# PanelView<sup>™</sup> 5000 and Studio 5000<sup>™</sup> View Designer: Introductory Lab



For Classroom Use Only!





# Important User Information

This documentation, whether, illustrative, printed, "online" or electronic (hereinafter "Documentation") is intended for use only as a learning aid when using Rockwell Automation approved demonstration hardware, software and firmware. The Documentation should only be used as a learning tool by qualified professionals.

The variety of uses for the hardware, software and firmware (hereinafter "Products") described in this Documentation, mandates that those responsible for the application and use of those Products must satisfy themselves that all necessary steps have been taken to ensure that each application and actual use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards in addition to any applicable technical documents.

In no event will Rockwell Automation, Inc., or any of its affiliate or subsidiary companies (hereinafter "Rockwell Automation") be responsible or liable for any indirect or consequential damages resulting from the use or application of the Products described in this Documentation. Rockwell Automation does not assume responsibility or liability for damages of any kind based on the alleged use of, or reliance on, this Documentation.

No patent liability is assumed by Rockwell Automation with respect to use of information, circuits, equipment, or software described in the Documentation.

Except as specifically agreed in writing as part of a maintenance or support contract, equipment users are responsible for:

- properly using, calibrating, operating, monitoring and maintaining all Products consistent with all Rockwell Automation or third-party provided instructions, warnings, recommendations and documentation;
- ensuring that only properly trained personnel use, operate and maintain the Products at all times;
- staying informed of all Product updates and alerts and implementing all updates and fixes; and
- all other factors affecting the Products that are outside of the direct control of Rockwell Automation.

Reproduction of the contents of the Documentation, in whole or in part, without written permission of Rockwell Automation is prohibited.

Throughout this manual we use the following notes to make you aware of safety considerations:



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.

IMPORTANT

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

#### ATTENTION

 $\mathbf{\Lambda}$ 

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
- recognize the consequence

#### SHOCK HAZARD

Labels may be located on or inside the drive to alert people that dangerous voltage may be present.



Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures.

# PanelView™ 5000 and Studio 5000 View Designer Introductory Lab

### Contents

Before you begin	
About this lab	5
Tools & Prerequisites	5
Download the Controller Project	6
Create a View Designer Project	
Launch View Designer	
Configure Project Properties	
Understanding the Studio 5000 <sup>™</sup> View Designer Software	
Adding Graphic Elements to a Screen	
Property Binding	
Testing the Project using the Emulator	
Animation, Events, and Popups	
Configuring the Navigation Menu	
Understanding Alarms in View Designer	
Using Runtime Diagnostics	
Using Security with View Designer	
Exploring Security at Runtime	
Optional – Using PDF Documents in View Designer	
Adding a PDF Viewer to a View Designer Project	
Download and Explore the PDF Viewer	
Optional – Using Faceplates with View Designer	
Open the Automation Device Faceplate project	
Faceplate Properties and Content	
Navigation	
Testing the Faceplate	

#### Before you begin

The PanelView<sup>™</sup> 5500 terminal represents a new generation of HMI products for Rockwell Automation. The key driver behind this development was to make it easier to create powerful and attractive HMI projects by taking advantage of newer technologies, such as scalable vector graphics and by providing premier integration with our Logix controllers. PanelView<sup>™</sup> 5500 projects are configured using the new View Designer software, which is part of Studio 5000.

Some of the main features of this first release of PanelView<sup>™</sup> 5500 and the View Designer software include:

- PanelView<sup>™</sup> 5500 terminals are available in sizes from 7" to 19" with wide screen formats at 9" and 12". Keypad versions are available for the 7", 10", and 15" sizes.
- PanelView<sup>™</sup> 5500 terminals all support Device Level Ring network topologies for fault-tolerant network design.
- Project contents are held in a single .VPD file to enable easy project movement.
- Huge graphic library Toolbox with scalable vector graphic elements with built-in animations make it easy to quickly create good looking screen content.
- Runtime scaling allows users to use any size application on any size terminal.
- High-speed HMI button provides quick response and feedback for jogging applications.
- Intuitive Navigation Menu eliminates the need to configure rows of navigation buttons on all the screens.
- Runtime error notifications with error detail flyouts provide the information you need for quicker troubleshooting.
- Logix tag extended property support eliminates the need to create HMI tags.
- Scalable vector graphics allow users to easily resize individual screen elements and entire terminal applications.
- Preconfigured banner, alarm screens, and diagnostic screens are integrated with Logix helping reduce design time and simplifying maintenance at runtime. Predefined screens are not included in your screen count limit.
- Logix-based alarms are automatically displayed on your HMI to help reduce development time.
- Advanced graphic animation capabilities through color/state tables, property binding, and events and commands for more efficient design.
- Role based security provides screen-level access control for each project.
- Security options on individual graphic elements allow for customized access.
- Easily create re-usable screens by leveraging screen properties which can be named and tied to a Logix data type.
- Reusable Add-On Graphics that can be linked to User-Defined Data Types and Add-On Instructions in Logix.
- Runtime Language Switching for up to 20 languages.
- Historical Trending and Data Logging
- Viewing PDF Documents at runtime
- Remote access to the terminal via VNC
- Testing a project within View Designer using the Emulator

PanelView<sup>™</sup> 5000 and Studio 5000 View Designer is targeted for small applications consisting of a single controller reference, no more than 100 screens, and no more than 1000 alarms. Subsequent releases will expand the application size and continue to add exciting new features.

#### About this lab

Welcome to the Studio 5000<sup>™</sup> View Designer Hands-On Lab! This session will provide you with the opportunity to get familiar with the newest HMI offering from Rockwell Automation. You will create a new project, explore the design time software, add elements to the project, download the project to a hardware terminal, and explore the runtime functionality of the project while connected to a controller.

This lab takes approximately 80 minutes to complete.

#### What Will Be Accomplished

As you complete the sections of this hands-on lab, you will:

- · Work with the View Designer software to understand its features, functionality and flexibility
- Download and run a View Designer project on a PanelView<sup>™</sup> 5000 terminal, exploring its runtime features

#### Who Should Complete this Lab

This hands-on lab is intended for those who:

- Have some experience with HMI software and Operator Interface
- Have little to no experience with View Designer design time software or PanelView<sup>™</sup> 5000 terminals

#### Tools & Prerequisites

The following is required to complete this lab:

#### Software Programs

- Studio 5000<sup>™</sup> View Designer software v4
- Studio 5000<sup>™</sup> Logix Designer

#### Hardware Required

- Windows 10 computer
- CompactLogix 5380 processor
- Ethernet network
- PanelView<sup>™</sup> 5510 9-inch wide terminal

#### Files required

- PV5K\_Demo.ACD
- raC\_Dvc\_K350.VPD
- super\_juice\_logo\_01.PNG
- cie-wp002\_-en-p.PDF

#### Download the Controller Project

6

This lab uses a ControlLogix L75 processor. Before beginning work with View Designer, start by downloading the controller's project using the steps below.

1. Open **Studio 5000** by clicking the *Studio 5000* icon on the taskbar.



2. Under the **Open** heading, click *Existing Project*.

Rockwell Software	<b>io</b> 50	00	
	Create	Open	Explore
	New Project From Import	Existing Project Sample Project	Help About
Recent Projects	From Sample Project	From Upload	

Open Project					×
→ ✓ ↑ Group of the studie	5000 → Projects	ٽ ~	Search	Projects	P
Organize 👻 New folder					
Tools ^ Name	^	Date m	odified	Туре	Size
Videos	No iten	ns match your s	earch.		
a OneDrive		is match yours	corem		
💻 This PC					
Desktop					
🚰 Documents					
🕂 Downloads					
👌 Music					
E Pictures					
📑 Videos					
🏪 Local Disk (C:)					
			_		>
File name:			Logix	Designer (*.acd;*.l5k	;*.15x; ~
					ncel
				cu	

3. Verify Logix Designer (\*.acd, \*.I5k, \*.I5k, \*.xml) is selected as the file type.

4. Browse to C:\Lab Files\Logix, select *PV5K\_Demo.ACD*, and click *Open*.

Open Project		×
← → → ↑ 🔂 « Local Disk (C:) → Lab Files → Logix	✓ Č Search Logix	م
Organize 🔻 New folder	Ē	= • 🔳 🕐
Tools Name	Date modified Type	Size
Videos	4/26/2016 12:48 PM Logix	Designer Pr 2
ConeDrive		
This PC		
Desktop		
Documents		
🖶 Downloads		
h Music		
E Pictures		
Videos		
Local Disk (C:)		
Makaada V K		>
File name: PV5K_Demo.ACD	✓ Logix Designer	(*.acd;*.15k;*.15x; ~
	Open	Cancel

5. Using the Communications menu, select *Who Active*.



6. Click the *Download* button to start the download process.



7. Click *Download* again.



The project file will be transferred to the controller.

Downloading	
Downloading all	Count1000_INT' Parameters and Local Tags
	Cancel

8. Click *Yes* to change the controller mode to **Remote Run**.

Logix Designer	$\times$
Done downloading. Change controller mode back to Remote Run?	
Yes No	
Notice the controller is set to <b>Rem Run</b> .	
Run Mode     Controller OK     Energy Storage OK     I/O Not Present	
Controller Organizer	

9. Minimize, but do not close **Logix Designer** using the *Minimize* button.

#### Create a View Designer Project

Studio 5000<sup>™</sup> View Designer is a new software package that configures applications for the new PanelView<sup>™</sup> 5000 operator interface product line. In this section of the lab, you will explore this new software by doing the following:

- Create a new project
- Configure Project Properties
- Add elements to a screen
- Bind properties to controller tags
- Create buttons out of native elements
- Apply a State table
- Learn about the Navigation Menu
- Learn about Runtime Diagnostics

As a result, your project will look similar to the picture below:



#### This is my PanelView 5000 project.



#### Launch View Designer

The View Designer software can be opened using the main Studio 5000<sup>™</sup> launcher. The launcher allows users to select which type of project should be opened – Logix or View.

1. Open Studio 5000 using the *Studio 5000* icon in the taskbar.



2. Under the Create heading, click New Project.

Rockwell Software	<b>lio</b> 50	00	
	Create	Open	Explore
	New Project	Existing Project	Help
	From Import	Sample Project	About
Recent Projects	From Sample Project	From Upload	
PVok_Demo			

3. In the New Project dialog, select View as the Project Type.



쥥 New Project					?	×
Project Types			Search			×
💕 Logix	PanelViev	w 5310				
🚫 View	PanelViev					
	▶ 6.5*			9" PanelVi	ew 5510	
	▶ 7" ▶ 9" ▶ 10.4"			800 x 480 (wi Navigation b 2 Ethernet po 2 USB ports	utton	
	▷ 12.1" ▷ 15"			2715P-T9WD	)	
	▷ 19"			Version: 4	~	
	Name:					
	Location: C:	\Users\labuser\Do	ocuments\Studic	5000\Proj ~	Brows	;e
		Cancel	Back	Next	Fini	sh

4. Making sure that PanelView 5510 is expanded, select 9".

5. Type '*MyProject'* in the Name: field, and click *Finish*.

Name: (	MyProject		
Location:	C:\Users\Labuser\D	Browse	

The Studio 5000<sup>™</sup> View Designer software will go through the process of loading all of its components. This may take a few minutes.



