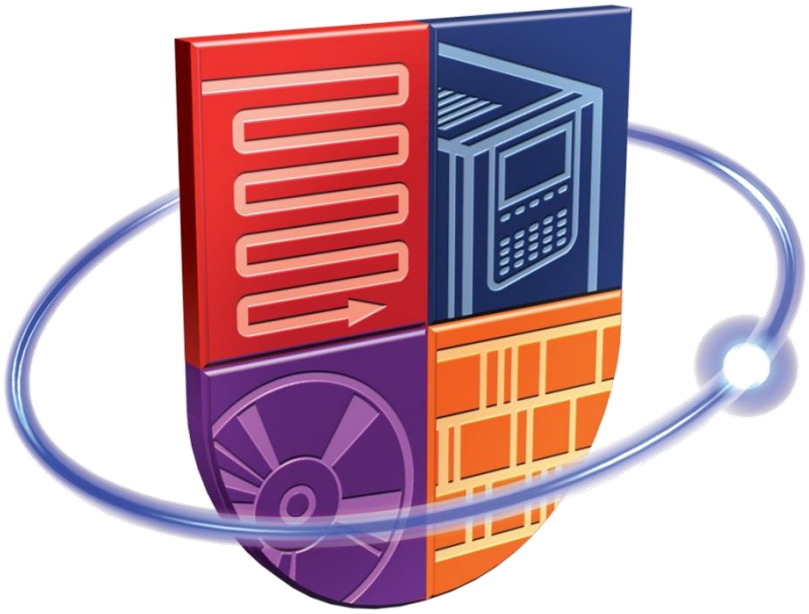


AUTOMATION UNIVERSITY

AUL21

FactoryTalk View Machine Edition

PanelView Plus 7 - Discover the key benefits of an integrated HMI solution

LISTEN. THINK. SOLVE.®

Allen-Bradley • Rockwell Software

Rockwell Automation

Table of Contents

AUL21 FactoryTalk View Machine Edition and PanelView Plus 7: Introductory Lab.

About this Lab

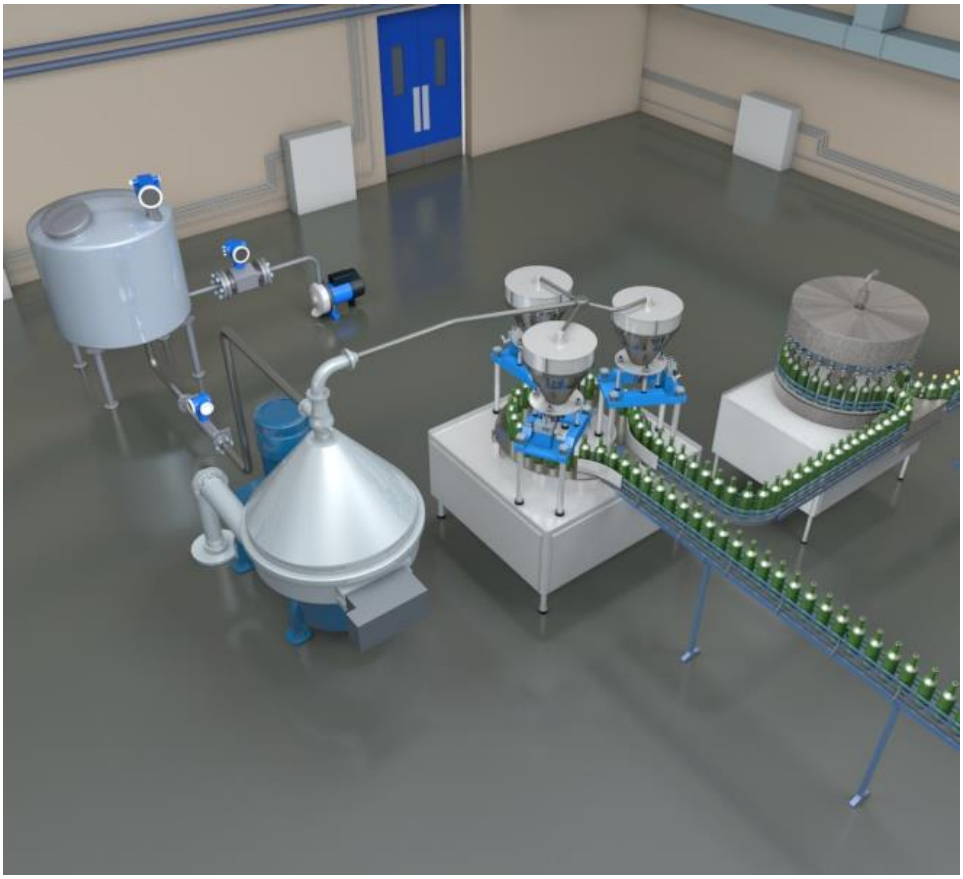
This Lab is an introductory Lab that explores the features and functionality of Factory Talk View Machine Edition and PanelView Plus 7.

The lab sections commence with an explanation and feature details in the “Read about” section and then the hands on part follows. It is not necessary to read the explanations, but a more thorough understanding of the features presented will be attained if time is taken to read them.

The lab is intended as a complete all sequentially style Lab, with all of the sections intended to be completed one after the other.

The Lab is based on a process that has an infeed pump, buffer tank, separator, filling machine and bottle capper.

The process overview is shown below.



Who Should Complete This Lab

This Lab is intended for users who are unfamiliar with the features and functionality of Factory Talk View Machine Edition and PanelView Plus 7.

Tools & prerequisites

There are no prerequisites for doing this Lab.

Required hardware : PanelView Plus 7 9” wide.

About the images

The lab runs on VMWare Workstation.

Installed software

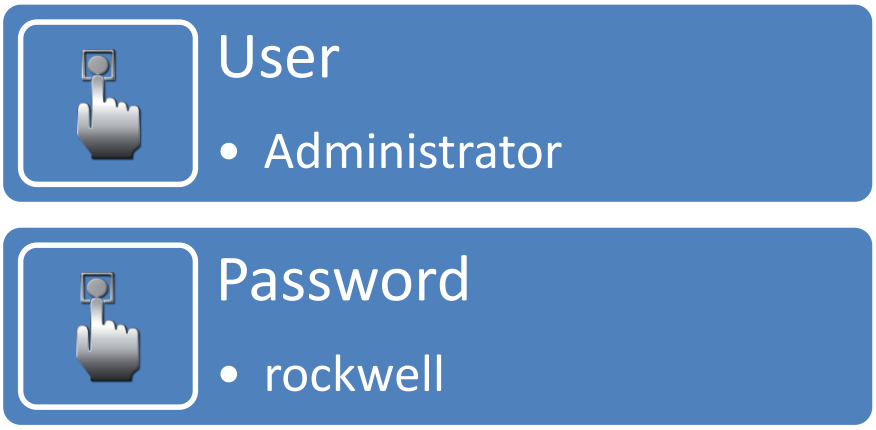
The image AUL21 has the following software running on it.

- FactoryTalk View Machine Edition V8.0
- RSLinx Enterprise V5.60 (CPR9 SR6)
- Studio5000 V21.00.00
- SoftLogix V21.00.00

Logging onto the images

This section is for reference information only.

The image will automatically log on. If you need to log onto the image use the following credentials.



Navigating around the image

This section is for reference information only.

FactoryTalk View ME Studio and the client can be left opened once started. The client will run in full screen.

Running programs can be switched between by pressing **<<ALT>> <<TAB>>** or from the taskbar.

The desktop can be switched to by either pressing **<<WINDOWS KEY>> <<D>>** or by clicking the desktop icon in the taskbar.

Lab content:

The lab consists of 5 sections :

- Modern GUI, Flexible navigation
- Mass data manipulation (Recipe, Data logging and trending)
- Fast and efficient application development
- Mobility & multimedia content
- User management

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 italic (e.g., ***IO Configuration*** or ***OK***)	Any item or button that you must : - 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. - Type in the specified field. This is information that you must supply based on your application (e.g., a variable).
	The text that appears inside of this gray box is supplemental information regarding the lab materials, but not information that is required reading in order for you to complete the lab exercises. The text that follows this symbol may provide you with helpful hints that can make it easier for you to use this product. Most often, authors use this “Tip Text” style for important information they want their students to see.

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

Application tour, Modern GUI and Flexible Navigation (20 min)

About This Lab Section

In this lab, you will use some of the graphical features available in FactoryTalk View Studio, you will take a tour of the application on the PanelView Plus 7 terminal and FactoryTalk View Studio.

You will see the following features:

- GUI objects with gradient.
- PNG graphics
- Alarm Management with updated GUI
- Alarm notification through email
- Goto display with parameter pass through
- Language switching

Tour of the application

Before we go through the application and show the capabilities of PanelView Plus 7 and FactoryTalk View Machine Edition, we will go through the icons that are used in the menu bar.

The menu bar itself is a global object that is created using PNG graphics.

PNG images are images like bitmap or JPEG files. The biggest advantage is that they support transparency.

This is an example to show the difference between PNG and Bitmaps.

The object on the left is PNG file the one on the right is a Bitmap image.

The PNG image shows the blue gradient background.

Each icon has 2 colors, when it is blue, it means that you are on a screen that is linked with the icon. When the icon is transparent then you can click on the icon to go to that screen.

As an example I added both icons for the home screen.

This is the home screen that will be used to show the overview of the installation. It will also be used to do security actions and to shut down the application.

Tank

 Separator.

Bottle Filler

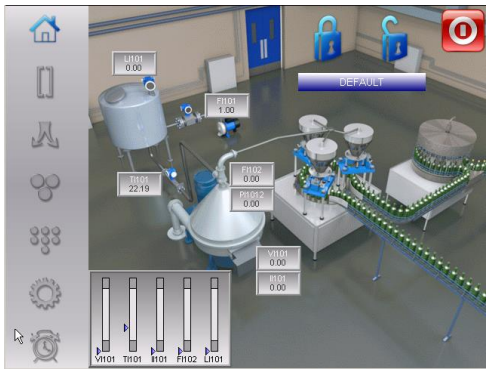
Bottle Capper

Operator, Engineer or administrator screen, depending on the login.

Alarm Screen

ON YOUR PANELVIEW PLUS 7 TERMINAL

1. If you see  then click on the icon to go to the ***Home*** screen, otherwise you already have the Home screen open.



On this Home screen you can see several features of Factory Talk View Machine Edition.

The side menu bar is used on all displays and is a global object which means that if you change the global object which is in 1 location it will this object on all the screens.

Later on in the lab we will do some modifications to the menu bar.

This object is also a global object which is created once and then used several times. As you can see this object is using the new gradient fill.

This object is a global object and it is created to easily show an operator if the system is running ok. The light grey area shows the area where the value is ok. If the arrow goes into the darker grey area that means that there is something wrong. In some cases you can see a yellow or red diamond-shapes object indicating a medium or high alarm. Values don't always indicate to an operator to see if the system is running fine. With this object it is easier to see.

Alarm management with email notifications and multi-language.

In this section you will see that the PanelView Plus supports multiple language including languages with special characters like Chinese.

You will also learn the possibilities to warn operators that there is a High alarm.

ON YOUR PANELVIEW PLUS 7 TERMINAL

1. Click on  to open the ***Alarm screen***
2. The alarm screen uses the new gradient fill. On the right bottom side you can see the different flags, if you click on any of the flags and wait until a new alarm comes in, you will see that the alarm is shown in the language you selected.

Beneath the flags is an object that will show the language you have selected.

If you change the language a couple of times you will see a similar alarm screen as new alarms are generated.

The button  will acknowledge all alarms.

3. Click on the button  which is used to simulate an alarm. When the icon looks like blue  then the alarm is active.

Using new email functionality on the PanelView Plus an email has been sent to the operator.

ON YOUR COMPUTER

You now have just generated a high alarm, now we will check on your computer if you have received an email from your PanelView Plus 7 terminal

1. Open the ***Microsoft Outlook*** on the desktop and check your emails.

The email will look like this:

2. Later in this lab we will go through the application showing you how this is done.

Flexible menu buttons.

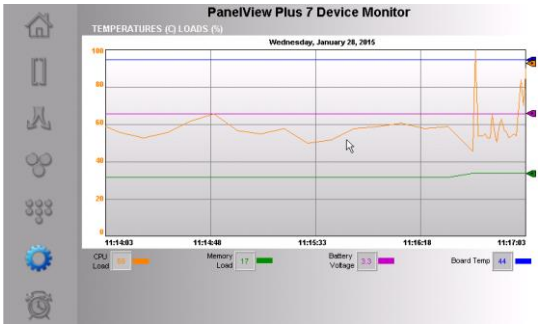
One of the new features in FactoryTalk View v7.0 is that a *Goto Display* button is now configurable. This means that you don't need to select a display you want to go to, but you can use a tag which will tell you which screen needs to be opened.

In this section you will experience what this means.

ON YOUR PANELVIEW PLUS 7 TERMINAL

1. Click on 

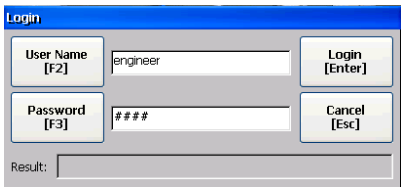
   The following screen will be opened:



   This screen shows an operator the temperatures and loading of the PanelView Plus 7 terminal. All these values are collected using the Terminal Info ActiveX controls.

   More information about these ActiveX controls are in the "Mass data manipulation" section.

2. Click on  . On the home screen click on  .
3. The Login screen will show up.



   Log in with:

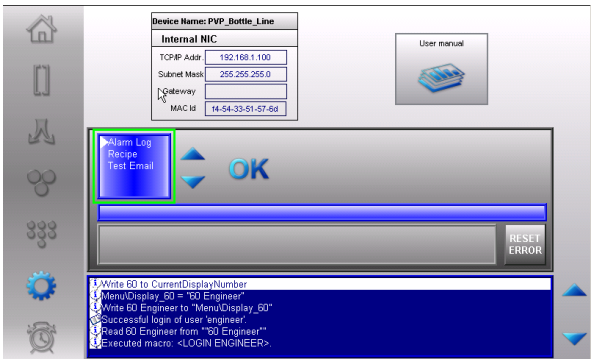
   User : ***engineer***

   Password : ***pvp7***

4. If you are successfully logged in you should see Engineer in the box below the login.

5. Click on 

   The following screen will be opened:



6. So depending on the login, the application will decide shich screen will open when you click on  .

   Later in the lab we will also use the Administrator login which will give you even another screen.

   How this is done is explained in the next section.

Communication Setup.

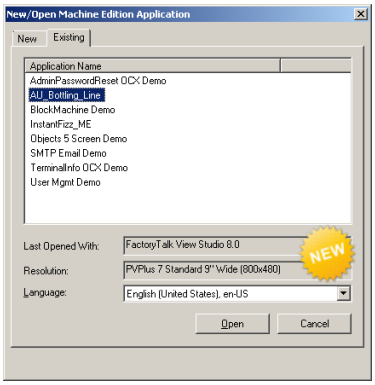
In this section you will check if the communication is setup correctly

ON YOUR COMPUTER

1. On the desktop, click on ***FactoryTalk View Studio***

2. Select ***View Machine Edition*** and click ***Continue.***

3. Select ***AU_Bottle_Line*** and click on ***Open***.

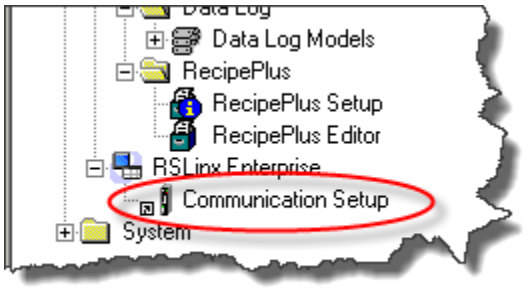


As you can see, there are 2 fields added “Last Opened With” which will show you what version the application is in and “Resolution” which shows you the screen resolution of your application.

For this application we are using the PanelView Plus Standard 7 , 9” Wide Display.

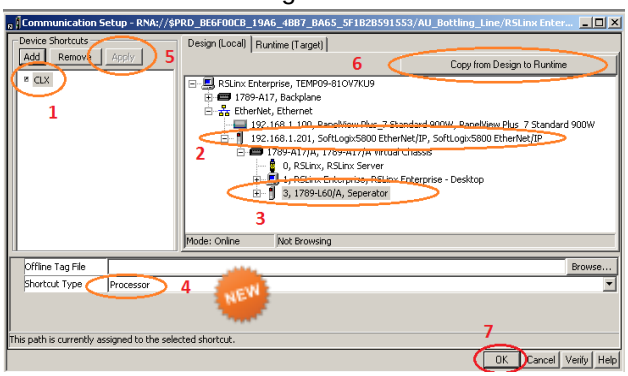
4. Just to check that the communication is setup correctly, let’s have a look.

Open ***RSLinx Enterprise*** and double click on ***Communication Setup***.



5. Ensure you see the following in the 6 steps below:

    1. Select the shortcut ***CLX***
    2. The Ethernet Module with IP address **192.168.1.201** is expanded
    3. The Softlogix L60 controller in slot 3 is highlighted.
    4. The shortcut type is ***Processor*** (More info in Appendix A)
    5. Click on ***Apply***. If this is greyed out, it means that the link has been made already.
    6. Click on ***Copy from Design to Runtime***
    7. Now click on ***OK*** and ***Save*** the configuration when asked for.



In FactoryTalk View v7.0 they added 2 shortcut types Symbolic and EDS Parameter. Both of them allow you to connect to device like Stratix switches, Power monitors, … without having to go through a controller. In V8.0 an additional unsubscribed messages option is available.

More information can be found in Appendix A.

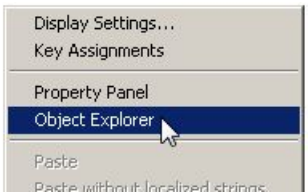
Flexible navigation buttons.

In this section we will show you how easy it is to make 1 Goto Display button go to different screens.

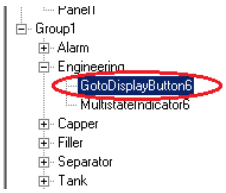
ON YOUR COMPUTER

1. In ***Global Objects*** section, select screen ***Global_Objects_1***.

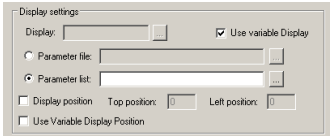
2. Right click on the display and select ***Object Explorer***



3. In the Object explorer under **Group1** expand the ***Engineering*** section and double click on ***GotoDisplayButton6***

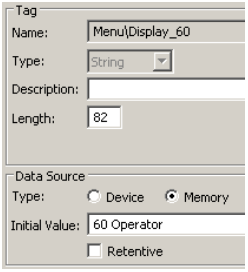


4. In the ***General*** tab you can see that there is no display selected but the ***Use variable Display*** **box** is checked.



5. In the **Connections** tab you can see that the ***Display Name*** comes from tag {Menu\Display_60}.

6. By default this tag has the value ***60 Operator*** which is also the name of the operator screen.

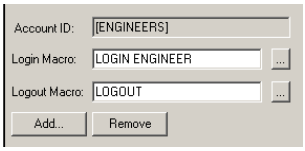


7. Every time you login, a macro will start to set the display name.

   When an engineer logs in, the Display name will be 60 Engineer

   When an administrator logs in the Display name will be 60 Administrator

   When a user logs out the Display name will be 60 Operator.



> ***Remark :*** In this lab the icon for operator, engineer and administrator screen is the same. Because we used a multistate indicator based on the display number, you could also change the icon depending on who logged in using the same macros.

