trend chart on page 643

Change the color of the axes on a trend chart on page 645

Change the appearance of a trend chart border on page 642

Hide the axes on a trend chart on page 645

Change the color of the axes on a trend chart

Change the color of the axes to customize the appearance of a trend chart. Changing the color of the axes changes the color of the markers and labels on both the y-axis and the time axis.

To change the color of the axes on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. In the **AxesColor** box, select any color using the **Color Picker** or enter a Hex color value manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.

See also

Hide the axes on a trend chart on page 645

Change the color of the grid on a trend chart on page 643

Specify the grid lines on a trend chart on page 644

Change the background color of a trend chart on page 643

Prevent interaction with a trend chart on page 647

Hide the axes on a trend chart

Hide the axes to customize the appearance of a trend chart. Hiding the axes hides both the y-axis and the time axis, including all labels and tick marks.

To hide the axes on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. Clear the **ShowAxes** box to hide the axes, tick marks, and labels. Select the box to show these items on the trend chart.

See also

Change the color of the axes on a trend chart on page 645

Specify the grid lines on a trend chart on page 644

Change the appearance of a trace on page 646

Label a trace for diagnostic purposes on page 636

Change the appearance of a trace

Change the line color and line width of a trace. Each trace has a solid line by default that is one point wide and has a unique color.

To change the appearance of a trace

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Traces** tab.
3. Expand the **Trace** card and the **Appearance** category.
4. In the **Color** box, select any color using the **Color Picker** or enter a Hex color value manually. The Hex value must be in the format #RRGGBB. R, G, and B are Hex digits from 0 through F and represent the color channel values for red, green, and blue. For example, #ffff00 produces yellow.
5. In the **Width** box, select the width for the trace:
   - 1/2
   - 1
   - 2
   - 3

See also

Add traces to a trend chart on page 636

Change the range of data displayed on a trend chart on page 636

Change the marker of a trace on page 646

Delete a trace from a trend chart on page 640

Change the marker of a trace

Change the marker that depicts data samples on a trace. Markers have different shapes. Each trace can use a different marker to depict data samples. A trace does not have to have a marker.

To change the marker of data on trace

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Traces** tab.
3. Expand the **Trace** card and the **Appearance** category.
4. After the **Marker** box, select the arrow to select a marker:
   - None
   - × Star
   - + Cross
   - ○ Circle
   - □ Square
   - ▽ Triangle
   - ● Filled Circle
   - ■ Filled Square

- ▾ Filled Triangle

The selected marker appears on the trace in the trend chart on the HMI device.

See also

Change the appearance of a trace on page 646

Specify the visibility of a trend chart on page 639

Change the color of the grid on a trend chart on page 643

Show the date on a trend chart

A trend chart displays the date by default. The format of the date on a trend chart depends on the format specified for the time span start of the trend chart:

TimeSpanStart	Date format
M/dd/yyyy h:mm:ss AP	M/dd/yyyy
dd/M/yyyy hh:mm:ss	dd/M/yyyy
yyyy-MM-dd hh:mm:ss	yyyy-MM-dd
d MMM yyyy hh:mm:ss	d MMM yyyy
M/d/yyyy	M/dd/yyyy
d/M/yyyy	dd/M/yyyy
yyyy-MM-dd	yyyy-MM-dd
d MMM yyyy	d MMM yyyy

To show the date on a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. Select the **ShowDate** box.

Tip: To not show the date on a trend chart, clear the **ShowDate** box.

See also

Create a basic trend chart on page 634

Specify the visibility of a trend chart on page 639

Trend chart contents on page 641

Configure property binding to pan to the start time of a trend chart on page 638

Prevent interaction with a trend chart

Pause or **Resume**, **Pan Forward**, and **Pan Back** buttons appear on a trend chart by default. To interact with a trend chart on the HMI device, press the buttons or tab to them and press Enter on an external keyboard. Hide the buttons to prevent interaction with the trend chart on the HMI device.

To prevent interaction with a trend chart

1. Select the trend chart on the screen.
2. In the **Properties** window, select the **Properties** tab.
3. Expand the **Appearance** category.
4. Clear the **ShowButtons** box to hide the buttons on the trend chart on the HMI device. Select the box to show the buttons.

Tips:

- Clearing the **ShowButtons** box does not depict any changes in View Designer. The buttons do not show on the HMI device.
- To have the trend chart not accept touch or key input even when buttons show on the trend chart, clear the **Enable** box.

See also

Change the color of the grid on a trend chart on page 643

Specify the grid lines on a trend chart on page 644

Hide the axes on a trend chart on page 645

Change the background color of a trend chart on page 643

Log data

Log data to review the tag values of a process in a system. A data log is a collection of data values from specified tags. Data logs are exported from the HMI device to an external device such as an SD card or a USB storage device. Exported data logs are contained in a .zip file. The .zip file contains a .csv file for each data log. Data logs are exported through an event that triggers an action that then exports the data log for viewing on a computer.

Tip: Data logs contain tag values from all controllers in a project.

Use a data log to:

- View historical data for a specific duration.
- Collect tag values at a specified sample rate.
- Identify data patterns in a system.
- Troubleshoot a system.
- Provide data for audits.

A data log automatically records data values in the background on an HMI device when a View Designer project with a configured data log is running. Record the values of up to 250 tags in a data log. Each project can contain up to three data logs, however the total number of tags per project is still 250 across the three data logs. Log data at a specific sample rate for a specified duration.

To view the tag values collected by the data log, export the data log to a .zip file on a USB storage device or SD card and then view the data log on a computer. To view the values of tags being logged on the HMI device, add the tags to a trend chart.

See also

Add a data log to a project on page 649

Add an event command to export a data log on page 469

Data log contents on page 665

What is an event? on page 476

Add a data log to a project

Add a data log to a project to create a log of specified tag values. Data logs collect data at a specific sample rate and for a specified duration. The data log collects data in the background when a project with a configured data log is running on the HMI device. Add up to three data logs to a project.

To add a data log to a project

1. In the **Project Explorer**, navigate to the **Data Logs** folder.
2. Right-click the **Data Logs** folder and select **New Data Log**. The initial data log added to a project has the default name DataLog_001.

Tips:
- Rename the data log through the **Properties** window.
- Double-click the data log to open the data log. From an open data log change the sample rate, change the log duration, and add tags.

See also

Open a data log on page 650

Change the log duration on page 651

Add event commands to export a data log on page 469

Data log contents on page 665

Open a data log

Open a data log to add tags to the data log in order to specify the sample rate and log duration of the data log.

To open a data log

1. In the **Project Explorer**, expand the **Data Logs** folder.
2. Double-click the data log. The tab with the name of the data log opens and lists any tags already added to the data log.

See also

Add a data log to a project on page 649

Change the sample rate of a data log on page 650

Change the log duration on page 651

Add a tag to a data log on page 652

Data log tab on page 665

Change the sample rate of a data log

Change the sample rate of a data log to change how often the data log collects tag values, in milliseconds, on the HMI device. For example, to collect data every 30 seconds, specify 30,000 milliseconds as the sample rate. The default sample rate is 1000 milliseconds or every second. Valid sample rates range from 500 milliseconds to 60,000 milliseconds.

To change the sample rate of a data log

1. In the **Project Explorer**, expand the **Data Logs** folder and double-click the data log. The data log opens in the **Data Log** tab.

Tip: Right-clicking the data log in the **Data Logs** folder and clicking **Open** opens the data log.

2. In the box after **Sample Rate** at the top of the data log, select how often the data log collects data. For example, select **500** ms to have the data log collect data every half second.

   Tips:
   - Changing the sample rate causes previously collected data to no longer appear in the data log when the project downloads again.
   - If there is no change to the sample rate, log duration, or number of tags in the data log, previously collected data in the data log remains unchanged when redownloading the project to the HMI device.
   - The **Sample Rate** box has a red outline if it does not contain a valid entry.
   - The data log contains tag values with the specified sample rate from all controllers.

See also

Data log contents on page 665

Change the log duration on page 651

Rename a data log on page 663

Add a data log to a project on page 649

Change the log duration

Change the log duration of a data log to change how long the data log collects the specified tag values on an HMI device. Specify the log duration in minutes, hours, or days. For example, to collect data for a day, specify one day as the log duration. The default log duration is seven days. The maximum log duration is 365 days.

To change the log duration

1. In the **Project Explorer**, expand the **Data Logs** folder and double-click the data log. The data log opens in the **Data Log** tab.

   Tip: Right-clicking the data log in the **Data Logs** folder and selecting **Open** opens the data log.

2. In the second box after **Log Duration** at the top of the data log, select the duration and unit of measure for the duration. For example, type **14** and select **days** to have the data log start collecting data for two weeks once the project downloads to the HMI device.

   Tips:
   - Changing the log duration causes previously collected data to no longer appear in the data log when the project downloads again.
   - If there is no change to the sample rate, log duration, or number of tags in the data log, previously collected data in the data log remains unchanged when redownloading the project to the HMI device.
   - The **Log Duration** box has a red outline if it does not contain a valid entry. Enter a valid log duration between 1 of any of the selected units and 365 days. 8760 hours and 525,600 minutes are both equivalents of 365 days.

See also

Data log contents on page 665

Change the sample rate of a data log on page 650

Rename a data log on page 663

Add a data log to a project on page 649

Add a tag to a data log

Add a tag to a data log to have the value of that tag logged. Data logs for the specified sample rate and duration. Adding a tag discards previously collected data in the data log.

IMPORTANT Data logs do not support ::Local:HMIDevice. When in a data log, certain tags appear as undefined in View Designer and have Bad Quality in an exported data log:

- AutoLogoff.Delay
- AutoLogoff.Enable
- AutoLogoff.RemainingTime
- Device.ActiveLanguage
- Display.CurrentScreenName
- Security.CurrentUserName
- Security.CurrentUserRole

Prerequisites

- Export the data log on the HMI device to retain any collected data.
- On the **Project Properties** dialog box, verify that the View Designer project references the Logix Designer project file (.acd) that contains the tags to use.

To add a tag to a data log

1. In the **Project Explore**r, expand the **Data Logs** folder and double-click the data log to open it.
2. Select the blank row at the bottom of the data log and type the path of the tag or browse for the tag:

a. At the end of the row, select **Select tag** . The **Tag Browser** displays the result of the last browsing session.

b. Select the drill-in arrow next to the category:

- **Controllers.** Navigate to the desired controller tag and level to browse to the tag.
- **HMI Device.** Navigate to the desired user-defined data type property and tag.

c. Double-click the tag and close the **Tag Browser**. The tag and its path appear in the data log.

Tips:

- Data logs do not support spaces in tag paths. View Designer shows a red outline when manually typing spaces or copying and pasting spaces when editing a tag path. Content from the clipboard that contains spaces does not paste as a row in a data log.
- In the exported data log file, one column of data values exists for each added tag. Adding a tag twice does not create an additional column for the tag. View Designer ignores duplicate tags.
- Tag entries in the data log appear with Bad Quality when the controller is not synchronized with the HMI device.
- Browse and add tags to a data log from all controller references.

See also

Log data on page 649

Delete a tag from a data log on page 654

Add a data log to a project on page 649

Search for and select a tag

Add event commands to export a data log on page 469

Add a Status tag to a data log

Add a Status tag to a data log to display the status code of the data log. Numeric values for the Status tag include:

- RUNNING: 10
- STOPPED: 20
- SAFELY_STOPPED: 30

When at least one data log is in the RUNNING status, the general status of data logs is also RUNNING.

IMPORTANT Data logs do not support ::Local:HMIDevice. When in a data log, certain tags appear as undefined in View Designer and have Bad Quality in an exported data log:

- AutoLogoff.Delay
- AutoLogoff.Enable
- AutoLogoff.RemainingTime
- Device.ActiveLanguage
- Display.CurrentScreenName
- Security.CurrentUserName
- Security.CurrentUserRole

Prerequisites

- Export the data log on the HMI device to retain any collected data.
- On the **Project Properties** dialog box, verify that the View Designer project references the Logix Designer project file (.acd) that contains the tags to use.

To add a tag to a data log

1. In the **Project Explorer**, expand the **Data Logs** folder and double-click the data log to open it.
2. After the **Status tag** field, select **Select tag** . The **Tag Browser** displays the result of the last browsing session.
3. Select next to the category:
   - **Controllers.** Navigate to and expand the desired controller tag to browse to and select the desired tag.
   - **HMI Device.** Navigate to the desired user-defined data type property and tag to select the tag.
4. Double-click the tag and close the **Tag Browser**. The tag and its path appear in the **Status tag** field.

Tips:

- Data logs do not support spaces in tag paths. View Designer shows a red outline when manually typing spaces or copying and pasting spaces when editing a tag path. Content from the clipboard that contains spaces does not paste as a row in a data log.
- Browse and add tags to a data log from all controller references.

See also

Log data on page 649

Add a data log to a project on page 649

Search for and select a tag

Add event commands to export a data log on page 469

Delete a tag from a data log

Delete a tag from a data log to no longer have the values of that tag logged on the HMI device. Do this to no longer view the historical values of the tag in the data log. Removing a tag discards previously collected data in the data log.

Prerequisites

- Export the data log on the HMI device to retain any collected data.
- In the **Project Explorer**, expand the **Data Logs** folder and double-click the data log to open it.

To delete a tag from a data log

1. In the open data log, scroll to navigate to the tag rows.
2. Select the tag rows to remove from the data log:
   - **Individual.** Select the empty row header at the beginning of the row.
   - **Consecutive.** Select the empty row header at the beginning of the first row to delete, hold down **Shift**, and select the empty row header at the beginning of the last row to delete.
   - **Nonconsecutive.** Select the empty row header at the beginning of a row, hold down **Ctrl**, and select the empty row header at the beginning of additional rows.
3. Press **Delete**. The tag no longer appears in the data log.

Tips:

- Right-clicking the selection and selecting **Delete Selected Row(s)** removes the tags from the data log.
- Selecting and deleting all of the text in the cell creates an empty row. Add a new tag to the row or delete the row. View Designer outlines the empty row in red. Closing a data log that has an empty row displays the last valid tag for that row when reopening the data log.

See also

Add a data log to a project on page 649

Add a tag to a data log on page 652

Add event commands to export a data log on page 469

Delete a data log from a project on page 664

Data log contents on page 665

Add an event command to export a data log

Create an event command to export a data log to view the tag values collected on the HMI device. When triggered on the HMI device, the event exports all of the data logs in the View Designer project. Data logs export to a USB storage device or SD card for a PanelView project as a .zip file. The .zip file contains a .csv file for each data log.

For a PanelView project, create an additional event to allow the safe removal of the removable media from the HMI device so that files on the media do not become corrupt.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add event commands to export a data log

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **Data Log** category and configure the command:
   - **Export Data Log**. Creates and exports each data log in .csv format to a .zip file:
     - In the **Destination** box of the command card, select **USB** or **SD Card** for a PanelView project.
     - In the **FileName** box, type the name of the export .zip file for the data log.
   - **Cancel Data Log Export.** Cancels the export of the data log to the HMI device. Partial data logs do not export. No .zip file appears in the destination.

Tips:

- Bind the **FileName** box of the Export Data Log event command to a graphic element property or a tag in a controller. Binding the file name specifies the data log to export on the HMI device. For example, bind the **FileName** box of the Export Data Log event command to the text property of Text Input graphic element. This displays the name of the data log on the Text Input graphic element that exports the data log from the HMI device.
- Exporting the same data log file to the same removable media creates a new export file each time. The file name increments by one. This may cause the USB storage device, SD card, or destination to reach capacity. For example, DataLog_002 indicates a second instance of an exported data log named DataLog.
- When the data log is exporting, the **Data Export** icon appears in the **System Banner**. If there is an error exporting a data log, the **Data Export Error** icon appears in the **System Banner.**
- Data log exports do not complete or create a .zip file on removable media if a ControlFLASH, reboot, or power cycle to the HMI device occurs during the export.
- The data log file contains tag values from all controllers.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Key Press or a Key Release event

Configure an action to occur when touching or releasing a key on the HMI device. For example, create a Key Press event so that pressing **L1** on the HMI device opens a specific screen.

You can use an external keyboard with the HMI device. The **L1** through **L10** keys listed when creating Key Press and Key Release events correspond with pressing **Shift+F1** through **Shift+F10** keys on an external keyboard. The **R1** through **R10** keys listed when creating Key Press and Key Release events correspond with pressing **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

To trigger an action on a Key Press or a Key Release event

1. Select the item to have the event. The item can be a graphic element, a graphic element in the definition of an Add-On Graphic, an Add-On Graphic instance, a group of elements, a screen, a popup, or the System Banner.

   Tip: Select items on either the Screen area, Project Explorer, or Graphic Explorer.

2. In the **Properties** pane, click the **Events** tab.
3. Select **Add Event** and select an event from the list.
   - **Key Press.** Occurs when pressing a designated key on the HMI device or on an external keyboard.
   - **Key Release.** Occurs when releasing a designated key on the HMI device or an external keyboard.
4. In the **Key** box, select the key to use for the event.
5. To have the event occur even if the graphic element does not have focus when the event triggers, clear the **Requires Focus** checkbox. By default, this check box is not selected. Therefore, the event still triggers even when the graphic element does not have focus. This may occur when pressing **Tab** to highlight another graphic element on the screen. Placing focus on a graphic element requires pressing **Tab** to highlight the graphic element.
6. If a **Release** event requires that the event of the graphic element triggers not only when releasing the element or key, but even if another screen opens, select the **Always Trigger Release Event** checkbox. This setting is useful for having the element act like a momentary push button where a **Press** event sets a tag to 1 to start a conveyor belt, and a **Release** event sets the same tag to 0 to stop the conveyor belt.
7. Select **Add Command**.

8. Expand a command category to list the commands in that category:
   - **Alarm History.** Cancel export of the alarm history, clear alarm history, or export alarm history.
   - **Data Log.** Cancel export of data log, clear data log, or export data log to a USB or SD card.
   - **HMI Device Configuration.** Configure screen calibration, load a runtime application from removable media to the HMI device, reboot the HMI device, and safely remove media.
   - **Language**. Change the language that displays on the HMI device.

     Tips:
     - Import the desired languages before changing the language that displays on the HMI device.
     - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the string that is translated for the download language is also blank, View Designer defaults to the language used for designing the project.
   - **Navigation.** Navigate to screens on the HMI device.

     Tip: Multiple screen navigation commands can exist for an event. All other types of commands for the event are executed before the navigation command. Only one navigation command is executed for an event. This is generally the first navigation command. The remaining navigation commands are ignored on the HMI device. To ensure the navigation command is the navigation command executed, Rockwell Automation recommends adding only one navigation command to an event.
   - **Notification**. Send an email notification.
   - **PDF**. Commands that zoom or navigate pages in a PDF file.
   - **Security**. Log on or log off the HMI device.
9. **Value.** Commands that increment, toggle, or write a value to the selected tag.Select and configure the command the event is to perform.

   Tips:
   - Create multiple commands for each event. The order of execution may not correspond with the order of commands listed on the **Event** card.
   - Creating many tag write commands for an event may pause screen updates while the writes occur.
   - When an event performs multiple commands that write to multiple tags, all of the write commands occur sequentially. Therefore, you may not see all of the tag values in the Logix controllers at the same time.

See also

Event commands on page 456

Events tab on page 447

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Trigger an action on a Touch Press or a Touch Release event

Configure an action to occur when pressing or releasing a graphic element or the screen on the HMI device. For example, create a **Touch Press** event so that a specific screen opens when touching a graphic element.

To trigger an action on a Touch Press or a Touch Release event

1. Select the item to have the event. The item can be a graphic element, a graphic element in the definition of an Add-On Graphic, an Add-On Graphic instance, a group of elements, a screen, a popup, or the System Banner.

   Tip: Select items on either the **Screen** area, **Project Explorer**, or **Graphic Explorer**.

2. In the **Properties** pane, click the **Events** tab.
3. Select **Add Event** and select an event from the list.
   - **Touch Press**. Occurs when pressing a screen or element on the HMI device.
   - **Touch Release**. Occurs when releasing a screen or graphic element on the HMI device.
4. If a Touch Release event requires that the event of the element trigger even if a finger slides off the element before releasing the element, the graphic element becomes disabled or invisible, or a screen navigation opens a different screen, select the **Always Trigger Release Event** checkbox. This setting is useful for having the element act like a momentary push button. For example, a Touch Press sets a tag to 1 to start a conveyor belt, and a Touch Release event sets the same tag to 0 to stop the conveyor belt.
5. Select **Add Command**.
6. Expand a command category to list the commands in that category:
   - **Alarm History.** Cancel export of the alarm history, clear alarm history, or export alarm history.
   - **Data Log.** Cancel export of data log, clear data log, or export data log to a USB or SD card.
   - **HMI Device Configuration.** Configure screen calibration, load a runtime application from removable media to the HMI device, reboot the HMI device, and safely remove media.
   - **Language**. Change the language that displays on the HMI device.

     Tips:
     - Import the desired languages before changing the language that displays on the HMI device.
     - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the string that is translated for the download language is also blank, View Designer defaults to the language used for designing the project.
   - **Navigation.** Navigate to screens on the HMI device.

     Tip: Multiple screen navigation commands can exist for an event. All other types of commands for the event are executed before the navigation command. Only one navigation command is executed for an event. This is generally the first navigation command. The remaining navigation commands are ignored on the HMI device. To ensure the navigation command is the navigation command executed, Rockwell Automation recommends adding only one navigation command to an event.
   - **Notification**. Send an email notification.
   - **PDF**. Commands that zoom or navigate pages in a PDF file.
   - **Security**. Log on or log off the HMI device.
7. **Value.** Commands that increment, toggle, or write a value to the selected tag.Select the command the event is to perform.

Tips:

- Create multiple commands for each event. The order of execution may not correspond with the order of commands listed on the **Event** card.
- Creating many tag write commands for an event may pause screen updates while the writes occur.
- When an event performs multiple commands that write to multiple tags, all of the write commands occur sequentially. Therefore, you may not see all of the tag values in the Logix controllers at the same time.

See also

Event commands on page 456

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Button Behavior event on page 444

Trigger an action on a State Enter or State Exit event on page 454

In what order are touch events triggered? on page 478

Event commands

Select a command under a category to perform when an event triggers:

Category	Command	Description
Alarm History	Cancel Alarm History Export	Cancels the export of the alarm history.
	Clear Alarm History	Removes all alarm events stored on the HMI device.
	Export Alarm History	Exports a .csv file for the alarm history in the project to a .zip file and places the .zip file on a USB drive or SD card to review the alarm history on a computer.
Certificates	Delete Certificate	Deletes a digital certificate stored on the HMI device. This command requires entering the fingerprint of a specific certificate.
	Import Certificate	Imports a digital certificate with a specified file name.
Data Log	Cancel Data Log Export	Cancels the export of the data log.
	Clear Data Log	Clears the contents of all data logs or selected data logs.
	Export Data Log	Exports a .csv file for each data log in the project to a .zip file and places the .zip file on a USB drive or SD card to review the data log on a computer.
HMI Device Configuration	Calibrate Touch Screen	Calibrates the HMI device screen for touch. This command displays a red target on the screen. Press and hold the center of the target until the target turns white and another red target appears. Continue pressing and holding the centers of all remaining targets as they appear. All processed targets are replaced with white targets. A green circle with a check indicates successful calibration. A red circle with an X indicates a failed calibration. If a red circle with an X appears, perform the event again to calibrate the screen.
	Load Application	Loads the specified runtime application file to the HMI device from either a USB storage or an SD card.
	Reboot Terminal	Reboots the HMI device immediately.
	Safely Remove Media	Prepares the SD card for safe removal from the HMI device so the files do not become corrupt or read-only.
Language	Switch Language	Changes the language that displays on the HMI device. **Tip:** Import the desired languages before changing the language that displays on the HMI device.
Navigation	Navigate Backward	Navigates back in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
	Navigate Forward	Navigates forward in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
	Open web browser	Opens the web browser in a new window.
	Close web browser	Closes the web browser.

Category	Command	Description
	Popup Close	Closes the popup on the HMI device when the event occurs. Only one popup can be open on the HMI device at a time.
	Popup Open	Opens a specific popup when the event occurs. Only one popup can be open on the HMI device at a time. In the **Open Popup** box, navigate to and select the popup the event is to open. If the selected popup has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the popup. This passes the value to the popup when it opens on the HMI device. If a graphic element on the popup to open has an aliased property with a value, the Popup Open command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the popup with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target popup.
	Screen Navigate	Opens the specified shortcut or screen when the event occurs. In the **Navigate To** box, select the screen or shortcut that the event is to open. If the selected screen or shortcut has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the screen or shortcut. This passes the value to the screen when it opens on the HMI device. If a graphic element on the screen to open has an aliased property with a value, the Screen Navigate command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the screen with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target screen.
	Show Navigation Menu	Opens the **Navigation** menu on the HMI device screen when the event occurs.
Notification	Send Email	Sends an email with a configurable subject and message to one or more recipients. First configure the email server connection from the Settings screen on the HMI device.
PDF	Previous Page	Navigates to the previous page in a PDF document.
	Next Page	Navigates to the next page in a PDF document.
	Go To Page	Navigates to a specified page in a PDF document.
	Zoom in	Increases the document magnification by a percentage of the preset level in a PDF document.
	Zoom out	Decreases the document magnification by a percentage of the preset level in a PDF document.
	Zoom to	Adjusts the magnification to fit the page, fit the width of the page, or display the page at 100% magnification.
Security	Logon	Opens the **Log On** dialog box when the event occurs. When the **Log On** dialog box opens, any open popup closes.
	Logoff	Logs you off the project. If the Guest user role has security access to the current screen, the screen remains open. If the Guest user role does not have security access to the current screen, the **Home** screen opens.
State	State Previous	Applies the previous state in the selected State Table to the graphic element when the event occurs. To configure this command, in the box in the command card, select the name of the desired State Table. Select **Wrap Around** to continue to apply states when the event occurs, even if the beginning or end of the State Table is reached. If you create a **State** event with a **State Previous** command with **Wrap Around** selected, the graphic element loops through states in the State Table as the event occurs.

Category	Command	Description
	State Next	Applies the next state in the selected State Table to the graphic element when the event occurs. To configure this command, in the box in the command card, select the name of the desired State Table. Select **Wrap Around** to continue to apply states when the event occurs, even if the beginning or end of the State Table is reached. If you create a **State** event with a **State Next** command with **Wrap Around** selected, the graphic element loops through states in the State Table as the event occurs.
Value	Increment	Increments the value of the selected tag when the event occurs. Specify the value with a number, a tag, an expression, an element property, or the property of a screen or Add-On Graphic. In the **Increment** box, enter or browse to select the tag or property of a screen or Add-On Graphic. In the **By** box, create the expression value by which to increment the tag when the event occurs. The increment can be either negative or positive.
	Toggle	Toggles the value of the selected tag from 0 to 1, or from 1 to 0, when the event occurs. In the **Tag** box, enter or browse to select the tag or property of a screen or Add-On Graphic.
	Write	Writes a value to the selected tag when the event occurs. Specify the value with a number, a tag, an expression, an element property, or the property of a screen or Add-On Graphic. In the **Write To** box, enter or browse to select the tag or property of a screen or Add-On Graphic. In the Expression box, create the expression value to write to the tag when the event occurs.

Tips:

- For best performance, create commands that evaluate no more than 20 tags.
  For example, it is best for a Write command to have an expression containing no more than 20 tags or a Send Email command to embed no more than 20 tags in the message.
- For commands with expressions using many tags in a reference, have 10 or fewer such commands in an event for best performance.
- Using larger numbers of tag references in many commands may cause slow screen performance while those commands evaluate.
- Reference 1000 or fewer tags across all the project events. Using a larger number of tag references may cause delays in PanelView 5000 recovery from controller disconnects.
- If the HMI device processes a large number of background tasks, like multiple triggered alarms, you may need to repeat a button press to execute the button commands.

See also

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Import a language file on page 671

Export text strings for language translation on page 670

What is an event?

An event is something that occurs to trigger an action. Events initiate on the HMI device. An example of an event is touching a graphic element or key. The system can also initiate events. An example event is a tag changing values in a controller.

Create events for a graphic element, an instance of an Add-On Graphic, a graphic element within the definition of an Add-On Graphic, or a screen. There are four types of events:

- **Button Behavior**. Touch or release a button or key on the HMI device, or configure a graphic element or Add-On Graphic with typical button behaviors.
- **Touch Press and Touch Release**. Touch or release a graphic element, Add-On Graphic, screen, popup, or System Banner on the HMI device.
- **Key Press and Key Release**. Touch or release a key on the HMI device keypad or an external keyboard.
- **State Enter and State Exit**. Perform an event when a graphic element or Add-On Graphic transitions into or out of a selected state. For example, perform the event when the value of a tag in a controller changes from 50 to 100.

Access **Project Explorer > Project Events** to create events for a project. Project events execute commands after evaluating an expression from false to true, or pressing a key. A project event triggers regardless of the screen or popup on the HMI device.

Each event requires configuring one or more actions or commands that the event triggers. When the event occurs, the event performs the configured command. Depending on the type of event, commands from different categories can perform tasks. These categories and their commands are:

- **Alarm History.** Remove all alarm events stored on the HMI device. Export alarm history to a .csv file on a USB device or an SD card in order to view the information on a computer, or cancel the export.
- **Certificates.** Import a digital certificate from removable media, or delete a certificate from the HMI device. A digital certificate allows the HMI device to access locations on the Internet using the secured HTTPS and WSS protocols.
- **Data Logs.** Clear one or more data logs. Export a data log to a .csv file on a USB device or an SD card in order to view the information on a computer, or cancel the export.
- **HMI Device Configuration.** Calibrate touch for the HMI device screen, load a runtime application from the HMI device, reboot the HMI device, or safely remove media when the event occurs.
- **Language**. Change the language that displays on the HMI device.
- **Navigation.** Open the next or previous screen in your navigation history, a popup on the screen, a specific screen on the HMI device, or the **Navigation menu** on the HMI device when the event occurs. Open or close the web browser.
- **Notification.** Send an email with a configurable subject and message to one or more recipients.
- **PDF**. Navigate through the pages of PDF documents.
- **Security.** Open the **Logon** dialog box or log off when the event occurs.
- **State.** Apply the previous or next state in the selected State Table to the graphic element or Add-On Graphic when the event occurs.

- **Value.** Increment a tag value by a configured value or expression, toggle a tag value between True and False, or change a tag value by a configured value or expression when the event occurs.

  Tips:
  - Import the desired languages before changing the language that displays on the HMI device.
  - If a translatable string is left blank, View Designer defaults to the download language for runtime applications downloaded to the HMI device. If the translated string for the download language is also blank, View Designer defaults to the language used for designing the project.

See also

Trigger an action on a Button Behavior event on page 444

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a State Enter or State Exit event on page 454

Import a language file on page 671

Export text strings for language translation on page 670

Rename a data log

By default, the initial data log added to a View Designer project is named DataLog_001. This number is incremented when creating a new data log with the same name. A project can contain up to three data logs.

Rename a data log to make the name that reflects its purpose, content, or targeted use. Names within a folder must be unique and are not case-sensitive. For example, Monthly_DataLog and monthly_datalog are considered identical names.

To rename a data log

1. In the **Project Explorer**, expand the **Data Logs** folder.
2. Select the data log once to select the item.
3. Select the data log again and type the new name.

   Tips:
   - Right-clicking a data log, selecting **Rename**, and entering a new name also renames the data log.
   - Change the name of the data log through the **Name** box in the **Properties** window of the data log.
   - Changing the name of the data log causes previously collected data to no longer appear in the data log when the project downloads again.

See also

Add a data log to a project on page 649

Change the log duration on page 651

Change the sample rate of a data log on page 650

Delete a data log from a project on page 664

Add event commands to export a data log on page 469

Reuse a tag between data logs

To reuse a tag from one data log in another data log, cut or copy the tag and paste it in another data log. Reuse tags to place configured tags in a data log.

Prerequisites

- In the **Project Explorer**, expand the **Data Logs** folder and double-click the source data log to open it.

To reuse a tag between data logs

1. Scroll to select the tag rows to cut or copy:
   - **Individual.** Select the empty row header at the beginning of the row.
   - **Consecutive.** Select the empty row header at the beginning of the first row to delete, hold down **Shift**, and select the empty row header at the beginning of the last row to delete.
   - **Nonconsecutive.** Select the empty row header at the beginning of a row, hold down **Ctrl**, and select the empty row header at the beginning of additional rows.
2. Right-click the selected tags and select an option:
   - **Cut.** Remove the tags from the source data log and copy them to the clipboard.
   - **Copy.** Leave the tags in the source data log and copy them to the clipboard.
3. Open the target data log.
4. Paste the tags in the data log:
   - Without replacing existing tags. Right-click the empty row header at the beginning of the last row in the data log and select **Paste**. The tags appear at the end of the data log.
   - Replace existing tags. Select the same number of tags rows to be replaced in the data log as are pasted to the clipboard, right-click the selected tags, and then select **Paste**. The tags replace the selected tags.

See also

Add a data log to a project on page 649

Add a tag to a data log on page 652

Add event commands to export a data log on page 469

Delete a data log from a project on page 664

Data log contents on page 665

Delete a data log from a project

Delete a data log from a View Designer project to stop the data log from collecting data on the HMI device. After deleting a data log, download the project to the HMI device. Deleted data logs cannot be undeleted. A View Designer project can contain up to three data logs.

To delete a data log from a project

1. In the **Project Explore**r, expand the **Data Logs** folder.

2. Right-click the data log and select **Delete**. The **Project Explorer** no longer contains the data log.

See also

Log data on page 649

Add a data log to a project on page 649

Add event commands to export a data log on page 469

Delete a tag from a data log on page 654

Rename a data log on page 663

Data log tab

How do I open the Data Log tab?

In the **Project Explorer**, expand the **Data Logs** folder and double-click a data log.

The **Data Log** tab contains the open data log for the View Designer project. The data log displays the tags added to the data log. Add a total of 250 tags for all data logs in a project.

Use the **Data Log** tab to:

- Change the interval at which the data log collects tag values.
- Change how long the data log collects tag values.
- Add tags to the data log using the **Tag Browser**.
- Add a **Status tag** to the data log using the **Tag Browser**.

For example, add a data log to a project that records tag values for thirty seconds for a bottling line View Designer project over the course of a week. Add a data log to the project, add the tags associated with the bottling line to the data log, set the sample rate to 30,000 milliseconds, and set the log duration to seven days.

See also

Add a data log to a project on page 649

Change the log duration on page 651

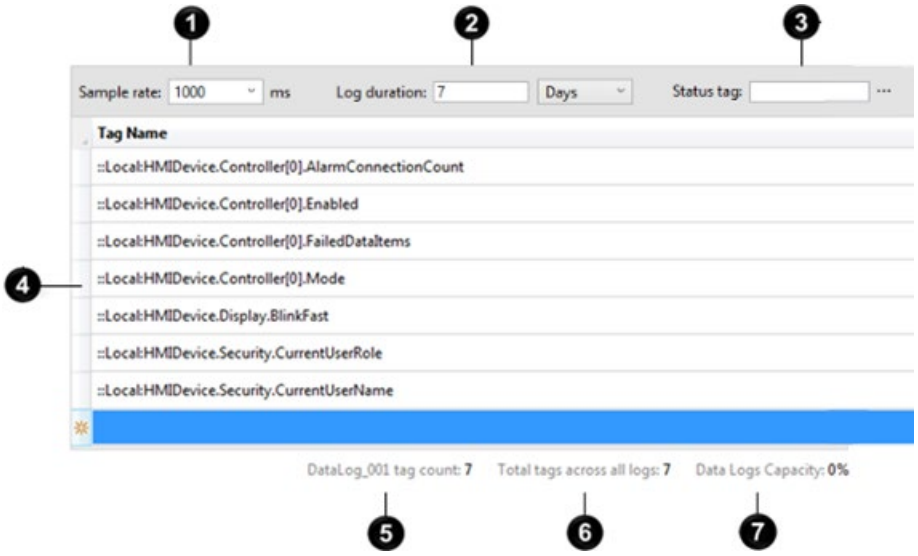
Change the sample rate of a data log on page 650

Data log contents on page 665

Log data on page 649

Data log contents

A data log collects tag values in the background when a project with a configured data log is running on the HMI device.



Item	Description
1	The **Sample Rate** of the data log in milliseconds. Specify how often the data log collects tags values once the View Designer project downloads to the HMI device.
2	The **Log Duration** of the data log. Specify how long the data log collects tag values when a project with a configured data log is running on the HMI device. Specify the log duration in hours, days, or minutes. Enter a valid log duration between 1 of any of the selected units and 365 days. 8760 hours and 525,600 minutes are both equivalents of 365 days.
3	The **Status tag** of the data log. Bind this property to a controller tag to display the status code of the data log in numeric format (DINT).
4	The tag with values to be logged. Each data log can collect values from up to 250 tags. All of the data logs in a project can have a combined maximum of 250 tags.
5	The name of the open data log and the tag count of the data log. This is the number of tags in the open data log. A data log can contain up to 250 tags. The combined data logs in a project can contain up to 250 tags.
6	The total number of tags. This number represents all of the data logs in the project. The combined data logs in a project can contain up to 250 tags.
7	The percentage of data log capacity used. This is the total size of all data logs in a project, compared to the maximum size supported. Data logs in a project can have a combined maximum of 250 tags. Each data log can have up to a 500 millisecond sample rate and a 365 day duration.

See also

Log data on page 649

Add a data log to a project on page 649

Add event commands to export a data log on page 469

Change the log duration on page 651

Change the sample rate of a data log on page 650

How is the maximum size of a data log configuration calculated?

Data cannot log if the resulting data log configuration exceeds the maximum size. Sample rate, number of tags, and log duration determine the size of a data log.

Each project contains up to three data logs. View Designer calculates the total size of all data logs in a project and compares the size against the maximum supported. The data logs in a project can have a combined maximum of 250 tags. Each data log can have up to a 500 millisecond sample rate and a 365-day duration.

If the data log fails project verification, reduce the size of one or more of the data logs by:

- Reducing the log duration
- Increasing the sample rate
- Reducing the number of tags

The data log capacity used appears as a percentage in the bottom-right corner of the data log .csv file.

See also

Delete a tag from a data log on page 654

Change the log duration on page 651

Change the sample rate of a data log on page 650

Delete a data log from a project on page 664

Data log retention

Retaining or replacing data logs on an HMI device occurs during a:

- **Download.** Adding a new data log or deleting a data log and then redownloading a project to the HMI device retains the values of previously configured data logs. Redownloading a project that has a data log with a configuration change such as name, size, and tags, retains only the values of previously unchanged configured data logs. Downloading a project to an HMI device that has an SD card with data logs from a different project replaces the data logs.
- **Firmware change.** Data logs remain unchanged when firmware on the HMI device is updated with a ControlFLASH. Data logging does not occur during a ControlFLASH. Downloading the same project to the HMI device after updating the firmware leaves the data log on the HMI device unchanged. When the project runs, data logging starts again.
- **HMI reboot.** Data logging stops when rebooting the HMI device. The data log remains unchanged. Data logging starts after the reboot completes.
- **HMI recovery.** If a project has a data log and the HMI device runs out of memory or has a fatal error, there are two options:
  - **Restore Defaults.** The HMI device opens the default project. Data logging stops when the HMI device is in error or when the default project is running. The data log on the SD card from the previous project on the HMI device remains unchanged. Data logging starts when downloading a project that contains a data log to the HMI device.

- **Continue.** The HMI device recovers and the previous project opens. Data logging starts.

- **SD card change.** Data logging stops when removing the SD card from the HMI device. Data logging starts when inserting any SD card. The SD card can be from the same project, a different project, the same HMI device, or a different HMI device. The SD card may contain the same or different data logs. The result of inserting an SD card in the HMI device depends on the data log on that SD card:
  - **Same data log.** When inserting an SD card that contains a data log from the current project on the HMI device, data logging starts. New data appends to the existing data log.
  - **Different data log.** Inserting an SD card that contains a different data log replaces the data log on the SD card with the data log in the project currently running on the HMI device.
  - **No data log.** Inserting an SD card that has no data log into an HMI device that has a project with a data log creates a data log on the SD card.

Tips:

- If no SD card exists on the HMI device, rebooting the HMI device or downloading a project stops data logging. Data logging starts when inserting an SD card.
- Any time it is necessary to remove the SD card, ensure that the files do not become corrupt. On the **Settings** screen on the HMI device, open the **Data Log** popup and select **Safely Remove SD Card**.

See also

View tag values in a data log on page 825

Data log on page 823

Data log file on page 826

Switch languages

Switch languages on the HMI device

Switch the language that appears on the HMI device by using View Designer to import and export the desired languages. In View Designer, select the language or languages from a predefined list.

View Designer creates a Microsoft Excel language file when exporting the selected languages. This spreadsheet contains a KEY column that contains all of the user-editable text strings in the project. The selected languages appear as headings for the other columns in the spreadsheet. Enter the translation for each item in the spreadsheet.

Import the language file to add the languages to the View Designer project. When downloading the project to the HMI device, select the project language using the **Download Runtime Application** wizard.

Tip: Only localized and unlinked properties can import or export.

Items that display in the selected language include:

- Controller extended tag properties.
- Controller alarm strings.
- User-editable text strings.

  Tips:
  - Alarm history is always logged in the language chosen as the default language in **Project Properties** > **Language**.
  - The alarm history viewer element shows the content of the alarm history log. It does not switch the language of the alarm messages because the messages are only logged in one language.
  - If an alarm message configuration changes in the controller, the alarm history viewer element displays the old alarm message for alarm transitions prior to the change and the new alarm message for alarm transitions after the change.
  - Items that do not display in the selected language include:
    - Error messages.
    - Non-user-editable text strings, such as the column headings in the **Alarm Summary** or text that is built into a graphic element.
  - If there is a duplicate language column in the language file, such as two en-US columns, View Designer imports the data in the right-most column.

See also

Export Languages dialog box on page 669

Export text strings for language translation on page 670

Import a language file on page 671

Add a language to a View Designer project on page 672

Export Languages dialog box

How do I open the Export Languages dialog box?

On the **Menu** bar, click **Tools > Export Languages**.

Use the **Export Languages** dialog box to export user-editable text strings in a project so that the strings can be translated. View Designer creates a language file that contains all of the strings used in the project along with their location within the project.