View Designer projects are stored as \*.VPD files. This single file contains the entire project, similar to the concept of an ACD file for a complete Logix Designer application. The View Designer project can be moved between different computers by simply moving the \*.VPD file.

Note that the default project directory is <user>\My Documents\Studio 5000\Projects.

#### Configure Project Properties

The Project Properties dialog is used to configure the Controller Reference, Application settings, and Terminal properties.

The first project property to be configured is a controller reference. A reference is a connection to a Logix Designer project file from the View Designer project file. This connection automatically synchronizes data between the two files during design time. There can only be one reference in a View Designer project, because PanelView<sup>™</sup> 5000 can only communicate with a single controller at runtime.

1. Type 'MyCLX' in the Name: field.

Project F	Properties		?	$\times$
	Application Configure target HMI Device settings	Controller References: Controller Reference Name: MyCLX Logix Project File:		×
Ee	References Create and configure controller references	HMI to Controller Path: 255.255.255 Slot: Direct Emulator to Controller Path: Select Controller Path	×	

Note that the Controller Reference Name cannot be the same as the name of the project.

2. Click the *ellipsis* next to the Logix project: field to open the Windows Explorer dialog.

Project Properties		? ×
	Controller References:	
Configure target HMI Device settings	Controller Reference Name: MyCLX Logix Project File:	∩×
References Create and configure controller references	HMI to Controller Path: 255.255.255 Slot: Direct	

3. Browse to C:\Lab Files\Logix, and select PV5K\_Demo.ACD.

Open		_		×
← → * 1	🖌 « Local Disk (C:) 🔹 Lab Files 🔉 Logix	v ひ Search L	ogix	٩
Organize 🔻 🛛	New folder		EE ▼ <b>□</b>	?
Tools	^ Name	Date modified	Туре	Size
Videos	PV5K_Demo.ACD	2/14/2017 3:17 PM	Logix Designer Pr	2
ConeDrive				

- 4. Click Open.
- 5. Next, click the *ellipsis* button for the HMI to controller path.

P	roject Pr	operties					?	×
	_		C	ontroller	r References:			
		Application Configure target HMI Device settings			Controller Reference Name: Logix Project File:	MyCLX C:\Lab Files\Logix\PV5K_Demo.ACI	D	×
	<b>.</b>	References Create and configure			HMI to Controller Path:	255.255.255 Slot: Direct		)
		controller references			Emulator to Controller Path:	Select Controller Path	×	

6. Expand *AB\_ETH-1*, *Ethernet*, select *192.168.1.11*, *5069-L3100ERMS2 SAFETY*, *PV5K\_Demo*, then click *OK*.

Browse for Controller	?	×
Autobrowse Refresh		ОК
Workstation, DESKTOP-VJFSTD3		on
		a sel
自品 AB_ETH 1, Ethernet	La	ancel
192.168.1.11, 5069-L3100ERMS2 LOGIX3100ERMS2 SAFETY, PV5K_Demo		
192.168.1.12, PanelView 5510 9.0" Wide Touch, 2715P-T9WD PanelView 5510		

Logix Project File:	C:\Lab Files\Log	ix\PV5K_Demo.4	CD	
HMI to Controller Path:	192.168.1.11	Slot: Direct	×)	
Emulator to Controller Path	Select Controller	Path	×	

Notice the HMI to controller path field has been populated with the correct information for your processor

7. Configure the **Emulator to Controller Path** for the same controller using the *ellipsis* button.

Logix Project File:	C:\Lab Files\Logix\PV5K_Demo.ACD
HMI to Controller Path:	192.168.1.11 Slot: Direct Y
Emulator to Controller Path:	Select Controller Path
	$\sim$

8. Expand AB\_ETH-1, Ethernet, select 192.168.1.11, 5069-L3100ERMS2 SAFETY, PV5K\_Demo, then click OK.

Browse for Controller	? ×
Autobrowse Refresh	ОК
□···.■ Workstation, DESKTOP-VJFSTD3	UN
효····器 Linx Gateways, Ethernet	
合品 AB_ETH 1, Ethernet	Cancel
🗡 🚛 192.168.1.11, 5069-L3100ERMS2 LOGIX3100ERMS2 SAFETY, PV5K_Demo	
192.168.1.12, PanelView 5510 9.0" Wide Touch, 2715P-T9WD PanelView 5510	

The path and the controller selected should be the same as was chosen for the HMI to Controller Path configured earlier.

Controller References:

<b>1</b>	Controller Reference Name:	MyCLX		×
	Logix Project File:	C:\Lab Files\Log	ix\PV5K_Demo.ACD	
	HMI to Controller Path:	192.168.1.11	Slot: Direct 🗸	
	Emulator to Controller Path	AB_ETH-1\192.1	68.1.11	

#### 10. Click *Apply* to confirm the settings.

Project Properties		? ×
<b>Application</b> Configure target HMI Device settings	Controller References: Controller Reference Name: MyCLX Logix Project File: C:\Lab Files\Logix\PV5K_Demo.ACD	×
References Create and configure controller references	HMI to Controller Path: 192.168.1.11 Slot: Direct × Emulator to Controller Path: AB_ETH-1\192.168.1.11 ×	···
	OK Cancel	Apply

The View Designer software supports browsing to tags located within an ACD file. Online tag browsing is not available, but if the tags within the ACD file change, synchronization will occur in the background to allow those tag changes to be seen.

#### 11. Click the *Application* tab.

Project Pr	roperties						?	×
	Application Configure target HMI Device settings	C	ontroller	References: Controller Reference Name: Logix Project File:	MyCLX C:\Lab Files\Logix\	PV5K_Demo.ACD	]	×
	References Create and configure controller references			HMI to Controller Path: Emulator to Controller Path:		Slot: Direct v		

12. Click the *ellipsis* for the Location of the Target HMI Device.

F	Project Pr	operties		?	×
		Application Configure target HMI Device settings	Target HMI Device	~(	
	E:	References Create and configure controller references	Type: 9" PanelView 5510 2715P-T9WD		

13. Use the Browse for HMI Device window to browse to the terminal at this station.



#### 14. Click OK.

Note that any of these settings can be modified at any time during the development process.

There are three options for Screen Scaling:
Screen Scaling
Specify how screens should scale when executing the application on a HMI device with a different size or aspect ratio from the configured target HMI device.
<ul> <li>Scale with fixed aspect ratio</li> <li>Stretch to fit</li> <li>Do not scale</li> </ul>
Your screens will scale to fill the display as much as possible without changing the aspect ratio of the screen. Black bars will appear on the top and bottom or sides as necessary.
Scale with fixed aspect ratio: Screens will scale to fill the terminal display as much as possible without changing the aspect ratio.
Stretch to fit: Screen and all elements will stretch to fit the terminal display size, which may result in distortion of the elements that already exist on the screen.
Do not scale: Screens and elements will remain in their original resolution, centered on the screen.
This selection will be used if the project's Target HMI Device type changes, or if the project is downloaded to a terminal of a different size.

14. Click *OK* to close the **MyProject Properties** window.



#### Understanding the Studio 5000<sup>™</sup> View Designer Software

③ View Designer - MyProject (! FILE EDIT VIEW PROJECT COI	MMUNICATIONS ARR	ANGE TOOLS WIN	DOW HELP					- 8 ×
	Screen_001, + ×						Properties	- # X
AlarmManager     Settings     Add-On Graphics     Images     ConmonControls     Alarm3     ButtonsAndSwitches     CentralEquipment     Graph     Security     SignsAndSymbols     System     TrendCharts      CommonControls     Image     Image     Image	A	ty Definition Alias For	Data Type	 Description	F	- 100% + 20 ,	Name: Screen_001 Type: Screen Propertie Animators Dents 4 General ShowDefaultBanne D Appearance Navigation Menu D Security	D
Button	Description			Location			Graphic Explorer	- <b>म</b> ×
JateTime Display							Screen_001	
123 Numeric Display			(	G			Е	
abc Text Display								

A. A tab appears at the top of the screen canvas pane for each open screen for easy design navigation.

**B**. Project Explorer: All user defined screens, including popups, predefined screens, and assets are listed here. In addition, the Navigation Menu can be configured in the Project Explorer.

C. Toolbox: Built-in graphic elements that can be added to screens are listed here, sorted by categories.

**D**. Properties pane: Modify the properties of the graphic elements or the screen itself using this pane. State and Color Tables, and Event commands are also configured in this pane.

**E**. Graphic Explorer: A listing of all elements that are on the screen visible in the canvas. This pane makes it easy to navigate through grouped objects on the screen.

**F**. Property Definition: Re-usable properties or parameters are defined here to be used for screens or graphic element properties. This concept is covered in a different lab. (Not visible by default)

**G**. Errors pane: Errors that are found during the verification process are displayed in this contextual pane. This pane opens if errors or warnings are found in the project. (Not visible by default)

Use the steps below to explore the View Designer Software and its flexibility.

#### Adding Graphic Elements to a Screen

All built-in graphic elements can be found in the **Toolbox** pane of the View Designer software. This pane contains categories in which all elements are divided, and a filter can be applied to the toolbox to focus on specific types of elements. Use the steps below to add two elements to the screen canvas and configure them to display data from the controller.

1. Locate the **Text Display** element in the **CommonControls** category.



2. Double click the *Text Display* element in the **Toolbox** to add it to the screen canvas.



3. In the **Properties** pane, expand the *Appearance* category to view the properties found in that section.

ropertie	:5	<del>-</del> ₽ ×
Name:	TextDisplay_001	
Туре:	TextDisplay	
1	# 19	]
	Animations Events	
Gene	ral	
Text		Text Display
Appe	arance	
Positi	on and Size	
Secur	ity	
		1
Promotion	Animations Events	
Gene	Contraction of the second seco	
Text		Text Display
Арреа	arance	
Corne	erRadius	0
FillCo	lor	<b>Z</b>
10.00		100
Opac	ity	100
Opac Visibl	-	<b>V</b>
Visibl	-	
Visibl	e lignment	v
Visibl TextA	e Ilignment er	
Visibl TextA Borde	e Jignment er Vame	☑ ■ <mark>■</mark> = <b>2</b> = =
Visibl TextA Borde FontA	e Jignment er Vame Color	✓ Final Unicode MS
Visibl TextA Borde FontA FontO	e Jignment er Vame Color	Image: Second state       Image: Second state         Arial Unicode MS       ✓         Image: Second state       ✓         Image: Second state       ✓
Visibl TextA Borde FontA FontA FontS	e Ilignment er Vame Color Size	<ul> <li>✓</li> <li>✓</li> <li>Arial Unicode MS ✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>
Visibl TextA Borde FontA FontS Bold	e Ilignment er Vame Color Size rline	<ul> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>
Visibl TextA Borde FontA FontS Bold Unde	e klignment er Vame Color Size rline	<ul> <li>✓</li> <li>✓</li> <li>Arial Unicode MS</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>

All properties for this element are found in this pane. Users can configure these properties with static values by changing the field next to each property.