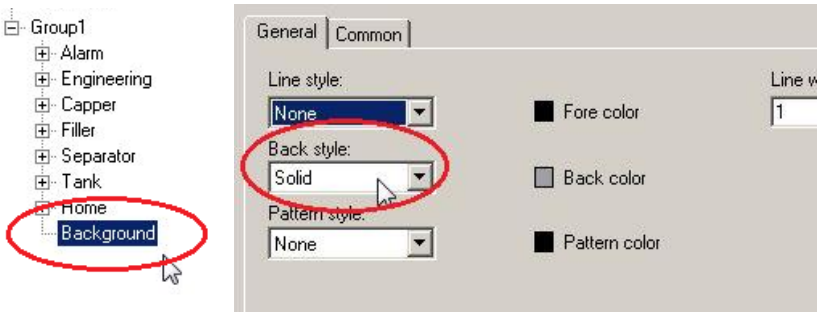
8. ***Cancel*** the ***GotoDisplayButton6***.

Navigation using Global objects.

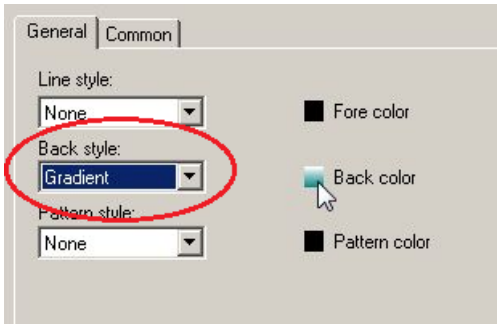
In this section you will replace the background of the menu bar with a rectangle using gradient shading.

ON YOUR COMPUTER

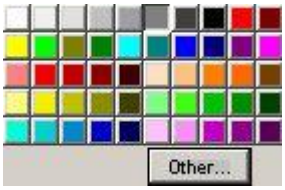
1. Double click on ***Background*** from the Object Explorer.



2. Change the ***Back Style*** from Solid to ***Gradient***.

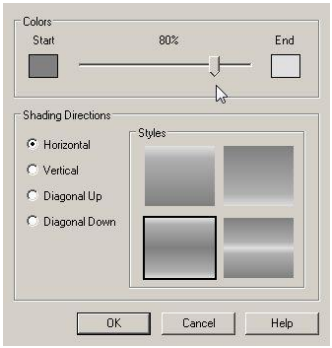


3. Click on the ***Back Color***.
4. Now you can change the colors of the rectangle. Click on the Start Color and select the 6th grey color



5. Now click on the end color and select the 3rd color.

6. Change the level to 80% by doing this you can add some special effects to your objects. In this case it will use 80% of the dark grey and 20% of the light grey. For the sharing direction, select Horizontal and then the bottom left style



> ***Note :*** ***A PanelView Plus 7 terminal cannot process a Gradient Fill that uses a Diagonal Up or Diagonal Down direction, nor can the terminal apply a Gradient Fill to a rotated object. While running a project on a PanelView Plus 7, the gradient attributes will be animated using the gradient fill starting color as the object's solid color background. When running the project on a computer, the system can process all gradient fills and this warning does not apply.***

7. Click ***OK*** to close the Gradient Fill property.
8. Click ***OK*** to close the Background object.
9. Close the ***Global_Objects_1*** display and click ***Save*** when asked
10. Open Display to ***10 MAIN***, you can now see that the menu bar background has been updated.

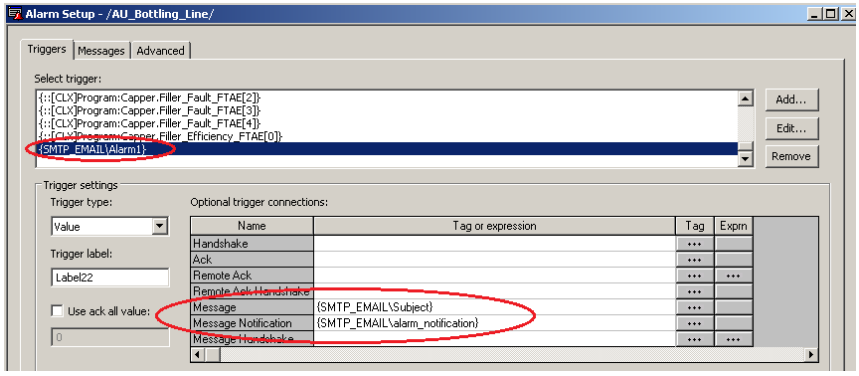
Checking Alarm setup to email High priority alarms

In this section you will learn how to use and configure the email capabilities of the PanelView Plus 7 terminal.

ON YOUR COMPUTER

1. Double click on ***Alarm Setup***

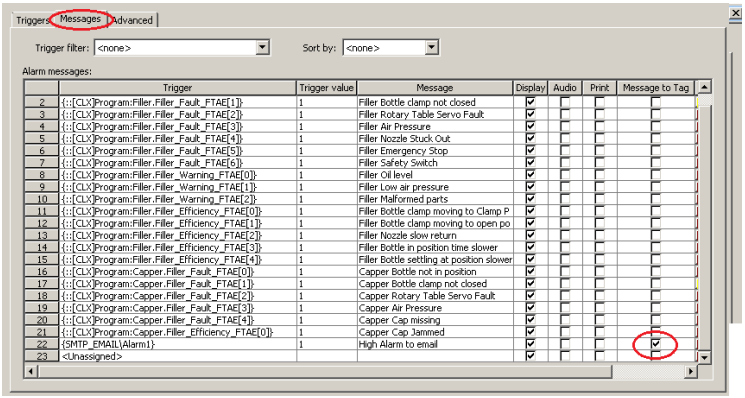
2. Click on the last alarm called ***{SMTP_EMAIL\Alarm1}***



As you can see the message of the alarm is used as the subject for the Email.

The message notification is used to actually trigger the email.

3. Click on the ***Messages*** tab

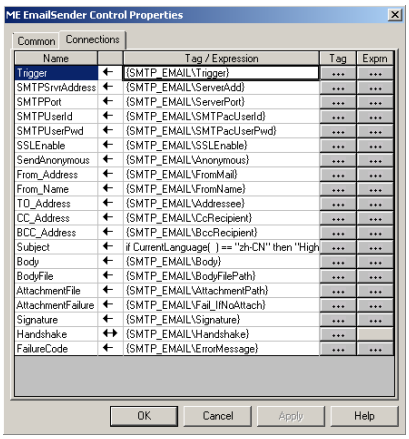


By selecting the ***Message to Tag*** checkbox, you sent the alarm message to the ***Message tag*** in the Trigger tab. So when the alarm is high, the alarm message “High Alarm to email” is sent to tag {SMTP_EMAIL\Subject} and the tag {SMTP_EMAIL\alarm_notification} is set to 1 which triggers the email sender activeX to send the email.

4. Close the ***Alarm setup***.

EMAIL SENDER ActiveX

The email sender utility is located on screen ***99 load ActiveX*** and looks as following:



The EmailSender ActiveX (SMTP Email) controls provides the system with the ability to send an email via an SMTP server. The control can be used to send a simple email containing a string, an email with an attachment, or an email whose body is contained within a text file. The email is sent via an external SMTP server. The control provides the following features:

- Send an email
- Send an email with an attachment
- Send to separate TO, CC and BCC list
- Customize the sender
- Customize the subject
- Customize the signature

Important: Please note you should only use one control per display, and it is suggested to only have one per application.

Mass data manipulation (15 min)

About This Lab section

In this lab, we will talk about the differences between the CSV based data logging and the native data logging and how to show historical data in trending.

We will also use CSV based recipe handling and how to easily transfer recipes to your PanelView Plus 7 terminal.

In the appendix B is an overview of the difference between the built-in RecipePlus and the Recipe ActiveX.

In the appendix C is an overview of the difference between the built-in Data Log and the DataStore ActiveX.

How to run data logging continuously.

The CSV based recipe and data logging utilities are located on a screen that is always open.

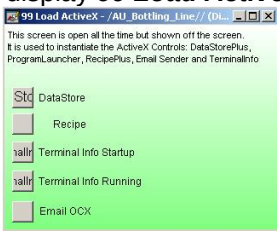
When you open your application it will open a display outside of the display area.

This display contains the recipe and datalog object.

Once the display is opened a macro starts and opens display “10 Main” which is the display you will see.

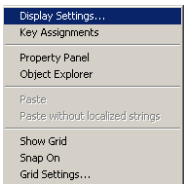
ON YOUR COMPUTER

1. In FactoryTalk View Studio, open display ***99 Load ActiveX***

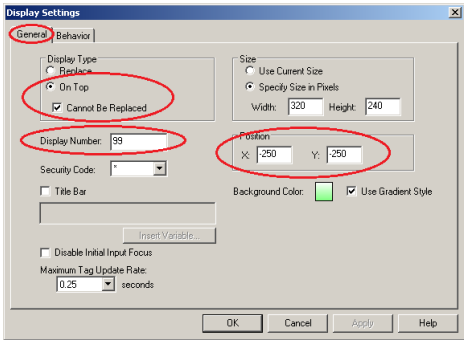


   You see 4 different ActiveX controls that have been used on this display.
   a. Recipe
   b. Datalogging
   c. Email sender
   d. Terminal Information

2. Right click on the display and select ***Display Settings***

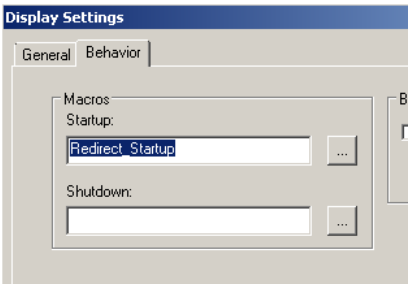


3. On the Display Settings property screen you can see a couple of important settings.

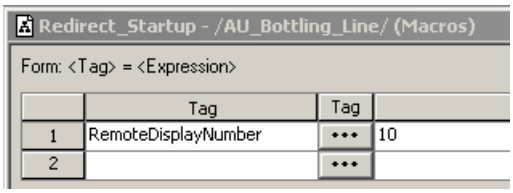


This display is an ***On Top, Cannot be Replaced*** display so that means that it is not affected by Replace Display commands.
Each display has a number, this number is used to open certain screens.
The X and Y position show that the display is not in the visible display area.

4. Click on the ***Behavior*** tab



Here you can see that when the display is started a Startup macro called ***Redirect_Startup*** is run. This macro will set the ***Display number*** to 10 which corresponds with display ***10 MAIN***.



5. **Close** the Display Settings dialog.
6. Now let's continue with the logging and recipe objects in the next section.

Data logging

In this section you will learn the differences between the CSV based data logging and the native data log that can be used for historical trending.

In the appendix C is an overview of the difference between the built-in Data Log and the DataStore ActiveX.

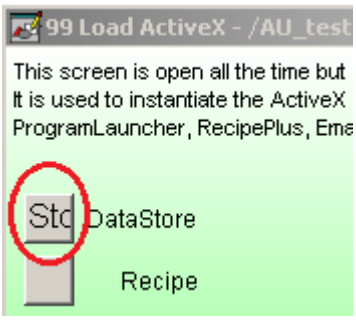
CSV based datalogging

The DataStorePlus ActiveX control contains the following advanced features:

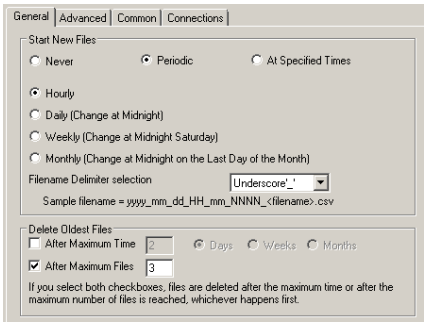
- File management - specify when new files are created and old files are deleted
- Customizing file headers - allow users to customize the headers of the CSV or TXT files.
- Logging periodically based on the time interval specified by users
- Each record is automatically date and time stamped with UTC and/or System Date and Time information
- Overwriting oldest data when the file reaches the size specified by users
- Optimized logging - log assigned connections only

ON YOUR COMPUTER

1. On display ***99 Load ActiveX*** display, double click on ***DataStore*** object

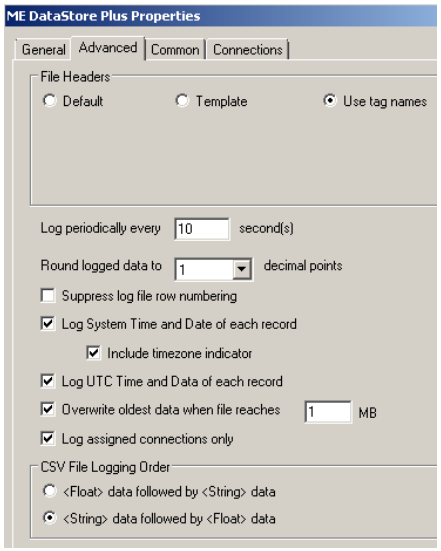


2. In the ***General*** tab you can see that the Data Collecting is setup to create a new file every hour.



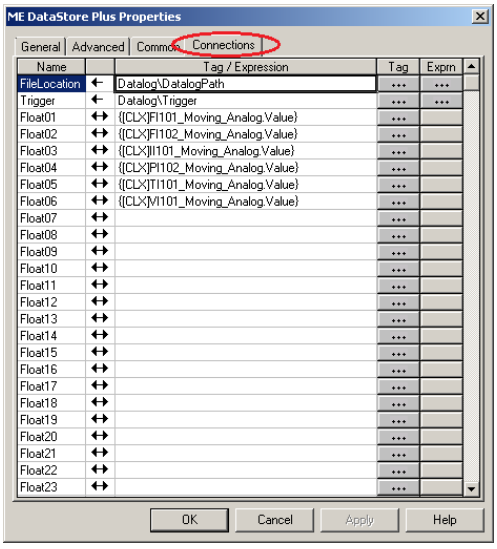
The log file has been setup to delete the oldest log files when they are more than 3 log files this could also be done using maximum amount of time.
So for this lab we keep the data for the last 3 hours.

3. Click on the ***Advanced*** tab



In this tab you can set the names of the columns used in the CSV file, when data is logged. What you can also setup here is which date/time you want the CSV file to use. UTC time is very useful because it is not affected by summer/winter time. This way you are sure no data is overwritten.

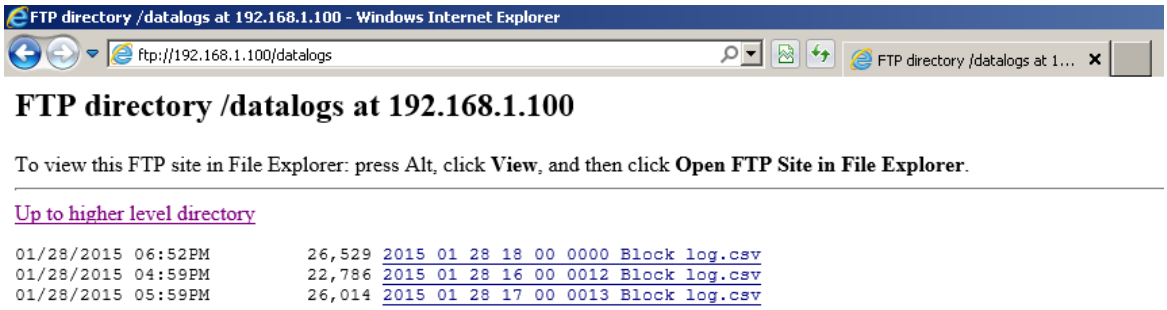
4. Click on the ***Connections*** tab so that you can see the tags that are logged.
The tag datalog\datalogPath contains the folder and filename.



5. Click on ***Cancel*** to close the object

6. On the desktop, open ***Internet Explorer***.

7. Type in the address bar ***ftp://192.168.1.100/Datalogs/***

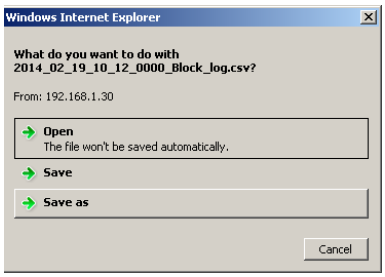


File Transfer Protocol (FTP) is a standard network protocol for exchanging files over the Internet (TCP/IP-based network) or local network.

The FTP server is enabled by default. If you go into the Control Panel on you PanelView Plus 7 then you can configure the folder used, security, users, … for FTP server in the Server Config.

More information on how to use this can be found in User manual : 2711P-UM06

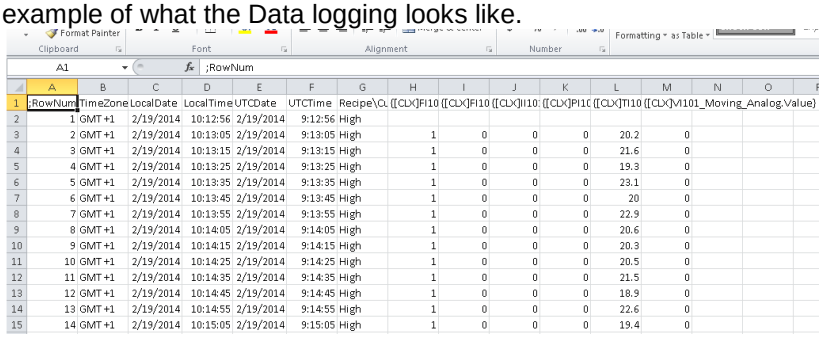
8. Select one of the log files and select ***Save as***



9. Save the log file in folder ***C:\Lab Files\Datalogs***

10. At the bottom of the Internet Explorer you will see that the download is finished and that you can open the log file.
If you don't see this you can always go to the folder you have saved the files to.

11. This is an example of what the Data logging looks like.



;RowNum	TimeZone	LocalDate	LocalTime	UTCDate	UTCTime	Recipe\CL	{[CLX]FI10	{[CLX]FI10	{[CLX]II10	{[CLX]PI1(	{[CLX]TI10	{[CLX]V1101_Moving_Analog.Value}
1	GMT +1	2/19/2014	10:12:56	2/19/2014	9:12:56	High						
2	GMT +1	2/19/2014	10:13:05	2/19/2014	9:13:05	High	1	0	0	0	20.2	0
3	GMT +1	2/19/2014	10:13:15	2/19/2014	9:13:15	High	1	0	0	0	21.6	0
4	GMT +1	2/19/2014	10:13:25	2/19/2014	9:13:25	High	1	0	0	0	19.3	0
5	GMT +1	2/19/2014	10:13:35	2/19/2014	9:13:35	High	1	0	0	0	23.1	0
6	GMT +1	2/19/2014	10:13:45	2/19/2014	9:13:45	High	1	0	0	0	20	0
7	GMT +1	2/19/2014	10:13:55	2/19/2014	9:13:55	High	1	0	0	0	22.9	0
8	GMT +1	2/19/2014	10:14:05	2/19/2014	9:14:05	High	1	0	0	0	20.6	0
9	GMT +1	2/19/2014	10:14:15	2/19/2014	9:14:15	High	1	0	0	0	20.3	0
10	GMT +1	2/19/2014	10:14:25	2/19/2014	9:14:25	High	1	0	0	0	20.5	0
11	GMT +1	2/19/2014	10:14:35	2/19/2014	9:14:35	High	1	0	0	0	21.5	0
12	GMT +1	2/19/2014	10:14:45	2/19/2014	9:14:45	High	1	0	0	0	18.9	0
13	GMT +1	2/19/2014	10:14:55	2/19/2014	9:14:55	High	1	0	0	0	22.6	0
14	GMT +1	2/19/2014	10:15:05	2/19/2014	9:15:05	High	1	0	0	0	19.4	0

12. Close Internet explorer when finished

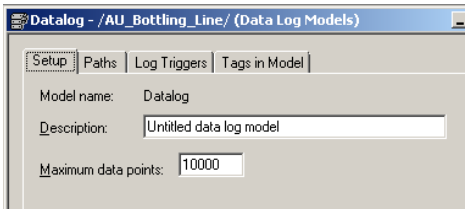
Data logging with historical trending.

