L22 - Studio 5000 View Designer® featured on the PanelView™ 5000

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  - identify a hazard
  - avoid a hazard
  - recognize the consequence

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- **BURN HAZARD** Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures.
Studio 5000 View Designer featured on the PanelView 5000

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Before you begin

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

PanelView 5000 Common Features

- Project contents are held in a single .VPD file to enable easy project movement.
- Scalable vector graphics allows users to easily resize individual screen elements and entire terminal applications.
- Advanced graphic animation capabilities through color/state tables, property binding, and events and commands for more efficient design.
- Use Add-On Graphics to create reusable content for screens throughout the project.
- Preconfigured banner, alarm screens, and diagnostic screens are integrated with Logix - helping reduce design time and simplifying maintenance at runtime. Predefined screens are not included in your screen count limit.
- Run time display scaling allows users to use any size application on any size terminal.
- High-speed HMI button provides quick response and feedback for jogging applications.
- Intuitive Navigation Menu eliminates the need to configure rows of navigation buttons on all the screens.
- Runtime error notification with error detail fly out provides the information you need for quicker troubleshooting.
- Logix tag extended property support eliminates the need to create HMI tags.
- Logix-based alarms are automatically displayed on your HMI to help reduce development time.
- Role based security provides screen-level and graphic element access control for each project.

Easily create re-usable screens by leveraging screen properties which can be named and tied to a Logix data type.

PanelView 5310 Features

- Sizes from 6" to 12", with wide screen formats in 7", 9" and 12". All sizes are touch only
- Single Ethernet port and USB port
- 50 screens or popup displays
- DC power input only

PanelView 5500 Features

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

- Sizes from 7" to 19" with wide screen formats at 9" and 12". Keypad versions are available for the 7", 10", and 15" sizes.
- Support of Device Level Ring network topologies for fault-tolerant network design.
- 100 screens or popup displays
- PDF Viewer Support
- AC and DC power input options
About this lab
Welcome to the Studio 5000™ View Designer Hands-On Lab! This session will provide you with the opportunity to get familiar with the newest HMI offering from Rockwell Automation. You will create a new project, explore the design time software, add elements to the project, download the project to a hardware terminal, and explore the runtime functionality of the project while connected to a controller.

This lab takes approximately 80 minutes to complete.

What Will Be Accomplished
As you complete the sections of this hands-on lab, you will:
- Work with the View Designer software to understand its features, functionality and flexibility
- Download and run a View Designer project on a PanelView™ 5500 terminal, exploring its runtime features

Who Should Complete this Lab
This hands-on lab is intended for those who:
- Have some experience with HMI software and Operator Interface
- Have little to no experience with View Designer design time software or PanelView™ 5500 terminals

Tools & prerequisites
The following is required to complete this lab:

Software Programs
- Studio 5000™ View Designer software v4.01
- Studio 5000™ Logix Designer software v30

Hardware Required
- Windows 10 64-bit computer
- ControlLogix L75 or L73 processor
- ControlLogix EN2T or EN2TR module
- Ethernet network
- PanelView™ 5500 12-inch wide terminal

Files required
- RACE_CookieLine.ACD
- might_qs.svg
- cie-wp002__en-p.pdf
- MightyQsCookies.vpd
- Cookies_Languages_Complete.xlsx
Creating a New View Designer Project

Business Issue
Getting started with an HMI project can be challenging for new and casual users. Products within a system often have disparate workflows making it difficult for HMI designers to accomplish simple tasks in a quick and consistent manner.

Solution
View Designer is part of Studio 5000, sharing a common launch point and user experience with Logix Designer for creating and maintaining projects. The software was designed from the ground up with usability in mind and workflows that make it quick and efficient for HMI designers to create projects, set up communications, integrate with Logix, and download powerful HMI screens to PanelView 5500 terminals.

In the following sections you will:
- Create a new project
- Configure Project Properties
- Add elements to a screen and bind their properties to controller tags
- Create buttons out of native elements
- Apply a State table

Download the Controller Project
This lab uses either a ControlLogix L73 or L75 processor and an EN2TR module. Before beginning work with View Designer, start by downloading the controller’s project using the steps below.

1. Use the Studio 5000 icon in the taskbar to open Studio 5000.

![Studio 5000 Icon](image)

2. Under the Open heading, click Existing Project.

![Existing Project](image)
4. Browse to **C:\Lab Files\Logix**, and select **RACE_CookieLine.ACD**, and click **Open**.

5. Using the **Communications** menu, select **Download**.

6. Click **Download** again.
7. Click **Yes** to change the controller mode to **Remote Run**.

8. Minimize, but do not close **Logix Designer** using the **Minimize** button.
Create a new View Designer Project

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

- Create a new project
- Configure Project Properties
- Add elements to a screen
- Bind properties to controller tags
- Create buttons out of native elements
- Apply a State table

Follow the steps below to create this new project.

1. Use the Studio 5000 icon in the taskbar to open Studio 5000 launcher.

2. Under the New heading, click New Project.

3. Select View as the project type.
4. Making sure PanelView 5500 is expanded, select 12.1”.

5. Type “MyProject” in the Name field, then click Finish.

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

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

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

The Project Properties dialog, used to configure the Controller Reference, Application settings, and Terminal properties, is automatically displayed, prompting for the controller reference.

1. Type ‘MyCLX’ in the Name: field.

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

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

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

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

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

The **HMI to Controller Path** is used to define the route that the terminal will take at runtime to connect to the controller.

6. Expand **AB_ETHIP-1, Ethernet**, then **192.168.1.30, 1756-EN2TR**, and **Backplane, 1756-Ax/A or B**.

7. Select the **1756-L75 LOGIX5575, RACE_CookieLine** processor that corresponds to the sticker on the top of your monitor, and click **OK**.

Choose the appropriate processor to match this station.

Notice the **HMI to controller path** field has been populated with the correct information for your processor.
8. Configure the **Emulator to Controller Path** for the same controller using the **ellipsis** button.

