# FactoryTalk<sup>®</sup> View Machine Edition and PanelView<sup>™</sup> Plus – Introductory Lab



For Classroom Use Only!





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



IMPORTANT

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

#### ATTENTION

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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.

## FactoryTalk<sup>®</sup> Machine Edition and PanelView<sup>™</sup> Plus – Introductory Lab

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#### Before you begin

#### About this lab

This lab teaches new or inexperienced users basic FactoryTalk® View Studio for Machine Edition skills needed to create FactoryTalk® View Machine Edition applications. The lab starts with an empty project and shows you how to add application content and configure communications to create a working system that can both read and write information from a Logix controller. Building on this foundation, students are next shown how to create reusable graphical displays and configure language switching.

#### Who should complete this lab

This lab is intended for new users or users with limited experience using FactoryTalk® View Machine Edition. The lab's content covers the basic operation of FactoryTalk® View Studio for Machine Edition. If you are an experienced FactoryTalk® View Studio for Machine Edition user or HMI designer, you may be dissatisfied with this lab. Consider trying our advanced labs if you are already experienced with FactoryTalk® View Machine Edition.

#### What you will accomplish in this lab

During this lab, you will accomplish the following major tasks:

- Create and execute a new FactoryTalk® View Machine Edition application on a PanelView<sup>™</sup> Plus terminal
- Use 'live' information from a Logix controller in an HMI application
- Create and use Global Objects on an existing display
- Use parameters to create a reusable display
- Configure an application for language switching

#### How the lab is organized

The lab covers the basics for creating a FactoryTalk<sup>®</sup> View Machine Edition application, adding content, creating a runtime file, downloading and running the application on a PanelView<sup>™</sup> Plus terminal. It further shows how Alarms are configured, how to use Global Objects and to perform Language switching:

- Create, test, and deploy a FactoryTalk® View Machine Edition application
- Work with alarms
- Work with Global Objects
- Import content from an existing application
- Use parameters to improve design efficiency
- Create a multi-lingual application with language switching

#### Tools & prerequisites

To complete this lab you must use the following hardware and software:

- A Microsoft Windows 7 64-bit computer
- PanelView<sup>™</sup> Plus 7 Performance terminal
- Ethernet connection between computer and PanelView<sup>™</sup> Plus terminal

- FactoryTalk<sup>®</sup> View Machine Edition Studio V8.00.00 (CPR9 SR7)
- FactoryTalk<sup>®</sup> Services Platform 2.71.00 (CPR9 SR7.1)
- RSLinx Enterprise v5.71.00 (CPR9 SR7.1)
- RSLinx Classic v3.70.00 (CPR9 SR7)
- Studio 5000 Logix Designer v21 (CPR9 SR5.1)
- SoftLogix 5800 v21 (CPR9 SR5.1)
- Microsoft Excel 2010 or newer

#### **Document conventions**

Throughout this workbook, we have used the following conventions to help guide you through the lab materials.

This style or symbol:	Indicates:
Words shown in bold italics (e.g., <i>RSLogix 5000</i> or <i>OK</i> )	Any item or button that you must select, click on, or a menu name from which you must choose an option or command. This will be an actual name of an item that you see on your screen or in an example.
Words shown in bold (e.g., <b>Communication Setup</b> )	This is the name of an item that you see on your screen or in an example.
Words shown underlined and enclosed in single quotes (e.g., 'Controller1')	An entry that you must type in the specified field. This is information that you must supply based on your application (e.g., a variable). <b>Note:</b> When you type the text in the field, remember that you do not need to type the quotes; simply type the words that are contained within them (e.g., Controller1).
This is sample text.	Text that appears inside of a gray box is supplemental information regarding the lab materials or learning goals; the information is <u>not</u> required for you to complete the lab exercises. The supplemental text may provide you with helpful hints that can make it easier for you to use this product.

Note: If the mouse button is not specified in the text, you should click the left mouse button.

#### FactoryTalk<sup>®</sup> View Machine Edition

FactoryTalk<sup>®</sup> View Machine Edition (ME) is a machine-level HMI product that supports both open and dedicated operator interface solutions for monitoring and controlling individual machines or small processes. It provides a consistent operator interface across multiple platforms, including Microsoft Windows CE and 64-bit or 32-bit Microsoft Windows 7, XP, and Vista solutions.

FactoryTalk® View Machine Edition contains two components:

- FactoryTalk<sup>®</sup> View Studio This is the development environment containing the tools you need for creating all aspects of a human-machine interface (HMI), including graphic displays, trends, alarm reporting and real-time animation. It also provides tools for testing individual displays and entire applications. When development is completed, a run-time (.MER) file is created to run on a PanelView<sup>™</sup> Plus or personal computer.
- FactoryTalk<sup>®</sup> View Machine Edition Station This is the run-time environment. FactoryTalk<sup>®</sup> View Machine Edition Station executes the run-time (.MER file) application. FactoryTalk<sup>®</sup> View Machine Edition Station is embedded in PanelView<sup>™</sup> Plus terminals. Run-time applications may also be executed on a personal computer. Executing run-time applications on a personal computer requires additional software licenses.

#### PanelView<sup>™</sup> Plus 7

The PanelView<sup>™</sup> Plus are operator interface terminals designed to optimize system development, performance, and efficiency. The PanelView<sup>™</sup> Plus 7 line of terminals is the latest addition to Rockwell Automation's versatile family of Allen-Bradley PanelView<sup>™</sup> operator interface displays for machine level operator terminal applications in industrial environments.

The PanelView<sup>™</sup> Plus 7 line extends the portfolio with increased display resolutions while still supporting a known design environment – FactoryTalk<sup>®</sup> View Machine Edition. Please reference the following tables for more information regarding the PanelView<sup>™</sup> Plus 7 Performance and the entire PanelView<sup>™</sup> Plus 7 family.



#### PanelView Plus 7 Performance Rockwell Automation For Demanding Industries **Complex Applications** Performance Robust Design 6.5", 9"W, 10.4", 12"W, 15", 19" Expanded Processing Power Low profile painted aluminum bezel Resistive touch screen with keypad options Larger Applications Ethernet with embedded switch (DLR) Ideal for Variety of Industries X86 processor Examples: 1 GB Flash Memory / 512 MB RAM Process Metals Windows CE 6.0 extended features Mining / Aggregate DC and AC power options Manne Tire and Rubber Targeted at larger / complex applications Marine Certification (Future release) ATEX Certification (Future release)

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Rockwell Automation

## PanelView Plus 7 Features

Product Features	PanelView Plus 7 Standard model	PanelView Plus 7 Performance model
FactoryTalk Machine Edition	Y	Y
ViewPoint	Y	Y
Memory RAM / Flash	512 MB / 512 MB	512MB / 1 GB
PDF Viewer	Y	Y
Active X Controls (Email, DataStorePlus, Recipe)	Y	Y
Remote Terminal Control (Based on VNC)	Y	- Y
FTP Server	Y	Y
MPEG Video playback	N 1	Y
Microsoft Office Viewers	N	Y
Microsoft Internet Explorer	N	Ý
Remote Desktop Services	N N	Y
Ethernet Connectivity	Y (Single Only)	Y (DLR Only)
CPU	ARM 1Ghz	x86 1.6Ghz
Screen Sizes	4.3"-15"	7"-19"
Application Sizes	1 Controller, 25 Screens, 200 Alarms	Larger Applications
Catalog numbers	2711P-x000068S	2711P-xxxxx9P

#### Creating a 'Hello World' Application

Completing this section requires approximately 20 minutes.

In this section, you will learn how to:

- Launch FactoryTalk<sup>®</sup> View Studio for Machine Edition
- Create a new project, configure project settings, and add content to the project
- Run the project on a PanelView<sup>™</sup> Plus terminal.

#### Creating a FactoryTalk® Machine Edition Application

1. Select *FactoryTalk View Studio* from the Start menu.



The New/Open Machine Edition Application window will now appear:

New/Open Machine Edit	ion Application	×
New Existing		
		[
Application Name		
Beverage_ME		
Block_Machine_Done		
BlockMachine Demo		
InstantFizz_ME		
Depects 5 Screen Den	10 	
CMTR Empil Domo	JF1	
TerminalInfo OCX Der	20	
Liser Mant Demo		
Cool Highle Como		
J		
Last Opened With:	FactoryTalk View Studio 8.0	
Resolution:	PVPlus 7 Performance 12" Wide (1280	Jx800)
Language:	English (United States), en-US	•
	Open	Cancel

Note that the window may contain additional applications that are not shown in the above picture.

2. Click the *New* tab.

N	lew/Ope	en Machine Edition Applicati <sup>,</sup>
	New	Existing
	App	lication Name

3. In the Application name: field, enter 'Intro'

New/Open Machine I	Edition Application	×
New Existing		
Application name:		
Description:		1
Language:	English (United States), en-US	] [
	Create Import Cancel	

4. Next, click the *Create* button.

After creating the application, FactoryTalk® View Studio for Machine Edition opens the application:



If you are unfamiliar with FactoryTalk<sup>®</sup> View Studio for Machine Edition, please review the information in the next few pages.

#### Exploring FactoryTalk® View Studio for Machine Edition Interface The FactoryTalk® View Studio for Machine Edition Application Window is difided into several key elements. **Application Menu** - Used to interact with the application: Open/Close/Create new applications. Import/Export information, etc., The manu will change context based on what project object is open in the Work Pane. FactoryTalk View Studio - View Machine Edition File Edit View Objects Arrange Animation Application Tools Window Help Graphics Toolbar – Provides easy access to tools that are used to manipulate objects on a display (e.g., rotate, group, ungroup, etc.). 사 🖻 🛱 🖽 🖽 🗊 🕲 🗇 더 다 🗣 🔍 Q 그 다 😭 Objects Toolbar - Provides easy access to objects that are used on displays to create the user interface (e.g., Numeric Input, String Display, Momentary Push Button, etc.). 后参母爵母型 図 ① 巻 🛽 🖉 🖉 📾 増 音 🕿 ギ ▲ ▼ 🖌 ♥ エ 🕈 포 → 🗆 🖉 🖬 Explorer Pane – Contains all objects related to an application project. Application objects are then opened in the Work Pane. See more information regarding the portions of the Explorer Pan that will be used in this lab below. **Diagnostic List** – Contains status and error messages related to the system application and project. X In service. The server RNA://\$Local/L15:R5Linx Enterprise on computer CORE is now active 🗄 Clear 🛛 Clear All Work Pane – The work area where project objects are opened for manipulation and modification (e.g., displays, the tag database, object property windows, etc.) 🛃 MAIN - /Intro// (Display) Numeric Display Properties General Common Connections NNNNN Appearance Border style: Border width:

#### **Explorer Pane Components**

The following portions of the Explorer Pane will be utilized by this lab. Information regarding the remaining components of this pane can be found in the Help file.

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RaisedInset

- 8

**System –** Contains project scope settings such as resolution, Security settings, Startup graphic files, and Diagnostic information.

HMI Tags – Contains all tags resident in the memory of the HMI server that are therefore not found in the Logix Controller project.

**Graphics** – Contains all graphic related components in the application, including displays, images, and the parameter files that can be utilized to reuse displays.





By default, new projects in FactoryTalk<sup>®</sup> view Studio for Machine Edition are configured for a PanelView<sup>™</sup> Plus 700/1000 terminal with a 640x480 resolution. In this lab, the PanelView<sup>™</sup> Plus 7 1200 W terminal will be used, therefore, the project window size must be changed to match the terminal.

- 5. If the window is not already maximized, use the *maximize* button 🔲 in the upper right-hand corner to do so.
- 6. Double-click the *Project Settings* item located in the top System container to open its dialog box.



7. Use the drop down list to select *PVPlus 7 Standard/Performance 12" Wide (1280x800)*.

Project Settings - /Intro/	- 🗆 ×
General Runtime	
Project window size :	
PVPlus 700/1000 (640x480)	<b>-</b>
PVPlus 7 Standard 4" Wide (480x272) PVPlus 7 Standard/Performance 6"/7" (640x480) PVPlus 7 Standard/Performance 9" Wide (800x480) PVPlus 7 Standard/Performance 9" Wide (800x480)	1
PVPlus 7 Standard/Performance 10" (800x800) PVPlus 7 Standard/Performance 12" (Vide (1280x800) PVPlus 7 Standard/Performance 15" (1024x768) PVPlus 7 Performance 19" (1280x1024) EV 2010 Performance 19" (1280x1024)	
640x240 1152x854 1280x1024 Custom size	-
PanelView Plus, or vice versa.	_
Any unsaved Alarm Setup changes will be lost if the Project Window Size setting is changed from a PaneWiew Plus to PaneWiew Plus Compact terminal, or vice versa.	
OK Cancel	<u>H</u> elp

8. Select *Execute MER on PanelView Plus 7 Performance*.

🚔 Project Settings - /Intro/
General Runtime
Project window size :          PVPlus 7 Standard/Performance 12''Wide (1280x800)         Wjdth :
C Execute MER on Pane/View Plus 7 Standard
Execute MER on PanelView Plus 7 Performance
Please save Alam Setup edits before changing the Project Window Size setting between Panel/View Plus Compact and Panel/View Plus, or vice versa.
Any unsaved Alarm Setup changes will be lost if the Project Window Size setting is changed from a PanelView Plus to PanelView Plus Compact terminal, or vice versa.
OK Cancel <u>H</u> elp

- 9. Click *OK* to accept the window size change.
  - The Graphic Display Scaling window will appear:

<ul> <li>Scale graphic displays.</li> <li>Scale the font sizes used by objects.</li> <li>Scale the border sizes used by objects.</li> <li>Scale the images in the Images folder.</li> </ul> WARNING: If you scale the graphic displays you may not be able to return the application to its original state. It is recommended that you create a backup of your application if you need to restore it to its original state.	You ha all grap continu	ve made changes to the project window size. These changes will affect hic displays. Select the options below that apply and press OK to e or press Cancel to return to the Project Settings editor.
<ul> <li>✓ Scale the font sizes used by objects.</li> <li>✓ Scale the border sizes used by objects.</li> <li>✓ Scale the images in the Images folder.</li> <li>✓ WARINING:</li> <li>If you scale the graphic displays you may not be able to return the application to its original state. It is recommended that you create a backup of your application if you need to restore it to its original state.</li> </ul>	🔽 Se	cale graphic displays.
<ul> <li>✓ Scale the border sizes used by objects.</li> <li>✓ Scale the images in the Images folder.</li> <li>✓ WARNING:</li> <li>If you scale the graphic displays you may not be able to return the application to its original state. It is recommended that you create a backup of your application if you need to restore it to its original state.</li> </ul>		Scale the font sizes used by objects.
Scale the images in the Images folder.      WARNING:      If you scale the graphic displays you may not be able to return the     application to its original state. It is recommended that you create a     backup of your application if you need to restore it to its original state.		Scale the border sizes used by objects.
WARNING: If you scale the graphic displays you may not be able to return the application to its original state. It is recommended that you create a backup of your application if you need to restore it to its original state.		Scale the images in the Images folder.
backup of your application if you need to restore it to its original state.	♪	WARNING: If you scale the graphic displays you may not be able to return the application to its original state. It is recommended that you create a
		backup of your application if you need to restore it to its original state.