4. Click in the *Text Display* field.

<b>P</b>	-	4	
Properties	Animations	Events	
Gener	al		
Text		(	Text Display
Appea	rance		
Corne	rRadius		0
FillCol	or		
Opacit	ty .		100

5. Replace the text by highlighting *Text Display* and typing '*This is my PanelView 5510 project*'.

1	-	4	
Properties	Animations	Events	
▲ Gener	al		
Text		<b>1</b>	Text Display
⊿ Appea	rance		
	19 A	1	
Properties	Animations	Events	
▲ Gener	al		
Text		- <b>a</b> (	my PanelView 5510 project
		4	The second se
⊿ Appea	rance		
Use th	e scroll bar	to view	the entire string.

Alternatively, in-line editing on the screen canvas can be used.

6. Now, select the drop down button for the *FontColor* property to open the Color Palette.



FontName	Arial Unicode MS 🛛 👻
FontColor	4 #000000
FontSize	
Bold	
Underline	
Padding	
Enabled	
Position and Size	Custom
Security	Custom

#### 7. Double click *blue* for the FontColor.

FontName	Arial Unicode MS 🔹 👻
FontColor 🤇	🗞 🔳 #000000 🗨
FontSize	
Bold	
Underline	
Padding	
Enabled	
Position and Size	Custom
Security	Custom



Notice the Text Display element has updated to reflect the text change.



8. Click and drag the **Text Display** element on the screen canvas until it is located in the upper middle area of the screen.

$\bigcup_{(0)} Unacked \leftarrow \rightarrow \square \square \square Log on$	입 몲	08:30:45 PM 1/1/1971
*		
~		
This is n	ny Panel∛iew 5510 project	H H

9. Now, click anywhere on the white space of the screen canvas.

Notice that the Properties pane has changed – it is now displaying the properties of the screen itself.

#### Property Binding

To configure a graphic element to change dynamically at runtime, a controller tag or expression must be bound to one or more of its properties. In this way, the value of the element property will be updated by the controller or expression data. In addition to controller tags and expressions, properties can be bound to the properties of other elements.

Follow the steps below to configure a Numeric Display so that its value is a number found in a controller tag.

1. Double click the *Numeric Display* element in the CommonControls category.



The element will appear on the screen canvas.



#### Binding a Tag to a Property

The offline Studio 5000<sup>™</sup> Logix Designer ACD file configured in an earlier section is used to browse to and connect tags to element properties. The browser allows a user to search for tags based on a tag name, partial tag name, and data type. Follow the steps below to explore this process.

1. Making sure the **numeric display** is selected, click in the *Enter binding* field to associate a tag to the value that will be displayed.



Bindable properties display a Binding button when you point to them with the mouse cursor. For some elements, such as the Numeric Display, the value property is already configured to be bound, because that is the expected use of the element.

Binding can be applied to almost every property of an element, such as X and Y position, FontSize, FontColor, Opacity, etc. The bound properties of the element can be fully animated, based on the value of any tag. Expressions can also be used.

2. Click the *ellipsis* button to open the **Data Item Browser**.



The <sup>1</sup> button opens the Expression Editor. Expressions can be used to manipulate tag values before displaying them on the terminal.

The Data Item Browser will open:

Q▼ Search	v
<b>n</b> >	
HMI Devices	
Local:HMIDevice	
Controllers	
I⊧ MyCLX	

The Search box allows a user to search for any tag, using the tag name, a partial tag name, or a data type.

3. Expand *MyCLX* > *Programs* > *HMIData* 



4. Scroll down and double click *MyTag* 

<b>₹</b> Search			
MyCLX > Programs	s > HMIData		
Name 🔺	Data Type	Description	1
Logo_Opacity	DINT	Logo opacity	
Logo_UpdateRate	DINT	Logo update rate of positi	
Logo_XPosition	REAL	Logo X position	
Logo_YPosition	REAL	Logo Y position	
▶ MyTag	DINT		
PumpControl	BOOL		
Start HMI Data Gen	BOOL	HMI data generation enab	

The tag will now appear in the Value property field.



A numeric display has now been configured. Next, create a numeric input.

5. Click and drag the *Numeric Input* element onto the screen.



Use the alignment guides to reposition the element so that it is centered above the *Numeric Display*.
 Alignment guides, as well as other tools, have been included in View Designer functionality to ease the process of creating screens.

7	<b><i>HIRI</i></b> 165.57 px
	<b>######</b> dX: -156.57 px dY: -361.57 px

These alignment guides appear whenever one element is being moved into the proximity of another. They show the midline, top, bottom, and side of the element, and enable snapping to an aligned position.

Additionally, canvas tools are available – when multiple objects are selected, the menu of options appear above the screen canvas.

Group 🐚 Ord	er 🝷 岸 Align	- 🧰 Distribute -
-------------	--------------	------------------

**Group**: Use this tool to create a group out of one or more elements on the canvas. The new group will function as a single graphic element. This group will now appear as a new entity in the **Graphic Explorer**.

**Order**: This tool will change how the selected element is stacked on the screen. The stacking order can be changed to move an element forward, backward, on top of all other elements, or behind all elements.

Align: Graphic elements can be aligned to the edges of other graphic elements, or to the bottom, vertical, or horizontal centers of the elements.

**Distribute**: This tool spaces elements evenly either horizontally or vertically. This tool can only be used when three or more elements are selected on the canvas.

7. With the **NumericInput** element selected, click the *ellipsis* button for **Value** in the **Properties** pane to open the **Data Item Browser**.

Properties Animations			
General			
Value	<b>1</b>	()	
Appearance			
	Value	Enter binding	
Q▼ Search			
♠ > MyCLX > Progra	ams > HMIData		
Name 🔺	Data Type	Description	^
DataINT06	DINT[1000]		
DataINT07	DINT[1000]		
DataINT08	DINT[1000]		
▶ DataINT09	DINT[1000]		
Logo_Opacity	DINT	Logo opacity	
Logo_UpdateRate	DINT	Logo update rate of positi	
Logo_XPosition	REAL	Logo X position	
Logo_YPosition	REAL	Logo Y position	
▶ MyTag	DINT		
DumpControl	ROOL		V

Notice that the Data Item Browser opens to the most recent location that has been browsed.

8. Double click *MyTag* to bind it to the Value property of the Numeric Input element.



#### Testing the Project using the Emulator

Now that the application has a couple of elements added, use the Emulator feature to test the project using the steps below.

1. First, verify the project by clicking the *Verify Project* button in the toolbar.



Verification is also performed when the project is prepared for the emulator and when it is downloaded to the terminal.

The software will verify the project, and display any errors or warnings that may exist.

Ca

If no errors or warnings exist, the dialog will reflect that information.

Verify Project		?	×
	Project verified		
	Found: 0 Errors, 0 Warnings		
		Clo	ose

Note: If errors or warnings are found, the dialog will up	odate with	h the number of errors and warnings found.	
Verify Project	?	×	
Project verified			
Found: 0 Errors, 1 Warning			
	Clo	ose	
If any errors or warnings are detected, the Errors pan Verify Project box is closed.	e will app	bear below the screen canvas pane when th	е
Errors Description	Location		≁ů×
Invalid tag. Undefined tag :::MyCDXHMDeta.My		Screen/Screen_001/NumericInpu4_001/Vilue	
Double click the errors or warnings to be taken to the	correspon	nding component of the project.	

2. Close the Verify Project dialog using the *Close* button.

If any errors or warnings have appeared, clear them, then verify the project again.

3. Next, click the *Emulate* button.



The information entered into the Project Properties dialog for the Emulator to Controller path will be used to establish the connection between this View Designer instance and the controller at this station.

The Emulate Project dialog window will open.

Emulate	Project	?	×
	1 Download		
Downlo	ad MyProject to Emulator:		
X	Building the runtime application.		
	Starting the runtime application.		
	Finished.		

When the project has been built, and the runtime application has started, the Emulator will open.

View 5000 Emulator (PanelView 5510 9") 'MyProject'	- 0	×
Unacked C > C & Log on 04:19:25 AM 3/20/2018		
This is my PanelView 5510 project		

Notice the two elements in the banner that are displaying runtime diagnostic icons:



These elements are bound to terminal system tags – because the project is running using the Emulator instead of a terminal, these elements cannot connect to the system tags. This results in the runtime diagnostics shown here.

4. Use the numeric input element to open the soft keypad.

## s my PanelView 5510



5. Enter the number '15' and click OK.



Notice that the Numeric Display is showing the new value.



6. Close the Emulator.



Now, let's continue to modify this application.

#### Animation, Events, and Popups

#### **Understanding Animation**

Many elements have useful built in properties such as level, fill color, and show flow that can be bound to tags and expressions. Alternatively, State and Color Tables can be configured for elements when it is necessary to reflect multiple values of a tag or expression in different ways.

#### Understanding Events

Events can be configured for any element on a screen. Event options include:

- Button Behavior
- Key Press
- Key Release
- State Enter
- State Exit
- Touch Press
- Touch Release

Once an Event is added to an element, the designer can then create and configure one or more commands that will be performed when that event occurs. Commands include:

- Incrementing, Toggling and Writing to a tag
- Screen / Popup navigation
- Language switching
- PDF navigation
- Interacting with the Logix HMIBC instruction

#### Understanding Popups

Popups are a different type of screen that can be created for the PanelView<sup>™</sup> 5000 terminal. These are usually smaller than the terminal's screen, but can be configured to be any size.

In this section you will do the following:

- Use built-in animation to determine when a pump's flow color is visible
- Add an Event to the pump element so that it toggles a tag when the pump is touched at runtime
- Create a popup
- Turn a text display into a multistate indicator
### **Configure Built-in Animation**

First, let's turn one of the native elements into an indicator and button.

1. Return to View Designer, and in the Search field of the Toolbox, type 'pump'.



2. Select the first *Pump* and drag it to the screen canvas.



The Properties panel will now display the available properties for the Pump element.