The Emulator to Controller Path is used to define the path that View Designer will take to connect to the controller. This makes it possible to see real data when using the Emulator.

9. Browse to the appropriate controller, and click **OK**.

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

In this case, the two paths are configured to be the same, because the same controller will be used for both the Emulator and the terminal.
10. Click **Apply** to confirm the settings.

11. Click the **Application** tab, then click the **ellipsis** button for the **Location** of the Target HMI Device.

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

14. Click **OK**.
15. Click the **Usage & Capacity** tab.

This tab, introduced in version 4.01, displays information regarding the number of screens, popups, and shortcuts contained within the projects, as well as other content information. The information can be used to determine the size of the project, and whether or not the project is exceeding any screen or capacity limits.

16. Click **OK** to close the **MyProject Properties** window.
1. A tab appears at the top of the screen canvas pane for each open screen for easy design navigation.

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

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

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

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

6. Property Definition: Re-usable properties or parameters are defined here to be used for screens or graphic element properties. This concept is covered in a different lab.

7. Errors pane: Errors that are found during the verification process are displayed in this contextual pane. This pane opens if errors or warnings are found in the project.

Use the steps below to explore the View Designer Software and its flexibility.
Adding Graphic Elements to a Screen

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

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

2. Double click **Numeric Display** to add it to the screen canvas.
Property Binding

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

1. Click in the **Enter binding** field to associate a tag to the value that will be displayed.

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

   Binding can be applied to almost every property of an element, such as X and Y position, FontSize, FontColor, Opacity, etc. Expressions can also be used. For more information, see “What is Binding” in the Studio 5000™ View Designer Help file.

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

   The Data Item Browser will open:

   The **Search** box allows a user to search for any tag, using the tag name, a partial tag name, or a data type.
3. Expand *MyCLX > Programs > MainProgram*

Notice the breadcrumbs at the top of the data item browser. In addition to the Home button, the breadcrumbs can be used to navigate to other parts of the ACD project hierarchy. Click on a link to navigate back to that part of the hierarchy, or use the right arrows to navigate forward in the hierarchy.
4. Scroll down and double click myTag

![Image of data type configuration with myTag highlighted]

The tag will now appear in the Value property field.

![Image of numeric display properties with myTag value set]

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

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

![Image of dragging numeric input onto screen]
6. Use the alignment guides to reposition the element so that it is centered with the **Numeric Display**.

Alignment guides, as well as other tools, have been included in View Designer functionality to ease the process of creating screens.

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

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

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

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

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

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

7. With the **NumericInput** element selected, click the *ellipsis* button for **Value** in the **Properties** pane to open the **Data Item Browser**.
Notice that the **Data Item Browser** opens to the most recent location that has been browsed.

8. Double click *myTag* to bind it to the **Value** property of the **Numeric Input** element.
Test the Project using the Emulator

Now that the application has some elements added, use the Emulator feature to test the project following the steps below. New in version 4.01, the Emulator connects to the defined controller, and displays its data. Navigation, events and commands, and animation will all function normally. It will not, however, display HMI device data, nor does it support data logging.

1. Click the Emulate Project button.

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

The Emulate Project dialog window will open.

When the project has been built, and the runtime application has started, the Emulator will open.
The runtime diagnostics message found in the banner of the Emulator is indicating that the data log is not working. This is because the project is not running on a physical terminal with an SD card inserted.

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

5. Enter the number ‘15’ and click OK.
Notice that the Numeric Display is showing the new value.

6. Close the Emulator.

Continue to modify this application.
Animation, Events, and Popups

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

Understanding Events
Events can be configured for any element on a screen. Event options include but are not limited to Touch Press, Touch Release, State Exit, and State Enter. Once an Event is added to an element, the designer can then create and configure one or more commands that will be performed when that event occurs.

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

In this section you will do the following:
- Use built-in animation to determine when a pump’s flow color is visible
- Add an Event to the pump element so that it toggles a tag when the pump is touched at runtime
- Create a popup
- Turn a text display into a multistate indicator

Configure Built-in Animation
First, let’s turn one of the native elements into an indicator and button.

1. In View Designer, click in the **Search** field of the **Toolbox**, and type ‘**pump**’.

2. Select the first **Pump** and drag it to the screen canvas.
3. In the Properties panel, float the mouse over the **ShowFlow** property so that the binding button appears, and click the *binding button*.

4. Click **Bind property to item**.

   The ShowFlow property is now ready to be bound to a tag. At runtime, it will change status based on the value of the assigned tag.

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

   The Data browser should return to **MyCLX > Programs > MainProgram**, with myTag highlighted.
6. Scroll down and double click **PumpControl**.

Note that the PumpControl tag is Boolean, so the Pump element will only show its flow when the value of the PumpControl tag is 1, showing simple on/off property binding. More animation could be created by binding an analog value to the X position property, for example, which would result in horizontal position animation.

**Using Button Behavior**

Most elements found in the Toolbox can be configured to be buttons to be used at Runtime. For the pump element, Button Behavior will be used to toggle the value of a tag in the controller. Follow the steps below to configure Button Behavior.

1. Right click the **pump** element and float the mouse over **Button Behavior**.
2. Click **Toggle a tag on release**.

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

3. Use the **ellipsis** button to open the **Data Item Browser**.
4. Double click *PumpControl*.

The pump is now configured as a button. When the pump is pressed at runtime, it will toggle the PumpControl tag on and off.

**Using State Table Animation**

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

1. Clear the filter used in the **Toolbox** by clicking the x in the search field.
2. Double click **Text Display** (under CommonControls) to add it to the screen.

Notice the Text Display contents can be changed within the element.

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

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

5. Select **State Table** from the list.
The State Table Definition dialog window will open:

6. Increase the **Number of states** to 2.
7. Click the checkboxes for the following:
   - Text
   - FontColor

8. Click OK.

The State Table will appear with the selected configurations.