This dialog gives the user the ability to determine which graphic components of the application will scale once the display size change has been accepted. Because this is a new project, leave the settings at default.

10. Click OK to continue the scaling process.



11. Click Yes to the following popup which warns that the aspect ratio will change.

Project Se	ettings Editor	$\times$
	The application aspect radio will change from 4:3 to 8:5. Some objects and images may be stretched or distorted.	
	Yes No	

12. To view existing displays, expand the *Displays* container by clicking the *expander* in from the Explorer Pane window.



When a new project is created, FactoryTalk<sup>®</sup> View Machine Edition will automatically create four default displays, one of which is called **MAIN**, defined as the initial startup display. This display will be used for the following steps in the lab. When more displays are required, they can be added, as seen in a future section.

13. Double click on the *MAIN* display to open it.

The display will open in the Work Pane of FactoryTalk<sup>®</sup> View Studio for Machine Edition.



A shutdown button is automatically created with each application. This button is used to shut down the application on the runtime device. When the application is shut down, that runtime device will close FactoryTalk® View Machine Edition Station.

#### Adding Content to a Display

In this section, a simple Text object will be added to the screen.

1. Select the *Text* A object, and add a text box to the display by clicking the left mouse button and dragging the cursor to the right and down.



When you release the mouse button, the Text Properties dialog will open.

2. Click the Text field and enter 'Hello World! This is my Intro application.'

Text Properties	×
General Common	
Text Hello World! This is my Intro application	
Font: Size: Arial V 10 B Z U	
Back color     Alignment:     Back style:       ■ Fore color     C C C     Transparent       ✓ Size to fit     C C C       ✓ Word wrap     C C C	
OK Cancel Apply He	lp

3. Select *14* from the **Size** drop down to increase the size of the text.

Font: Arial	Size:	B I U
<ul> <li>Back color</li> <li>Fore color</li> <li>✓ Size to fit</li> <li>✓ Word wrap</li> </ul>	Alignment CCC CCC CCC	Back style: Transparent ▼
	IK Cano	el Apply Help

4. Click the *OK* button.

The display should now look similar to this:

👿 MAIN - /Intro// (Display)	<u>- 0 ×</u>
Hallo World. This is my Intro application	
Shut	tdown
	COVIN

- 5. Close the display using the *File > Close* menu item.
- 6. When prompted to save **MAIN**, click the *Yes* button.



Now that an object has been added to the MAIN display, verify that it is configured as the application's Startup graphic.

7. To open the **Startup** dialog, double-click on the *Startup* item <sup>10</sup> Startup in the **System** container.



🔑 Startup - /Intro/
Start when project is run
I⊽ ≜larms
✓ Information messages
🗖 Data logging
Startyp macro
🗖 Shutdown macro
MAIN
Parameter file
C Parameter list
OK Cancel <u>H</u> elp

Notice the components that can be configured to execute when the application starts. Items such as Alarms and Information messages can be turned on or off, macros can be executed upon startup, and any display that has been created can be specified as the initial graphic.

Because MAIN is the only display that has been created, it is selected as the initial graphic by default.

8. Click *OK* to close the dialog.

#### Creating the Runtime Application File

In order to transfer the application to a PanelView<sup>™</sup> Plus terminal, it first must be compiled into a Runtime Application File (\*.mer). Follow the steps below to create the runtime file.

1. Select the *Application>Create Runtime Application* menu item.



💋 Create Runtin	ne Application					2	×
Save in:	🐌 Runtime		•	G 🦻	• 🖭 🦻		
Save in: Recent Places Desktop Libraries Computer	Name A	No items r	natch your se	Oate mou       arch.	Dified	▼  Type	-
Network	✓ File name: Save as type:	Intro.mer Runtime 8.0 Applicatio	on (*.mer)		- - -	Save Cancel	
	Conversion to deve Always allow or Never allow co Conversion pro Password: [ Confirm Password: [ FactoryTalk ViewPot Include ViewPot	lopment application nversion heeted by password int version		]		Help	

#### **Additional Runtime Application Options**

The options available in the *Conversion to development application* section allow later recovery of the design files from the runtime project using the Application Manager.

**Always allow conversion [Default]** – The design information is always included with the runtime, so that it may be restored from the MER. The resulting MER requires more terminal memory to store the file.

**Never allow conversion** – Design information cannot be recovered from an MER created with this option selected. The MER created requires the least amount of terminal memory.

**Conversion protected by password** – When using Application Manager to extract the design information from the runtime file, the user will be prompted for the configured password. The resulting MER requires more terminal memory to store the file.

2. Save the runtime project using the suggested name Intro.mer by clicking the Save button.

While FactoryTalk® View Studio for Machine Edition is creating the runtime MER file, a progress dialog will appear:

Creating runtime file			
Graphics			
MAIN			
Consel			
2			

The runtime file has been created when the progress bar disappears.

#### Downloading a runtime MER to a PanelView<sup>™</sup> Plus terminal

1. To download the runtime MER to the PanelView<sup>™</sup> Plus terminal located at this workstation, first select the *Tools* > *Transfer Utility* menu item.

🖉 Factory Talk View S	tudio - View Machine Edition
File View Application	Tools Window Help
🛛 🖬 🖨 🖉 🖻	✤ Diagnostics Setup
Explorer - Intro	Diagnostics <u>V</u> iewer
Englished Local (TEMP09)	🚄 Transfer Utility
i intro	Tag Import and Export Wizard
🖹 🦺 Intro	Application <u>M</u> anager
🖻 🔄 System	Eirmware Upgrade Wizard
Proj	Languages
🛛 💭 🖓 Run	Find
	C Replace
Star	Cross Reference
Tag	Options
📄 📄 🚍 Graphic	s

#### The Transfer Utility will open

Download	Upload	Compare	Downloa
ource file:			Exit
			Help
Download as:			
estination storage type:			
nternal Storage 📃	WARNING:		
Run application at start-up	Include a goto configu	ure mode button in your application if	
When application runs:	you need to access th	ie coningulation mode screens.	
Delete Log Files	Include a shutdown bu be able to shut it dowr	utton in your application if you want to n.	
ct destination terminal:			
RSLinx Enterprise, TEMP09-JL5SUR2L			

2. Click the *Source File Browse* button by to select the runtime MER file to download.

Source	file:	$\sim$	
		(	
	Download as:	$\smile$	1

ganize 💌 New folder			355	- 🔟 😧
Favorites	4	Name -	Date modified	Туре
Desktop Cownloads Recent Places Desktop Desktop Documents Documents Nusic Videos Videos AppData Application Data Contacts Contacts		Intro.mer	2/25/2013 12:35 PM	RSView ME Sta
Cookies			 Puetiese Application E	

This opens the Select File to Download dialog.

Note that the window may contain additional runtime files than those shown in the picture above.

3. Click on the *Intro.mer* file to select the project, then click *Open*.

Select File to Download						×
🕞 💮 斗 Public 🕶 F	Public Documents 👻 i	RSView Enterprise 👻 ME 👻 Ru	intime 🔻 🔂 🛛	Search Runtime		2
Organize 🔻 New folder					-	?
☆ Favorites	Name *		Date modified	Туре	Size	
📰 Desktop 🚺 Downloads 强 Recent Places	Intro.mer		3/13/2014 2:39 PM	RSView ME Station F	ile	845 KB
<ul> <li>☐ Libraries</li> <li>☐ Documents</li> <li>J Music</li> <li>☐ Pictures</li> <li>☐ Videos</li> </ul>						
i - Computer 실실 Local Disk (C:)						
🗣 Network						
	•					
File n	ame: Intro.mer			Runtime Application	Files (*.m Cancel	•

The Source file is now updated with the Intro.mer directory:

#### Source file:

C:\Users\Public\Documents\RSView Enterprise\ME\Runtime\Intro.mer

- 4. Double-click the *EtherNet, Ethernet* driver 😑 🚼 EtherNet, Ethernet to expand the item.
- 5. Select the *192.168.1.20, PanelView Plus\_7 Performance 1200W* item by clicking on it once.

Note that more devices may be shown in the list than shown in the picture below:



- 6. To initiate the download process, click the *Download* button.
- 7. If a message stating that the Intro application already exists on the terminal, click Yes to overwrite it.

A progress dialog will then appear:

Downloading	×
Source: C:\Users\Public\Documents\RSView Enterprise\ME\Runtime\Intro.mer	
Destination: \Application Data\Rockwell Software\RSViewME\Runtime\Intro.mer	
Status: Downloading	97%
Cancel	

When the download process completes, a confirmation dialog is shown.



- 8. Click the *OK* button to acknowledge the dialog.
- 9. Click the *Exit* button to close the Transfer Utility.



#### Running an Application on a PanelView<sup>™</sup> Plus Terminal

Use the steps below to load and run the Intro application on the PanelView<sup>™</sup> Plus located at this station.

1. Tap on the PanelView<sup>™</sup> Plus screen if the screensaver is active.

The PanelView<sup>™</sup> Plus 7 desktop is now visible.



2. Locate the FTView ME Station icon on the desktop and double tap it to launch FactoryTalk® View ME Station.



3. Press the *Load Application [F1]* button.



4. Select the *Intro.MER* file from those available from the terminal's Internal Storage.

Load Application		
h <del>s</del>	Internal Storage	
Source	External Storage 1	Load
[F1]	External Storage 2	[F2]
Plack/Machina Dama mar		
Intro.mer		
		Cancel

5. Press *Load [F2]* to load the runtime file in to memory.



6. When prompted, press *Yes [F7]* to overwrite the terminal's current communication configuration with the configuration contained within the **Intro.MER** file.



7. Once successfully loaded, press the *Run Application [F2]* to start executing the runtime file.



While the terminal is starting the application, an update dialog is displayed.



After the start up process completes, you should see your application's startup display:

Hello World! This is my Intro application!

 $\mathbb{R}$ 

Shutdown

8. Click the *Shutdown* button to terminate the application.

#### Congratulations!

You have successfully created a FactoryTalk<sup>®</sup> View Studio for Machine Edition application, added application content, created a runtime file, downloaded the runtime file to a terminal and run the application on a PanelView<sup>™</sup> Plus terminal.

#### Animating a Display with Control System Data

Completing this section requires approximately 30 minutes.

This section will cover:

- Configuring RSLinx Enterprise Communications for an application
- Adding 'Live' objects to a display
- Testing an application using the Test Run Application functionality of FactoryTalk® View Studio

#### Configuring Communications

1. Return to the HMI project in FactoryTalk® View Studio and double click the *RSLinx Enterprise* item to expand.



2. Right-click on the *Communication Setup* item and select *Open*, or double click *Communication Setup* to launch the RSLinx Enterprise Configuration Wizard.



Note that this wizard can also be opened by double clicking *Communication Setup*.



The Configuration Wizard gives a user three options for configuring communications for the application:
 Create a new configuration – Generates an empty communication configuration scheme for the application. This selection is enabled by default.
 Copy an existing configuration from a previously created project – Reuses a communication configuration from a different application file.
 Copy the configuration that is currently running on this workstation – Copies the communication configuration from an application currently hosted by FactoryTalk® View Machine Edition Station located on the same workstation.

3. Select the default *Create a new configuration* option, and click *Finish*.

The Communication Setup dialog will now appear:

🖥 🕻 Communication Setup - RNA://\$Local/Intro	/RSLinx Enterprise
Device Shortcuts       Add       Remove       Apply	Design (Local) Runtime (Target) Copy from Design to Runtime RSLinx Enterprise, WIN7-VM Tome 1789-A17, Backplane Transformer Street EtherNet, Ethernet
	Mode: Online Not Browsing
Offline Tag File Shortcut Type Processor	Browse
	OK Cancel Verify Help

Note that the window can be resized or maximized if desired.

Exploring the Communication Setup dialog window

The Communication Setup dialog has three main areas:

Device Shortcuts – A list of shortcuts defined for this application

**Network Path** – Displays the network topology pat to the device associated with the selected shortcut, (e.g., ControlLogix processor, drive, etc.). This path is also used to define the network path for a selected shortcut.

**Design (Local)** – Configure the network and device path(s) for the development environment. This net configuration may be different than the production environment in which the application with ultimately run.

Runtime (Target) - Configure the network and device path(s) for the production environment.

Copy from Design to Runtime button – Used when the Design and Runtime paths will be identical.

**Offline Tag File** – Displays the hard drive path to the ACD file associated with the selected shortcut. This file is used for tag browsing when disconnected from a network.

4. To create a new shortcut, click the *Add* button in the **Device Shortcuts** area.



5. Name the shortcut by typing <u>*'Intro'*</u> and then pressing the *Enter* key on the keyboard.

The Communication Setup dialog should now look like this:

R Communication Se	tup - RNA://\$Local/Intro/RSLinx Ent	erprise			
Add Remove	Apply	Design (Local)	Runtime (Target)	Copy from	Design to Runtime
intro.		RSLinx I R = 178 F = 178F = 178 F = 178F = 178 F = 178 F = 178 F = 178 F = 178F = 178 F = 178 F = 178 F = 178F = 178 F = 178 F = 178F = 178 F = 178 F =	Enterprise, WIN7-VM 9-A17, Backplane erNet, Ethernet Not Browsing		
Offline Tag File					Browse
Shortcut Type	Processor				•
				OK	Cancel Verify Help

6. Expand the EtherNet, Ethernet driver by clicking the *expander* in once.



7. Click the *expander* in once to open the **192.168.1.1**, **SoftLogix 5800** EtherNet/IP, **SoftLogix 5800** EtherNet/IP item.



8. Click the *expander* in to open the 1789-A17/A, 1789-A17/A Virtual Chassis item.



9. Select 2, 1789-L60/A, BlockMachine by clicking on it once. The dialog should now look like this:



10. Click the *Apply* button above the **Device Shortcuts** pane to associate the SoftLogix 5800 Controller with the selected communication shortcut **Intro**.



11. Click the Yes button to confirm the association.



12. Click the *Close* button to confirm the association.



13. Close the **Shortcut Verifier** dialog by clicking the *Close* button.

#### Copying the Design Communication Configuration

Typically, the Engineering Workstation on which the application is designed has a different path to the controller or device than the runtime terminal. When this is the case, the Runtime configuration will be different than the Design configuration.

In this lab, the design and production environments are identical. To proceed, the Design communication configuration will be copied to the Runtime tab. If you would like to manually configure the Runtime communication configuration, please go to <u>Appendix A</u>.