Use the **Export Languages** dialog box to:

- Specify the default language of the project.
- Select the languages for translation.
- Select the location to save the exported language file.

See also

Export text strings for language translation on page 670

Import a language file on page 671

Add a language to a View Designer project on page 672

About changing the project language on page 675

Export text strings for language translation

Export user-editable text strings in a project to a language file to translate the text strings.

To export text strings for language translation

1. Select **Tools > Export Languages**.
2. In the **Select current language** list, select the language in which the project was created.
3. In the **Selected language for localization** box, select one or more languages for translating the strings.

   Tips:
   - View Designer does not support the Spanish (Spain, Traditional Sort) language that is supported in Studio 5000 Logix Designer®.
   - When opening the exported language file in Microsoft Excel, the selected languages appear as column headers. Languages currently in the project are always included in the export operation, and are not available for selection.
4. In the Export language file to box, select **Browse** to select the location to save the language file, and select **Save**.

   Tips:
   - The default path and file name is C:\Users\username\Documents\Studio 5000\Projects\Project name_Language.xlsx.
   - View Designer supports .xlsx and .txt file formats only.
   - If a file name does not have a file extension, or has an file extension that is not supported, View Designer appends the file to the default .xlsx format.
   - View Designer only exports localizable and unlinked properties.
5. Select **Export**.
6. Open the exported file using Excel.

   Tip: Excel does not size cells automatically to display data in its entirety. To ensure that all of the data displays, auto-size the height and width before editing the spreadsheet.
7. To add a language that is not in the spreadsheet, in the column next to the last language column, enter the language code for the desired language, such as en-US.

   Tip: Reference the Internet Engineering Task Force (IETF®) RFC 5646 for guidelines on formatting language codes.

8. (optional) Insert a space after the language code and add the applicable contextual information. Content is not case sensitive.

See also

Export Languages dialog box on page 669

Import a language file on page 671

About changing the project language on page 675

Add an event command to change the language on the HMI device on page 460

Import Languages dialog box

How do I open the Import languages dialog box?

On the **Menu** bar, click **Tools > Import Languages**.

Use the **Import Languages** dialog box to add the languages to a View Designer project. Add up to 20 different languages in one application.

View Designer creates and exports a language file that contains the user-editable text strings in a project. After the strings are translated, import the language file to add the languages to the project.

Use the **Import Languages** dialog box to:

- Select the translated language file.
- View the language changes made to the View Designer project.

See also

Import a language file on page 671

Export text strings for language translation on page 670

About changing the project language on page 675

Add an event command to change the language on the HMI device on page 460

Import a language file

View Designer creates and exports a language file that contains the user-editable text strings in a project. After the strings are translated, import the language file to add the languages to the project.

To import a language file

1. Select **Tools > Import Languages**.
2. On the **Import Languages** dialog box, next to the **Language file** box select **Browse** and select the translated language file.

   The **Import language changes** box lists the language changes that will be made to the project:

   - Languages Added
   - Languages Updated
   - Languages Removed
   - Invalid Languages

Tips:
- View Designer supports .xlsx and .txt file formats only.
- If importing a file with a name that does not have a file extension, or has an file extension that is not supported, View Designer appends the file to the default .xlsx format.
- Invalid language data imports but does not download to the HMI device.
- When exporting the language file, all language data in the project exports, including any previously imported language data that is invalid.

View Designer only imports localizable and unlinked properties.

3. Select **Import**.
4. Save the project.

See also

Import Languages dialog box on page 671

Export text strings for language translation on page 670

About changing the project language on page 675

Add an event command to change the language on the HMI device on page 460

Add a language to a View Designer project

Add a language file to a View Designer project to display user-editable text strings in a specific language on the HMI device. Select the language to display during the download process.

To add a language file to a View Designer project

1. Select **Tools > Export Languages**.
2. In the **Select current language** list, select the language in which the project was created.
3. In the **Selected language for localization** box, select one or more languages for translating the strings.

   Tips:
   - View Designer does not support the Spanish (Spain, Traditional Sort) language that is supported in Studio 5000 Logix Designer®.
   - When opening the exported language file in Microsoft Excel, the selected languages appear as column headers. Languages currently in the project are always included in the export operation, and are not available for selection.
4. In the **Export language file to** box, select **Browse** to browse to and select the location to which to save the language file.

   Tips:
   - The default path and file name is C:\Users\username\Documents\Studio 5000\Projects\Project name_Language.xlsx.
   - View Designer supports .xlsx and .txt file formats only.
   - If a file name does not have a file extension, or has an file extension that is not supported, View Designer appends the file to the default .xlsx format.
   - View Designer only exports localizable and unlinked properties.
5. Open the exported file using Excel.

   Tip: Excel does not size cells automatically to display data in its entirety. To ensure that all of the data displays, auto-size the height and width before editing the spreadsheet.
6. Select **Tools > Import Languages**.
7. On the **Import Languages** dialog box, next to the **Language file** box select **Browse** and select the translated language file.

The **Import language changes** box lists the language changes that will be made to the project:

- Languages Added
- Languages Updated
- Languages Removed
- Invalid Languages

Tips:

- Invalid language data imports but does not download to the HMI device.
- When exporting the language file, all language data in the project exports, including any previously imported language data that is invalid.
- Only localizable and unlinked properties are imported.

8. Select **Import**.
9. Save the project.

See also

Download a runtime application to an HMI device on page 710

About changing the project language on page 675

Add an event command to change the language on the HMI device on page 460

Add an event command to change the language on the HMI device

Create an event command to change that language that displays the runtime application on the HMI device.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to change the language on the HMI device

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the Language category and select **Switch Language**.
4. In the **Switch Language To** list, select a language.

See also

Add a language to a View Designer project on page 672

Import a language file on page 671

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

About changing the project language on page 675

Remove a language from a View Designer project

Remove a language from a View Designer project when the language is no longer needed.

To remove a language from a View Designer project

1. Select **Tools > Export languages**.
2. In n the **Select current language** list, select the language in which the project was created.
3. In the **Selected language for localization** box, select one or more languages for translating the strings.

   Tips:
   - View Designer does not support the Spanish (Spain, Traditional Sort) language that is supported in Studio 5000 Logix Designer®.
   - When opening the exported language file in Microsoft Excel, the selected languages appear as column headers. Languages currently in the project are always included in the export operation, and are not available for selection.
4. In the **Export language file to** box, select **Browse** to browse to and select the location to which to save the language file.

   Tips:
   - The default path and file name is C:\Users\username\Documents\Studio 5000\Projects\Project name_Language.xlsx.
   - View Designer supports .xlsx and .txt file formats only.
   - If a file name does not have a file extension, or has an file extension that is not supported, View Designer appends the file to the default .xlsx format.
   - View Designer only exports localizable and unlinked properties.
5. Open the exported file using Excel.
6. Locate and delete the column for the language to remove from the project, and save the file.
7. Select **Tools > Import Languages**.
8. On the **Import Languages** dialog box, next to the **Language file** box select **Browse** and select the translated language file.

   The **Import language changes** box lists the language changes that will be made to the project:
   - Languages Added
   - Languages Updated
   - Languages Removed
   - Invalid Languages

     Tips:
     - Invalid language data imports but does not download to the HMI device.
     - When exporting the language file, all language data in the project exports, including any previously imported language data that is invalid.
     - Only localizable and unlinked properties are imported.
9. Select **Import**.
10. Save the project.

See also

Add a language to a View Designer project on page 672

About changing the project language on page 675

Download a runtime application to an HMI device on page 710

Language handling and STRING data type support in View Designer

Studio 5000 HMI devices support Logix tag extended property strings, such as tag descriptions. If no languages are set up in the Logix project, the HMI device displays the default extended property strings defined in the Logix project. If languages are set up in the Logix project, the HMI device displays only the extended property strings created for the English-United States language.

Graphic elements that reference unconfigured Logix tag extended properties show an Error icon . These graphic elements handle Logix tag extended properties in specific ways:

- Numeric Display. Dashes appear if .@Min or .@Max are not configured for the tags in the Logix Designer project file (.acd).
- Text Display. The Error icon appears if .@EngUnit, .@State0, .@State1, or .@Description is not configured for the tag in the Logix project. If .@EngUnit, .@State0, .@State1, or .@Description is configured for the tag in the Logix project but left blank, the graphic element appears blank.

Studio 5000 HMI devices support the Logix STRING data type. Standard ASCII characters are encoded with values 0 through 127 with each standard ASCII character encoded in a single byte of the STRING data type. The HMI device can read and write standard ASCII characters using this standard encoding.

The HMI device uses UTF-8 encoding to read and write string tags containing multi-byte characters to a controller using the STRING data type. UTF-8 encodes multi-byte character sets by breaking down complex characters, such as Unicode characters, into multi-byte representations. The Logix 5000 controller can then store complex characters in the STRING byte array.

Tips:

- The maximum length of a text display reading from a String data type in a controller is 476 characters.
- If the String is encoded using UTF-8, the text display may not show 476 characters because each character may take multiple bytes of data.

See also

Use the runtime application on page 728

Alarm screens on page 774

Troubleshoot on page 829

About changing the project language

Use View Designer to select a language to display on the HMI device. This feature enables you to display the runtime application in a language the operator understands.

In View Designer, select the language or languages from a predefined list. View Designer creates a language file when you export the selected languages. Open the file using Microsoft Excel. The language file

contains a KEY column that contains all of the user-editable text strings in the project.

The selected languages are used as the headings for the other columns in the spreadsheet. Enter the translation for each item in the spreadsheet in the appropriate column.

Import the language file to add the languages to the View Designer project. When you download the project to the HMI device, select the project language using the **Download Runtime Application** wizard.

Tip: Only content that can be localized and unlinked properties can be imported or exported.

These items display in the selected language:

- Controller extended tag properties.
- Controller alarm strings.
- User-editable text strings.

Tips:

- Alarm history is always logged in the language chosen as the default language in **Project Properties** > **Language**.
- The alarm history viewer element shows the content of the alarm history log. It does not switch the language of the alarm messages because the messages are only logged in one language.
- If an alarm message configuration changes in the controller, the alarm history viewer element displays the old alarm message for alarm transitions prior to the change and the new alarm message for alarm transitions after the change.
- Items that do not display in the selected language include:
  - Error messages.
  - Non-user-editable text strings, such as the column headings in the **Alarm Summary** or text that is built into a graphic element.
- If there is a duplicate language column in the language file, such as two en-US columns, View Designer imports the data in the right-most column.

See also

Export Languages dialog box on page 669

Import Languages dialog box on page 671

Add a language to a View Designer project on page 672

Download a runtime application to an HMI device on page 709

Add an event command to change the language on the HMI device on page 460

Emulate a project

Emulate a project

Emulate a project to depict the project as it is to appear on the HMI device. The project screens and the HMI device that displays the downloaded project appear in the **View 5000 Emulator** window.

Use the Emulator to:

- Verify project content, behavior, and navigation as it is to appear on the physical HMI device.
- Verify a project when there is no physical HMI device.
- Test a project before impacting the physical system.

Only one instance of the Emulator can be running on a computer at a time.

Emulate the project after setting the **Emulator to Controller path** for each referenced controller in the project properties.

Setting the Emulator to Controller path to the same path for multiple controller references displays duplicate alarms in the Alarm Summary and the Alarm Manager. Each alarm in the controller displays for each controller reference that has the same Emulator to Controller path.

The Emulator depicts PanelView 5000 HMI devices. Changes made to the project after starting the Emulator do not emulate. The Emulator runs for two hours before closing automatically. Manually close the Emulator at any time.

See also

Start the Emulator on page 678

Close the Emulator on page 679

Emulator scaling for an HMI device on page 680

View 5000 Emulator contents on page 681

Tags not supported by the Emulator on page 680

View 5000 Emulator window

How do I open the Emulator?

Click **Emulate Project** or on the **Menu** bar, click **PROJECT > Emulate Project**.

Use the **View 5000 Emulator** window to see the behavior of the View Designer project before downloading it to the physical system. Interact with the project screen and depicted HMI device to verify that:

- Screen content displays correctly
- Screen navigation works correctly
- Key and touch actions work correctly

The **View 5000 Emulator** windows displays the project being emulated and the target PanelView 5000 HMI device of the project.

See also

Emulate a project on page 677

Start the Emulator on page 678

Close the Emulator on page 679

Emulator scaling for an HMI device on page 680

View 5000 Emulator contents on page 681

Start the Emulator

Start the Emulator to view and test the behavior of the open project. This verifies the project before downloading it to the Emulator. Emulate a project for each open instance of View Designer.

Prerequisites

- Add controller references to the project and set the **Emulator to Controller path** in the **References** tab for each referenced controller in the project properties. This path allows the Emulator to emulate the data from the Logix Designer project file (.acd) in the View Designer project file (.vpd).

  Tip: Setting the Emulator to Controller path to the same path for multiple controller references displays duplicate alarms in the Alarm Summary and the Alarm Manager. Each alarm in the controller displays for each controller reference that has the same Emulator to Controller path.

- To emulate a different project, close the **View 5000 Emulator** window. Only one instance of the Emulator can run on a computer at one time.

To start the Emulator

1. In the open project, select **Emulate Project**. The **Emulate Project** dialog opens and shows progress as View Designer verifies and then starts the runtime application. The **Emulate Project** dialog box closes automatically when the Emulator starts.

   Tips:
   - The verification process when downloading a project to the Emulator is the same verification process that occurs when downloading a project to the HMI device. The process verifies the syntax of all expressions, the elements and properties referenced in expressions, and the existence of all project tags in the referenced controller projects.
   - If View Designer encounters a problem, the **Emulate Project** window indicates that there is an error. Any errors to correct appear in the **Errors** window below the View Designer screen. Select **Close** to close the **Emulate Project** window, use the **Errors** window to navigate to the source of the error. Resolve all errors before restarting the Emulator.

2. The **View 5000 Emulator** window opens and shows the initial screen of the project and the specified PanelView 5000 HMI device.
3. Interact with the project in the **View 5000 Emulator** window:

- Interact with screens in the project as if the screen appears on the target PanelView 5000 HMI device. For example, select items.
- Interact with the HMI device by selecting buttons on the depicted PanelView 5000 HMI device.
- Interact with the HMI device through an external keyboard:
  - **L1** through **L10** on an HMI device keypad correspond with **Shift+F1** through **Shift+F10** on an external keyboard.
  - **R1** through **R10** on an HMI device keypad correspond with **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

Tips:
- Selecting **PROJECT > Emulate Project** starts the Emulator.
- View Designer does not emulate changes made to the project after the starting the Emulator. Close and restart the Emulator to continue emulating the project.
- The Emulator does not support:
  - HMIBC buttons.
  - Certain settings and interactions with the HMI device:
    - Rebooting the HMI device.
    - Calibrating the touch screen of an HMI device.
    - Changing the brightness of the HMI device.
    - Changing the IP address of the HMI device.
    - Viewing diagnostic information for the HMI device.
    - Configuring the date and time of the HMI device.
    - Setting the time zone of the HMI device.
    - Configuring the screen saver of the HMI device.
    - Importing a troubleshooting profile.
    - Exporting a troubleshooting log.

See also

Emulate a project on page 677

View 5000 Emulator window on page 677

Tags not supported by the Emulator on page 680

Add a controller reference on page 85

View 5000 Emulator contents on page 681

Close the Emulator

Close the **View 5000 Emulator** window to stop emulating the open project.

To close the Emulator

- Perform one of the following to close the Emulator:
  - Select in the **View 5000 Emulator** window.
  - Close the open View Designer project.
  - Close View Designer.

Tips:
- Running the emulator for two hours automatically closes the Emulator.
- Before the Emulator closes automatically after two hours, a banner below the title bar of the **View 5000 Emulator** window indicates that the Emulator closes in five minutes.

See also

Emulate a project on page 677

View 5000 Emulator window on page 677

Start the Emulator on page 678

Emulator scaling for an HMI device on page 680

View 5000 Emulator contents on page 681

Emulator scaling for an HMI device

The **View 5000 Emulator** window scales to fit the depicted HMI device. If the HMI device does not fit in the **View 5000 Emulator** window, the size of the HMI device scales to fit the **View 5000 Emulator** window. View Designer scales the window to show the full depiction of the HMI device without having to scroll.

See also

Emulate a project on page 677

View 5000 Emulator window on page 677

Start the Emulator on page 678

Close the Emulator on page 679

View 5000 Emulator contents on page 681

Tags not supported by the Emulator

Some tags associated with configuring settings on the HMI device at runtime are not supported in the Emulator. For example, changing the time zone when emulating a project is not supported. Tags not supported when emulating a project include:

HMI Device Setting	Tag
Date/Time	::Local:HMIDevice.DateTime.DateConfig
	::Local:HMIDevice.DateTime.TimeConfig
	::Local:HMIDevice.DateTime.TimeZoneConfig
Device	::Local:HMIDevice.Device.AmbientTemp
	::Local:HMIDevice.Device.CPUFrequency
	::Local:HMIDevice.Device.CPUTemperature
	::Local:HMIDevice.Device.CPUUtilization
	::Local:HMIDevice.Device.DLRTopology
	::Local:HMIDevice.Device.DownloadsEnabled
	::Local:HMIDevice.Device.EnetNetworkCount
	::Local:HMIDevice.Device.FirmwareMajorRev
	::Local:HMIDevice.Device.FirmwareMinorRev
	::Local:HMIDevice.Device.HardwareMajorRev
	::Local:HMIDevice.Device.HardwareMinorRev
	::Local:HMIDevice.Device.HardwareProductCode
	::Local:HMIDevice.Device.HardwareProductType
	::Local:HMIDevice.Device.HostNameConfig
	::Local:HMIDevice.Device.LastBootupTime
	::Local:HMIDevice.Device.MemoryFree
	::Local:HMIDevice.Device.MemoryTotal
	::Local:HMIDevice.Device.MemoryUsed
	::Local:HMIDevice.Device.ProductName

HMI Device Setting	Tag
	::Local:HMIDevice.Device.StorageFree
	::Local:HMIDevice.Device.StorageTotal
	::Local:HMIDevice.Device.StorageUsed
	::Local:HMIDevice.Device.TotalOnTime
Display	::Local:HMIDevice.Display.BacklightIntensity
	::Local:HMIDevice.Display.ResolutionHorizontal
	::Local:HMIDevice.Display.ResolutionVertical
	::Local:HMIDevice.Display.ScreenSaverEnabled
	::Local:HMIDevice.Display.ScreenSaverImagePath
	::Local:HMIDevice.Display.ScreenSaverIntensity
	::Local:HMIDevice.Display.ScreenSaverTime
Ethernet	::Local:HMIDevice.Enet[n].DHCPConfig
	::Local:HMIDevice.Enet[n].Domain
	::Local:HMIDevice.Enet[n].Gateway
	::Local:HMIDevice.Enet[n].GatewayConfig
	::Local:HMIDevice.Enet[n].IPAddressConfig
	::Local:HMIDevice.Enet[n].MACAddress
	::Local:HMIDevice.Enet[n].PrimaryDNS
	::Local:HMIDevice.Enet[n].PrimaryDNSConfig
	::Local:HMIDevice.Enet[n].SecondaryDNS
	::Local:HMIDevice.Enet[n].SecondaryDNSConfig
	::Local:HMIDevice.Enet[n].SubnetMask
	::Local:HMIDevice.Enet[n].SubnetMaskConfig
	::Local:HMIDevice.Enet[n].TertiaryDNS
	::Local:HMIDevice.Enet[n].TertiaryDNSConfig
	::Local:HMIDevice.EnetLink1.FullDuplex
	::Local:HMIDevice.EnetLink1.FullDuplexConfig
	::Local:HMIDevice.EnetLink1.LinkSpeed
	::Local:HMIDevice.EnetLink1.LinkSpeedConfig

See also

View 5000 Emulator contents on page 681

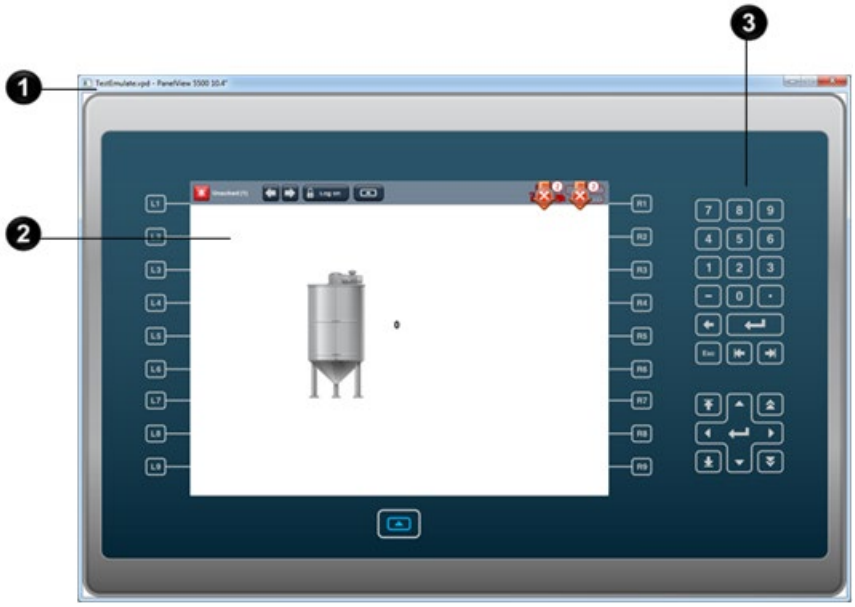
Start the Emulator on page 678

Emulate a project on page 677

View 5000 Emulator window on page 677

View 5000 Emulator contents

An example project and the target HMI device in the **View 5000 Emulator** window includes:



Item	Description
1	The View 5000 Emulator window title bar with the name of the target PanelView 5000 HMI device and the View Designer emulated project.
2	The screen of the View Designer project as it is to appear on the physical HMI device. Select items to interact with the screen as if using touch or key actions on the physical HMI device.
3	The target emulated PanelView 5000 HMI device. Interact with the HMI device as if it is the physical HMI device. For example, select a button on the HMI device in the **View 5000 Emulate** window.

See also

Emulate a project on page 677

View 5000 Emulator window on page 677

Start the Emulator on page 678

Tags not supported by the Emulator on page 680

Emulator scaling for an HMI device on page 680

Emulate Project dialog box

How do I open Emulate Project dialog box?

Click **Emulate Project**.

The **Emulate Project** dialog box indicates that View Designer:

- Downloads the project to the Emulator
- Builds the runtime application
- Starts the runtime application

The **Emulate Project** dialog box closes automatically when the application starts and the **View 5000 Emulator** window opens to depict the project.

Tips:

- The verification process when downloading a project to the Emulator is the same verification process that occurs when downloading a project to the HMI device. The process verifies the syntax of all expressions, the elements and properties referenced in expressions, and the existence of all project tags in the referenced controller projects.
- If View Designer encounters a problem, the **Emulate Project** window indicates that there is an error. Any errors to correct appear in the **Errors** window below the View Designer screen. Select **Close** to close the **Emulate Project** window, use the **Errors** window to navigate to the source of the error. Resolve all errors before restarting the Emulator.

See also

Emulate a project on page 677

Start the Emulator on page 678

View 5000 Emulator contents on page 681

Tags not supported by the Emulator on page 680

Set security

Set security

View Designer security provides the ability to control access to the runtime application by controlling access to:

- The HMI device
- Individual screens, shortcuts, and popups
- Graphic elements
- Downloads to the HMI device

Security is project-specific, not application-wide, and applies only to user (role) runtime access.

Use the **Security Administration** dialog box to set up access rights for anyone interacting with the HMI device.

See also

Security overview on page 698

Add a Security Administration user account on page 688

Restrict access to an item on the HMI device on page 354

Enable VNC access rights to an HMI device on page 700

Security roles on page 690

Security Administration dialog box

How do I open the Security Administration dialog box?

On the **Menu** bar, click **TOOLS > Security Administration**.

Use the **Security Administration** dialog box to:

- Add and remove users
- Assign roles and passwords to users
- Determine the role of the Guest user
- Configure password policies
- Configure access rights for users remotely connecting an HMI device

See also

Add a Security Administration user account on page 688

Restrict access to the HMI device on page 695

Configure password security policies on page 687

Enable VNC access rights to an HMI device on page 700

Security overview on page 698

Log On Method tab

How do I open the HMI Device tab?

On the **Menu** bar, click **PROJECT > Project Properties** and click the **HMI Device** tab.

Use the **Log On Method** tab on the **Project Properties** dialog box to specify how users log on to the HMI device. You can require users to log on with a user name and password, or with a PIN.

Use the **Security Administration** dialog box to specify the password and/or PIN for each user.

See also

Project Properties dialog box on page 68

Security Administration dialog box on page 685

Restrict access to the HMI device on page 695

Security overview on page 698

Policies tab

How do I open the Policies tab?

On the **Menu** bar, click **TOOLS > Security Administration**, and on the **Security Administration** dialog box, click the **Policies** tab.

Use the **Policies** tab on the **Security Administration** dialog box to configure the password policies to be used by the target HMI device. The policies specify the requirements the password must meet.

See also

Security Administration dialog box on page 685

Configure password security policies on page 687

Security overview on page 698

Users tab

How do I open the Users tab?

On the **Menu** bar, click **TOOLS > Security Administration**, and from the **Security Administration** dialog box, click the **Users** tab.

Use the **Users** tab on the **Security Administration** dialog box to:

- Create, delete, or sort user accounts for each person who interacts with the HMI device.
- Assign the password and/or PIN for users to log on to the HMI device.
- Assign a role to each user.
- Change the default role of the Guest user. None grants the Guest user access to the **Home** screen only. Any non-Administrator role, including None, prevents any non-Administrator user from changing settings on the HMI device.

See also

Security Administration dialog box on page 685

Add a Security Administration user account on page 688

Delete a Security Administration user account on page 691

Security roles on page 690

Security overview on page 698

Configure password security policies

Use the **Policies** tab on the **Security Administration** dialog box to create security policies, such as password complexity and length, for user authentication. Assign the password on the card for each user on the **Users** tab.

Prerequisites

- On the **Project > Project Properties > Log On Method** tab, verify that **Use user name/password for logging on** is selected.

To configure password security policies

1. Select **Tools > Security Administration**.
2. Select the **Policies** tab.
3. Change the password settings as needed:
   - **Log off the user after a period of inactivity.** Set in minutes how long the user has to remain inactive to be automatically logged out.
   - **Minimum password length**. Specify the minimum amount of characters required. The maximum number allowed is 14.
   - **Password history**. Type the number of previous passwords to remember. This enforces a password history and sets how frequently you can reuse old passwords. The maximum number allowed is 24.
   - To disable this feature, set the **Number of Passwords to Remember** to zero.
   - **Passwords must meet complexity requirements.** Select this option to enforce complexity requirements when you create or change passwords.

     Tip: Passwords that meet complexity requirements must:
     - Not contain the User Name.
     - Not contain any portion of the Full Name.
     - Contain characters from three of four categories:
       - Uppercase characters of European languages (A through Z, with diacritic marks, Greek and Cyrillic characters)
       - Lowercase characters of European languages (a through z, sharp-s, with diacritic marks, Greek and Cyrillic characters)
       - Numbers 0 through 9

     Non-alphanumeric characters ~!@#$%^&*_-+=`|\(){}[ ]:;"'<>,.?/
4. Select **OK** to save the changes and close the **Security Administration** dialog box.

See also

Security Administration dialog box on page 685

Policies tab on page 686

Users tab on page 686

Restrict access to the HMI device on page 695

Configure Auto-Logoff

Secure an application on the HMI device by logging off users automatically after a certain period of inactivity on the HMI device. Manually logging off is still supported when Auto-Logoff is enabled. When the auto-logoff occurs, the Guest user role is active. Configure Auto-Logoff through either the security policies for the application or by using AutoLogoff system tags.

To configure Auto-Logoff

1. Select **Tools > Security Administration**.
2. Select the **Policies** tab.
3. Under **Auto-Logoff Policies**, select **Log off the user after a period of inactivity**.
4. In the **minutes** box, type the number of minutes up to 1440. Select the arrows to increase or decrease the number of minutes of inactivity before auto-logoff occurs.
5. Select **OK** to save changes and close the **Security Administration** dialog box, or select **Apply** to save changes and keep the **Security Administration** dialog box open.

Tips:

- Playing videos and accessing IP cameras through the web browser does not prevent the auto-logoff.
- To configure Auto-Logoff through tag binding, bind to the AutoLogoffEnable and AutoLogoffDelay system tags on the local HMI device.
- The AutoLogoffRemainingTime system tag displays the time remaining, in seconds, before auto-logoff occurs.

See also

Security Administration dialog box on page 685

Policies tab on page 686

Users tab on page 686

Restrict access to the HMI device on page 695

System tags: Device on page 539

Add a Security Administration user account

To control user access to the runtime application at different levels, create a user account for every person that will interact with the HMI Device. Assign a security role and password and/or PIN to each user. It is recommended to define no more than 500 users.

To add a Security Administration user account

1. Select **Tools > Security Administration** and select the **Users** tab.
2. Select **Add user** or start typing in the last user card to create a new user card.

   Tip: Typing in the **User Name** box opens a card for data entry.

3. In the **User Name** box, type the name that the user will use to log on to the HMI device. This name displays in the banner on the HMI device.

   Tips:
   - The name can contain up to 40 characters of numbers, letters, and underscores.
   - The name must not begin with a number, contain spaces, have more than one underscore in a row, or end with an underscore.
   - The **User Name** box cannot contain Unicode characters.

4. (optional) In the **Full Name** box, type the first and last name, up to 100 characters, of the user.
5. (optional) In the **Description** box, type a description, up to 100 characters, of the user.
6. In the **Role** box, select the security role to assign to the user.
7. Enter and confirm the password and/or PIN the user will use to log on to the HMI device.
   - Passwords must adhere to the policies you configured on the **Policies** tab on the **Security Administration** dialog box.
   - PINs must have a minimum of four numbers and a maximum of eight numbers.
   - If **Password Must Meet Security Requirements** is selected on **Policies** tab, passwords must meet complexity requirements.
   - Passwords can contain Unicode characters.

     Tip: To meet complexity requirements, passwords must:
     - Not contain the User Name.
     - Not contain any portion of the Full Name.
     - Contain characters from three of the following four categories:
       - Uppercase characters of European languages (A through Z, with diacritic marks, Greek and Cyrillic characters)
       - Lowercase characters of European languages (a through z, sharp-s, with diacritic marks, Greek and Cyrillic characters)
       - Numbers 0 through 9

     Non-alphanumeric characters ~!@#$%^&*_-+=`|\(){}[ ]:;"'<>,.?/
8. Select **OK** to save the changes and close the **Security Administration** dialog box, or select **Add User** to continue adding users.

   Tips:
   - Copy and paste **Security Administration** user accounts from other View Designer projects to save time.
   - To reset the password for a user, select **Reset** on the account card for that user.

See also

Security Administration dialog box on page 685

Restrict access to the HMI device on page 695

Configure password security policies on page 687

Copy a Security Administration user account on page 432

Security roles on page 690

Security roles

In View Designer security, a user is comparable to a Windows user account, and a role is comparable to a Windows user group. No specific behavior is assigned to each role.

Assign a role to each user on the **Security Administration > Users** tab. The assigned role determines which screens the users in the role can access according to the security settings for the screens. All users have the **Operator** role by default.

The View Designer roles to assign to users include:

Role	Responsibility
Administrator	Administering the system, such as adding users and assigning passwords. This security role is assigned to Guest users by default.
Engineer	Automating the machine and creating or setting the direction of the HMI.
Maintenance	Keeping the system running at maximum efficiency, and using the HMI screens to troubleshoot, diagnose, and maintain equipment.
Operator	Running the machine or process, and using the HMI project to view and interact with the process. This security role is assigned to new users by default.
Restricted	Activities requiring less access than an **Operator**. Determine screen access based on business needs. This role prevents any non-Administrator user from changing settings on the HMI device.
Supervisor	Overall production of the machine or plant and uses the HMI screens for critical information, such as the product production, production rate, downtime, and product quality.
None	Indicates that no role is associated with the **Guest** user. This option is available for the **Guest** user account only. Assigning this role grants the **Guest** user access to only the **Home** screen.

See also

Security Administration dialog box on page 685

Add a Security Administration user account on page 688

What is the Guest user? on page 696

Assign a role to the Guest user on page 693

Security overview on page 698

Copy a Security Administration user account

Copy a Security Administration user account to reuse the information within and across View Designer projects. Copy individual items from the user account or copy an entire user account card including the password and PIN.

Prerequisites

- Open the source View Designer project containing the content to copy.
- If the content is to be pasted into another project, for each project, start an instance of View Designer and open the target project. It is recommended to open no more than three instances of View Designer at one time.

To copy a Security Administration user account

1. In the source project, select **Tools > Security Administration**.
2. Select the **Users** tab to display the **User Accounts** box.
3. In the **User Accounts** box, select a user account card, and then right-click and select **Copy**.
   - To copy a single item, highlight the item, and then right-click and select **Copy**.
4. In each target project in the **User Accounts** box, select a card (outside of the **User Name** box), right-click and select **Paste**. The card pastes below the currently selected card.
   - If a new user card is selected, the card pastes above it.
   - To paste a single item, right-click the appropriate box on the user account card and select **Paste**.
5. Select **OK** to apply the changes and close the dialog box.

Tips:
- Copy only one user card at a time.
- A red outline around a box on a user account card indicates an error condition, such as a duplicate name or PIN. You must correct all errors before you can save the changes.
- Cut a **Security Administration** user account by selecting **Cut** instead of **Copy**.

See also

Security Administration dialog box on page 685

Users tab on page 686

Add a Security Administration user account on page 688

Security overview on page 698

Delete a Security Administration user account

Delete a Security Administrator user account if, for example, a user no longer requires access to the HMI device.

To delete a Security Administration user account

- Select **Tools > Security Administration**, and select the **Users** tab.
- On the card for the user, select **Remove** .

See also

Security Administration dialog box on page 685

Users tab on page 686

Restrict access to the HMI device on page 695

Configure password security policies on page 687

Security overview on page 698

Change a Security Administration user account

Change user account information for Security Administration, for example, to change the password.

To change Security Administration user account information

1. Select **Tools > Security Administration** and select the **Users** tab.
2. Select the user card.
3. Change any or all of the information.

See also

Security Administration dialog box on page 685

Users tab on page 686

Restrict access to the HMI device on page 695

Configure password security policies on page 687

Security overview on page 698

Sort Security Administration user accounts

Sort Security Administration user accounts by Full Name, Role, or User Name.

To sort Security Administration user accounts

1. Select **Tools > Security Administration** and select the **Users** tab.
2. In the **Sort by** box, select an option from the list.

See also

Security Administration dialog box on page 685

Users tab on page 686

Restrict access to the HMI device on page 695

Configure password security policies on page 687

Security overview on page 698

Assign a role to the Guest user

A Guest user interacts with an HMI device without logging on to the device. Assign any of the predefined roles to the Guest user, or select **None** to limit the Guest user to only viewing the **Home** screen.

To assign a role to the Guest user

1. Select **Tools > Security Administration** and select the **Users** tab.
2. In the **Guest User** section**,** in the **Role** box, select a role from the list.

See also

Security roles on page 690

Security Administration dialog box on page 685

Users tab on page 686

Restrict access to the HMI device on page 695

Configure password security policies on page 687

Restrict access to settings on the HMI device

By default, any user not logged into the project on the HMI device has Administrator access to the Settings screens. These screens in the **Predefined Screens** folder of the **Project Explorer** configure the HMI device at runtime. Limit the access guest users have to the Settings screens by assigning any role but the **Administrator** role. Users who are not assigned the Administrator have Read Only access to the Settings screens. This prevents non-Administrator users from disrupting the system. For example, a Guest user cannot reboot the HMI device. The user can still navigate to and open all of the Settings screens on the HMI device to review the HMI device settings and configuration.

To restrict access settings on the HMI device

1. Select **Tools > Security Administration**. The **Security Administration** dialog box opens.
2. In the **Guest User** box after **Role**, select any role, including **None**, that is not the **Administrator** role. All options on the Settings screens on the HMI device are Read Only for any user except an administrator.

See also

Security Administration dialog box on page 685

Set security on page 685

Assign a role to the Guest user on page 693

What is the Guest user? on page 696

Security overview on page 698

Restrict access to an item on the HMI device

By default, all users on HMI devices have access to these items in the **Project Explorer:**

- Shortcuts in the **Navigation Menu** folder.
- Screens and popups in the **User-Defined Screens** and **Predefined Screens** folders. Navigate to these items on the HMI device by triggering an event with a navigation command. Users who do not have the Administrator role have read-only access to the **Settings** screen and related popups in the **Predefined Screens** folder.

Change the access level for any item in the **Project Explorer**. Restrict access to an item for any role except the **Administrator** role. The **Administrator** role always has Inherit access, and the role inherits Full Access from the root folder.

To restrict access to an item on the HMI device

1. In the **Project Explorer**, expand the folder that contains the item to restrict access:
   - To select a screen or popup, expand the **User-Defined Screens** folder or the **Predefined Screens** folder.
   - To select a shortcut, expand the **Navigation Menu** folder.
2. Select or double-click the item. The **Properties** window for the item opens.
3. In the **Properties** window for the selected item, expand the **Security** category.
4. After each role (Engineer, Maintenance, Operator, Restricted, and Supervisor), select the access option for each role.
   - **Inherit.** Grants the same access assigned to the parent folder.
   - **Full Access.** Grants access to open and interacts with the item, and shows the item in the **Navigation menu** on the HMI device.
   - **Read Only.** Grants access to open the item, but denies interaction with it. The item appears in the **Navigation menu** on the HMI device. Users assigned to a role with read-only access can still interact with the **Navigation menu** and alarm tables. For example, a user with read-only access to an alarm table can still perform read operations, such as viewing alarms and details, selecting alarms and conditions, filtering alarms, and pausing alarms. The user cannot perform write commands that change the state of an alarm.
   - **No Access.** Denies access to open or interact with the item. The item does not appear in the **Navigation menu** on the HMI device.
5. To set individual role access to a shortcut, independent of the access to the screen on which the shortcut is based:

a. Select the shortcut.

b. In the **Properties** window of the selected shortcut, clear the **UseScreenSecurity** check box.

c. Select the access level for each role.

Do not base the security for a shortcut on its defining screen if the user has access to some shortcuts of a screen but should not have access to a particular shortcut.

See also

Restrict access to the HMI device on page 695

Restrict access to a graphic element on page 695

Project Explorer on page 95

Properties tab on page 494

Security overview on page 698

Restrict access to a graphic element

Restrict access to a graphic element to allow or disallow touch events. For example, prevent users from navigating to a screen in the project.

To restrict access to a graphic element

1. Select the graphic element on the screen.
2. In the **Properties** window, expand the **Security** category.
3. In the **Access** property box, select a security level from the list:
   - **Inherit** (default). The security level of the screen determines if the graphic element is enabled or disabled. Graphic elements that support cross-hatching when they are disabled display with cross-hatching.
   - **Full Access**. The security level of the screen is ignored and the state of the **Enabled** property for the graphic element is used to determine if the graphic element is enabled or disabled, and displays with cross-hatching.

Tip: If the **Enabled** property check box for the graphic element is cleared, the graphic element is disabled and shows cross-hatching regardless of the **Security Access** property setting.

See also

Security Administration dialog box on page 685

Restrict access to the HMI device on page 695

Restrict access to an item on the HMI device on page 354

Properties window on page 493

Security overview on page 698

Restrict access to the HMI device

Restrict access to the HMI device by selecting a method for users to log on to the HMI device:

To restrict access to the HMI device

1. On the **Project > Project Properties > Log On Method** tab, select a Security option:

- Use user name/password for logging on
- Use PIN for logging on

2. On the **Tools > Security Administration > Users** tab, enter a password or PIN for each user.
3. (optional) On the **Security Administration > Policies** tab, adjust the complexity requirements for passwords by specifying **Password Policy Settings**:
   - **Log off the user after a period of inactivity.** Set in minutes how long the user has to remain inactive to be automatically logged out.
   - **Minimum password length**. Specify the minimum amount of characters required. The maximum number allowed is 14.
   - **Password history**. Type the number of previous passwords to remember. This enforces a password history and sets how frequently you can reuse old passwords. The maximum number allowed is 24.
   - To disable this feature, set the **Number of Passwords to Remember** to zero.
   - **Passwords must meet complexity requirements.** Select this option to enforce complexity requirements when you create or change passwords.

Tip: Passwords that meet complexity requirements must:
- Not contain the User Name.
- Not contain any portion of the Full Name.
- Contain characters from three of four categories:
  - Uppercase characters of European languages (A through Z, with diacritic marks, Greek and Cyrillic characters)
  - Lowercase characters of European languages (a through z, sharp-s, with diacritic marks, Greek and Cyrillic characters)
  - Numbers 0 through 9

Non-alphanumeric characters ~!@#$%^&*_-+=`|\(){}[ ]:;"'<>,.?/

See also

Security Administration dialog box on page 685

Add a Security Administration user account on page 688

Configure password security policies on page 687

Security overview on page 698

What is the Guest user?

The Guest user is logged on automatically upon starting up the system and logging off. Anyone who is not logged on or has no assigned security role has Guest user access to the HMI screens. Guest users can access only the screens that have the same level of security that is given to the Guest user account. By default, the role of the Guest user is **Administrator** so the Guest user can view all screens.

The Guest user account saves time because it does not require users to log on to see HMI screens with a specific level of security. For example, to not require a user to log on before navigating screens with an **Operator** level of security, assign the Guest user the **Operator** security role.

To make the system more secure, assign the **None** security role to the Guest user. Users who are not logged on can then only view the **Home** screen regardless of the security assigned to any HMI screen.

To ensure that only Administrator users can change the settings on the HMI device to, for example, reboot the HMI device, assign any role but **Administrator** to the Guest user. For example, assign the **None** role.

See also

Security Administration dialog box on page 685

Add a Security Administration user account on page 688

Assign a role to the Guest user on page 693

Security roles on page 690

Security overview on page 698

Security for HMI devices

Access to the HMI device is either through user name and password or PIN.

Set up user accounts to access the HMI device on the **Security Administration** dialog box. Assign each user a password and/or PIN. Use the **Policies** tab on the **Security Administration** dialog box to create security policies such as password complexity and length and to enforce password strength.