Note: the state table has been configured with two states that manage the FontColor and Text properties. The other states of the element will remain at their default values, or whatever was configured in the Properties tab.
9. Click the *ellipsis* in the **Enter binding** field to open the **Data Item Browser**.

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

10. Browse to **MyCLX > Programs > MainProgram** and double click **myTag**.

Notice that each state has an **Expression Value** by default. Each of these Expression values can be changed.
11. Change the **Expression Values** to match the picture below:

![Expression Values Table](image)

12. In the row for `State0`, click the **FontColor** field.

![FontColor Field](image)

13. Use the drop down arrow to open the color palette, and double click **Orange**.

![Color Palette](image)

Note: it is also possible to manually enter the color's hex value (**f89800** for orange) in the **FontColor** field.
14. Scroll to the right, and click in the Text Display field.

15. Type ‘Low Flow’.

16. Click the Open table editor button.

   This will make it easier to modify the remaining state.

17. Repeat the steps above for the remaining state, using the information below:

<table>
<thead>
<tr>
<th>Expression Value</th>
<th>State Name</th>
<th>FillColor</th>
<th>Text Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>State1</td>
<td>00baff</td>
<td>Good Flow</td>
</tr>
</tbody>
</table>
The State Table should now look like the following:

<table>
<thead>
<tr>
<th>Expression Value</th>
<th>State Name</th>
<th>FontColor</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>Default</td>
<td>#000000</td>
<td>Text Display</td>
</tr>
<tr>
<td>0-10</td>
<td>State0</td>
<td>#ff9800</td>
<td>Low Flow</td>
</tr>
<tr>
<td>11-20</td>
<td>State1</td>
<td>#00baff</td>
<td>Good Flow</td>
</tr>
</tbody>
</table>

18. Click **Close**.

**Using the Graphic Explorer**

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

1. Move the **Text Display** and the **Pump** element so that the screen looks similar to the picture below, using the alignment guides.
2. Click the **Rectangle** drawing tool in the **Toolbox**.

![Toolbox with Rectangle tool highlighted](image)

3. Draw a rectangle around the existing elements.

![Text Display with rectangle](image)

W: 413.60 px  
H: 271.91 px

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

![Selection Tool with Send To Back highlighted](image)
5. To make it easier to move the items on the screen, select the **Rectangle, Numeric Input, Numeric Display, Pump** and **Text Display** elements, and select **Group**.

6. In the **Graphic Explorer**, expand **Group_001**, and select **Rectangle_001**. The **Graphic Explorer** is located in the lower right corner of the software.

7. Expand the **Appearance** category of the **Properties** pane, and change the following property values:
Download and Explore

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

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

   **HMI Device Location**: Use this page to specify the communication path from the computer running View Designer to the HMI device to which the runtime application will be downloaded.

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

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

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

5. Click Next.

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

**Download**: This page shows the progress of the download process as View Designer saves and verifies the project, builds the runtime application, connects to the HMI device, and transfers the runtime application to the HMI device.

**Note**: If errors or warnings are found, the dialog will update with the number of errors and warnings found.
If any errors or warnings are detected, the **Errors** pane will appear below the screen canvas pane when the Verify Project box is closed.

Double click the errors or warnings to be taken to the corresponding component of the project.

7. When the download is complete, click **Close**.

8. Turn to the terminal at this station.
9. Press the *Pump* element.

Notice the Show Flow property has updated, displaying its blue color.

10. Press the *Numeric Input* element.

Also, notice the Text Display is showing Good Flow, and is blue in color.
11. Enter a value between 0 and 10, and press **OK**.

Notice the Text display updates to Low Flow, and the font color changes to orange.
Using Logix-Based Alarming

Business Issue
I want to easily configure alarms in my HMI and keep my alarms up to date with changes I make in my Logix controller.

Solution
The PanelView 5500 automatically uses alarms which are configured using the Alarm Analog (ALMA) and Alarm Digital (ALMD) instructions in the Logix controller. When a new project is created in View Designer, an alarm rollup indicator is created on the pre-built system banner and pre-built alarm summary and alarm manager displays in order to interact with alarms at runtime.

The only configuration needed is the path to the Logix controller. Once the project is downloaded to the PanelView 5500, the terminal will start showing any active alarms available in the Logix controller. If any new alarms are created or existing alarms modified in the controller, those changes are automatically used by the PanelView 5500.

1. Turn to the terminal.

2. Press the **Alarm button** on the **System Banner** in the upper left corner.

The **AlarmSummary** display will open, looking similar to the picture below:

![AlarmSummary](image)

**Note:** The alarms on the terminal may not match the picture exactly, as the controller program may be in a different state.
3. On the computer, restore *Logix Designer*. 

4. Expand *Mixer*, and double click on *Alarms*. 

5. Scroll down to rung 7. 

Rung 7 shows a digital alarm instruction, or an *ALMD*. 

---

For further assistance, you can contact our support team at support@logixdesigner.com.
6. Right click the *Alarm_Control[1].31* bit in Rung 7 and select *Toggle Bit*.

![Toggle Bit]

7. Notice that the ALMD’s “InAlarm” bit is now enabled:

![ALMD InAlarm]

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

![Alarm Summary]
8. On the terminal, select the alarm that was just triggered so that it is highlighted in gray.

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

The alarm indicator has changed to show that it has been acknowledged, but not yet removed from the list, as it is still in alarm.

9. Press the **Alarm Manager** icon at the bottom of the **Alarm Summary** element.

Alternatively, the **Navigation Menu** can be used to navigate to the **Alarm Manager** display.
10. Scroll down and tap the **Mixer_DoorAlarm** that was triggered a few steps ago so that it is highlighted in gray.

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

11. Select the **Disable Alarm** button at the bottom of the Alarm Manager.
Notice the Disable Alarm symbol is now in the Inhibit column, indicating the alarm has been disabled. The alarm may have moved to a different place on the list, so scrolling may be required to view the alarm.