In this section you will see how you need to setup data logging so that you can see historical data on a trend.

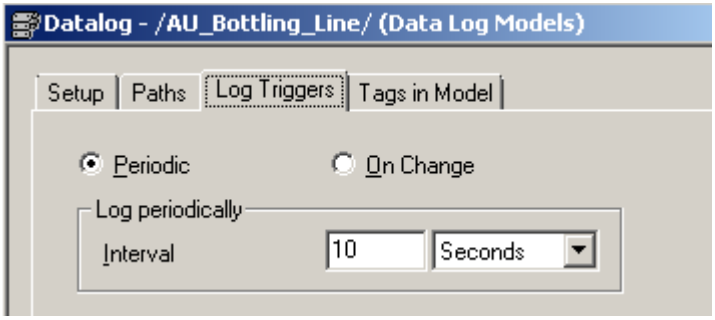
ON YOUR COMPUTER

1. Double click on the ***Datalog***

On the Setup tab you can see the Maximum amount of Datapoints which is here set to 10.000 but can be upto 1.000.000 records.

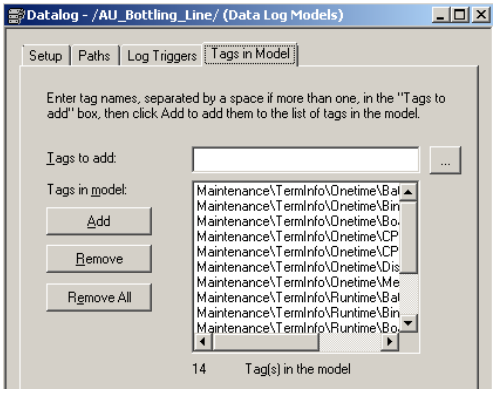


2. Click on tab ***Log Triggers***



Here you setup the frequency of the logging.

3. Click on the ***Tags in Model*** tab



In this tab you select all the tags you want to log.

4. Close Datalog when finished

All the data from this data log is logged in a special datalog format which can he viewed using the RSView Enterprise Viewer utlity. This utility can be downloaded from the Knowledge base ID 33924 - FactoryTalk View Enterprise File Viewer Utility.

The FactoryTalk View Enterprise File Viewer utility can be used to read and save the following files:

SE Datalog file (*.DAT, *.OBF)

ME Datalog file (*.LOG)

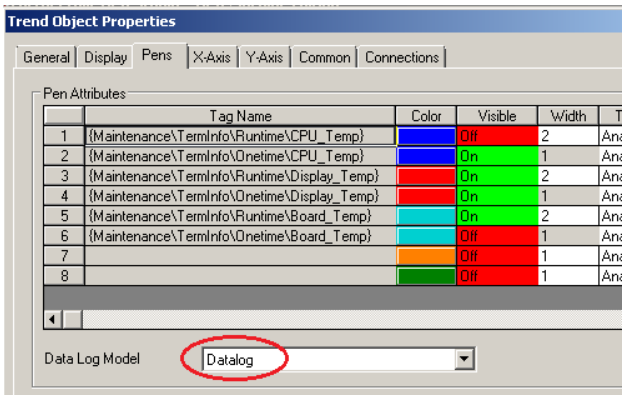
ME Alarm Log file (HISTORY.ALM)

dBASE file (*.DBF)

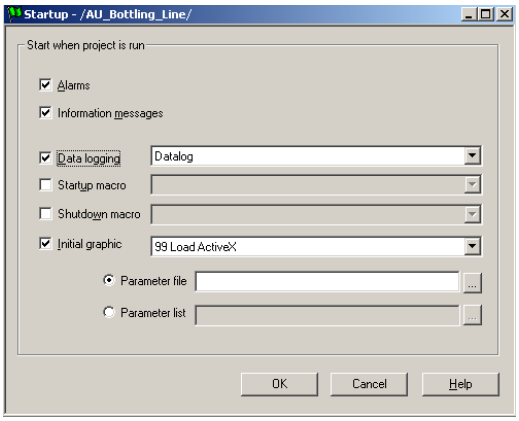
ME RecipePlus file (*.RPP)

The SE Datalog files, ME Datalog files, RecipePlus files and ME Alarm Log file can be saved as CSV or DBF files.

When you want to use this datalog to view historical data in a trend you need select the datalog model in the trend as shown below.



And in the Startup the Datalog needs to be selected. So that it starts running automatically when the application starts.



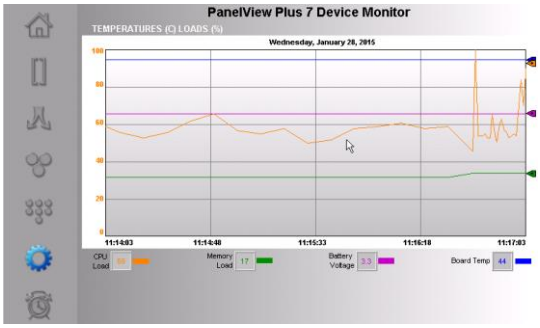
Historical trending.

In this section you will see on the PanelView Plus 7 terminal what the historical trending means.

ON YOUR PANELVIEW PLUS 7 TERMINAL

1. On the Main display click on the Logout  button

2. Click on the ***operator screen***  .



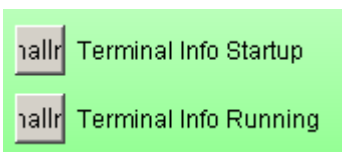
As you can see the trend is already showing values. This is because the values are stored on the PanelView Plus terminal and can be used by the trend to show.

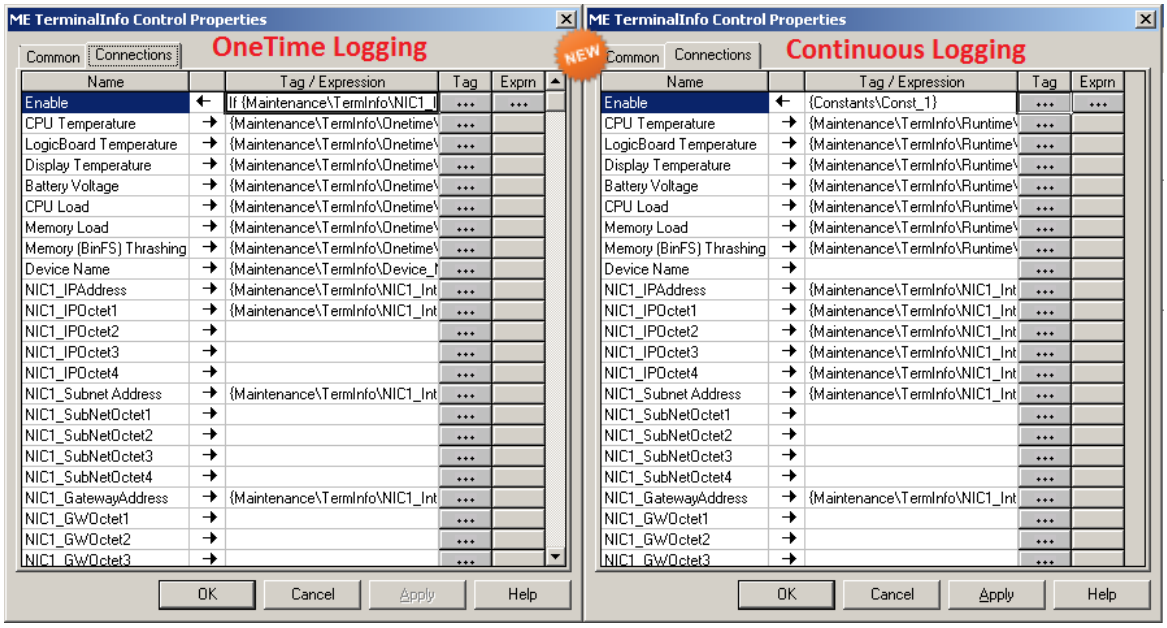
The information comes from the Terminal Info activeX controls which are located on display ***99 Loading ActiveX***.

The terminal info ActiveX can show the following information:

- CPU temperature
- Display temperature
- Board temperature
- CPU Load
- Memory Load
- Battery Voltage
- BinFS Thrashing
- TCP/IP address (internal + External card)
- Subnet Mask (internal + External card)
- Gateway (internal + External card)
- Mac ID (internal + External card)
- Device Name

The Terminal Info ActiveX is used twice. One is used for the OneTime logging (@startup), the other one does the continuous logging.





All these tags are used in the screen and trends to show the information needed.

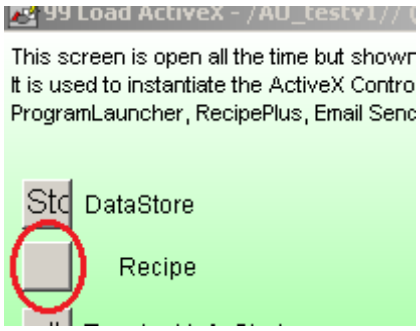
Machine setup using recipe object

In this section you will see how CSV based recipes can be used to setup a machine.

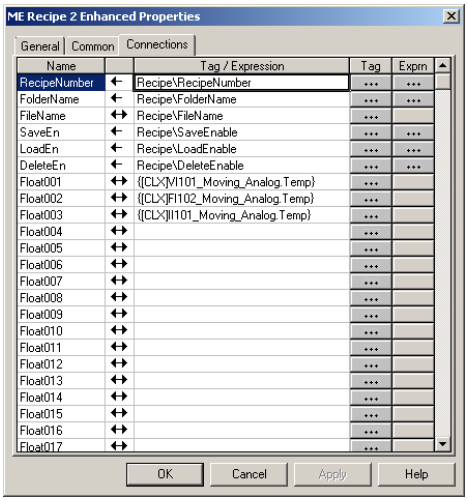
In the appendix B is an overview of the difference between the built-in RecipePlus and the Recipe ActiveX.

CSV based recipe handling

1. Double click the ***Recipe*** object in display ***99 Load ActiveX***



2. Go to the ***Connections*** tab.



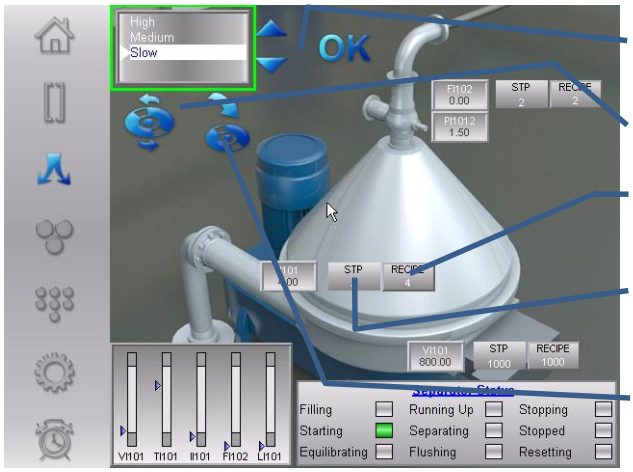
This recipe contains 3 tags that are used for the setup of the machine.
The recipe manager doesn't need to be used with ingredients like flour and milk, in this case it is used to setup the machine.

3. Close the Recipe properties

Now let's go to the PanelView Plus 7 terminal to see what we can do using these objects.

ON YOUR PANELVIEW PLUS 7 TERMINAL

1. Click on  to open the separator screen.



2. Select a recipe from the list using the arrows and press OK button

3. Load a recipe.

4. Before downloading you can modify the values.

5. If the value of the current setpoint is different than the value you want to download the STP box will turn green.

6. Download the recipe to the controller tags

This shows the actual value of the Instrument

This is the setpoint that is currently used

The green color indicates that the recipe loaded is different to the value currently used.

This is the value that is loaded from the recipe you selected. This value is stored in a temporary tag in the controller.

When a recipe is loaded, you can immediately see from the green color which Recipe values will change when you actually download the recipe.
The Recipe values can be changed before downloading the values to the setpoints used.

For security reasons we included the Recipe ActiveX on screen **99 Load Activex**. Which means that the activeX will only read the recipe files once. So if somebody added a recipe file then it wouldn't be visible. This way nobody can just add their own recipe.

If you want to be able to add recipes you can add the save button and put the Recipe ActiveX on this screen.

ON YOUR COMPUTER

Now you will see how easy it is to modify a recipe on your PanelView Plus 7 terminal.

1. On the desktop, click on ***Windows Explorer***.

2. In the address bar type ***ftp://192.168.1.100/Recipe/***

FTP directory /recipe at 192.168.1.100

To view this FTP site in File Explorer: press Alt, click **View**, and then click **Open FTP Site in File Explorer**.

Up to higher level directory

02/11/2014 01:59PM	2,055	Slow.csv
02/19/2014 10:59AM	2,056	High.csv
02/11/2014 01:59PM	2,058	Medium.csv

3. Once you see the CSV files you can copy them to your computer to for example C:\Lab files\recipes. You can modify these CSV files using Excel or Notepad and download them again to your PanelView Plus 7 terminal.

Fast and Efficient Application development (25min)

About This Lab Section

FactoryTalk view machine edition has 2 ways to use tags.

1. Direct reference tags : Using the tags straight from the Logix controller
2. HMI tag: can be an internal tag or linked to the controller.

The HMI tag database tag can be Memory (internal) or linked to a tag in the controller.

Direct reference tags are quicker and use less resources and you don't have to create extra tags.

What we will do in this lab is use diagnostics to detect if there is something wrong with your application like tags missing.

Use the Cross-reference tool to find where the wrong tags are located and fix them.

Then we will add one of our Faceplates that you can find on the Samplecode Library .

How to check problems on your PanelView Plus 7 terminal.

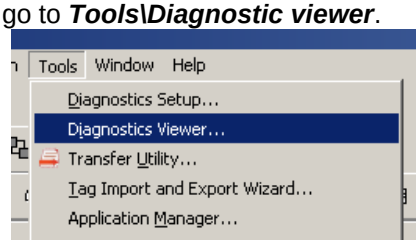
In this section we will see how diagnostic information from you PanelView Plus 7 terminal can be used on your computer to detect issues like tags missing or misplaced.

ON YOUR PANELVIEW PLUS 7 TERMINAL

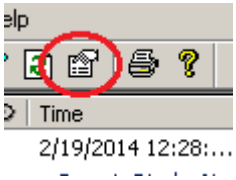
1. Click on  to open the tank display. The operator told you that something is wrong with this trend but you can't see what the problem is. Since all diagnostic information is sent to your engineering computer, you can check all error messages from this PanelView Plus 7 terminal.

ON YOUR COMPUTER

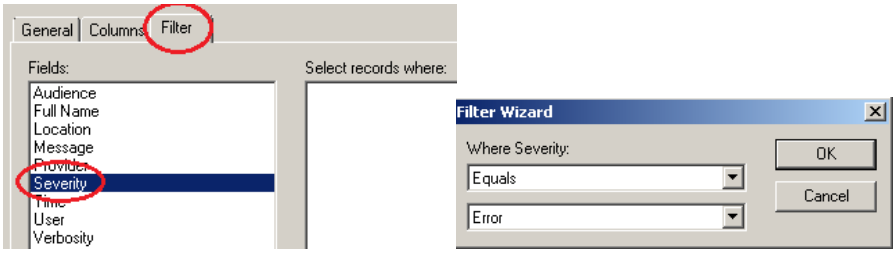
1. In FactoryTalk View studio go to ***Tools\Diagnostic viewer***.



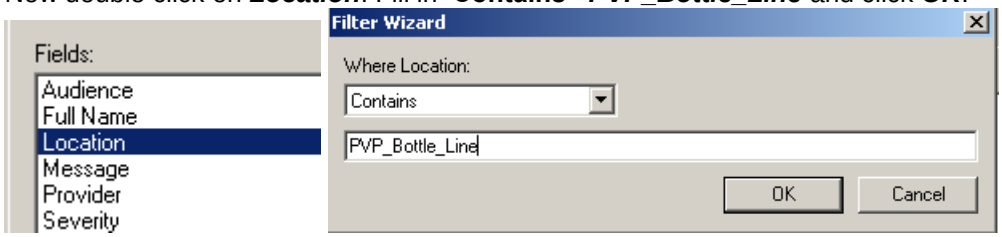
2. Click on the icon as shown below or go to menu ***View\Options***.



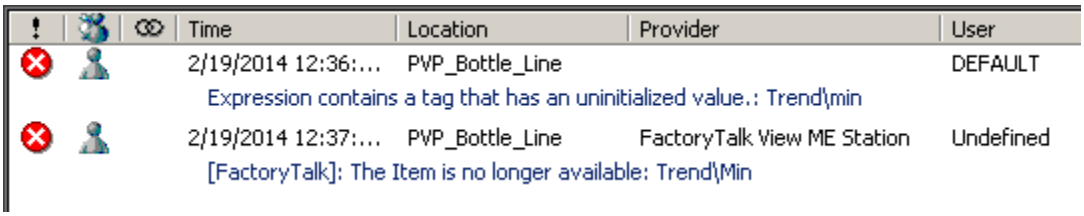
3. Select tab ***Filter*** and double click on ***Severity***. Leave the default settings and click ***OK***.



4. Now double click on ***Location***. Fill in **'Contains'** ***PVP_Bottle_Line*** and click ***OK***.



5. Click ***OK***. Now the filter will show only the error messages coming from your PanelView Plus 7 terminal. If you see only 1 error message, click on the refresh button.



Using the diagnostic viewer you have found that there is a problem with tag Trend\Min. Let's have a look now where this tag is used.

> If you want to know how this is setup, there is a video in folder C:\Lab Files\Diagnostic setup which shows you the setup on your PC and PanelView Plus 6.

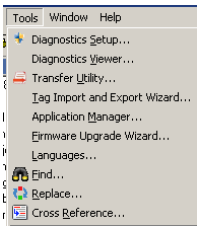
How to find tags in your FactoryTalk View ME application.

In this section we will show you how easy it is to find tags in your application without going through the full application.

We will show how easy it is to modify the tags you were looking for.

ON YOUR COMPUTER

1. In FactoryTalk View Studio, click on the ***cross reference*** tool  or Tools menu and then Cross Reference.



The Cross reference tool searches through:

- Global Connections
- Tag Database
- Displays
- Global Objects
- Parameters
- Alarm Setup
- Macros
- Data Log

Factory Talk View v7.0 has now a new “Display Tag Search and replace” that will go through all displays and global objects to replace a tag or part of a tag.

Click on  to have a look at it.

2. When the tool is open, fill in ***trend\min*** in the ***Find What*** field and click on ***Search***

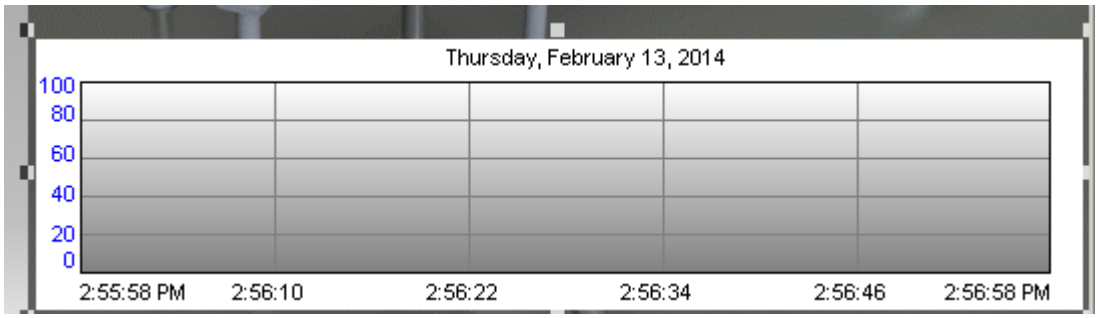
3. You will see 2 entries. Double click on the Global connections one.