- 1. Click the *Copy from Design the Runtime* button to copy the communication configuration from the **Design (Local)** tab to the **Runtime (Target)** tab.
- 2. When prompted, click *Yes* to confirm the operation.

RSLinx Enterprise	X
The Runtime (Target) configuration and shortcut definitions will be replaced with a copy of the Design (Local) configuration and shortcut definitions. Do you want to continue?	
Yes No	

3. Click on the *Runtime (Target)* tab to select it.



If necessary, use the expanders to open the topology items (e.g. drivers and devices) to confirm that the Design (Local) configuration have been replicated.



4. Click the *Verify* button to confirm the Design and Runtime associations.



Confirm both the Design and Runtime devices are assigned to shortcut Intro.

- 5. Close the **Shortcut Verifier** dialog by clicking the *Close* button.
- 6. Click the *OK* button to complete the communication setup and close the **Communication Setup** dialog.

- Device Shortcuts	Design (Local) Buntime (Target)	
Add Remove Acply		Ingol/Expot Configuration
* 1960)	Plate Exterprise, WB2/49-2015         IP9-A17, Bolghane         IP9-A17, Bolghane	
Offine Tag File		Browse
Shortcut Type Processor		<u>×</u>
This path is currently assigned to the selected shortcut.		
		OK Cancel Verity Help

Be sure to use the **OK** button! If you close the dialog with the **X**, the communication setup with <u>not</u> be saved to the application.

#### Adding 'Live' Objects to a Display

Now that a communication path to a controller is configured, objects (buttons, numeric displays, etc.) can be added to the display that will use information from the controller. The lab uses a variety of different buttons, data displays, and images to illustrate FactoryTalk<sup>®</sup> View Machine Edition functionality and application capabilities.

1. Double-click the *MAIN* display in the Explorer to open the display.



2. Select the *Maintained Pushbutton* tool from the Objects toolbar, or select *Objects>Push Button>Maintained*.



3. Click and hold the left mouse button, then drag down and to the right to create a **Maintained Pushbutton** object in the middle of the display.



4. In the **Properties** box that appears, click the *Common* tab.

laintained Push Button P	Properties		J
General States Common	n Connections		
Border style:	Border width:		
Raised	4	🔽 Border uses back color	r
Back style:		📕 Highlight color	
Solid 💌	1		
, Shape:			
Rectangle 💌	1		
State settings			
Next state based on:			
Current State 💌	1		
Horizontal margins	Vertical margin		
O	0	L.	
	-		
Other			
🔽 Audio			

- 5. Change the Height and Width fields to size the Maintained Pushbutton exactly.
  - Height 120
  - Width 150



- Click the *Apply* button to commit these changes.
   The button should resize on the display to match these settings.
- 7. Click the *States* tab.



Maintained Push Bu	tton Properties	×
General States C	ommon Connections	
Select state: State0 State1 Error	General Value: 0 Back color Border color F Blink	Pattern style: None
	Caption	
		A V
		Insert Variable
	Font: Size: Arial T 10 T	BIU
	Caption color Alignment Caption back color CCC Caption blink CCC Word wrap CCC	Caption back style: Transparent
<b>T</b>	Image settings Image:	Image back style: Transparent 💌
Conv	Image color	Alignment
	Image blink	COC
Paste	Image scaled	000
	OK Cancel	Apply Help

States are explicit events that occur when the value of the tag connected to the object equals the value defined for the state. If the tag value does not match any of those configured, the object will show the Error state.

Simple pushbuttons have three states, each of which have default values, though these values can be changed by the user.

Two complex objects, the multistate pushbutton and multistate indicator, allow a user to configure multiple states for the objects.

8. Select *State0* in the Select state: field.



9. Enter <u>'Start Pelleter</u>' in the Caption field.



10. Click the *Bold* button.



11. Click the *Back color* square and select *Black*.



#### Adding Images from Symbol Factory

FactoryTalk<sup>®</sup> View Studio for Machine Edition version 6.0 and later includes Symbol Factory from Software Toolbox. This library contains over 5000 images, most of which are vector graphics. Vector graphics found in the library can be animated using any standard FactoryTalk<sup>®</sup> View Studio animation option. The remaining bitmap images can be used as pre-existing objects to enhance applications.

The following steps will walk through the addition of an image from Symbol Factory as the labels of both states of this object.

1. Click the *Image* browser.



2. Click the *Launch Library* button to bring up the **Symbol Factory** library.

lmage Browser		×
Select image: Arrow Down Arrow Left Arrow Up Backspace End End Enter Home Illuminated rectangular pushbutton (E Page Down Page Up	Preview:	Add from File Launch Library Paste from Library Delete
Image attributes Type: Width x Height: Format:	OK Cancel	Help


There are three areas of the Library that will be used: Preview - A window where a larger version of the selected image can be viewed Categories - Images in the library are grouped in each of the categories in this list Symbols - Images that can be copied into the application

3. Select the *Gadget Buttons 2* category.



Scroll down to find this category.

4. Scroll to the bottom of the Symbols window, and select the *Illuminated rectangular pushbutton (Green Up Off)* button image.



5. Click *Copy* to copy the image to the project image library.



6. Click *Paste from Library* to add the image to the project library.

Image Browser		×
Select image: Arrow Down Arrow Left Arrow Right Arrow Up Backspace End Enter Home Illuminated rectangular pushbutton (C Page Down Page Up	Preview:	Add from File Launch Library Paste from Library Delete
Image attributes Type: Width x Height: Format:	OK. Cancel	Help

7. Leave the default name and click *OK*.



8. Click *OK* again to apply the image to **State0**.

Image Browser		×
Select image: Arrow Down	Preview:	Add from
Arrow Left Arrow Up Backspace End Enter Home Illuminated rectangular pushbutton (C Illuminated rectangular pushbutton (C		Launch Library Paste from Library
Page Down Page Up		Delete
Image attributes		
Width x Height: 156 x 112 Format: Bitmap	OK Cancel	Help

9. The **State0** button properties should now look like this.

Maintained Push Button Properties				
General States Co	ommon Connections			
Select state: State0 State1 Error	General Value: 0 Back color Border color Blink	Pattern style: None		
	Caption Start Pelleter	×		
	Font: Size: Arial I III III Caption color Alignment Caption back color C C C Caption blink C C C V word wrap C C C	Insert Variable B I U Caption back style: Transparent		
Copy Paste	Image settings Image: Illuminated rectangula Image color Image back color Image blink Image scaled	Image back style: Transparent		
	OK Cancel	Apply Help		

10. Select *State1* in the Select state: field.



11. Click the *Back color* square and select *Black*.



12. Click the *Caption color* square and select *Black*.



13. Enter 'Stop Pelleter' in the Caption field.



14. Click the *Bold* button.



15. Click the *Image* browser button.

- Image settings	Image back style:
	Transparent 💌
🗌 Image color	Alignment
Image back color	000
🔲 Image blink	000
Image scaled	000

16. Click the *Launch Library* button to bring up the **Symbol Factory** library.

Image Browser		×
Select image: Arrow Down Arrow Left Arrow Fight Arrow Up Backspace End Enter Home Illuminated rectangular pushbutton (E Page Down Page Up	Preview:	Add from File Launch Library Paste from Library Delete
Image attributes Type: Width x Height: Format:	OK. Cancel	Help

17. Select the *Gadget Buttons 2* category.

The library should retain the previous category, so this step can be skipped.



18. Select the *Illuminated rectangular pushbutton (Green Down On)* button image.



19. Click *Copy* to copy the image to the project image library.



20. Click *Paste from Library* to add the image to the project library.

Image Browser	×
Select image: Arrow Down Arrow Left Arrow Right Arrow Up Backspace End	Preview: Add from File Launch Library
Enter Home Illuminated rectangular pushbutton (C Page Down Page Up	Paste from Library Delete
Image attributes Type: Width x Height:	
Format:	OK Cancel Help

21. Leave the default name and click *OK*.



22. Click *OK* again to apply the image to **State1**.

Image Browser		×
Select image: Arrow Down Arrow Left Arrow Vight Backspace End Enter Home Illuminated rectangular pushbutton (E Page Down Page Up	Preview:	Add from File Launch Library Paste from Library Delete
Image attributes		
Type: True color		
Format: Bitmap	OK Cancel	Help

23. The **State1** button properties should now look like this.

Maintained Push Button Properties				
General States Com	mon Connections	_		
Select state: State0 State1 Error	General Value: Pattern style: 1 Back color Border color Blink Pattern color			
	Caption Stop Pelleter			
	Font: Size: Arial  Caption color Alignment Caption back color C Caption blink C C V Word wrap C C C			
Copy Paste	Image settings Image: Illuminated rectangula Transparent ▼ Illuminated rectangula Transparent ▼ Image color Alignment Image back color CCC Image blink CCCC			
	OK Cancel Apply Help			

- 24. Click the *Apply* button to commit these changes. Note that the button will now show the state that is currently selected.
- 25. Close Symbol Factory, by right clicking the icon in the task bar, and selecting *Close window*.



26. Click the *Connections* tab.

1aintained	Push B	utton Properties		>
General	tates	Common Connections		
Name		Tag / Expression	Tag	Exprn
Value	$\leftrightarrow$		•••	
Indicator	+		***	•••

27. In the Value row, click on the *Browse* \_\_\_\_\_button in the Tag column.

Aaintained Push Button Properties							
General SI	tates	Common	Connections				
Name			Tag / Ex	pression		Tag	Exprn
Value	$\leftrightarrow$				(	•••	)
Indicator	+				(		

This action opens the Tag Browser.

8	Tag Browser				? X
E	Select Tag				
	Folders	Contents of V::	system'		
	🖃 💣 Intro		Name	Access Rig	Description 🔺
			🧳 AlarmRe	ReadOnly	
			🧬 BlinkFast	ReadOnly	
			🔮 BlinkSlow	ReadOnly	
			💞 Date	ReadOnly	
			🔮 DateAn	ReadOnly	
			\delta 🖉 DateAn	ReadOnly	
			🛛 🧬 DayOfM	ReadOnly	
			🛛 🧬 DayOf	ReadOnly	-
	Refresh All Folders	Tag filter:			•
	Selected Tag				
	system				
	Home area:	7			
			ОК	Cancel	

The Tag Browser is used to view and select tags from the device selected in the RSLinx Enterprise setup earlier in the lab.

Sections of the Tag Browser

Three portions of the tag browser should be noted:

Folders - Used to browse a shortcut's Controller and Program tags, as well as User Defined Tags

Tags - Used to select a specific tag from the selected folder

**Tag Filter** – Shows only those tags that start with the filter entered by the user. Pressing Enter will apply the filter to the tag area.

28. Right-click on the *Intro* item in the Folders list; select the *Refresh All Folders* item.



Alternatively, you can use the Refresh All Folders button, located near the bottom of the Tag Browser:



29. Double click the *Intro* folder, then double click the *Online* folders to expand them.



30. Scroll down, then select the *Program:Extruder\_Control* item.

Program:Controller_Fault         Program:ENet_Diagnostics         Program:Extruder_Control         Extruder_Motor_Run_Delay         Extruder_Running_Delay         EQ_01         EQ_02         EQ_03         EQ_04         EQ_05	Main_I Reac Main_I Reac Pellete Reac Powde Reac Scratc Reac Scratc Reac Scratc Reac Scratc Reac Scratc Reac Scratc Reac Vellete Reac
Selected Tag	
::[Intro]Program:Extruder_Control	
Home area: /	
OK Can	cel Help

31. In the Tag Area, locate and select the tag *Pelleter\_Running*.

The Name column of the tags area may need to be resized in order to read the full tag name.

Folders	Contents of V::Intro/Online/Program:Ex	druder_Co
ENet_MSGCMrawBytes     ENet_MSGLinkObj_DINT     ENet_MSGLinkObj_DINT     ENet_MSGCP_attrib5     ENet_MSGTCP_attrib5     ENet_MSGTempDiagVal     Half_Sec_PLs     Logix_Status     Memory_Message     Pelleter     Pelleter_I     Pelleter_I     Pelleter_O     Program:Controller_Fault     Program:ENet_Diagnostics     Program:ENet_Diagnostics     Program:Head1_temperatur     Program:Head2_Temperatur	Name Extruder_Speed_noise06 Extruder_Speed_noise07 Extruder_Speed_noise07 Extruder_Speed_noise08 Extruder_Speed_noise10 Extruder_Speed_noise_Sequencer Extruder_Start Extruder_Start Extruder_Start Extruder_Speed_noise Pelleter_Running Pelleter_Speed Powder_Feeders_Running Scratch_Calc01 Scratch_Calc03	Access Ac
elected Tag :[Intro]Program:Extruder_Control.Pelleter_Running Iome area: /	DK Cancel	Help

Note that the Selected Tag text box reflects your selection.

32. Click **OK** to complete the Connection configuration.

Maintained Push Button Properties								
General St	ates	Common	Connections					
Name			Tag / Ex	pression	Tag	Exprn		
Value	↔	{::[Intro]Pr	rogram:Extruder	_Control.Pelleter_Running	•••			
Indicator	+				***	•••		

Notice the Value connection has been updated with the path to the tag specified using the tag browser.

33. Click **OK** again to close the property dialog.

The button has now been updated with all the changes made in the property dialog.



Note: The screen will display the last State selected in the Properties Dialog. Therefore, your MAIN scren may look different than the picture above.