Use the Guest user account to restrict users that do not log in. Have the Guest user view only the Home screen or certain screens.

The **HMI Device** screen in the **Predefined Screens** folder provides a way to prevent overwriting the runtime application in the HMI device. Clear **Allow Downloads** and **Firmware Updates** to prevent downloading a project or updating firmware on the HMI device.

See also

Security for screens, shortcuts, and popups on page 698

Security for graphic elements on page 697

Security for graphic elements

There are two ways to secure graphic elements on a screen:

- **Disable a property in the Appearance category.** Clearing the **Enabled** property for a graphic element prevents touch and key events for the graphic element. The graphic element appears cross-hatched regardless of the access assigned to the screen. Use this method if, for example, to disable a graphic element during a particular machine state. It is typical to set this security through binding for use at runtime.
- **Access property in the Security category.** The **Access** property in the **Security** category works with the **Enabled** property and the cross-hatch functionality of graphic elements. When **Access** is set to Inherit, the graphic element uses the security of the current screen to either show the graphic element as enabled or disabled and cross-hatched. For example, if the

screen is Read Only, **Access** is set to Inherit, and **Enabled** is selected, the graphic element appears cross-hatched. If the current screen security changes to Full Access, this enables the graphic element.

When **Access** is set to Full Access, the graphic element uses the state of the **Enabled** box to determine if the graphic element it is enabled or disabled and displays cross- hatched regardless of the security of the current screen. Use Full Access to enable a button with a screen navigation command even if the screen is ready only. The user on the HMI device can then navigate the project in Read Only mode. This enables all commands for the button, not just the screen navigation.

See also

Security for screens, shortcuts, and popups on page 698

Security for HMI devices on page 697

Security for screens, shortcuts, and popups

Access to HMI screens is based on role and not a specific user. A role is comparable to a Windows user group. Each user has a user account and an assigned role.

By default, all users on HMI devices have access to items in the **Project Explorer** that include:

- Shortcuts in **the Navigation Menu** folder
- Screens and popups in the **User-Defined Screens** or **Predefined Screens** folders. Navigate to these items on the HMI device by triggering an event that has a navigation command.

The root-level folder of a project is assigned Full Access, which gives users access to all items regardless of the assigned role of the user. The **Navigation Menu**, **User-Defined Screens**, and **Predefined Screens** folders inherit security access from the root folder.

Each folder and screen has a Security category that specifies that the level of access for each role to individual screens or the contents of a folder.

See also

Security for HMI devices on page 697

Security for graphic elements on page 697

Security overview

View Designer security provides the ability to control access to the runtime application by controlling access to:

- The HMI device
- Individual screens, shortcuts, and popups
- Graphic elements
- Downloads to the HMI device

Security is project-specific, not application-wide, and applies only to user (role) runtime access.

Security for the HMI device

Access to the HMI device can be a user name and password or PIN.

Set up user accounts on the **Security Administration** dialog box for everyone who interacts with the HMI device, and assign each user a password and/or PIN. Use the **Policies** tab on the **Security Administration** dialog box to create security policies, such as password complexity and length, to enforce password strength.

Use the Guest user account to restrict users who are not logged in to be able to view only certain screens, or limit their access to viewing only the **Home** screen. Assign the Guest User any role except the **Administrator** role to prevent any non-Administrator user, including Guest users, from changing settings on the HMI device. This prevents any non-Administrator user from performing tasks such as rebooting the HMI device.

Security for individual screens, shortcuts, and popups

Access to HMI screens is based on user roles, and not specific users. A role is comparable to a Windows user group. When creating a user account for each user, assign the user a role.

By default, all users on HMI devices have access to these items in the **Project Explorer:**

- Shortcuts in the **Navigation Menu** folder.
- Screens and popups in the **User-Defined Screens** and **Predefined Screens** folders. Navigate to these items on the HMI device by triggering an event with a navigation command. Users who do not have the Administrator role have read-only access to the **Settings** screen and related popups in the **Predefined Screens** folder.

The root-level folder of a project is assigned **Full Access**, which gives users access to all items regardless of role. The **Navigation Menu**, **User-Defined Screens**, and **Predefined Screens** folders inherit security access from the root folder. The Settings screen and its related popups in the **Predefined Screens** folder have Ready Only access for any user who does not have the Administrator role.

Each folder and screen has a **Security** category, which provides a way to select the level of access for each role for individual screens or the contents of a folder.

Security for graphic elements

There are two ways to secure graphic elements on a screen:

- **Enabled** property in the **Appearance** category. When you clear the **Enabled** property check box for the graphic element, it disallows touch and key events for that graphic element and shows as cross-hatched regardless of the **Security > Access** property setting for the screen. For example, use this method if,

during a particular machine state, the HMI designer wants the graphic element disabled. This is generally used with binding and controlled at runtime.

- **Access** property in the **Security** category**.** The **Security > Access** property works with the **Enabled** property and the cross-hatch functionality of graphic elements. When **Access** is set to **Inherit,** the graphic element uses the current screen **Security** setting to determine if it should be enabled or disabled and cross-hatched. For example, if the screen is **Read Only**, **Access** is set to **Inherit**, and the **Enabled** property is selected, the graphic element is disabled and displays cross-hatched. If the current screen security changes to **Full Access**, the graphic element is enabled and the cross-hatch does not show.

  When **Access** is set to **Full Access**, the graphic element uses the state of the **Enabled** property to determine if it is enabled or disabled and displays cross- hatched regardless of the current screen **Security** setting. For example, use this if the HMI designer wants a button with a screen navigation command to be enabled and active even if the screen **Security** level is **Read Only** so that the operator can navigate the project in Read Only mode. Use this capability with caution because all commands, not just screen navigation, for the button are enabled in this mode.

Security for downloads to the HMI device

The **HMI Device** screen in the **Predefined Screens** folder provides a way to prevent overwriting the runtime application in the HMI device. Clear the **Allow Downloads and Firmware Updates** check box on the HMI Device screen to prevent the download of a project or an update of the firmware on the HMI device.

See also

Security Administration dialog box on page 685

Add a Security Administration user account on page 688

Restrict access to the HMI device on page 695

Restrict access to a graphic element on page 695

What is the Guest user? on page 696

Enable VNC access rights to an HMI device

Specify access rights by entering a password for view-only or full control access. Users gain access rights when remotely connecting to an HMI device.

To configure VNC access rights to an HMI device:

1. Select **Tools > Security Administration**.
2. Select the **VNC** tab.
3. In the desired access area, enter and confirm a password to remotely connect to the HMI device. If assigning different access

rights for users, enter separate passwords in each area. Each user enters the password that grants the specified remote access.

- **VNC View-Only Access.** Grants read-only access to an HMI device.
- **VNC Full-Control Access.** Grants full interaction with an HMI device.

Tips:
- Passwords must be between 6 and 8 characters in length.
- The runtime application ignores any password characters beyond 8 characters entered.
- A blank password disables access. For example, to enable Full-Control Access, leave the VNC View-Only Access password blank to disable, and then enter a password for Full-Control Access.
- If passwords in the **Password** and **Confirm** boxes do not match, a red outline appears around the **Confirm** box and around the VNC tab.
- Do not use the same password for View-Only and Full-Control access. If the same password is set for View-Only and Full-Control, View-Only access is assigned to all users remotely connecting to an HMI device.

4. Select **OK**.

Tip: To reset a password for an access type, select the **Reset** button next to the access type.

Note: After rebooting the PanelView 5000 HMI device, the VNC server configuration automatically resets to the Disabled state.

See also

VNC tab on page 701

Security Administration dialog box on page 685

VNC tab

How do I open the VNC tab?

On the **Menu** bar, click **Tools > Security Administration**, and on the **Security Administration** dialog box, click the **VNC** tab.

VNC is a protocol used for remotely connecting to an HMI device. Use the **VNC** tab on the **Security Administration** dialog box to configure or change access rights for users remotely connecting to an HMI device. The available access rights are View-Only and Full-Control.

See also

Security Administration dialog box on page 685

Enable VNC access rights to an HMI device on page 700

Add locations to the allowed locations list

Add URLs to the allowed locations list to grant users access to external resources through the Web Browser. The locations can be network locations, or files and folders on the removable media inserted in the HMI device. If the HMI device has multiple USB drives inserted, the drive

inserted last is accessible. Add a maximum of 1000 locations. By default, the web browser blocks access to all locations not included on the allowed locations list. Add access to all servers used by the webpages that you add to the allowed locations list. Set access for different security roles.

To add locations to the allowed locations list

1. Select **Tools > Security Administration** and select the **Web Content** tab.
2. Select **Add URL** ✚. Focus sets on the new table row.
3. Enter an URL using one of these schemes:
   - http://
   - https://
   - ws://
   - wss://
   - sd:/
   - usb:/
   - (optional) use a scheme with an IP address or a ranges of IP addresses

     Tips:
     - Use the asterisk * to substitute a character or a string of characters.
     - Enter a single asterisk in the row to allow the security role to access all possible URLs.
     - Enter `*:/` / and an IP address to access a location that may use HTTP or HTTPS protocol.
     - Enter the schema without the rest of the URL to grant roles access to all locations using this schema.
     - When entering a range of IP addresses, place the range in parentheses, for example: http://1.1.1.(5-158) or use asterisk to represent all values in a decimal (0-255): https://1.1.1.*.
4. Select the security roles to access to the URL. By default, all roles are selected.
5. Select **OK** to save the changes and close the **Security Administration** window, or select **Add URL** ✚ to add additional locations.

See also

Web browser on page 758

Delete locations from the allowed locations list on page 702

Remove locations from the allowed locations list

Delete locations that you no longer want users to access. Remove locations from the allowed location list.

To delete locations from the allowed locations list

1. Select **Tools > Security Administration** and select the **Web Content** tab.
2. Select a row in the in the table. To select multiple rows, hold **Ctrl** when selecting.
3. Press **Delete**.

4. Select OK to save the changes and close the **Security Administration** window.

Add ports to open ports list

Add ports to the list of open ports to allow the HMI device to communicate with devices and web services that use specific ports. Add a maximum of 1000 ports.

To add ports to the list of open ports

1. Select **Tools > Security Administration** and select the **Ports** tab.
2. Select **Add ports to open**. The focus automatically moves to the new list row.
3. Enter a port number (1-65535) in the **Port** list.
4. Select **OK** to save the changes and close the **Security Administration** window, or select **Add ports to open** to continue adding ports.

See also

Delete ports from the list of open ports on page 703

Delete ports from the list of open ports

Remove ports from the list of open ports to no longer have the port open on the HMI device.

To delete ports from the list of open ports

1. Select **Tools > Security Administration** and select the **Ports** tab.
2. Select a row in the in the table. To select multiple rows, hold **Ctrl** when selecting.
3. Press **Delete**.
4. Select **OK** to save the changes and close the **Security Administration** window.

See also

Add ports to the list of open ports on page 703

Configure network-based security logon using Active Directory

Network-based security enables managing user accounts and user groups centrally. It allows network users to log on to an HMI device, authenticate with the Active Directory, and be granted authorization rights based on their role.

When network-based logon is used for a project, local users still may be configured and used on the terminal (for example for back-up). You can switch to local users on the logon pop-up in runtime.

Tip: Leaving the **Connection** fields blank will have the panel use local users at runtime.

Active Directory properties may vary depending on your company and the complexity of system architecture. If you find any problems during configuration, contact your Active Directory administrator.

Prerequisites:

Ensure that the logon method is set to use the user name and password:

1. From the main menu, select **Project > Project Properties.**
2. In the **Project Properties** window, select the **Log On Method** tab.
3. Select the **Use user name/password for logging on** radio button.

To configure network-based security logon:

1. From the main menu, select **Tools** -> **Security Administration**.
2. In the Security Administration window, select the **Connection and Groups** tab.
3. In the **Connection** section, fill in the required fields.

a. In the **Domain Name** field, enter your corporate domain.

IMPORTANT	During the Active Directory logon process, **user name** and configured **Domain name** are combined to define the **User Principal Name,** in the format <username>@<domain>.com. It is sent with a password to the domain controller for authentication. The username used for the **User Principal Name** must be used during Active Directory logon.
EXAMPLE	Correct format: jamessmith@domain.com, Incorrect format: domain.com\jsmith

b. In the **Domain Controller** field, enter the full address of the Active Directory server.

c. In the **Port** field, enter the number of the port.

Tip: Typical default ports are: no encryption – 389, StartTLS – 389, LDAPS – 636.

d. In the **Domain Distinguished Name** field, enter your domain distinguished name.

EXAMPLE	DC=domain,DC=com

e. If the connection requires encryption, select the encryption method.

IMPORTANT	Not using encryption for network-based authentication results in sending username and password as plaintext over the network. This creates a security risk. To use StartTLS or LDAPS encryption for logon, you are required to import the proper security certificate to the terminal by using the Certificates setting screen.

4. In the Groups and Roles section, click + next to Add new User Group.

   Tip: You can add and define multiple groups.

5. In the new section that appears, enter the following information:

a. In the **User Group Distinguished Name** field, enter a distinguished name of a group.

EXAMPLE CN=Operators,OU=Groups,DC=domain,DC=com

b. In the dropdown menu next to the **User Group Distinguished Name** field, select the role you want to assign to the group.

Tip: You can remove a group by clicking ×.

At runtime, when someone logs in, the Active Directory returns the group membership of that user. Now this group is mapped to a role, so the user gets the security role mapped to the Active Directory group they belong to. If a user belongs to multiple groups with different roles, they will get the first role configured in this list. If a user does not belong to any group mappings, the user will receive an error message on the PanelView 5000 when they log on.

6. Click **OK**.

   Tip: Active Directory properties may vary, depending on your company and the complexity of the system architecture. If You encounter any problems during configuration, contact your Active Directory administrator to obtain guidance or this configuration.

See also

Security roles on page 690

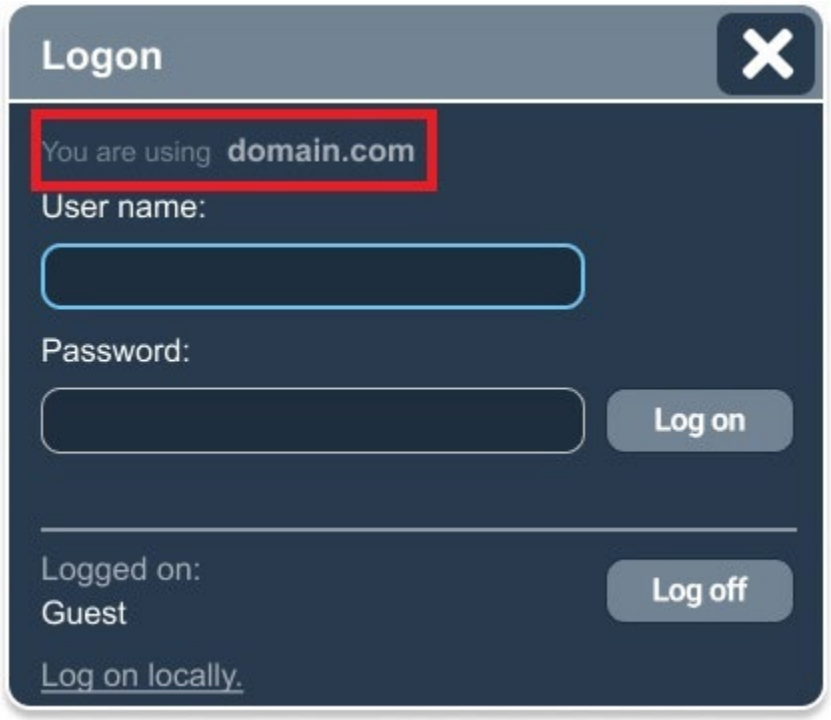
Log on using network-based security

To log on using network-based security:

1. To log on to the application using your network-based security configuration, on the top of the screen, select the log on button .

IMPORTANT The user name used for the **User Principal Name** must be used during Active Directory logon.

2. Ensure that you are logging on as a domain user, enter your Active Directory user name and password, and Select **Log on**.



IMPORTANT When StartTLS or LDAPS encryption method is configured, you are required to import the proper security certificate to the terminal by using the Certificates setting screen.

A caching mechanism is used for users who successfully logged on with Active Directory authentication. If the PanelView 5000 loses connection to the Active Directory, the user can still log on with cached domain credentials for 24 hours. After this period, logon is no longer possible without an Active Directory connection. The Cache is only cleared on project download, and not on reboot or restart.

Tip: You can switch between a local user and a domain user by selecting the link at the bottom of the **Logon** screen.

If the **Connection** information is left blank in View Designer, only local user logon will be used by the logon dialog at runtime.

See also

Import a digital certificate from removable media on page 772

Caching user credentials when using network-based security

Caching of credentials occurs when the user was successfully logged on to a terminal via Active Directory service but the terminal lost the connection to service or service became unavailable.

The cached credentials enable the user to logon with the domain logon and credentials used when the connection between the terminal and Active Directory worked. The cached credentials work for 24 hours after the last successful logon with AD. After 24 hours the cached credentials are deleted and the domain logon is not longer possible.

Note:

- The terminal restart or power down will not clear cache. When the terminal is running again, you can logon using cached credentials.
- When a project is downloaded, the credentials cache is cleared and logon ached credentials is not possible. To logon, you need to connect the terminal the Active Directory or use a local user.

Download and upload a project

Download a runtime application to an HMI device

Use the **Download Runtime Application** wizard to transfer a runtime application to an HMI device.

View Designer verifies a project automatically when you download a project to the HMI device. Invalid tags or expressions are listed in the **Errors** window.

See also

Download Runtime Application wizard on page 709

Download a runtime application to an HMI device on page 710

Errors window on page 522

Upload Runtime Application wizard on page 721

Download Runtime Application wizard

How do I open the Download Runtime Application wizard?

On the **Menu** bar, click **Communications > Download**.

Use the Download Runtime Application wizard to build the runtime application from a project and transfer it to the HMI device.

The wizard contains three pages:

- **HMI Device Location**. Use this page to:
  - Specify the communication path from the computer running View Designer to the HMI device to which the runtime application is to download.
  - Specify the language to display if the project contains multiple languages.
- **Controller References**. Shows the controller references for the project entered in the **Controller References** dialog box (**Project > Project Properties > References**). Use this page to verify the correct controller reference and project file are selected.
- **Download**. This page shows the progress of the download process as View Designer saves and verifies the project, builds the runtime application, connects to the HMI device, and transfers the runtime application to the HMI device.

If View Designer encounters a problem, an error message appears and the process stops. When View Designer finds invalid tags or expressions during project verification, the **Errors** window opens to list the warnings or errors associated with the tags or expressions. Resolve all errors before downloading the runtime application to the HMI device again.

IMPORTANT

- When downloading the runtime application to an HMI device that has a different screen size or aspect ratio than the configured device, specify how screens are scaled on the **Project Properties > Application** tab before proceeding.

When downloading a project or flashing an HMI device that has the screen saver running, the progress may not be visible. Stop the screen saver on the HMI device before beginning the download or flash process.

See also

Change the target HMI device for a project and select a Screen Scaling option on page 70

Add a controller reference on page 85

Errors window on page 522

Verify a project on page 718

About changing the project language on page 675

Download a runtime application to an HMI device

Use the **Download Runtime Application** wizard to transfer a runtime application to an HMI device.

IMPORTANT When downloading a project or flashing an HMI device that has the screen saver running, the progress may not be visible. Stop the screen saver on the HMI device before beginning the download or flash process.

Prerequisites

- Open the project to download to the HMI device.

To download a project to the HMI device

1. Select **Communications > Download** to open the **Download Runtime Application** wizard.
2. Next to the **Location** box on the **HMI Device Location** page, select **Browse** and select the IP address of the HMI device to download the runtime application. Select the IP address in the **Location** box. The **Location** box lists up to five previously used download locations.
3. (optional) If the project contains multiple languages, in the **Language** box, select the language to display in the project.

   Tip: If the translated string for the download language is also blank, View Designer defaults to the language used for designing the project.
4. Select **Next**.
5. On the **Controller References** page:
   - Verify the information is correct. If changes are required, exit the wizard. Make the necessary changes on the **References** tab (**Project** > **Project Properties** > **References**).
6. Verify the controllers are synchronized. The controller icon on the **References** tab of the **Project Properties** dialog box indicates the synchronization state of the controller. The icon indicates that the controller is synchronizing.

Tip: When starting the download process while the Logix Designer project is synchronizing with the View Designer project, the download process remains in the Building the runtime application process until synchronization is complete. This can take several minutes for a large controller application.

7. Select **Download** to start the download process. The **Download** page shows the progress of the download process as View Designer saves and verifies the project, builds the runtime application, connects to the HMI device, and transfers the runtime application to the HMI device.

If View Designer encounters a problem, an error message appears and the process stops. When View Designer finds invalid tags or expressions during project verification, the **Errors** window opens to list the warnings or errors associated with the tags or expressions. Resolve all errors before downloading the runtime application to the HMI device again.

Tip: If a project contains a data log, and there is no change to the configuration of the data log, previously collected data remains in the data log when the project downloads again.

See also

Download Runtime Application wizard on page 709

- Errors window on page 522
- About changing the project language on page 675

Download a runtime application to a different HMI device

The screens in a project represent the physical size of the HMI device selected for the project.

How and if the screens are scaled to fit the new HMI device is based on the scaling mode you select in the following procedure.

To download a runtime application to a different HMI device

1. Open the project.
2. On the **Menu** bar, select **Project > Project Properties**.
3. On the **Project Properties** dialog box, click the **Application** tab.
4. In the **Screen Scaling** section, select a scaling option:
   - **Scale with fixed aspect ratio.** (Default) When you resize the screen, content is resized to fill the screen as much as possible while maintaining the same aspect ratio. If the aspect ratio of the screens changes from regular (4:3) to wide, or vice versa, squares and circles do not elongate into rectangles and ellipses.
   - **Stretch to fit.** Resizes the screen content to fill the screen. As you resize the screen from wider or narrower and vice versa, squares and circles are elongated into rectangles and ellipses.
   - **Do not scale.** Keeps the screen content the same size and position on the new HMI device as the original screens. This assumes that Windows is calibrated to the DPI of the monitor on which View Designer is running. If the screen on the new HMI

device is smaller than the original screen, the selected scale mode is overridden to **Stretch to fit** to ensure that no screen content is clipped off.

5. Click **OK** to save changes and close the **Project Properties** dialog box.
6. From the **Menu** bar, click **COMMUNICATIONS > Download**.
7. In the **Location** box, click **Browse** and select the IP address of the HMI device to which the runtime application is to download.
8. Click **Next** to proceed to the **Controller References** page.

IMPORTANT
- Projects are optimized for screen performance and text accuracy for the HMI device for which they are configured. Although projects can be downloaded to and displayed on any HMI device, there may be a speed and text size difference between HMI devices.
- When downloading a project or flashing an HMI device that has the screen saver running, the progress may not be visible. Stop the screen saver on the HMI device before beginning the download or flash process.

See also

Scaling examples on page 72

Runtime application scaling on different HMI devices on page 77

Add a controller reference on page 85

Project Properties dialog box on page 68

Screen scaling overview on page 72

Save a runtime application to removable media

Save a View Designer runtime application as a .vpdr file. Files that are a .vpdr file download to the HMI device without using View Designer. Save the .vpdr file to removable media. After inserting the removable media in the HMI device, download the runtime application to the HMI device.

Prerequisites

- To save the runtime application to removable media, insert a USB storage device or SD card into the HMI device.

To save a project to removable media

1. Select **File > Save Project As**. Windows Explorer opens.
2. Navigate to the location to save the runtime application.

   Tip: Save the runtime application directly to a USB drive or SD card, or save the runtime application to another location and then copy the runtime application to the USB drive or SD card.

3. In the **File name** box, type a unique name for the runtime application.

   Tips:
   - Do not insert the characters ( ) or commas in runtime application file names. When selecting a .vpdr file to upload from removable media on the HMI device, any .vpdr file name that contains a comma or ( ) characters does not appear in the list selector. The list selector cannot show file names that contain a comma or ( ).
   - If typing the .vpdr extension as part of the file name, type the extension in lowercase letters.

4. In the **Save as type** box, select **View Designer Runtime Application (.vpdr)** and select **Save**. The **Save Runtime Application** wizard opens the **Save Runtime Application** page. The **Location** box on the **Save Runtime Application** page contains the specified location and file name.

   Tip: Downloading a .vpd project file to the HMI device from removable media is not supported.

5. In the **Default language used at startup of HMI device and for undefined translations** box, select the language in which to display the runtime application on the HMI device.
6. Select **Save**. The wizard builds and saves the runtime application on the removable device.

   Tips:
   - While saving, the project is verified. Any warnings and errors that occur appear. Select **Close** and correct any warnings or errors and then save the project again.
   - Select **Cancel** to not save the project.

7. When the save is complete, select **Close**.

   Tip: When the runtime application exists in a location other than removable media, copy the .vpdr from the location to the USB drive or SD card.

See also

Create a project on page 53

Save a project on page 62

Add an event command to safely remove media

Create an event that prepares the SD card that is in the HMI device for safe removal. When triggered, the event prevents the files on the SD card from becoming corrupt or read-only.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to safely remove media

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** command category and select **Safely Remove Media**.

   Tip: To create an indication of when the SD card is safe to remove, use the status from the DataLogStatus system tag.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Runtime application scaling on different HMI devices

When downloading a project to a different HMI device, screens automatically scale on the HMI device to fit based on the scaling option for the project. This does not affect the project contents in View Designer. The scaling option is appears on the **Application** tab of the **Project Properties** dialog box.

Downloading a project to an HMI device with a different DPI setting affects the display of screens:

- **Content placement**

  Screens appear in the center of the new HMI device. Any extra space required for **Scale with fixed aspect ratio** or **Do not scale** options appears equally on either side or above and below the screen. If the new HMI screen is smaller than the original screen, the **Do not scale** option is overridden to **Scale with fixed aspect ratio** to ensure screen content is not clipped.

- **Text**

  Text appears at the point size for the targeted HMI device. If the actual HMI device differs, the text stretches to fit the new area based on the scale mode selected. If the actual HMI device has a different aspect ratio and the scale mode selected is **Stretch to fit**, the aspect ratio of the text stretches or compresses to fill the new area.

- **System Banner**

  The **System Banner** is always as wide as the screen. The height of the **System Banner** depends on the selected scaling option.

- **Popups**

  Popups and their contents remain the same physical size as on the original screen unless they do not fit the screens on the new HMI device. In this case, the popups and their contents reduce to fit the new screen area while maintaining a fixed aspect ratio. This is regardless of the **Screen Scaling** option selected. After the screens convert, the relative space that the popups cover on the new screens is different from the original screens.

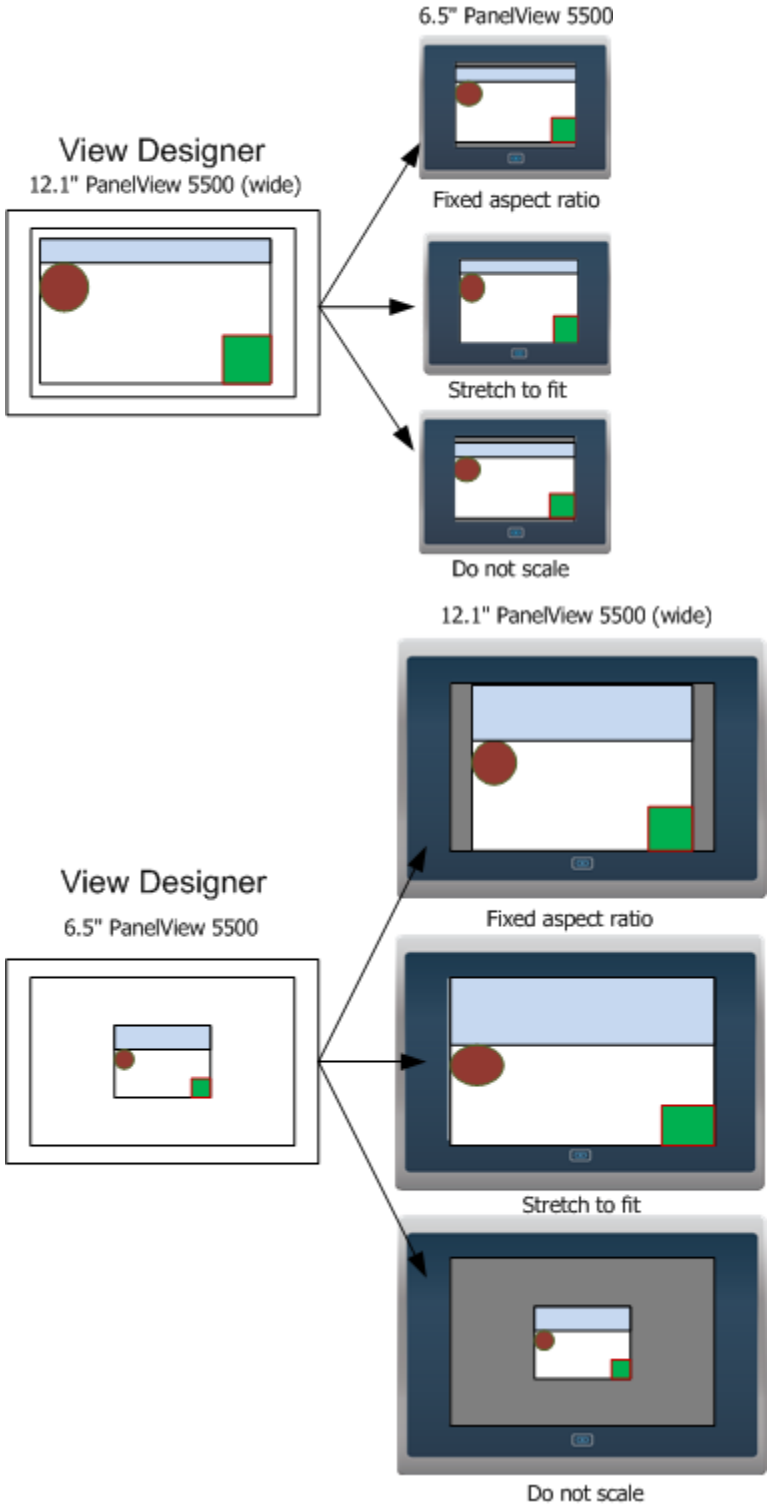
- Bindings to size and position properties

  Downloading a project to a different HMI device does not affect bindings to size and position properties of graphic elements. Update animation values in the controllers as necessary to match the new size and position values.

- **Raster images**

Bitmap or raster images store as a series of tiny dots called pixels. When adding a raster image to a View Designer screen, the image Height and Width property values in the **Properties** tab match the pixel size of the image. Raster images may appear unclear because View Designer scales the bitmap image to match the physical size of the image as it appears on the HMI device screen. Images appear sharp on the HMI device screen.

Loading a raster image on an HMI device that is different from the HMI device for the project results in the image appearing unclear compared to the original. Add ore remove pixels to match the new image size. The image size varies from with HMI device screen size.



See also

Project Properties dialog box on page 68

Screen scaling overview on page 72

Download a runtime application to a different HMI device on page 711

Errors window

How do I open the Errors window?

The **Errors** window opens automatically to display the invalid tags or expressions detected during project verification.

To open the **Errors** window manually, on the **Menu** bar, click **VIEW > Errors**.

The **Errors** window displays the results of project verification. It opens when View Designer detects invalid tags or expressions. Downloading a project automatically verifies that project. Verify a project at any time during project development. For example, verify a project if a controller is defined for the project.

Project verification verifies:

- The syntax of all expressions contained in the View Designer project
- The validity of parameters passed from one item to another and required error messages
- The existence of elements and properties referenced in an expression
- The existence of tags in the View Designer project in the referenced controller projects
- That Add-On Graphics do not contain direct bindings to controller tags or system tags
- That property bindings in the definition of an Add-On Graphic are formatted as ElementName.PropertyName
- That aliased properties of graphic elements in the definition of an Add-On Graphic are not bound
- That all tags in the data logs are valid.

Use the **Errors** window to:

- View the errors and warnings detected during project verification.
- Navigate to the source of the error or warning so that you can resolve the problem.
- Sort the results to group them by severity level, description, or location in the project.

See also

Verify a project on page 718

Verify Project dialog box on page 544

Sort the contents of the Errors window on page 718

Download a runtime application to an HMI device on page 710

Sort the contents of the Errors window

Sort the contents of the **Errors** window by type, description, or location in the project.

To sort the contents of the Errors window

- Click a column header to sort on that column. For example, to sort the results by location in the project, click the **Location** column header.

  Tip: Sort multiple criteria. For example, click the column header for the initial sort, and then hold the **Shift** key and click a second column header for the secondary sort.

See also

Errors window on page 522

Verify a project on page 718

Verify a project

View Designer verifies a project automatically when downloading that project to the HMI device. Verify a project any time during project development. For example, verify a project if a controller is defined for that project. Invalid tags or expressions appear in the **Errors** window.

View Designer identifies invalid expression syntax as an error. The expression does not work for the project when downloaded to the HMI device. Resolve errors before downloading a project to the HMI device.

An invalid tag reference shows as a warning. The project may work when downloading the project to an HMI device after fixing the tags in the controllers using Logix Designer. Resolving warnings is not required to download a project.

To verify a project

1. On the **Menu** bar, click **Project > Verify Project**. The **Verify Project** dialog box opens and verification begins.
2. If there are errors or warnings listed in the **Errors** window, double-click an entry to navigate to its source in the project, and make the necessary changes to resolve it.
3. Repeat the verification process until there are no errors or warnings listed in the **Errors** window. The list updates each time the verification process runs for the project.

   Tips:
   - View Designer verifies definitions of Add-On Graphics even if no instances of the Add-On Graphics exist in the project.
   - View Designer verifies tags in a data log even if no instances of the tag exist in the project.
   - Alternate methods of navigating to the source of an error or warning in the **Errors** window:
     - Click the hyperlink in the **Location** box.
     - Select an entry in the list and press **Enter**.
   - Alternate methods of starting the verification process:
     - In the **Project Explorer**, right-click the project name and click **Verify Project**.
     - On the **Standard** toolbar, click **Verify Project**

See also

Verify Project dialog box on page 544

Errors window on page 522

Sort the contents of the Errors window on page 718

Download a runtime application to an HMI device on page 710

Verify Project dialog box

How do I open the Verify Project dialog box?

On the **Menu** bar, click **PROJECT > Verify Project**.

The **Verify Project** dialog box displays the progress of the project verification process.

Project verification verifies:

- The syntax of all expressions contained in the View Designer project
- The validity of parameters passed from one item to another and required error messages
- The existence of elements and properties referenced in an expression
- The existence of tags in the View Designer project in the referenced controller projects
- That Add-On Graphics do not contain direct bindings to controller tags or system tags
- That property bindings in the definition of an Add-On Graphic are formatted as ElementName.PropertyName
- That aliased properties of graphic elements in the definition of an Add-On Graphic are not bound
- That all tags in the data logs are valid.

The **Errors** window displays the invalid tags and expressions detected by the project verification process.

See also

Verify controller tags on page 543

Errors window on page 522

Save Runtime Application wizard

How do I open the Save Runtime Application wizard?

1. Click **File > Save Project As** and navigate to an SD card or a USB drive on which to store the runtime application.
2. In the **File name** box, type a unique name for the runtime application.
3. In the **Save as type** box, select **View Designer Runtime Application (.vpdr)** and click **Save**.

Use the **Save Runtime Application** wizard to:

- Save a runtime application .vpdr file to removable media.
- Select the default language of the .vpdr file.
- Download a project to an HMI device without using View Designer.

After saving the runtime application to removable media, download the application by inserting the removable media in the HMI device and performing the download from the **Settings** screen.

Tips:

- When saving the runtime application, the syntax of all expressions, the elements and properties referenced in expressions, and the existence of all project tags in the referenced controller projects are verified.
- If View Designer encounters a problem, the **Save Runtime Application** wizard indicates that there is an error. Errors appear in the **Errors** window below the View Designer screen. Select **Close** to close the **Save Runtime Application** wizard and use the **Errors** window to navigate to the source of the error. Resolve all errors before saving the runtime application to removable media.

See also

Create a project on page 53

Save a project on page 62

Save a runtime application to removable media on page 63

Upload a runtime application from an HMI device

Use the **Upload Runtime Application** wizard to transfer a runtime application from an HMI device to a computer.

In the wizard, specify the communication path between the HMI device and the computer to which it will be uploaded and then specify where you want to save the uploaded runtime application file.

See also

Upload Runtime Application wizard on page 721

Upload and save a runtime application on page 720

Download Runtime Application wizard on page 709

Load an application from removable media on page 755

Upload and save a runtime application

Use the **Upload Runtime Application** wizard to transfer a runtime application from an HMI device to a computer. Perform the transfer if the .VPD project file no longer exists on the computer that is running View Designer. This allows making further changes to the project and downloading the project to the HMI device again.

IMPORTANT Runtime applications contain a .vpd extension. Downloading a file without a .vpd extension to an HMI device is not supported.

To upload and save a runtime application:

1. On the **Menu** bar, click **Communications > Upload** to start the **Upload Runtime Application** wizard.
2. In the **HMI Device Path** box on the **HMI Device Location** page, select the IP address of the HMI device containing the runtime application:
   - Click the arrow to select a previously used path.
   - Click **Browse** and select the HMI device.

3. Click **Upload**. The **HMI Device Location** page displays the progress of the upload process.
   - If a problem exists, an error message displays at the point it occurred and the process stops. Resolve all of the errors before uploading the runtime application.
4. When the upload is complete, click **Save**.
5. In the **Project File** box on the **Save** page, select the location to save the file:
   - Click **Browse** ... to navigate to the location.
   - Type the path in the **Project File** box.
6. Click **Save**.
7. When **Finished** is selected to indicate the process is complete, click **Close**.

Tip: The first time using the **Upload Runtime Application** wizard, the **HMI Device Path** box is blank. On subsequent use of the wizard, the **HMI Device Path** defaults to the most recent IP address that was used successfully.

See also

- Upload Runtime Application wizard on page 721

Upload Runtime Application wizard

How do I open the Upload Runtime Application wizard?

On the **Menu** bar, click **COMMUNICATIONS > Upload**. This option is also available on the Studio 5000 Launcher.

Use the **Upload Runtime Application** wizard to transfer a runtime application from an HMI device to a computer.

The wizard contains two pages:

- **HMI Device Location**. Use this page to specify the communication path from the HMI device containing the runtime application to the computer to which it will be uploaded.

  This page displays the progress of the upload process. If View Designer encounters a problem, an error message displays at the point it occurred, and the process stops.
- **Save**. Use this page to specify where you want to save the uploaded runtime application file. This page is available only when the runtime application file has been successfully uploaded from the HMI device.

See also

Upload and save a runtime application on page 720

Add an event command to load a runtime application

Create an event to load a runtime application from a USB storage device or SD card. Add a **Load Application** command to a touch or key event to load the application. When triggered on the HMI device, the event with the command loads the .vpdr file from the specified removable media. If required, the **Load Application** command updates the firmware version on the PanelView 5000 HMI device before loading the runtime application file. To enable updating firmware, copy the correct version of

the .dmk firmware file to the removable media along with the .vpdr application file.

Tip: Firmware update using the Load Application command only works in two cases:
1. When the firmware on the HMI device is already V6 or later, and the firmware you want to load is V6 or later.
2. When the HMI device is running out-of-the-box manufacturing firmware, was manufactured after the V6 release date, and the firmware you want to load is V6 or later.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to load a runtime application

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** command category and select **Load Application**.
4. Under **Load Application from** on the command card, in the **Source** box, select **USB** or **SD Card**.
5. In the **FileName** box, type the name of the runtime application to load.

   Tip: Bind the **FileName** box of the Load Application event command to a graphic element property or a tag in the controller. Binding the file name specifies the file name to load on the HMI device. For example, bind the **FileName** box of the **Load Application** event command to the text property of Text Input graphic element. Use the Text Input graphic element to then enter the name of the .vpdr file to load from the removable media to the HMI device.
6. In the **HMItoControllerPath** box, specify the controller path to use by selecting either:
   - **Keep paths on HMI device.** Use the HMI to controller path currently in use on the HMI device.
   - **Load path in VPDR file.** Use the HMI to controller path in the runtime application file that is loading.
7. In each box, select **Select tag** to open the **Tag Browser** and browse to select the tag or manually enter a graphic element property to receive the value to display on the HMI device when the event command triggers:
   - **FirmwareUpdateRequired**. Whether or not a firmware update is required on the HMI device to load the runtime application file from the removable media.
   - **VPDRMajorVersion**. The major version of the runtime application file on the removable media.

- **FirmwareVersionToInstall**. The version of the firmware that the **Load Application** command installs on the HMI device from the removable media.

  Tip: Rockwell Automation recommends binding to tags of graphic element properties in the **FirmwareUpdateRequired**, **VPDRMajorVersion**, and **FirmwareVersonToInstall** boxes to display updated firmware version information on the HMI device when loading the runtime application file.

See also

[Trigger an action on a Key Press or a Key Release event](#) on page 451

[Trigger an action on a Touch Press or a Touch Release event](#) on page 453

[Event commands](#) on page 456

[What is an event?](#) on page 476

[Save a runtime application to removable media](#) on page 63

Event commands

Select a command under a category to perform when an event triggers:

Category	Command	Description
Alarm History	Cancel Alarm History Export	Cancels the export of the alarm history.
	Clear Alarm History	Removes all alarm events stored on the HMI device.
	Export Alarm History	Exports a .csv file for the alarm history in the project to a .zip file and places the .zip file on a USB drive or SD card to review the alarm history on a computer.
Certificates	Delete Certificate	Deletes a digital certificate stored on the HMI device. This command requires entering the fingerprint of a specific certificate.
	Import Certificate	Imports a digital certificate with a specified file name.
Data Log	Cancel Data Log Export	Cancels the export of the data log.
	Clear Data Log	Clears the contents of all data logs or selected data logs.
	Export Data Log	Exports a .csv file for each data log in the project to a .zip file and places the .zip file on a USB drive or SD card to review the data log on a computer.
HMI Device Configuration	Calibrate Touch Screen	Calibrates the HMI device screen for touch. This command displays a red target on the screen. Press and hold the center of the target until the target turns white and another red target appears. Continue pressing and holding the centers of all remaining targets as they appear. All processed targets are replaced with white targets. A green circle with a check indicates successful calibration. A red circle with an X indicates a failed calibration. If a red circle with an X appears, perform the event again to calibrate the screen.
	Load Application	Loads the specified runtime application file to the HMI device from either a USB storage or an SD card.
	Reboot Terminal	Reboots the HMI device immediately.
	Safely Remove Media	Prepares the SD card for safe removal from the HMI device so the files do not become corrupt or read-only.
Language	Switch Language	Changes the language that displays on the HMI device. **Tip:** Import the desired languages before changing the language that displays on the HMI device.
Navigation	Navigate Backward	Navigates back in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
	Navigate Forward	Navigates forward in history to the screen opened using the **Navigation** menu or a **Screen Navigate** command. Logging off the HMI device erases the navigation history.
	Open web browser	Opens the web browser in a new window.