12. Return to Logix Designer and notice the Disabled bit is ON for the ALMD instruction.

13. On the terminal, select the Mixer_DoorAlarm alarm, and press the Enable button. Keep in mind that the alarm’s position in the list may have changed and scrolling may be required to locate the alarm.


Using the Built-in Navigation Menu

Business Issue
Configuring navigation to screens contained within a project can take a lot of time for the HMI designer. Rows of navigation buttons must be configured on each screen and use valuable screen space. The user experience for plant floor operators is not optimal or consistent.

Solution
PanelView 5500 terminals have an intuitive navigation menu that provides operators with easy navigation to screens contained within a project. With the simple push of a button, operators have a common and efficient way to navigate screens from any place in the project. Project development is faster since the runtime navigation menu is easily configured based on the layout of screen in Studio 5000 View Designer. HMI designers are no longer required to configure navigation buttons on each screen, providing more space for application content.

Adding Screens and Shortcuts

1. On the PanelView 5500 terminal at this station, press the Navigation Menu button located in the lower middle of the bezel to open the Navigation Menu.

Alternatively, press the Navigation Menu button in the Banner.

The Navigation Menu will open, showing all the screens present in the Navigation Menu container of the project in View Designer.

Shortcuts, found in the Navigation Menu, are read-only versions of the User-Defined Screens. A User-Defined Screen will not appear in the Navigation Menu unless a shortcut has been created.
2. In View Designer, right click **User-Defined Screens**, and select **New Screen**, then type “**Main**” as the name of the screen.

![Project Explorer with User-Defined Screens and New Screen option]

3. Double click the new screen to open it.

![Project Explorer with Main screen]

4. In the **Project Explorer**, scroll down and right click **Images** under the **Assets** folder, then select **New Images**.

![Project Explorer with Images and New Images option]
5. Browse to C:\Lab Files\Explore, select **mighty_qs**, and click **Open**, then press **Enter** to accept its default name.

7. In the **Toolbox**, search for **Image**, and double click the element to add it to the screen.

8. In the **Images** dialog that opens, select **mighty_qs**, and click **OK**.
9. Resize the image so that it covers most of the screen.
10. Right click the **Main** screen in the **Project Explorer** under **User-Defined Screens** and select **New Shortcut**.

![Screenshot of Project Explorer with Main screen selected and New Shortcut option highlighted]

Notice the shortcut now appears under the **Navigation Menu** in the Project Explorer.

Note that shortcuts cannot be configured for popups. Popups are smaller displays that open on top of full sized screens and are created by right clicking **User-Defined Screens**.

11. Press **Enter** to accept the name of the shortcut.

![Screenshot of the New Shortcut dialog box]

Alternatively, the shortcut can be added by right clicking the **Navigation Menu**. The **New Shortcut** dialog will open, giving the user the option of selecting an existing screen (User-Defined or Predefined), and naming the new shortcut. It is also possible to create a new screen here as well.
Renaming Screens and Changing Shortcut Captions

1. Right click *Screen_001* under User-Defined Screens, and rename it to *Pump_Control*.

2. Repeat this process to change the name of the *Screen_001* shortcut under Navigation Menu.


4. In the Caption field, type “*Pump*”, then press Enter, and type “*Control*” so that the field matches the picture below:

Previously, the screen name and the shortcut names were changed. This time, the caption is being changed. This caption is what will be used on the Navigation Menu itself – and will now include the configured two line caption.
Organizing the Navigation menu

1. Right click the new Main shortcut under Navigation Menu, and select Set as Home.

   ![Image of set as home]

   The Main shortcut is now the Home screen of the project.

2. In the View Designer Project Explorer pane, right click Navigation Menu, and select New Folder.

   ![Image of creating new folder]

3. Name the folder “System”.

   ![Image of folder named System]

   Up to three levels of folders can be created in the Navigation Menu.
4. Click and drag the *AlarmManager*, *AlarmSummary*, and *Settings* shortcuts into the new folder.

5. Continue to click and drag shortcuts, moving the *Main* and *Pump_Control* shortcuts, in the *Navigation Menu*, until it looks like the picture below.
Testing Navigation

1. Click the **Emulator** button in the toolbar.

2. Use the **Navigation Menu** button to open the **Navigation Menu**.

Notice that the **Navigation Menu** of the running project matches the **Navigation Menu** in the **Project Explorer**

There is no navigation bar using up screen real estate that allows the return to the Pump Control screen, but the Navigation Menu works just fine.
3. Press the **Pump Control** shortcut to see the **Pump Control** screen.

4. Use the **Navigation Menu** to return to the **Main** screen, or use the **Back** button found in the banner.

5. Open the **Navigation Menu**, then click the **System** folder.

The shortcuts that were moved in the **Navigation Menu** now appear in the System folder.

4. Close the **Emulator**.
Data Logging and Historical Trending

Business Issue
Operators often need to see how a machine or process values have changed in the past, so they can more easily see trends in production values or troubleshoot upsets. For more detailed analyses, engineers need to access past data values in a format they can easily manipulate with common tools.

Solution
PanelView 5500 terminals now support data logging where up to 250 tags can be logged. Data is logged to an SD card, so log files can support significant amounts of data. The logged data can be exported to csv files for evaluation in tools such as Excel. Historically logged data for a tag is automatically shown on a trend if the tag configured on the trend has no real-time data available for the time span shown.

Creating a Data Log
Follow the steps below to create a data log for the project.

1. In the Project Explorer, scroll down to, and right click Data Logs, then select New Data Log.

2. Press Enter to accept the default Data Log name.
3. Double click *DataLog_001* to open it.

4. Use the *ellipsis* button to open the *Tag Browser*.

![Data Log configuration screen](image)

- **Data Logs** – Up to 3 logs can be configured in a project.
- **Tag Name** – There can only be 250 tags configured across all logs in the project.
- **Sample Rate** – Tags can be sampled from once every 500 ms to once per minute.
- **Log Duration** – The length of time that the log will collect information before it starts to overwrite old information in the log.