34. Select the *Numeric Display* tool from the Objects toolbar, or select *Objects>Numeric and String> Numeric Display*.

k	5	A	趱		$\cap$	0	r.	\	D	$\sim$		Ο	۵	θ	Ð	₿	Ť	88	e(		這	10	긆	₽	Ē	⊠	惛	8	N.	HH
	0	Eł	н	∞		←	Ŧ	÷	≖	•	•	Ŧ	٠	Ŧ	±	•🗃	Ðŧ	۵	Ð	<u>ک</u>		₫	0	۲	CT L	₿	8	ð 1	3	R

35. Draw the Numeric Display above the pushbutton by clicking and holding the left mouse button, then drag down and to the right to create the object:

2 Factory Talk Yiew Studio - Yiew Machine Edition	
File Edit View Objects Arrange Animation Applicatio	n Tools Window Help
▶ ■ ४ 吨 🛱 殺 日 🖽 句 包 功 '	5 5 6 6 2 4 4 4 5
	0999968005505565
Explorer - Intro	MAIN - /Intro// (Display)
E S Local (TEMP05/L550H2L)	
R Intro	Mail Michael This is so have a first in
B System	Piello vvoridi. This is my intro application
- Project Settings	
Runtime Security	
- Diagnostics List Setup	
- Global Connections	
I Slattup	
Tan	
- Craphics	
Displays	AND DO LO
ALARM]	NINININ
[DIAGNOSTICS]	
- INFORMATION]	
Chickel Objects	
Supple Eactory	
E Charles	
🕀 🔛 Images	Press.
Parameters	Start
- Cal Messages	Peneta
E Alems	
Alam Setup	
Information Salura	
Information Messages	

- 36. Change the following properties:
  - Border Style Inset
  - Text Bold
  - Back color *Light Gray* (click on the color square to open the color pallet)
  - Fore color *Black* (click on the color square to open the color pallet)

Numeric Display Properties	x
General Common Connections	
	1
Berder style: Border width: Berder uses back color	
Inset	
Back style: Pattern style: Pattern color	
Solid 🔽 None 🔽 🔳 Fore color	
Blink	
Text	
Font Size: Alianment	
000	
Value settings	
Number of digits: Fill left with: Decimal places:	
5 💌 None 💌 0 💌	
OK Cancel Apply Help	

- 37. Click the *Common* tab.
- 38. Change the Height and Width fields to size the Numeric Display exactly.
  - Height: 50
  - Width: 100



39. Click the *Connections* tab.



40. In the Value row, click the *Browse* button in the Tag column to open the Tag Browser.

N	umeric Disp	olay P	roperties		x
	General	ommor	Connections		
	Name		Tag / Expression	Tog	Exprn
	Value	+		(	)
	Polarity	+			

41. In the Folder pane, expand the path *Intro > Online > Program:Extruder\_Control*.

Program:Controller_Fault Program:ENot_Diagnostics Program:Extruder_Control Extruder_Motor_Run_Delay Extruder_Motor_stop_delay Extruder_Nunning_Delay Extruder_LEQ_01 EQ_02 E- LEQ_03 E- LEQ_03 E- LEQ_04 E- LEQ_05 Refresh All Folders Tag filter: None>	Action Reac     Main_I Reac     Pellete Reac     Powde Reac     Powde Reac     Scratc Reac
Selected Tag ::[Intro]Program:Extruder_Control Home area: / OK	Cancel Help

42. Select Peleter\_Speed.

I UIUCIS	M	Conte	inte of 1/-Intro/C	Inline/Prog
		Conke	and of 7muo/c	million log
	Pelleter_O     Program:Alarms     Program:Controller_Fa     Program:ENet_Diagnos     Program:ENet_Diagnos     Program:Extruder_Con     Program:Head1_Tempe     Program:Head2_Tempe     Program:Head3_Tempe     Program:Main_Sequend     Program:Powder_Feed     Program:Rotary_Mould     Program:Vamuer_Silo0	Name Name Second Second Seco	truder_Speed_ truder_speed_ truder_Start truder_Stop ain_Infeed_Run lleter_Running lleter_Speed wder_Feeders_ ratch_Calc01 ratch_Calc02	noise10 noise_Se ning Running
	And Address of the second second			
Selected T	ag gram:Extruder_Control.Pelleter_Sp	beed		

43. Click *OK* to complete the connection configuration, and *OK* again to close the properties dialog for the **Numeric Display**.

💌 MAIN - /Intro// (Display)	
Hello World! This is my Intro application	
NNNN	
Start Pelleter	
Shutdo	wn

44. Save the MAIN display using the *File>Save* menu item.



45. Close the **MAIN** display.

### Testing an application on the Desktop

Testing an application can be performed by downloading and running it on a PanelView<sup>™</sup> Plus terminal. However, to save time, it is possible to test the full application on the Desktop. This can be done using the emulation capability included in FactoryTalk<sup>®</sup> View Studio for Machine Edition. The following steps will walk through testing the application on the Desktop.

1. From the **Application** menu, select the *Test Application* item.

The system will build the runtime MER.

Freating runtime file
Graphics
Main
Cancel

When the runtime MER file is built, the system loads the runtime MER into an emulation mode. The application will appear in the upper left-hand corner of the computer monitor.



2. To test the objects that have been created, click on the *Start Pelleter* 

The color is now an illuminated green, and the caption reads **Stop Pelleter**. The numeric display is showing a value other than 0.

button.





3. Click the *Stop Pelleter* 

button to end the simulated process.

4. Click the *Shutdown* button to end the emulation.

Congratulations!

You have successfully modified your application by configuring communications with a controller, adding 'live' content, created a test application, and emulated the application on your desktop.

# Adding Alarms to an Application

Completing this section requires approximately 20 minutes.

Making irregular system or process events visible to operators is a critical component of many HMI applications. FactoryTalk<sup>®</sup> View Machine Edition provides an intrinsic alarming function that can be used for this purpose. This section will cover:

- Alarm basics
- Configuring alarms for the Intro application

The following provides an overview of how alarms will be created in this lab section:





Start by adding some preconfigured components to the application. These components have been configured in advance in order to save time during this lab session, and include screens and images that will provide the ability to simulate Alarms during runtime.

1. In the Explorer pane, under Graphics, right click on Images, and select Add Component Into Application...



2. Browse to C:ILab Files View ME - Introductory View ME Images folder.

🕌 C:\Lab Files	\FTView ME - Introductory\ViewME\Images	
<del>()</del> •	Computer + Local Disk (C:) + Lab Files + FTView ME - Introductory + ViewME + Images	5
Organize 🔻	Include in library 👻 Share with 👻 Slide show New folder	

3. Select all the images by pressing the *Ctrl* and *A* keys on your keyboard, and click *Open*.

🖉 Add Component Into Project					×
🕞 🔾 🗸 🔸 Local Disk (C:) 🗸	Lab Files 👻 V	/iew ME - Introductory 👻 Images 💿 👻 🔯	Search Images		2
Organize 🔻 New folder				••• •	•
<ul> <li>Local Settings</li> <li>My Documents</li> <li>My Music</li> <li>My Pictures</li> <li>My Videos</li> <li>NetHood</li> <li>Recent</li> <li>Saved Games</li> <li>Searches</li> <li>SendTo</li> <li>Start Menu</li> <li>Templates</li> <li>Computer</li> <li>Network</li> </ul>		Alarm inactive.bmp     Exit.bmp     Exit.bmp     Flag_china.bmp     flag_taly.bmp     Green button overlay (Down Arrow).bmp     Green button overlay (Up Arrow).bmp     Green button overlay (Up Arrow).bmp     Green button overlay (Demon Arrow).bmp			
File name:	"Alarm inact	tive.bmp" "Exit.bmp" "flag_china.bmp" "fl 💌	Bitmap Images	(*.bmp)	•
			Open	Cancel	

The images will be brought into the HMI project.

Migrate Data	

The images that have just been added to the application are of the Bitmap format. Now, add 5 PNG files that will be used later.

4. In the Explorer pane, under Graphics, right click on Images, and select Add Component Into Application...



Note that the browser window retains the previous location.



5. Use the drop down list to select *PNG Images (\*.png)*.



Using this filter makes the browser show the five png files found in this folder.





.png





Flag\_Germany\_PNG Flag\_Italy\_PNG.pn g





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6. Select all of the png files using *Ctrl* and *A* on the keyboard, and select *Open*.

Flag_China_PNG.pn g Flag_United_States .png	Flag_Germany_PNG .png	Flag_Italy_PNG.pn g	Flag_Spain_PNG.pn g
ame: Flag_China_PNO	6.png" "Flag_Germany	PNG Images (*     Open	png) 💌 Cancel

These five images will now import into the application.

7. Right click on *Displays* and select *Add Component Into Application*.



8. Browse to C:ILab Files View ME – Introductory View ME IDisplays folder.



9. Select the ALARM\_GENERATOR.gfx and Preconfigured\_Buttons.gfx files and click Open.

🖉 Add Component Into Project			×
✓ ✓ ✓ Local Disk (C:)    Lab Files	🕶 View ME - Introductory 👻 Displays 💿 👻 🚱	Search Displays	<b>P</b>
Organize 🔻 New folder		:==	- 🗌 🕡
★ Favorites	Name *	Date modified	Туре
E Desktop	ALARM_GENERATOR.gfx	3/7/2013 9:08 AM	GFX File
Downloads	Preconfigured_Buttons.gfx	3/7/2013 11:24 AM	GFX File
🔛 Recent Places	Vacuum Silo Group.gfx	3/7/2013 11:24 AM	GFX File
	Vacuum Silo.gf×	3/7/2013 9:08 AM	GFX File
📜 Libraries			
Documents			
J Music			
Videos			
A Labuser			
🔒 AppData			
Application Data			
📙 Contacts		1	
Cookies		I	
File name: Preconfi	igured_Buttons.gfx" "ALARM_GENERATOR.gf	Graphic Displays (*.gfx)	
		Open	Cancel

# Creating HMI Tags

HMI tags are created within the FactoryTalk<sup>®</sup> View Studio environment, and are not contained within the device specified in the RSLinx Enterprise Communication setup. These tags, during runtime, are stored on the Machine Edition Station terminal or computer. This section will cover creating and using HMI tags to simulate alarm functionality.

1. Right click on *Tags* and select *Open* to open the HMI tag database.



2. Enter the following (items 1-5) to create the first tag, Alarm\_Analog1, and click Accept.

🞻 Tags - /Intro/	
Tag 1 Alarm_Analog1	Close
Type: 4 Analog	Accept
Minimum: 0 Scale: 1	Discard
Maximum: 3 250 Offset: 0 Data Type: (Default)	New
Type: C Device G Memory	Help
Initial Value: 0	

3. Click *Next*, and enter the following to create the second tag Alarm\_Analog2. Click *Accept*.

🞻 Tags - /Intro/	
Tag 1	Close
Name: Alarm_Analog2	
Type: 4 Analog 🔽	Accept
Description:	Discard
Minimum: 0 Scale: 1	
Maximum: 100 Offset: 0 Data Type: (Default)	New
Data Source 3	Help
Type: O Device O Memory	
Initial Value: 0	

4. Click *Next* and enter the following to create a digital tag, **Alarm\_Digital1**. Click *Accept*.

🞻 Tags - /Intro/	
Tag 1 Name: Alarm_Digital1	Close
Type: 2 Digital 4	Accept
Description:	Discard
	New
Data Source 3 Type: O Device O Memory	Help
Initial Value: 0	

5. Click *Next* and enter the following to create the final tag, **Trip\_Point**. Click *Accept*.

🞻 Tags - /Intro/	
Tag Name: 1 Trip_Point	Close
Type: 2 Analog 5	Accept
Description:	Discard
Minimum: 0 Scale: 1	New
Maximum: 100 Offset: 0 Data Type: (Default)	
Data Source 3 Type: O Device O Memory	Help
Initial Value: 65	
Retentive	

Note the Initial Value of 65 – this value will appear later in the Alarm section.

The HMI database should look similar to the picture below:

	Tag Name	Туре
1	Alarm_Analog1	Analog
2	Alarm_Analog2	Analog
3	Alarm_Digital1	Digital
4	Trip_Point	Analog
5		

6. Close the HMI tag database editor.

Configuring Alarms using the Alarm Setup

1. Right click on *Alarm Setup* and select *Open*.



Alternatively, the Alarm Setup dialog can be opened by double clicking *Alarm Setup*.

Triggers       Messages       Advanced         Select trigger:          Trigger settings       Optional         Trigger type:       Optional         Trigger label:       Ack         Remote       Remote         Use ack all value:       Message         0       Message	I trigger connectio Name nake	ons:	Tag or expr	ression		r R Tag	Add Edit emove
Select trigger: Trigger settings Trigger type: Optiona Trigger label: Ack Remote Remote Messag O Messag	I trigger connectio Name nake	ons:	Tag or expr	ession		F R Tag	Add Edit emove
Select trigger:	I trigger connectio Name nake	ons:	Tag or expr	ession		r R Tag	Add Edit emove
Trigger settings Trigger type: Optiona Trigger label: Ack Remote Use ack all value: Messag Messag	I trigger connectio Name nake	ons:	Tag or expr	ression		Tag	Add Edit emove
Trigger settings Trigger type: Optional Trigger label: Ack Handsl Ack Remote Remote Messag 0 Messag	l trigger connectio Name nake	ons:	Tag or expr	ession		R	Edit emove
Trigger settings Trigger type: Optional Trigger label: Ack Remote Bernote Use ack all value: Messag 0 Messag	l trigger connectio Name nake	ons:	Tag or expr	ession		R	Edit emove Exprn
Trigger settings Trigger type: Optional Trigger label: Ack Remote Bernote Use ack all value: Messag Messag	l trigger connectio Name nake	ons:	Tag or expr	ession		R	emove Exprn
Trigger settings Trigger type: Optional Trigger label: Ack Remote Bernote Bernote Remote Messag O Messag	l trigger connectio Name nake	ons:	Tag or expr	ession		R Tag	emove Exprn
Trigger settings Trigger type: Optiona Trigger label: Ack Remote Use ack all value: Messag 0 Messag	l trigger connectio Name nake	ons:	Tag or expr	ression		Tag	Exprn
Trigger type: Optiona Trigger label: Ack Remote Use ack all value: Messag 0 Messag	l trigger connectio Name nake	ons:	Tag or expr	ession		Tag	Exprn
Trigger label: Use ack all value: Messag	Name nake		Tag or expr	ession		Tag	Exprn
Trigger label: Ack Remote Use ack all value: Messag	Name nake		Tag or expr	ession		Tag	Exprn
Trigger label: Ack Remote Use ack all value: Messag	nake						1
Use ack all value: Messag						***	
Use ack all value: Messag Messag Messag						+++	
Use ack all value: Message Message Message	e Ack					***	•••
Use ack all value: Messa Messa Messa	e Ack Handshake	_				***	
0 Messa	je					+++	
I Messa	ge Notification					•••	
,	ge Handshake					+++	•••
•							
					c		

#### Understanding Alarm Setup

The native Alarm system within FactoryTalk<sup>®</sup> View Machine Edition is a powerful tool available to every application. This system allows the operator to react and respond to irregular application events (e.g., motor overload, high level conditions, etc.). The alarm system can be configured to be entirely self-contained to the application at runtime, or it can be configured to coordinate and communicate with the control system.

#### Triggers

A designer will use this tab to define and manage the events that trigger an alarm to occur.

Select trigger:			
			Add
			Mudin
			Edit
			Remove
- Trigger cettings			
Trigger securitys	Optional trigger connections:		
mgger type.	Optional crigger connections.		
•	Name	Tag or expression	Tag Exprn
	Handshake		•••
Trigger label:	Ack		•••
	Remote Ack		••••
,	Remote Ack Handshake		
Use ack all value:	Message		
	Message Notification		
0	Message Handshake		••• •••
	•		•

#### Messages

For each defined alarm event, the designer can configure the message that corresponds to that alarm – the text of the message, as well as the look of the message.

Marm Setup - /.	Intro/	1				
Trigger filter:	<none></none>	•	•	Sort by: <a>(&lt;</a>	•	
Alarin messages:	Trigger signed>	Trigger value		Message		Display Audic
•						Þ
				ОК	Cancel	Help

#### Advanced

The HMI designer can specify the display used when an alarm is triggered, as well as other advanced settings, such as the size of the alarm log and any optional tag connections needed.