Category	Command	Description
	Close web browser	Closes the web browser.
	Popup Close	Closes the popup on the HMI device when the event occurs. Only one popup can be open on the HMI device at a time.
	Popup Open	Opens a specific popup when the event occurs. Only one popup can be open on the HMI device at a time. In the **Open Popup** box, navigate to and select the popup the event is to open. If the selected popup has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the popup. This passes the value to the popup when it opens on the HMI device. If a graphic element on the popup to open has an aliased property with a value, the Popup Open command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the popup with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target popup.
	Screen Navigate	Opens the specified shortcut or screen when the event occurs. In the **Navigate To** box, select the screen or shortcut that the event is to open. If the selected screen or shortcut has a user-defined data type property, bind the value in the **Property Configuration** box to the user-defined data type property of the screen or shortcut. This passes the value to the screen when it opens on the HMI device. If a graphic element on the screen to open has an aliased property with a value, the Screen Navigate command can read the value from a referenced graphic element and apply it to the alias. In the **Property Configuration** box at the bottom of the command, enter the name of the graphic element and the property that has the value to apply to the aliased property. Use the format ElementName.PropertyName. When the event triggers, the graphic element on the screen with the aliased property shows the property value of the graphic element that is referenced in the **Property Configuration** box. The **Property Configuration** box appears for the command only if there is an aliased property or user-defined property on the target screen.
	Show Navigation Menu	Opens the **Navigation** menu on the HMI device screen when the event occurs.
Notification	Send Email	Sends an email with a configurable subject and message to one or more recipients. First configure the email server connection from the Settings screen on the HMI device.
PDF	Previous Page	Navigates to the previous page in a PDF document.
	Next Page	Navigates to the next page in a PDF document.
	Go To Page	Navigates to a specified page in a PDF document.
	Zoom in	Increases the document magnification by a percentage of the preset level in a PDF document.
	Zoom out	Decreases the document magnification by a percentage of the preset level in a PDF document.
	Zoom to	Adjusts the magnification to fit the page, fit the width of the page, or display the page at 100% magnification.
Security	Logon	Opens the **Log On** dialog box when the event occurs. When the **Log On** dialog box opens, any open popup closes.
	Logoff	Logs you off the project. If the Guest user role has security access to the current screen, the screen remains open. If the Guest user role does not have security access to the current screen, the **Home** screen opens.
State	State Previous	Applies the previous state in the selected State Table to the graphic element when the event occurs. To configure this command, in the box in the command card, select the name of the desired State Table. Select **Wrap Around** to continue to apply states when the event occurs, even if the beginning or end of the State Table is reached. If you create a **State** event with a **State Previous** command with **Wrap Around** selected, the graphic element loops through states in the State Table as the event occurs.

Category	Command	Description
	State Next	Applies the next state in the selected State Table to the graphic element when the event occurs. To configure this command, in the box in the command card, select the name of the desired State Table. Select **Wrap Around** to continue to apply states when the event occurs, even if the beginning or end of the State Table is reached. If you create a **State** event with a **State Next** command with **Wrap Around** selected, the graphic element loops through states in the State Table as the event occurs.
Value	Increment	Increments the value of the selected tag when the event occurs. Specify the value with a number, a tag, an expression, an element property, or the property of a screen or Add-On Graphic. In the **Increment** box, enter or browse to select the tag or property of a screen or Add-On Graphic. In the **By** box, create the expression value by which to increment the tag when the event occurs. The increment can be either negative or positive.
	Toggle	Toggles the value of the selected tag from 0 to 1, or from 1 to 0, when the event occurs. In the **Tag** box, enter or browse to select the tag or property of a screen or Add-On Graphic.
	Write	Writes a value to the selected tag when the event occurs. Specify the value with a number, a tag, an expression, an element property, or the property of a screen or Add-On Graphic. In the **Write To** box, enter or browse to select the tag or property of a screen or Add-On Graphic. In the Expression box, create the expression value to write to the tag when the event occurs.

Tips:

- For best performance, create commands that evaluate no more than 20 tags.
  For example, it is best for a Write command to have an expression containing no more than 20 tags or a Send Email command to embed no more than 20 tags in the message.
- For commands with expressions using many tags in a reference, have 10 or fewer such commands in an event for best performance.
- Using larger numbers of tag references in many commands may cause slow screen performance while those commands evaluate.
- Reference 1000 or fewer tags across all the project events. Using a larger number of tag references may cause delays in PanelView 5000 recovery from controller disconnects.
- If the HMI device processes a large number of background tasks, like multiple triggered alarms, you may need to repeat a button press to execute the button commands.

See also

Trigger an action on a Key Press or a Key Release event on page 451

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a State Enter or State Exit event on page 454

Import a language file on page 671

Export text strings for language translation on page 670

Add an event command to safely remove media

Create an event that prepares the SD card that is in the HMI device for safe removal. When triggered, the event prevents the files on the SD card from becoming corrupt or read-only.

Prerequisites

- Create an event to trigger the command:
  - **Touch press.** Occurs when touching the item on the screen that is configured with the event.
  - **Touch release.** Occurs when releasing the item on the screen that is configured with the event.
  - **Key press.** Occurs when pressing the specified key.
  - **Key release.** Occurs when releasing the specified key.

To add an event command to safely remove media

1. Select the graphic element configured with the touch or key event.
2. In the **Properties** pane on the **Events** tab, select **Add Command**.
3. Expand the **HMI Device Configuration** command category and select **Safely Remove Media**.

Tip: To create an indication of when the SD card is safe to remove, use the status from the DataLogStatus system tag.

See also

Event commands on page 456

Change a command that an event performs on page 474

Delete a command from an event on page 475

Trigger an action on a Touch Press or a Touch Release event on page 453

Trigger an action on a Key Press or a Key Release event on page 451

Exit View Designer

Exit View Designer to close the software product. Save or discard any changes before exiting.

To exit View Designer:

1. Select **File > Exit**.
2. If prompted, save or discard any unsaved changes to the project.

See also

Close a project on page 64

Save a project on page 62

Import and export

Use the import and export features in Studio 5000 View Designer® to export View Designer content formatted as text. You can then import the text as content into other View Designer projects. It is also possible to automate project creation or editing (for example with a scripted programming language). A View Designer project exports content in the following formats:

- Screens. Export as .hmi files in a folder that has the same structure as in **Project Explorer**.
- Popups. Export as .hmi files in a folder that has the same structure as **Project Properties**.
- Add-On Graphics. Export as .hmi files. These files appear in the **Assets\Add-On Graphics** folder.
- Documents. Export as .pdf files. These files appear in the **Assets > Documents** folder.
- Images. Export as .jpg, .png, .bmp, or .svg. These files appear in the **Assets > Images** folder.
- Data Logs. Export as .hmi file. These files appear in the **DataLogs** folder.

For more information on import and export, refer to the Studio 5000™ View Designer Import/Export Reference Manual, publication 9324-RM001A-EN-P.

Import content into a View Designer project

Import project content, such as screen, popup, or graphic into another View Designer project. You can import previously exported project content, or other content created in the supported formats. The imported elements overwrite the existing elements in the target project, if they have the same name. If you need to recover any content overwritten by the import, the original target project is saved as a backup file stored in you project directory.

Tip: It is recommended to import a project on the same panel type it was created for. Import for different panel type changes the size, position and shapes of graphic elements.

1. Open the target View Designer project you want to import content to.
2. In the menu bar, select **File >Import**.
3. Navigate to the folder that contains the View Designer text file.
4. Select the **ViewApplication.hmi** file and then select **Open**. **Import project** displays a progress bar.

   Before the import is complete, you can cancel it by clicking **Cancel Import.**

When the import is complete, the content appears in the target View Designer project.

Export a View Designer project

Export the contents of a View Designer project to a text .hmi file. You can import the exported project to another View Designer project, and you can use any text editor that supports the .hmi file format to modify the project. Netwotk paths and Sharepoint is not supported, but you can use drive mapping. For more information, see Best practices and limitations.

1. With the project open in Studio 5000 View Designer, from the menu bar, select **File > Export**.
2. In **Export project**, enter or browse to the location where you want the exported content to exist.

   Tip: **Name** contains the name of the project as it appears in View Designer.
3. Select **Export**. "Export successful" appears.
4. To open the location of the exported content, click the link to the file path. The path contains a folder with file that has the same name as your View Designer project.
5. Use a text editor to open any exported file and view or make changes to the content.

Use the runtime application

The runtime application is downloaded to an HMI device for interaction at runtime. Each runtime application has its own look and feel based on its configuration in Studio 5000 View Designer. Using the data configuration and application created in Studio 5000 View Designer, the HMI device screen animates the contents of the project by responding to data values from the controller. If configured, the screen responds to touch and keys.

Use the runtime application to interact with screens and data and to perform system operations.

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Use the runtime application to interact with screens and data and to perform system operations.

Runtime application components

Screens appear on the HMI device for the downloaded application. An example screen contains:

Item	Name	Description
1	Content	The screen displays the content of the example project created in Studio 5000 View Designer. Project content may include data, graphic elements, and popups with additional information.
2	System Banner	By default, the **System Banner** at the top of each screen in the project contains buttons to: • Open the **Alarm Summary** screen. • Open the **Automatic Diagnostics** screen. • Open the last and next screens in the navigation history. • Log on to the project. • Open the **Navigation menu** at the bottom of the screen. • Open the **Data Log** popup for details about the status of a data log if one is configured for the project. • View network and controller status. • Open the **Controllers General** popup to display information if there is an issue with a controller.

❸	Navigation menu	The **Navigation menu** displays items for the assigned security role of the logged in user. To display the menu: • Select **Navigation** in the **System Banner**. • Push the button on the HMI device. • Press **Alt+N** on an external keyboard. From the **Navigation menu**, select an item to open the screen, or select a folder to open its contents in a second row on the **Navigation menu**. Using an HMI device keypad or external keyboard, arrow key to highlight the item and press **Enter**.

See also

Open a screen on page 757

System Banner contents on page 731

Navigation menu contents on page 732

System Banner

The **System Banner** appears at the top of each screen in a project by default. It contains default navigation items:

- A button to open the **AlarmSummary** screen
- The current number of unacknowledged alarms
- **Previous** and **Next** button
- The username of the logged on user.
- Diagnostic icons indicating the status of data logging and project events.
- Network and controller status
- The current date and time for the HMI device
- Controller information for controller issues

The HMI designer may change the **System Banner** to:

- Add graphic elements, such as buttons, text displays, or configured elements such as a gauge to display a data value.
- Omit default items.
- Change the appearance of the **System Banner**, such as background color or height.

Graphic elements with invalid tag values are outlined in red on the HMI device. An **Error** icon pointing down appears in the **System Banner** for graphic elements with invalid tag values that exist outside of the **System Banner**.

See also

System Banner contents on page 731

Navigation menu on page 732

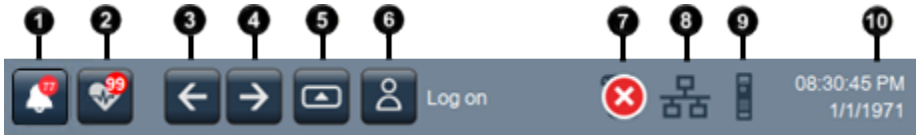
Navigation menu contents on page 732

Virtual Numeric Keypad on page 736

Virtual Standard Keyboard on page 737

System Banner contents

By default, a **System Banner** with default content appears at the top of each screen. The HMI designer may configure the **System Banner** to add or remove items from the **System Banner**.



Item	Description	
1		**Alarm Status Indicator** opens the **Alarm Summary** screen on the HMI device. • The button shows that there are no alarms. • The button on the screen turns red and flashes when there are active alarms that are unacknowledged. • The button returns to a gray icon with a numbered notification showing the number of unacknowledged alarms when all alarms return to normal but some alarms are still unacknowledged. • The button turns to red when there are active alarms and all of them are acknowledged.
2		**Automatic Diagnostics Indicator** opens Automatic Diagnostics screen on the HMI device. The button shows a notification with the number of active diagnostics. The button returns to an outlined icon when no diagnostics are active.
3		**Previous** displays the previous screen in the navigation history on the HMI device.
4		**Next** displays the next screen in the navigation history on the HMI device. To navigate with **Next** requires displaying a previous screen first.
5		**Navigation** displays the **Navigation menu** at the bottom of the screen on the HMI device. Use the **Navigation menu** to display shortcuts and folder contents.
6		**Log On** logs on or off the project. The name of the logged on user appears in the **System Banner**. The logged on user sees only the screens for which the assigned user role has access.
7	**General Diagnostics Status** for the data log status and project event errors. These icons appear depending on the status of data export and project events. • **Data export ongoing.** The data log is exporting. • **Data export error.** The data log is in error while collecting data or exporting. • **Data export remove.** The media containing the data log is ready to remove without corrupting files or making files read-only on the USB storage device or SD card. • **Data export warning**. Tags in the data log are in error. Select the icon to view the error details. A data log status icon only appears when a project contains a data log and there are no project event errors. • **Error**. Project events and data logs are in error. Select this icon to open the predefined popup for data log and project event status details. • **Project Event.** Project events are in error. Select the icon to view the error details. The Project Event Error icon only appears when a project event is in error.	
8	A **Network Status** icon appears only if there is an issue with network communication. Select the icon to open the **HMI Device Configuration Network** popup for details about the issue. • **Network caution.** The network is functioning but has an issue that requires attention. For example, the Device Level Ring may have a break. • **Network error.** The network is not functioning. An Ethernet link is disconnected, or there is a duplicate IP address.	
9	A **Controller Status** icon appears only if there is an issue with any controller in the project. Select the icon to open the **Controllers General** popup for details about the issue. • **Controller error.** Any controller in the project is disconnected, powered down, or not configured. • **Controller caution.** Any controller in the project is not in **Run** mode or the tag data of a controller is not synchronized with the HMI device. • **Controller unknown.** No controller in the project is visible and it is unclear if a controller should be visible to the HMI device. This may occur when a controller is on a disconnected side of the network.	

10	The current time and date of the HMI device.

See also

System Banner on page 730

Navigation menu on page 732

Navigation menu contents on page 732

Virtual Numeric Keypad on page 736

Virtual Standard Keyboard on page 737

Navigation menu

Use the **Navigation menu** to browse the contents of the application and open screens. The **Navigation menu** on the HMI device displays the contents of the project in Studio 5000 View Designer. The **Navigation menu** appears at the bottom or left side of the HMI device screen. To access the **Navigation menu**:

- Select **Navigation** in the **System Banner**.
- Push the button on the HMI device.
- Press **Alt+N** on an external keyboard.

The menu items in the **Navigation menu** depend on the security access granted to the security role assigned to the logged on user. Security is set in Studio 5000 View Designer. For the Operator role, the **Navigation menu** displays only the items to which the Operator has access. Guest is the default user. When not logged in, only the items to which the Guest role has access appear in the **Navigation menu**.

See also

Navigation menu contents on page 732

Open a screen on page 757

Log on on page 752

Log off on page 773

Bottom navigation menu contents

Folders and screens for which security access is granted appear in the **Navigation menu**. By default, the **Navigation menu** contains items for the **Alarm Summary**, **Alarm Manager**, and **Settings** screens.

Item	Description
1	The main row of the **Navigation menu**. This row contains the **Home** screen for the project and any folders and screens created at the root level of the project. The default content for the main row of the **Navigation menu** includes the **Alarm Summary**, **Alarm Manager**, and **Settings** items. These items open the default screen of the application, screens to view alarm tables and manage alarms, and a screen to configure settings for the HMI device.
2	Selecting a folder shows the contents of the folder in an upper row of the **Navigation menu**. The upper row is blank when selecting an empty folder. The open item is highlighted. Carets appear around the selected item. Not selecting a folder in the bottom row of the **Navigation menu** shows no upper row.
3	The back arrow in an upper row of the **Navigation menu** navigates back one folder at a time.
4	The current folder path, in the form of breadcrumbs, shows in an upper row of the **Navigation menu**.
5	When there are more items than can appear in the **Navigation menu**, arrows appear at either end of the **Navigation menu**. The **Next** arrow that points right appears after the number of menu items surpasses the width of the **Navigation menu**. The **Previous** arrow that points left appears when no longer showing the first page of items. Use the arrows to scroll to additional pages of menu items.
6	Dots indicate which page of the **Navigation menu** contents is open. The dot for the open page is highlighted.

See also

Navigation menu

Open a screen on page 757

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Settings screen on page 740

Popup

A popup is a small window that appears superimposed on the screen. It opens in response to a triggered action. An event configured with a **Popup Open** command opens a popup. If the event is a touch press event on a button, selecting the button opens the popup. A state change to a graphic element, such as the graphic element changing colors, can open a popup automatically. To verify which action opens a popup, contact the HMI designer.

Only one popup can open at a time. If the contents of the popup is larger than the popup, the contents appear clipped at the edges of the popup. It is not possible to view clipped content.

Touching elsewhere on the screen or selecting **Close** on the caption of the popup closes the popup. The initial touch outside of the popup does not perform an action on the graphic element or screen.

See also

Popup contents on page 119

Interact with a popup on page 759

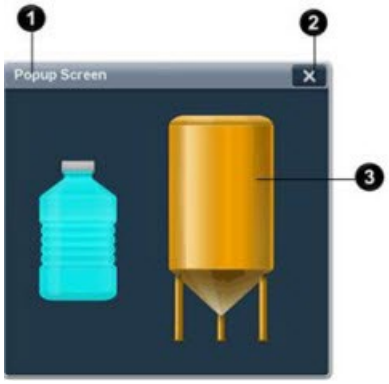
Trigger action to interact with a screen on page 760

Navigation menu on page 732

Open a screen on page 757

Popup contents

A popup is a small window superimposed on a screen. A popup has basic components:



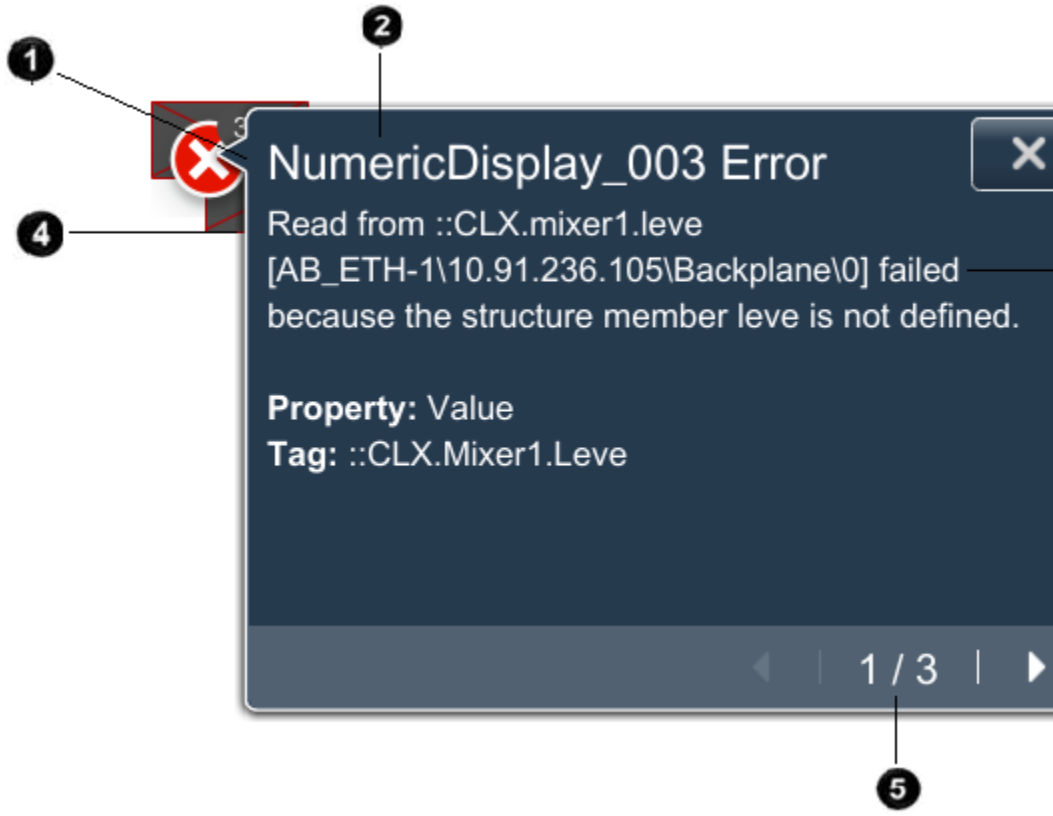
Item	Description
1	An optional caption describing the contents and data the popup contains. On the HMI device, move a popup by dragging the caption. If a popup does not have a caption, the popup cannot move on the HMI device.
2	An optional **Close** button. Select **Close** to close the popup on the HMI device. Other methods of closing popups include selecting elsewhere on the screen, opening the **Navigation menu**, opening another screen or popup, or creating an event with a **Popup Close** command.
3	The contents of the popup.

See also

Popup on page 733

Error list contents

An **Error list** appears for any graphic element or group of graphic elements in error. An **Error** icon appears on the graphic element or group. This icon opens the **Error list**. The item in error can be a graphic element, popup, or an **Alarm Summary** or **Alarm Manager**.



Item	Description
1	The number of graphic elements in error. An individual graphic element in error shows no number on the **Error** icon. If the **Error** icon displays a number, there are multiple graphic elements in error that are located close to each other. The **Error list** contains a page of diagnostic messages for each graphic element in the group.
2	The name of the graphic element affected by the current page of errors. Scroll horizontally to view long names.
3	The diagnostic messages for the item in error. • **Graphic element.** If a graphic element is in error, the **Error list** displays the tag associated with the error, the property not applied to the graphic element due to the error, and a description of what caused the error. • **Alarms.** If an **Alarm Summary** or **Alarm Manager** is in error, the **Error list** displays the affected alarm property, and a description of the alarm error.
4	When selected, the graphic element in error appears filled with a color that contrasts the background color of the screen.
5	When there are multiple graphic elements in error, numbers indicate the graphic element. If there are three graphic elements in error while viewing diagnostic messages for the first graphic element, the **Error list** displays 1/3. The **Next** and **Previous** buttons show the diagnostic messages for the next and previous graphic elements.

See also

Error list on page 736

View error messages for a graphic element on page 769

Error list

How do I open the Error list?

On the graphic element or group of graphic elements outlined in red, tap the **Error** icon or tab to the icon and press **Enter**.

An **Error list** contains a snapshot of the diagnostic messages associated with a graphic element or group of graphic elements in error. The **Error list** is static. Closing and reopening the **Error list** for a graphic element crosses out resolved errors. When a graphic element or group of graphic elements has errors, the graphic element or group appears outlined in red and has an **Error** icon .

Errors occur for reasons including, but not limited to:

- A tag is missing.
- A tag is unavailable due to public/private Logix protection.
- A data type is incompatible with the type of graphic element.
- There is a faulted or missing controller.
- There is a disconnected controller. PanelView 5000 detects a disconnect in communication within five seconds. Before five seconds expire, static data values may appear on a screen and repeating values may appear in a data log when the sample rate is less than five seconds. After five seconds, the data appears as bad quality. Updated data appears when reconnecting the controller.
- There is a broken cable or other network issue.
- Services that impact data delivery are hung or stopped.
- A state change event caused the error.
- An operation performed on an alarm failed. Refreshing errors for an alarm table is not supported. Perform the operation on the alarm table again. If the error occurs again, reopen the **Error list**. Resolving errors that appear on a disabled alarm table button is not supported. Disabled buttons appear with diagonal hash marks across them. The HMI Designer can enable the button in Studio 5000 View Designer.
- An event displays a diagnostic error. Manually removing errors when an error occurs due to a state change is not supported. Another state change event must remove the error.

See also

Error list contents on page 734

View error messages for a graphic element on page 769

Virtual Numeric Keypad

Selecting a graphic element requiring numeric input opens the **Virtual Numeric Keypad**:

Item	Description
1	In the **Input** box, type the numeric value for the selected screen or graphic element. The number displayed and initially highlighted in the **Input** box is the value of the tag bound to the element. Entering an incorrect value shows a red outline around the **Input** box. The minimum or maximum value exceeded appears in red below the **Input** box. The **OK** key is disabled until the error is corrected.
2	**Clear** removes the value from the **Input** box.
3	The displayed minimum and maximum values to enter for the selected element. Entering a value that exceeds the minimum or maximum value shows a red outline around the **Input** box.
4	**Backspace** deletes one number to the left at a time.
5	**Positive-Negative Value** toggles the value in the **Input** box between negative and positive numbers.

See also

Virtual Standard Keyboard on page 737

Enter data using the Virtual Standard Keyboard on page 753

Trigger action to interact with a screen on page 760

Virtual Standard Keyboard

The **Virtual Standard Keyboard** opens when interacting with a graphic element that requires text input.

Item	**Description**
1	Type characters in the **Input** box. Any entry for the graphic element appears highlighted automatically when the **Virtual Standard Keyboard** opens. There is no limit to the number of characters in the **Input** box. The characters at either end of the **Input** box appear with a gradient when not all of the typed characters are visible. Scroll horizontally to see the remaining characters.
2	**Clear** removes all characters from the **Input** box. This key appears only when there are characters in the **Input** box.
3	**Backspace** deletes one character to the left at a time.
4	**Language Selector** displays an alpha European character on each key. Display characters in upper or lowercase.
5	**Symbols** displays a symbol on each key. To redisplay the standard alpha characters, tap **ABC**, which replaces **Symbols** .
6	**Shift** toggles the keyboard between uppercase and lowercase letters for one keystroke.
7	**Caps Lock** toggles the between uppercase and lowercase letters. The **Virtual Standard Keyboard** remains in the selected state until you tap **Caps Lock** again.

See also

Virtual Numeric Keypad on page 736

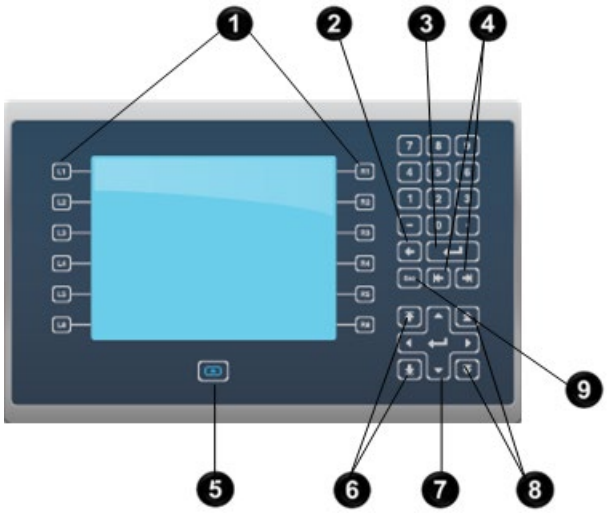
Enter data using the Virtual Standard Keyboard on page 753

Trigger action to interact with a screen on page 760

HMI device keypad

Some PanelView 5000 family of HMI devices have a physical keypad next to the screen. To use a physical keypad instead of the **Virtual Standard Keypad**, use the physical keypad to enter numbers in an input element or dialog box. Use the physical keypad to interact with graphic elements. For example, use the physical keypad to select an item in a

List Box Selector, select an alarm in an alarm table, open items in the **Navigation menu**, and scroll messages in an **Error list**.



Item	Name	Description
1	Function keys	Perform specific commands if events are configured for a screen or any of its graphic elements. For example, L1 could be configured in View Designer to navigate to another screen.
2	Backspace	Press to delete the character to the left of the cursor.
3	Enter	Press to enter the currently highlighted key in the **Input** field at the top of the virtual keyboard or keypad. For example, if the cursor is in the **Input** field, pressing this button creates a blank line. Pressing this button while **1** is highlighted, enters **1** in the **Input** field.
4	Tab	Press to place focus on the next input element or control on a screen that allows user interaction. Press this key to move from the **Input** field on the virtual numeric keypad to the individual keys on the virtual numeric keypad.
	Back Tab	Press to place focus on the previous input element or control that allows for interaction on the screen. On the **Navigation menu**, press this key to move to an upper row in the **Navigation menu**.
5	Navigation	Press to open the **Navigation menu**.
6	Home	Press to move the cursor to the beginning of the **Input** field, select the first item in a List Box Selector, or select the first alarm in an Alarm Summary or Alarm Manager table.
	End	Press to move the cursor to the end of the **Input** field, select the last item in a List Box Selector, or select the last alarm in an Alarm Summary or Alarm Manager table.
7	Arrow keys	Press an arrow key to highlight the key directly above, below, or to the left or right of the currently highlighted key on the virtual standard keyboard. Press these keys to move one character at a time in the **Input** field of the virtual standard keyboard.
8	Page Up	Press to display the previous pages of a list box.
	Page Down	Press to display to the next pages of a list box.
9	Esc	Press **Esc** to close a popup.

See also

Enter data using the Virtual Numeric Keypad on page 754

Virtual Numeric Keypad

Enter data using the Virtual Standard Keyboard on page 753

Virtual Standard Keyboard on page 737

Configure the HMI device

The **Settings** screen contains options to set up the HMI device, network, display, and controllers.

Use the **Settings** screen to configure the HMI device and view network diagnostics. If the HMI device is in error, collect additional troubleshooting data. For more information about configuring the HMI device, refer to the *PanelView 5310 Terminals User Manual 2713-UM001* and the *PanelView 5510 Terminals User Manual 2715-UM001*.

See also

Settings screen on page 740

Assign an IP and DNS address on page 741

Configure Ethernet ports on page 742

Calibrate the touch screen on page 745

Reboot the HMI device on page 748

Settings screen

How do I open the Settings screen?

On the physical HMI device or in the System Banner at the top of the screen, press **Navigation** and then tap **Settings**.

Use the **Settings** screen to view and change HMI device and system-wide settings. On the **Settings** screen, select an option to perform its related tasks:

Option:	Popup:	Tasks:
Network	**Network**IPSettings tab	• Specify Internet protocol settings • Specify IP addresses • Specify DNS addresses
	NetworkLinkSettings tab	• Enable Ethernet links • Set link speed • Specify link duplex
	NetworkDiagnostic tab	View network diagnostics
Display	Display	• Adjust the HMI device screen brightness • Turn on the screen saver • Set the brightness and delay for the screen saver • Calibrate the screen to respond accurately to touch

HMI Device	HMIDevice	• Specify if project downloads and firmware updates are allowed • Change the name of the HMI device • View catalog and firmware numbers • View diagnostic information
	HMIDevice_RebootConfirm	Reboot the HMI device
Data Export	Data Export	• Export the alarm history or a data log to removable media • Cancel the export • Safely remove the SD card from the HMI device without causing the files to become corrupt or read-only
Troubleshooting	Troubleshooting	• Import a troubleshooting profile • Export a troubleshooting log • Turn off troubleshooting and reboot the HMI device
Date and Time	DateAndTime	• Set the date and time for the HMI device • Set the time zone for the HMI device
Controllers	ControllersGeneral tab	View controller reference and status information
	ControllersDiagnostic tab	View controller diagnostics
Load from Media	Load Application	Load a .vpdr file from a USB storage device or an SD Card inserted into the HMI device.
VNC	VNC	Enable View-Only or Full-Control access rights or disable remote VNC connection.
Email	Email	Configure the connection to an email server enable sending emails when a Send Email command executes on the HMI device.
Certificate	Certificate	Import digital certificates from removable media to gain secured access to resources on the Internet or delete digital certificates you no longer need from the HMI device.

See also

Assign an IP and DNS address on page 741

Load an application from removable media on page 755

Reboot the HMI device on page 748

Activate the VNC server at runtime on page 751

Assign an IP and DNS address

The project on the HMI device initially downloads from Studio 5000 View Designer to the HMI device using a network IP address. The network assigns Ethernet device addresses automatically using DHCP. When assigning an IP and DNS address to an HMI device, use the default to obtain the addresses automatically, or manually enter a static IP and DNS address.

DNS translates Internet domain and host names to IP addresses. DNS automatically converts the names typed in a Web browser address bar to the IP addresses of Web servers hosting the sites.

To assign an IP and DNS address

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Network**. The **Network** popup opens.
3. Select the **Network** tab .
4. Select an option for obtaining IP settings:
   - **Obtain IP address automatically using DHCP.** This is the default. Select this option to automatically assign IP, Subnet mask, Gateway, and DNS addresses.
   - **Manually configure IP settings.** Select this option to manually assign the IP, Subnet mark, Gateway, and DNS addresses using the virtual numeric keypad:
     - **IP address.** If not setting all fields to 100, the range of values for the first set of numbers is 1-255. The range of values for the last three sets of numbers is 0-255.
     - **Subnet mask.** The address must be identical to the server subnet mask.
     - **Gateway address.** This address is optional.
     - **Primary DNS.** The primary IP-formatted address.
     - **Secondary DNS.** An alternate IP-formatted address.
     - **Tertiary DNS.** An additional alternate IP-formatted address.
5. Select **Close** .

See also

Configure Ethernet ports on page 742

View network diagnostics on page 743

Settings screen on page 740

Configure Ethernet ports

Configure the link speed and duplex mode for the available Ethernet links of an HMI device:

To configure Ethernet ports

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**. .
2. Select **Network**. The **Network** popup opens.
3. Select the **Configure Ethernet Port** tab .
4. To to switch on/off LLDP Protocol support for 5510 HMI device, select **LLDP Protocol**.

Tip: PanelView 5310 HMI devices do not support LLDP Protocol.

5. To use two ports in the Ethernet configuration, select **Enable Ethernet Link 1** and **Enable Ethernet Link 2**.

   Tip: Two Ethernet ports are available on the PanelView 5510 HMI devices only. PanelView 5310 HMI devices only interact with **Ethernet Link 1**, and do not support DLR topology.

6. Specify the network connection speed and how a port sends and receives data:
   - **Automatically.** To automatically sense the link option and speed based on the network connection, select **Auto negotiate**.
   - **Manually.** To set the desired network connection speed for the ports, under the Ethernet link for one or both ports, select a **Link speed** option and a **Link duplex** option.
7. Select **Close** .

   Tips:
   - **10 Mbps** sets the network speed to 10 megabits per second.
   - **100 Mbps** sets the network speed to 100 megabits per second.
   - **Half.** Sends data or receives data, but not at the same time.
   - **Full.** Sends and receives data at the same time.

See also

Assign an IP and DNS address on page 741

View network diagnostics on page 743

Settings screen on page 740

View network diagnostics

View network diagnostics to determine:

- If Ethernet links 1 and 2 are enabled and disconnected.
- The speed and duplex option (Full or Half) for each Ethernet link.
- If a duplicate IP address is detected.
- If DLR topology is detected or broken. Device Level Ring topology provides fault-tolerant network design.
- The MAC address. The Media Access Control address is the unique identifier assigned to the network for communication on the network.
- The IP settings for the network, including IP address, Subnet mask, and default gateway, and primary, secondary, and tertiary DNS.

  Tip: Two Ethernet ports are available on PanelView 5510 HMI devices only. PanelView 5310 HMI devices only interact with **Ethernet Link 1**, and do not support DLR topology.

To view network diagnostics

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Network**. The **Network** popup opens.
3. Select the **Network Diagnostics** tab to view the diagnostic information.
4. Select **Close** .

See also

Assign an IP and DNS address on page 741

Configure Ethernet ports on page 742

Settings screen on page 740

Adjust screen brightness

Adjust the brightness of the HMI device screen by changing the backlight level.

To adjust screen brightness

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Display**. The **Display** popup opens.
3. In the **Brightness** box at the top of the screen, adjust the backlight level. Enter values between 1 and 100.

   Tip: At 1%, the display is minimally visible. The default 100% makes the screen fully bright.

4. Select **Close**.

See also

Configure the screen saver on page 744

Calibrate the touch screen on page 745

Settings screen on page 740

Configure the screen saver

The screen saver extends the life of the HMI device screen by dimming the brightness level when activity is not sensed for a specified amount of time. When the screen saver activates, the HMI device screen displays a moving image at a reduced brightness level. When activity is sensed, the screen saver deactivates and the screen brightness returns to the normal level.

To configure the screen saver

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Display**. The Display popup opens.
3. To enable the screen saver, select **Turn on Screen Saver**.
4. To configure the screen saver, change the following settings:
   - **Wait.** To change the delay before the screen saver appears, select **Wait** and enter the number of minutes. The default is 10 minutes.
   - **Brightness.** To set the brightness of the screen saver, in the bottom **Brightness** box enter the number using the virtual numeric keypad or an external keyboard. The default is 10. 100 is the brightest.
5. Select **Close**.

See also

Adjust screen brightness on page 744

Calibrate the touch screen on page 745

Settings screen on page 740

Calibrate the touch screen

Calibrate touch screens for proper use. When touching an input element and no action or an unexpected action occurs, the touch screen does not calibrate properly. Calibrating the touch screen may take several tries before it is successful. Calibration is retained after a reboot or a power cycle. To prevent damage to the touch screen, use a finger or plastic stylus device with a minimum tip radius of 1.3 millimeters or 0.051 inches.

Tip: Do not perform touch screen calibration from a screen that has a trend chart or an event triggered by a state change. While the touch screen calibrates, traces on a trend chart do not update with new data values and events do not write to tag values.

To calibrate the touch screen

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Display**. The **Display** popup opens.
3. Select **Calibrate Touch**. A red target appears on the screen:

4. Press and hold the center of the target until the target turns white and another red target appears:

5. Continue pressing and holding the centers of all remaining targets as they appear. All processed targets turn white. After the target in the center of the screen turns white, a green check mark indicates a successful calibration. Successful calibration is saved automatically.

   Tip: If a calibration fails, a red circle with an X appears and the calibration process begins again, with the first target in the upper left corner of the screen. If calibration does not complete, the **Display** popup opens.

6. Select **Close** .

See also

Adjust screen brightness on page 744

Configure the screen saver on page 744

Settings screen on page 740

Change the name of the HMI device

Each HMI device has a default name that identifies it to other devices on the network. Change this name using 15 characters including letters, numbers, and hyphens. The first character of an HMI device name must be an uppercase or lowercase letter.

Change the name of the HMI device

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **HMI Device**. The **HMI Device** popup opens.
3. In the **HMI device name** box, enter the new name by selecting the keys on the virtual standard keyboard or using an external keyboard.
4. Select **Close**.

See also

Disable downloads to the HMI device on page 746

Reboot the HMI device on page 748

Settings screen on page 740

Disable downloads to the HMI device

Downloads to the HMI device are enabled by default. Disable downloads to the HMI device as a security measure. This prevents replacing the current application when downloading an application from View Designer. The **Allow downloads and Firmware Updates** option applies to downloads, ControlFLASH™, and Reset Service requests.

To disable downloads

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **HMI Device**. The **HMI Device** popup opens.
3. Clear **Allow downloads and Firmware Updates**. Project downloads to the HMI device are now denied.

   Tip: Select **Allow downloads and Firmware Updates** to download another project.
4. Select **Close**.

See also

Change the name of the HMI device on page 746

Reboot the HMI device on page 748

Settings screen on page 740

Remove media from the HMI device

Prepare the SD card for safe removal from the HMI device so that the files on the SD card do not become corrupt.

To remove the SD card from the HMI device

- Perform the event configured with a **Safely Remove Media** command. To identify events to perform, contact the HMI Designer.

See also

Load an application from removable media on page 755

Configure the SMTP client to send email

Configure the SMTP client through the **Settings** screen on the HMI device. The HMI device sends an email to the configured email server when a configured event triggers the Send Email command.

Prerequisites

The SMTP client only supports simple password authentication. Configure the email service for less secure access to allow the SMTP client to sign in.

For example, either log in to:

- Google® Gmail™ and select **Less secure app access**.
- Yahoo Mail and select **Allow apps that use less secure sign-in**.

To configure the SMTP client to send email

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Email**. The **Email** popup opens.
3. Configure the SMTP client:
   - **Server Name**. Enter the name of the third-party email server. For example: smtp.gmail.com or smtp.mail.yahoo.com
   - **Authentication**. Select **Password** to require a password to connect to the email server. Selecting **None** requires no authentication to connect to the email server.
   - **User Name**. Enter the email address of user sending the email.
   - **Password**. Enter the password to connect to the email server.
   - **Sender**. Enter the name of the sender to appear in the emails.
   - **Use SSL**. Select to use secure communication to the email server.
   - **Server Port**. Enter the port number of the email server. Enter a port 1 – 65535. Ports 22, 53, 80, 2222, 27053, and 44818 are reserved for other services on the HMI device. For Gmail or Yahoo Mail, enter **465**.

Tips:

- If not using **Use SSL**, the email notification service supports STARTTLS only.
- Entering a Server Port that is out of range or reserved displays an error.
- An email server configuration completed on the HMI device persists after rebooting the HMI device, cycling power to the HMI device, and downloading a runtime application file to the HMI device.
- To create a secure connection with a server (TLS/STARTTLS), either:
  - Select **SSL** and set a port with an available SSL connection. For Gmail and Yahoo Mail, in **Server Port**, enter **465**.
  - Clear **SSL** and set a port with the server that has a TLS/STARTTLS option. For Gmail and Yahoo Mail, In Server Port, enter **587** or **25**. If TLS/STARTTLS is not available, the connection is not secure.
- The HMI device connects to the email server and sends email notifications even when the SMTP client is configured for password authentication and the email server does not require password authentication.

4. Select **Close** .

See also

Settings screen on page 740

Add an event command to send an email on page 465

Event commands on page 456

Reboot the HMI device

Reboot the HMI device to run the current project again. Data logs in the project remain unchanged when rebooting the HMI device. The data log starts collecting data again after the reboot completes.