5. Browse to *MyCLX* → *Programs* → *Mixer* → *MixerVFD*, and double click *Out_Ramped*.

Use the breadcrumbs at the top of the browser to return to *Programs* folder, then continue to browse to the tag.

![Tag Browser screen](image)
In addition to the new Data Log functionality, system tags have been added to the product:

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CurrentRecordExported</td>
<td>DINT</td>
<td>Data Log record exporting</td>
</tr>
<tr>
<td>DataLoggingError</td>
<td>STRING</td>
<td>Error in the Data Logging service</td>
</tr>
<tr>
<td>DataLoggingStatus</td>
<td>STRING</td>
<td>Data Logging service is collecting</td>
</tr>
<tr>
<td>ExportErrorStatus</td>
<td>STRING</td>
<td>Error from last Data Log export</td>
</tr>
<tr>
<td>ExportInProgress</td>
<td>BOOL</td>
<td>Data Log export in progress</td>
</tr>
<tr>
<td>LastExportTime</td>
<td>LINT</td>
<td>Time of last Data Log export</td>
</tr>
<tr>
<td>TagsInError</td>
<td>BOOL</td>
<td>Tags in Data Log are in error</td>
</tr>
<tr>
<td>TotalRecordsToExport</td>
<td>DINT</td>
<td>Number of Data Log records</td>
</tr>
</tbody>
</table>

Element properties can be bound to any of these tags to provide runtime diagnostics regarding the data log, such as whether or not tags configured for the data log are currently in error.

**Creating a Historical Trend**

Studio 5000 View Designer has a built-in Trend Chart element that can now be used for Historical Trending. Both real time and historical data can be viewed on the same trend chart. This will be explored following the steps below.

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

2. Type “**Mixer_Storage**” as the name of the new screen, then double click it to open it.
3. In the Toolbox, scroll down and select TrendCharts, then double click Trend Chart. It may be necessary to remove the filter in the Search box.

4. Use the handles of the Trend Chart to resize it to fill the screen.
5. Change the **MaxValue** property to **500**, adjusting the y-axis of the trend chart, and the **SampleRate** to **500**.

![Trend Chart Properties](image)

In addition to Data Logging, new bindable properties have been added to the Trend Chart.

**TimeSpanStart** – defines a specific date and time at which the Chart will start

**ShowDate** – toggles the date display in the lower left corner of the chart

6. Click the **Traces** tab, and click **Add Trace**.

![Add Trace Button](image)

7. Click the **ellipsis** button for the **Value** property, and double click **Out_Ramped**.

![Data Type Table](image)
7. Change the Marker to Circle.

Markers can be used to visualize each data point on the trend chart.

8. Add another trace, with the following settings:
   - Value – MyCLX, Programs → Mixer → mMixerStorage → mMixerStorage[7] → Current_Level
   - Marker – Filled Square

Notice that one of the traces is configured for the tag found in the data log, while the second trace’s value is not.
Add the Trend Screen to the Navigation Menu

1. Right click the Mixer_Storage screen under User-Defined Screens, and select New Shortcut.

2. Press Enter to accept the default name.

3. With the new Mixer_Storage shortcut selected, turn to the Navigation Menu heading in the Properties pane.

4. In the Caption field, type “Mixer”, then press Enter, and type “Storage” to change how the caption appears in the Navigation Menu at runtime.
5. Use the **Icon drop down** button to change the icon **trend**.
Data Logging and Historical Trending at Runtime
Use the steps below to explore Data Logging and Historical Trending at Runtime.

1. Using the Download button to open the Download Runtime Application dialog, then download the project using the Download button.

2. Turn to the terminal.

3. Using the Navigation Menu, open the Mixer Storage screen.
Notice the data displayed – the terminal has started logging the data for the **MotorVFD.Out_Ramped** tag as soon as the project loaded onto the terminal. That data is populated on the trend, while the tag that is not included in the data log is only showing real-time data.

4. Use the panning buttons in the left corner of the screen to pan back and forth, exploring the traces and their values.

5. Use the **Navigation Menu** to open the **System** folder, then press **Settings**.
5. Press the **Data Logs** area of the screen.
The Data Log settings popup display enables a user to export the data log running on the terminal. The file will be exported as a zipped *.CSV file, then saved to the selected destination.

When an export is initiated, the following will appear on the settings screen:

Alternatively, elements in the toolbox can be configured to export or cancel a data log export:
Remotely Accessing the PanelView 5000 with VNC

Business Issue

Maintenance people often need to remotely display or manipulate screens on their HMI to monitor their machine or process or to change values if necessary.

Solution

PanelView 5500 terminals support a VNC connection to the terminal. You can configure both Full Control and View Only passwords in View Designer as part of your project to limit access to the terminal. You can also further limit access at runtime on the terminal using a pre-defined VNC configuration screen on the terminal. This allows you to limit VNC access during critical operations. A system tag on the terminal also indicates when a VNC connection has been made to the terminal, so you are aware when someone connects remotely.

Configuring the VNC Viewer

The VNC Viewer can be used without configuration – in that case, no password would be required and anyone with the IP address of the terminal would be able to use VNC to access the terminal fully. In this section, the security settings will be configured such that different passwords will be required to access the terminal with varying degrees of control.

1. In View Designer, select the Tools menu from the Menu bar, then Security Administration…

2. Select the VNC tab on the left side of the Security Administration window.
3. Under **VNC View-Only Access**, enter `rockwell` in both the **Password** and **Confirm** text fields.

4. Under **VNC Full-Control Access**, enter `mightyqs` in both the **Password** and **Confirm** text fields.

5. Click the **OK** button on the **Security Administration** window.
Exploring the VNC Viewer Feature

1. Download the project to the terminal, using the Download button, then click Download in the Download Runtime Application dialog.

2. Close the Download Runtime Application window.

Configuring VNC Options on the Terminal

In addition to the Security Administration performed within View Designer for VNC access, a new VNC setting popup display has been added to the pre-defined screens for each project. Follow the steps below to explore and learn about those settings.