Display Current alarms: [ALARM]	History Edit Size:	128 .		
Time settings Hold time (ms): 250	Maximum update rate (second):     Embedded Server update rate (second): Match Alarm U	1 💌		
Optional connections:			_	
Name	Tag or expression	Tag Exp	m	
Silence		•••	_	
Remote Silence				
Remote Ack All		••• ••		
Bemote Status Reset				
Close Displau				
Bemote Close Display				
THEINOLE CLOSE DISDIGY				

2. Click *Add...* to assign Alarm Triggers.

Alarm Setup - /Intro/								
Triggers Messages Advanc	ed]							
Inggels [Messages   Advanced ]								
Select trigger:			-					
			_(	Add 🔪 丨				
			$\sim$					
				Edit				
			_					
Trigger settings								
Trigger type:	Optional trigger connections:							
	Nama	The or outproteion	Taa					
	Name	l ag of expression	Tay	Expin				
Trigger label:	Aak		•••					
	Bemote Ack							
	Bemote Ack Handshake		•••					
	Message		***					
Use ack all value:	Message Notification		•••					
0	Message Handshake		•••	· · · ·				
	•			· • •				
		OK Cancel		Help				

3. Click the *Exprn* button to open the Expression editor – the first trigger will use a short expression.

Trigger	×
Tag or expression	Tag Exprn
ок с	ancel Help

4. Click the *Tags…* button.

Expression Editor	×
Expression	
If     Logical     Relational     Arithmetic     Bitwise     Functions       Check     Syntax	
Line: 1 Column: 1 OK Cancel Help	

5. Select the appropriate tag using the steps below:



2) Select Alarm\_Analog1

3) Click OK



6. Click *Relational...* and select the *Greater Than* symbol.

Expression Editor				
{Alarm_Analog1}	-			
	-			
If Logical Relational Arithmetic Bitwise Functions Tags				
Check C	-			
Syntax <= LE				
Line: 1 Columr >= GE				
<> NE				
UK Lancel Help				

7. Type <u>'200</u>' after the > symbol and click OK.

Expression Editor	×
{Alarm_Analog1} > 200	
If Logical Relational Arithmetic Bitwise Functions Tags	
Check Syntax	
Line: 1 Column: 22	
OK Cancel Help	

8. Click *OK* again to assign the expression to the Alarm Triggers list.

Trigger		X
Tag or expression	Tag	Exprn
{Alarm_Analog1} > 200		
OK Cancel	н	elp

- 9. Click *Add...* to create another Alarm trigger.
- 10. Click the *Exprn* button to launch the expression editor.

Trigger	×
Tag or expression	Tag Exprn
OK Cancel	Help

11. Copy and Paste the following expression into the expression editor.

If {Alarm\_Analog2} > 65 Then 65 Else 0



Fell free to use the Check Syntax button to verify that the expression has been entered correctly.

12. Click OK twice to assign the expression to the Alarm Triggers list.

The alarm is now in the trigger list.



- 13. Click *Add...* to create the last Alarm Trigger.
- 14. This time, click the *Tag* browser button.

Tı	igger	×
	Tag or expression	Tag Exprn
	OK Cancel	Help

15. Select *Alarm\_Digital1*, and click *OK* twice to select the tag and assign it to the trigger.



The Select trigger list should look like the following:



16. Click the *Messages* tab to assign trigger values and messages to the alarm triggers you created.

7	Alarm Setup - /Intro/							
ĺ	[riggers	Messages Advanced						
	Trigge	er filter: <none></none>		•	Sort by: <pre></pre>	•		
	Alarm me	essages:						
		Trigger	Trigger value		Message		Display Aut	
	1	<unassigned></unassigned>						

17. Click the Trigger drop down list, and select *{Alarm\_Analog1} > 200* to assign the first trigger.

5	🖥 Alarm Setup - /Intro/						
	T	riggers	Messages Advanced				
		Trigg	er filter: <none></none>		T	Sort	
	ļ	Alarm m	essages:				
			Trigger	Trigger value			
		1	<ul> <li>Unassigned&gt;</li> </ul>				
		2	<unassigned> <alltriggers></alltriggers></unassigned>				
			{Alarm_Analog1} > 200 If {Alarm_Analog2} > 65				
			{Alarm_Digital1}				

18. Enter '<u>1</u>' in the **Trigger value** field.

🛛 Alarm Setup - /Intro/					
Tr	iggers	Messages Advanced			
	ingge				
1.1	Alarm me	issages:			
		Trigger Trigger value			
	1	{Alarm_Analog1} > 200 1			
	2	<unassigned></unassigned>			

19. Type '*Tank Level > High Alarm*' in the Message field.

Alarm messages:						
		Trigger	Trigger value	Message		
	1	{Alarm_Analog1} > 200	1	Tank Level > High Alarm )		
	2	<unassigned></unassigned>				
Г						

20. Leave the rest of the settings at their default values.

📆 Alarm Se	tup - /I	ntro/					
Triggers	Message	s Adv	anced				
Trigg	Trigger filter: <pre> Sort by: <pre> <pre> <pre> </pre> <pre> <pre> </pre> </pre> <pre> </pre> </pre></pre></pre>						
Alarm me	essages:						
	Display	Audio	Print	Message to Tag	Background	Foreground	
2							

21. Use the **Trigger** menu to select the *If {Alarm\_Analog2} > 65* trigger.

7	A	arm Se	tup - /Intro/					
1	Tr	iggers	Messages Advanced					
		Trigger filter: <pre></pre>						
	ł	Alarm me	essages:					
			Trigger	Trigger va				
		1	{Alarm_Analog1} > 200	1				
		2	<unassigned></unassigned>					
		3	<unassigned></unassigned>					
			<alltriggers></alltriggers>					
			{Alarm_Analog1} > 200					
			If {Alarm_Analog2} > 6					
			{Alarm_Digital1}					

22. Enter '65' in the Trigger value field.

Alarm messages:

	Trigger	Trigger value	
1	{Alarm_Analog1} > 200		Τā
2	If {Alarm_Analog2} > 6	65	
3	Inaccioned	$\mathbf{\mathcal{I}}$	

23. Type '<u>Temperature higher than 65C</u>' in the Message field.

2	larm me	ssages:		
C		Trigger	Trigger value	Message
Ľ	1	{Alarm_Analog1} > 200	1	Jank Level > High Alarm
l	2	If {Alarm_Analog2} > 6	65 🤇	Temperature higher than 65C 🔵
Ĺ	3	<unassigned></unassigned>		
ſ				

24. Again, leave the rest of the settings at the default values.

1	Ala	arm Se	tup - /I	ntro/					
	Tri	ggers	Message	s Adv	anced				
		Trigge	er filter:	<none></none>	•		•	Sort by:	ne>
	A	larm me	essages:						
	- [		Display	Audio	Print	Message to Tag	Background	Foreground	
		1							
		2							
		3							

25. Use the **Trigger** menu to select the *Alarm\_Digital1* trigger.



26. Enter <u>'1</u>' in the **Trigger value** field.

Alarm messages:

	Trigger	Trigger value	
1	{Alarm_Analog1} > 200	1	Ta
2	If {Alarm_Analog2} > 6	65	Te
3	{Alarm_Digital1}	1	
4	<unassigned></unassigned>		

27. Type 'Digital1 Alarm triggered by user' in the Message field.

ł	Alarm me	essages:			
		Trigger	Trigger value	Message	Dis
	1	{Alarm_Analog1} > 200	1	Tank Level > High Alarm	
	2	If {Alarm_Analog2} > 6	65	Jemperature higher than 65C	
	3	{Alarm_Digital1}	1 (	Digital1 Alarm triggered by user)	
	4	<unassigned></unassigned>			
l					

- 28. Again, leave the remaining settings at their default values.
- 29. Click *OK* to apply the Alarm Setup settings.
- 30. Double click the *MAIN* display to open it.



31. Double click the *Preconfigured\_Buttons* display to open it.



The **Preconfigured\_Buttons** display contains several buttons that have already been configured for you. The buttons, when pasted into other displays, will paste to the same location as they appear on the **Preconfigured\_Buttons** display, since their size and location properties are retained.

🗾 Preconfigured_Buttons - /Intro// (Display)	

- 32. Select the *Alarm Generator* button and copy it by right clicking and selecting *Copy* or use *CrtI+C* on your keyboard.
- 33. Minimize the *Preconfigured\_Buttons* display, and paste the button onto the *MAIN* display by pressing *Ctrl+V* on your keybarod.

# Your MAIN display should now look similar.

😿 MAIN - /Intro// (Display)	_ 🗆 🗙
Hello World! This is my Intro application	
NNNN	
Start Pelleter	
	Shutdown

The button you pasted is a Goto Display pushbutton that is configured to open the **ALARM\_GENERATOR** display that has a bitmap image assigned to it (**Icon-Alarm**).

Goto Display Button Properties	Goto Display Button Properties
General Label Common Connections	General Label Common Connections
Appearance Border style: Border width: Line I F Border uses back color Back style: Pattern style: Back color	Caption
Transparent     None     Border color       Shape:     Pattern color       Rectangle     Blink	Font: Size: Insert Variable
Display settings Display: ALARM_GENERATC Use variable Display  Parameter file:	Caption color Alignment Caption back style: Caption back color COC Transparent Vord wrap CCC
Display position Top position:     Use Variable Display Position	Image settings Image: Image back style: Icon_Alarm Transparent ▼
Touch margins Horizontal margin: Vertical margin: 0 0	Image color Augment Image back color CCC Image blink Image scaled
Other Audio OK Cancel Apply Help	OK Cancel Apply Help

- 34. Close the *MAIN* display and save the changes when prompted.
- 35. Close the *Preconfigured\_Buttons* display and click *No* when prompted to save changes.

# **Testing the Alarms**

2.

Test the application on the Desktop by selecting the Running man *for the toolbar*.
 Note that screen that opens may not match exactly the picture below.

Hello World! This is my Intro application 250 Stop Pelleter Shutdown to open the Alarm Generator display. Click the Alarm Generator button Alarm Generator × Temperature TTTΔ  $\mathbf{\nabla}$ Simulate Simulate Simulate Digital Alarm Process Analog Alarm Alarm

- 3. Click the **Red**
- pushbutton to simulate a digital alarm. Notice that the Alarm banner opens.

7:39:597	AM 3/11/2013	Digital1 Alarm triç	ggered by user	
 Ack Alarm [F1]	Silence Alarms [F2]	Clear Alarm [F3]	Close [F4]	

This example is using the digital alarm that was configured previously. When the momentary button is pushed, the **Alarm\_Digital1** tag value changes from 0 to 1 which causes the alarm to trigger.



4.

Click the **button** to close the Alarm banner.

- 5. Click the *Red* pushbutton to reset the alarm.
- Click the *Up* arrow repeatedly until a value greater than 200 is displayed (approximately 9 times).
   Each press of the Ramp button increments the value by 25.



The example uses an expression for the alarm trigger. When the tag reaches a value greater than 200, the expression is evaluated as true, and its value is 1.


- 7. Click the button to close the Alarm banner.
- 8. Click the *Down* arrow repeatedly until a value below 200 is reached.
- 9. Click your mouse onto the slider and leave it clicked while you move the slider up past the Alarm Trip Point.



Make sure to move the slider above the Alarm Trip Pt on the screen.

This alarm also uses an expression – once the value of the tag is greater than 65, the alarm will trigger, and the Alarm Banner will open.

1:52:07	PM 3/14/2014 T	emperature highe	r than 65C	
Ack Alarm [F1]	Silence Alarms [F2]	Clear Alarm [F3]	Close [F4]	

Close

- 10. Click the button to close the Alarm Banner, and move the slider down below the Alarm Trip Point.
- 11. Push the X key on your keyboard to shut down the application.

## Alarm History Display

The previous section explored how Alarms are set up, as well as how the Alarm Banner can alert a user when these alarms occur. It is also possible to maintain and display a history of alarms. FactoryTalk® View Studio for Machine Edition includes completed Alarm History graphic displays that can be added to an HMI project. These graphic displays can be found under the Libraries container in the Project Explorer pane.



For this application, a new display with an Alarm List will be created.

1. Right click on *Displays* and select *New*.



2. Now, select *Objects > Advanced > Alarm > Alarm List*.



3. Using the left click button, draw a rectangle on the new display, starting in the upper left corner, and extending about three-quarters of the way down.



The Alarm List Properties configuration dialog will open automatically.

4. Select the *Alarm* tab.



- 5. Uncheck the *Display column* for the following items by selecting each one, then clicking the *Display Column* box:
  - Acknowledged symbol
  - Active symbol
  - Acknowledge time

Select a column:	
Acknowledged symbol Active symbol Alarm time	Display co Time and date
Acknowledge time Message	11/21/2013
	Header text:

For this application, we only want to display the Alarm time and Message on the Alarm List.

6. Click *OK* to apply the changes and close the properties dialog.

- 7. Save the display by clicking the licon on the toolbar.
- 8. Enter 'Alarm History' for the display name, and click OK.

Save		×
Component nam	e:	
Alarm History		
	OK	Cancel

Next, buttons that will be used to navigate to and select alarms, as well as navigate to other displays, will be added to this screen.

9. Go to *Objects*, then select *Advanced > Alarm > Clear Alarm History*.



10. Using the left click button, draw a rectangle in the lower left corner of the display.



The Clear Alarm History button properties configuration dialog pops up.

11. Select the *Label* tab.



12. Enter the caption shown below, then click *OK*.



The button should look similar to what is showing.



13. Go to *Objects* and select *Key > Move Up*.



14. Using the left click button, draw a small square next to the **Clear History** button.



The Move Up button properties configuration dialog will open.

15. On the General tab, use the Send press to: drop down menu to select Linked Object.

Other		
🔽 Audio	Send press to:	L
	Object With Focus	-
	Object With Focus	
	Linked Object	
	Linked Ubject	

16. Click the *browser* button for Linked object to bring up a list of objects to assign the button press to.

Other			
	Send press to:	Linked object:	$\cap$
🔽 Audio	Linked Object		<b>(</b> )
			$\mathbf{O}$

17. Select *AlarmList1* and click *OK*.

Object Browser	×
AlarmList1	ОК
	Cancel
	Help

- 18. Click *OK* again to apply the changes to the **Move up** button.
- 19. Perform steps 13-18 to add a Move Down button to the display.