3. Float the mouse over the *ShowFlow* property so that the binding button appears, and click the *binding button*.



4. Click *Bind property to item*.



Remember, almost any element property can be bound to a controller tag or expression using the Binding button.

5. Use the *ellipsis* button to open the Data Item Browser.



The Data browser should return to MyCLX > Programs > HMIData, with MyTag highlighted.

# 6. Double click *PumpControl*.

Sł	nowFlow	<b>9</b> 3	Enter binding	5
Q▼ Search				Ŧ
♠ > MyCLX > Program	s > HMIData			
Name 🔺	Data Type	Des	cription	^
▶ Logo_Opacity	DINT	Log	o opacity	
▶ Logo_UpdateRate	DINT	Log	o update rate of positi	
▶ Logo_XPosition	REAL	Logo	o X position	
▶ Logo_YPosition	REAL	Logo	o Y position	
MyTag	DINT			
PumpControl	BOOL			
RandomA	DINT			
Start_HMI_Data_Gen	BOOL	HMI	data generation enab	
I Ytemp	REAL			
				V

Note that the PumpControl tag is Boolean, so the Pump element will only show its flow when the value of the PumpControl tag is 1.

#### Using Button Behavior

For the pump element, Button Behavior will be used to toggle the value of a tag in the controller. Follow the steps below to configure Button Behavior.

1. Right click the *pump* element and float the mouse over *Button Behavior*.



### 2. Click Toggle a tag on release.



Notice that the **Properties** panel has automatically opened the **Events** tab, with the **Button Behavior** event partially configured.



3. Use the *ellipsis* button to open the Data Item Browser.

≈ But	ton Behavior	×
Toggle	a tag on release	•
Key: To	ouch Only 🔻	
	Requires Focus	
	Always Trigger Release Event	<b>i</b>
Taq:		

# 4. Double click *PumpControl*.

A > MyCLX > Program	ns > HMIData	
Name A	Data Type	Description
InfoBox_14	BOOL	
InfoBox_15	BOOL	
InfoBox_16	BOOL	
Logo_Opacity	DINT	Logo opacity
Logo_UpdateRate	DINT	Logo update rate of positi
Logo_XPosition	REAL	Logo X position
Logo_YPosition	REAL	Logo Y position
MyTag	DINT	
PumpControl	BOOL	
RandomA	DINT	
<ul> <li>Button Behavio</li> </ul>		×
Toggle a tag on rele	ease	•
(ey: Touch Only	•	
Requires Fo	cus	
	ger Release E	vent 🛈
Tag:	-	

5. Save the project using the *Save* button in the toolbar.

# Create a Popup and Use State Table Animation

A Popup is a small window that appears superimposed on the currently open screen of the PanelView<sup>™</sup> 5000 terminal. This provides a method of showing data related to the screen, including diagnostic information, without having it displayed all the time, or requiring the user to navigate to another screen. A popup can also be used to prompt a user to do something related to that screen.

1. Right click User-Defined Screens, and select New Popup.



2. Type 'ValveStatus' and press Enter on the keyboard.



 Double click the new *Popup Display* to open it. The display can also be opened using the Enter key.



- 4. Change the Popup Caption using the steps below:
  - Click in the *Popup Caption* field, and highlight *Popup Caption*
  - Type 'Valve Status'
  - Press Enter



Notice the caption has updated accordingly.

Valve Status	×

### Using State Table Animation

The State Table makes it possible to select specific properties that will be affected by a value change. In this way, a custom multistate indicator can be configured. Follow the instructions below to specify the properties of the Text Display that will be affected by the tag value.

1. Clear the filter used in the **Toolbox** by clicking the **x** in the search field.



2. Double click *Text Display* to add it to the Popup.



3. Click the *Animations* tab in the **Properties** pane.



4. Open the drop down list by clicking *Add Animation*.



5. Select *State Table* from the list.

<b>P</b>	-	1	
Properties	Animations	Events	
👯 Add A	Animation		-
Color Ta	ble		
State Tal	ble		

The State Table Definition dialog window will open:

State Table Definition - TextDisplay_001	?	×
Table name:     StateTable_001       Number of states:     1       Properties:     1		
TextDisplay      General		<b>^</b>
<ul> <li>☐ Text</li> <li>▲ Appearance</li> <li>☐ CornerRadius</li> <li>☐ FillColor</li> </ul>		=
<ul> <li>Opacity</li> <li>Visible</li> <li>TextAlignment</li> </ul>		
<ul> <li>▲ Border</li> <li>□ Capstyle</li> <li>□ Color</li> <li>□ JoinStyle</li> </ul>		
ОК	Car	ncel

6. Increase the **Number of states** to **2**.



- 7. Click the checkboxes for the following:
  - Text
  - FontColor



8. Click OK.

The State Table will appear with the selected configurations.

iter binding		
1		
Expression Value	State Name	FontColor
Default	Default	#000000
0	State0	#000000
1	State1	#000000

9. Click the *ellipsis* in the Enter binding field to open the Data Item Browser.

☆ StateTable_001	×
Expression:	
Enter binding	$\bigcirc$
5 /	

This area can be used to bind tags to the State Table. In addition, Expressions can be used in this field.

# 10. Double click MyTag.

Exp	StateTable_00 pression: ter binding		×  5
Q▼ Search			Ŧ
♠ > MyCLX > Program	s > HMIData		
Name 🔺	Data Type	Description	$\sim$
InfoBox_14	BOOL		
InfoBox_15	BOOL		
InfoBox_16	BOOL		
Logo_Opacity	DINT	Logo opacity	
▶ Logo_UpdateRate	DINT	Logo update rate of positi	
Logo_XPosition	REAL	Logo X position	
Logo YPosition	REAL	Logo Y position	
MyTag	DINT		
▶ PumpControl	BOOL		

StateTable_001	×
Expression:	
::MyCLX\HMIData.MyTag	
	5
S ∕	

Expression Value	State Name	FontColor
Default	Default	#000000
0	State0	#000000
1	State1	#000000
		4

Notice that each state has an Expression Value by default. These values can be single digits, or a range of values.

11. Change the **Expression Value** to the following:



12. Open the State Table Editor using the *Open table editor* button.



Expression Value	State Name	FontColor	Text
Default	Default	#000000	Text Display
0-10	State0	#000000	Text Display
11-20	State1	#000000	Text Display

13. For State0, select the FontColor field, and use the *drop down* button to open the Color Palette.



14. Double click Orange.



Note: it is also possible to manually enter the color's hex value (f89800 for orange) in the FontColor field.

State Name	FontColor	
Default	#000000	
State0	#f89800	

15. Click in the Text Display field, and type 'Low Flow'.

Default	Default	Text Display
0	State0	Text Display
1	State1	Text Display

Expression Value	State Name	FontColor	Text
Default	Default	#000000	Text Display
0-10	State0	#f89800 (	Low Flow
11-20	State1	#000000	Text Display

16. Repeat the steps above for the remaining state, so that the State table matches the picture below: The State Table should now look like the following:

Expression Value	State Name	FontColor	Text
Default	Default	#000000	Text Display
0-10	State0	#f89800	Low Flow
11-20	State1	#a1e6ff	Good Flow

17. Click Close.

## Create a Navigation Event

There are two ways to use navigation during runtime. One is to add Event navigation to any element. The other is to add a shortcut to the Navigation Menu in the Project Explorer that points to the screen. Because Valve Status is a Popup type, it cannot be added to the Navigation Menu. Therefore, an element on another screen needs to have a Navigation Event configured. Follow the steps below to create an element with a navigation event.

1. Return to the **Screen\_001** screen by clicking its tab.



2. Type 'Valve' in the Toolbox search field.



3. Scroll down to find *Valve Ball Wheel*, then double click it to add it to the canvas.



4. Reposition the element so it is around the inflow of the pump.



5. Click the *Events* tab.



- 6. Use drop down menus to select the following:
  - Button Behavior
  - Open popup on release



7. Use the *Popup* drop down list to expand *User-Defined Screens*, then select *ValveStatus*.

	🔲 Always Trigger Release Event 🕕	
op	up:	
4	User-Defined Screens	
	ValveStatus	
Þ.	Predefined Screens	

The Button Behavior configuration should look like the following:

8 Button Behavior	×
Open popup on release	•
Key: Touch Only 🔹	
Requires Focus	
🔲 Always Trigger Release Event 🕕	l.
Popup:	
User-Defined Screens\ValveStatus	•

#### Graphic Explorer

The Graphic Explorer is used to easily locate and manipulate graphic elements, particularly when multiple elements are grouped together or stacked on top of each other.

1. Rearrange the elements on the screen, using the mouse and guidelines, until the screen looks similar to this:



2. Click the *Rectangle* drawing tool in the **Toolbox**.



2. Draw a rectangle around the existing elements.



The rectangle will appear on top of the existing elements, but should instead be used as a background.

3. Click the *Selection Tool* arrow in the **Toolbox**, then right click the newly drawn rectangle and select *Send To Back*, found under **Order**.



4. To make it easier to move the objects, select the *Rectangle*, *NumericInput* and *NumericDisplay*, *Pump* and *BallValve* objects, and select *Group*.

Select all elements by using the mouse to click and drag around all the elements, or use the CTRL key on the keypad to select all of the elements.



5. Use the alignment lines to center the group of objects with the *TextDisplay*.



6. In the **Graphic Explorer**, found in the lower right corner of the screen, expand *Group\_001*, and select *Rectangle\_001*.



7. Change the **CornerRadius** property value to *2*, and the **FillColor** to *medium gray* (#738596).

4	Appearance	
	CornerRadius	2
	FillColor	#738596
	Opacity	100
	Visible	
⊳	Border	
	Enabled	

The screen should now look similar to the following:



## Download and Explore

1. Click *Communications*, and select *Download*...



2. In the Download Runtime Application dialog window, verify that the HMI Device Location is correct.

Download Runtime Application			?	$\times$
1 HMI Device	2 Controller References	3 Download	d	
Location: AB_ETH-1\192.168.1.12	up of HMI device and for undefined tran	×		
	a default language. To import language	$\lor$		
	Back	Next	Downlo	oad
HMI Device Location: Use this page to specil Designer to the HMI device to which the runtin		er running View		

3. Click Next.

4. Now, verify that the **Controller Reference** is correct.

Note that the controller path shown below may not match that at this station.

HMI Device Controller References Do	3 ownload	
Controller Reference Name: MyCLX Logix Project File: C:\Lab Files\Logix\PV5K_Demo.ACD HMI to Controller Path: 192.168.1.11 Slot: Direct		
Back Next	Down	load

**Controller References**: This page shows the controller references for the project as entered in the Controller References tab of the **Project Properties** dialog box. Use this page to make sure that the correct controller reference and project is selected.

- 5. Click *Next*.
- 6. Click *Download* to start the process.