1. On the terminal tap the Navigation Button to open the Navigation Menu, then tap the System folder to open it.
2. In the **System** folder, select **Settings**.

3. Select **VNC** from the **Settings screen**.

   ![Image of Settings screen with VNC highlighted]

   **Load from Media**
   Load an application to the HMI Device from removable media.

   **VNC**
   Configure the VNC server and view the connection status.
4. Select **Enabled with Full-Control access** if it is not selected already.

![VNC Server Configuration](image)

VNC has a variety of configuration options, including settings both in View Designer and on the terminal. The options on the terminal are:

- **Enabled with Full-Control access**: VNC for Full-Control or View-Only access is permitted
- **Enabled with View-Only access**: VNC for View-Only access is permitted
- **Disabled**: no VNC access is permitted

It is important to note that if **Disabled** is selected on the terminal, no VNC access is permitted even if passwords for VNC access are configured in View Designer. Any attempted connection via VNC from a computer to the terminal will result in a failure to connect message.

5. Use the **Navigation Menu** to return to the **Home** screen.

6. Click the **UltraVNC** icon in the **taskbar** to start **UltraVNC Viewer**.

![UltraVNC Icon](image)

**Note**: This lab uses the **UltraVNC** client, but other VNC clients (such as TightVNC) will work. UltraVNC is a free VNC client, while TightVNC offers both free and paid versions for varying types of use.
7. In the **UltraVNC Viewer** window, leave the settings as they are and click **Connect**.

8. Enter ‘**mightyqs**’ in the authentication window that appears, then click **Log On**.

A window will open and what is on the terminal screen is now visible on the computer screen.
9. On the computer, click the *Navigation Button* to open the *Navigation Menu*, then click *Pump_Control*.

![Navigation Menu](image)

10. Change the value of the *numeric display*.

Note that the display is fully accessible from the computer. This is because the password entered was the one set for "Full-Control Access".

11. Click the *Close Connection* button in the toolbar to end the VNC session.

![Close Connection](image)

12. Open *UltraVNC Viewer* again by clicking the icon in the taskbar and click *Connect* on the window that appears.
13. This time, enter ‘rockwell’ in the password text field and click Log On.

14. Click around the display and note that interaction with the HMI is no longer possible.

This is because the password entered was the one set for “View-Only Access”.

15. Close UltraVNC Viewer.
PDF Viewer

Business Issue
Providing operators and maintenance people with quick access to process and machine documentation can improve machine start-up time and reduce downtime. Paper documentation is time consuming for operators to access, can easily be lost or damaged and is difficult to maintain.

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

Adding a PDF to the View Designer Project Explorer

1. In the Project Explorer, right click Documents under Assets and select New Documents.

2. Browse to C:\Lab Files\Explore and select cie-wp002_-en-p and click Open.
3. Press **Enter** to keep the name of the document as-is.

Viewing a PDF on a Screen

Once the PDF has been added to the project, a viewer element can be placed on a screen, similar to how other elements are put on screens or popup displays. The PDF Viewer element is located in the Toolbox.

In addition, two Add-On Graphics that include the PDF reader as well as buttons configured with typical Event Commands, have been included in all new projects as pre-defined content. The steps below walk through the process of adding the Add-On Graphic to a new screen.

1. Create a new screen by right clicking **User-Defined Screens** and selecting **New Screen**.

2. Name the new screen **References** and press **Enter**.
3. Right click References under User-Defined Screens and select New Shortcut.

4. Press Enter to leave the name as-is.

5. Double click References under User-Defined Screens to open the screen.

6. In the Toolbox, click Add-On Graphics, then double click PDF_Viewer_Landscape to add the element to the screen.

   PDF documents can also be added to a screen using PDF_Viewer, which is found in the Toolbox under System.
8. On the **Properties** panel, click the arrow next to the **DocumentName** property to show the drop down menu of available documents. Select `ciewp001_enp`, the only document that has been added to the project.

The PDF is now visible on the screen, as seen below:

9. Also on the **Properties** panel, note the **Zoom** property and the options in the dropdown menu.

The element is currently set to **Fit width**, which will zoom in on the document to fill the entire element.
10. Change the property to **Fit page**. The document will now fit the entire page within the element.

The **PDF_Reader** Add-On Graphic contains a great deal of built-in functionality to allow manipulation and navigation of the PDF. The text and number displays at the bottom of the Add-On Graphic auto-populate with the document title, current page, and total number of pages at runtime. The buttons in the Add-On Graphic include options to view the bookmarks within the PDF, page forward and page back, fit width and fit page, and incremental zoom in and out.

Similar functionality for PDF control can be achieved using a Touch Release type event. The options can be viewed in the drop down menu below.
Download and Explore

1. Click the **Download** button in the toolbar to download the project to the device. Click **Download** on the window that appears, then **Close** when the download is complete.

2. On the terminal, tap the **Navigation button** to open the **Navigation Menu**. On the **Navigation Menu**, tap **References** to open the new screen.

3. Take a few moments to explore the **PDF Reader**.
   - 1 – View bookmarks that have been configured in the document (outside View Designer)
   - 2 – Page back/page forward
   - 3 – Currently viewed page out of total pages in the PDF
   - 4 – Name of the PDF
   - 5 – Change view to Fit width
   - 6 – Change view to Fit page
   - 7 – Incremental zoom in/zoom out
   
   These buttons have been configured using the various Event commands available for the PDF Viewer element.

4. Click the **Bookmarks** button in the lower left corner of the screen.
This button has been configured to open the bookmarks pane:

The pane will show any bookmarks that have been configured for the PDF. These bookmarks are added to the document outside of View Designer, but can be utilized at Runtime.

5. Continue exploring the functionality of the PDF feature.
Using Add-On Graphics – Optional

Business Issue
I want the ability to create my own collection of elements to link directly to an Add-On Instruction or User-Defined Tag of my creation. Once they are created, these elements can be used on any screens, just like any other Toolbox element, and all of the instances will update if I change its definition.