To reboot the HMI device

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **HMI Device**. The **HMI Device** popup opens.
3. Select **Reboot**. A prompt appears to confirm rebooting the HMI device.
4. Select **Yes** to reboot the HMI device. Select **No** to not reboot the HMI device. Rebooting the HMI device opens the currently downloaded project.

See also

Change the name of the HMI device on page 746

Disable downloads to the HMI device on page 746

Settings screen on page 740

Set the date and time on the HMI device

The HMI device has a default date, time, and time zone. Change the values using the **Date and Time** popup.

To set the date and time on the HMI device

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Date and Time**. The **Date and Time** popup opens.
3. In the **Date** box, enter the month, day, and year in MM/DD/YYYY format and select **OK**.
4. In the **Time** box, enter the hours, minutes, and seconds in HH:MM:SS format and select **OK**.
5. In the **Time Zone** box, scroll to and select the time zone.
6. Select **Close**.

Tip: PanelView 5000 HMI devices contain a built-in database of all daylight savings time rules. PanelView 5000 switches to daylight savings time automatically according to the selected time zone.

See also

Change the name of the HMI device on page 746

Disable downloads to the HMI device on page 746

Reboot the HMI device on page 748

View information for configured controllers

View general information for controllers configured to operate with the HMI device. Use this information to diagnose issues with the controllers and collect information for Rockwell Automation Technical Support.

To view information for configured controllers

1. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
2. Select **Controllers**. The **Controllers** popup opens.
3. Select the tab of the controller.

Tip: If the project has multiple controller references, any unused controller reference has a **Not configured** tab.

4. View this information to diagnose common issues with the controller:
   - **Reference Name.** The name of the controller reference configured in View Designer. The name does not appear if the project does not have a configured controller.
   - **Controller Name.** The name of the controller configured in Logix Designer. The name does not appear if the project does not have a configured controller.
   - **Path.** The communication path for the controller. The path does not appear if the project does not have a configured controller.
   - **Catalog.** The family of controllers to which the controller belongs.
   - **Firmware.** The revision of the controller firmware.
   - **Tag information.** The synchronization state for processing changes from the controller. For example, the state may be Synchronized, Updating, or Detecting changes. Some tag information may not appear if the controller tag information is not synchronized.

- **Mode.** The operating mode of the controller. For example, the mode may be Run, Program, or Fault. The mode does not appear if the controller is disconnected from the network.

5. Send the diagnostic and connection information to Rockwell Automation Technical Support to diagnose more technical issues with the controller:
   - **Active data items.** The number of data items on scan for the controller.
   - **Failed data items.** The number of data items that did not scan for the controller.
   - **Number optimized blocks.** The numeric of optimized data blocks on scan for the controller.
   - **Controller Responses.** A count that increments each time the controller sends a communications packet.
   - **HMIBC (I/O).** The number of Class 1 CIP connections to the controller.
   - **Alarm.** The number of alarm CIP connections to the controller.
   - **Data.** The number of Class 3 CIP connections to the controller.
6. Select **Close** .

See also

Assign an IP and DNS address on page 741

Configure Ethernet ports on page 742

View network diagnostics on page 743

Collect and export troubleshooting data

By default, the troubleshooting data is turned on and automatically collects default data for an HMI device. If more information is required to diagnose the problem with the HMI device, Rockwell Automation emails a profile with a .RSTracingConfiguration extension. Use this file to collect additional data for Rockwell Automation Technical Support to diagnose the HMI device.

When the troubleshooting profile is running, export a troubleshooting log to an external device and email the log to Rockwell Automation Technical Support for diagnosis. After the log is exported, restore default troubleshooting on the HMI device.

To collect and export troubleshooting data

1. Download the .RSTracingConfiguration file from Rockwell Automation to a USB drive or SD card.
2. Insert the device into the HMI device.
3. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
4. Select **Troubleshooting**. The **Troubleshooting** popup opens.
5. Select **Import Profile**. Messages indicating that the troubleshooting profile is being imported and that the troubleshooting profile is running appear. The profile collects the additional data. Do not select **Restore Default Profile** yet. This

reboots the HMI device, clearing any non-default troubleshooting data.

Tip: If an error occurs while importing the troubleshooting profile, a message indicates that there is a problem with the external device or the file on the external device. The device may be damaged, read-only, or may not contain a valid troubleshooting profile. Place the necessary profile on another external device, insert that device into the HMI device, and select **Import Profile** again.

6. If instructed in the email from Rockwell Automation that accompanied the profile, repeat the actions that caused the problem.
7. Select **Export**. The troubleshooting log exports to the media. A message indicates when the log is successfully exported to the external device. The date and time stamp of the export appears.

   Tips:
   - If an error occurs while importing the troubleshooting profile, a message indicates that there is a problem with the external device or the file on the external device. The device may be damaged, read-only, or may not contain a valid troubleshooting profile. Place the necessary profile on another external device, insert the device into the HMI device, and select **Import Profile** again.
   - When exporting troubleshooting data to an SD card or USB storage device, make sure the SD card or USB storage device:
     - Has sufficient space
     - Is inserted into the HMI device
     - Has write permissions
     - Is a supported SD card type
     - Has a supported format of FAT32
8. Place the troubleshooting log on the computer and email the file to Rockwell Automation Technical Support.
9. Select **Restore Default Profile**. When prompted to reboot the HMI device, select **Yes**. This restores any non-default troubleshooting data from the HMI device.

See also

Change the name of the HMI device on page 746

Disable downloads to the HMI device on page 746

Reboot the HMI device on page 748

Activate the VNC server at runtime

Use the VNC screen to activate or de-activate the VNC server.

To Activate the VNC server

- Select an access command:
  - VNC View-Only Access - View content on the HMI device only.
  - VNC Full-Control Access - View content and interact with the HMI device.
  - Disable VNC Server - Disables the VNC server.

  Tip: Use View Designer to configure access rights for users remotely connecting to an HMI device.

Note: After rebooting the PanelView 5000 HMI device, the VNC server configuration automatically resets to the Disabled state.

See also

Settings screen on page 740

Activate the server at runtime

Use the **Remote Connectivity** screen to activate or de-activate the VNC server.

To Activate the VNC server

- Select an access command:
  - **VNC View-Only Access** - View content on the HMI device only.
  - **VNC Full-Control Access** - View content and interact with the HMI device.
  - **Disable VNC Server**- Disables the VNC server

Tip: Use View Designer to configure access rights for users remotely connecting to an HMI device.

See also

Settings screen on page 740

Perform basic functions

Basic functions for the application on the HMI device include logging on and off, entering data, opening a screen, interacting with a popup, selecting a graphic element, triggering an action, and viewing diagnostic messages. The configuration of the application determines the interactions to perform on the HMI device.

Perform basic functions on the HMI device to interact with the contents of the application.

See also

Log on on page 752

Open a screen on page 757

Trigger action to interact with a screen on page 760

View error messages for a graphic element on page 769

Log off on page 773

Log on

Logging on to an application displays all screens for the assigned security role. Log on to the application using the configured password or

PIN. Passwords and PINs appear as asterisks (*). All available screens appear in the **Navigation menu**.

To log on

1. In the **System Banner** at the top of the screen, select **Log on**. The **Logon** dialog box opens.

   Tip: If configured, an event can open the **Logon** dialog box. Contact the HMI Designer to identify events configured for the application.

2. Log on using the configured method:
   - **User name and password (local).** In the **User Name** box, use the **Virtual Standard Keyboard** that opens to select the keys and enter the user name. Do not use spaces. In the **Password** box, and select the keys to enter the case-sensitive password.
   - **PIN.** In the **PIN** box, use the **Virtual Numeric Keypad** that opens to select the keys to enter the personal identification number.
   - **User name and password (domain).** See Log on using network-based security on page 705.
3. Select **Log on**. The **Logon** dialog box closes. The name of the logged on user appears in the **System Banner**.

   Tips:
   - To log on as a different user, open the **Logon** dialog box, enter a different user name and password or PIN, and then select **Log on**.
   - If the log on fails, the **Logon** dialog displays the message *Log on unsuccessful for (name).* The **Logon** dialog box remains open and the current user remains logged on.

See also

System Banner contents on page 731

Log off on page 773

Enter data using the Virtual Standard Keyboard on page 753

Trigger action to interact with a screen on page 760

- Navigation menu on page 732

Enter data using the Virtual Standard Keyboard

Select a screen or graphic element requiring input to open the **Virtual Standard Keyboard** and then select keys to enter text and numbers.

To enter data using the Virtual Standard Keyboard

1. Touch the screen or graphic element requiring text input. The **Virtual Standard Keyboard** opens. Any content already entered for the element is highlighted in the **Input** box at the top of the keyboard.
2. If desired, select in the **Input** box or select the arrow keys to position the cursor in the **Input** box. If there is no current entry, the cursor appears in the **Input** box automatically.
3. Enter or change the entry:

To enter:	Do this:

To enter:	Do this:
Characters	• Select the appropriate keys. • To delete characters, with the cursor in the **Input** box, select **Backspace** to delete one character to the left at a time. • To remove all the characters in the **Input** box, select **Clear** .
Capital letters	• Select **Shift** and select the letter. • Select **Caps Lock** to change the keyboard to all capital letters. The keys display capital letters until selecting **Caps Lock** again.
Symbols	• Select **Symbols** . A symbol appears on each key. • Select the **ABC** key to show alpha numeric keys.
European characters	Select **Language** . A character appears on each key. This is a toggle key that returns to default characters. Characters can show in upper or lowercase.

4. Select **OK** to insert the entry or select **Cancel** or elsewhere on the screen to close the **Virtual Standard Keyboard**.

Tips:

- A red outline appears around the **Input** box for an incorrect entry.
- When using an external keyboard or the keypad on the HMI device, tab to highlight the first key on the **Virtual Standard Keyboard**, select the arrow keys to highlight a key, and then press **Enter**.

See also

Virtual Standard Keyboard on page 737

Virtual Numeric Keypad on page 736

Enter data using the Virtual Numeric Keypad on page 754

Select a graphic element on page 759

Enter data using the Virtual Numeric Keypad

Use the **Virtual Numeric Keypad** to enter data. Touching the screen or graphic element requiring numeric input opens the **Virtual Numeric Keypad**. The minimum and maximum values to enter for the selected element appear below the **Input** box on the **Virtual Numeric Keypad**.

To enter data using the Virtual Numeric Keypad

1. Touch the screen or graphic element requiring numeric input. The **Virtual Numeric Keypad** opens. Any value for the element appears highlighted in the **Input** box at the top of the keypad.
2. Enter or change the data:
   - Select the keys to enter the numeric value.
   - Select **Positive-Negative Value** to toggle the number in the **Input** box between a positive and negative number.
   - Select **Backspace** to delete one number to the left at a time.
   - To remove all of the numbers in the **Input** box, select **Clear** .
3. To enter the value, select **OK**. To close the **Virtual Numeric Keypad** and not enter the value, select **Cancel** or elsewhere on the screen.

Tips:
- A red outline appears around the **Input** box for an incorrect entry.
- To enter a value using an external keyboard, tab to highlight the first key on the **Virtual Numeric Keypad**, select the arrow keys to highlight a key, and then press **Enter**.

See also

Enter data using the Virtual Standard Keyboard on page 753

Virtual Numeric Keypad

Virtual Standard Keyboard on page 737

Select a graphic element on page 759

Load an application from removable media

Load a runtime application from removable media to the HMI device using the **Settings** screen or by using the Load Application event command. Using View Designer to download a project is not required when the application is on a USB storage device or SD card.

To load an application from removable media

1. Insert the USB storage device or SD Card containing the runtime application into the HMI device.

   Tips:
   - Verify that there is only one inserted USB storage device in the HMI device. View Designer does not support loading an application from removable media when there are two inserted USB storage devices.
   - If the major revision of the application on removable media does not match the major revision of firmware running on the HMI device, the removable media should also have the .dmk file for the required firmware revision.
2. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
3. Select **Load from Media**. The **Load Application** popup opens.
4. Under **Source**, select **SD Card** or **USB Device**.
5. Under **Runtime application files**, select the runtime application to load. The application appears in the box at the bottom of the popup.
6. Select **Next**.
7. Under **HMI to controller path**, specify the path for the HMI to use after the project is loaded, by selecting either:
   - **Keep path currently in use on HMI device.** Use the controller path currently used on the HMI device. Selecting this option displays the current HMI to controller paths.
   - **Load path defined in the runtime application file.** Use the controller path configured in the runtime application that is loading.

Tips:

- If loading the runtime application requires a firmware update to the HMI device, a message appears with the current and required firmware versions. Select **Load** to proceed with the firmware update and then load the project.
- If the removable media does not contain the required firmware version, a prompt appears. Select **Back** and then copy the required firmware version to the removable media before loading the runtime application file.
- If the HMI device has a firmware version that does not support loading a runtime application file from removable media, a prompt appears. Select **Back** and then use ControlFLASH to update the firmware on the HMI device before loading the runtime application file.
- Loading firmware that has a major version earlier than version 6 not supported when loading an application from removable media.
- Loading firmware from media on an HMI device currently running firmware earlier than version 6 is not supported.
- Firmware can be loaded from media on an HMI device running out-of-the-box manufacturing firmware if the HMI device was manufactured after the version 6 release.

8. Select **Load**. The HMI device performs the firmware update (if necessary) and loads the project. Afterwards, the **Home** screen opens on the device.

IMPORTANT If you use a custom command to load new firmware from removable media, and the screen containing the command is already opened before you insert the media, reload the screen, or navigate out of the screen and return, before using this command.

See also

Configure the HMI device on page 740

Settings screen on page 740

Disable downloads to the HMI device on page 746

Perform basic functions on page 752

Load firmware from removable media

Loading a runtime application file on a PanelView 5000 HMI device requires that the HMI device has the required version of firmware. Copy a runtime application .vpdr file and the required version of the firmware .dmk file to the removable media to load the runtime application file and the required version of firmware to the HMI device.

IMPORTANT Firmware updates from removable media for a PanelView 5000 HMI device that has firmware prior to version 6 is not supported. Use ControlFLASH to update the firmware on a PanelView 5000 HMI device that is running firmware prior to version 6.

Prerequisites

- In View Designer, save the runtime application file as a .vpdr file on removable media.

To load firmware from removable media

1. Copy the revision of firmware that matches the runtime application .vpdr file on the removable media to the root directory of the removable media. For example, when using View Designer version 6 to create the .vpdr file, copy the version 6 PanelView 5000 firmware .dmk file to the removable media.

Tips:

- The installation of Studio 5000 installs firmware .dmk files at C:\Users\Public\Documents\Rockwell Automation\Firmware Kits. Downloading .dmk files is also available from the Rockwell Automation support site.
- The .dmk filename for a PanelView 5310 is 2713P-PanelView_m.n.dmk. The .dmk filename for a PanelView 5510 is 2715P-PanelView_m.n.dmk. The m.n in the filenames represent the major and minor revision numbers of the firmware.
- Placing multiple .vpdr and .dmk files on the same removable media is supported. The system automatically loads the required .dmk file for the .vpdr file loaded from removable media.
- Updating either the major or minor version of firmware is supported. To update only the minor revision of the firmware on the HMI device, copy the .dmk file with the required minor version.
- Loading from media on an HMI device running out-of-the-box manufacturing firmware if the HMI device was manufactured after the version 6 release date is supported.

2. Insert the removable media containing the .vpdr and .dmk files into the HMI device.
3. From the **Settings** screen, select **Load from Media** to open the **Load from Media** popup and load the runtime application .vpdr file from the removable media.

Tip: If the .vpdr file on the removable media requires a different version of firmware than is installed on the HMI device, the firmware .dmk file on the removable media automatically installs before the runtime application file opens on the HMI device.

See also

Save a runtime application to removable media on page 63

Load an application from removable media on page 755

Open a screen

Open any screen that is accessible with the assigned security rights. When opening a screen, an overlay dims the current screen to show that interaction with the screen is not available. When the new screen opens, interaction with the screen is available immediately. Interact with the new screen when the overlay from the previous screen still appears or when the new screen is loading content. By default, the **Home** screen of the project opens on the HMI device.

To open a screen

1. On the HMI device or in the **System Banner** at the top of the screen, select **Navigation** . The **Navigation menu** opens.
2. Select to open a:
   - **Screen.** Select the item in the **Navigation menu**.
   - **Home screen.** Select **Home** in the **Navigation menu**.
   - **Next screen.** Select **Next** in the **System Banner** to open the next screen in navigation history.
   - **Previous screen.** Select **Previous** in the **System Banner** to open the previous screen in navigation history.
   - **Folder.** Select a folder in the **Navigation menu** to display screens within the folder. The contents of the folder appears in an upper row. Folders may contain subfolders. Breadcrumbs shows the current folder path in the upper row.
   - **Previous folder.** Select **Back** to the left of the breadcrumbs to navigate back a folder.

Tips:

- Using an external keyboard, tab to the item and press **Enter**.
- When using an external keyboard, use the following keys to navigate the **Navigation menu**:
  - **Next item.** Press the right arrow and **Enter**.
  - **Previous item.** Press the left arrow and **Enter**.
  - **First item.** Press **Home** and **Enter**.
  - **Last item.** Press **End** and press **Enter**.
  - **Next page of menu items.** Press **Page Down**.
  - **Previous page of menu items.** Press **Page Up**.

See also

Log on on page 752

Navigation menu on page 732

Popup on page 733

Select a graphic element on page 759

Interact with a popup on page 759

Web browser

Use the web browser to access content on the intranet, the Internet, remote file servers, devices with built-in webpages, removable SD or USB drives, or IP cameras.

You can only access the web browser through a command defined in the HMI application. Your level of access depends on the security configuration and your account privileges.

You can run only one instance of a web browser at a time. To run a different instance of the web browser, first close the running instance. The web browser supports only one window or tab at a time. Links that open a page in a new tab or new window may not function. Bookmarks, file downloads and uploads are disabled. The HMI device does not retain browsing history, login data, or cookies.

While using the web browser, pressing the Navigation button, navigating to a different screen, or opening a popup closes the browser window. You can also close the web browser using a Close Web Browser command. The Close Web Browser command discards any data not committed to the webpage, such as data entered into forms, or text boxes.

IMPORTANT	An open web browser captures all key presses. Project events relying on key presses do not trigger when the browser is open.

On high RAM memory use, the web browser closes the open webpage and displays an error dialog so that you can reload the webpage or close the browser.

If the HMI application has Auto-Logoff enabled, the browser closes. Playing videos and accessing IP cameras does not prevent auto-logoff unless the user performs other activities.

See also

Event commands on page 456

Add an event command to open the web browser on page 471

Add an event command to import a certificate on page 473

Add locations to the allowed locations list on page 701

Configure Auto-Logoff on page 688

Select a graphic element

Touch a graphic element to select it or use the HMI device keypad or an external keyboard. Placing focus on a graphic element using the HMI device keypad or an external keyboard places a highlighted rectangle around the graphic element.

Touching a graphic element or selecting a graphic element with an external keyboard and pressing **Enter** may trigger an event. To learn configured events, contact the HMI Designer.

To select a graphic element

- Select the desired graphic element on a screen, popup, or **System Banner**. Any configured event for the graphic element triggers.

Tips:

- If a graphic element in error appears off or near an edge of the screen, an arrow with an **Error** icon points in the direction of the graphic element. Select the arrow to open the **Error list** for the graphic element.
- To select a graphic element using the HMI keypad or an external keyboard, select or press **Tab** or **Back Tab** and then select or press **Enter**.
- Using an external keyboard, press **Shift+Tab** to back tab.
- If selecting **Tab** or **Back Tab** does not select a graphic element, it highlights the first or last item on the screen that accepts focus.
- If an item in the **System Banner** is highlighted, selecting **Tab** or **Back Tab** highlights the next or previous selectable item in the **System Banner**.
- Tabbing and back tabbing highlights graphic elements on the screen and the **System Banner**.
- Tabbing and back tabbing within a popup highlights graphic elements within the popup only.

See also

Trigger action to interact with a screen on page 760

Interact with a popup on page 759

HMI device keypad on page 738

System Banner contents on page 731

Popup on page 733

Interact with a popup

Interact with a popup by opening, moving, or closing the popup. To identify the event that opens a popup, contact the HMI Designer.

To interact with a popup

1. Perform the event to open the popup. For example, select a button configured with a press event configured in Studio 5000 View Designer.

2. Perform any action required by the popup. If the **Virtual Standard Keyboard** or **Virtual Numeric Keypad** opens, enter the required data. Popup contents may include events and animations. Interacting with a popup may perform an event or animation depending on the configuration of the popup. Selecting a button on the popup may change the appearance of the button.
3. To close a popup, select **Close** on the popup or select elsewhere on the screen.

Tips:
- To move a popup, select and drag the caption at the top of the popup.
- Move a portion of a popup off the edge of the HMI device screen to provide more room on the screen.
- Only popups with captions can move.
- Opening another popup or the **Navigation menu** closes the open popup.
- Performing an event may close a popup. To identify events configured for the application, contact the HMI Designer.

See also

Popup on page 733

Popup contents on page 119

Trigger action to interact with a screen on page 760

Enter data using the Virtual Standard Keyboard on page 753

Enter data using the Virtual Numeric Keypad on page 754

Trigger action to interact with a screen

Trigger actions manually when pressing or releasing a configured HMI device screen, popup, graphic element, button, or a key on the HMI device keypad or an external keyboard. A graphic element transitioning into or out of a state may trigger an event automatically. Items can only trigger actions when configured to do so in Studio 5000 View Designer. To identify configured events, contact the HMI Designer.

To trigger action to interact with a screen

- Press or release a configured screen, popup, graphic element, or button on the screen. If keys are configured to trigger an action, press or release a configured key or key combination on an external keyboard.

  Depending on the configuration of an event in Studio 5000 View Designer, focus may not be required for the event to trigger. For example, an event may occur even if the graphic element does not have focus when the event triggers. A **Key Press** or **Key Release** event that does not require focus triggers when pressing or releasing the key, regardless of where focus is on the screen. If the graphic element requires focus to perform a configured event, press **Tab** to highlight the graphic element. The graphic element appears highlighted in blue.

Tips:

- The configuration of a **Touch Release** event may always perform a command. The event occurs even when sliding a finger off the graphic element before releasing the graphic element, when the graphic element becomes disabled or invisible, or when screen navigation opens a different screen. A **Touch Release** event for a graphic element that is a momentary push button may always release to start a conveyor belt when pressed, and stop a conveyor belt when released.
- For graphic elements configured to behave as a button, the button behavior may trigger when pressing a key. Touching graphic elements configured to behave as a button still triggers the action. If a graphic element has only a **Key Press** event, no event triggers when touching the graphic element.
- **L1** through **L10** on an HMI device keypad correspond with **Shift+F1** through **Shift+F10** on an external keyboard.
- **R1** through **R10** on an HMI device keypad correspond with **Ctrl+F1** through **Ctrl+F10** on an external keyboard.

See also

What is an event? on page 766

In what order are events triggered? on page 761

Popup on page 733

Popup contents on page 119

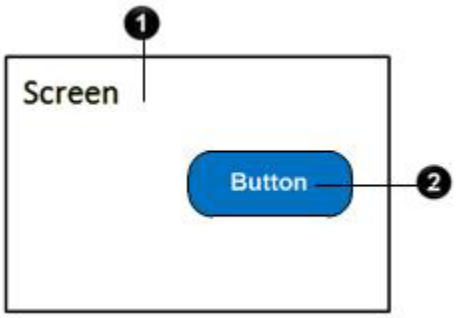
Select a graphic element on page 759

In what order are events triggered?

The order in which touch events trigger depends on the events configured for a screen and its graphic elements. When configuring multiple graphic elements with touch events, the events trigger as follows:

Screen events trigger before graphic element events

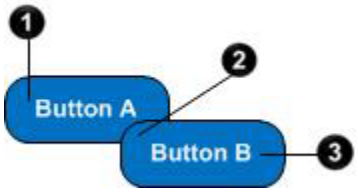
A screen can have an event and also contain a graphic element with its own event. Touching the screen triggers the event. Touching the graphic element triggers the event of the screen and the event of the graphic element. In this example, there is an event associated with the screen, and an event associated with the button.



Press Event	Triggered action
❶	Press here to trigger the event associated with the screen.
❷	Press here to trigger the event associated with the screen and then trigger the event associated with the button.

An event of a graphic element triggers even when the graphic element overlaps another

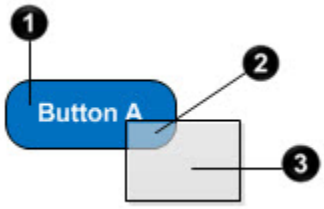
A graphic element may lie partially over another graphic element on the screen. Each graphic element can have its own event. Trigger the event of the graphic element by touching the graphic element. This is true even when touching the portion of a graphic element that is on top of the other. In this example, there is a unique event associated with each button. Part of Button B lies on top of Button A.



Press Event	Triggered action
1	Press here to trigger the event associated with Button A.
2	Press here to trigger the event associated with Button B.
3	Press here to trigger the event associated with Button B.

Graphic elements with events are not affected by an overlay element that does not have an event

A graphic element with a touch event may lie underneath an overlay element. If the overlay element does not have an event, the event of the graphic element triggers even when pressing the portion of the element under the overlay. In this example, there is an event associated with Button A. However, there is no event associated for the rectangle overlay lying on top of a portion of Button A.

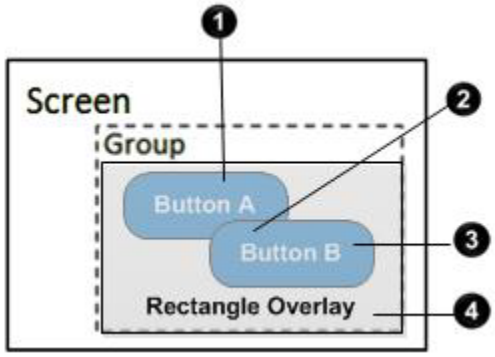


Press Event	Triggered action
1	Press here to trigger the event associated with Button A.
2	Press here to trigger the event associated with Button A.
3	Press here to trigger no event.

An event of a group and the events of the graphic elements in the group are not affected by an overlay element that does not have an event

When a group with a touch event contains graphic elements with touch events, touching the group triggers the event of the group. Pressing a

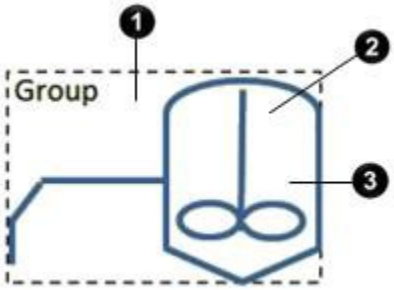
graphic element in the group triggers the event of the group, and the event of the graphic element. An overlay element that does not have an event does not affect triggered events. In this example, there is an event associated with the group consisting of Button A and Button B, an event associated with Button A, and an event associated with Button B (positioned partially over Button A). There is no event associated with the rectangle overlay.



Press Event	Triggered action
1	Press here to trigger the event associated with the group and then trigger the event associated with Button A.
2	Press here to trigger the event associated with the group and then trigger the event associated with Button B.
3	Press here to trigger the event associated with the group and then trigger the event associated with Button B.
4	Press here to trigger the event associated with the group.

An event of a group of line art is triggered regardless where the group is pressed

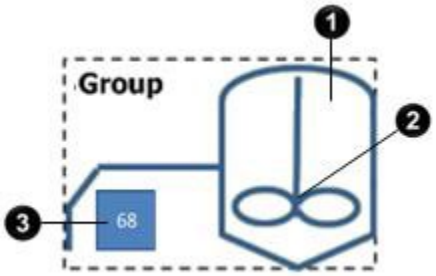
If a group of line art contains a touch event, it triggers the event of the group regardless of where the group is pressed. In this example, there is an event associated with the group that contains the line art.



Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group.
3	Press here to trigger the event associated with the group.

When a group of line art with an event contains a numeric or text input graphic element, the event of the group triggers before the virtual numeric keypad or virtual standard keyboard opens

If a group contains line art and an input graphic element, the event of the group triggers regardless of where the group is touched. If pressing the input graphic element, it triggers the event of the group and opens the virtual numeric keypad or virtual standard keyboard. If a group contains line art and an input graphic element, the event of the group triggers regardless of where the group is touched. Pressing the input graphic element triggers the event of the group and opens the virtual numeric keypad or virtual standard keyboard. In this example, there is an event associated with the group. The group contains line art and a text input graphic element.

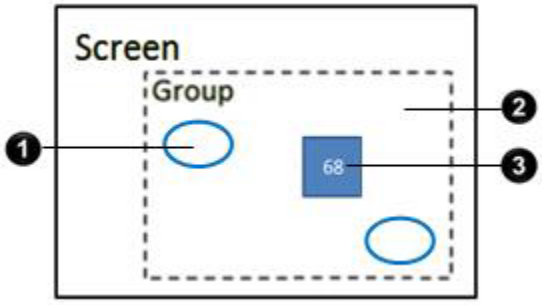


Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group.
3	Press here to trigger the event associated with the group and then open the virtual numeric keypad or virtual standard keyboard to enable input.

When a group of line art with an event is placed on top of a numeric or text input graphic element that is not part of the group, the event of the group is triggered, but the virtual numeric keypad or keyboard does not open

If a group lies on top of an input graphic element, touching the group triggers the event of the group. Pressing the input graphic element does not open a virtual numeric keypad or virtual standard keyboard.

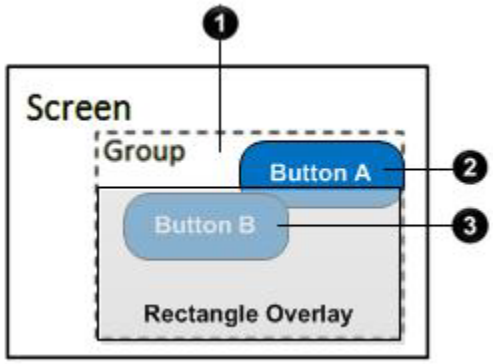
In this example, a group that has an event associated lies on top of an input graphic element that is not part of the group.



Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group.
3	Press here to trigger the event associated with the group. The virtual numeric keypad or the virtual standard keyboard does not open.

An event of a group and the events of the graphic elements in the group are not triggered if the event of an overlay graphic element is triggered

For example, a group with a touch event contains two graphic elements with their own touch events. A graphic element with its own touch event lies on top of the group. Touching a graphic element not under the overlay element triggers the event of the group and the event of the graphic element. Pressing a graphic element under the overlay element triggers only the event of the overlay element. In this example, there is an event associated with the group. The two buttons in the group each have a unique event associated with them. There is also an event associated with an overlay element.

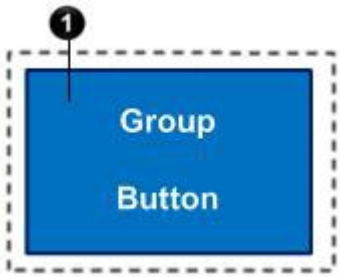


Press Event	Triggered action
1	Press here to trigger the event associated with the group.
2	Press here to trigger the event associated with the group and then trigger the event associated with Button A.
3	Press here to trigger the event associated with the rectangle overlay.

When a group has a release event and the graphic elements in the group have press and release events, the event of the press event is triggered before the release events of the group and its graphic elements

For example, a group with a **Touch Release** event contains a button with its own both press and release events. The events of the button change the state of the button upon press and release. Pressing the button triggers the press event of the button. The button shows the press state. Releasing the button triggers the **Touch Release** event of the group, and the **Touch Release** event of the button showing the release state. In this

example, a group contains only a button. There is a Touch Release event associated with the group. A Touch Press event and a Touch Release event are associated with the button.



Press Event	Triggered action
1	Press the button to trigger the touch press event associated with the button. Release the button to trigger the Touch Release event associated with the group, and then trigger the touch release event associated with the button.

See also

Trigger action to interact with a screen on page 760

Open a screen on page 757

Interact with a popup on page 759

Popup contents on page 119

What is an event?

An event is something that occurs to trigger an action. Events trigger either manually or automatically by the system. Events trigger by:

- **Button Behavior**. Touch or release a button or key on the HMI device, or configure a graphic element or Add-On Graphic with typical button behaviors.
- **Touch Press and Touch Release**. Touch or release a graphic element, Add-On Graphic, screen, popup, or System Banner on the HMI device.
- **Key Press and Key Release**. Touch or release a key on the HMI device keypad or an external keyboard.
- **State Enter and State Exit**. Perform an event when a graphic element or Add-On Graphic transitions into or out of a selected state. For example, perform the event when the value of a tag in the controller changes from 50 to 100.

When an event triggers, it performs an event to:

- Change the state of a graphic element. An event can apply the next or previous state in an indicated state table configured in Studio 5000 View Designer. An event can change the appearance of a button to a previous red state or to the next green state.
- Log on or off the project.
- Open a specific screen or navigate to a previous or next screen in the navigation history.
- Open or close a popup.
- Open the **Navigation menu**.
- Increment the data value of a tag with a value or expression configured in Studio 5000 View Designer.

- Toggle a selected tag value between True and False.
- Change the selected tag value by a value or expression specified in Studio 5000 View Designer.
- Change the language displayed on the HMI device.
- Export a data log.

To identify the events configured for the application, contact the HMI designer.

See also

Select a graphic element on page 759

Trigger action to interact with a screen on page 760

Interact with a popup on page 759

Navigate and zoom a PDF document

Navigate a PDF document on the HMI device. The buttons and functionality available on the HMI device depend on the configuration of the PDF graphic element or the PDF Viewer Add-On Graphic.

Tip: The PanelView 5310 HMI device does not support the PDF Viewer graphic element or the PDF Viewer Add-On Graphic.

To navigate or zoom a PDF document

- Select a button to navigate the PDF document:
  - **Bookmarks** displays the bookmarks.
  - **Previous** opens the previous page.
  - **Next** opens the next page.
  - **Page Number** opens the page of the PDF document entered in the **Page Number** box.
  - **Fit Width** expands the width of the PDF document.
  - **Fit Window** expands the entire page of the PDF document to fit the PDF graphic element.
  - **Zoom In** increases the PDF document magnification by the percentage specified in the ByPercent property of the Zoom In event command.
  - **Zoom Out** decreases the PDF document magnification by the percentage specified in the ByPercent property of the Zoom In event command.

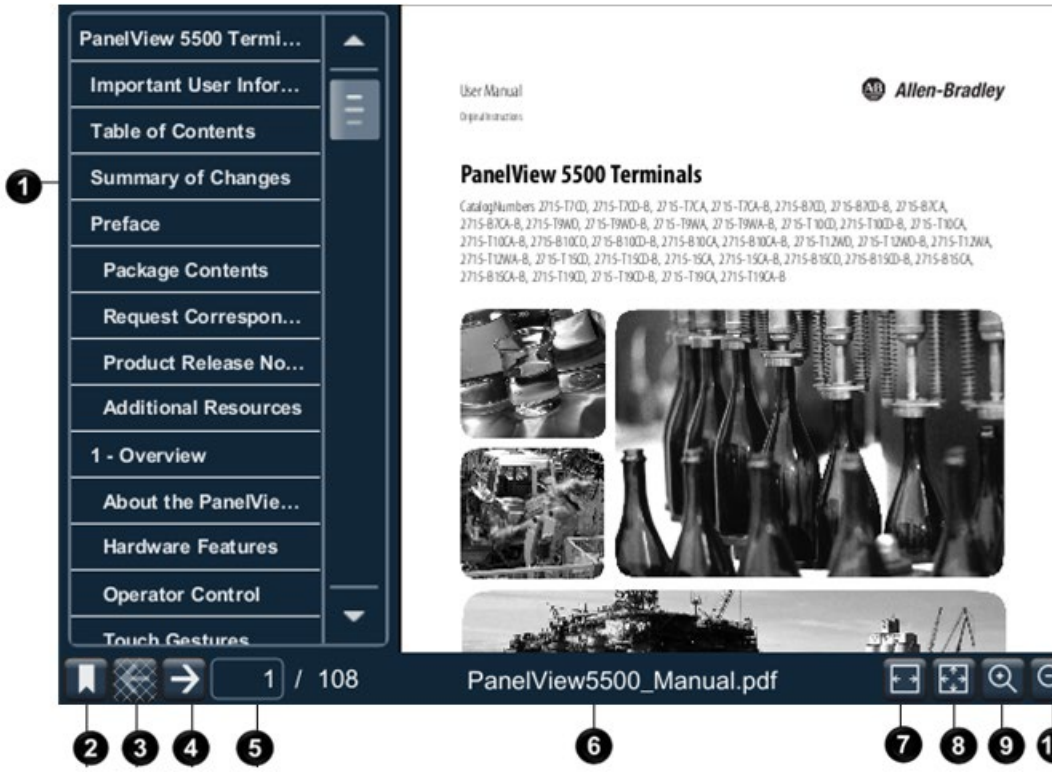
    Tips:
    - PDF files that contain complex drawings take longer to render. For example, if a PDF contains an image that is actually a drawing of individual shapes such as lines, circles, and rectangles, that image takes longer to render than a drawing that is a single image.
    - On a keypad terminal, press a key to navigate the pages of a PDF document:
      - **Home**: Navigate to the first page.
      - **End**: Navigate to the last page
      - **Page Up**: Navigate to the previous page.
      - **Page Down**: Navigate to the previous page.
      - **Up, Down, Right, and Left arrows**: Navigate the content of the displayed page.

See also

Perform basic functions on page 752

PDF Viewer

On the HMI device, an example PDF_Viewer_Landscape includes:



Item	Description	
1	Bookmarks for the PDF document in the PDF_Viewer_Landscape.	
2		**Bookmarks** displays the bookmarks of the PDF document. To display bookmarks, configure bookmarks for the PDF before adding the PDF to the View Designer project.
3		**Previous** opens the previous page in the PDF document. If there is no previous page to open, the button appears unavailable.
4		**Next** opens the next page in the PDF document. When on the last page, the button appears unavailable.
5	The open page in the PDF document. Specify a different page number to open a different page in the PDF document.	
6	The name of the PDF document in the PDF Viewer.	
7		**Fit Width** expands the width of the PDF document to the width of the PDF Viewer.
8		**Fit Window** expands the size of the PDF document to the size of the PDF Viewer.
9		**Zoom In** increases the PDF document magnification by the percentage specified in the event command.
10		**Zoom Out** decreases the PDF document magnification by the percentage specified in the event command.
11	The PDF document specified for the PDF Viewer. In View Designer, the PDF document must exist in the **Documents** folder of the **Project Explorer**.	

See also

Select a graphic element on page 759

Trigger action to interact with a screen on page 760

View error messages for a graphic element

A graphic element or group of graphic elements in error is outlined in red and has an **Error** icon. An **Error** icon appears for 10 seconds for any graphic element that has an event with a command that is in error. Select this icon to open an **Error list** with the diagnostic messages associated with a graphic element in error.

If an error occurs for any property of a graphic element, the properties that set position, size, and angle freeze. When the properties of the graphic element are no longer in error, the last written values for the position, size, and angle properties apply to the graphic element.

To view diagnostic messages for a graphic element in error

1. Select the **Error** icon on the graphic element or tab to highlight the icon and press **Enter**. The **Error list** opens.
2. View the errors and diagnostic messages for the graphic element:

Graphic element	Action
Current graphic element	• Swipe vertically or select the **Down Arrow** and **Up Arrow** at the bottom and top of the **Error list** to scroll the error messages. • Using an external keyboard, press the **Down Arrow** and **Up Arrow** keys to scroll to the next and previous line of error messages. • Using the physical keypad, press **Page Down** and **Page Up** to scroll to the next page of error messages. • Press **Home** and **End** to go to first or last line of the error messages.
Next graphic element in a group of graphic elements in error	• Swipe horizontally from right to left, or select the **Right Arrow** in the lower right corner of the **Error list**. The diagnostic messages for the next graphic element in error appear in the **Error list**. • Using the physical keypad on the HMI device or an external keyboard, press **Tab** to highlight the button and press **Enter**. • Using the physical keypad on the HMI device or an external keyboard, press the **Right Arrow** key.
Previous graphic element in a group of graphic elements in error	• Swipe horizontally from left to right, or select the **Left Arrow** in the lower right corner of the **Error list**. The diagnostic messages for the previous graphic element in error appear in the **Error list**. • Using the physical keypad on the HMI device or an external keyboard, press **Tab** to highlight the button and press **Enter**. • Using the physical keypad on the HMI device or an external keyboard, press the **Left Arrow** key.

3. To close the **Error list**, select **Close**. Using the physical keypad on the HMI device or an external keyboard, press **Esc**.

Tip: Closing the **Error list** makes the **Error** icon disappear.

See also

Error list on page 736

Error list contents on page 734

Error list

How do I open the Error list?

On the graphic element or group of graphic elements outlined in red, tap

the **Error** icon or tab to the icon and press **Enter**.

An **Error list** contains a snapshot of the diagnostic messages associated with a graphic element or group of graphic elements in error. The **Error list** is static. Closing and reopening the **Error list** for a graphic element crosses out resolved errors. When a graphic element or group of graphic elements has errors, the graphic element or group appears outlined in red and has an **Error** icon .

Errors occur for reasons including, but not limited to:

- A tag is missing.
- A tag is unavailable due to public/private Logix protection.
- A data type is incompatible with the type of graphic element.
- There is a faulted or missing controller.
- There is a disconnected controller. PanelView 5000 detects a disconnect in communication within five seconds. Before five seconds expire, static data values may appear on a screen and repeating values may appear in a data log when the sample rate is less than five seconds. After five seconds, the data appears as bad quality. Updated data appears when reconnecting the controller.
- There is a broken cable or other network issue.
- Services that impact data delivery are hung or stopped.
- A state change event caused the error.
- An operation performed on an alarm failed. Refreshing errors for an alarm table is not supported. Perform the operation on the alarm table again. If the error occurs again, reopen the **Error list**. Resolving errors that appear on a disabled alarm table button is not supported. Disabled buttons appear with diagonal hash marks across them. The HMI Designer can enable the button in Studio 5000 View Designer.
- An event displays a diagnostic error. Manually removing errors when an error occurs due to a state change is not supported. Another state change event must remove the error.