Downloa	d Runtime Application				?	×
	<b>1</b> HMI Device	2 Controller References		3 Download		
Downlo	oad MyProject to AB_ETH-1\192.10	68.1.12:				
✓ ✓ M	Building the runtime application. Establishing communications wit Downloading the runtime applic Starting the runtime application. Finished.	th the HMI device. ation.				
			Back	Next	Downloa	adi

The software will now build the runtime application, first verifying the project, then connecting with the terminal. It will then download the project and the terminal will start the application when the download is complete.

**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.

Download R	untime Application				?	×
	1 HMI Device	2 Controller Reference	es	3 Download	1	
Download	MyProject to AB_ETH-1\192.168.1	1.12:				
✓ Es ✓ D ✓ St	uilding the runtime application. stablishing communications with the ownloading the runtime application carting the runtime application. nished.					
			Back	Download	Close	
When the dov	vnload is complete, click <i>Close</i> .					

Back	Download	Close

8. Turn to the terminal at this station.

7.

# 9. Press the *Pump* element.



Notice that the flow color now appears, as the tag has been toggled.



10. Now, press the *Valve* element.



The Popup will appear. Notice that the text display is showing the configuration for the the value of the tag.



The popup display's Text Display has been configured with a state table that changes the color and the text of the display based on the value of **MyTag**.

- 11. Close the *Popup Display*.
- 12. Press the *Numeric Input*, and change the value to 7.



13. Press the *Valve* element again.

20

Notice the text display has updated, based on its State Table configuration.

Valve Status		×
	Low Flow	
	LOW FIOW	

# Configuring the Navigation Menu

The Navigation Menu appears at the bottom of the PanelView<sup>™</sup> 5000 screen and displays the contents of the project, including folders and screens. This menu can be used to navigate anywhere in the project, versus using touch navigation on graphic elements. Use the steps below to configure the Navigation Menu in View Designer, and explore the Navigation Menu at runtime.

#### Create a new screen

First, add a second screen that contains an image.

1. In the Project Explorer pane, right click User-Defined Screens, and select New Screen.



2. Name the screen by typing '*Home*', and press *Enter*.



3. Double click *Home* to open the screen in the canvas.

#### Add an image to the project

Native elements in View Designer use scalable vector graphics, making it possible to resize the elements without degrading their sharpness. It is possible, however, to add other images into a project in order to customize the screens.

1. In the Project Explorer pane, right click Images, and select New Images.



) Open		>
← → → ↑	✓ 👌 Search Create	م
Organize 🔻 New folder	<b>F •</b>	. ?
Videos ^		
ConeDrive		
This PC		
Desktop		
super_juice_logo_ Documents		
h Music		
Pictures		
Videos		
🟪 Local Disk (C:)		
USB Drive (E:)		
HCD Daine (F.)		
File name:	✓ Image Files	~
	(Open)	Cancel

2. Use the Open window to browse to C:\Lab Files\Create and select superjuice\_logo-01.png, then click Open:

3. Press *Enter* on the keyboard to keep the default name of the image.



4. In the **Toolbox** pane, remove the search filter by clicking the *x* in the **Search** field.



5. Double click *Image* under the CommonControls category.



6. In the Select Image dialog, select the image that was just added, and click *OK*.

Select Image	?	×
Images		
ОК	Car	ncel

7. Resize the image so that it occupies more of the screen.



### Configure the Navigation Menu

Screen 00

At runtime, the Navigation Menu appears at the bottom of the screen and displays the contents of the project, including folders and screen shortcuts, on the PanelView<sup>™</sup> 5000 terminal. Using this menu, users can browse the contents of the application, and open individual items within it.

Project Explorer		Ϋ ^			
🔺 💽 Navigatio	on Menu				
	n_001				
	- nSummary				
1000000 (0010)	nManager				
👼 Settir	ngs				
🔺 ] User-Def	ined Screens				
🚃 Scree	n_001				
💷 Valve	Status				
ne Navigation Menu at esigner. Note that the	runtime will app caption display				

User-defined screens are not automatically added to the Navigation Menu. To be able to navigate to a screen at runtime using the Navigation Menu, a shortcut must be added to the Navigation Menu in the Project Explorer pane.

Settings

AlarmMan

ager

1. In the Project Explorer, right click Navigation Menu, and select New Shortcut...



AlarmSum

mary

2. In the **New Shortcut** dialog box that appears, type *'Home'* in the **Name**: field.

New Shortcut		?	×
Name: Home			
<ul> <li>Linked to an existing screen</li> </ul>			
▲ 🐌 User-Defined Screens			
Screen_001			
<ul> <li>Home</li> <li>Predefined Screens</li> </ul>			
<ul> <li>Linked to a new screen</li> </ul>			8
Screen_002			
Screen_002  Open screen	<u>80 - 1</u>		

3. Select *Home*, found under User-Defined Screens, and click OK.

	ortcut		?	×
Name:	Home			
Lin	ked to an existing screen			
1	User-Defined Screens			
	Home			
Þ	Predefined Screens			
0 Lin	ked to a new screen			
	ked to a new screen			

Alternatively, the screen can be clicked and dragged into the Navigation Menu to create the shortcut.

The new **Home** shortcut will open in the screen canvas. Notice the information banner at the top, stating that the content is read-only.



A **Shortcut** is a link to a screen that displays the same content as the screen. A shortcut is read-only, any changes that are needed must be performed on the base screen (in the User-Defined Screens category).

5. Now, right click the *Home* shortcut in the **Project Explorer**.



6. Select Set as Home.



Notice the home icon icon now appears next to the Home shortcut in the Navigation Menu.

	<u>e</u>
	👼 Settings
	🔝 Home
4 📗	User-Defined Screens
	🔙 Screen_001

When a shortcut is Set as Home, it will be the initial screen displayed on the terminal at runtime.

7. Right click *Screen\_001* in the User-Defined Screens folder, and change its name to *Pump*.



Note that the screen shortcut did not automatically update its own name, though it is still pointed at the correct screen.

8. Rename *Screen\_001* under the Navigation Menu category to *Pump*.

<ul> <li>Navigation Menu</li> <li>Screen 001</li> </ul>				
AlarmSummar AlarmManager		Open Set as Hor	me	
👼 Settings	ж	Cut	Ctrl+X	🔺 💽 Navigation Menu
👼 Home	Ð	Сору	Ctrl+C	_ ( Pump )
🔺 🐌 User-Defined Scree	ĉ	Paste	Ctrl+V	Alarm Summary
📼 Pump 💷 ValveStatus	×	Delete Rename	Del	👼 AlarmManager
🔲 Home		Edit Defin	ition	👼 Settings 👼 Home
Predefined Screens				and the second s

In a completed project, many more screens would be created. To help navigate through the project, use folders to categorize the screens.
9. Right click *Navigation Menu*, and select *New Folder*.



10. Rename the folder by typing 'Components' and pressing Enter.



11. Add the **Pump** screen shortcut to the new folder by clicking and dragging it.



- The Navigation Menu should now look similar to the following.
- 🔺 💽 Navigation Menu



12. Finally, rearrange the order of screens in the **Navigation Menu** by clicking and dragging them until they look like the picture below:



## Download and Explore

1. Click Communications, and select Download...



Because the **HMI Device Location** and **Controller References** were checked the last time the project was downloaded, those steps can be skipped.

2. Click Download.



- Edit the project if any errors or warnings are found.
   Download the project once the errors and warnings are cleared.
- 4. Close the **Download Runtime Application** window using the *Close* button.
- 5. Turn to the terminal at this station.

Notice the new opening screen is the **Home** screen.



6. Use the **Navigation** button on the terminal to open the **Navigation Menu**.



Notice the menu reflects the order of shortcuts that were configured in the Project Explorer.



7. Tap the *Components* folder.



The Pump screen that was put in the **Components** folder is now visible.

Ţ	Componer	ıts
Pumj	ר         	
Home	Componen ts	Alarn Summa

By default, the Navigation Menu will display the shortcut name as its caption. Shortcut names do not allow spaces or carriage returns. Use the Caption property in the property panel to modify shortcut captions to be shorter, include spaces, or carriage returns.

Propertie	<b>:s</b>	<b>→</b> ₽ ×
Name:	AlarmSun	nmary
Туре:	Shortcut	
Properties		
▲ Navig	ation Menu	1
Capti	on	Alarm Summary

Continue to explore the Navigation changes made to the application if desired.

# Understanding Alarms in View Designer

PanelView<sup>™</sup> 5000 is able to subscribe to Logix-based Device Alarms configured in Logix Designer. Alarm instructions are used to monitor and control alarm conditions. These instructions integrate alarming between PanelView<sup>™</sup> 5000 projects and ControlLogix controllers. View Designer has two alarm tables to view the alarms, Alarm Summary and Alarm Manager. First, we'll take a look at the Logix Designer device-based Alarms, and then we'll explore the Alarm tables.

## Working with device-based Alarms and Events

## Digital (ALMD)

A digital alarm (ALMD instruction) is configured to monitor its input for one of the following alarm conditions:

- The input value equal to one
- The input value equal to zero

When the alarm condition is true, the alarm enters the **In Alarm** state. When the alarm condition is false, the alarm enters the **Normal** or **Out of Alarm** state.

## Analog (ALMA)

An analog alarm (ALMA instruction) can be configured to monitor for two types of alarm conditions:

- Level
- Rate of Change

Level alarms monitor an input for alarm conditions that go In Alarm when the input value goes above or below predefined limits. When defining a level alarm, you can configure up to four alarm level conditions, each with limits (sometimes called thresholds), a severity and alarm message. The supported alarm conditions are:

- High High (HIHI)
- High (HI)
- Low (LO)
- Low Low (LOLO)

Rate of Change alarms monitor an input for alarm conditions that go In Alarm when the input value changes faster or slower than predefined limits. When defining a level alarm, you can configure up to two rate of change conditions, each with limits, a severity, and an alarm message. The supported alarm conditions are:

- Rate of Change Positive (ROC\_POS)
- Rate of Change Negative (ROC\_NEG)

#### Alarm Instructions in Logix Designer

Let's take a closer look at the alarm instructions in Logix Designer.

1. Restore Logix Designer.



2. Expand *Super\_Juice\_Task*, then *Alarms*, and double click *RandomTriggerableAlarms*.



The first rung shows a digital alarm, an ALMD.