	Component Type	Component Name	Location	
1	Global Connection	EMPTY	Memory Tab\Total RAM Usage:	Trend\min
2	Displays	20 Tank	TrendObject1\Tag/Expression Minimum	Trend\Min

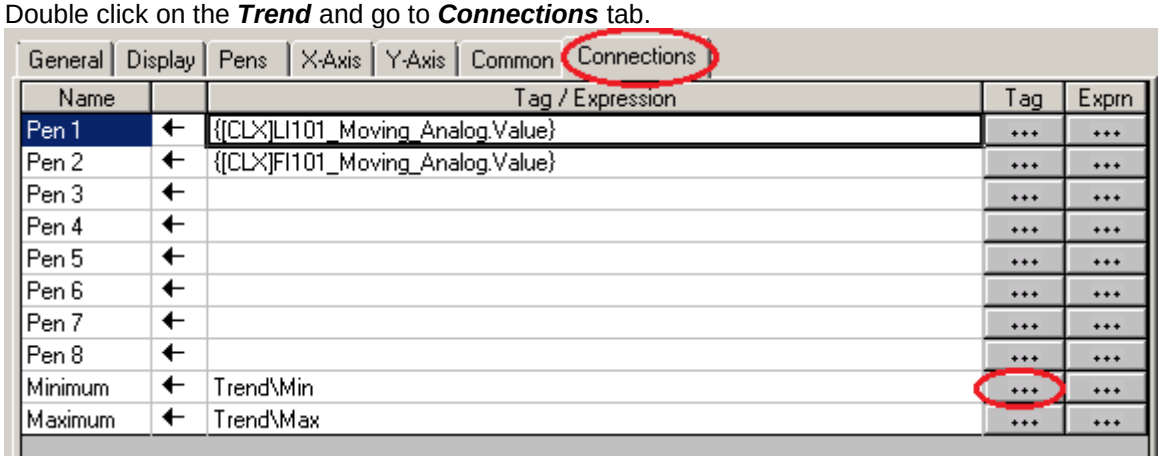
4. This seems like somebody put this tag wrong, just remove it.

Connection	Ta
MERuntime RAM Usage:	
Total RAM Usage:	Trend\min
Available RAM:	

5. Now open the second entry. This will bring you to the ***20 Tank*** screen and as you can see the trend is selected.

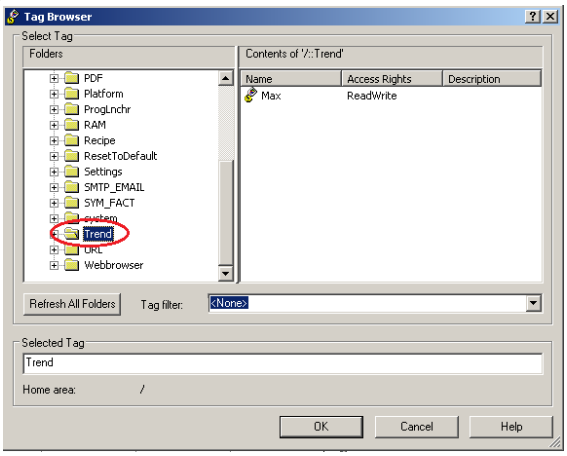


6. Double click on the ***Trend*** and go to ***Connections*** tab.



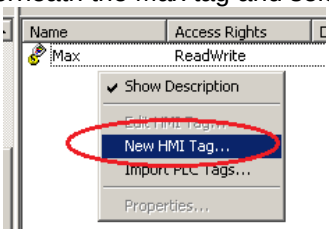
7. As you can see here they are using Trend\min and Trend\max as HMI tags to be used as minimum and maximum value for the trend. Click on the three dots at the end of the Trend\Min as shown above.

8. Click the folder ***Trend***.

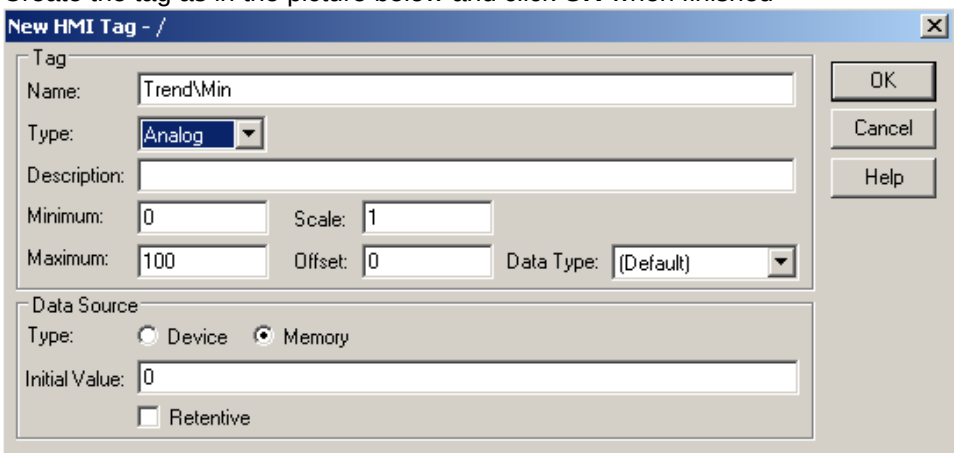


9. As you can see only the Max is in there. Which means that you will have to create a new HMI Tag.

10. Right click on the tag area underneath the Max tag and select add ***new HMI tag***

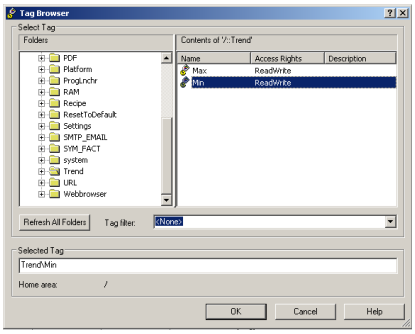


11. Create the tag as in the picture below and click ***OK*** when finished



In the Data Source section you can select between Device and Memory.
When you select device you will need to select a tag in the controller, when you select Memory, the tag will use an internal memory location to store the value of the tag.

12. Select the ***Min tag*** and click ***OK***. (If you don't see the tag you can always click "***Refresh All Folders***" button.



13. Close the Trend properties display and ***close*** and ***save*** the display ***20 tank***.

Now that the tag is corrected we could compile the application and download but we are going to add the faceplate for the processor first.

How to add preconfigured faceplates to reduce engineering time.

In this section we will show you how easy it is to add preconfigured faceplates.

In this case we will use the Logix faceplates to check the information from the SoftLogix controller.

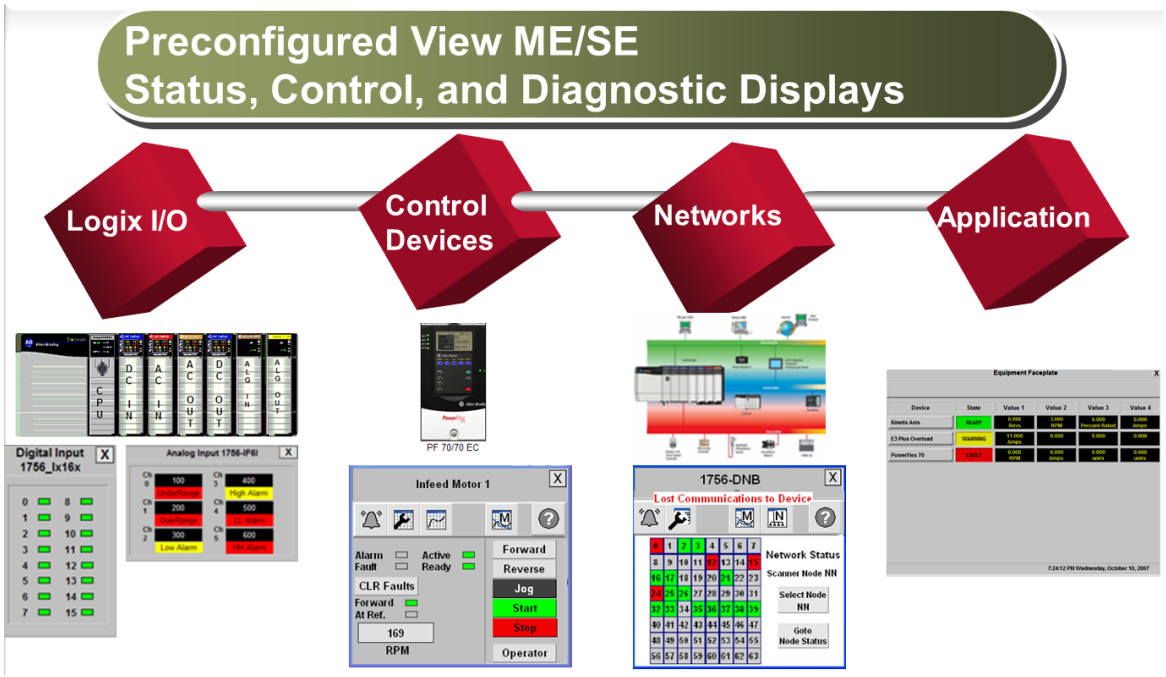
The complete faceplate information including documents and Logix code can be found in :

C:\Lab Files\Faceplates\MMS_053453

A faceplate comes in a pack that includes a Step by step configuration instructions, Add-on instructions for Logix, Sample Application for Logix and View, View faceplates, parameter files and preconfigured Goto Display buttons and images.

These faceplate can also be found on the website : **samplecode**.rockwellautomation.com

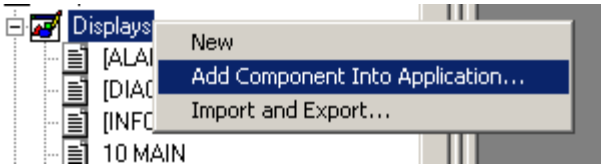
This website has faceplates for Logix modules, Network devices, Applications and Drives & Motion, … .



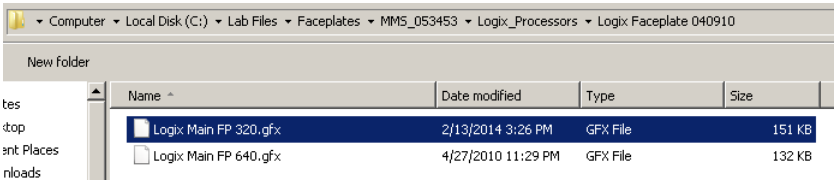
The Logix code that is supplied with this Faceplate is already in the SoftLogix controller.

ON YOUR COMPUTER

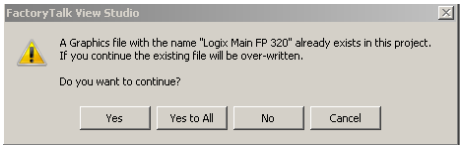
1. Go to display and right click "***Add Component Into Application***"



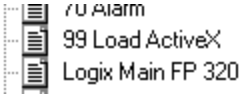
2. Go to folder “***C:\Lab Files\Faceplates\MMS_053453\Logix_Processors\Logix Faceplate 040910***” and select ***Logix Main FP320.gfx***



3. Click ***Yes*** when asked to overwrite.

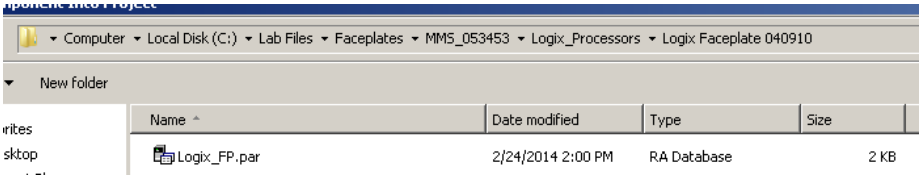


4. The display “Logix Main FP320.gfx” has been added to the display list.

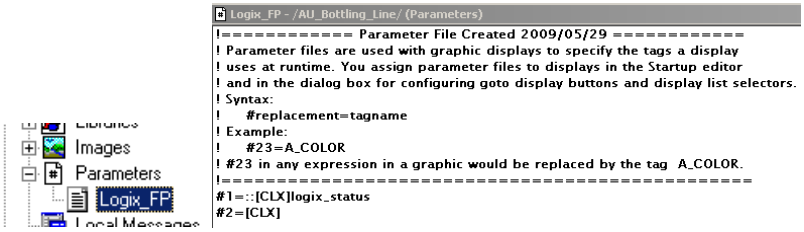


5. The faceplate also comes with a parameter file which you will add. Right Click on ***Parameters*** and select ***Add Component Into Application***.

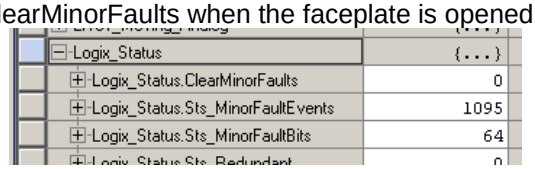
6. Go to folder “***C:\Lab Files\Faceplates\MMS_053453\Logix_Processors\Logix Faceplate 040910***” and select ***Logix_FP.par***



7. Double click on the parameter file ***Logix_FP***

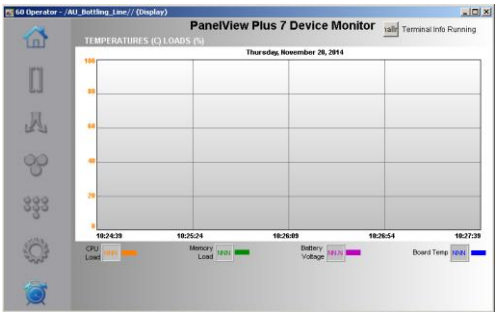


As you can see the only thing you have to change here is the shortcut name and the tag name that you used for the Add-on Instruction in the controller.
For this lab we used the default shortcut and tagname.
In the faceplate you just added, you will replace #1 by ::[CLX]Logix_status and #2 by [CLX]. So for example #1.ClearMinorFaults that is used in the faceplate is changed to ::[CLX]Logix_Status.ClearMinorFaults when the faceplate is opened.



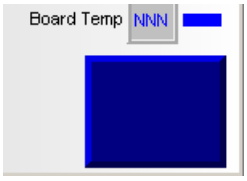
8. Close the parameter file ***Logix_FP***

9. Open display ***60 Operator***



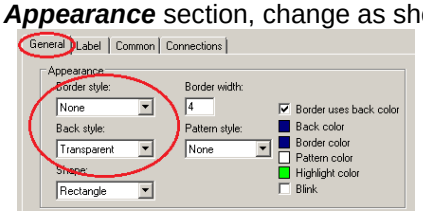
10. Click on icon  "***Goto Display***" button.

11. Draw a rectangle in the right bottom corner.

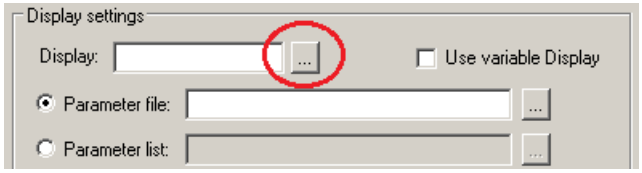


The properties display will open automatically.

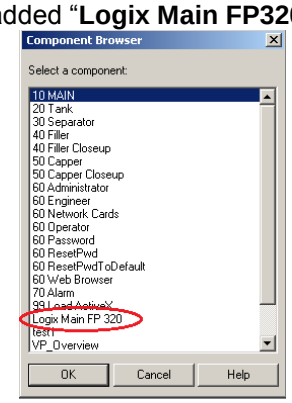
12. On the ***General*** tab, in the ***Appearance*** section, change as shown below.



13. In the ***Display settings*** tab click on the button behind the Display.

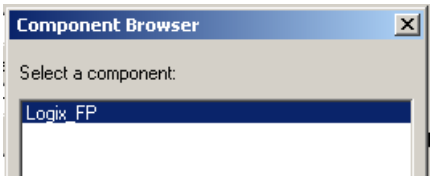


14. Select the display that you just added “**Logix Main FP320.gfx**”.

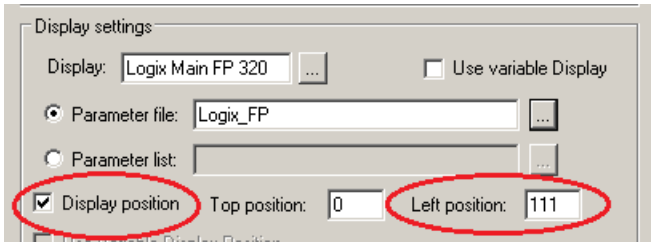


15. Select **Parameter file** and click on the **3 dots** at the end

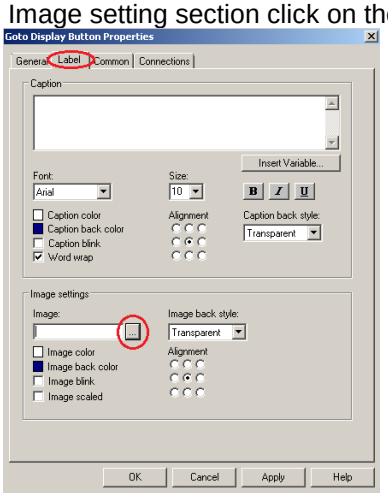
16. Select the parameter file ***Logix_FP*** and click ***OK.***



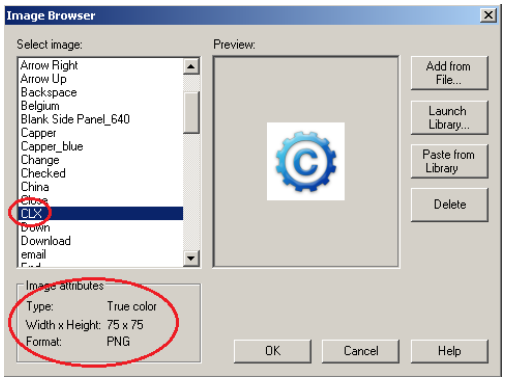
17. To make sure that the pop-up doesn’t show on top of the menu you can set to open at a certain position. So in the Display setting, select the Display Position and Left Position 111.



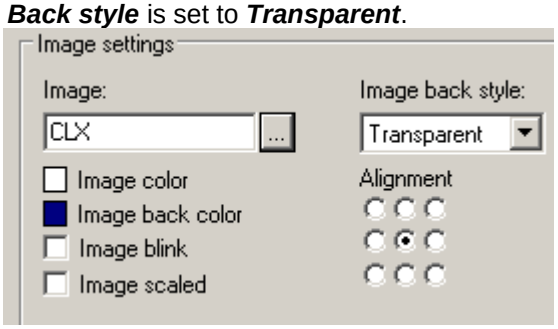
18. Click on the **Label** tab, in the Image setting section click on the **3 dots** behind the image.



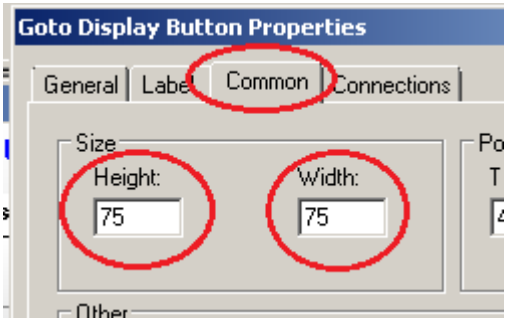
19. Select the image **CLX** which as you can see is a PNG type of image. The size is 75 by 75 which will be used in the Common tab to set the size. Press OK when CLX image is selected.



20. Make sure the ***Image Back style*** is set to ***Transparent***.



21. Click on the ***Common*** tab and change size to ***Height 75 and Width 75***. Click ***OK*** when finished.



22. ***Close*** the display and ***save*** when asked for.