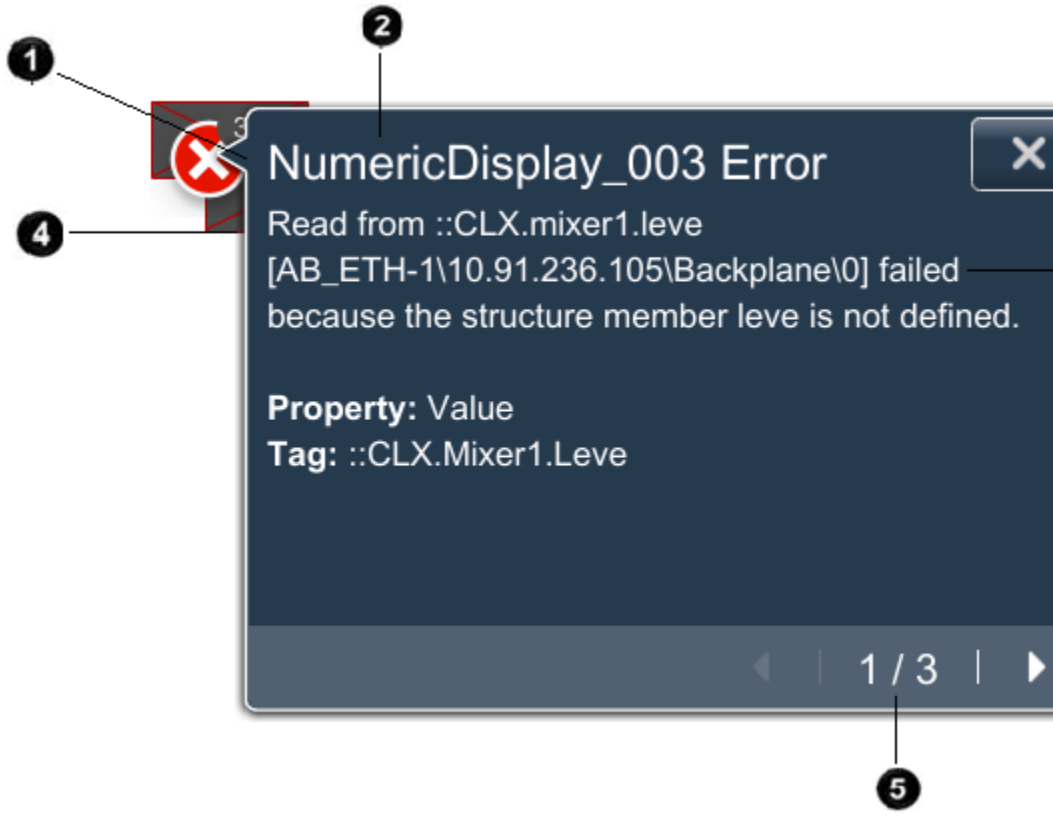
See also

Error list contents on page 734

View error messages for a graphic element on page 769

Error list contents

An **Error list** appears for any graphic element or group of graphic elements in error. An **Error** icon appears on the graphic element or group. This icon opens the **Error list**. The item in error can be a graphic element, popup, or an **Alarm Summary** or **Alarm Manager**.



Item	Description
1	The number of graphic elements in error. An individual graphic element in error shows no number on the **Error** icon. If the **Error** icon displays a number, there are multiple graphic elements in error that are located close to each other. The **Error list** contains a page of diagnostic messages for each graphic element in the group.
2	The name of the graphic element affected by the current page of errors. Scroll horizontally to view long names.
3	The diagnostic messages for the item in error. • **Graphic element.** If a graphic element is in error, the **Error list** displays the tag associated with the error, the property not applied to the graphic element due to the error, and a description of what caused the error. • **Alarms.** If an **Alarm Summary** or **Alarm Manager** is in error, the **Error list** displays the affected alarm property, and a description of the alarm error.
4	When selected, the graphic element in error appears filled with a color that contrasts the background color of the screen.
5	When there are multiple graphic elements in error, numbers indicate the graphic element. If there are three graphic elements in error while viewing diagnostic messages for the first graphic element, the **Error list** displays 1/3. The **Next** and **Previous** buttons show the diagnostic messages for the next and previous graphic elements.

See also

Error list on page 736

View error messages for a graphic element on page 769

Remove media from the HMI device

Prepare the SD card for safe removal from the HMI device so that the files on the SD card do not become corrupt.

To remove the SD card from the HMI device

- Perform the event configured with a **Safely Remove Media** command. To identify events to perform, contact the HMI Designer.

See also

Load an application from removable media on page 755

Import a digital certificate from removable media

Load a digital certificate from removable media to the HMI device. A digital certificate allows you to access locations on the Internet that use HTTPS or WSS secured protocols.

Tips:

- When creating a self-signed certificate, make sure the **Subject Alternative Name** property of the certificate contains the IP address of the device or server you are connecting to.
- To import a certificate with .der extension, change the extension to .cer manually, or use a custom command that is setup with the certificate's exact filename.

Prerequisites

- Verify that the certificate files are in the root directory of the SD card or the USB drive.
- The certificates must have .cer, .crt, or .pem extension.

To import a certificate from removable media

1. Insert the USB storage device or SD Card containing the runtime application into the HMI device.
2. On the HMI device or in the **System Banner**, select **Navigation** and then select **Settings**.
3. Select **Certificates**. The **Certificates** popup opens.
4. Select **Import**.
5. Under **Source**, select **SD Card** or **USB Device**.
6. From the **Certificate files** list, select a certificate file to import. You can only import one certificate file at a time.
7. Select **Import.** The HMI device imports the digital certificate.

See also

Delete a digital certificate from the HMI device

Log off

Logging off from the application automatically logs on the Guest user. The current screen remains open if the Guest user role has security access to the screen. If Guest does not have access to the current screen, the **Home** screen for the project opens. Only items to which the Guest user account has access appear in the **Navigation menu**.

To log off

1. In the **System Banner** at the top of the screen, select **Log on**. The **Logon** dialog box opens.
2. Select **Log off**. The **Logon** dialog box closes. Log on appears in the **System Banner**.

Tips:

- Using an external keyboard, tab to highlight a button and press **Enter**.
- Logging off the HMI device erases the navigation history.
- Log off occurs automatically if the HMI Designer configures the project to log off after a specified period of inactivity. To identify any specified time limit set for automatic log off, contact the HMI Designer.

See also

Log on on page 752

System Banner on page 730

System Banner contents on page 731

Navigation menu on page 732

Navigation menu contents on page 732

Interact with alarms

Alarms appear on predefined alarm screens included in every project. Each project contains a default **Alarm Summary** screen with an Alarm Summary table, and an **Alarm Manager** screen with an Alarm Manager table.

Use alarm screens to monitor and manage control system alarms. No configuration or tag binding is required in Studio 5000 View Designer to display alarms. Use Logix Designer to program alarm detection instructions and add tag-based alarms in a Logix 5000 controller. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms. Use alarm table graphic elements to create additional alarm screens.

See also

Alarm screens on page 774

Differences between an Alarm Summary and an Alarm Manager on page 774

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Perform basic alarm functions on page 799

Alarm screens

View Designer provides two default alarm screens. It also provides two alarm table graphic elements to create alarm screens for different size HMI devices:

- **Alarm Summary.** The Alarm Summary is a list of alarms that are in *interesting* states or require attention, such as alarms that are In Alarm and Unacknowledged.
- **Alarm Manager.** The Alarm Manager is a list of all alarms regardless of their state. Alarms listed in the Alarm Manager include all conditions for an alarm.

Alarms from controllers are continuously evaluated to determine whether they are:

- **In Alarm.** Present conditions have caused the alarm to become active.
- **Normal.** Present conditions have not caused the alarm to become active, so the alarm is inactive.

Tips:

- Operations on alarms may be limited. Alarm operation buttons may be disabled in View Designer. Disabled buttons have diagonal hash marks across them. When selecting a disabled button, an **Error** icon appears on the button for 10 seconds. Selecting this icon opens an **Error list** with the message that the button is disabled. Disabled buttons do not perform the associated task.
- If no language is defined in the controller, alarm tables show messages defined in the controller. If messages are not defined in the controller, the **Message column** in an alarm table appears blank without error.
- If languages are defined in the controller and English-US is one of the defined languages, the message in the English-US language appears in the **Message column** of the alarm table. If no English-US string exists or if the English-US language is not one of the defined languages in the controller, the **Message column** appears blank without error.
- For tag-based alarms, Alarm Manager and Alarm Summary display alarms marked as active and ready for evaluation. The 5380, 5480 and 5580 Logix families of controllers support tag-based alarms.

See also

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Differences between an Alarm Summary and an Alarm Manager

The **Alarm Summary** screen lists alarms in *interesting* states that require attention. For example, the Alarm Summary table lists alarms that are In Alarm and Unacknowledged. The Alarm Summary table displays one alarm condition per row. View details of each alarm condition in the **Details** pane of the Alarm Summary table. This pane displays data, such as Current Value, In Alarm Time, Out of Alarm Time, and tag values.

The **Alarm Manager** screen lists all alarms, regardless of their states. The Alarm Manager table displays one alarm per row. All of the conditions are rolled up into one row for each alarm. To see the conditions of an alarm in the Alarm Manager table, display the **Details** pane for the alarm. Details include when the alarm condition is enabled or disabled, suppressed or unsuppressed, or shelved.

When selecting multiple alarms, the display details appear for the last selected alarm condition in an Alarm Summary table or the condition details of the selected alarm in an Alarm Manager table.

Available operations depend on the alarm screen:

Operation	Alarm Summary	Alarm Manager	Alarm History
Acknowledge alarms	✓		
Disable alarms	✓	✓	
Enable alarms		✓	
Filter alarms by Event Time			✓
Pause the display of incoming alarms	✓		
Reset a digital alarm	✓		
Reset alarm counts		✓	
Select alarms	✓	✓	✓
Shelve individual alarm conditions	✓	✓	
Shelve entire alarm (all conditions)		✓	
Sort and filter alarms	✓	✓	✓
View alarms	✓	✓	✓
View alarm condition details	✓	✓	✓
View alarm quality		✓	✓
Unshelve alarm conditions		✓	
Unshelve alarms		✓	

See also

Alarm screens on page 774

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Alarm table interface components

The **Alarm Summary** screen and **Alarm Manager** screen each contain several components.

- **Details pane.** Displays additional information for the selected alarm condition in an **Alarm Summary** or the selected alarm in the **Alarm Manager**.
- **Columns.** Displays data fields that contain descriptions of the alarm information.
- **Help popup.** Displays a legend of operations to perform on the open alarm screen.

See also

Details pane on page 791

Help popup on page 796

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Alarm faults and alarm quality

Alarms have good or bad quality. Good quality indicates the alarm is functioning correctly. Bad quality indicates that there is a problem with the alarm.

The current state may not be detected or accurate. Bad quality occurs from abnormal scenarios, such as a disconnect in the network, or a controller in **Program** mode, or by configuration issues. If the alarm has bad quality due to an abnormal scenario, all conditions of the alarm fault because evaluating or detecting the alarm is not possible. If the alarm has a configuration error, such as invalid limit, only the affected conditions have bad quality. The unaffected conditions have good quality and continue to function. View alarms with bad quality in an **Alarm Manager** only. Quality details appear in the **Details** pane of the Alarm Manager table.

For configuration-related faults, level conditions (HIHI, HI, LO, and LOLO) and ROC conditions (ROC Positive and ROC Negative) are evaluated independently. With the exception of severity, only affected conditions are faulted. If the ROC Positive limit is invalid, only the ROC Positive condition faults. The ROC Negative condition and all level conditions maintain good quality. If the ROC_Period is invalid, both the ROC Positive and ROC Negative conditions fault, but all level conditions maintain good quality. Level condition limits have dependent relationships. The HIHI limit must be greater than HI, HI must be greater than LO, and LO must be greater than LOLO. If any level limit is out of range, all levels fault.

In an **Alarm Manager**, inhibit states from all alarm conditions roll up for a single alarm. If the level or ROC conditions fault for an alarm, the alarm is of bad quality. The conditions that are of good quality continue to function normally and appear in an **Alarm Summary** when they are in the *interesting* state. When the alarm is of bad quality due to an abnormal scenario, all conditions for the alarm are of bad quality.

See also

Resolve alarm faults on page 567

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Alarm Summary screen

How do I open the Alarm Summary screen?

In the **System Banner** at the top of the screen, tap **Alarm Summary** . The **Alarm Summary** screen opens. You can open the **Alarm Summary** screen from the **Navigation menu** by tapping **Navigation** in the **System Banner** at the top of the screen and tapping the **Alarm Summary** item in the **Navigation menu** at the bottom of the screen.

The **Alarm Summary** screen contains the Alarm Summary table. This table lists all alarms in a project or configured HMI device that are in *interesting* states or require attention. The Alarm Summary table lists all the alarms in the In Alarm and Unacknowledged state. It displays one alarm condition per row.

Use the **Alarm Summary** screen to:

- Acknowledge alarms
- Disable alarms
- Shelve alarms
- Sort alarms
- Filter alarms
- Pause alarms
- Reset digital alarms
- View alarm details

See also

[Alarm Summary for a large HMI device](#) on page 779

[Alarm Summary for a medium HMI device](#) on page 777

[Alarm Summary table columns](#) on page 780

[Details pane for an Alarm Summary](#) on page 580

[Help popup](#) on page 796

Alarm Summary for a medium HMI device

The medium **Alarm Summary** is intended for HMI devices with six-inch to nine-inch screens.

Item	Description
1	The list of In Alarm and/or Unacknowledged alarms in the project. Each row contains a single alarm condition. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
2	Buttons to perform operations on alarms in the **Alarm Summary**:

	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
3	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.
4	The number of In Alarm/Unacknowledged, In Alarm/Acknowledged, Normal/Unacknowledged, and Faulted alarms.

See also

Alarm Summary for a large HMI device on page 779

Alarm Summary table columns on page 780

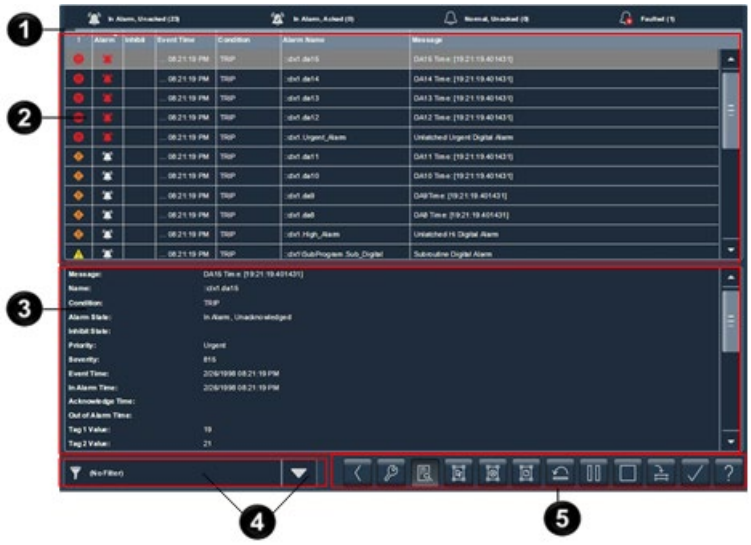
Details pane for an Alarm Summary on page 580

Help popup on page 796

Help popup contents on page 797

Alarm Summary for a large HMI device

The large **Alarm Summary** is intended for HMI devices with ten-inch or larger screens.



Item	Description
1	The number of In Alarm/Unacknowledged, In Alarm/Acknowledged, Normal/Unacknowledged, and Faulted alarms.
2	The list of In Alarm and/or Unacknowledged alarms in the project. Each row contains a single alarm condition. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
3	The **Details** pane with additional details for the selected alarm. This pane displays data, such as Current Value, In Alarm Time, Out of Alarm Time, and tag values. Selecting multiple alarms displays details for the last selected alarm. On medium HMI devices, this **Details** pane replaces the Alarm Summary table.
4	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.
5	Buttons to perform operations on the **Alarm Summary**:
	Back opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.

	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.

See also

Details pane for an Alarm Summary on page 580

Alarm Summary for a medium HMI device on page 777

Alarm Summary screen on page 776

Open an alarm screen on page 800

Alarm screens on page 774

Alarm Summary table columns

Data fields in the **Alarm Summary** table appear in columns with descriptions of alarm information. The large **Alarm Summary** table contains all columns by default. Medium **Alarm Summary** tables contain a subset of the columns.

The columns and their order depend on the configuration performed in View Designer. Data shown in the **Details** pane may be added as a column in the **Alarm Summary** table.

Column	Description	Medium Alarm Summary	Large Alarm Summary

! (Priority)	The urgency of the event: • Low • Medium • High • Urgent	✓	✓
Alarm State	The state of the alarm condition: • Normal, Unacknowledged and Urgent • In Alarm, Acknowledged and Urgent • In Alarm, Unacknowledged and Urgent	✓	✓
Inhibit State	The value applied to an alarm that inhibits the alarm at some level. These states include: • Disabled • Suppressed • Shelved If no icon appears for Inhibit State, the alarm is of good quality and is not disabled, suppressed, or shelved.		✓
Event Time	The time the alarm condition or sub-condition changed to the currently displayed state.	✓	✓
Condition Name	A name that describes the alarm condition. Condition names vary by event category. For example: • Analog conditions include DEV_HI, DEV_LO, HIHI, HI, LO, LOLO, ROC_POS, and ROC_NEG • Level: LO, LOLO, HI, HIHI, ROC_POS, and ROC_NEG • Discrete: TRIP, TRIP_L (Latched)		✓
Alarm Name	The list of alarms, in all states, for the controllers referenced in the View Designer project. Each row contains an alarm and the conditions. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.		✓
Message	The message assigned to the alarm in the alarm instruction.	✓	✓

See also

Alarm Summary screen on page 776

Details pane for an Alarm Summary on page 580

Details pane rows on page 581

Alarm screens on page 774

Alarm Manager screen

How do I open the Alarm Manager table?

In the **System Banner** at the top of the screen, tap **Alarm Status Indicator** . The **Alarm Summary** screen opens. At the bottom of the Alarm Summary table, tap **Alarm Manager** . The **Alarm Manager** screen opens. You can open the **Alarm Manager** screen from the

Navigation menu by tapping **Navigation** in the **System Banner** at the top of the screen and tapping the **Alarm Manager** item in the **Navigation menu** at the bottom of the screen.

The **Alarm Manager** screen lists all alarms configured in the system and their current states. The **Alarm Manager** subscribes to alarms in the controller and is used to monitor and interact with those alarms from the HMI device screen. Every alarm from every controller is listed unless an alarm is removed from the controller.

Use the **Alarm Manager** to:

- Enable or disable alarms to take them out of service
- Shelve and unshelve alarms
- Reset counts for alarms
- View details for a selected alarm or alarm condition
- Sort alarms
- Filter alarms

See also

Alarm Manager for a large HMI device on page 784

- Alarm Manager for a medium HMI device on page 783
- Help popup on page 796
- Help popup contents on page 797

Alarm Manager table columns

The data fields in the Alarm Manager table are organized in columns and describe the alarm information.

Column	Description
Alarm State	The condition of the alarm: • Normal, Unacknowledged and Urgent • In Alarm, Acknowledged and Urgent • In Alarm, Unacknowledged and Urgent • Normal, Acknowledged The Alarm Manager table displays a combination of all the conditions of an alarm. Therefore, if any condition in the alarm is In Alarm or Unacknowledged, the alarm appears as In Alarm or Unacknowledged in the **Alarm Manager**.
Inhibit State	The value applied to an alarm that inhibits the alarm. These states include: • Bad Quality • Disabled • Suppressed • Shelved When an alarm has more than one inhibit state, the icon of the highest inhibit state appears in the table. If no icon appears for Inhibit State, the alarm is of good quality and is not disabled, suppressed, or shelved.

Alarm Name	The name of the alarm created in Logix Designer. For instruction-based alarms, it includes the alarm controller and tag. It can also include the name of the program if the tag is going to be defined at the program level. The Alarm Name can be configured as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.AlarmName.

See also

Alarm Manager for a large HMI device on page 784

Help popup on page 796

Alarm Summary screen on page 776

Alarm Manager for a medium HMI device

The medium **Alarm Manager** is intended for HMI devices with six-inch to nine-inch screens.

Item	Description
1	The list of alarms, in all states, for the controllers referenced in the View Designer project. The Alarm Manager displays tag-based alarms marked for use and evaluation. Each row contains an alarm and the conditions. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
2	Buttons to perform operations on alarms in the Alarm Manager:
	Back opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty. The **Details** pane on an Alarm Manager table shows a list of conditions. Buttons to shelve and unshelve individual alarm conditions appear above the list of conditions.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.

	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
❸	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.

See also

Alarm Manager for a large HMI device on page 784

Help popup on page 796

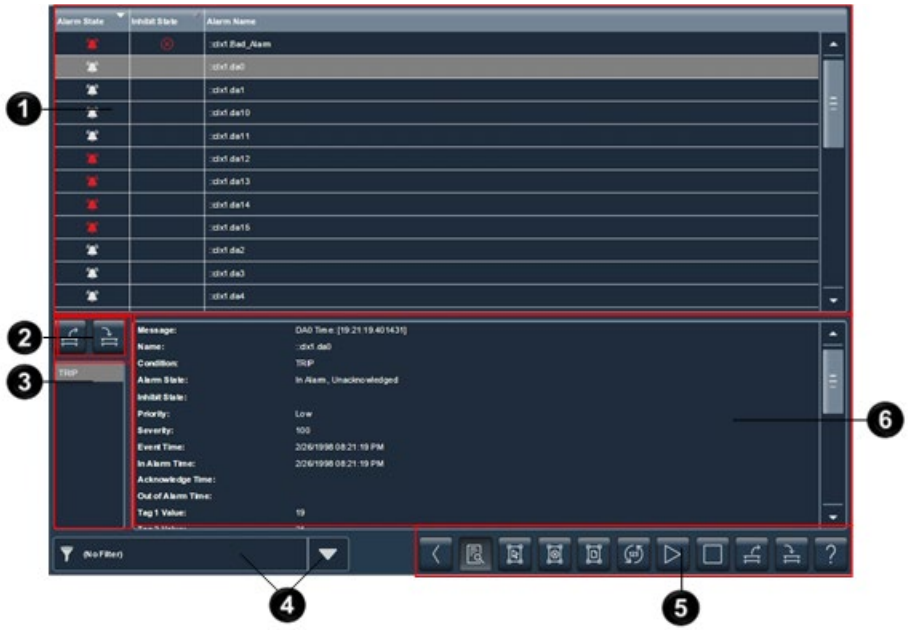
Help popup contents on page 797

Details pane rows on page 581

Details pane for an Alarm Manager on page 592

Alarm Manager for a large HMI device

The large **Alarm Manager** is intended for HMI devices with ten-inch or larger screens.



Item	Description
1	The list of alarms, in all states, for the controllers referenced in the View Designer project. The Alarm Manager displays tag-based alarms marked for use and evaluation. Each row contains an alarm and the conditions. Depending on configuration, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName.TagName. For tag-based alarms, the Alarm Name appears as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
2	Buttons to shelve and unshelve the alarm condition selected in the **Details** pane. The **Details** pane appears at the bottom of the Alarm Manager table.
	Shelve shelves the alarm condition selected in the **Details** pane. Shelving a condition prevents notification of new state changes to the alarm.
	Unshelve unshelves the alarm condition selected in the **Details** pane. Unshelving a condition allows notification of new state changes to the alarm.
3	In the list of conditions, select a condition to show all of the details for that conditionin the **Details** pane. For example, to show details for the HI condition for the selected alarm, scroll to and select HI.
4	Filter list. Select a filter on the HMI device to list only the alarms containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarms with a high priority. Filters are configured in View Designer.
5	Buttons to perform operations on alarms in the Alarm Manager table:
	Back opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.

	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Help opens the **Help** popup. This popup displays a legend of icons for In Alarm/Unacknowledged, Normal/Unacknowledged, In Alarm/Acknowledged, and Faulted alarms, and the task each button on an alarm table performs.
6	The **Details** pane lists condition details for the selected alarm. Each row lists details for one alarm condition. The details include when the alarm condition was enabled or disabled, suppressed or unsuppressed, or shelved. Selecting multiple alarms in the Alarm Manager table, condition details shows for the last selected alarm.

See also

Alarm Manager for a medium HMI device on page 783

Help popup on page 796

Help popup contents on page 797

Details pane rows on page 581

Details pane for an Alarm Manager on page 592

Alarm History screen

How do I open the Alarm History table?

In the **System Banner** at the top of the screen, open the **Navigation menu** by tapping **Navigation** . Select the **Alarm History** item in the **Navigation menu** that appears at the bottom of the screen.

The Alarm History lists alarm state change records from the alarm log. One alarm log record appears in a row.

Use the Alarm History on an HMI device to:

- Review the historical alarm records showing alarm state changes.
- Filter alarm state changes.

The Alarm History displays the history of alarm state changes available at the moment you open the screen. Close and reopen the screen or select Refresh to load the latest alarm state changes.

Tip: In the rare case the alarm history database is corrupted, the operator does not see any records in the Alarm History Viewer, although the alarm state changes are still happening. In such case, reboot the HMI device.

See also

Alarm History for a large HMI device screen on page 789

Alarm History for a medium HMI device screen on page 788

Help popup on page 796

Help popup contents on page 797

Alarm History table columns

Data fields in the **Alarm History** table appear in columns with descriptions of alarm information. The configuration in View Designer determines the columns and the order of the columns. View Designer enables adding, removing or rearranging the columns.

Column	Description
! (Priority)	The urgency of the event: • Low • Medium • High • Urgent
Alarm	The state of the alarm condition: • Normal, Acknowledged • Normal, Unacknowledged and Urgent • In Alarm, Acknowledged and Urgent • In Alarm, Unacknowledged and Urgent
Inhibit	The value applied to an alarm that inhibits the alarm at some level. These states include: • Disabled • Enabled • Suppressed • Unsupressed • Shelved • Unshelved • Faulted • Alarm Count Reset If no icon appears for Inhibit State, the alarm is of good quality and is not disabled, suppressed, or shelved.
Event Time	The time the alarm condition or sub-condition changed to the currently displayed state.

Column	Description
Condition Name	A name that describes the alarm condition. Condition names vary by event category. For example: • Level: LO, LOLO, HI, HIHI, ROC_POS, ROC_NEG • Discrete: TRIP, TRIP_L (Latched)
Alarm Name	The name of the alarm. This name includes the controller name of the alarm and the tag name. It can also include the name of the program if the tag is defined at the program level. Depending on how it was configured, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName. For tag-based alarms, the alarm name can appear as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
Message	The message assigned to the alarm in the alarm instruction or tag-based alarm configuration.
State Change	The types of changes in the state of the alarm: • Triggered • Untriggered • Acknowledged • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Configuration Changed • Fault • Alarm Counter Reset
Tag 1 Value	The value of tag 1.
Tag 2 Value	The value of tag 2.
Tag 3 Value	The value of tag 3.
Tag 4 Value	The value of tag 4.

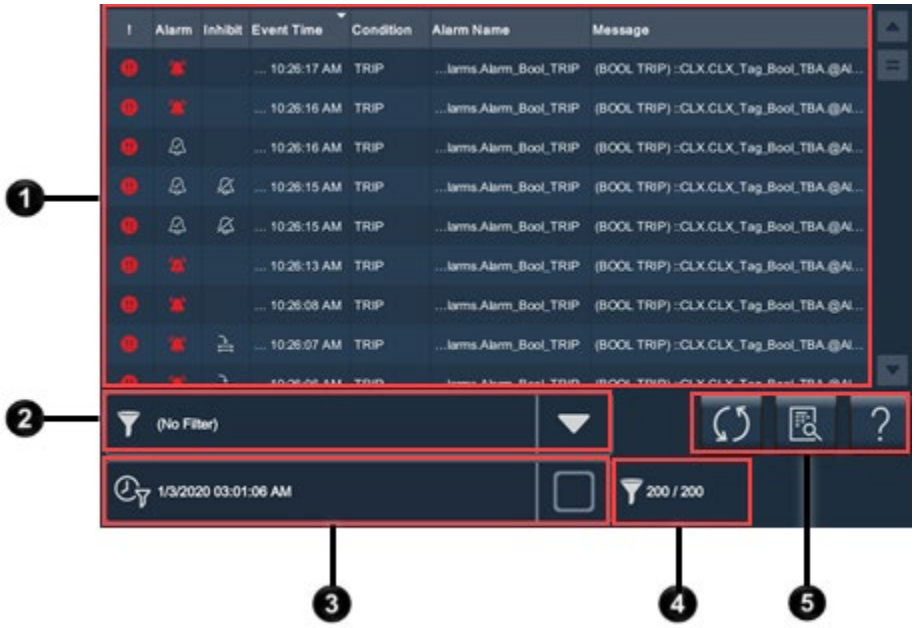
See also

Alarm History for a large HMI device screen on page 789

Alarm History for a medium HMI device screen on page 788

Alarm History for a medium HMI device screen

The **Alarm History Medium** alarm table is recommended for six-inch to nine-inch HMI device screens.



Item	Description
1	The list of alarm state changes records from the terminal.
2	Filter list. Select a filter in the HMI device to list only the alarm state change records containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarm state changes with a high priority. Configure filters in View Designer.
3	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
4	Number of filtered records and total number of records.
5	Buttons to perform actions available for the Alarm History Viewer:
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm state change record. The Details pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no record is selected, the Details pane is empty.
	Refresh loads the latest alarm state changes from the alarm history. The operator has to refresh the table to see the latest changes. The operator can also exit and enter the screen with the Alarm History again to refresh.
	Help opens the **Help** popup. This popup displays a legend of icons and the task each button on an alarm table performs.

See also

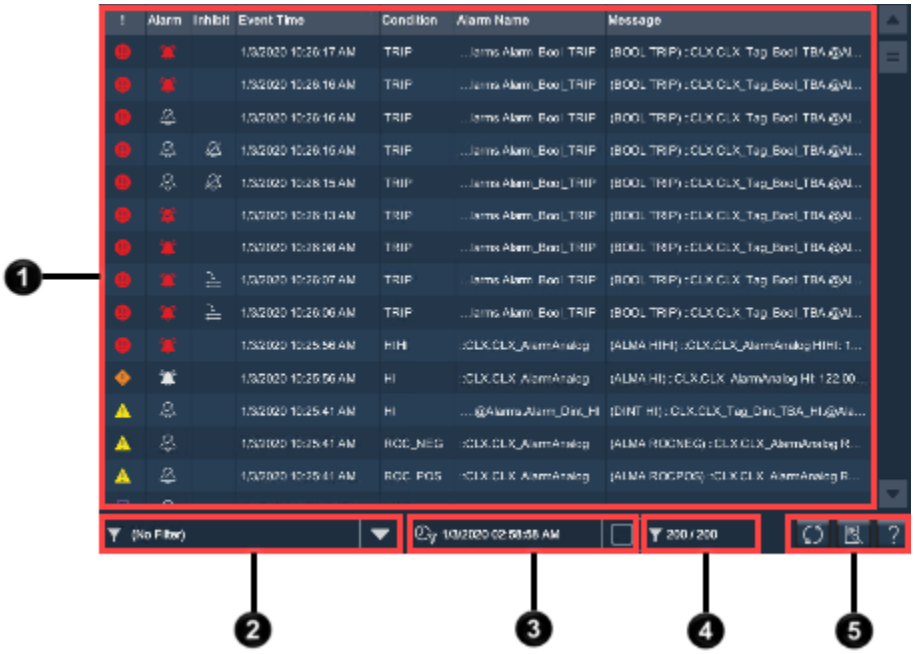
Alarm History on page 598

Alarm History table columns on page 603

Alarm History for a medium HMI device screen on page 788

Alarm History for a large HMI device screen

The **Alarm History Large** alarm table is recommended for large, ten-inch or larger HMI device screens.



Item	Description
1	The list of alarm state changes records from the terminal.
2	Filter list. Select a filter in the HMI device to list only the alarm state change records containing the filter value for the indicated column. For example, if the filter exists, select the filter Priority:High to show only those alarm state changes with a high priority. Configure filters in View Designer.
3	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
4	Number of filtered records and total number of records.
5	Buttons to perform actions available for the Alarm History Viewer:
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm state change record. The Details pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no record is selected, the Details pane is empty.
	Refresh loads the latest alarm state changes from the alarm history. The operator has to refresh the table to see the latest changes. The operator can also exit and enter the screen with the Alarm History again to refresh.
	Help opens the **Help** popup. This popup displays a legend of icons and the task each button on an alarm table performs.

See also

Alarm History on page 598

Alarm History table columns on page 603

Alarm History for a large HMI device screen on page 789

Alarm history retention

View Designer retains alarm state history after:

- Rebooting or powering off the HMI device.
- Loading a new project.
- Disconnecting a controller from the HMI device.
- Replacing a controller.
- Having a controller recover from a fault.
- Downloading a new program from a controller connected to the HMI device.

- Clearing the alarm log on a controller connected to the HMI device.

See also

Alarm History for a large HMI device screen on page 789

Alarm History for a large HMI device screen on page 789

Details pane

Use the **Details** pane to display:

- Tag values.
- Alarm condition limits defined in the ladder logic.
- Condition details.
- Additional state and configuration information for alarms.

In the **Details** pane for the Alarm Manager table, shelve and unshelve alarm conditions.

Changes made to font, font size, and row padding are not reflected in the **Details** pane.

See also

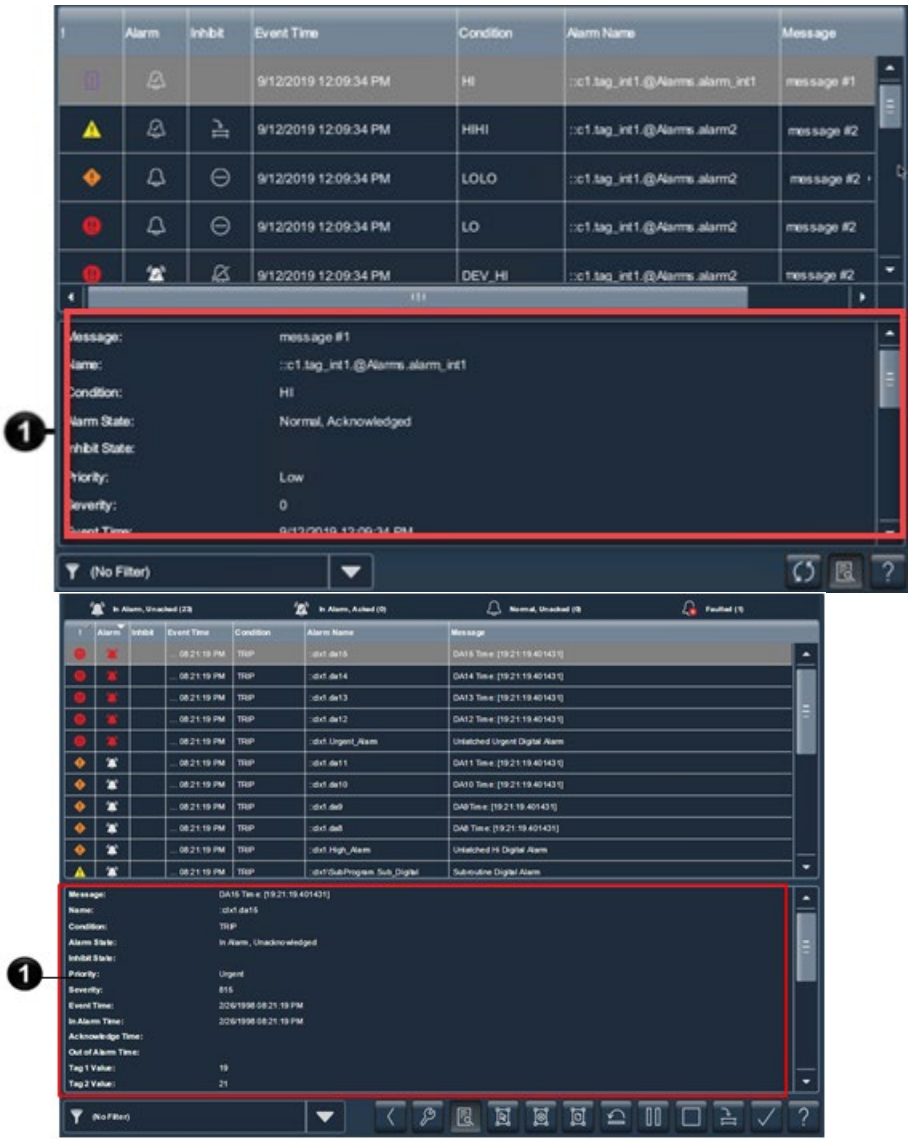
Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Details pane rows on page 581

Details pane for an Alarm Summary

In a medium Alarm Summary table intended for HMI devices with seven-inch to nine-inch screens, the **Details** pane replaces the list of alarms in the table. In a large Alarm Summary table exists for HMI devices with ten-inch or larger screens, the **Details** pane opens at bottom of the table.



Item	Description
1	The **Details** pane with additional details for the selected alarm. This pane displays data, such as Current Value, In Alarm Time, Out of Alarm Time, and tag values. When multiple alarms are selected, details display for the last selected alarm.

See also

Details pane rows on page 581

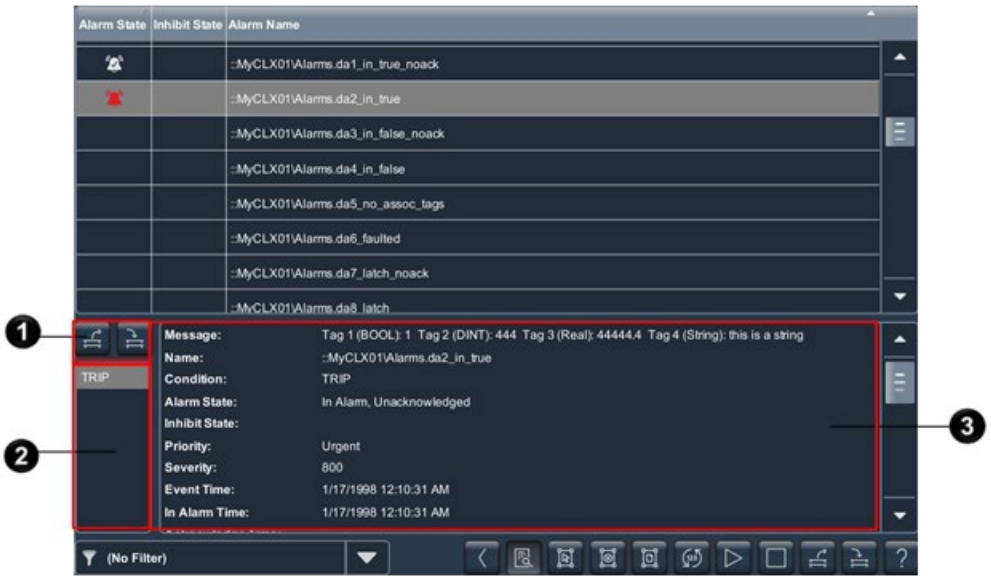
Alarm Summary for a large HMI device on page 779

Alarm Summary for a medium HMI device on page 777

Alarm faults and alarm quality on page 565

Details pane for an Alarm Manager

In a medium Alarm Manager table intended for HMI devices with six-inch to nine-inch screens, the **Details** pane replaces the list of alarms in the table. In a large Alarm Manager table intended for HMI devices with ten-inch or larger screens, the **Details** pane opens at bottom of the table.



Item	Description
1	Buttons to shelve and unshelve the selected alarm condition in the **Details** pane when it is displayed at the bottom of the Alarm Manager table.
	Shelve shelves the selected alarm condition in the **Details** pane. Shelving a condition prevents notification of new state changes to the alarm. Change the Shelve Duration and Max Shelve Duration through Logix Designer. If changes to the Shelve Duration and Max Shelve Duration values are not made through Logix Designer, the updated values are not propagated to the Alarm Summary and Alarm Manager clients. In this case, the previous Shelve Duration and Max Shelve Duration values are used when shelving alarms in Studio 5000 alarm tables.
	Unshelve unshelves the selected alarm condition in the **Details** pane. Unshelving a condition allows notification of new state changes to the alarm.
2	Select a condition to show all of the details of the condition in the **Details** pane. For example, to show details for the TRIP condition for the selected alarm, scroll to and select TRIP.
3	The condition details for the selected alarm. The details include when the alarm condition was enabled or disabled, suppressed or unsuppressed, or shelved. When multiple alarms are selected in the Alarm Manager table, condition details are displayed for the last alarm selected.

See also

Details pane rows on page 581

Alarm Manager for a medium HMI device on page 783

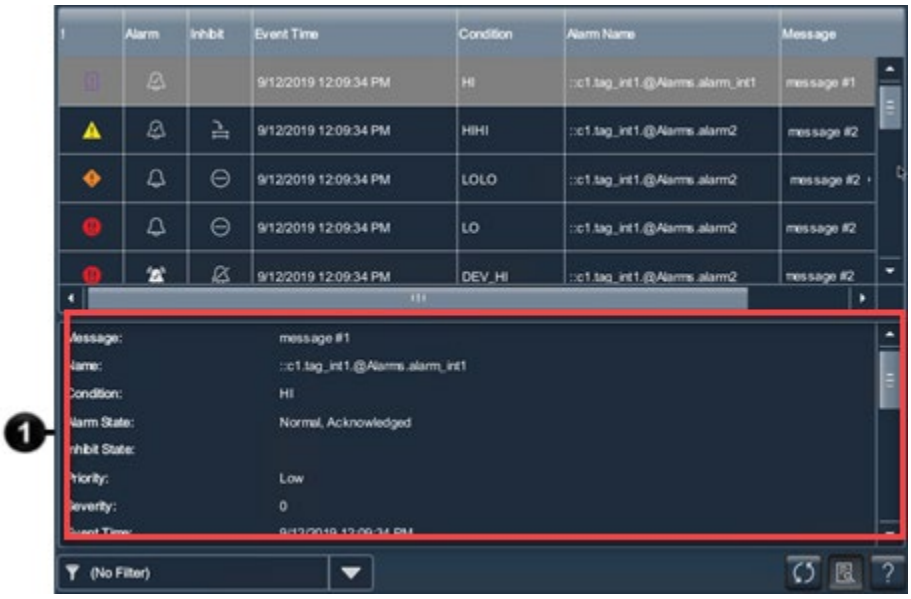
Alarm Manager for a large HMI device on page 784

Alarm faults and alarm quality on page 565

Details pane for Alarm History

In a medium Alarm History table recommended for HMI devices with seven-inch to nine-inch screens, the **Details** pane replaces the list of alarms in the table. In a large Alarm History table recommended for HMI devices with ten-inch or larger screens, the **Details** pane opens at

bottom of the table.