3. Click the *ellipsis* button for the ALMD in Rung 0 to explore its properties.



LIVID Propert	ies - ALMDVal	ve0 (Rung 0)			×
Configuration	Status Paran	neters Tag			
Condition:		Input = 1	~	Latched	
Severity:		900	-	Acknowledgement Required	
Minimum Dur	ation:	0	÷ ms		
Shelve Durat	ion:	0	🚔 min		
Maximum She	elve Duration:	0	🖨 min		
Message:		Reservoir supp	oly valve is clo	sed. Open immediately!	
	<b>-</b>			New Tag	
Associated Name	and a second		Туре	Description	
1					
2					
3					_
					-
Alarm Class:		Misc			
Factory Talk	View Command:				
tatus: OK					
itatus: OK	mal	Provide		Shelved Shelve	
) Alam: No		Reset	٠	Shelved     Shelve     Dischlar	•
		Reset Acknowledge	*	O Disabled Disable	•
) Alam: No			6 6	_	

4. Close the **ALMD Properties** dialog by clicking the *X* button.

ALMD Proper	ties - AL	MDValve0 (R	ung 0)			$\otimes$
Configuration	Status	Parameters	Tag			
Condition:		Inpu	ıt = 1	~	Latched	
Severity:		900		<b>+</b>	Acknowledgement Required	

#### System Banner – Alarm Status

1. Turn to the terminal at this station.



3. Tap the *Alarm button* in the System banner.

Jnacked (6)	11:46:20 AM
-------------	-------------

The AlarmSummary screen will open on the terminal.

Una	cked (4	4)		Log On	<b>₽</b> <b>8</b>	08:19:52 PM 4/23/2016
	!	Alarm	Event Time	Message		
		۲	06:05:13 PM	Approaching reservoir emptiness.		
	!	Ŵ	06:05:13 PM	Reservoir is empty!		
	!	Ŵ	06:05:13 PM	Reservoir supply cooling motor temp is low, what's going on?		
	!	Ŵ	06:05:13 PM	Reservoir supply cooling motor temp is very low, is it even running	?	
	?∕ ▼	(No Filt	ا لگت ل		<b>?</b>	

Learn how this screen was configured in the next section.

## Alarm Summary Element in View Designer

The Alarm Summary element is a list of alarms at runtime that are in noteworthy states or require attention (for example, alarms that are In Alarm and Unacknowledged).

Explore this element in View Designer using the steps below.

1. Back in View Designer, expand *Pre-Defined Screens* in the **Project Explorer**.



2. Double click *AlarmSummary* to open the screen.



This predefined screen consists only of the Alarm Summary element, found in the **Toolbox**, under the **Alarms** category. No other configuration needs to occur in the View Designer project.

3. Select the *Alarm Summary* element to see the different properties that can be configured.

Una	cked (0)	<b>+ +</b>	Log on 08:30:45 PM
	! Alarm	Event Time	Message
	0 🕱	2:12:12 PM	An alarm message of moderate length. A condition requires atte
	• *	2:12:12 PM	An alarm message of moderate length. A condition requires atte
		2:12:12 PM	An alarm message of moderate length. A condition requires atte
	• *	2:12:12 PM	An alarm message of moderate length. A condition requires atte
	• *	2:12:12 PM	An alarm message of moderate length. A condition requires atte
	1	2:12:12 PM	1234567890
	1	2:12:12 PM	1234567890
		0-1-0-10 DM	1924567000
	8	国日	<u> </u>
	<b>7</b> (No Fi	lter)	

Note that the **Properties** pane for the **AlarmSummary** shows that many properties of the element can be configured, including the width of all columns, the priority levels, and how the alarms are sorted.

Properties	<b>→</b> ‡ ×	Properties 🔻 🖡 🗙 Properties 🔻	Ψ×
Type: Alarm	SummaryMedium_001	Name:         AlarmSummaryMedium_001         Name:         AlarmSummaryMedium_001           Type:         AlarmSummaryMedium         Type:         AlarmSummaryMedium	
Properties Column	s Filters Animations Events	Properties Columns Filters Animations E	🗲
⊿ General		Properties Columns Filters Animations Events	vents
AlarmManag	e Navigation Menu \AlarmManager	Priority Image     X	×
▲ Appearance		× Priority - High	×
Opacity	100	Width: 40	
Visible	$\checkmark$	Alarm State Image     X	×
FontName	Arial Unicode MS 🗸 🗸	V Alarm State - Unacknowledged	×
FontSize	9	Width: 50	
RowPadding	9	× Alarm State - In Alarm, Ackno	×
Acknowledg	eE 🗸	<ul> <li>Event Time</li> <li>Alarm State - In Alarm, Unackn</li> </ul>	. x
DisableEnabl	ec 🗸	Width: 100	
Enabled	$\checkmark$	Alarm State - Normal, Unackn	×
HelpEnabled	$\checkmark$	☆ Message × Inhibit State - Disabled	×
ResetLatched	IE 🗸	Width: 200	
ShelveEnable	ed 🗸	V Inhibit State - Shelved	×
SortOrder	2:D,1:D,3:D	* Add Column  V Inhibit State - Suppressed	×
▲ Position and	Size		
х	71.2	Priority - Medium	×
γ	2.67	× Priority - Low	x
Width	659.84		2.0
Height	426.95	* Add Filter	-

## Alarm Summary Element at Runtime

Use the steps below to explore and interact with the Alarm Summary element on the terminal.

1. Restore *Logix Designer*.



2. Right click the *ALMDTrigger[0]* in **Rung 0** and select *Toggle Bit*, then turn to the terminal.



Notice that the Alarm Summary has updated on the terminal to reflect that the alarm has been triggered.

Una	cked (	5)			08:20:38 PM 4/23/2016
	!	Alarm	Event Time	Message	
	0	1	01:56:24 PM	Reservoir supply valve is closed. Open immediately!	
<u></u>		<u> </u>	06:05:13 PM	Approaching reservoir emptiness.	
	!		06:05:13 PM	Reservoir is empty!	
	!	Ŵ	06:05:13 PM	Reservoir supply cooling motor temp is low, what's going on?	

5. Select the alarm that was just triggered so that it is highlighted in gray.

!	Alarm	Event Time	Message
•	1	01:56:24 PM	Reservoir supply valve is closed. Open immediately!
	Ŵ	06:05:13 PM	Approaching reservoir emptiness.
!	Ŵ	06:05:13 PM	Reservoir is empty!

6. Use the *Acknowledge* button to acknowledge the alarm.



The alarm will move to the bottom of the list, because it has been acknowledged, but not yet removed from the list, as it is still in alarm.

## Alarm Manager Element in View Designer

The Alarm Manager is a table that 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. Every alarm from the controller is listed unless an alarm is removed from the controller itself.

Use the Alarm Manager to:

- Enable or disable alarms to take them out of service
- Shelve and un-shelve alarms
- Reset counts for alarms
- View details for a selected alarm or alarm condition
- Sort alarms
- Filter alarms
- Pause alarms
- View alarm errors

## Alarm Manager Element at Runtime

Use the steps below to explore the Alarm Manager on the terminal.

1. Click the *Alarm Manager* icon at the bottom of the *Alarm Summary* element.

Alternatively, the Navigation Menu can be used to navigate to the Alarm Manager screen.



2. Tap the ALMDValue0 that was triggered in one of the previous sections so that it is highlighted in gray.

Ŵ		::MyCLX\MainProgram.ALMATankOverfill	E
*		::MyCLX\MainProgram.ALMDValve0	
	4	::MyCLX\Tank.Tank01OverflowAlarm	
	645		I I

Note that the icon for the ALMDValve0 alarm is showing that it is In Alarm and Acknowledged.

larm Icor	n Legend				_
				2	
or assista	nce with the meanings of the	e icons	s at runtime, use the	-	button.
Help					×
Alarn	n Rollups:				
	In Alarm, Unacked		🗘 Normal, Ur	nacke	d
<b>%</b>	In Alarm, Acked		🎄 Faulted		
Alarr	n Legend:				
¢	Back	Þ	Select Page	٢	Enable
¥	Alarm Manager	<u>0</u>	Reset Latched	₽	Shelve
≣	Details	<b>123</b>	Reset Counts	<b>₽</b>	Unshelve
亘	Select All	Ш	Pause	~	Acknowledge
E	Deselect All	0	Disable	?	Help

3. Select the *Disable Alarm* button at the bottom of the Alarm Manager.



💟 Una	icked (4)				08:26:55 PM 4/23/2016
	Alarm	Inhibit	Alarm Name		
	Ŵ		::MyCLX\MainProgram.ALMAMotorOverheat		
	<b>(</b>		::MyCLX\MainProgram.ALMATankOverfill		
		4	::MyCLX\Tank.Tank01OverflowAlarm		
		4	::MyCLX\Tank.Tank02OverflowAlarm		
		4	::MyCLX\Tank.Tank03OverflowAlarm		
		4	::MyCLX\Tank.Tank04OverflowAlarm		
		Ø	::MyCLX\MainProgram.ALMDValve0		
			::MvCLX\MainProgram.ALMDValve1	•	
	$\Diamond$	∷		?	
	<b>T</b> (	No Filte	r)		

Notice the Disable Alarm symbol is now in the Inhibit column, indicating the alarm has been disabled.

The alarm may be in a different location after it has been disabled.

4. Return focus back to Logix Designer, and notice the Disabled bit is ON for the ALMD instruction.

Digital trigger for ALMDs. To be set manually by HMI button. ALMDTrigger[0]	Valve 0 ALMD - severity = 900
	ALMD ALMDValve0
	ProgAck ALMDValve0.ProgAck -(InAlarm)-
	0 (Shelved)
	ProgReset ALMDValve0.ProgReset
	0 🖛 (=(Disabled)==)
	ProgDisable ALMDValve0.ProgDisable (InstructFault)
	0 🖛
	ProgEnable ALMDValve0.ProgEnable
	0 🗭
	MinDurationPRE 0+
	MinDurationACC 0 🖛

- 5. Enable the alarm using the PanelView terminal, and toggle ALMDTrigger[0] off.
- 6. Minimize, but don't close Logix Designer.

# **Using Runtime Diagnostics**

View Designer and PanelView<sup>™</sup> 5000 terminals use Runtime Diagnostics to display any issues that may occur during runtime. Explore this functionality using the steps below.

## Break a Bound Tag

- 1. Return to the View Designer Software.
- 2. Open the *Pump* screen by clicking its tab in the Screen Canvas area.



3. In the Graphic Explorer, expand Group\_001 and click NumericDisplay\_001.



4. In the **Properties** pane, click in the *Value* field.



5. Move the cursor to the end of the tag, and remove the letters *Tag* from the string.

This will intentionally use an invalid tag name. The value field should now look like the following:



#### Download and Explore

1. Download the project to the terminal using the *Download* button in the toolbar.



Note that the verification process found one warning.



**Note:** View Designer will continue to download the project to the terminal. If the verification found an error, the download process would be halted.

2. Ignore the warning that was found, and click *Close*.

Notice that an Error pane has opened, showing the warning found during verification.



The software is indicating that the tag bound to the Value property of the Numric Display is undefined.

3. Turn to the terminal, and press the *Navigation button* 



on the terminal or in the System Banner.