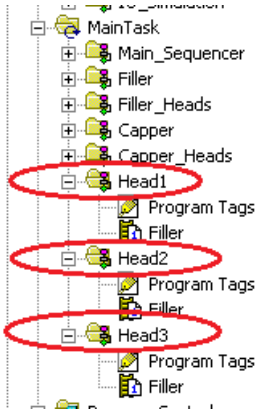
How to pass parameters to the next screens.

In the previous section you looked at faceplates where you used the Parameter file to replace the #1 and #2 parameters. In this section we will use the parameter list.

On your machine they added a 3rd Filler head to fill the bottles.

So instead of creating a display for each filler head, you already created 1 Closeup display and 1 Control popup to start and stop each head.

In the Logix controller you have a program for each head.



All three programs are identical and have the same tags, only the name of the program is different being Head1, Head2 and Head3.

Each program has a tag called Head which is based on a User Defined Tag (UDT) which contains 5 members.

Head	{...}
Head.Status	0
Head.Start_Head	0
Head.Stop_Head	0
Head.Amount_of_Bottles	1505
Head.Name	'Filler Head 1'

So if you wanted to see the amount of bottles for each head you would use the following tags:

Head 1 : {::[CLX]Program:Head1.Head.Amount_of_Bottles}

Head 2 : {::[CLX]Program:Head2.Head.Amount_of_Bottles}

Head 3 : {::[CLX]Program:Head3.Head.Amount_of_Bottles}

As you can see only Head1, Head2 and head3 changes in the tags so that is what we will use as #1.

For this lab you choose to replace #1 with just Head3. Below are some examples of what you could have used too.

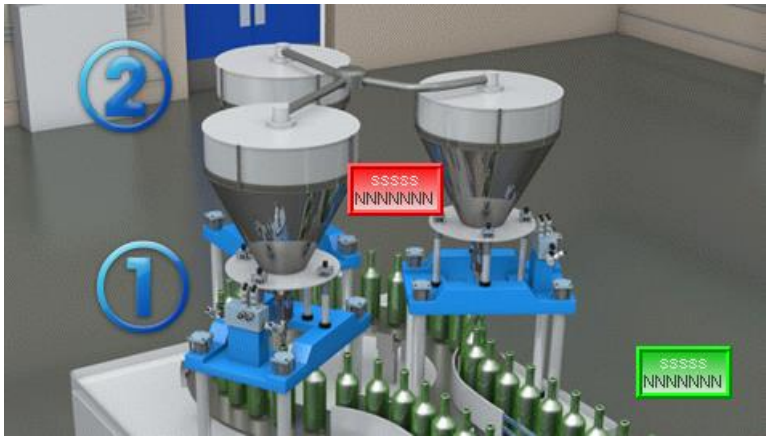
Used in Parameter List	Used in display for Amount of bottles	Used in display for Start Head
{Head3}	{::[CLX]Program:#1.Head.Amount_of_Bottles}	{::[CLX]Program:#1.Head.Start_Head}
{::[CLX]Program:Head3}	{#1.Head.Amount_of_Bottles}	{#1.Head.Start_Head}
{::[CLX]Program:Head3.Head}	{#1.Amount_of_Bottles}	{#1.Start_Head}
{::[CLX]Program:Head3.Head.Amount_of_Bottles}, {::[CLX]Program:Head3.Head.Start_Head}	#1	#2

The 1st column show what is used in the parameter list , the 2nd and 3rd column show what you would need for the 2 tags used in the 40 Filler CloseUp and 40 Filler Control.

This way you can re-use a display for multiple Filler heads.

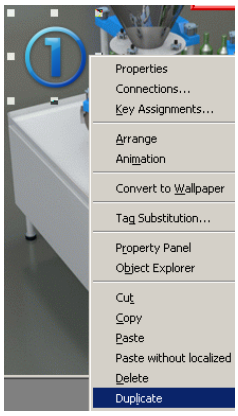
ON YOUR COMPUTER

1. Go to display ***40 Filler***

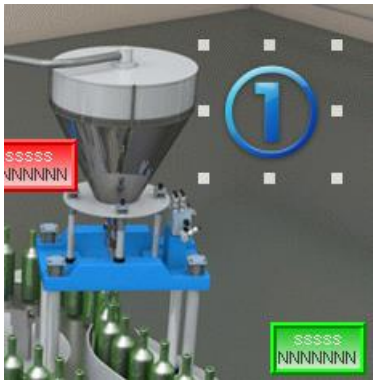


As you can see in the picture only Head 1 and Head 2 have a button with a number attached to it.

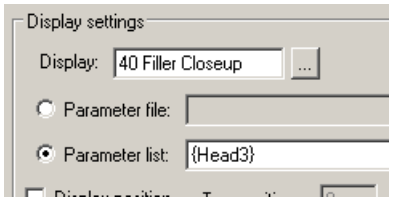
2. Select 1 and right click on it, select **Duplicate**.



3. Drag the newly added button to the right of head 3

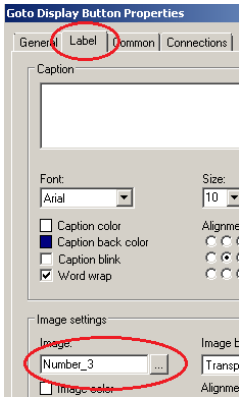


4. Double click on the button. In parameter list change Head1 into ***Head3***



In you would add a second tag here that would then replace all #2 tags in the next screen, the 3rd tag would replace #3 , …. .
For this lab you decided to replace only the middle part of the tag with Head3 as shown in the table start of this section.

5. Go to Label and change or select image ***Number_3***.

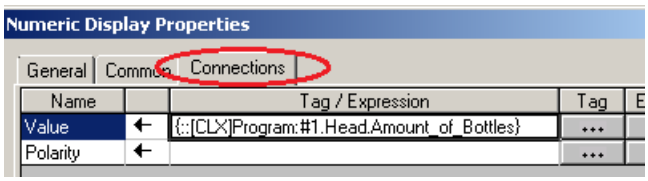


6. Click ***OK***.

7. ***Close*** and ***save*** screen ***40 Filler***

8. Open display ***40 Filler Closeup*** and double click on the ***numeric field***.

9. Go to ***connections***.

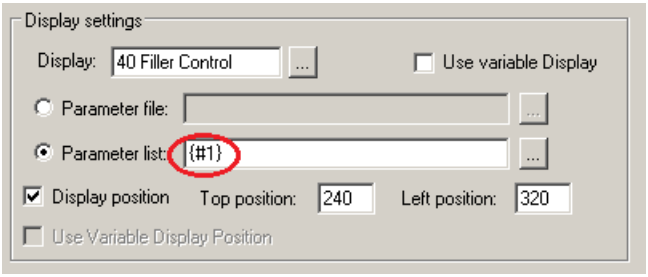


Here you see that this numeric display uses tag
{::[CLX]Program:#1.Head.Amount_of_Bottles}
When you open this screen for Head 3 the #1 will be replaced by Head3.

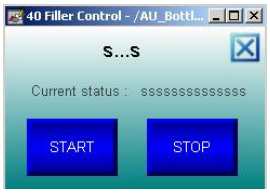
Click **OK**

10. Now you will see how you can pass parameters to another screen, in this case we used a pop-up screen. Double click on ***Change Filler Control*** button.

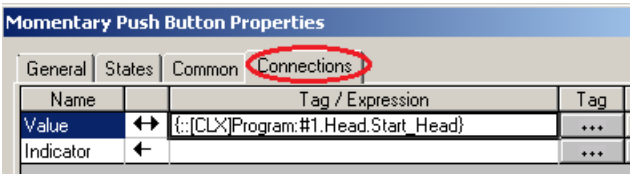
11. As you can see here we are passing #1 as a parameter to the next screen, which means it is actually sending Head3 to the pop-up screen if you would press the Head 3 button. This means that if you want to add a Head, you only need to make sure you change the parameter list or file and all the parameters are passed to all following screens.



12. Click **OK** an close ***40 Filler Closeup***
13. Open display ***40 Filler Control***



14. Double click on ***Start button*** and go to ***Connections*** tab.



As you can see, the pop-up screen will use the same HEAD3 as replacement for #1.

15. Close this object and close the screen.

If you would have to add a 4th Filler Head, you would just have to add Head4 on a new button and add the logix code.

So passing parameters can make development faster and it is easier to modify 1 screen than multiple screens.

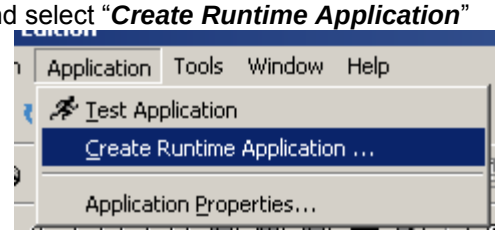
In the next section you will compile and test the application

Compile your application.

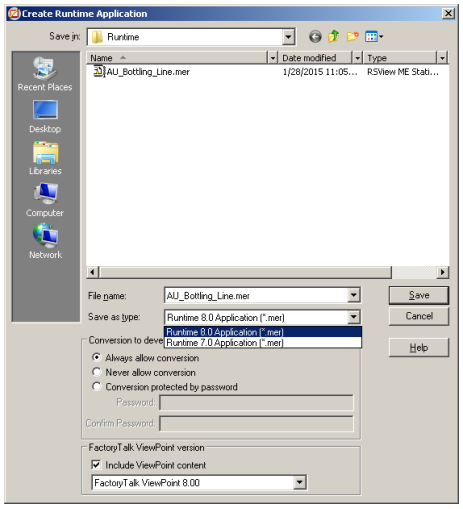
In this section you will show how to compile your application and you will learn that you can create a compiled application for an older PanelView Plus terminal as long as you don't use the newer features.

ON YOUR COMPUTER

1. Click on ***application*** and select "***Create Runtime Application***"



2. If you look at the "***Save as Type***" you can see that you can compile your application to earlier versions if you don't use new feature that are not supported in the version you want to compile to.



Underneath the Save as type, you see 3 options :

Always allow conversion

If you select this option, the .mer file can always be used to generate an .med file.

Never allow conversion

If you select this option, the .mer file can never be used to generate an .med file.

Conversion protected by password

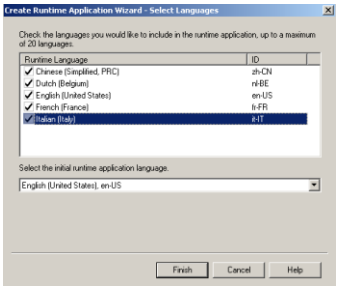
If you select this option, the .mer file can only be used to generate an .med file by providing a password.

MER (Machine Edition Runtime) is the compiled version of your application, the MED (Machine Edition Design) is your Application

For this lab we will use the default setting.

3. Leave the ***Save As Type*** at ***Runtime 8.0***, so click ***Save*** to continue.

4. On the pop-up with the languages, select all language and click ***Finish***



5. Compiling can take a minute.

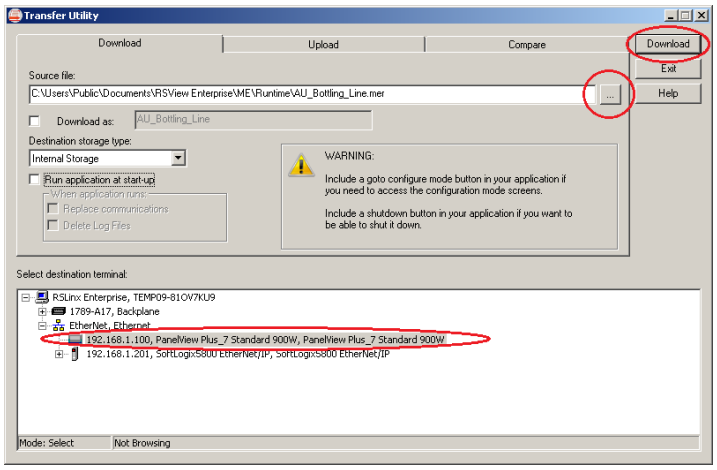
Transfer your application

In this section you will transfer the application you have compiled and start it on your PanelView Plus 7 terminal.

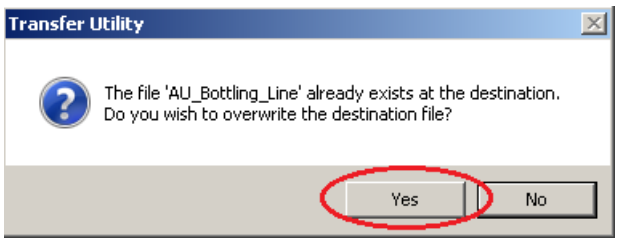
ON YOUR COMPUTER

1. Click on the ***Transfer Utility***:

2. Select the File ***AU_Bottling_line*** and select your PanelView Plus terminal with IP address ***192.168.1.100*** .



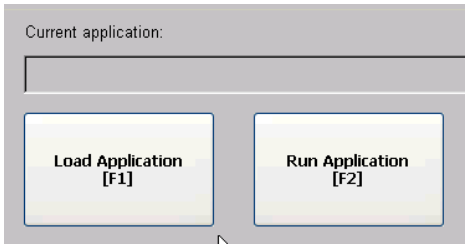
3. Click on **Download** and when asked click **Yes** to overwrite the application on the PanelView Plus terminal.



ON YOUR PANELVIEW PLUS 7 TERMINAL

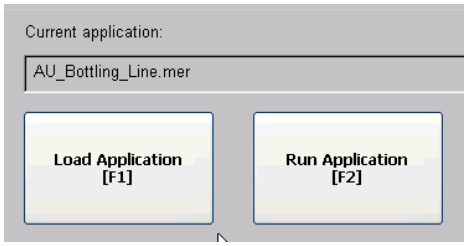
4. When the download is finished, go to your PanelView Plus 7. If your application is still running, shut it down. Red button on the Home display.

5. Click on ***Load application [F1]***



6. Select the application ***AU_Bottling_line*** and click ***Load [F2]***

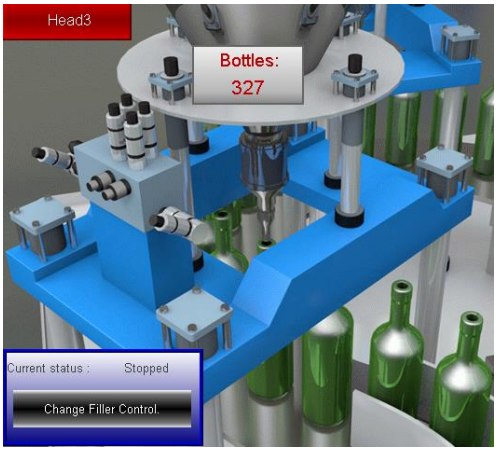
7. When the application is loaded, click on Run ***Application [F2]***



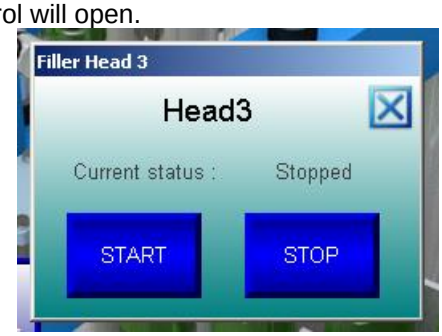
8. Click on the Filler icon  to open the Filler screen.

9. Click on button next to head 3.

10. The Filler closeup screen is opened for Head 3. The string in the red box is actually the #1 which is shown as a string. Click on ***Change Filer Control***



11. The Popup 40 Filler Control will open.



For the title of the pop-up we used a tag in the same UDT tag as the start and stop.
The HEAD3 is again the #1 which is shown on the display.
This shows 2 different ways of showing strings using Parameters.

12. Now you can go back to the Filler screen and do the same steps for head 1 and/or 2.

    This will show you how easy it is to re-use displays and it also reduces time when you have to do modifications. You only need to do it on 1 screen and all 3 filler heads can use it.

13. In the next section you will test the modification you have done to the lab.

Visualize performance and mobility (15 min)

About This Lab Section

In this section of the lab we will look the different ways to interact with the PanelView Plus 7 terminal and how to use multimedia content on the terminal.

In this section we will talk about:

- VNC connection
- Viewpoint
- Webbrowser
- Mediaplayer
- PDF Viewer

VNC and Viewpoint are 2 ways to take control over the PanelView Plus 7 terminal.

Below is a table with some of the differences.

Viewpoint	***VNC***
Based on Microsoft Silverllight	Based on open source code
Cannot run on mobile devices	Can run on Mobile devices like (Android and Apple)
Read/ Write capability with security	Read only or Read-write with limited security
Only 1 connection to PVP7	2 connections possible
PVP6 only server	PVP6 can be viewer and server
Can use unique screens	Takes control over PVP7
Operator won't notice	Both VNC client and Operator take control
No historical trending, alarming, diagnostics	Available since controlling PVP7
No all objects are supported	All objects are supported since taking control of terminal

Both Viewpoint and VNC can give extra network load this is why we recommend to use the extra communication card 2711P-RN20 to be used as the 2nd Ethernet port.

This way you don't have any loading on your control network and you can even have this Ethernet port on a different (Office/enterprise) network.

More information about this module can be found in Appendix D.

Remote connection using VNC technology.

VNC (Virtual Network Connection) is used to remotely control another device.

The VNC server is the device that can be controlled, the VNC Viewer is the software that can connect to the VNC server. It transmits the keyboard and mouse events from one device to another relaying the graphical updates back in the other direction over a network.

The PanelView Plus 7 terminal can be a VNC server and Client.

The VNC server on your PanelView Plus 7 terminal has already been setup.

If the client is not installed on your pc then you can copy the VNCViewer from the Windows folder in the PanelView Plus 7 terminal.

By default the VNC server is not started and if you start the VNC server by default it is setup as read-only.

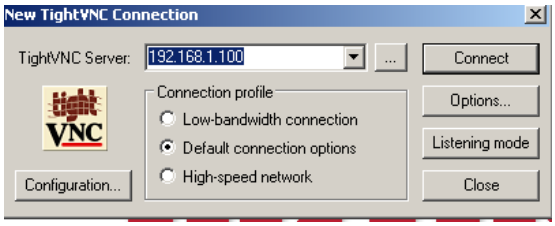
When you get the VNC viewer from the PanelView Plus 7 you need to install it. To save some time we have done this already for you.

In this section we are going to connect your computer to the terminal and show you how you take control over the PanelView Plus 7 terminal.

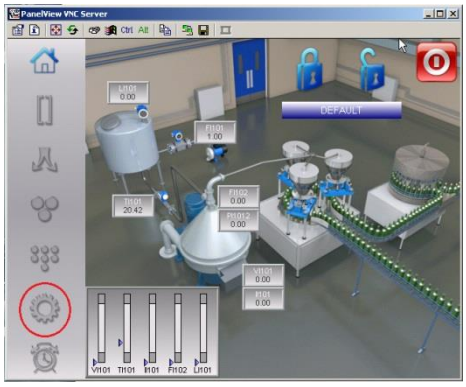
ON YOUR COMPUTER

1. Click on the ***TightVNC*** Viewer icon on the desktop

2. Type in the IP address of your Panelview Plus 7 ***192.168.1.100*** and click on ***Connect***.

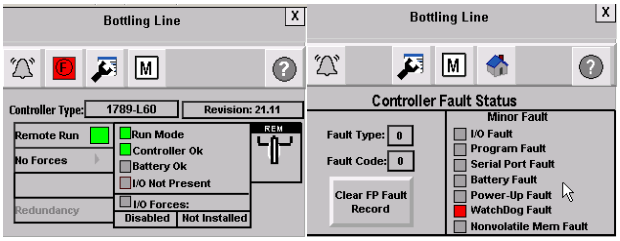


3. When you see the application, click on the ***Operator*** icon.

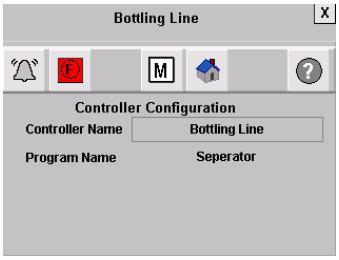


4. Once the operator screen is open, click on the icon that you added in the previous section.

5. Go through the icons on the top to see what the faceplate can do.



6. Click on  and leave this open.



Remote connection using Viewpoint technology.