Item	Description
1	The **Details** pane with additional details for the selected alarm. This pane displays data, such as Current Value, In Alarm Time, Out of Alarm Time, and tag values. When multiple alarms are selected, details display for the last selected alarm.

See also

Details pane rows on page 581

Alarm History contents for a medium HMI device screen on page 602

Alarm History contents for a large HMI device screen on page 601

Details pane rows

Selecting **Details** on an alarm table opens the **Details** pane in the lower half of:

- Large Alarm Summary table
- Large Alarm Manager table
- Large Alarm History table

The **Details** pane replaces the list of alarms in medium alarm tables. The **Details** pane shows details for the selected alarm condition of a selected alarm. Condition details display the selected alarm condition in the Alarm Manager table. The contents of the **Details** pane appears in rows.

Row	Description
Priority	The urgency of the alarm condition: • Low • Medium • High • Urgent

Severity	The numeric value mapped to the assigned priority of the alarm condition: • 1-250 (Low) • 251-500 (Medium) • 501-750 (High) • 751-1000 (Urgent)
Alarm State	The state of the alarm condition: • Normal Unacknowledged • In Alarm Acknowledged • In Alarm Unacknowledged • Normal Acknowledged
Inhibit State	The value applied to the alarm condition that inhibits the alarm at some level. These states, indicated by an icon in the alarm table, include: • Bad Quality • Disabled • Suppressed • Shelved • Faulted These states can be combined. When an alarm has more than one inhibit state applied, the icon of the highest inhibit state shown above appears in the table.
Event Time	The date and time the alarm event occurred.
Condition	• Analog conditions include: DEV_HI, DEV_LO, HIHI, HI, LO, LOLO, ROC_POS, and ROC_NEG • Discrete conditions include: TRIP and TRIP_L
Expression	The expression configured in Logix Designer for the selected condition. The expression appears only for tag-based alarms.
Alarm Name	The name of the alarm. This name includes the controller name of the alarm and the tag name. It can also include the name of the program if the tag is defined at the program level. Depending on how it was configured, the Alarm Name can appear as ::ControllerName.TagName or ::ControllerName\ProgramName. For tag-based alarms, the alarm name can appear as ::ControllerName\ProgramName.TagName.@Alarms.AlarmName. If the tag is not located inside a program, this part is omitted and the Alarm Name appears as ::ControllerName.TagName.@Alarms.AlarmName.
Message	The message assigned to the alarm in the Logix Designer project.
In Alarm Time	The time the selected alarm entered the In Alarm state.
Acknowledge Time	The time the selected alarm was acknowledged.
Out of Alarm Time	The time the selected alarm entered the Normal or Out of Alarm state.
Enabled Time	The time the selected alarm was enabled.
Disable Time	The time the selected alarm was disabled.
Suppress Time	The time the selected alarm was suppressed.
Unsuppress Time	The time the selected alarm was unsuppressed.
Shelve Time	The time the selected alarm was shelved.
Unshelve Time	The time the selected alarm was unshelved. If the alarm is currently shelved, this is the time the alarm is unshelved automatically when the shelve duration expires.
Alarm Class	The user-defined class assigned to the alarm in the Logix Designer project.
Alarm Group	Displays the alarm group from Logix Designer to help classify and sort alarms. Displayed only for tag-based alarms.
Limit Value Exceeded	The condition limit assigned to the alarm in the Logix Designer project.
Tag 1 Value	The value of the associated tag parameter 1.
Tag 2 Value	The value of the associated tag parameter 2.

Tag 3 Value	The value of the associated tag parameter 3.
Tag 4 Value	The value of the associated tag parameter 4.
Alarm Count	The number of times the alarm condition has entered the In Alarm state.
Current Value	The current tag input value resulting in the alarm state.
Event Category	Digital events are categorized as Discrete. Analog events are categorized as Level.
Shelve duration	The default time for which the selected alarm condition is shelved to prevent the notification of new state changes. Shelve duration is assigned to the alarm in the Logix Designer project.
Max Shelve Duration	The maximum time the alarm can be shelved.
Quality Details	Displays information of a fault in case of faulted alarms.
State Change Type	This row applies to Alarm History only and displays the type of alarm state change for the currently selected alarm record: • In Alarm • Return to Normal • Acknowledged • Disabled • Enabled • Suppressed • Unsuppressed • Shelved • Unshelved • Configuration Changed • Fault • Alarm Counter Reset

Tip: The Alarm History table does not contain the following details pane rows:
- In Alarm Time
- Acknowledge Time
- Out of Alarm Time
- Enabled Time
- Disables Time
- Suppress Time
- Unsuppress Time
- Shelve Time
- Unshelve Time
- Shelve Duration

Max Shelve Duration

See also

Details pane for an Alarm Summary on page 580

Alarm faults and alarm quality on page 565

Alarm Summary contents for a large HMI device screen on page 577

Alarm Manager contents for a large HMI device screen on page 589

Help popup

How do I open the Help popup?

1. Open an alarm table:

- In the **System Banner** at the top of the screen, tap **Alarm Status Indicator** to open the **Alarm Summary**.
- At the top of the Alarm Summary table, tap **Alarm Manager** to open the **Alarm Manager**.

2. From either the **Alarm Summary** or the **Alarm Manager**, tap **Help**.

The **Help** popup shows all of the operations to perform on an alarm table. The buttons depicted in the popup include operations for the **Alarm Summary**, **Alarm Manager**, and **Alarm History**. The **Help** popup also displays a legend of icons for In Alarm/Unacknowledged, In Alarm/Acknowledged, Normal/Unacknowledged, and Faulted alarms.

Available operations depend on the alarm screen:

Operation	Alarm Summary	Alarm Manager	Alarm History
Acknowledge alarms	✓		
Disable alarms	✓	✓	
Enable alarms		✓	
Filter alarms by Event Time			✓
Pause the display of incoming alarms	✓		
Reset a digital alarm	✓		
Reset alarm counts		✓	
Select alarms	✓	✓	✓
Shelve individual alarm conditions	✓	✓	
Shelve entire alarm (all conditions)		✓	
Sort and filter alarms	✓	✓	✓
View alarms	✓	✓	✓
View alarm condition details	✓	✓	✓
View alarm quality		✓	✓
Unshelve alarm conditions		✓	
Unshelve alarms		✓	

See also

Help popup contents on page 797

Alarm Summary for a medium HMI device on page 777

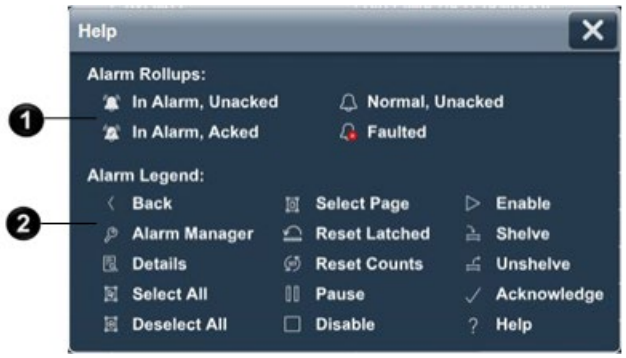
Alarm Manager for a medium HMI device on page 783

Details pane rows on page 581

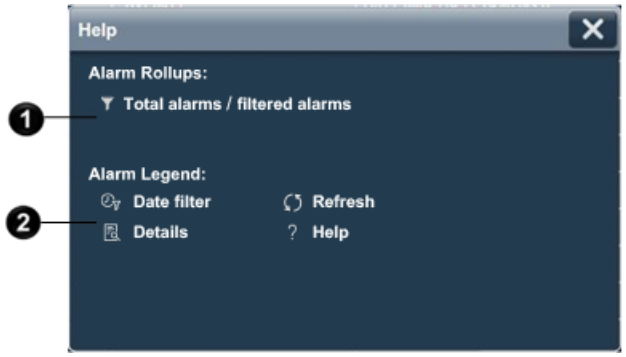
Help Popup Contents

The **Help** popup opens when pressing **Help** on an HMI device. This popup shows a legend of icons that appear on the alarm screens and the task each button on an alarm table performs. The functions vary depending on the selected alarm table.

Help popup for Alarm Summary and Alarm Manager tables:



Help popup for Alarm History table:



Item	Description
1	A legend for icons in the alarm table.
2	A legend for alarm functions you can perform on the alarm table. The alarm functions represent buttons on the alarm table. The functions you can perform vary depending on the selected alarm table:
3	**Back** opens the previously displayed screen. When opening the **Alarm Manager** screen from the **Alarm Summary** screen, this button reopens the **Alarm Summary** screen.
	Alarm Manager opens the **Alarm Manager** screen. The **Alarm Manager** lists all alarms configured in the system and their current states. Therefore, the **Alarm Manager** shows alarms not shown in the **Alarm Summary**, and provides additional tasks for alarms.
	Details hides or shows the **Details** pane, which contains the details of the last selected alarm. The **Details** pane appears on the bottom half of large alarm tables and replaces the list of alarms in medium alarm tables. If no alarm is selected, the **Details** pane is empty.
	Select All selects all of the alarms in the alarm table, including those not displayed on the current page of alarms.
	Deselect All deselects all alarms in the alarm table, including those not displayed on the current page of alarms.
	Select Page selects all of the alarms displayed on the current page of alarms.
	Reset Latched Alarms sets the selected latched state of the alarm to Normal if the input of the alarm has returned to normal. Resetting a latched alarm acknowledges the alarm, if it is not acknowledged.
	Reset Alarm Counts resets the alarm count in the controllers and the Alarm Count value in the **Details** pane of the Alarm Manager table to zero. The reset is performed for all conditions of the currently selected alarm.
	Pause stops updates to the Alarm Summary table for 10 seconds or until performing another operation on the table. While updates to the Alarm Summary table are paused, alarms in the controllers are still evaluated. When the table is no longer paused, any changes to alarm states are reflected in the table and updates resume.
	Disable stops the alarm condition from being evaluated. In effect, this turns off the selected alarm. This button disables the entire alarm. It is not possible to disable an individual alarm condition.

	Enable enables the selected alarms in the Alarm Manager table. Enabling an alarm allows the alarm condition to be evaluated, in effect turning on the alarm. Enabling an alarm enables all of the conditions for that alarm. Enabling an individual alarm condition is not allowed.
	Shelve prevents the notification of new state changes to the selected alarm if the alarm is acknowledged. Updates to the alarm do not appear. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. Updates to the alarm then resume. Shelving an alarm in the Alarm Summary table shelves only the selected alarm conditions. Shelving an alarm in the Alarm Manager table shelves all of the conditions of the alarm. From the condition list in the **Details** pane of the Alarm Manager table, shelve individual alarm conditions. Change the Shelve Duration and Max Shelve Duration using Logix Designer. Change the Shelve Duration and Max Shelve Duration values using Logix Designer in order to propagate updated values to the Alarm Summary and Alarm Manager clients. Use the previous Shelve Duration and Max Shelve Duration values when shelving alarms in Studio 5000 alarm tables.
	Unshelve unshelves the selected alarm in the Alarm Manager table. Unshelving allows notification of new state changes to alarms. From the condition list in the **Details** pane of the Alarm Manager table, unshelve individual alarm conditions.
	Acknowledge indicates that you are aware of the alarm. This button changes the state of the alarm from unacknowledged to acknowledged.
	Date filter. Select the box and enter a date and time to list only the alarm state change records that occurred between the chosen date and time and the present. Select the checkbox on the right side to activate the filter.
	Refresh loads the latest alarm state changes from the alarm history. You can also exit and enter the screen with the Alarm History again to refresh with the latest changes.
	Help opens this **Help** popup.

See also

Help popup on page 796

Alarm Summary for a medium HMI device on page 777

Alarm Manager for a medium HMI device on page 783

Perform basic alarm functions

Perform operations on the **Alarm Summary** screen and **Alarm Manager** screen to view and manage alarms.

Some operations can only be performed on a specific alarm screen. Use the following chart to identify the operations to perform on an alarm table.

Operation	Alarm Summary	Alarm Manager
Acknowledge alarms	✓	
Disable alarms	✓	✓
Enable alarms		✓
Filter alarms	✓	✓
Pause the display of incoming alarms	✓	
Reset a digital alarm	✓	
Reset alarm counts		✓
Select alarms	✓	✓
Shelve individual alarm conditions	✓	✓
Shelve entire alarm (all conditions)		✓
Sort and filter alarms	✓	✓
View alarms	✓	✓
View alarm condition details	✓	✓
View alarm quality		✓
Unshelve alarm conditions		✓
Unshelve alarms		✓

See also

Disable an alarm on page 804

Pause an alarm on page 805

Shelve an alarm on page 808

Reset a latched alarm on page 809

Reset alarm counts on page 813

Open an alarm screen

Open an alarm screen to view alarms and perform operations, such as acknowledging or shelving an alarm. Open the predefined **Alarm Summary** screen to view the Alarm Summary table. Open the predefined **Alarm Manager** screen to view the Alarm Manager table. Depending on the configuration of the HMI device application, alarm tables may exist on screens other than predefined screens.

To open an alarm screen

- **Alarm Summary.** In the **System Banner** at the top of the screen, select **Alarm Status Indicator** . The **Alarm Summary** screen opens. The **Alarm Status Indicator** button turns red and flashes if there are unacknowledged alarms. The button stops flashing when there are no unacknowledged alarms.
- **Alarm Manager.** In the **System Banner** at the top of the screen, select **Navigation** and in the **Navigation menu** at the bottom of the screen, select the **Alarm Manager** item. The **Alarm Manager** screen opens.

  Tips:

  - To open the **Alarm Manager** screen from the **Alarm Summary**, select **Alarm Manager** at the bottom of the Alarm Summary table.
  - Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open a screen on page 757

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Sort alarms on page 802

Select an alarm on page 800

Select an alarm

Select alarms to perform an operation on one or more alarms. Select alarms to acknowledge, shelve, unshelve, disable, enable, or reset a latched alarm. Deselect alarms to not perform an operation on those alarms.

To select an alarm

1. Open the **Alarm Summary** screen or the **Alarm Manager** screen.

2. In the alarm table, select the up and down arrows in the scroll bar, or drag the thumb between the scroll arrows to view the next or previous alarm.
3. Select alarms to highlight rows:

Tips:

- To deselect all alarms, select **Deselect All** .
- Select only one alarm at a time. Selecting multiple alarms or dragging to select multiple alarms is not allowed. Selecting an alarm and selecting another alarm selects only the last selected alarm. Selecting all alarms or a page of alarms deselects the previous selection and applies the new selection to the table.
- If not all expected alarms show in an alarm table, in the **Filter** box at the bottom of the alarm table, select **No Filter**.
- To select an alarm using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Sort alarms on page 802

View alarm details on page 801

Alarm Summary screen on page 776

Alarm Manager screen on page 781

View alarm details

View alarm details to display more information about an alarm. Additional details appear for alarms in the **Alarm Summary** and **Alarm Manager**. Details include:

- Alarm severity
- Associated tag values
- Alarm message
- The time an alarm entered a specific state
- Individual conditions for the alarm (Alarm Manager only)

To view alarm details

1. Open the **Alarm Summary** screen or the **Alarm Manager** screen.
2. In the alarm table, select an alarm.
3. Select **Details** . A **Details** pane with additional information for the last selected alarm opens at the bottom of the alarm table. The **Details** pane replaces medium alarm tables configured for six-inch to nine-inch HMI devices. Details show for an individual alarm condition in an **Alarm Summary**.
4. Select **Details** to hide the details for the selected alarm.

Tips:

- To show details for an alarm condition in an **Alarm Manager**, select the condition in the **Details** pane of the Alarm Manager table.
- Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Details pane rows on page 581

View alarm condition details on page 810

Sort alarms

Sort and filter an alarm table to view the alarms in the desired order.

The default sorting orders for the alarm tables are:

- **Alarm Summary** by Alarm State, Priority, and Event time
- **Alarm Manager** by Active State, Inhibit State and Alarm Name
- **Alarm History** by Event Time in descending order

Sorting alarms arranges the alarms in alphabetical order or by rank, depending on the data configuration of the column. Columns containing icons are sorted based on their defined ranking. Urgent alarms appear above High alarms. Alarm tables update dynamically as new alarms appear and alarm states change. In the Alarm Summary table, the latest In Alarm/Unacknowledged alarms appear at the top, so the order of sorted alarms changes continuously.

To sort alarms

1. Open an alarm screen:
   - **Alarm Summary**
   - **Alarm Manager**
   - **Alarm History**
2. In the alarm table, select the column heading that contains the data to sort. The column is sorted in ascending order by default. A white arrow in the column heading indicates the sorted column is the primary sort column.
3. (optional) To reverse the sort order, select the column heading again. The direction of the arrow in the column heading indicates the sort direction. An up arrow indicates ascending order and a down arrow indicates descending order.
4. Select additional column headings to further sort the alarms. When sorting a second column, the first column sorted becomes the secondary sort column. A gray arrow indicates a secondary sorting column.

See also

Open an alarm screen on page 800

Select an alarm on page 800

View alarm details on page 801

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Filter alarms

Filter rows in a table to show only the specified rows. When applying multiple filters to a table, only the last filter applies to the contents of the table. The filter applies to rows removed from view by previous filters.

An *Alarm State: In Alarm* filter returns all alarms with an In Alarm state, including In Alarm, Acknowledged, and In Alarm, Unacknowledged alarms. An *Alarm Name: Mix* filter returns all alarms with Mix as any part of the name including Mixer, Mixer101, or ThirdMixer.

To filter alarms

1. Open an alarm screen:
   - **Alarm Summary**
   - **Alarm Manager**
   - **Alarm History**
2. On the alarm table, select the **Filter** arrow in the lower left corner and select a filter in the list. The selected filter appears highlighted and the table returns only those alarms with data matching the filter.

Tips:

- Configure alarm tables with a filter value in the **FilterIndex** property to only display alarms that match the criteria of the filter on the HMI device.
- To display all alarms in a filtered table, select the **Filter** arrow and select **No Filter**.
- Filtering an alarm table deselects all previously selected alarms.
- Filtered results for a data that is not visible in a column, such as Severity, appears in the **Details** pane for the selected alarm.
- When filtering an **Alarm Manager**, an analog alarm returns even if only one of the conditions of the alarm contains the data of the filter. For an Alarm State filter with an In Alarm value, an analog alarm returns even if only one of its conditions is In Alarm. View alarm conditions in the **Details** pane of the Alarm Manager table.
- If a filter has no value, the filter name in the Filter box does not have a filter value after it. For example, when filtering on Message, no filter appears after *Message:* but if the Message filter has a value, *Message: Excessive volume* may appear.
- A filter with no value returns only those alarms with no entry for the filter data.

See also

Open an alarm screen on page 800

Sort alarms on page 802

Select an alarm on page 800

View alarm details on page 801

Alarm faults and alarm quality on page 565

Filter Alarm History by Event Time

Filter rows in the Alarm History table to show only the alarm rows from a selected date and time to the present.

To filter alarms by timespan

1. Open the **Alarm History** screen.

2. On the alarm table,select the box containing date and time on the center-bottom of the screen.
3. In the popup window, enter the date and time according to the format provided in the window and confirm.
   This date indicates the oldest row displayed in the view.
4. Select the checkbox on the right side of the date.
   A highlight and a check mark ✓ indicates that the filter is active.

Tips:

- The default value of the date and time is 8 hours before the time of entering Alarm History or the time of the last refresh. This allows a fast lookup of alarms that occurred during the previous shift.
  If you enter an invalid value in the popup window, for example "20" for the month number, you will receive an error message after selecting OK.
- The date and time format for the Event Time filter is the same for the entire Alarm History Viewer element. The DateTimeFormat property determines the date and time format.

See also

Open an alarm screen on page 800

Sort alarms on page 802

Select an alarm on page 800

View alarm details on page 801

Alarm faults and alarm quality on page 565

Disable an alarm

Disable an alarm to not evaluate the alarm condition. This turns off the alarm. Disabling an unacknowledged alarm does not acknowledge the alarm. Disabling individual alarm conditions in the **Details** pane of an alarm table is not supported. The **Alarm Manager** shows disabled alarms. The **Alarm Summary** shows disabled alarms that are unacknowledged.

To disable an alarm

1. Open the **Alarm Summary** screen or the **Alarm Manager** screen.
2. On the alarm table, select the alarm to disable:
   - **Individual alarm.** Tap to select the alarm. Using an external keyboard, **Tab** to highlight the alarm list. Select the **Up Arrow** and **Down Arrow** to select alarms in the list.
   - **Page of alarms.** To select all alarms visible on the current page of alarms, select **Select Page** .
   - **All alarms.** To select all alarms, including those not visible on the current page of alarms, select **Select All** .
3. At the bottom of the alarm table, select **Disable** . The **Disable** icon appears in the **Inhibit State** column for the alarm.

Tips:

- Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.
- To prevent alarm notifications while continuing to log state changes, the HMI Designer may configure an alarm suppress in the Logix Designer project in the controller.

See also

Open an alarm screen on page 800

Sort alarms on page 802

Select an alarm on page 800

Resolve alarm faults on page 567

View alarm errors on page 805

Pause an alarm

Pausing an alarm delays updates to the alarm status for 10 seconds. After 10 seconds, the notification resumes and updates to the alarm appear in the alarm table. When pausing an alarm, controllers continue to detect alarm conditions, but updates do not display in the alarm table.

The **Alarm Summary** reorders alarms as new alarms enter the In Alarm state. Pause alarms before acknowledging an alarm. Performing any operation on an alarm resumes updates to the paused table.

To pause an alarm

1. Open the **Alarm Summary** screen.
2. At the bottom of the alarm table, select **Pause** . The alarm table stops updating alarms for 10 seconds. After 10 seconds, **Pause** is no longer highlighted and the table resumes updating alarms.

Tips:

- Select **Pause** before the 10 seconds lapses to begin a second 10-second delay.
- Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Sort alarms on page 802

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Details pane for an Alarm Summary on page 580

View alarm errors

Performing an operation that fails for an alarm, such as disabling an already disabled alarm, shows an **Error** icon on the alarm table. Alarm operation errors are write errors. The **Error** icon disappears after 10 seconds. Unlike read errors, the error does not keep displaying the **Error** icon. An **Error** icon opens an **Error list** that contains:

- The affected alarm table -- Alarm Summary or Alarm Manager
- The alarm
- The condition triggering the alarm
- A description of the error

To view alarm errors

1. Open the **Alarm Summary** screen or the **Alarm Manager** screen.
2. In the alarm table, select alarms:
   - **Individual alarm.** Tap to select the alarm. Using an external keyboard, **Tab** to highlight the alarm list. Select the **Up Arrow** and **Down Arrow** to select alarms in the list.
   - **Page of alarms.** To select all alarms visible on the current page of alarms, select **Select Page** .
   - **All alarms.** To select all alarms, including those not visible on the current page of alarms, select **Select All** .
3. Perform the operation. If an error occurs for the operation, an **Error** icon appears in the upper left corner of the alarm table.
4. Select the **Error** icon . The list of alarms in the alarm table turns red and an **Error list** appears. When multiple alarms or conditions are in error, multiple error messages in the **Error list**.

Tip: Disabled buttons have diagonal hash marks. Selecting a disabled button shows an **Error** icon on the button for 10 seconds. Selecting the **Error** icon displays an **Error list** with the message that the button is disabled.

See also

Open an alarm screen on page 800

View alarm details on page 801

Disable an alarm on page 804

Alarm faults and alarm quality on page 565

Resolve alarm faults on page 567

Resolve alarm faults

Alarm faults occur for two reasons:

- **Condition related issues**. Abnormal conditions are events that occur outside normal operations. A disconnected network, power cycles to a controller or HMI device, project downloads to the controller, major faults on a controller, or a controller in Program mode can all cause alarm faults.
- **Configuration related issues**. Alarms exist in Logix Designer with enforced valid configuration values. Configuration errors generally occur when alarm parameters change by writing to a member of the alarm. An alarm with a member named *AlarmName.Severity* indicates the severity of its associated alarm condition. Changing the severity tag member to an invalid value shows the alarm as bad quality until the severity changes to a valid value.

To resolve alarm faults

1. Open the **Alarm Manager** screen.

2. In the **Inhibit State** column, select an alarm row that has a **Bad Quality** icon .
3. To view the details of the alarm, select **Details** . A **Details** pane with additional information for the last selected alarm appears.

   Tip: The **Details** pane opens at the bottom of an alarm table for ten-inch or larger HMI devices and replaces the alarm table on six-inch to nine-inch HMI devices.
4. In the **Details** pane review the reasons for a faulted alarm or condition in the last row -- Quality Details.
5. Resolve the alarm fault.
   - Correct the condition causing the alarm fault.
   - Correct the configuration causing the alarm fault.

See also

Open an alarm screen on page 800

Alarm faults and alarm quality on page 565

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Acknowledge alarms in an Alarm Summary

Acknowledge an alarm to indicate that you are aware of the alarm. Acknowledging an alarm changes the state of the alarm from unacknowledged to acknowledged. The number of unacknowledged alarms appears in the **System Banner** at the top of the screen. Alarms with a Bad Quality inhibit state such as those with an invalid severity, are not included in the number of unacknowledged alarms. The **Alarm Status Indicator** in the **System Banner** appears red and flashes when there are active alarms that are unacknowledged. The button remains red as long as there are active acknowledged or unacknowledged alarms.

When you acknowledge an alarm, the **Alarm State** icon in the alarm table changes to represent the state of the acknowledged alarm:

- In Alarm, Acknowledged
- In Alarm, Acknowledged, and Urgent

Active acknowledged alarms are listed on the **Alarm Summary** screen. Alarms with an inhibit state of disabled, suppressed, or shelved and unacknowledged are listed in the Alarm Summary table until they are acknowledged. Acknowledging a normal alarm removes it from the Alarm Summary table because the alarm is no longer interesting. Normal, Acknowledged alarms appear on the **Alarm Manager** screen, but no icon appears for Normal, Acknowledged alarms in the Alarm Manager table.

To acknowledge alarms in an Alarm Summary

1. Open the **Alarm Summary** screen.
2. Select the alarms:

- **Individual alarm.** Tap to select the alarm. Using an external keyboard, **Tab** to highlight the alarm list. Select the **Up Arrow** and **Down Arrow** to select alarms in the list.
- **Page of alarms.** To select all alarms visible on the current page of alarms, select **Select Page** .
- **All alarms.** To select all alarms, including those not visible on the current page of alarms, select **Select All** .

3. At the bottom of the Alarm Summary table, select **Acknowledge** . The selected alarms are acknowledged. **Alarm Status Indicator** returns to its default state when all alarms, including the unacknowledged alarms, are normal.
4. Correct the event that is causing the alarm error. For example, for an analog alarm, the HI level may become active if the water level in a tank rises beyond a specified value. To correct the issue, reduce the water level to below the high threshold. The alarm returns to its normal state.

Tip: Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Select an alarm on page 800

Pause an alarm on page 805

Alarm Summary screen on page 776

Alarm Summary table columns on page 780

Shelve an alarm

Shelve an alarm to prevent state changes to the alarm. Do this when a piece of equipment is under maintenance. Shelve an alarm from the **Alarm Summary** screen. Shelving an alarm in the **Alarm Summary** shelves only the individual alarm condition in the selected row. The alarm remains shelved until the shelve duration from the controller expires automatically or until manually unshelving the alarm. The HMI designer may change the Shelve Duration and Max Shelve Duration values using Logix Designer.

To shelve an alarm

1. Open the **Alarm Summary** screen or the **Alarm Manager** screen.
2. Select the alarm:
   - **Individual alarm.** Tap to select the alarm. Using an external keyboard, **Tab** to highlight the alarm list. Select the **Up Arrow** and **Down Arrow** to select alarms in the list.
   - **Page of alarms.** To select all alarms visible on the current page of alarms, select **Select Page** .
   - **All alarms.** To select all alarms, including those not visible on the current page of alarms, select **Select All** .

3. At the bottom of the alarm table, select **Shelve** . A **Shelved** icon appears in the **Inhibit State** column of the alarm table for the shelved alarm. Notification of new state changes to the alarm cannot occur.

Tips:

- Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.
- A shelved alarm:
  - Can enter the In Alarm state. The event that changes the state of the alarm to In Alarm does not appear in the Alarm Summary table.
  - Remains unacknowledged until acknowledged. If a shelved alarm requiring acknowledgment becomes active, it does not transition to the unacknowledged state. The alarm remains acknowledged until unshelving the alarm. If the alarm is active when unshelving, the alarm is unacknowledged.
  - Appears in an **Alarm Summary** only if the shelved alarm is unacknowledged.
  - Appears in an **Alarm Manager** with the current state of the shelved alarm.

See also

Open an alarm screen on page 800

Unshelve an alarm on page 812

Pause an alarm on page 805

Shelve an alarm condition on page 810

Reset a latched alarm

When an alarm configured to latch enters the In Alarm state, the alarm remains In Alarm. This is true even when the input for the alarm changes. An alarm configured to latch when input is high remains In Alarm, even if the input turns low, because the alarm is latched. The alarm can only enter the Normal or Inactive state when resetting the alarm.

To reset a latched alarm

1. Open the **Alarm Summary** screen.
2. Select either the instruction-based or tag-based alarm.

Tip: Using an external keyboard, tab to highlight the alarm list and press the **Up Arrow** or **Down Arrow** to select the alarm.

3. At the bottom of the Alarm Summary table, select **Reset Latched Alarms** . The alarm state returns to Normal.

Tips:

- Resetting a latched alarm acknowledges the alarm.
- Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Select an alarm on page 800

Details pane for an Alarm Summary on page 580

Alarm Summary screen on page 776

Help popup on page 796

View alarm condition details

Display alarm condition details to view more information about an alarm condition. Additional details for an alarm condition appear in the **Details** pane of the **Alarm Manager** table.

To view alarm condition details

1. Open the **Alarm Manager** screen.
2. Select the alarm.

   Tip: Using an external keyboard, press **Tab** to highlight the alarm and press **Enter** to select the alarm.
3. Select **Details** . The **Details** pane with additional information for the selected alarm appears at the bottom of the alarm table. The **Details** pane replaces the alarm table on medium HMI devices.
4. In the pane of individual alarm conditions to the left of the **Details** pane of the Alarm Manager table, select the condition. The details of the alarm condition appear.
5. Select **Details** to hide the details for the selected alarm.

   Tip: Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Details pane for an Alarm Summary on page 580

Shelve an alarm condition on page 810

Unshelve an alarm condition on page 811

Alarm Manager screen on page 781

Shelve an alarm condition

Shelving an alarm condition prevents the notification of new state changes to the condition. Shelve an alarm condition from the Alarm Manager table. Shelving an alarm condition shelves only that condition. The alarm condition remains shelved until the shelve duration from the controller expires automatically or when unshelving the alarm condition manually.

To shelve an alarm condition

1. Open the **Alarm Manager** screen.
2. Select the alarm. Using an external keyboard, press **Tab** to highlight the alarm list. Press the **Up Arrow** and **Down Arrow** to select the alarm in the list.
3. At the bottom of the Alarm Manager table, select **Details** . The **Details** pane appears at the bottom of the Alarm Manager table, or replaces the alarm table on medium HMI devices. Details appear for the last selected alarm.
4. To the left of the **Details** pane, select the condition to shelve. For example, select HIHI.

5. Above the condition list on the left side of the **Details** pane, select **Shelve** to shelve the selected alarm condition.

Tips:

- The state of the condition is indicated in the **Inhibit State** row of the **Details** pane. A **Shelved** icon appears in the **Inhibit State** column for the alarm in the Alarm Manager table.
- Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.
- The HMI designer may use Logix Designer to change the Shelve Duration and Max Shelve Duration. If the HMI designer does not change the Shelve Duration and Max Shelve Duration values using Logix Designer, the updated values do not propagate to the Alarm Summary and Alarm Manager clients. The table uses the previous Shelve Duration and Max Shelve Duration values when shelving alarms.

See also

Open an alarm screen on page 800

View alarm condition details on page 810

Unshelve an alarm condition on page 811

Details pane for an Alarm Manager on page 592

Alarm Manager screen on page 781

Unshelve an alarm condition

Unshelving an alarm condition allows notification of new state changes to the condition. Unshelve individual alarm conditions from an Alarm Manager table. Alarm conditions are unshelved automatically when the default shelving duration configured for the controller expires.

To unshelve an alarm condition

1. Open the **Alarm Manager** screen.
2. Select the alarm.

Tip: Using an external keyboard, press **Tab** to highlight the alarm list. Press the **Up Arrow** and **Down Arrow** to select the alarm in the list.

3. At the bottom of the Alarm Manager table, select **Details** . The **Details** pane appears at the bottom of a large Alarm Manager table or replaces a medium Alarm Manager table. Details appear for the last selected alarm.
4. To the left of the **Details** pane, select the condition to unshelve, such as HIHI.
5. On a large Alarm Manager table, select **Unshelve** above the condition list on the left side of the **Details** pane. On a medium Alarm Manager table, select **Unshelve** below the **Details** pane. Only the selected alarm condition is unshelved.

   The state of the condition is indicated in the **Inhibit State row** of the **Details** pane. It is also indicated in the **Inhibit State** column for the alarm in the Alarm Manager table.

Tip: Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Shelve an alarm condition on page 810

Shelve an alarm on page 808

Unshelve an alarm on page 812

Details pane for an Alarm Manager on page 592

Unshelve an alarm

Unshelving an alarm allows notification of new state changes to the alarm. Unshelve an alarm from the **Alarm Manager**. Unshelve an alarm for a piece of equipment in a system that is no longer under maintenance. Unshelving an alarm unshelves all conditions for the alarm. Alarms unshelve automatically when the default shelving duration from the controller expires.

To unshelve an alarm

1. Open the **Alarm Manager** screen.
2. Select the alarms:
   - **Individual alarm.** Tap to select the alarm. Using an external keyboard, **Tab** to highlight the alarm list. Select the **Up Arrow** and **Down Arrow** to select alarms in the list.
   - **Page of alarms.** To select all alarms visible on the current page of alarms, select **Select Page** .
   - **All alarms.** To select all alarms, including those not visible on the current page of alarms, select **Select All** .
3. At the bottom of the Alarm Manager table, select **Unshelve** . Notification of new state changes to the alarm occur.

Tip: Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Shelve an alarm on page 808

Shelve an alarm condition on page 810

Unshelve an alarm condition on page 811

Details pane for an Alarm Manager on page 592

Enable an alarm

Enabling an alarm effectively turns on the alarm. Enable any number of alarms selected in an Alarm Manager table. Enabling individual alarm conditions in the **Details** pane of the Alarm Manager table is not supported.

To enable an alarm

1. Open the **Alarm Manager** screen.
2. Select the alarms:
   - **Individual alarm.** Tap to select the alarm. Using an external keyboard, **Tab** to highlight the alarm list. Select the **Up Arrow** and **Down Arrow** to select alarms in the list.
   - **Page of alarms.** To select all alarms visible on the current page of alarms, select **Select Page** .
   - **All alarms.** To select all alarms, including those not visible on the current page of alarms, select **Select All** .
3. At the bottom of the Alarm Manager table, select **Enable** . The selected alarms are enabled.

Tip: Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Disable an alarm on page 804

Sort alarms on page 802

Select an alarm on page 800

Alarm Manager screen on page 781

Reset alarm counts

Alarm counts indicate the number of times an alarm enters the In Alarm State. Resetting alarm counts resets the alarm count in the controller to zero. It also resets the Count value in the **Details** pane of the alarm table to zero. Reset alarm counts to gauge how many additional times or how fast an alarm enters the In Alarm State. Resetting counts for an individual alarm condition in the **Details** pane of the Alarm Manager table is not supported. Counts for all conditions for the selected alarm are reset.

To reset alarm counts

1. Open the **Alarm Manager** screen.
2. Select the alarm.

Tip: Using an external keyboard, press **Tab** to highlight the alarm and press **Enter** to select the alarm.

3. At the bottom of the table, select **Reset Alarm Counts** . The alarm count in the controller, and the Alarm Count value in the **Details** pane of the Alarm Manager table are reset to zero.

Tip: Using an external keyboard, tab to highlight a button on an alarm table and press **Enter**.

See also

Open an alarm screen on page 800

Shelve an alarm on page 808

Unshelve an alarm on page 812

Sort alarms on page 802

Alarm Manager screen on page 781

View alarm quality

View the quality of alarms that is detected through controller faults. While there can be several faults or reasons that determine the quality of an alarm, each alarm is assigned only one quality -- good, bad, or uncertain. If there is no fault, the quality of the alarm quality is good. If the status of a controller status is not read yet, the quality of the alarm is uncertain.

To view alarm quality

1. Open the **Alarm Manager** screen.
2. Select to select the alarm. Using an external keyboard, tab to highlight the alarm list and press the **Up Arrow** or **Down Arrow** to select the alarm.
3. In the **Details** pane at the bottom of the Alarm Manager table, select the horizontal scroll arrows to scroll to the **Quality Detail** row. This row lists the quality of the alarm. The quality of the alarm is bad if the alarm has one of these faults:
   - Instruct fault only (specific fault not set)
   - Instruction faulted
   - Severity invalid
   - Alarm limits invalid
   - Deadband invalid
   - ROC positive limit invalid
   - ROC negative limit invalid
   - ROC period invalid
   - Old Logix firmware

   Tip: If an alarm has a fault, a **Bad Quality** icon appears in the **Inhibit State** column of the Alarm Manager table.

See also

Alarm faults and quality indicators on page 567

Open an alarm screen on page 800

View alarm details on page 801

View alarm condition details on page 810

Alarm Manager screen on page 781

Alarm faults and quality indicators

Alarm faults and their qualities appear in the **Quality Details** row in the **Details** pane of an alarm table. An alarm indicates good quality if all alarm conditions (High High, High, Low, Low Low, ROC Positive, ROC Negative, Deviation High, Deviation Low, TRIP, and TRIP_L) are in good quality.

Fault	Cause of Fault	Quality Indicator	Affected alarm conditions
No fault	N/A	Good	All
Status from controller not read yet	Abnormal Conditions	Bad	All
Instruct fault only (specific fault not set)	Configuration	Bad	All
In faulted	Configuration	Bad	All
Severity invalid	Configuration	Bad	All
Alarm limits invalid	Configuration	Bad	High High, High, Low, Low Low
Deadband invalid	Configuration	Bad	High High, High, Low, Low Low
ROC Positive limit invalid	Configuration	Bad	ROC Positive
ROC Negative limit invalid	Configuration	Bad	ROC Negative
ROC period invalid	Configuration	Bad	ROC Positive, ROC Negative
Old Logix firmware	Abnormal Conditions	Bad	All
Controller in Program mode	Abnormal Conditions	Bad	All
Major controller program fault (recoverable)	Abnormal Conditions	Bad	All
Communication failure (last value known)	Abnormal Conditions	Bad	All
Communication failure (no last value known)	Abnormal Conditions	Bad	All
Connection with controller lost	Abnormal Conditions	Bad	All
Major controller program fault (unrecoverable)	Abnormal Conditions	Bad	All
Failed to subscribe to controller	Abnormal Conditions	Bad	All
Detected hazard of overwriting old notifications in Alarm Log	Abnormal Conditions	Bad	All
Arithmetic overflow	Abnormal Conditions	Bad	All

See also

Resolve alarm faults on page 567

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Alarm faults and alarm quality

Alarms have good or bad quality. Good quality indicates the alarm is functioning correctly. Bad quality indicates that there is a problem with the alarm.

The current state may not be detected or accurate. Bad quality occurs from abnormal scenarios, such as a disconnect in the network, or a controller in **Program** mode, or by configuration issues. If the alarm has bad quality due to an abnormal scenario, all conditions of the alarm fault because evaluating or detecting the alarm is not possible. If the alarm

has a configuration error, such as invalid limit, only the affected conditions have bad quality. The unaffected conditions have good quality and continue to function. View alarms with bad quality in an **Alarm Manager** only. Quality details appear in the **Details** pane of the Alarm Manager table.

For configuration-related faults, level conditions (HIHI, HI, LO, and LOLO) and ROC conditions (ROC Positive and ROC Negative) are evaluated independently. With the exception of severity, only affected conditions are faulted. If the ROC Positive limit is invalid, only the ROC Positive condition faults. The ROC Negative condition and all level conditions maintain good quality. If the ROC_Period is invalid, both the ROC Positive and ROC Negative conditions fault, but all level conditions maintain good quality. Level condition limits have dependent relationships. The HIHI limit must be greater than HI, HI must be greater than LO, and LO must be greater than LOLO. If any level limit is out of range, all levels fault.

In an **Alarm Manager**, inhibit states from all alarm conditions roll up for a single alarm. If the level or ROC conditions fault for an alarm, the alarm is of bad quality. The conditions that are of good quality continue to function normally and appear in an **Alarm Summary** when they are in the *interesting* state. When the alarm is of bad quality due to an abnormal scenario, all conditions for the alarm are of bad quality.

See also

Resolve alarm faults on page 567

Details pane for an Alarm Summary on page 580

Details pane for an Alarm Manager on page 592

Alarm Summary screen on page 776

Alarm Manager screen on page 781

Export Alarm history

Export the alarm history from the HMI device to removable media to view the alarm state changes collected on the HMI device. Open the exported alarm history file on a computer.

Prerequisites

- Insert an SD Card or a USB drive into the HMI device so the Alarm Log service can export.

To export the alarm history

1. Open the **Settings** screen.
2. Select **Data Export**. The **Data Export** popup opens.
3. In **What to export,** select **Alarm history**.
4. In the **Filename** box, enter a name for the export file. "**archive_alarms**" is the default name of the export file.
5. In **Destination**, select **SD Card** or **USB Device**.

6. Select **Export**. **Export progress** shows a progress bar. The **Data Export** popup displays the last date and time a data log or alarm history exported at the top of the window.

   Tips:
   - When the alarm history is exporting, Data Export appears in the System Banner.
   - If there is an error in logging data or exporting, Data Export Error appears in the System Banner.
   - Data exports do not complete or create a .zip file on removable media if a ControlFLASH, reboot, or power cycle to the HMI device occurs during the export or when removing media before the export is complete.
   - There is no potential damage to files when removing a USB storage device when exporting data completes.

IMPORTANT Do not remove an SD card before preparing the media for safe removal. This may corrupt files on the removable device if the HMI device has data logging configured.