Solution
Studio 5000 View Designer Add-On Graphic functionality allows a group of elements to be reused multiple times throughout a project. An Add-On Graphic is comprised of multiple graphic elements, which can be treated as a single graphic element when used on a screen. Consistency among the deployed Add-On Graphic instances is maintained by propagating any change made to the Add-On Graphic definition. Add-On Graphics can use properties to easily link to Logix data types such as User Defined Data Types and Add-On Instructions.

Creating an Add-On Graphic
Follow the steps below to create a new Add-On Graphic in the project.

1. In the Project Explorer of View Designer, scroll down and right click Add-On Graphics, then select New Add-On Graphic.

2. Type “TankInfo” as the name of the new Add-On Graphic, and press Enter.
3. Double click the new **TankInfo** Add-On Graphic to open the Add-On Graphic definition.

4. In the **Toolbox**, type “**Mixing**”, then double click **Mixing Hopper Side** to add it to the definition.

5. Remove the filter by clicking the **X** button, then select **CommonControls**.
6. Double click **Numeric Display**, then double click **Text Display** to add the two elements to the Add-On Graphic.

7. Click and drag the **Numeric Display** and **Text Display** until the Add-On Graphic looks like the picture below:

8. In the **Property Definition** area, located near the bottom of the View Designer screen, add a new property named “**Tank**”.

---

**Note:** There are two types of property definitions:

**User-Defined Property**
Used as a placeholder in a tag reference. For example, the same button panel screen can be used to manage multiple devices by using a property in its bindings. At runtime, different tag instances can be passed to a graphic element each time the button panel screen is opened, allowing the same element to be used with multiple tag instances.
Alias
Create an alias property to reference a property of the screen or a property of a graphic element on the screen. This allows an expression to be passed directly to the property when the screen is opened, whether the expression is a tag or a specific value.

9. In the Data Type field, click the ellipsis button to open the Data Item Browser.

10. Expand User-Defined, and double click Base_StorageLOC.

Note: A user defined property can be given a data type association to make it easier for a user of the screen to assign a tag of the correct type to the screen property.

Note: This Add-on Graphic is now associated with the Base_StorageLOC UDT in the Logix program. Each instance of the Add-on Graphic can now be mapped to a different instance of the UDT, allowing easy integration between Logix Designer and View Designer. When the Add-on Graphic is used on a screen, it will now have a property associated with a Tank data type. This will allow the Add-on Graphic to be reused multiple times with different Tank data type tags.
11. Select the **Numeric Display**, so that its properties appear in the **Properties** panel.

12. Click the **ellipsis** button in the **Value** property to open the **Data Item Browser**.

![Data Item Browser](image)

Notice the Tag Browser has opened directly to the Property Definition just created. User-Defined properties are now found in the Tag Browser under **Local:HMIDevice > “Component Name”**, and can be browsed like any other component in the tag browser.

13. Expand **Tank**, then double click **Current_Level**

![Tag Browser](image)

Notice that the Tag Browser is browsing the elements of the User-Defined Data Type. When the Add-On Graphic is used on a screen and the property is set to one of the UDT instances in the controller, the Tank property definition will use that UDT and its elements.

14. Under **Appearance**, change the **TextAlignment** property to match the following:

![TextAlignment](image)

15. Select the **MixingHopperSide_001** element using the **Graphic Explorer**.

![Graphic Explorer](image)
16. Use the *Binding* button for the *Level* property, click *Bind property to item*, then click the *ellipsis* button to open the *Tag Browser*.

17. Double click *Current_Level*.

18. Bind the *MaxLevel* property, click *Bind property to item*, then click the *ellipsis* button in the *MaxLevel* property to open the *Data Item Browser*.

19. Double click *Full_Level* to bind the property to the tag.

20. Select the *TextDisplay_001* element using the *Graphic Explorer*. 
21. In the Appearance category, change the TextAlignment so that it is aligned to the middle:

22. In the General category of the Properties panel, right click Text, and select New Alias…

The Alias will appear in the Property Definition panel:

While this alias is not bound to a tag or a member of the User-Defined Data Type, when the Add-On Graphic is used on a screen, the property will be configurable.

Adding an Add-On Graphic to a Screen

After creating the Add-On Graphic, instances of it can be added to screens throughout the project. The aliases and user defined properties will need to be configured for each instance. Follow the steps below to explore this functionality.

1. In the Project Explorer, under User-Defined Screens, double click Pump_Control to open the screen.
2. In the Toolbox, select **Add-On Graphics**, then double click **TankInfo** to add it to the screen.
3. Move the **Add-On Graphic** so that it does not overlap the pump control group.

![Diagram showing the pump control group with an Add-On Graphic moved appropriately]

4. Add another **MixerInfo** Add-On Graphic, this time to the right of the pump control group.

![Diagram showing the pump control group with another MixerInfo Add-On Graphic added]

5. Select the **left TankInfo**, then look at the **Properties** of the Add-On Graphic.

![Properties dialog box for the TankInfo Add-On Graphic]

Notice the two properties defined for the Add-On Graphic appear under General. This is where they will be defined for each instance of the Add-On Graphic.
6. Click the *ellipsis* button for the **Tank** property to open the **Tag Browser**.

![Tag Browser](image)

Notice the Tag Browser is filtered for the Tags that have the Base_StorageLOC data type.

7. Expand **mMixerStorage**, and double click **mMixerStorage[0]**.

![Tag Browser expanded](image)

8. In the **Text_001** field, type “**Butter**”.

![Text_001](image)
9. Click the **MixerInfo** Add-On Graphic on the right, and modify the properties to match the picture below:

![MixerInfo graphic](image)

The screen should now look like the following:

![Modified graphic](image)

**Modifying an Add-On Graphic**

In this section, an Add-on Graphic that has already been used in a project will be modified. Changes to an Add-on Graphic will propagate to all instances of it within the project automatically, reducing design effort.