In this section you will connect to the PanelView Plus 7 terminal and see the difference with the VNC connection.

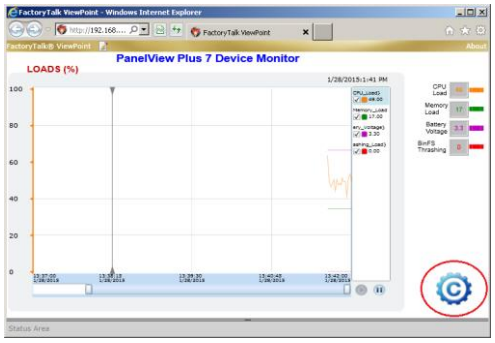
We will also show you the writing capability of Viewpoint.

ON YOUR COMPUTER

1. Open ***Internet explorer*** from the desktop

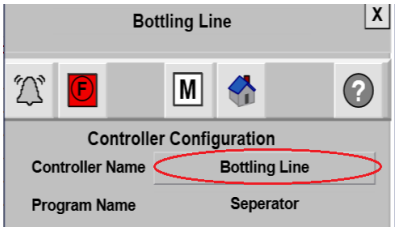
2. In the explorer address bar type the IP address of your PanelView Plus 7 terminal.

3. Once the screen is open, you see that is independent of the PanelView Plus 7 screen. Click on the Icon as shown below.

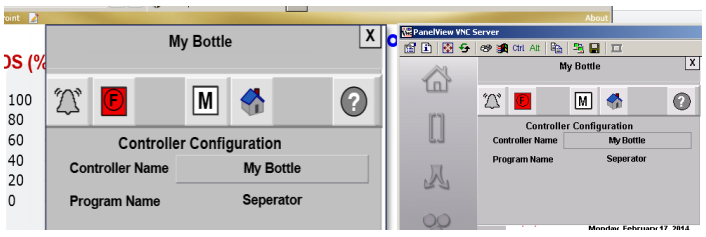


4. The same Logix Faceplate wil be shown. Normally the pop-up will open on the same tab as on your PanelView Plus 7 terminal because both are using the same tag.

   Click on the Bottling Line and change the text to My Bottle



5. As you can see you can write to tags from viewpoint.

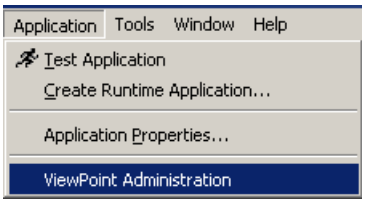


6. Close ***Internet Explorer*** and ***VNC***.

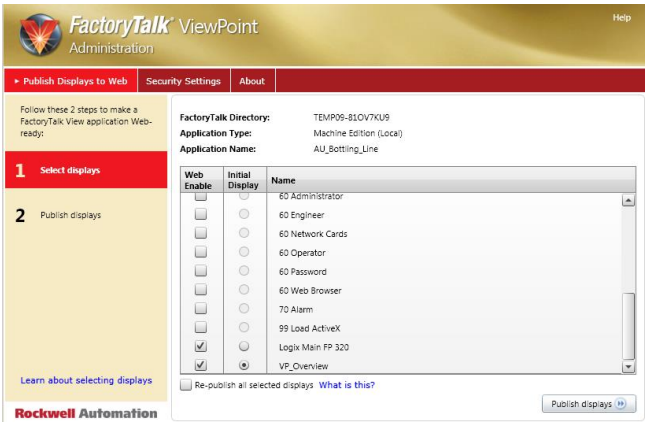
How is viewpoint configured (for information only):

ViewPoint is an add-in program that can be downloaded from our knowledge base from article:
66110 - FactoryTalk ViewPoint Add-In for FactoryTalk View ME

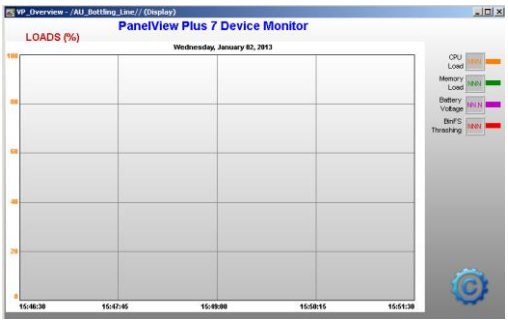
Once the application is installed you can open the Viewpoint Administrator from your FactoryTalk View ME studio.



In the administrator screen you then select the screen that you want to use in View point, in this case we used a display called ***VP_Overview*** and the ***Logix Main FP 320***

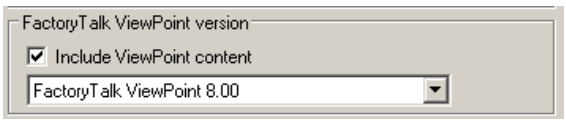


This is the screen that is used in viewpoint and is also setup as the Initial Diplay.



Every time you do a modification to the screens you have used for Viewpoint, you have to go to the administration and Publish them again.

Then you need to compile your application and make sure that the Viewpoint is selected at the bottom of the Compiler.



Using mediaplayers, webbrowser and pdf document viewer.

In this section you can play with the different features that are available on your PanelView Plus 7 terminal. **NOTE: These options are only available on the PanelView Plus 7 Performance Version. If you are using a Standard Version proced to the next section 'User Management' on page 60.**

A lot of these extra features can help your operator by giving him extra information like a user manual or a video on how to remove a device.

Some of the feature used in this section use the Extended version of PanelView plus 6.

Below is a table to show you which feature are supported.

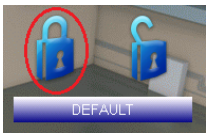
Features	400 Terminals	600 Terminals		700 to 1500 Terminals	
Cat. Nos.	2711P-*xxxx*8	2711P-*xxxx*8	2711P-*xxxx*9	2711P-*xxxx*8 2711P-RP8x	2711P-*xxxx*9 2711P-RP9*x*
Standard Features					
FTP server	•	•	•	•	•
VNC client/server	•	•	•	•	•
ActiveX controls(1)	•	•	•	•	•
Third-party device support	•	•	•	•	•
PDF reader	•	•	•	•	•
Optional Extended Features					
Web browser - Internet Explorer	—	—	•	—	•
Remote desktop connection	—	—	•(2)	—	•
Media player	—	—	•	—	•
Microsoft Office file viewers					
• PowerPoint	—	—	•	—	•
• Excel	—	—	•	—	•
• Word	—	—	•	—	•
WordPad text editor	—	—	•	—	•

(1) Refer to Display FactoryTalk View ME Station Information on page 78 for a list of ActiveX controls loaded on a terminal.

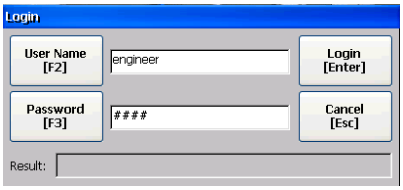
(2) The remote desktop connection is not currently supported on PanelView Plus 6 - 600 terminals with extended features.

ON YOUR PANELVIEW PLUS 7 TERMINAL

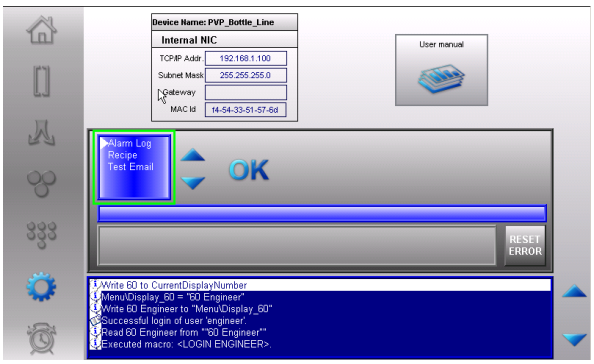
1. On the Main screen, click on the ***Login*** button.



2. Login as credentials below and click enter when finished
    a. User: ***engineer***
    b. Password : ***pvp7***



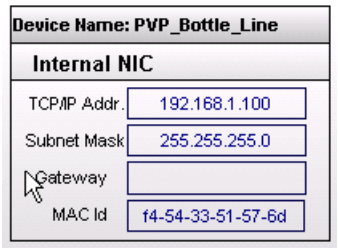
3. The text below the login button will change to “Engineer”. Click on the ***Operator*** button 



IP information:

The information below is coming from a new Terminal information activeX control.

This control is also capable of showing the IP information of the 2nd Ethernet module that you can add to the PanelView Plus 6 terminal using the 2711P-RN20 module (See Appendix D)



Document viewer :

The bottom icon opens a pdf file which can be a user manual.

In this case it will open part of the user manual of the Logix faceplate you have used before.

The PDF file will open zoomed in and it locked the capability to open other pdf files. These are all parameters that are available when you want to use the PDF viewer.

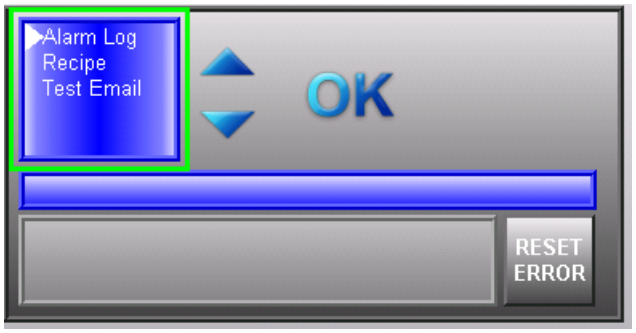
Table 59 - Command Prompt Parameters

Parameter	Parameter Function	Example	Description
-p	Go to page	Foxitreader "file_path/file.pdf" -p 2	Opens the PDF file to page 2.
-zw	Fit width	Foxitreader "file_path/file.pdf" -zw	Opens the PDF file and fits the view to the page width.
-zp	Fit page	Foxitreader "file.pdf"-zp	Opens the PDF file and shows the full page.
-z	Zoom to	Foxitreader "file.pdf"-z 150	Opens the PDF file and zooms to 150%.
Multiple parameters	Enter empty spaces between parameters and parameter values	Foxitreader "file_path/file.pdf" -p 2 -zw	Opens the PDF file to page 2 and fits the view the page width
-b	Go to bookmark	Foxitreader "file_path/file.pdf" -b "Bookmark1"	Opens the PDF file to the location specified within Bookmark1
-d	Go to named destination	Foxitreader "file_path/file.pdf" -b "Destination1"	Opens the PDF file to the location specified within Destination 1.
-g	Disable the File>Open command on the Menu and the Open folder button.	Foxitreader "file_path/file.pdf" -g	Opens the PDF file and dims the Menu, File>Open command the Open button.

If you zoom out you can use the slide motion to change the page.

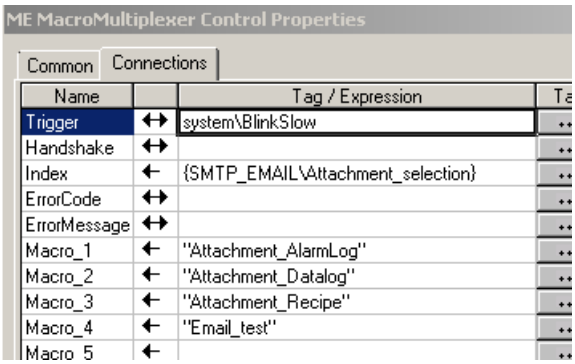
In this lab we used a pdf viewer but there is also a Word, Excel and Powerpoint viewer available.

Email with attachments:



This section shows you some of the other things you can do with the email sender besides sending alarm emails.

Each of these selections has a macro. When you do the selection, we use the macro multiplexer activeX control to launch the correct macro.



The macro will then set the subject and the attachment that you want to send but it could also sent information like IP address.

The attachment is limited to 300kb.

Other features that can be put in this list using the Macro Multiplexer would be to use the Program launcher ActiveX to copy files to an SD card.

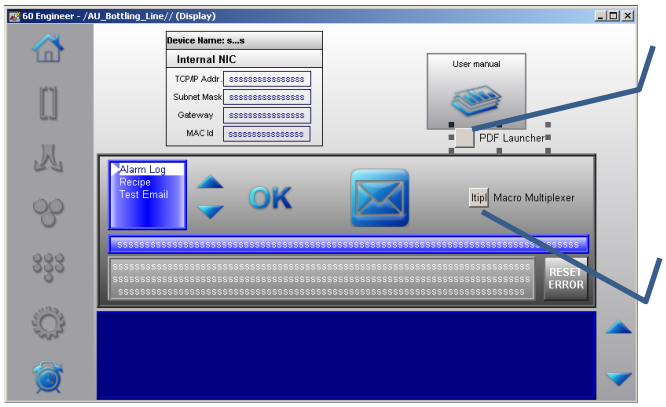
More information on how to do this can be found in Rockwell Automation Knowledge base:

539013 - FactoryTalk View ME using Program Launcher to execute a file bat

35513 - Batch file copy alarm and datalogs from terminal to external CF card or USB memory

ON YOUR COMPUTER

1. Open screen ***60 Engineer***.



Program Launcher activeX to launch PDF Viewer.

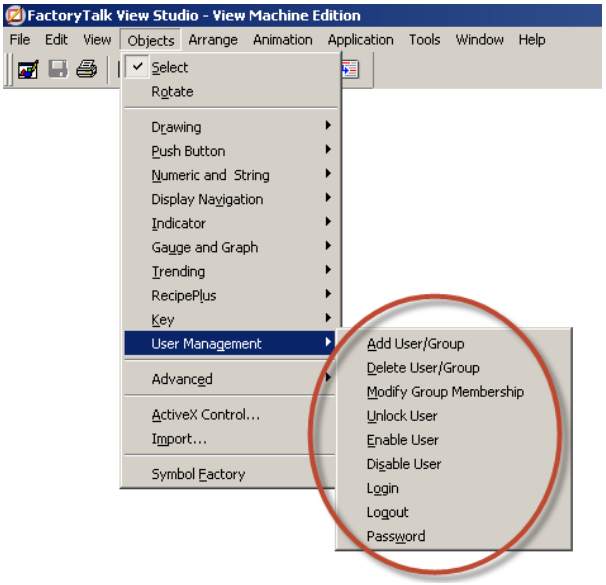
Macro Multiplexer to launch selected macro.

User Management (15 min)

About This Lab Section

The following runtime enhancements were added to FactoryTalk View Machine Edition 8.00.

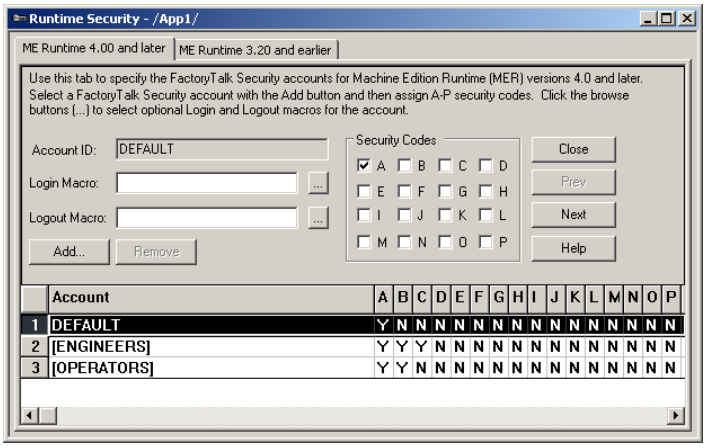
New User Management buttons were added to this release. They are located under Objects → User Management as shown below.



These new buttons have very little configuration and some require no configuration. A demo application has already been created for you so we can see how they work at runtime.

The demo application has the following already configured:

- ✓ The DEFAULT user has been assigned security code A.
- ✓ The FactoryTalk User Group called Operators has been assigned security codes A and B.
- ✓ The FactoryTalk Security User Group called Engineers has been assigned security codes A, B, and C.



- ✓ All the above User management buttons are configured on the MAIN display with visibility animation based of the different CurrentUserHasCode ( ) function, so different buttons are shown depending who you are logged in as.
- ✓ The System\User is being displayed on the Main display as well.
- ✓ The runtime file has already been created.
- ✓ There are additional buttons and displays in the demo but they are not used in the section.

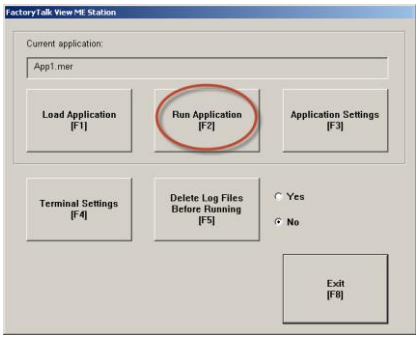
What we want to accomplish (not necessarily in the order listed below):

- Create an MER file and run it in ME Station.
- Verify that application works as expected.
- Confirm that the Password Minimum length Policy Setting of 2 characters is being enforced.
- Create new FactoryTalk users at runtime.
- Change User group membership.
- Unlock a FactoryTalk User.
- Disable and Enable a FactoryTalk User.
- Change the Password of another user.
- Delete a user.
- Confirm the security changes persisted in the application after restoring the MER file.

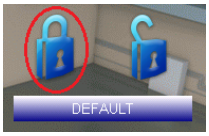
ON YOUR PANELVIEW PLUS 7 TERMINAL

You can also use VNC as shown in the previous section to easily type in usernames and passwords.

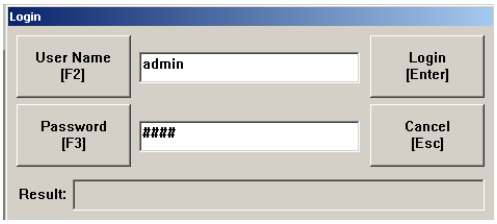
1. On your PanelView Plus 7 terminal, if application isn't running, run application AU_Bottling_Line..



2. On the Main screen, click on the Login button.



3. Login as credentials below and click enter when finished
    a. User: ***admin***
    b. Password : ***pvp7***

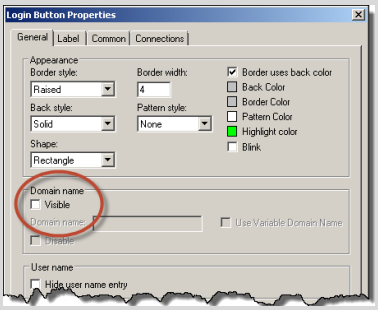


4. The text below the login button will change to "Admin".

5. Click on the operator button 

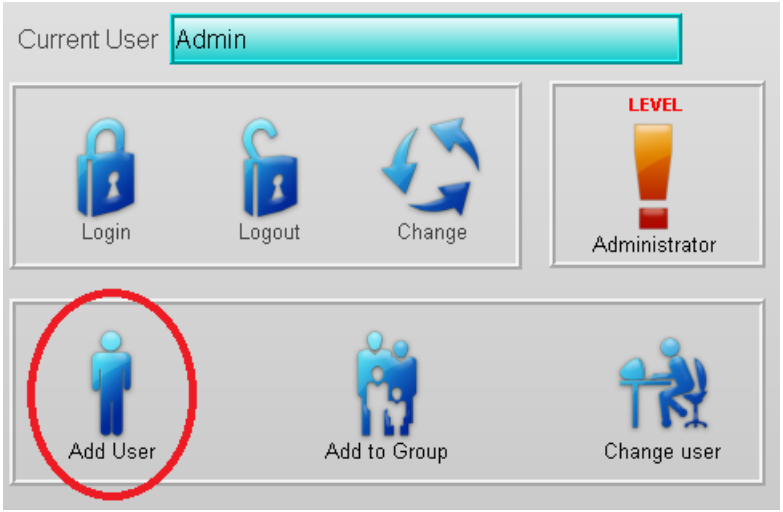
> Note: There is only one Login button in FactoryTalk View Studio 8.0.
>
> This one is configured to not show a Domain name field and given a Label of *Login*.
>
> Starting with ME 8.0, the terminal is able to authenticate users against a Domain Controller. It is done via an application protocol called LDAP (Lightweight Directory Access Protocol).