The buttons should now look similar to the following:

Clear	▲
History	▼

20. Double click the *Preconfigured Buttons* display to open it.





- 21. Copy the *Return* button by selecting it, then pressing *Ctrl* and *C* on the keyboard.
- 22. Minimize the *Preconfigured Buttons* display and paste the button onto the *Alarm History* display. Your display should look similar to what is shown below:

💽 Alarm History - /Intro// (Display)	<u>_                                    </u>
Alarm History - /Intro// (Display) Alarm time 3/14/2013 12:08:24 PM ABCDE FGHUK LMNOPQ RSTUV WXYZ ABCDE FGHUK LMNOPQ RSTUV WXYZ	
Clear History	

- 23. Close the *Alarm History* display and save your changes when prompted. Next, a button will be added to the MAIN display to navigate to the Alarm History display.
- 24. Double click the *MAIN* display in the Project Explorer pane to open it.



- 25. Restore the *Preconfigured Buttons* display and copy the *Alarm History* button.
- 26. Close the *Preconfigured Buttons* display (do not save any changes) and paste the *Alarm History* button onto the MAIN display.

MAIN - /Intro// (Display)		<u> ×</u>
Hello World! This is my Intro application		
NNNN		
Start Pelleter		
	•	dauura
	Shut	down

The MAIN display should now look similar to what is shown below:

The Goto display button just added is assigned to the Alarm History display.

Goto Display Button Properties	×
General Label Common Connections	
Appearance Border style: Border width: Imme I Back style: Pattern style: Back style: Transparent None Fattern color Shape: Back style Bink Bink	
Display settings Display: Alarm History Use variable Display Parameter file:	
Parameter list:     Display position Top position:     Use Variable Display Position	
Touch margins Horizontal margin: Vertical margin: 0 0	
Other V Audio	
OK Cancel Apply Help	

27. Close the *MAIN* display and save the changes when prompted.

## Testing the Alarm History Screen

- 1. Test the application on the Desktop by selecting the *Running man*  $\stackrel{\checkmark}{\longrightarrow}$  icon on the toolbar.
- 2. <u>Generate some alarms, then navigate to the Alarm History screen by clicking the *Alarm History Goto Display*</u>



Refer to the previous section for instructions regarding generating the alarms.

Notice how the alarms appear in the list. The Alarms that are in the Alarm List object are also saved to an alarm log (also called the alarm history). This log can store up to 10,000 alarms. The alarm history size is defined in the Alarm Setup under the Advanced tab. The default log size is 128 messages.

<mark>羽</mark> Alarm Setup - /Int	ro/	
Triggers Messages	Advanced	
Display	History	
Current alarms:	[ALARM] Edit Size: 128 🚔	

Pressing the **Clear History** button will clear all alarms stored in the alarm log file.

3. Shut down the test application by pressing the letter **X** on your keyboard.

Congratulations! You have successfully configured alarms for a FactoryTalk® View Studio for Machine Edition application.

# Using Global Objects to Make Application Design Convenient and Quick

This section of the lab will describe and demonstrate FactoryTalk<sup>®</sup> View Machine Edition functionality that allows the reuse of objects as well as graphic displays. Specifically, this section will cover the following:

- Global Objects
  - Base Object
  - Reference Objects
- Tag Placeholders
- Global Object Parameters

# What is a Global Object?

Global Objects are a component of FactoryTalk<sup>®</sup> View Machine Edition that can be created and configured once, then reused across the application. Any change made to the original, base object will be reflected in the reference objects (copies of the base global object). However, it is possible to break the link between the base object and reference objects for specific properties.

# What are Placeholders and Parameters?

Placeholders provide a way to use one graphic display or global object to represent a number of similar operations. In this lab, there will be multiple silos containing different material. However, each of these silos should show similar types of information (level in the silo, temperature, etc.). Instead of creating two unique sets of objects, a global object will be used with tag placeholders.

A placeholder is a crosshatch character (#) followed by a number (from 1 to 500). At runtime, this placeholder is replaced by all or part of a tag string.

Parameter files or parameter lists are components within the application that specify what tag should replace each tag placeholder at runtime.

In the section below, you will use one global object that will represent information from 4 silos. Additionally, you will specify the placeholder and parameter information used for each reference object.

# Creating Base Global Objects

This lab will use a base object that has already been developed to save time.

1. Right click the Global Objects folder in the Project Explorer and select Add Component Into Application ...



2. Browse to C: Lab Files View ME – Introductory View ME | Global Objects.

👪 C:\Lab Files\FTView ME - Introductory\ViewME\Global Objects			
😋 🗇 🗸 🖌 Computer 🝷 Local Disk (C:) 🔹 Lab Files 👻 FTView ME - Introductory 👻 ViewME 👻 Global Objects	s		
Organize 👻 Include in library 💌 Share with 👻 New folder			

3. Select *Screen Objects.ggfx* and click *Open*.



4. Open the *Screen Objects* display that was just added under Global Objects.



Explore this object to determine where tag placeholders are being used.

5. Click *View* in the toolbar, then select *Object Explorer*.



The object on the Screen Objects global display is created of many grouped elements. Using the Object Explorer will provide an easy way to select the individual components that make up the full global object.

6. Expand *Group7* and then *Group13* by clicking the +.



7. Right click on *Polygon2* and select *Animation*, then *Fill...* 

Object Explorer 🛛 🗵		
🖃 Group7	Object Explorer	<u>×</u>
i⊟ Group13	⊟∘ Group7	<b>-</b>
Scale3	Scale3	
Polygon2	Polyg	Properties
T Crygonz	tine12	Edit
t±. Group4		Connections
Line12	🗖 Highlighting or	Key Assignments
		<u>A</u> rrange
🔲 Highlighting on 🛛 🛛 Settings	⊻isibility…	Ani <u>m</u> ation
	<u>C</u> olor	Convert to <u>W</u> allpaper
Expand Collapse Help	Horizontal Position	Tag Substitution

|--|

nimation			
⊻isibility	<u>B</u> otation	∐ <u>W</u> idth	Height
Horizontal Position	Vertical Position	Horizontal Slider	Vertical Slider
<b>√E</b> ∭ [	Touch	<u>C</u> olor	O <u>L</u> E Verb
Expression	_		
{[BlockComms]Vacuum_Silo	1)Lower_Hopper_Level}		Tags
Expression range OUse tag's min and max pro	perty values	Fill (Percent) At minimum:	At maximum: 100
	Max: 20	Fill direction C Left © Right	🗖 Inside Only
C Read from Min:		C Up C Down	
		Apply Delete	Close Help

This is a tag placeholder that has been assigned to this setting in the global object. The placeholder will be replaced with the appropriate Silo number at runtime.

- 8. Close the *Animation* configuration dialog.
- 9. Using the Object Explorer, double click *NumericDisplay5*.



10. Click the *Connections* tab.

Notice that **#1** is used in place of the silo number once again.

Numeric Display Properties					>
	General Co	mmor	Connections		
	Name		Tag / Expression	Tag	Exprn
	Value	+	{[BlockComms]Vacuum_Silo#1_Upper_Hopper_Le	+++	+++
	Polarity	+		***	***

The numeric display will show the value of the Lower Hopper Level at runtime for the appropriate silo.

- 11. Close the *Numeric Display Properties* configuration dialog.
- 12. Using the Object Explorer, double click MultistateIndicator4.



13. Click the *Connections* tab, then click the *Expression* browser button.

Multistate Indicator Properties							×
General States Common Connections			1				
	Name		Tag / Expression			Tag	Expre
	Indicator	+	If {[BlockComms]Vacuum_Silo0#1_Filled} AND {[B			•••	···· )

The #1 is again being used in place of the silo number.

Expression	pression Editor
If (BlockComms)Vacuum_Silo0#1_Filled) AND (BlockComms)Vacuum_Silo0#1_Emptying) Then 2 Else         If         Logical         Relational         Arithmetic         Bitwise         Functions         Tags         Check         Syntax         ine:         1         Column:         151	Expression
If Logical Relational Arithmetic Bitwise Functions Tags Check Syntax ine: 1 Column: 151	lf {[BlockComms]Vacuum_Silo0#1_Filled} AND {[BlockComms]Vacuum_Silo0#1_Emptying} Then 2 Else [
If     Logical     Relational     Arithmetic     Bitwise     Functions     Tags       Check     Syntax       ne:     1     Column:     151	
If     Logical     Relational     Arithmetic     Bitwise     Functions     Tags       Check     Syntax	
If     Logical     Relational     Arithmetic     Bitwise     Functions     Tags       Check     Syntax	
If     Logical     Relational     Arithmetic     Bitwise     Functions     Tags       Check     Syntax	
If     Logical     Relational     Arithmetic     Bitwise     Functions     Tags       Check     Syntax	
Check Syntax ne: 1 Column: 151	If Logical Relational Arithmetic Bitwise Functions Tags
ne: 1 Column: 151	
ne: 1 Column: 151	Syntax
ne: <u>1</u> Column: <u>151</u>	
	ne:  1 Lolumn:  151
OK Cancel Help	OK Cancel Help

This expression sets the state value of the multistate indicator. Three states have been configured that will be used to indicate the present state of the silo: **Filling**, **Filled**, and **Emptying**.

- 14. Close the *Expression Editor* and the *Multistate Indicator Properties* configuration dialog.
- 15. Using the Object Explorer, open Text9.



Notice the #1 in the Text field
---------------------------------

Text I	roperties	×
Gen	eral Common	
_	Taut	
	Silo# /*LN:1 #1 NOFILL DP:0*/	

This placeholder will be replaced by the Silo number at runtime.

16. Close the *Text Properties* configuration dialog and the *Object Explorer*.

Now, let's assign the parameter definition for the Global Object.

17. Right click on the global object, and select *Global Object Parameter Definitions*.

Sile Wa	o# # aiting
U N	Edit
	Connections
	Key Assignments
•	Arrange
	Animation
	Convert to <u>W</u> allpaper
	Tag Substitution
	Property Panel
	✓ Object Explorer
	Cut
	⊆ору
	Paste
	Paste without localized strings
	Delete
	Duplicate
	Copy Animation
	Paste Animation
	Global Object Defaults
	Global Object Parameter Values
	Global Object Parameter Definitions

18. Enter '#1' and 'Silo Number' as shown below, and click OK.

C	Slobal Object Parameter Definitions							
l		Name	Description					
l	1	#1	Silo Number					
l	2							
l	3							
l	4							
l	6							
l	7							
l	8							
l	9							
l	10							
l	12							
l	13							
L	14							
l	15							
L	16							
	17			-				
			OK Cancel Help					
I								

This placeholder will be used for the full global object. Now, when the global object is used on a display, its parameter can be specified. In the next section, this functionality will be explored.

19. Close the *Screen Objects* display, and save the changes when prompted to do so.

## Using Reference Objects and Parameters

Two screens on which the global object will be used have been created in advance, and must be added to this application.

1. Right click on Displays and select Add Component Into Application ...



2. Browse to C:ILabFiles View ME - Introductory View ME | Displays folder



3. Select the Vacuum Silo Group.gfx and Vacuum Silo.gfx files, and click Open.

💋 Add Component Into Project			×
🕞 🕞 🗸 🖌 🗸 Local Disk (C:) 🔻 Lab File	es 👻 View ME - Introductory 👻 Displays 🔹	🔹 🚱 🛛 Search Displays	<u> 2</u>
Organize 🔻 New folder		8== •	- 🗔 🕡
My Documents	Name *	Date modified	Туре
My Music		3/7/2013 9:08 AM	GEX File
My Pictures		3/7/2013 11/24 AM	CEX Eila
My Videos	Vacuum Sila Cucum afr	9/7/2019 11/24 AM	CEV Ella
NetHood	Vacuum Silo Group.grx	3)7)2013 11:24 AM	
PrintHood	Vacuum Silo.gtx	3/7/2013 9:08 AM	GFX File
Recent			
Saved Games			
Start Mapu			
Templates			
Sa Network			
Control Panel			
🗑 Recycle Bin	-1.41		
· · · · · · · · · · · · · · · · · · ·			
File name: "Vacu	um Silo.gfx" "Vacuum Silo Group.gfx"	Graphic Displays (*.gfx)	-
		Open	Cancel
		- pen	

4. Open the Screen Objects Global Display,



5. Copy the Silo global object by right-clicking the object and selecting *Copy*.



6. Open the *Vacuum Silo Group* display.



7. Right click anywhere on the display, and select *Paste*.



8. Click and drag the new object to the lower left area of the screen.





9. Copy and paste the Silo object three more times, until there are 4 copies of it on the display.

Now the parameter value for the #1 place holder will be assigned.

10. Right click the first global object, and select *Global Object Parameter Values*.



11. Enter <u>'1</u>' for the Value property, and click OK.

Globa	lobal Object Parameter Values					
	Name	Value	Tag	Description		
	#1	1	•••	Silo Number	1	
					1	
					1	
					1	
					1	
					1	
					1	
					1	
					1	
					1	
					1	
					1	
				OK Cancel Help		

Remember the #1 placeholder that was configured in the global object. At runtime, the placeholder will be replaced with the number 1.

Use the steps below to assign the parameter values for the remaining objects.

12. Repeat steps 10 and 11 for the remaining objects, entering  $\underline{2}'$ ,  $\underline{3}'$  and  $\underline{4}'$  respectively.

Each of the reference objects will now use values 1, 2, 3, and 4 to replace the placeholder #1 at runtime.

## **Reusing Displays with Parameters**

Global Objects, placeholders and parameters are a way to reuse objects across screens in an application. The following steps will explore how to reuse screens in an application using parameters.

1. Open the *Vacuum Silo* display.



This display will be reused to show data for each of the silos. In this case, the placeholder #1 is used to represent the Silo number. However, the value for this placeholder is provided using the parameter list.

2. Click *View* in the toolbar, then select *Object Explorer*.



3. Using the Object Explorer, open *MultistateIndicator1*.

Object Expl	orer	×			
ReturntoDisplayButton2					
i∰ Group1					
MultistateIndicator1					
tie Group4					
i∰∽ Group3					
i≟- Group2					
Highlighting on		Settings			
Expand	Collapse	Help			

4. Click on the *Connections* tab.

٢	1ultistate Indicator Properties 🛛 🔀						<	
	General St	tates	Common	Connections				
	Name			Tag / Ex	pression	Tag	Exprn	
	Indicator	+	{::[Intro]Program:Vacuum_§ilo0#1.V]cuuum_Moto		•••	•••		
								I.

Notice that #1 is in place of the Silo number. This placeholder will be replaced by the silo number at runtime.

- 5. Close the *Multistate Indicator Properties* configuration dialog and the *Object Explorer*.
- 6. Close the Vacuum Silo display. Do not save any changes.
- 7. On the *Vacuum Silo Group* display, double click one of the Silos in the middle of the tank.



to Display Button Properties	2
General Label Common Connections	
Appearance Border style: Border width: None 3 F Border uses back color	
Back style:     Pattern style:     Back color       Transparent     None     Border color       Shape:     Highlight color       Rectangle     Bink	
Display settings Display: Vacuum Silo Parameter file: Parameter file:	
Display position Top position: Use Variable Display Position	
Touch margins Horizontal margin: Vertical margin: 0 0	
Other	
OK Cancel Apply Help	

The properties dialog for a Goto Display button will open.