4. Use the **Navigation Menu** to open the *Pump* screen.



Notice the **Numeric Display** now has a red circle with a white x. This indicates that there is a problem with the element.



5. Tap the *red circle with white x*.

A message box with an explanation for the error will open.



Notice that the error window shows the element name, the tag information, and the probable cause of the issue. This allows operators to get a good idea of what the potential problem is, and how to fix the issue.

6. Now, return to View Designer, and resolve the issue by replacing the full tag name in the **NumericDisplay** (::MyCLX\HMIData.MyTag).

7. Save and download the project to the terminal again.

# Using Security with View Designer

View Designer provides the ability to control access to the runtime project using its security functionality. Individual screens, shortcuts and popups can be secured, as well as graphic elements. In addition, it is possible to secure the terminal itself, as well as the ability to download projects to the terminal.

Use the steps below to explore the ability to secure screens using Users, Roles, and Screen Security properties.

#### Configuring Users and Roles

1. Use the Tools menu to select Security Administration...



The Security Administration dialog will open:

🙆 Users	User Accounts:	Sort by: User Name Y
Create and configure user accounts Configure policies for the target HMI device	Wer Name:       Full Name:       Description:       Role:       Password       Confirm:       PIN:	
	Guest User:	

The Security Administration dialog window is where Users, Roles and Policies are configured for the full project.

Users: A user will log in during runtime with a username and password or a PIN.

**Roles:** A role is defined for each user. This role will be used to determine access levels for any screen that should be secured.

**Policies**: The Policies tab is the location in which settings such as Number of Passwords to Remember, the required length of passwords and complexity requirements can be configured.

2. Type 'maint' in the User Name: field.

*	User Name:	maint	
	Full Name:		

3. Use the drop down list for **Role** to select *Maintenance*.

*	User Name:	maint
	Full Name:	
	Description:	
	Role:	
	Noie:	Operator 🔹
	Password:	Administrator Engineer
		Administrator

4. In the **Password** field, type *'maint'*.

Role:	Maintenance 🔹	
🗹 Password		
Confirm:		
PIN:		

Notice the Confirm field has a red outline – this is because the Password and Confirm entries do not match.

5. In the **Confirm** field, type 'maint'.

Role:	Maintenance
🗹 Password:	•••••
Confirm: 🔇	
PIN:	

The red outline has disappeared because both the Password and Confirm fields have the same characters entered.

6. Create another user by typing 'admin' in the second User Name field.

er Accounts:	Sort by:	•
✓ User Name: Full Name:	maint	×
Description: Role: ☑ Password:	Maintenance	
Confirm:	•••••	

*	User Name: maint
*	User Name: admin
	Full Name:

- 7. Continue configuring the user, using the information below:
  - Role: Administrator
  - Password: *admin*
  - Confirm: *admin*

*	User Name:	maint
*	User Name:	admin
	Full Name:	
	Description:	
(	Role:	Administrator
	🔽 Password:	•••••
	Confirm:	
	PIN:	

8. Change the Guest User role to *Restricted* using the drop down list.



Notice the information for the Guest User:

Guest User is active when no users are logged on. A Guest role of "None" grants the Guest readonly access to only the Home screen.

This means that if the guest has the **None** role configured, the Guest user will be unable to view any other screens in the Navigation Menu, and will not be able to navigate to any screen using Navigation events on an element on the Home screen.

9. Click *OK* to close the Security Administration dialog.

Role:	Restricted	Guest User is active when no users are logged on. A Guest role of "None" grants the Guest access to only the Home screen.				

## Securing Screens

Screen security can be configured in the Screen's properties. This is done using the Project Explorer and the Properties pane.

1. Expand the *Predefined Screens* category in the **Project Explorer** pane.



2. Scroll down and select *AlarmManager*.



3. In the **Properties** pane, expand the *Security* category.



#### Access options:

**Inherit**: Grants the role the same access assigned to the parent folder. All roles have Inherit access by default.

**Full Access**: Grants the role access to open interact with the item, and shows the item in the Navigation menu on the HMI device.

**Read Only**: Grants the role 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.

**No Access**: Denies the role access to open or interact with the item. The item does not appear in the Navigation menu on the HMI device.

- 4. Use the drop down lists beside each role so that they look like the following:
  - Engineer: No Access
  - Maintenance: Read Only
  - Operator: No Access
  - Restricted: No Access
  - Supervisor: No Access

4	Security		
	Administrator	Inherit	
	Engineer	No Access	•
	Maintenance	Read Only	•
	Operator	No Access	•
	Restricted	No Access	•
	Supervisor	No Access	•

#### Securing Elements

In addition to securing screens, individual or groups of elements can also utilize security features. In the steps below, configure an element to be disabled based on the logged in user.

1. Now, return to the Project Explorer pane, scroll up, and open the Pump screen

Make sure to select the Pump screen under the User-Defined Screens category.



2. Select the *Numeric Input* element using the Graphic Explorer.



3. Under the *Appearance* category of properties, click the *Binding button* for the **Enabled** property to select *Bind property to item*.



4. Open the Expression Editor using the *Open Expression Editor* button.



5. Using the *ellipsis* button, open the Tag Browser, and click the *home* button.



6. Expand *Local:HMI Device*, then *HMI Device Tags*, and finally, *Security*.



Q▼ Search		
♠ > Local:HMIDevice	> HMI Device Ta	gs
Name 🔺	Data Type	Description
▶ Display	SYS_DISPLAY	HMI device
Inet	SYS_ENET[1]	Ethernet ne
EnetLink1	SYS_ENET_LI	Ethernet lin
Security	SYS_SECURITY	/ Security inf
IN MALCO	OVE VALCET	Marco C

7. Double click *CurrentUserRole* to add it to the editor.



Expression Editor	?	×
 ::Local:HMIDevice.Security.CurrentUserRole		~

8. Type "<u>!= "Restricted"</u>" after CurrentUserRole, so that the field looks like the picture below.

This addition to the expression will result in the numeric element to be disabled when any user with a Restricted role is logged in.

Expression Editor	?	×
::Local:HMIDevice.Security.CurrentUserRole != "Restricted"		^

- 9. Click *OK* to close the Expression Editor.
- 10. Uncheck the *Initial* checkbox.



## Download and Explore

Follow the steps below to download the project to the terminal and test the trending function.

1. Click Communications, and select Download...



Because the **HMI Device Location** and **Controller References** were checked the last time the project was downloaded, those steps can be skipped.

2. Click *Download*.



3. Close the Download Runtime Application window using the Close button.

# Exploring Security at Runtime

1. On the terminal, press the *Navigation Button*.

Notice that the **AlarmManager** screen is no longer in the Navigation Menu. This is because by default, Guest is logged into the application.



2. Tap the *Components* folder, and select *Pump*.



Notice that the Numeric Entry element has a crosshatch over it, indicating that the element is disabled.



3. Press the *Numeric Entry* element.

As a result of the press event, a red circle with a white x appears.



## 4. Tap the *red circle*.

The error display will show as below:



5. Use the *Navigation Menu* button to view the Navigation Menu.



Notice the Alarm Manager is missing from the Navigation Menu. Remember, the screen was secured so that Maintenance users have Read Only access, and Administrator users have full control. No other roles have the ability to navigate to the screen.

6. Next, press the *Log On* button.

Logon	×
User Name: Password:	Log on
Logged on: Guest	Log off

6. Press the User name field, and type 'maint'.

Logon								X
User Na	me:							
Passwo	rd:					_	_	
maint						_	_	
						_	<u> </u>	
1 2	3	4	5	6	7	8	9	0

- 7. Press OK.
- 8. Press the *Password* field, and type 'maint'.

Logon	X
User Name: maint	
Password:	y on
1 2 3 4 5 6 7 8 9	0

- 9. Press *OK*.
- 10. Press *Log on*.

Log on

Notice the Numeric Entry is now enabled.



11. Press the *Numeric Entry* object, enter a new value, and press *OK*.



Notice that the entry has been sent to the controller, and the obejcts on the screen are updated.

12. Now, press the *Navigation button*.

Notice that the AlarmManager screen is now visible.



# 13. Press the *AlarmManager* icon.

Unacl	ced (6)	maint	:53:51 AM 3/25/2015
✓ Alarm State	Inhibit State	Alarm Name	
<b>(</b>		::MyCLX\MainProgram.ALMAMotorOverheat	Ê
<b>(</b>		::MyCLX\MainProgram.ALMATankOverfill	E
		::MyCLX\MainProgram.ALMDValve0	
		::MyCLX\MainProgram.ALMDValve1	
		::MyCLX\MainProgram.ALMDValve2	
		::MyCLX\MainProgram.ALMDValve3	
		::MyCLX\MainProgram.BottlingToPackagingQueueAlarm	
		::MyCLX\MainProgram.InventoryItemAlarm0	
🝸 (No Filte	er)		₽ ?

14. Try to interact with the *Disable* button on the screen.



Notice that the button is disabled, and that pressing the button results in the red circle with a white x appearing.

15. Next, press the *Log On* button.

Note that the button displays the user logged in currently.



16. Press the User name field, and type 'admin'.

Logon			×
User Name:			
Password:			og on
Logged on: maint			og off
admin 1 2 3	4 5 6	7 8 9	0

- 17. Press OK.
- 18. Press the *Password* field, and type 'admin'.

Logon					×
User Nam	ne:				
admin					
Password	1:				
					Log on
*****					8
1 2	3 4	5	6 7	8	9 0

19. Press OK.

# 20. Press Log on.

Notice that all of the buttons on the AlarmManager screen are now enabled.



You have now configured the project so that only certain users have access to designated screens. In addition, you have explored what happens when elements are disabled by security access!
# Optional – Using PDF Documents in View Designer

PanelView 5500 terminals have a PDF Viewer that allows operators to quickly access documentation about the process or machine for operating procedures, troubleshooting and maintenance. HMI Designers can easily embed PDF documents on their screens using the PDF Reader available in Studio 5000 View Designer which includes a predefined PDF viewer, navigation controls and zoom controls. Simply place the PDF Reader on a screen and select the PDF document to view.