Domain integration is not covered in this lab.

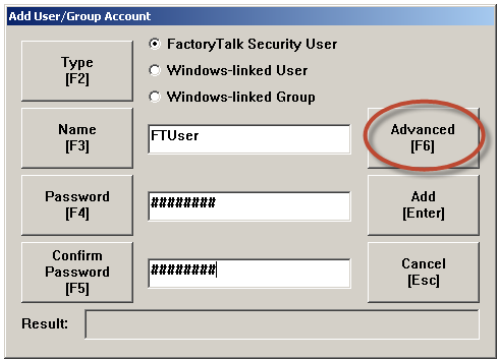


Add FactoryTalk Security User/Group Account at Runtime

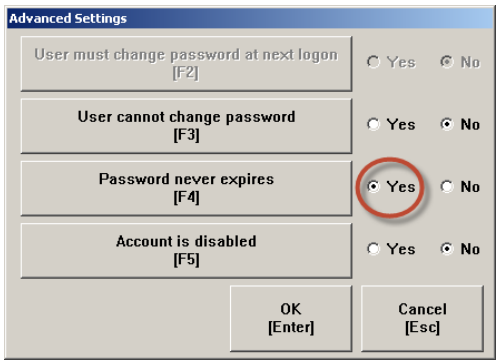
1. Click the ***Add User*** button.



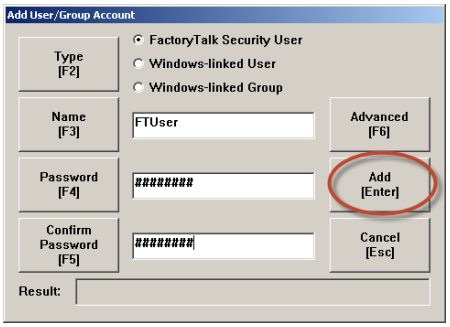
2. Add a new FactoryTalk Security User.
    a. *Type [F2]* is ***FactoryTalk Security User***.
    b. Enter '***FTUser***' as the *Name [F3]*.
    c. Enter '***rockwell***' as the *Password [F4].*
    d. Enter '***rockwell***' in the *Confirm Password [F5]* field.
    e. Click the ***Advanced [F6]*** button.



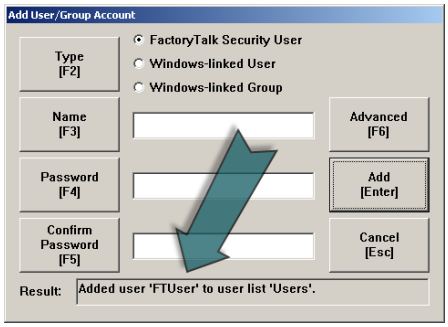
3. The same options that are available to you when creating a user in View Studio are available when creating the user at runtime. Select ***Yes*** so the password never expires and click ***OK [Enter]***.



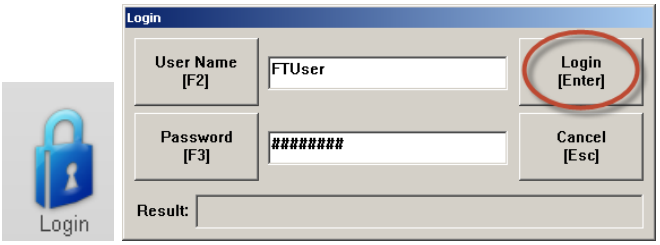
4. Click ***Add [Enter].***



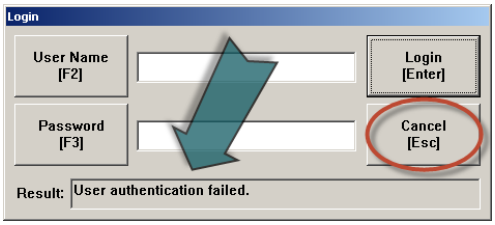
5. Note that the user account was added successfully and click ***Cancel [Esc]***.



6. Try to login as ***FTUser*** (***rockwell***).



7. Note how the login fails and click ***Cancel [Esc]***.



Note: Why did the newly created user authentication fail?

What we have done so far at runtime is simply creating the User. If you were to create a new user in View Studio at design-time, you would have to do the following:

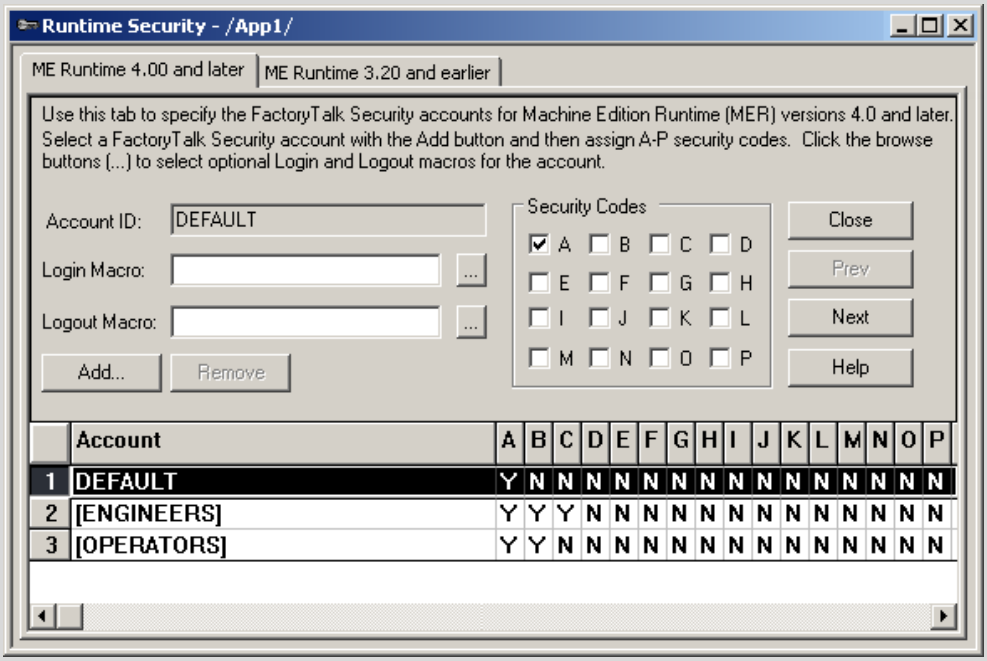
1. Create the User in the FactoryTalk Directory (under the System folder).
2. Optional but recommended, you would then add the user to a User Group.
3. Finally, you would add either the User or the User Group to the Runtime Security and assign them A through P security codes.

Accessing the Runtime Security dialog in ME Station or on the PVP6/7 terminal (at runtime) is not possible.

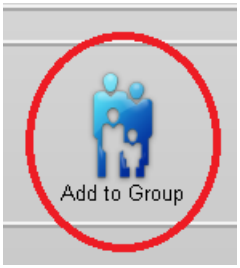
Therefore, to take advantage of adding users at runtime, the second step listed above as optional but recommended, becomes required. The steps become:

1. Add user using the Add User/Group Account button, which creates the user in the FactoryTalk Directory.
2. Use the Modify Group Membership button to add the newly created user to a User Group that has already been added to the Runtime Security dialog in Studio.

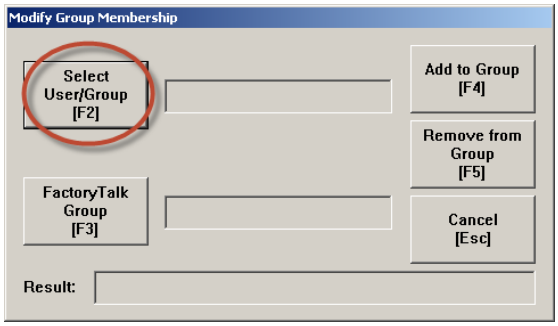
In this demo app, the Runtime Security dialog is configured as shown below.



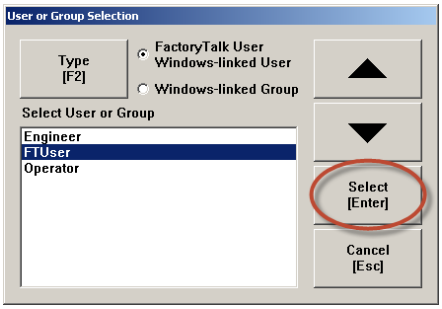
8. Click the ***Add to Group*** button.



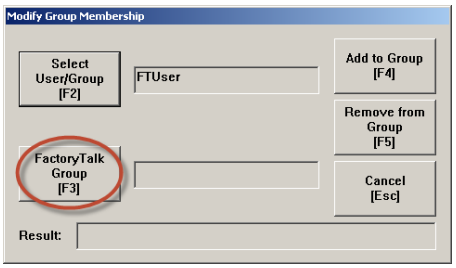
9. In the Modify Group Membership dialog, click ***Select User/Group [F2]***.



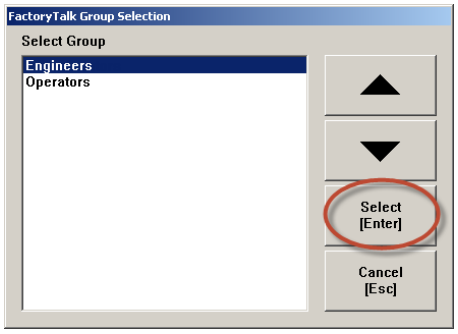
10. Highlight ***FTUser*** and click ***Select [Enter]***.



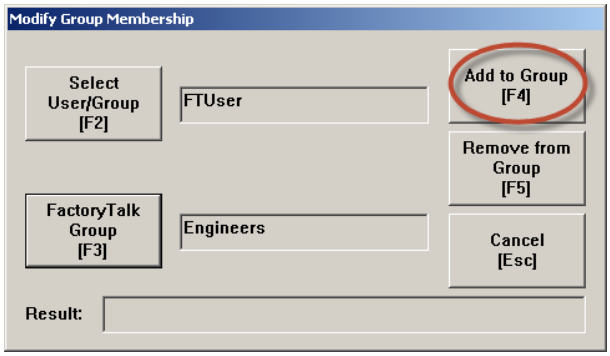
11. With *FTUser* selected, click the ***FactoryTalk Group [F3]*** button.



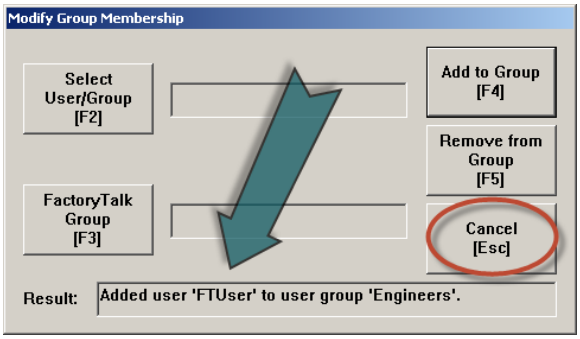
12. Select the ***Engineers*** group and click ***Select [Enter]***.



13. Finally, click the ***Add to Group [F4]*** button.



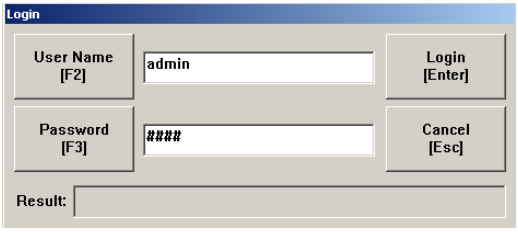
14. Note that the operation was successful and click ***Cancel [Esc]***.



15. Login as ***FTUser*** (***rockwell***). It will work this time around.

The level icon changes depending on the User group that the user is part of.

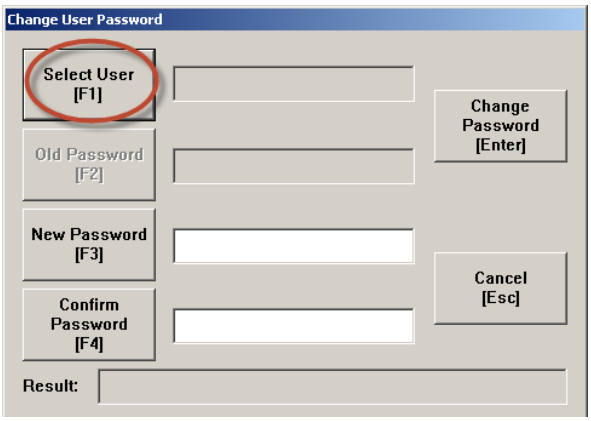
16. Once you confirm that you are able to login as FTUser, log back in as '***admin***' ('***pvp7***').



Change User Password

1. Let's try to change the password for another FactoryTalk Security User. Click the ***Change*** button.

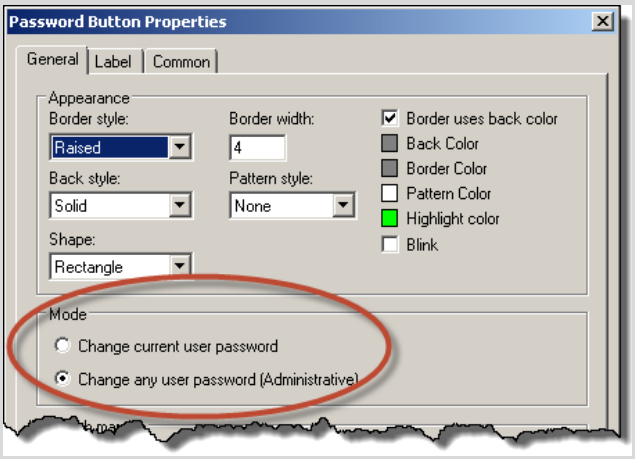
2. The *Change User Password* dialog, is dispayed. Click ***Select User [F1]***.



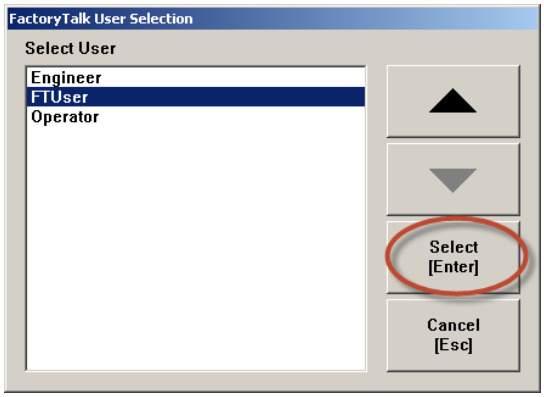
Note: There is only one Password button.

This one is configured to allow an administrative user to change any FactoryTalk Security user password and given a Label of *Change My FT Users' Pass*.

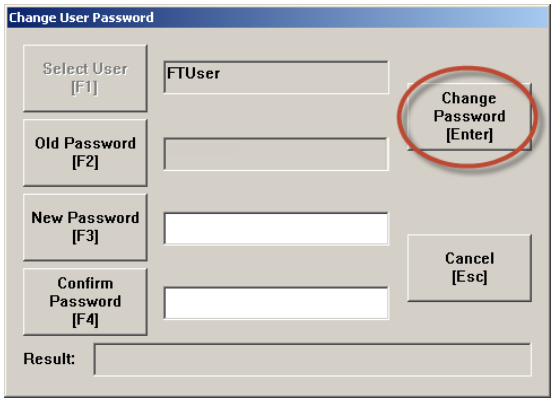
All buttons are disabled with security level default but it is best practise to place the Security modification buttons on a secure display.



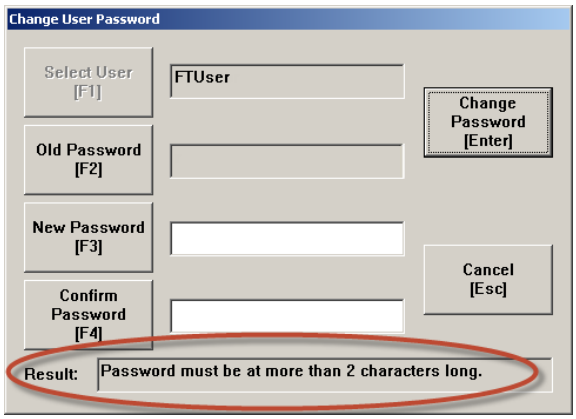
3. Select ***FTUser*** from the list of users and click ***Select [Enter]***.



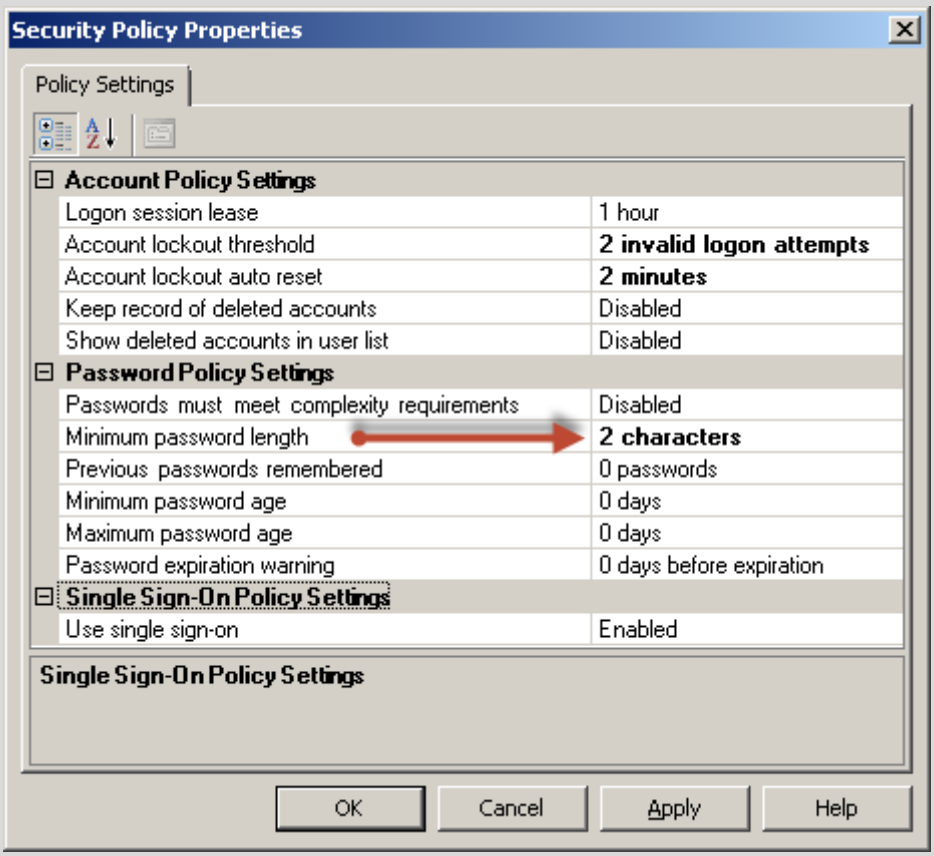
4. Leave the 2 password fields blank and click the ***Change Password [Enter]*** button.



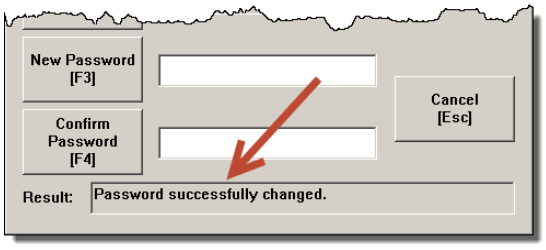
5. Note the *Result* field highlighted below. It clearly states that the *Password must be at more than 2 characters long*. Click ***Cancel [Esc]*** to cancel.