In this example, the first Silo was double clicked. Notice that the Display called is the **Vacuum Silo** display. The **Parameter list** has also been configured, sending the value of 1 to the placeholder used within the Vacuum Silo display. If more than one placeholder had been used on the **Vacuum Silo** display, replacement values should be configured in the Parameter list, separated by commas, in order. For example, if the parameter list is {X}, {Y}, and {Z}, X is sent to #1, Y to #2, and Z to #3.

- 8. Close the *Goto Display Button Properties* window.
- 9. Close the Vacuum Silo Group display, and save the changes when prompted.
- 10. Close the *Screen Objects* Global Display. Do not save any changes if prompted.

## Using Cross Reference and Search and Replace Functionality

Sometimes preconfigured displays that are added to an application contain references to shortcuts that are not being used in the application. This section will explore how often the old shortcut name, BlockComms, is being used, and will then replace that shortcut with the one being used in this application.

1. Click on the *Cross Reference* icon in the toolbar.



2. Type '<u>BlockComms</u>' in the Find what: box, then click Search.

🗾 Cros	ss Reference		
Find w	nat: BlockComms		▼
Find wi	thin: Select All	Search	
	Component Type	Component Name	Location

When the Cross Reference is complete, the window will update with the number of components that contain **BlockComms**. It is now possible to find out exactly where a specific tag or shortcut is used in an application.

🛃 Cros	ss Reference			
Find wl	hat: BlockComms		<b>.</b>	
Find wi	thin: Select All		Search	
	Component Type	Component Name	Location	Reference
1	Displays	Vacuum Silo	Polygon1\FillAnimation	{[BlockComms]Vacuum_Silo#1
2	Displays	Vacuum Silo	Polygon2\FillAnimation	{[BlockComms]Vacuum_Silo#1
3	Displays	Vacuum Silo	Group4\ColorAnimation	if ({::[BlockComms]Program:Va
4	Displays	Vacuum Silo	MultistateIndicator1\Tag/Expression Indic	{::[BlockComms]Program:Vacu
5	Displays	Vacuum Silo	Group1\ColorAnimation	if ({::[BlockComms]Program:Va
6	Global Objects	Screen Objects	MultistateIndicator4\Tag/Expression Indic	lf {[BlockComms]Vacuum_Silol
7	Global Objects	Screen Objects	NumericDisplay4\Tag/Expression Value	{[BlockComms]Vacuum_Silo#1
8	Global Objects	Screen Objects	NumericDisplay5\Tag/Expression Value	{[BlockComms]¥acuum_Silo#1
9	Global Objects	Screen Objects	Polygon1\FillAnimation	{[BlockComms]Vacuum_Silo#1
10	Global Objects	Screen Objects	Polygon2\FillAnimation	{[BlockComms]Vacuum_Silo#1
10 item	(s) found			
1.0.10	(-)			

In this example, 10 components were found. Double clicking any of these items will take the user to the specific component. It is now possible to access that tag and manually change the tag name. However, some of the components use expressions, in which the term **BlockComms** is used multiple times.

Use the **Search and Replace** functionality to make these changes.

- 3. Close the *Cross Reference* dialog.
- 4. Click on the *Replace* icon.



5. Enter '*BlockComms*' into the Find what: box, and '*Intro*' into the Replace with: box.

🔜 Find and Rep	place			X
Find Replac	e			
Find what:	BlockComms		<b>-</b>	Find Next
Replace with:	Intro			Find All
Find within:	Select All			Replace
	J			Replace All
– Search Optio				Undo Replace
Match wł	ns nole word only	Confirm replacement		Close
🗖 Match pr	efix	Direction		Help
Match su	ffix			

6. Click the *Replace All* button.

🔜 Find and Replace	e	×
Find Replace		_,
Find what: Bloc	ckComms Find Next	
Replace with: Intro	o Find All	
Find within: Sele	ect All Beplace	
	Replace All	)
⊂ Search Options—	Undo Replace	
Match whole v	word only 🔽 Confirm replacement Close	
🔲 Match prefix	Direction Help	
🔲 Match suffix		

7. Click *Yes* to confirm the replacement.



🗔 Find and Replace	X
Find Replace	
Find what: BlockComms	Find Next
Replace with: Intro	Find All
Find within: Select All	Replace
	Replace All
0	Undo Replace
Match whole word only Confirm replacement	Close
Match prefix	Help
Match suffix	
Frind Asia	
1 Succeeded to replace "{[BlockComms]Vacuum_Silo	#1_Upper_Hot
2 Succeeded to replace "{[BlockComms]Vacuum_Silo	#1_Lower_Hop
3 Succeeded to replace "if [{::[BlockComms]Program:	Vacuum_SiloU
4 Succeeded to replace "{::[BlockComms]Program:Va	
5 Succeeded to replace "If [{::[BlockComms]Program:	Vacuum_SiloU
5 Succeeded to replace "If {[BlockComms]Vacuum_Si	IOU#I_Filled} /
Instructure of the replace "BBlockCommsIVacium Silo	#I Inwer Hni
10 item(s) successful, 0 item(s) failed	View Log File >>

When the process is complete, a list of successful or failed attempts will be shown.

8. Close the *Find and Replace* dialog.

Now a Goto display button must be added to the Main screen in order to navigate to the Vacuum Silo Group display.

9. Open the *MAIN* display.



10. Open the *Preconfigured Buttons* display.



12. Close the *Preconfigured Buttons* display and paste the *Vacuum Silo* button onto the MAIN display. Remember, the button will paste into the desired location on the screen.



13. Close the *MAIN* display and save the changes when prompted.

## Testing Global Objects and Parameters

- 1. Test the application on the Desktop by selecting the *Test Application icon* icon on the toolbar.
- 2. Click the *Vacuum Silo* button.

The data and states of the 4 silos are shown using one global object. Notice the mustard yellow color when the state of the Silo is **Filling**.

Silo#1	Silo#2	Silo# 3	Silo#4
Waiting	Filling	Waiting	Filling
<sup>U</sup> 500.0	<sup>U</sup> 51.0	<sup>U</sup> 500.0	U 447.0
	لتعليا		
11.0	1.0	1.0	L 1.0
	لسلسا		

3. Click on the center of all 4 silo tanks



button to navigate back.



Notice how the Vacuum Silo display changes the values/colors shown depending on the tank that was selected.

4. Click the *X* key on your keyboard to shut down the test application.

## Explore the Link between Base and Reference Global Objects

Now, let's change the background color of the multistate indicator for all 4 silo data objects.

1. Open the *Screen Objects* global objects display.



2. Click *View* in the toolbar, and select *Object Explorer*.



3. Using the Object Explorer, open MultistateIndicator4.



4. Click the *States* tab, and select *State1*.



5. Click the square next to *Back color* to bring up the color palette.

General     States     Common     Connections       Select state:     General     Back color     Pattern style:       State1     Image: State2     Bink     None       State2     Image: State2     Bink     Pattern style:	Multistate Indicator Properties						
	General States Co Select state: State0 State1 State2 Error	mmon Connections General Value: 1 Back color Border color Blink	Pattern style: None  Pattern color				

6. Select a shade of light green, and click *OK* to apply the change and close the Properties dialog.



9.

- 7. Close the *Screen Objects* display, and save the changes when prompted.
- 8. Test the application on the Desktop by selecting the *Running Man k* icon on the toolbar.





Notice that the background color of the **Filling** state of all 4 Silos is now a light green color. A few minutes may need to pass for all 4 silos to enter the **Filling** state at least once – they do not go into a specific state at the same time.

10. Click *X* on your keyboard to shut down the test application.

You have now learned about Global Objects, placeholders, parameters, and reusing screens, and how each of these things can reduce the time to design your application.

# Language Switching

The FactoryTalk<sup>®</sup> View Machine Edition Language Switching functionality makes it possible to create a single application that can be used in multiple locations. For the lab, this application will be modified so that it can be used in China, Germany, Italy and Spain, as well as the United States.

## Adding Languages and Translating Strings

1. Select *Tools > Languages...* from the toolbar.



2. Click *Add...* to open the list of languages that can be added to the application.

Langua	ige Configuration				×
Gene	ral				
	Language ✓ English (United States	ID an-US			
	Add	Jnited States), en-US Remove Display undefined strin	Export	Import ault language	
		ОК	Cancel	Apply	Help

3. Add the following languages to the application, by selecting the language, then clicking *OK*. Note that each language must be added one at a time.

Chinese (Simplified, PRC)	zh-CN
German (Germany)	de-DE
Italian (Italy)	it-IT
Spanish (Spain, International Sort)	es-ES

The Language Configuration dialog should appear as shown:

Langu	lage Configuration		×
Gen	eral		
	Language	ID	
	Chinese (Simplified, PRC)	zh-CN	
	🗸 English (United States)	en-US	
	German (Germany)	de-DE	
	Italian (Italy)	it-IT	
	Spanish (Spain, International Sort)	es-ES	
1	Current language: English (United States	s), en-US	
[	Add Bemove	Export Import	
l		Importation	
	Set As Default 🛛 🔽 Display unde	efined strings using the default language	
		OK Cancel Apply Help	

- 4. Click the *Apply* button to add the languages to the application.
- 5. Ensure **English** is checked and that **Display undefined strings using the default language** is checked. Click the *Export* button.

Now, all of the strings in the application will be exported in order to ease the translation process.

6. Ensure the settings are selected as shown below, and click *Next*.

String Import Export Wizard - Export Operation 🤰 🤰	<
Select the operation to perform:	
C Export strings for it-IT to one or more Unicode text files	
Export strings for all languages to an Excel spreadsheet	
Optimize duplicate strings	
Open exported file	
< Back Next > Cancel Help	

7. Click *Finish* to begin the export process.

tring Import Export Wizard - Select Destination	X
The application's strings will be exported to the following folder. Browse for a folder if you wish to change the default location	
C:\Users\Public\Documents\RSView Enterprise\Strings	
< Back Finish Cancel Help	

8. If the Excel window does not open automatically, click on the *Microsoft Excel* icon in the Windows taskbar.



Notice the column headings and how the languages are shown. Any text that is not translated is shown as \*\*UNDEFINED\*\*.

		Н	I		J	К	
de	e-DE		REF	es-	ES	REF	_
	A	В	С		D	E	F
1	Server	Component Type	Component Name		Description	REF	en-US
2	/Intro:Intro	Global Objects Display	Screen Objects		MultistateIndicator4.0.St_Caption		Waiting
3	/Intro:Intro	Global Objects Display	Screen Objects		MultistateIndicator4.1.St_Caption		Filling
4	/Intro:Intro	Global Objects Display	Screen Objects		MultistateIndicator4.2.St_Caption		Emptying
5	/Intro:Intro	Global Objects Display	Screen Objects		MultistateIndicator4.E.St_Caption	REF:1	Error
6	/Intro:Intro	Global Objects Display	Screen Objects		Text10.Caption	REF:2	U
- 7	/Intro:Intro	Global Objects Display	Screen Objects		Text11.Caption	REF:3	L
8	/Intro:Intro	Global Objects Display	Screen Objects		Text9.Caption	REF:4	Silo# /*LN:1 #1 NOFILL DP:0*/

New strings for each language can be translated manually. Alternatively, the FactoryTalk<sup>®</sup> View Translation Utility can be used. This utility uses Microsoft's Bing Translator. In this lab, the strings for two objects on the MAIN display will be translated manually.

- 9. Open Windows Explorer by clicking the *folder* in the Task Bar.
- 10. Browse to C: Lab Files View ME Introductory View ME | Strings.



- 11. Double click *Translated Strings.docx*.
- 12. Copy the text for each language that was added from the Word document into the appropriate cell of the exported Microsoft Excel file, replacing the **\*\*UNDEFINED**\*\* text.

1.0.0

### Translated Strings

# English, US Hello World! This is my Intro application

Shutdown

### Chinese, Simplified

## 世界您好!这是我介绍的应用程序

### 关机

### German, Germany

Hallo Welt! Dies ist mein Intro-Anwendung

### Herunterfahren

### Italian, Italy

Salve, mondo! Questa è la mia domanda Intro

Arresto

### Spanish, Spain

¡Hola mundo! Se trata de mi solicitud de Intro

### Parada

ſ	Intro_1.xls						
		F	G	Н	l I	J	
	1	en-US	REF	de-DE	REF	es-ES	
	57	Shutdown		**UNDEFINED**		**UNDEFINED**	
	58	Hello World! This is my Intro		**UNDEFINED**		**UNDEFINED**	

- 13. When finished, close and save the Microsoft Excel file.
- 14. Close the Microsoft Word document.
- 15. On the Language Configuration dialog, click the *Import* button.

Langu	lage Configuration		x
Gen	eral		
		1	
	Language	ID	
	Chinese (Simplified, PRC)	zh-CN	
	<ul> <li>English (United States)</li> </ul>	en-US	
	German (Germany)	de-DE	
	Italian (Italy)	it-IT	
	Spanish (Spain, International Sort)	es-ES	
	Current language: English (United States	s), en-US	
	Add Remove	Export	
	Set As Default	efined strings using the default language	
		OK Cancel Apply Help	

16. Select *Import strings from an Excel spreadsheet into all application languages defined in the spreadsheet*, and click *Next*.

String Import Export Wizard - Import Operation	×
Select the operation to perform:	
C Import strings from Unicode text files into de-DE	
<ul> <li>Import strings from an Excel spreadsheet into all application languages defined in the spreadsheet</li> </ul>	
< Back Next > Cancel Help	

17. Click the *Browse* button.



18. Select Intro\_1.xls and click Open.

💋 Select a file to import				×
🕥 🚺 🔹 Public 🕶 F	Public Documents 👻 RSView Enterprise 👻 Strings	👻 🚱 Search	Strings	2
Organize 🔻 New folder			:= - 🔳	0
★ Favorites	Name ^	Date modified	Туре	Size
Desktop Downloads	Intro_1.xls	3/27/2013 10:49 AM	Microsoft Excel 97	
Documents				
J Music				
Pictures				
Labuser				
🖳 Computer				
👊 Network				
Control Panel				
🦉 Recycle Bin 🗵				<b>}</b>
File r	name:	Microse	oft Excel Workbook(*.xls	
		Op	en Cancel	

Note that the default path for this Excel file is C:\Users\Public\Documents\RSView Enterprise\Strings.

19. Click *Finish* to begin the import process.



20. Once the import is complete, click OK to exit the Language Configuration dialog.

## Adding Language Switch Buttons

Specialized Language Switch pushbuttons have been built into FactoryTalk<sup>®</sup> View Studio in order to make it easier for users to alternate between languages during runtime. These buttons are simple to add and configure for each language used in the application. A total of 5 languages have been configured in this application, so 5 Language Switch pushbuttons need to be added as well.