7. If an SD card contains the exported alarm history file, next to **SD Card**, select **Safely Remove SD Card**. The **Data Logger** status at the top of the **Data Export** popup changes to *Stopped* and *Remove SD card; reinsert to resume logging data* appears. **Data Export Remove** appears in the **System Banner**. It is safe to remove the SD card.

   Tips:
   - When exporting the alarm history to an SD card or USB storage device, avoid error messages by ensuring that the SD card or USB storage device:
     - has sufficient space
     - is inserted into the HMI device
     - has write permissions
     - is a supported SD card type
     - has a supported format of either FAT32 or EXT3
     - is not corrupted and does not contain corrupted files
   - If data does not export to a supported SD card that meets requirements, reboot the HMI device. If rebooting fails, insert the SD card into a computer and verify that the SD meets requirements. Follow any prompt to scan and repair the file system index on the SD card.

See also

Cancel the export of alarm history on page 817

Remove media from the HMI device on page 747

Cancel the export of alarm history

Cancel the export of the alarm history to stop creating the export file for the alarm history and not save it to removable media. Cancel the export when the alarm history for the current project is exporting to the USB storage device or SD card in the HMI device.

To cancel the export of alarm history

1. Open the **Settings** screen.
2. Select **Data Export**. The **Data Export** popup opens, showing the progress of the export.
3. Select **Cancel**. The progress indicator stops to indicate the export is canceled.

See also

Export alarm history on page 816

Alarm history retention

View Designer retains alarm state history after:

- Rebooting or powering off the HMI device.
- Loading a new project.
- Disconnecting a controller from the HMI device.
- Replacing a controller.
- Having a controller recover from a fault.
- Downloading a new program from a controller connected to the HMI device.
- Clearing the alarm log on a controller connected to the HMI device.

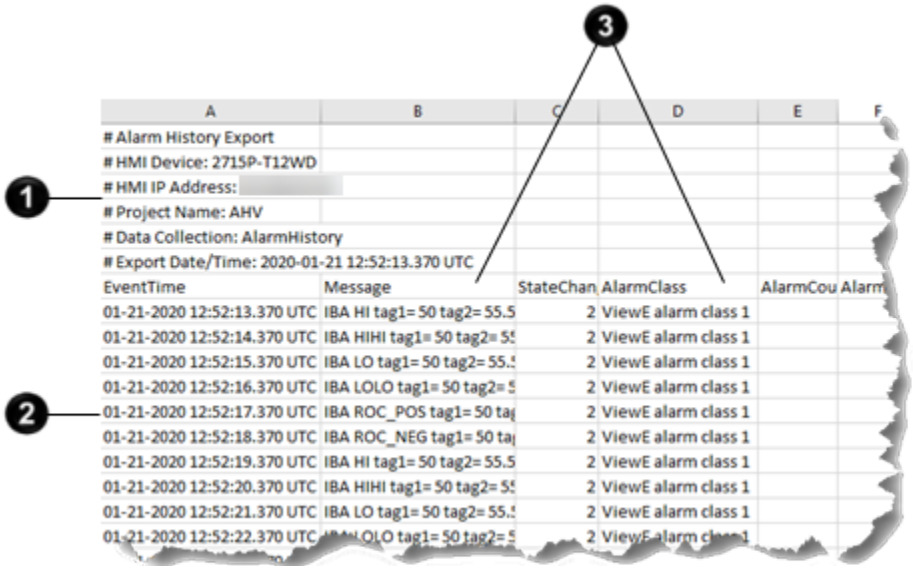
See also

Alarm History for a large HMI device screen on page 789

Alarm History for a large HMI device screen on page 789

Alarm history file

The exported alarm history contains information about the alarm state changes, and lists the recorded values for each column in the alarm history.



Item	Description
1	The headings of the alarm history file indicate the: • Contents of the file is the exported alarm history. • HMI device that exported the alarm history. • IP address of the HMI device. • Name of View Designer project runtime application containing the data log configuration. • Name of the data collection. • Date and time the alarm history was exported.

Item	Description
2	The date and time each alarm state change was recorded.
3	Columns reflecting the columns in the AlarmHistory table.

See also

Export alarm history on page 816

Cancel the export of alarm history on page 817

Alarm history retention on page 790

Alarm History screen on page 786

View trend charts

A trend chart displays data over time in a graphical format. Trend charts display values from tags in a controller, user-defined properties, or properties of a graphic element. If a tag exists in a configured data log, the trend chart also displays historical data. A trend chart can monitor tank pressure and tank temperature over the course of an hour.

View Designer supports up to four trends per screen. Trend charts start updating when a screen containing the trend chart opens. The trend chart plots any available historical data. By default, trend charts collect and show data on traces every second. Updates occur even if there is no sample data to display for the current time span. Traces appear on a trend chart when there are two available data points.

Trend charts are interactive. Pause trend chart data for closer inspection. Resume to continue updates to a trend chart. To view previous or more recent data, pan trend charts backward or forward.

Use a trend chart to:

- Monitor processes in a manufacturing system.
- Display data from a tag, user-defined property, or property of a graphic element. Tags may include historical data.
- Display up to eight traces that plot data over time to graphically present data.
- View, pan, and pause data on the HMI device.

Tips:

- For applications already on the HMI device, it may take up to the length of the sample rate before data shows on the trend chart. If the trend chart has a sample rate of 30000 milliseconds or 30 seconds, it may take up to 30 seconds before any data shows on the trend chart. For applications downloading to the HMI device, it can take twice the sample rate to show data while establishing communication with the controllers.
- If there are multiple sets of data for the same time period in the data log, the trend chart plots only the most recent data for the time period. This occurs even if a previous set of data for the time period has more data than the most recent set of data.
- When both historical and real-time data is available, the trend chart shows real-time data at the sample rate of the trend chart. Historical data displays at the sample rate of the data log.

See also

Pause a trend chart

Resume updates to a trend chart on page 820

Pan trend chart data on page 821

Trend chart contents on page 821

Pause a trend chart

Pause a trend chart to stop it from scrolling and review the current data. When a trend chart pauses, the trend chart stops scrolling and traces no longer update. There is no time limit for pausing a trend chart. The time range and data is static on a paused trend chart. The trend chart shows only the data at the time the trend chart pauses. Data collection continues in the background.

To pause a trend chart

1. At the bottom of the trend chart, select **Pause** . The trend chart stops scrolling.
2. To resume updates to the trend chart, select **Resume** . The trend chart begins scrolling again time. The trend chart starts scrolling once the current time span fills with data.

Tips:

- To use the HMI device keypad or an external keyboard to press a button on the trend chart, tab to the button and press **Enter**.
- Navigation to a different screen automatically resumes updates to the trend chart. If navigation opens a different screen and then returns to the screen containing a paused trend chart, the trend chart resumes updates.
- The HMI Designer determines if a button appears to interact with the trend chart on the HMI device.

See also

View trend charts on page 819

Resume updates to a trend chart on page 820

Pan trend chart data on page 821

Trend chart contents on page 821

Resume updates to a trend chart

A paused trend chart does not update traces. No data plots for the time span when the trend chart pauses. Resume updates to a trend chart to plot data and update traces. When updates resume, the trend chart plots data collected during the pause.

To resume updates to a trend chart

- At the bottom of the trend chart, select **Resume** . Updates to the trend chart resume and data updates are plotted on the traces.

Tips:

- The HMI Designer determines if a button appears to interact with the trend chart on the HMI device.
- To use the HMI device keypad or an external keyboard to press a button on the trend chart, tab to the button and press **Enter**.

See also

View trend charts on page 819

Pan trend chart data on page 821

Pause a trend chart

Trend chart contents on page 821

Pan trend chart data

Pan trend chart data to move backward and forward through the plotted data. Pan data backward to see past data, and pan data forward to return to more recent data in the trend chart. When data pans, the trend chart pauses. The most recent value in the panned data appears on the right side of the trend chart.

To pan trend chart data

1. Select the pan direction:
   - **Previous data.** Select **Pan Backward** at the bottom of the trend chart. Previous data appears one half time span at a time.
   - **More recent data.** Select **Pan Forward** at the bottom of the trend chart. More recent data appears one time span at a time until the current data appears.
2. To resume scrolling, select **Resume** .

Tips:

- The HMI Designer determines if a button appears to interact with the trend chart on the HMI device.
- To navigate to a specified time to pan the trend chart, select the item on the screen configured with the event. To identify the event, contact the HMI Designer.
- Panning to current data uses the sample rate of the trend chart. Panning to historical data uses the sample rate of the data log for the project.
- If there are multiple sets of data for the same time period in the data log, the trend chart plots only the most recent data for the time period. This occurs even if a previous set of data for the time period has more data than the most recent set of data.
- If a graphic element has configured binding to pan to the start of the trend chart, select the graphic element. To identify the graphic element, contact the HMI Designer.
- To use the HMI device keypad or an external keyboard to select a button on the trend chart, tab to the button and press **Enter**.

See also

Pause a trend chart

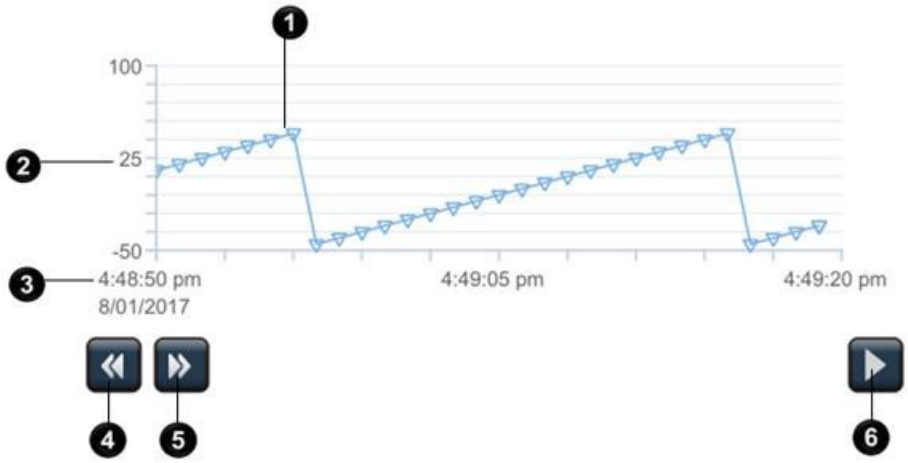
Resume updates to a trend chart on page 820

Trend chart contents on page 821

View trend charts on page 819

Trend chart contents

A trend chart depicts data on up to eight traces and plots those values across the chart:



Item	Description
1	Traces on the trend chart consist of lines and markers. Each trace plots the values of the tag in the controller over the specified time span. Trend charts can display up to eight traces. The trend chart updates every second to display the most recent values, even if there are no values plotted during that time span.
2	The y-axis that represents data. This axis displays the values of the **MinValue** and **MaxValue** properties of the trend chart.
3	The axis that represents time. The value on the right side of this axis represents the current time. The value on the left side of this axis represents the current time minus the time span. The date corresponds to the left most data point.
4	**Pan Backward** displays previous data one half time span at a time. This button appears only when there is data collected prior to the data displayed on the trend chart.
5	**Pan Forward** displays more recent data one half time span at a time. This button appears only when there is data collected after the data displayed on the trend chart.
6	**Resume** updates data after the trend chart is paused. **Pause** replaces **Resume** when the trend chart is scrolling. When a trend chart pauses, data does not update and the trend chart is static.

See also

View trend charts on page 819

Pause a trend chart

Resume updates to a trend chart on page 820

Pan trend chart data on page 821

Log data

If the View Designer project on the HMI device contains data logs, the HMI device logs the values of the tags in the data log automatically. The HMI device must have an SD card in order to log data. The SD Card allows the Data Log service to run and export.

To log data

- Insert an SD Card into the HMI device.

Tips:
- If a referenced tag does not exist in the controller or there is a communication issue with the controller, *Tags are in error* appears at the top of the **Data Export** popup of the **Settings** screen.
- Ejecting and immediately reinserting the SD card into the HMI device may not restart data logging. Data logging does not recognize that the SD card is present. Eject the SD card, wait several seconds, and reinsert the SD card to restart data logging.

See also

Export a data log on page 823

Cancel the export of a data log on page 825

Data log file on page 826

Data log retention on page 667

Data log

A data log is a collection of data values from specified tags. Data logs export from the HMI device to an external device such as an SD card or a USB storage device. Exported data logs are .zip files that contain a .csv file for each data log in the project. Export a data log to view the data values on a computer.

Use a data log to:

- View historical data for a specific duration.
- Collect tag values at a specified sample rate.
- Identify data patterns in a system.
- Troubleshoot a system.
- Provide data for audits.

See also

Data log file on page 826

Export a data log on page 823

Data log retention on page 667

Export a data log

Export a configured data log from the HMI device to removable media to view tag values collected on the HMI device. The exported .zip file contains individual .csv files for each data log in the project. Open the exported data log file on a computer to view the values in the data log.

Prerequisites

- Insert an SD Card into the HMI device so the Data Log service can run and export.

  Tip: If a referenced tag does not exist in a controller or there is a communication issue with a controller, *Tags are in error* appears at the bottom of the **Data Export** popup that opens from the **Settings** screen.

To export a data log

1. Open the **Settings** screen.

2. Select **Data Export**. The **Data Export** popup opens and indicates that the Data Log service is running.
3. Under **What to export,** select **Data logs**.
4. In the **Filename** box, enter a name for the export file. "**archive_datalog**" is the default name of the export file.
5. Under **Destination**, select **SD Card** or **USB Device**.
6. Select **Export**. **Export progress** shows a progress bar. The **Data Export** popup displays the last date and time a data log exported at the top of the window.

   Tips:
   - When the data log is exporting, Data Export appears in the System Banner.
   - If there is an error in logging data or exporting a data log, Data Export Error appears in the System Banner.
   - Data log exports do not complete or create a .zip file on removable media if a ControlFLASH, reboot, or power cycle to the HMI device occurs during the export or when removing media before the export is complete.
   - There is no potential damage to files when removing a USB storage device when exporting the data log file completes.

IMPORTANT Do not remove an SD card before preparing the media for safe removal. This may corrupt files on the removable device.

7. If an SD card contains the exported data log file, next to **SD Card**, select **Safely Remove SD Card**. The **Data Logger** status at the top of the Data Log popup changes to *Stopped* and *Remove SD card; reinsert to resume logging data* appears. **Data Log Remove** appears in the **System Banner**. It is safe to remove the SD card.

   Tips:
   - Data logging resumes when an SD card is inserted into the HMI device.
   - Bad Quality tag values occur in the data log when:
     - The HMI device is disconnected from a controller.
     - A controller is not synchronized.
     - An invalid tag is not defined in a controller or has an invalid address logged in the data log.
     - When downloading a project to or restarting the HMI device, data may appear as Bad Quality until the Data Log service starts collecting data from a controller.
   - When exporting a data log to an SD card or USB storage device, avoid an error message by ensuring that the SD card or USB storage device:
     - Has sufficient space
     - Is inserted into the HMI device
     - Has write permissions
     - Is a supported SD card type
     - Has a supported format of either FAT32 or EXT3
     - Is not corrupted and does not contain corrupted files
   - If a data log does not export to a supported SD card that meets requirements, reboot the HMI device. If rebooting fails, insert the SD card into a computer and verify that the SD meets requirements. Follow any prompt to scan and repair the file system index on the SD card.

See also

Cancel the export of a data log on page 825

Data log on page 823

Data log file on page 826

Data log retention on page 667

View tag values in a data log

View a data log on a computer after exporting the data log from the HMI device. Data log files export in .zip format to a removable USB storage device or SD card.

Prerequisites

- Export the data log.

To view tag values in a data log

1. Insert the removable media containing the exported data log .zip file into a computer and extract the file.
2. Open the contents exported data log file using a program that opens .csv files. The exported data log file contains a .csv for each data log in the project.

See also

Data log file on page 826

Data log retention on page 667

Cancel the export of a data log

Cancel the export of a data log to stop creating the export file for the data log and not save it to removable media. Cancel the export when the data log for the current project is exporting to the USB storage device or SD card in the HMI device.

To cancel the export of a data log

1. Open the **Settings** screen.
2. Select **Data Export**. The **Data Export** popup opens, showing the progress of the export.
3. Select **Cancel**. The progress indicator stops to indicate that the export is canceled.

See also

Export a data log on page 823

Data log on page 823

Data log retention

Retaining or replacing data logs on an HMI device occurs during a:

- **Download.** Adding a new data log or deleting a data log and then redownloading a project to the HMI device retains the values of previously configured data logs. Redownloading a project that has a data log with a configuration change such as name, size, and tags, retains only the values of previously unchanged configured data logs. Downloading a project to an HMI device that has an SD card with data logs from a different project replaces the data logs.

- **Firmware change.** Data logs remain unchanged when firmware on the HMI device is updated with a ControlFLASH. Data logging does not occur during a ControlFLASH. Downloading the same project to the HMI device after updating the firmware leaves the data log on the HMI device unchanged. When the project runs, data logging starts again.
- **HMI reboot.** Data logging stops when rebooting the HMI device. The data log remains unchanged. Data logging starts after the reboot completes.
- **HMI recovery.** If a project has a data log and the HMI device runs out of memory or has a fatal error, there are two options:
  - **Restore Defaults.** The HMI device opens the default project. Data logging stops when the HMI device is in error or when the default project is running. The data log on the SD card from the previous project on the HMI device remains unchanged. Data logging starts when downloading a project that contains a data log to the HMI device.
  - **Continue.** The HMI device recovers and the previous project opens. Data logging starts.
- **SD card change.** Data logging stops when removing the SD card from the HMI device. Data logging starts when inserting any SD card. The SD card can be from the same project, a different project, the same HMI device, or a different HMI device. The SD card may contain the same or different data logs. The result of inserting an SD card in the HMI device depends on the data log on that SD card:
  - **Same data log.** When inserting an SD card that contains a data log from the current project on the HMI device, data logging starts. New data appends to the existing data log.
  - **Different data log.** Inserting an SD card that contains a different data log replaces the data log on the SD card with the data log in the project currently running on the HMI device.
  - **No data log.** Inserting an SD card that has no data log into an HMI device that has a project with a data log creates a data log on the SD card.

Tips:

- If no SD card exists on the HMI device, rebooting the HMI device or downloading a project stops data logging. Data logging starts when inserting an SD card.
- Any time it is necessary to remove the SD card, ensure that the files do not become corrupt. On the **Settings** screen on the HMI device, open the **Data Log** popup and select **Safely Remove SD Card**.

See also

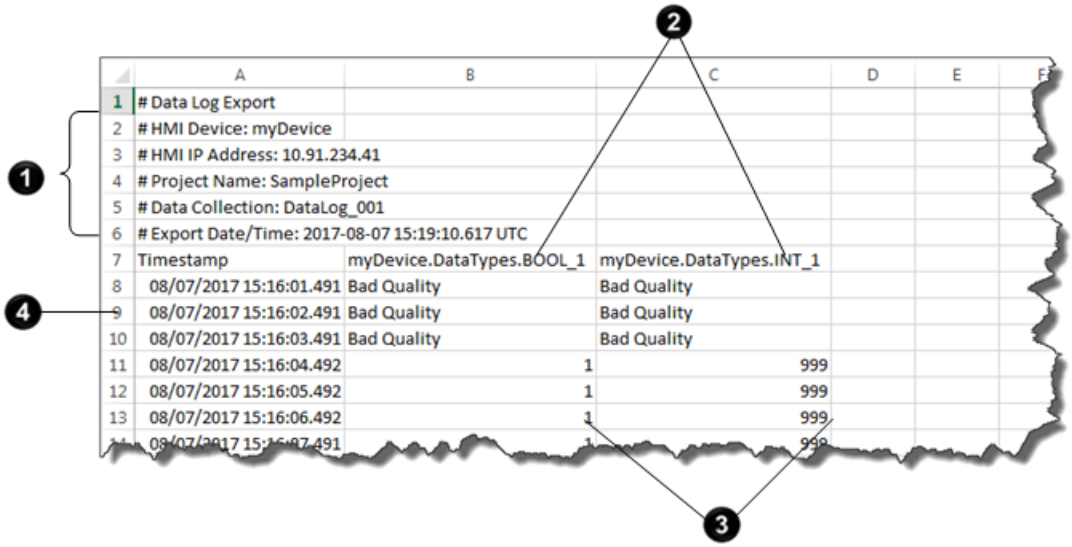
View tag values in a data log on page 825

Data log on page 823

Data log file on page 826

Data log file

The exported data log file displays information about the HMI device and the data log, and lists the recorded data values for each tag in the data log.



Item	Description
1	The headings of the data log file indicate the: • Format of the file is an exported data log. • HMI device that exported the data log. • IP address of the HMI device. • Name of View Designer project runtime application containing the data log configuration. • Name of the data log in the runtime application. • Date and time the data log was exported.
2	A column for each tag in the data log. Each column heading includes the controller path, the graphic element, and the property configured with the tag.
3	The data values logged for each tag.
4	The date and time each data value was logged.

See also

Export a data log on page 823

Cancel the export of a data log on page 825

Data log retention on page 667

Data log on page 823

Troubleshoot

Troubleshoot

At release time, this application presents certain circumstances and errors that require troubleshooting. This section supplies categories of Troubleshooting topics that indicate possible causes and solutions.

Add-On Graphics

In this section:

Cannot paste content on page 829

Cannot paste instance of Add-On Graphic on page 829

Invalid configuration on page 829

Unable to paste element type on page 830

Unable to perform state change on page 830

Cannot paste content

Possible cause and solution:

- Add-On Graphics cannot contain other Add-On Graphics.

  Add a graphic element to the definition of the Add-On Graphic instead.
- The definition of the Add-On Graphic is deleted.

  Pasting an instance of an Add-On Graphic is allowed only if the definition for the Add-On Graphic exists. Paste an instance of an Add-On Graphic for which a definition exists.

See also

Create an Add-On Graphic on page 375

Cannot paste instance of Add-On Graphic

Possible cause and solution:

- The content is not compatible with the installed version of Studio 5000 View Designer.

  Use the current version of Studio 5000 View Designer to open and convert the project and then paste the content.

See also

Convert a project on page 58

Invalid configuration

Possible cause and solution:

- Binding directly to a controller tag from within the definition of an Add-On Graphic is not allowed.

  Create user-defined data type property to bind the Add-On Graphic to a controller tag.

- Cannot bind to an alias property from within the definition of an Add-On Graphic.

  Alias a property in the definition of an Add-On Graphic.

See also

Create a user-defined data type property for an Add-On Graphic on page 378

Alias a property in an Add-On Graphic on page 412

Unable to delete Add-On Graphic

Possible cause and solution:

- Instances of the Add-On Graphic exist in the project.

  Remove all instances of the Add-On Graphic from the project and then remove the definition of the Add-On Graphic.

See also

Delete an Add-On Graphic from a project on page 379

Unable to paste element type

Possible cause and solution:

- Copying an instance of an Add-On Graphic into the definition of an Add-On Graphic is not allowed.

  Paste a graphic element instead.
- Copying content from a predefined system management screen into the definition of an Add-On Graphic is not allowed.

  Paste system management screen content only in its original location to recover default project screens. Paste a different graphic element into the definition of the Add-On Graphic.

See also

What is the Settings screen? on page 97

Unable to perform state change

Possible cause and solution:

- An infinite state table loop occurred.

  Change the expression in the state table to prevent an infinite state table loop.

See also

Change an expression on page 521

Alarms

In this section:

Active alarm missing from alarm table on page 831

Alarm data is not visible on page 831

Alarms missing from Alarm Manager on page 831

Bad quality alarms appear in Alarm Summary on page 832

Cannot perform operation on alarm table on page 832

Details for selected alarm do not appear on page 832

Failed to reset latched (TRIP_L) alarm on page 832

No alarms appear in Alarm Manager on page 832

No alarms appear in Alarm Summary on page 833

Active alarm missing from alarm table

Possible cause and solution:

- The project may be configured incorrectly. For example, if an incorrect controller path is entered, no alarms appear on the **Alarm Summary** screen or the **Alarm Manager** screen.

  Check the project configuration in View Designer to make sure that the correct controller path exists.
- Bad quality alarms do not appear on the **Alarm Summary** screen.

  If alarms are missing from the **Alarm Summary** screen only, check and resolve alarm fault status on the **Alarm Manager** screen.

See also

Project Properties dialog box on page 68

Resolve alarm faults on page 567

Alarm data is not visible

Possible cause and solution:

- The Alarm, Event, or Communication service ends because the HMI device is out of memory.

  On the HMI device, open the **Settings** screen, tap **HMI Device**, and on the **HMI Device** popup, look at the memory use. Tap **Reboot** to manually restart the HMI device to free up memory.
- The Alarm, Event, or Communication service ends. If the Communication service terminates, alarms appear with bad quality. There is no notification if the Alarm or Event services end.

  If any of the services ends, the HMI device restarts automatically.
- The controller is unavailable due to an error in communication updates. The affected alarms appear as bad quality.

  Check the network connections. Open the **Settings** screen, tap **HMI Network** and on the **Network** popup, tap the **Network Diagnostics** tab .
- The project configuration is too large.

  Reconfigure the project to display the recommended limit of up to 500 alarms.

Alarms missing from Alarm Manager

Possible cause and solution:

- The connection to a controller is lost or cannot be established.

  Establish a connection to the controller.

- A controller flash update is in progress.
  Wait until the flash update to the controller is complete.
- The controller firmware is invalid.
  Verify and modify the correct controller firmware if necessary.
- There is low memory in a controller.
  Restart the controller manually to free up some memory.

Bad quality alarms appear in Alarm Summary

Possible cause and solution:

- The connection to a controller is lost or cannot be established.
  Establish a connection to the controller.
- A controller flash update is in progress.
  Wait until updates to the controller are complete.
- There is no project in a controller after a firmware update or flash.
  Upload the project to the controller.
- A controller is in a major fault.
  Clear the major fault and return the controller to **Run** mode.
- A controller is in **Program** mode.
  Return the controller to **Run** mode.

Cannot perform operation on alarm table

Possible cause and solution:

- If the buttons on the alarm table appear available and without hash marks, the alarm table graphic element is read-only due to the assigned security role.
  Have the System Administrator grant the assigned security role access to the table.

Details for selected alarm do not appear

Possible cause and solution:

- The alarm condition may not be selected in the table.
  Select the alarm in the **Alarm Summary** table or select the alarm condition in the **Alarm Manager** table. Details for the selected alarm appear in the **Details** pane of the selected table.

Failed to reset latched (TRIP_L) alarm

Possible cause and solution:

- The latched alarm may still be active.
  Remove the condition triggering the alarm and then reset the alarm once it is no longer active.

No alarms appear in Alarm Manager

Possible cause and solution:

- The project has an incorrect configuration.
  Reconfigure the project and download it to the HMI device again.

See also

Add a controller reference on page 85

Project Properties dialog box on page 68

No alarms appear in Alarm Summary

Possible cause and solution:

- The **Alarm Summary** table is not configured with columns. Add columns to the **Alarm Summary** table.

  Select the **Alarm Summary** table, in the **Properties** window select the **Columns** tab and select **Add Column**.
- An applied filter may not list alarms in the **Alarm Summary** table.

  Select the **Filter** arrow and select **No Filter**.

Data logs

In this section:

Cannot export data log to SD card on page 833

Tags are in error on Data Log popup on page 834

Cannot export data to SD card

Possible cause and solution:

- The SD card as insufficient space.

  Insert an SD card that has enough space to contain the exported data log file.
- The SD card is not present.

  Verify that the SD card is inserted into the HMI device.
- The SD card is read-only.

  Insert an SD card that has write permissions.
- The SD card is not a supported type.

  Insert a supported SD card.
- The SD card is not the supported format.

  Insert an SD card that has a supported format of either FAT32 or EXT3
- The SD card is corrupted or contains corrupted files.

  Replace or repair the SD card.
- Restarting the HMI device is required but does not solve the export issue.

  Insert the SD card into a computer to verify that the SD card meets requirements and follows any prompt to scan and repair the file system index on the SD card.

Data Log Error icon appears in System Banner

Possible cause and solution:

- The data log service is stopped.

  Verify that the HMI device contains an SD card that is not missing, full, or read-only and then restart the HMI device.

Data Log Warning icon appears in System Banner

Possible cause and solution:

- A referenced tag does not exist in the controller.

  Check the configuration of the data log in View Designer. Export the data log to view tags with Bad Quality.

- There is a communication issue with a controller.

  Check the controller path and the physical connection between the HMI device and the controller.

Tags are in error on Data Log popup

Possible cause and solution:

- A referenced tag does not exist in the controller.

  Check the configuration of the data log in View Designer. Export the data log to view tags with Bad Quality.
- There is a communication issue with a controller.

  Check the controller path and the physical connection between the HMI device and the controller.

Graphic elements

In this section:

Blue outline appears around graphic element on page 834

Error icon appears on graphic element on page 834

Graphic element does not change states when it reaches a certain value on page 834

Item not visible on screen on page 837

Red outline appears around graphic element on page 835

Blue outline appears around graphic element

Possible cause and solution:

- Focus is set on an item on the HMI device. Focus is set by pressing **Tab** on the HMI device keypad or an external keyboard.

  To remove the blue outline, press **Tab** again on the HMI device keypad or an external keyboard. Focus is set on the next item.

Possible cause and solution:

- The graphic element is in error.

  Tap the **Error** icon to open the **Error list**. Scroll down through the errors for the graphic element to identify issue. If there is a group of graphic elements in error, swipe right or left to display the next or previous graphic element in the group in error. After fixing the problem, the **Error** icon disappears.

Possible cause and solution:

- The state table does not exist.

  Create the state table on the **Animations** tab of the **Properties** window for the selected graphic element.
- The state table containing the state changes is not selected in a **State Previous** or **State Next** command.

  Verify that the state table is selected for the **State Previous** or **State Next** commands on the **Events** tab of the **Properties** window for the selected graphic element.
- The state change does not exist in the state table.

  Verify the values of the properties in the state table on the **Animations** tab of the **Properties** window for the selected graphic

element. If the property does not appear in the state table, on the **Animations** tab, edit the state table and select the property.

See also

Configure an animation using a State Table on page 438

Events tab on page 447

Animations tab on page 435

Possible cause and solution:

- The graphic element is in error. Errors occur if, for example, an invalid tag type cannot be written to a property of the graphic element, a tag bound to a property does not exist in the controllers referenced in the project, or an operation cannot be performed in a table.

  Tap the **Error** icon on the graphic element or group to open the **Error list**. The graphic element or group fills with red and the error list opens. Scroll down through the errors for the graphic element to identify the issue. For a group of graphic elements in error, swipe right or left to display the errors for the next or previous graphic element that is in error within the group. After fixing the problem, the red outline and **Error** icon disappear.

HMI device

In this section:

CIP error occurred on page 835

Failed to calibrate touch screen on page 835

HMI device failed to restart on page 835

HMI device is slow, hangs, or unresponsive on page 835

Performance is poor on HMI device on page 836

Unable to connect to HMI device on project download on page 836

Possible cause and solution:

- The communication settings may not be correct.

  Open the **Settings** screen and tap **Controllers** to change the communication settings.

Possible cause and solution:

- The target areas are not touched or are touched outside of the allotted time.

  Press and hold inside the target areas until each indicator completes a circle. Do this in the time indicated by the progress indicator.

Possible cause and solution:

- The HMI device cannot restart.

  Cycle power to the HMI device.

Possible cause and solution:

- The HMI device is low on memory.

  Restart the HMI device.

Possible cause and solution:

- The configuration of the project deployed to the HMI device may be too large.

  Tune the HMI device for optimized memory and limit the data the project displays.

Possible cause and solution:

- Logix V32 software had an older version of FactoryTalk Linx preinstalled.

  Update FactoryTalk Linx to version 6.20 (CPR 9 SR 12.0) or later.

Navigation

In this section:

Navigation time between screens is slow on page 836

Screen does not appear in Navigation menu on page 836

Navigation time between screens is slow

Possible cause and solution:

- The HMI device may be low on memory.

  Reduce the configuration of the project deployed to the HMI device by limiting the data the project displays.

Screen does not appear in Navigation menu

Possible cause and solution:

- The screen no longer exists in the project.

  Recreate the screen.
- The screen exists in the project but does not have a shortcut to in the **Navigation Menu** folder of the **Project Explorer** in Studio 5000 View Designer.

  Drag the screen from the **User-Defined Screens** folder to the **Navigation Menu** folder of the **Project Explorer** in Studio 5000 View Designer.
- Your assigned security role is not granted access to the screen.

  Have the System Administrator grant your assigned security role access to the screen.
- The expected screen is a popup.

  Popups do not appear in the **Navigation menu,** but are opened by an event. Perform the necessary event to open the popup.

Security

In this section:

Access to screen or popup denied on page 837

Cannot access Logix Designer project on page 837

Cannot change password or PIN on page 837

Cannot log on to application on HMI device on page 837

Logged on as Guest user on page 837

Popup does not open on page 838

Cannot access Logix Designer project

Possible cause and solution:

- The .acd file may be secured. View Designer cannot access the data from tags, and the Tag Browser cannot be used to browse tags, in the secured file.

  Unsecure the project file. You must have the appropriate security privilege in Logix Designer. In Logix Designer on the **Controller Properties** dialog box, click the **Security** tab and set **Security Authority** to **No Protection**. Alternatively, replace the secured project file in the controller with an unsecured version of the project file.

Possible cause and solution:

- Your assigned security role does not have access to the screen or popup.

  Have the System Administrator grant your assigned security role access to the screen or popup.
- The graphic element is read-only.

  Have the System Administrator verify that the security access assigned to the graphic element is not read-only.

Possible cause and solution:

- Passwords and PINS cannot be changed from the HMI device.

  Contact the administrator to change the password or PIN using Studio 5000 View Designer.

Possible cause and solution:

- When a login attempt fails and the current user or Guest remains logged on to the application on the HMI device, it may be because the user security account used to log on does not exist for the application. The user name and password or PIN used to log on may also be incorrect.

  Contact the administrator for the correct user name and password or PIN.

Possible cause and solution:

- The **Visible** box for the graphic element may be cleared.

  Make the item visible by selecting the **Visible** box in the **Properties** window for the graphic element.
- The **Visible** box is bound to a tag.

  Expect the graphic element to only appear when that value is reached.

See also

Change a property on page 493

Bind a property to a data item on page 508

Possible cause and solution:

- The Guest user is automatically logged on at system startup. When you log off the system, the Guest user account is automatically logged on. This is because only one user can be logged on at a time.

  To log on with assigned security access, log on using the correct user name and password or PIN. Contact the System Administrator for this information.

Possible cause and solution:

- The popup no longer exists in the project.

  Recreate the popup in Studio 5000 View Designer.
- The popup is renamed.

  Rename the popup, or on the **Events** tab for the selected screen or graphic element, select the popup that the event is to open.
- An event is not configured to open the popup.

  Verify on the **Events** tab of the selected graphic element that there is a Navigation event for opening the popup.
- Security access to the popup is not granted.

  Have the System Administrator grant your assigned security role access to the popup.

See also

Events tab on page 447

Network-based security runtime error messages

When logging on to the terminal using Active Directory fails, various error messages display, depending on the error. Errors may come from LDAP AD client or from the terminal platform. Because the terminal runtime and emulator use different LDAP clients, the error code may be different for the terminal and emulator.

LADP errors include:

- The message "Active Directory service cannot be reached (error=<code>)" appears when the Active Directory cannot be reached. The main reasons for this issue are incorrect Active Directory connection settings, HMI device being disconnected, or unavailable Active Directory server. It is shown for the following errors:
  - 91 (LDAP_CONNECT_ERROR)
  - 81 (LDAP_SERVER_DOWN)
  - -1 (LDAP_SERVER_DOWN)
  - 52 (LDAP_UNAVAILABLE)
  - 1 (LDAP_OPERATIONS_ERROR)
  - 11 (LDAP_ADMINLIMIT_EXCEEDED)
- The message "Invalid credentials" appears when you provide invalid credentials on logon. It is shown for the code error 49 (LDAP_INVALID_CREDENTIALS).
- The message "Other network security error: (error=<code>)" appears for all the other LDAP errors.

Terminal errors display the following messages:

- The message "Username or password field cannot be empty." appears when you left the **username** or **password** field blank.
- The message "User not found in directory service" appears when the user was not found in the Active Directory.
- The message "Cannot read user group membership" appears when user has no membership group assignment on Active Directory side.
- The message "User not assigned to a configured user group" appears when the credentials are correct but HMI device cannot match user to configured group. User group configuration for the project may be incorrect.

For more information and detailed description of the codes, see:

- LDAP Results Codes (emulator)
- OpenLDAP Results Codes (terminal runtime)
- Common Active Directory Bind Errors

See also:

Configure network-based security logon on page 703

Log on using network-based security on page 705

Tag values

In this section:

Boolean failed to toggle on page 839

Failed to evaluate expression on page 839

Failed to read or write tag on page 839

Failed to toggle value on page 840

HMIBC tag does not exist on page 840

String value failed to increment on page 840

Value does not display on page 840

Possible cause and solution:

- The value may not be a Boolean, causing a data conversion error.
  Verify that the value type is Boolean.

When an expression is not evaluated and the value not shown on the graphic element, this may occur for the following reasons:

- The tag in the expression is not found in the controller. Bind the expression to a tag that is in the controller.
- There is an invalid property or property value in the expression. Verify that the properties and property values in the expression are valid.
- There are an invalid number of arguments in the expression. Verify that the number of arguments in the expression is valid.
- The expression is invalid. Verify that the expression is valid.

Possible cause and solution:

- The tag may not exist.
  Verify the path of the tag in the property.

See also

Bind a property to a data item on page 508

Possible cause and solution:

- The value may not be a Boolean, causing a data conversion error occurred.

  Verify that the value is a Boolean.

HMIBC tag does not exist

Possible cause and solution:

- A command to change a tag fails if the write to controller fails.

  Make sure that the controller is connected to the HMI device.

Possible cause and solution:

- A data conversion error may have occurred because incrementing a string value is not allowed.

  Bind the property to a numeric tag.

Possible cause and solution:

- The tag does not exist in the controller.

  Select a tag that exists in the controller and verify that the controller is referenced in the properties of the project.
- The tag value is not a number and cannot be converted to a number.

  Verify the value in the property, binding, or expression.
- The value has an invalid syntax.

  Verify the syntax of the binding or expression or the value of the parameter in the binding or expression.
- The expression is not evaluated because math is being attempted on a non-numeric value or because the property cannot be divided by zero.

  Verify the values for the property.
- The tag type is mismatched and the data cannot be converted, or the tag is read-only.

  Verify the tag type and verify that the External Access property for the tag is not set to None.

See also

Bind a property to a data item on page 508

Change a property on page 493

Change an expression on page 521

Upload and Download

In this section:

HMI project file cannot download on page 841

Lost connection to HMI device on page 841

Unable to connect to HMI device on page 841

Unable to download or upload the HMI project on page 841

HMI project file cannot be downloaded

Possible cause and solution:

- File downloads are disabled on the HMI device.

  Check the **Allow download and Firmware updates** option on the **HMI device configuration** screen.
- Another file download is in process.

  Wait until the first download is complete and then try again.

See also

Settings screen on page 740

Lost connection to HMI device at address <x>

Possible cause and solution:

- The HMI device lost power or is disconnected from the network.

  Verify that the HMI device is powered on and connected to the network.
- The workstation is busy processing requests from other programs, processes, or services.

  Open **Task Manager** on your workstation to verify that no other program, process, or service is impacting the performance of the workstation.

Unable to connect to HMI device at its IP address

Possible cause and solution:

- The HMI device is not powered on or connected to the network.

  Verify that the HMI device is a PanelView 5000 HMI device.
- The HMI device at address <x> is not a PanelView 5000 HMI device.

  Verify that the HMI device is a PanelView 5000 HMI device.
- The selected HMI device is from the recently accessed HMI device path list, but the HMI device is no longer on the network for download.

  From the **HMI Device Configuration** screen on the HMI device, verify that an IP address is assigned to the HMI device.
- The selected HMI device is a previous HMI device selected from the location list, and the HMI device is no longer on the network for upload.

  Verify that the IP address entered in the **HMI Device Path** box on the **Download and Upload** dialog boxes is correct. Select a previous path in the **Location** box on the **Application** tab of the project properties.

Possible cause and solution:

- The connection between View Designer and the HMI device is lost during the file download.

  Verify that the HMI device is powered on and connected to the network.

A - M

absolute path

A path that contains the root directory, all subdirectories, and file or object name. For example, C:\Users\Public\Pictures\Desert.jpg.

binding

A virtual connection of two or more components in a system.

calibration

The process of comparing an instrument or device with a standard to verify its accuracy. It also includes making adjustments to meet the standard, or devising a corrected scale.

controller reference

A connection to a Logix Designer project file (.acd) from a View Designer project file (.vpd) that automatically synchronizes data between a Logix Designer project file (.acd) and View Designer project file (.vpd).

controller tag

A tag at controller scope.

DNS

A domain name system for converting hostnames and domain names into IP addresses on the internet or on local networks that use the TCP/IP protocol.

domain name system

A system for converting hostnames and domain names into IP addresses on the internet or on local networks that use the TCP/IP protocol.

HMI

Human-machine interface.

HMI device

Human-machine interface device. Graphical display hardware on which an operator can monitor, control, and display application status information graphically.

HMIBC

Human-Machine Interface Button Control.HMI path

The path from the computer containing the HMI project file to the HMI device on which the runtime application is downloaded.

HMI project

A .vpd file containing HMI screens, controller references, and the path of the HMI device to run the application.

HMI server

HMI servers, also called FactoryTalk View SE Servers, store and serve HMI projects, which contain displays, alarms, tags and other services, to HMI clients such as FactoryTalk View Studio and FactoryTalk View SE Clients. HMI clients use the FactoryTalk Directory to locate the computers that are hosting HMI servers.

N - Z

relative path

A path that specifies the location of a directory relative to another directory.

runtime

The period during which the HMI project file is running on the HMI device from startup to shutdown.

screen parameter

An aliased property that is used to pass tag values to a screen at runtime. It is one of the many methods used to reuse content and simplify screen creation.

system tag

A predefined tag that provides information about your system, such as the current logged-in user and the current time and date.

.VPD

The file extension for project files created using the Studio 5000 View Designer software.

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
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
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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