1. Toggle to the **TankInfo** Add-On Graphic definition.

![TankInfo graphic](image)

2. Select the **Text_001** element from the **Graphic Explorer**.

![Graphic Explorer](image)
3. Change the *FontColor* to a color of your choice using the drop down button.

![FontColor selection](image1.png)

4. Return to the *Pump_Control* screen.

![Pump_Control screen](image2.png)

5. Notice that the color of each *MixerInfo* text display has been updated with the change in color:

![MixerInfo text display](image3.png)

6. Feel free to download or emulate the project to explore the real time data.
Runtime Language Switching – Optional

Business Issue
I want to use my project in multiple facilities around the world and allow the operators to choose the language with which the project displays its information.

Solution
As of version v3.01, Studio 5000 View Designer includes Runtime Language Switching. Users can configure the project to include up to 20 languages.

Opening an Existing Project
In this section, a partially completed project will be opened and configured for runtime language switching.

1. Minimize the MyProject View Designer window.

2. Open Studio 5000 by clicking the icon in the taskbar.

3. Select Existing Project.
4. Navigate to C:\Lab Files\Explore in the file browser. Select *MightyQsCookies* and click *Open*.

Make sure to change the *File Type* to *View Designer (*.vpd)*.

![Image of file browser with mightyqscookies selected and view designer selected]

Note that *View Designer (*.vpd)* must be selected as the file extension to view the file.
Exporting View Designer Text Strings

1. In the Tools menu of MightyQsCookies, select Export Languages…

The Export Languages dialog will appear:

2. Use the drop down list for Select current language, to select English (United States), if it is not already configured.
2. In the **Selected language for localization** list, scroll down and select *French (France)*.

Feel free to scroll down to explore the other languages that have already been selected (Chinese, German, Italian, Spanish, and a few others).
Up to 20 languages can be exported or imported into a View Designer project.

By default, the exported languages file will be in the *.xlsx format. However, it is also possible to save the file in a Text Document (*.txt) format, which is similar to the Tab Delimited format used by ACD String exports. In addition, the file will be exported to the location in which the project is currently located.

3. Click **Export** to export all of the text strings configured in the project.

4. If prompted, click the **Save and Export** button.
   When the export is complete, the **Export Languages** dialog will close.

### Modifying View Designer Text Strings

1. Open **Windows Explorer** using the icon in the taskbar.

2. Browse to **C:\Lab Files\Explore** and double click **Cookies_Languages** to open the language file.

Notice the different columns in place for the languages that have been exported. In a new file, all cells below the language headings will be empty.
Be sure to pay attention to the following:

- **1** – Do not make any changes to the first four columns, as this may adversely affect the import of the file back into the project.

- **2** – As mentioned in 1, do not change any text, or in any way format these items.

- **3** – Use these cells to input newly translated cells, matching the translated strings to those in the Key column.

3. Close the **Cookies_Languages.xlsx** file and do not save any changes if prompted.

**Importing View Designer Text Strings**

1. In Windows Explorer, navigate to **C:\Lab Files\Explore** and double click **Cookies_Languages_Complete** to open the file.

This file contains the translated French text that was missing from the file exporting earlier.
2. Scroll through the Excel file to see the text strings that have been translated.

3. Close the Excel file, selecting **Don’t Save** if prompted.

4. Close **Windows Explorer** and return to **MightyQsCookies** in **View Designer**.

5. In the **Tools** menu, select **Import Languages**…

6. In the Import Languages dialog, click the **Browse** button for the **Language file** field.
7. Browse to **C:\Lab Files\Explore** and select **Cookies_Languages_Complete** and click **Open**.

Notice the Import language changes field has been updated to reflect the languages that have been affected by changes made to the exported file. In this case, French has been added.

8. Click **Import**.
Creating a Language Switch Button

Due to the functionality of View Designer, any element on any screen can be turned into a button using Events and Commands. With the release of version 3, the list of commands now includes language switching. Turn a group of elements into one such button using the steps below.

1. In the Project Explorer, double click the LanguageSelection popup display under User-Defined Screens.

![Project Explorer screenshot]

2. Select the French flag and text display group.

![Language selection screenshot]

3. Click the Event tab, then click the Add Event drop down, and select Button Behavior.

![Add Event screenshot]
4. In the *Choose Behavior* drop down, select *Switch language on release*.

5. Finally, use the *Switch Language To:* menu, select *French (France)*.

Notice the list includes only those languages that have been imported back into the project.

Language Switching System Tag

A system tag, *ActiveLanguage*, has been added to the HMI Device Tags in the Tag Browser, making it possible to show the current language being displayed by the project at runtime.

Note that the *ActiveLanguage* tag is read only.
Configure the Default Startup Language

Use the steps below to verify the startup language for the project.

1. In the Project menu, select Project Properties.

2. Select the Language tab.

3. Using the Select Language drop down menu, select the language the project will use at start up.

   The project will use this selection when the project starts up, and will default to this selection if a string does not contain a translation for a selected language.

4. Click OK to close the Project Properties window.
Download the Project and Explore Language Switching

Use the steps below to download the file and explore language switching at runtime.

1. Click the **Download** button to download the project to the terminal. Click **Download** again on the window that appears.

2. Once the download is complete, click **Close** to close the Download Runtime Application window.

3. Turn to the terminal. Tap the **Navigation Button** in the **System Banner** to open the **Navigation Menu**. On the **Navigation Menu**, tap **Areas** to open the folder, then tap **Mixer** to open the **Mixer** screen.

3. Press the **American flag** button in the **System Banner**.
4. Press the Chinese flag element.

Notice that the text strings used by the View Designer project have switched to Chinese.

The text strings have now changed to French.

Notice the strings found in white on the screen have not been switched to any language. String tag values will not be converted to the selected language, but extended properties can be.

In addition to the View Designer strings switching at runtime, Extended Tag Properties and Alarm Message strings will switch, as long as the controller project has been loaded with the translated strings.