1. Open the *MAIN* display.



2. Click *Objects > Advanced > Language Switch Button*.



- 3. Add the button to the lower left corner of the MAIN display, by holding down the mouse's left button and drawing a square.
- 4. Leave the Language configured for *English*.

Language Switch Button Pro	pperties	X
General Label Common		
Appearance Border style: Raised Back style: Solid Shape: Rectangle	Border width: 4 Border uses back Back color Border color None Pattern color Highlight color Blink	< color
Language English (United States), Touch margins Horizontal margin: 0	en-US	
Other		
01	K Cancel Apply	Help
- 5. Change the following settings:
  - 1) Border style: Line
  - 2) Border width: 1
  - 3) Back style: Transparent
  - 4) Back color: *black*

Appearance	• • • • • •	
Border style:	2 Border width:	
Line		Border uses back color
3 Back style:	Pattern style:	Border color
Transparent 💌	None	<ul> <li>Pattern color</li> </ul>
Shape:		Highlight color
Rectangle 💌		J Blink

6. Click the *Label* tab, and click the *Image browser* button.



7. Select the *Flag\_United\_States* image.

Image Browser		×
Select image:	Preview:	Add from
flag_italy Flag_Italy_PNG		File
Flag_Spain_PNG Flag_United_States		Launch Library
Green button overlay (Down Arrov Green button overlay (Up Arrow)		Paste from Library
Home Home_Display Icon_Alarm		Delete
icon_back Illuminated rectangular pushbutto Illuminated rectangular pushbutto		
Image attributes		
Type: True color <del>Width x Height: 135 x</del> 78		
Format: PNG	OK Cancel	Help

Note the format of this image is **PNG**. When FactoryTalk<sup>®</sup> View Machine Edition version 7.0 released, it included the ability to utilize the PNG image format. A PNG image is a high quality, high resolution file, and supports transparency. Additionally, a PNG file will not decrease in sharpness when resized.

- 8. Click *OK*, then click *Apply* to apply the changes.
- 9. Click the *Common* tab, and enter the values shown below for Size and Position, then click OK.

Language Switch	Button Properties			×
General Label	Common			
Size Height: 86	Width:	Position Top: 701	Left: 3	

10. Click *OK* to apply the changes and close the **Properties** dialog box.

The MAIN display should now look similar to the one below:

🚾 MAIN - /Intro// (Display)	
Hello World! This is my Intro application.	
NNNNN	
Stop Pelleter	
	Shutdown

Language Switch buttons are needed for the remaining languages configured for this application. They have been created and reside in the **Preconfigured Buttons** display.

11. Open the *Preconfigured Buttons* display.



12. Copy the 4 Language Switch buttons.



13. Close the *Preconfigured Buttons* display and paste the buttons onto the MAIN display. Remember, the buttons will paste in the desired location.



14. Close the *MAIN* display, and save the changes when prompted.

#### Testing the Language Switch Application on the Terminal

Remember, to test the application on the physical PanelView<sup>™</sup> Plus terminal, a runtime file (.MER) must be created and downloaded to the terminal.

1. Select *Create Runtime Application* from the Application menu.



- 2. Confirm the following information on the Create Runtime Application dialog:
  - File name: Intro.mer
  - Save type: *Runtime 8.0 Application (\*.mer)*
- 3. Click the *Save* button to begin runtime application creation.
- 4. If prompted, click the *Yes* button to replace the existing runtime application.



5. Select all the languages to include in the runtime file, and click *Finish*.

reate Runtime Application Wizard - Select Languages			
Check the languages you would like to include in the runtime application, up to a maximum of 20 languages.			
Runtime Language	ID		
Chinese (Simplified, PRC)	zh-CN		
English (United States)	en-US		
🗹 German (Germany)	de-DE		
🖌 Italian (Italy)	it-I T		
🗸 Spanish (Spain, International Sort)	es-ES		
Select the initial runtime application language.			
English (United States), en-US	-	•	
Fin	ish Cancel Help	1	

After a few moments, a progress dialog will appear.

Creating runtime file	
ProjectSettings	
ProjectSettings	
Cancel	N
	13

This dialog will close when the application has been created.

6. To download the MER to the terminal at your workstation, select Tools > Transfer Utility.



The Transfer Utility will open.

7. Verify the Source file field contains the following: C:\Users\Public\Documents\RSView Enterprise\ME\Runtime\Intro.mer.

If it does not, browse to the file using the *ellipsis* button.

Download	Upload	Compare
Source file:		
C:\Users\Public\Documents\RSView Enterp	rise\ME\Runtime\Intro.mer	( )

8. Select *192.168.1.20, PanelView Plus\_7 Performance 1200W* in the Select destination terminal: tree.



- Click the *Download* button. If prompted to overwrite the existing file, click *Yes*. During the download, a progress dialog will update.
- 10. Click OK to acknowledge the dialog that the download completed successfully



11. Click the *Exit* button to close the Transfer Utility.

#### Running the Application

Use the PanelView<sup>™</sup> Plus to run the downloaded runtime application. If FactoryTalk<sup>®</sup> View ME Station is not open, double-tap the desktop icon to open it.

1. Press the *Load Application [F1]* button.

Current application		j
Load Application [F1]	Run Application [F2]	Application Settings [F3]
Terminal Settings [F4]	Delete Log Files Before Running [15]	• Ym • H0
Device: PVP12500 IP Addr: 192.160.1.2 Subnet: 255.255.0	Reset [F7]	Exit [ro]

2. Select *Intro.MER* from those available in the terminal's Internal Storage.

Load Applicatio	n			
	Source [F1]	External Storage      External Storage 1      External Storage 2		Load [F2]
	Intro.mer			
			•	Cancel [F8]
	,			

- 3. Press *Load [F2]* to load the runtime file into memory.
- 4. When prompted, press *Yes [F7]* to overwrite the terminal's current communication configuration with the configuration contained within the **Intro.mer** file.

5. Once it has successfully loaded, press the *Run Application [F2]* to start the runtime file.

FactoryTalk View ME 5	Station			
C	Current application:			
Г	Intro.mer			
	Load Application [F1]	Run Application [F2]	Application Settings [F3]	
	Terminal Settings [F4]	Delete Log Files Before Running [F5]	Yes	
l			0	
C	Device: PVP7471			
If	P Addr: 192.168.1.20	Reset	Exit	
s	Subnet: 255.255.255.0	0.1	[10]	

After the start-up process is complete, you should see the startup display.

	Hello World! This is my Intro application.	
	0	
	Start Pelleter	
		Ĺ
		7
= 2 -	📕 🚾 🛛 🕱 🛛 🖳 🦉	Shutdown

- 6. Click the Language Switch buttons and notice how the text changes for the 2 objects that were translated on the MAIN display.
- 7. When finished, press the *Shutdown*

Congratulations!

You have successfully added languages to the application, translated the text strings of two objects, and added Language Switch pushbuttons.

# Appendix A – Manually Configuring Runtime Communications Path

- 1. Click on the *Runtime (Target)* tab Design (Local) Runtime (Target) to select it.
- 2. Right-click on EtherNet, Ethernet item to open the context menu, and select Add Device.



- 3. Click *Add Device* which opens the **Add Device Selection** dialog.
- 4. Expand the EtherNetIP Devices item by clicking the *expander*  $\bullet$ .
- 5. Select the *expander* in next to **SoftLogix 5800 EtherNet/IP**.
- 6. Select SoftLogix 5800 EtherNet/IP, Major Revision 21.

Add Device Selection	×
Available Devices	
	<b>^</b>
1794-AENF, 1794-AENF FLEX I/O Ethernet Adapter     1761-NET-ENI, ENI	
SoftLogix5800 EtherNet/IP	
SoftLogix5800 EtherNet/IP, Major Revision 20     SoftLogix5800 EtherNet/IP, Major Revision 21	
figure 1788-EN2DN, 1788-EN2DN Linking Device     figure 100 Drivel oniv5730 Ethernet Port	•
EDS File:	
OK Cancel Help	

7. Click the *OK* button to accept the selection. This action opens the **Device Properties** dialog.

Device Properties	×
General	
Name SoftLogix5800 EtherNet/IP	
Address	
Sha 10	
300 16	
OK Cancel Apply	Help

- 8. Enter '<u>192.168.1.1'</u> in the **Address** field to set the device's TCP/IP address.
- 9. Change the selected **Slot** to *3*.

Device Properties	×
General	
	1
Name SoftLogix5800 EtherNet/IP	
Address 192 . 168 . 1 . 1	
Slot 3	
OK Cancel Apply He	ip

10. Click the *OK* button to add the device to the **Runtime (Target)** configuration.

Communication Softing - Million Sol	er al felfelt filteren finforgeren	_10_
Denne Shafilah All: Remove: Statist	Dange (Local) Runnar (Target)	Renat Carligendar
* KENKE	22 A State Enterprise, CIRE 1705-417, Sadighen Charlat, Charval	\$
	E	- 🛃 RSLinx Enterprise, CORE - 📼 1789-A17, Backplane
		🖻 器 EtherNet, Ethernet
	Hule Office	😟 🖞 192.168.1.1, SoftLogix5800 EtherNet/IP, SoftLogix5800 EtherNet/IP
Offere Tag/Ne		Broom gi

- 11. Use the expander to open the 192.168.1.1, SoftLogix5800 EtherNet/IP, SoftLogix 5800 EtherNet/IP device.
- 12. Right-click the 1789-A17, 1789-A17 Virtual Chassis item and select Add Device.



13 Expand the 1789-L60/A, 1789-L60/A SoftLogix 5860 Controller item by clicking.



14. Select the 1789-L60/A SoftLogix 5860 Controller, Major Revision 21 item.



It is important that you select the correct Major Revision for the SoftLogix 5860 Controller.

The correct revision is Major Revision 21.

- 15. Click the OK button  $\Box K$  to accept the selection.
- 16. Change the controller's Slot property to 2.

Device Properties	×
General	
Name L60/A Softlogix5860 Controller	
Slot 2	
, <del></del>	
OK Cancel Apply	Help

17. Click the *OK* button to add the device to the **Runtime (Target)** configuration.



- 18. Click the *Apply* button Apply in the **Device Shortcuts** pane.
- 19. Click the *Yes* button <u>yes</u> to apply the changes to the **Intro** shortcut.



20. Click the *Verify* button Verify to confirm the Design and Runtime associations.

Shortcut Verifier	
Application type: FactoryTalk View Machine Edition.	2
CPR: 9 Server: 'RNA://\$Local/Intro/RSLinx Enterprise' on 'localhost'.	
Shortcut 'Intro': Note: Path to Design device is assigned [Logix Device]. Note: Path to Runtime device is assigned [Logix Device].	
र ।	
How to use the Shortcut Verifier	Close

Confirm both the Design and Runtime devices are assigned for shortcut Intro.

21. Close the **Shortcut Verifier** dialog by clicking the *Close* button

# Lab Configuration and Setup

### Lab Information

Lab Name	FactoryTalk® View Machine Edition and PanelView™ Plus Introductory Lab
Lab Description	This hands-on lab focuses on basic FactoryTalk® View Machine Edition concepts for new users. Topics include creating an application; working with displays; global objects, and tags; using parameters; testing and running the application; and language switching.
Lab Creator	Wil Mattheis
Date Created	02/04/2015
Updates:	

### Hardware Configuration per Student

Qty	Demo Cat.# / Description	Communication	Location	Firmware
1	Computer workstation consisting of			
1	2 GHz CPU			
1	4 GB RAM			
1	Hard drive. Minimum 40GB capacity			
1	USB Keyboard			
1	USB Mouse			
1	Ethernet adapter.	Configured for DHCP		
1	Ethernet adapter.	IP Address: 192.168.1.1, Subnet: 255.255.255.0		
1	Video adapter. Minimum resolution: 1260 x 1024 pixels			
1	LCD Display. Minimum resolution: 1260 x 1024 pixels			
1	Ethernet CAT5E cable 5ft (PanelView™ Plus terminal to SoftLogix Ethernet adapter)			
1	PanelView™ Plus 7 Performance 12" W	IP Address: 192.168.1.20, Subnet 255.255.255.0		8.00.XX or later

# Computer/Host Settings

Location	Files
Computer Name	Varies by machine
IP Address (NIC 1)	DHCP – connected to Event classroom network
IP Address (NIC 2)	Host computer TCP/IP setting:DHCP
	VMware image TCP/IP setting:
	IP Addr: 192.168.1.1
	Subnet: 255.255.255.0
Operating System	Windows 7 Professional

#### **Basic Setup Diagram**



Location	Files
C:\Lab Files\ViewME – View ME -	
Introductory \PVP	None required.
C:\Lab Files\ViewME – View ME -	
Introductory \SoftLogix	Block_Machine.acd (Slot 2)
	Translated Word doc for languages & prebuilt
C:\Lab Files\ViewME – View ME -	displays and graphics for a PVP7 Performance
Introductory \ViewME	12" W terminal size

# Additional Equipment Required per Workstation

Qty	Items
1	Ethernet CAT5E cable 5ft (used with PanelView™ Plus terminal)
1	Ethernet CAT5E cable 5ft (used with Event classroom network)
1	PanelView <sup>™</sup> Plus 7 Performance 12'W

#### RSLinx - DDE/OPC Topic Configuration

Topic Name	Path to Hardware
N/A	

## RSLinx - Driver Configuration

Topic Name	Path to Hardware
AB_VBP-1 (no topic required)	Virtual backplane driver to be able to download the acd file to the SoftLogix v21 controller in slot 2 (if running this lab independent of the VM Image

# RSLinx Enterprise - Shortcut Configuration

Shortcut	
Name	Path to Hardware
Intro	Ethernet, Ethernet > 192.168.1.1 > Backplane > 2, 1789-L60 v21

Application	Versions
-------------	----------

Vendor	Software	Version	Service Pack
Rockwell	FactoryTalk® Activation Manager	3.62.11	CPR9 SR6.1
Rockwell	FactoryTalk® Diagnostics	2.71.00	CPR9 SR7.1
Rockwell	FactoryTalk® Service Platform	2.71.00	CPR9 SR7.1
Rockwell	FactoryTalk® View Machine Edition	8.00.00	CPR9 SR7
Rockwell	<b>RSLinx Enterprise</b>	5.70.00	CPR9 SR7
Rockwell	RSLinx Classic	3.71.00	CPR9 SR7.1
Rockwell	Studio 5000	21.00.00	CPR9 SR5.1
Rockwell	SoftLogix 5800	21.00.00	CPR9 SR5.1
Rockwell	.NET Framework	4	
Microsoft	Internet Explorer	10	
Rockwell	PanelView™ Plus 7 Performance	8.00.xx	

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