1. In **Project Explorer**, scroll down to **Assets**, then right click **Documents** and select **New Documents**.



2. Browse to C:ILab FilesICreate, select cie-wp002\_-en-p, then select Open.

🕥 Open					×
$\leftrightarrow$ $\rightarrow$ $\checkmark$ $\bigcirc$ $\land$	~ Ō	Search Create			9
Organize 🔻 New folder			-		?
<ul> <li>Pictures</li> <li>Create</li> <li>Logix</li> <li>Music</li> <li>TechED2018</li> <li>OneDrive</li> <li>This PC</li> <li>DVD Drive (D:) 31.</li> <li>Lexar (E:)</li> <li>Local Disk (C:)</li> <li>Lab Files</li> </ul>					
File name:	~	Document File		<u> </u>	~
		Open	<u> </u>	Cancel	

3. Type 'TheConnectedEnterprise', then press Enter to accept the new document name.



4. Right click User-Defined Screens, and select New Screen.



5. Name the screen '<u>Reference</u>'.

4	User-Defined Screens
	Pump
	ValveStatus
	Home
	Reference
4	Predefined Screens

6. Double click the new screen to open it.

### Adding a PDF Viewer to a View Designer Project

There are multiple ways that a PDF viewer can be added to a project screen. The first is by using the PDF Viewer element, found within the System category of the Toolbox. The PDF viewer is a simple element that displays the PDF file. Navigating through the document can be done using a press and slide movement, or by adding elements with event commands specific to PDF navigation.

Toolbox	<b>→</b> ₽ ×
🕨 / 🗆 🕥 🖏	÷
<b>Q</b> ▼ Search	•
Flags	-
GeneralEquipment	
Graph	
Security	
SignsAndSymbols	
System	
TrendCharts	-
System	
Retwork Status Indicator	-
PDF	
Radio Button	

This section will demonstrate how to use an Add-On Graphic that has been created as pre-defined content with each View Designer project.

1. In the Toolbox, select Add-On Graphics, then double click PDF\_Viewer to add it to the screen.



2. In the Properties panel, use the drop down menu for **DocumentName**, and select **TheConnectedEnterprise**.



Notice the Add-On Graphic has updated to display the first page of the document.



#### Understanding the PDF Viewer Add-On Graphic

An Add-On Graphics has been created with elements that would typically be used with documents. Use the steps below to explore this predefined content.

1. In the **Project Explorer**, expand the **Add-On Graphics** folder, found under **Assets**, then double click **PDF\_Viewer**.



- 2. Click around the Add-On Graphic, exploring the Events tabs of different elements to understand more about how they were configured.
- 3. Close the PDF\_Viewer Add-On Graphic using the X.



#### Add the screen to the Navigation Menu

1. In the Project Explorer, under User-Defined Screens, right click Reference, and select New Shortcut.



2. Press *Enter* to accept the name of the new shortcut.



### Download and Explore the PDF Viewer

1. Click the *Download* button on the toolbar.



- 2. Close the **Download** dialog when complete.
- 3. Turn to the terminal, and use the *Navigation Menu* button to open the *Reference* screen.



4. Use the *Fit to Page* button to zoom out.



5. Press the *right arrow* button one or two times.

Notice the PDF advances the corresponding number of pages.



6. Press the *page number input* element, then enter 9, and press OK.



$\bigcup_{(13)}^{\text{Unacked}} \overleftarrow{\leftarrow} \rightarrow$		Log on				<b>R</b>	09:06:55 PM 3/20/2018
	_	•	<ul> <li>engile eta OTspecialitza ma sginil carticlangento the org clas until XMM. Processel in</li> </ul>	The Generative interaction of the point of the sight interaction of the re- with in their discussion of their statistical of the discussion of the statistical of the discussion of the statistical of the interaction of the statistical of the interaction of the statistical of the	szánovákógebecome s a soomers váll tum tél every soohevá to místere this tele		
	9 Mi	in: 1   Ma 7 4	ax: 12 8 5	9			
		1	2	3	•		
			OH		Cancel		
$\blacksquare \leftarrow \rightarrow 3$	/ 12					€→ €	

7. Press the *bookmark* button to open the bookmark panel.

(13) Contraction C			물	09:07:50 PM 3/20/2018
	In distance are part of the second se	And if if is that the enterough if is use of the that is if it is the		3/20/2018
	Report dissinitial lines	- Distribution of the state of the second State (1998), 21 and the prevents state (1995)		
	Labor parts	Zina annale der gestellte er presentation aller insenter einen die In republishe dates In Statisphene by deren parker sectors ein del Physi		
	Bolie Inty	Aread painting agreed back to be		
				R
() ← → 9 / 12				ତ୍ତ୍

#### 8. Press Stage 2 & 3.



The PDF will move to the bookmarked page.



9. Press the *bookmark* button to close the bookmark panel.



10. Feel free to continue exploring the PDF on the terminal.

# Optional – Using Faceplates with View Designer

Application Content from Rockwell Automation helps engineers create automation projects from standardized, life-cycle managed, application-focused libraries in an efficient, sustainable way. The Power Automation Library is the first release available on the PCDC and include View Designer Faceplates and Logix Designer AOI and Device configuration.

For more information on implementing the Power Automation library, see the release notes and operational videos included in the download from PCDC.

### Open the Automation Device Faceplate project

This section will walk through the Kinetix 350 faceplate from the Power Automation Library.

1. Open Studio 5000 by clicking the **Studio 5000 icon** on the taskbar.



2. Under the Open heading, click Existing Project.

Rockwell Softward	<b>io</b> 50	00	
	Create	Open	Explore
	New Project	Existing Project	Help
	From Import	Sample Project	About
Recent Projects	From Sample Project	From Upload	

🕝 Open Project						×
$\leftarrow \rightarrow \land \uparrow$	« Loo	cal Disk (C:) > Lab Files > Logix	√ Ū	Search Lo	ogix	٩
Organize 🔻 New	folde	er 🖉				?
Tools	^	Name	Date mo	dified	Туре	Size
Videos		PV5K_Demo.ACD	3/13/201	7 10:17 AM	Logix Designer Pr	
ConeDrive		PV5K_Demo.PV5K-DEMO17.Labuser.BAK	2/14/201	7 3:17 PM	Logix Designer Pr	
💻 This PC						
Desktop						
Documents						
🖊 Downloads						
👌 Music						
Pictures						
Yideos						
🟪 Local Disk (C:)						
	~	<				~
1	File na	ame:	~		signer (*.acd;*.l5k;*.l5»	100 A
					signer (*.acd;*.l5k;*.l5x signer (*.vpd)	;*.xml)
				All Files (		

3. Select *View Designer (\*.vpd)* from the browse filter settings.

4. Browse to C:\Lab Files\References, select raC\_Dvc\_K350.VPD and click Open.



5. Right-click on *raC\_Dvc\_K350\_FP* pop-up screen, then select *Open*.



All of the faceplate contents are on the pop-up display.

r-			
	Kinetix 350	ssage	
c	Image: Zero Speed       Position       Image: Wellocity       Image: Velocity       Image: Wellocity       Image: Wellocity       Image: Wellocity	Power       Omega         Jog Forward       Jog Reverse         Velocity setpoint       ####################################	
	00 0	Decel setpoint ######## sec	

## **Faceplate Properties and Content**

### Groups

Each tab on the left side of the display will navigate to different content.



- 1 = Home
- 2 = I/O
- 3 = Trend
- 4 = Configure Trend
- 5 = Faults

You can see these tab groups in the graphic explorer.



### Property Definition

Property definitions are used as a placeholder in a tag reference. For example, the same faceplate pop-up screen can be used to manage multiple devices by using a property in its bindings. At runtime, different tag instances can be passed to a graphic element each time the faceplate is opened, allowing the same element to be used with multiple tag instances. The faceplate screen has a user defined property AOI\_Tag with a data type of raC\_Dvc\_K350.

ame	Alias For	Data Type
itialTab	nd_TabNum.value	
OI_Tag		::PAC.raC_Dvc_K350

### Navigation

The faceplate is opened from a button event.

1. Open the *Toolbox* screen from User-Defined Screens.

	김 윤 🛙	08:30:45 PM 1/1/1971	
Laun	ch Faceplate		

2. Click on the *Launch Faceplate* button to view its properties. Click on the *Events* tab.

Properties	;		• ¶ ×
Name:	btn_nav_K350_FP		
Туре:	Button		
Properties	Animation Events		
	ton Behavior		<b>X</b>
Open p	opup on release		•
Key: To	uch Only 🔻		
	Requires Focus		
	Always Trigger Relea	se Event 🚺	
Popup:			
User-D	efined Screens\raC_D	vc_K350_FP	-
Propert	y Configuration:		
AOI	_Tag Ç	::PAC\Faceplates.Infeed	±)
Initi	alTab 🚳	Enter binding	

The button opens the faceplate screen raC\_Dvc\_K350\_FP, and all references of AOI\_Tag will be replaced with Faceplates.Infeed which is an instance of the user-defined data type.

### Testing the Faceplate

Now you are ready to test your faceplate!

1. Click the **Emulate Project** icon.



2. Click on the Launch Faceplate button to open the pop-up.

View 5000 Emulator (PanelView 5310 9") 'raC_Dvc_K350'	16 <u>) -</u>	×
Unacked C C C C C C C C C C C C C C C C C C C		
Launch Faceplate		
Laurici i acepiate		

The faceplate opens on the Home page and should look like this:



Notice that the banner at the top of the faceplate is showing a Virtual status.

The faceplate and AOI allow you to test the faceplate without being connected to a drive. Some functions won't update such as position.

Virtual

Ready

3. To test the jog feature on the faceplate, click on the power toggle.

Kinetix 350			<u>&gt;</u>
Ready Virtual			
→ → Off	Power		
Position 0.00 Revs	Jog Forward	Jog	Reverse
B Velocity	Velocity setpoint	200.00	Revs/sec
0.00 Revs/sec	Accel setpoint [	2.50	sec
	Decel setpoint	2.50	sec

4. Click the **Jog Forward** and **Jog Reverse** buttons. You also change the setpoints.

Kine	tix 350		×
ŵ	Ready Virtual		
→  <sub>→</sub>	Forward	Power (	
~	Position 0.00 Revs	Jog Forward	Jog Reverse
B	Velocity	Velocity setpoint	50.00 Fevs/sec
1	50.00 Revs/sec	Accel setpoint	2.50 sec
		Decel setpoint	2.50 sec

Notice that the Velocity setpoint is copied to the Velocity commanded value and is reflected in the Trend Sparklines. The direction and status of the drive is also updated.

### Optional

Feel free to explore the other tabs under the home tab. Here's a quick summary:

- I/O tab displays status led indicators
- Trend tab displays full position and velocity trends

- Trend configure tab allows you to change the trend's min and maximum values and Engineering units to your application.
- Fault tab displays the last four faults on the device. Click on each row to show:
  - o **Details tab** provides more detailed information on the fault, and possible actions.

For detailed information about the operation of the faceplate, see the release notes and video located in: C:\Lab Files\References.

You have now completed the Using Faceplates with View Designer section!

#### www.rockwellautomation.com

#### Power, Control and Information Solutions Headquarters

Publication XXXX-XX###X-EN-P — Month Year Supersedes Publication XXXX-XX###X-EN-P — Month Year

 $Copyright @ 2016 \ Rockwell \ Automation, \ Inc. \ \ All \ rights \ reserved.$