The Security Policy that is being inforced is the Minimum Password Length of 2 characters. Below is a screen capture of the Security Policy Properties dialog.



6. Go ahead and change the password to '***ra***'. You know you were successful when the *Result* field indicates that the *Password was successfully changed*.



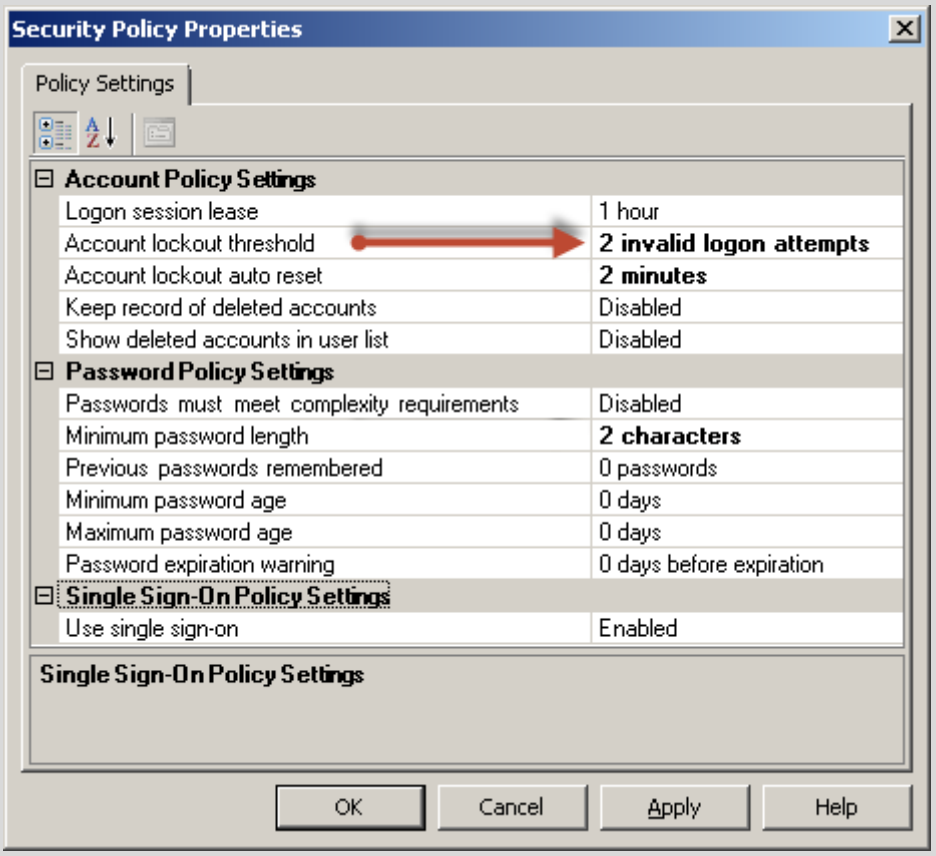
Lock / Unlock User Account

Next we are going to lock and unlock a user at runtime.

To lock an account, the Security Policy of *Account lockout threshold* has to be set to a number other than 0. In our case, it is set to *2 invalid logon attempts*.

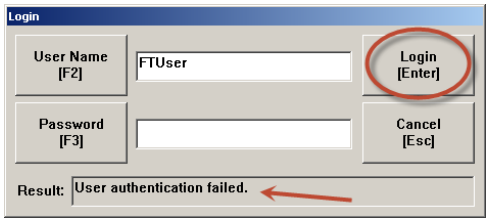
Therefore, we simply have to login with an invalid password twice to lock an account.

Below is a screen capture of the Security Policy Properties dialog.



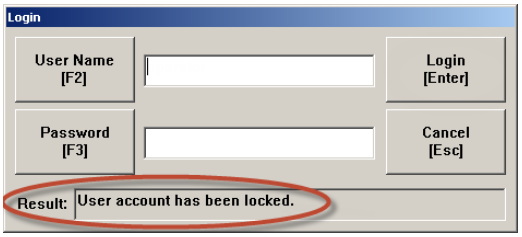
1. Click the ***Login*** button again.

2. Enter '***FTUser***' as the *User Name,* leave the *Password* field blank and then click ***Login [Enter].***



The user authentication fails as expected since the password is not blank. It was changed to '***ra***' earlier in the lab.

3. Attempt to login with '***FTUser***' as the user Name, intentionally use the wrong password again (blank), and then click ***Login [Enter].***



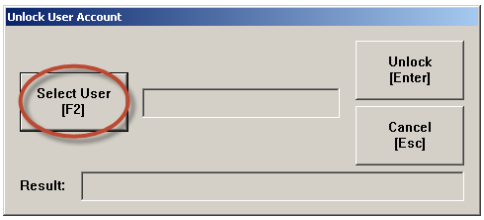
We've succeeded in locking the FTUser user account.

4. Click the ***Cancel [Esc]*** button.

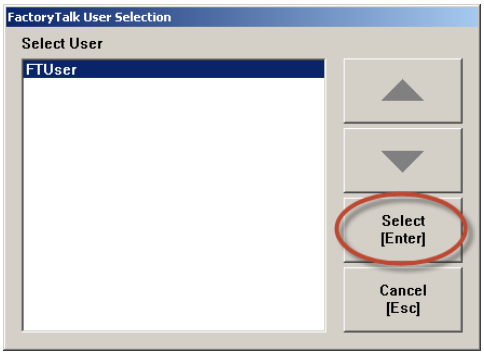
We are ready to unlock the FTUser user account.

5. Click the ***Unlock*** button.

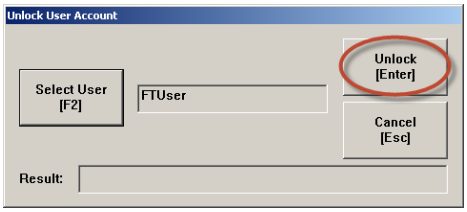
6. In the Unlock User Account dialog, click ***Select User [F2]***.



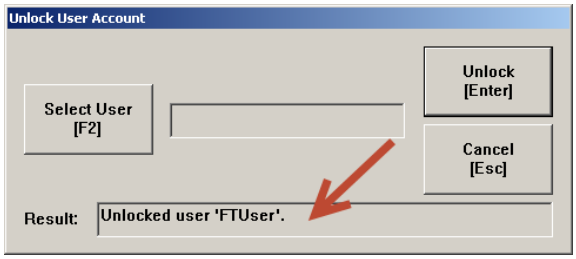
7. Highlight the ***FTUser*** user account and click ***Select [Enter]***.



8. With the FTUser user account selected, click ***Unlock [Enter]***.



9. The Result field will indicate the FTUser user account was unlocked. Click ***Cancel [Esc].***

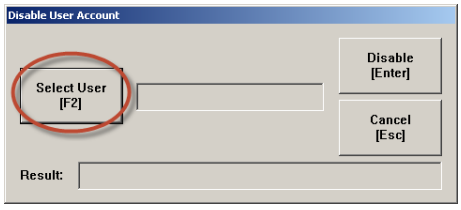


For more on the differences between a disabled and a locked user account, check Appendix D.

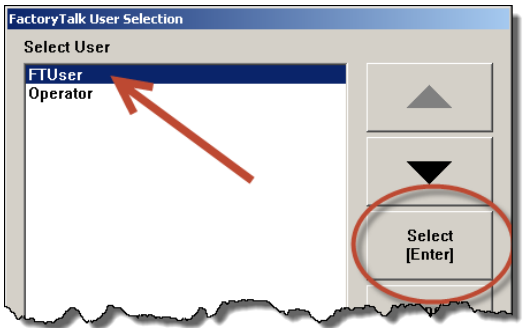
Extra Task – Disable / Enable User Account

1. Login as ‘admin’ and password ‘pvp7’, click the ***Disable*** button to disable a FactoryTalk Security user.

2. Click the ***Select User [F2]*** button.

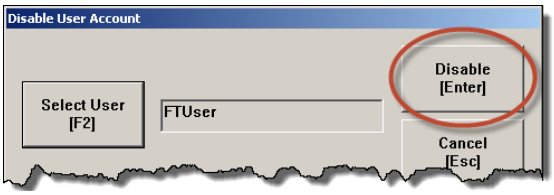


3. Select ***FTUser*** from the list of users and click ***Select [Enter].***

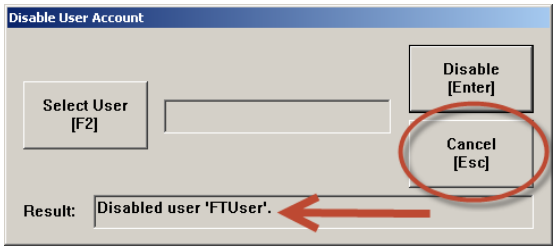


Note how you are not able to disable the FactoryTalk Security user you are logged in as. This is why the admin user account is not listed.

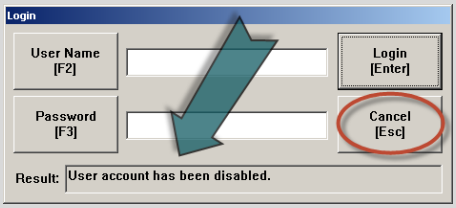
4. With FTUser selected, click ***Disable [Enter].***



5. Once the results field indicates that user account FTUser was disabled, click ***Cancel [Esc]***.



The result field will indicate If you try to login as a user that has been disabled.



To enable a FactoryTalk Security user, we can very easily use the *Enable* button.

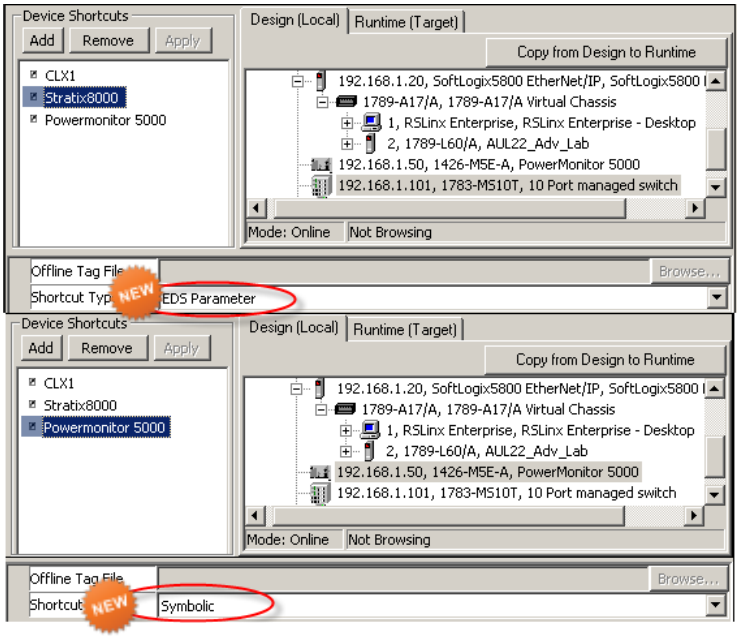
For more on the differences between a disabled and a locked user account, check Appendix D.

Appendix A : New communication shortcut types

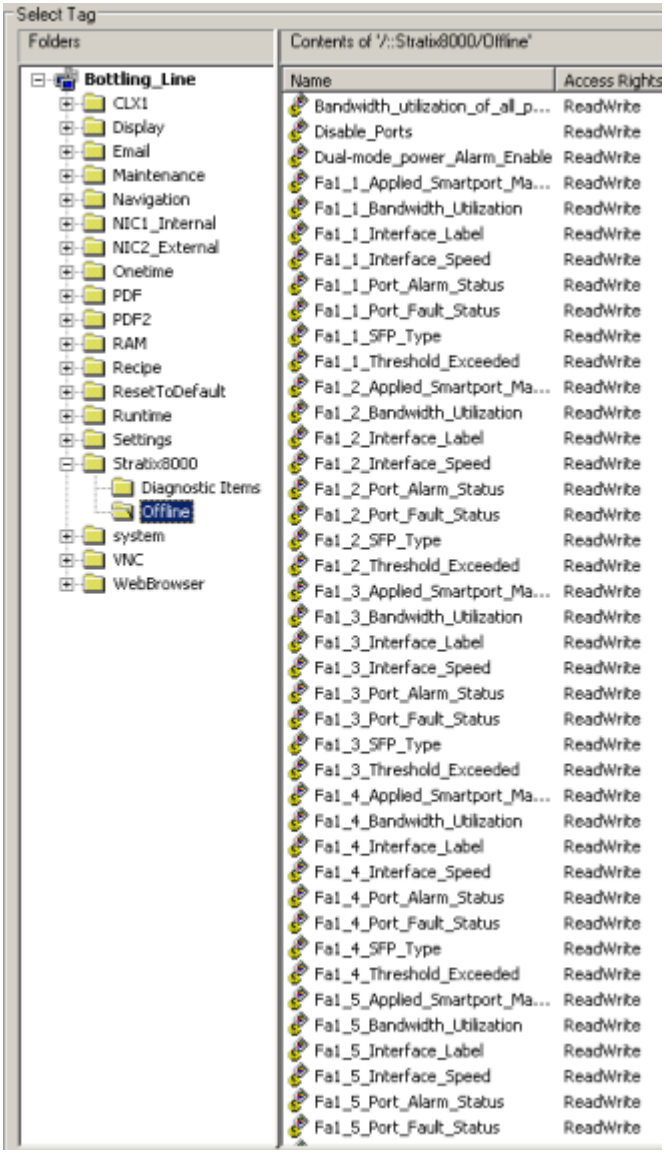
There are three available shortcut types:

- Processor is for the processor type devices, such as 1756-L53, 1756-L61S, 1756-L64, 1756-L75, and CompactLogix L32E Processor.
- EDS Parameter is for the devices in which the EDS parameter is defined, such as 1734-ADN DeviceNet Adaptor, 1734-ADNX, 1747-AENTR, 1756-DNB, and 1783-MS10T Stratix 8300.
- Symbolic is for the devices that have tags or symbols defined, such as 1426 PowerMonitor™ 5000 and 193 E1 Plus Solid-State Overload Relays.
- Unsolicited Message is for ControlLogix controllers via Ethernet.

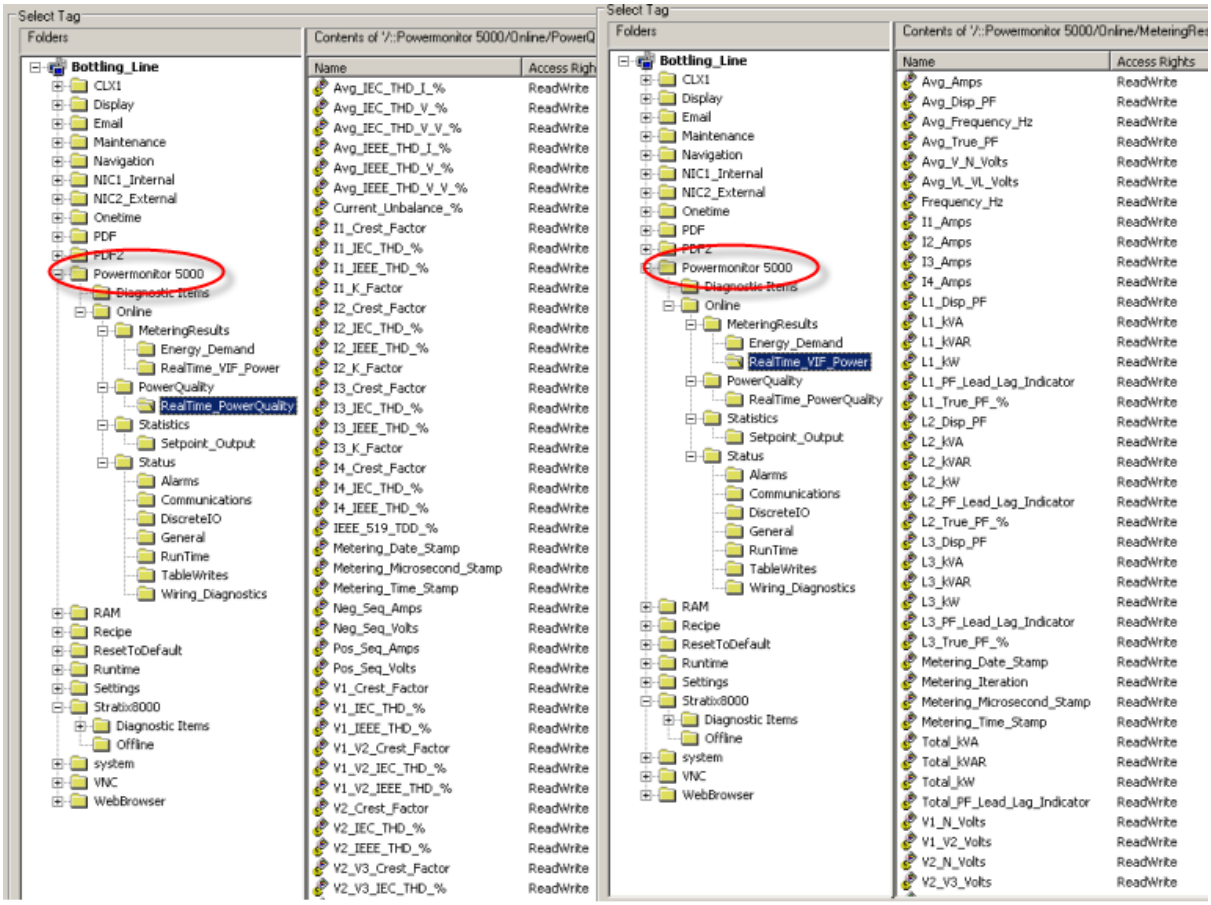
With the new EDS Parameter and Symbolic connections you don't need to go through a controller to get information from the devices.



The Stratix 8000 ethernet switch has been setup as an EDS parameter while the Power monitor 5000 is setup as a Symbolic connection type.



You can connect to these tags from the Stratix 8000 switch where before you had to go through an Add-on instruction in the controller to get the information.



As you can see with the powermonitor 5000 there are a lot of tags available without any additional code in the controller.

Appendix B : Differences in Recipe Models

RecipePlus control	Recipe ActiveX control
Native/built in to FTView ME	Add-on file/feature
Operator control only (buttons trigger actions)	PLC or button control (tag values trigger actions)
Recipe data stored in a proprietary file	Recipe data stored in a plain text .CSV file
Can support thousands of ingredients	500 ingredient maximum
Native selection and table objects for recipe (One recipe object handles all ingredients and values)	Requires custom “table” for edits (Build with Numeric objects)
Recipes can be stored either in or out of .MER	Recipes stored outside .MER
One recipe can handle many data and tag sets, combining those into units	1 ActiveX control = 1 tag set
All PVP terminals supported	All PVP terminals supported
Excellent for large recipes with multiple tag sets, and easy implementation/deployment of recipes.	Excellent for small recipes with flexible graphic design, PLC controlled action, and plain text file editing.

Appendix C : Differences in Data Models

A commonly required feature in FTView ME is the storage of application data. FTView ME provides two choices for storing data, the Data Model and the DataStorePlus ActiveX control. The following table highlights the differences between the two:

Data Model	DataStorePlus ActiveX control
Native/built-in control	Add-on feature
Timed, data change, data % change triggers	Timed or tag trigger logging
Always active/running	Can control logging (on/off)
Only 1 data log model supported at run time	Multiple data log support
1 file only, first in-first out after maximum data points	Multiple file support
1,000,000 data point maximum	Only storage limit to data points
Binary proprietary file	Plain text .CSV file
Works with Trend display to show historical data	Does not work with trends
Supported in all PVP terminals	Requires PVP CE (700-1500), with exception of PVP v6.0
Good for Trending historical data and native functionality. Easy setup.	Excellent for plain text or high speed data archiving.

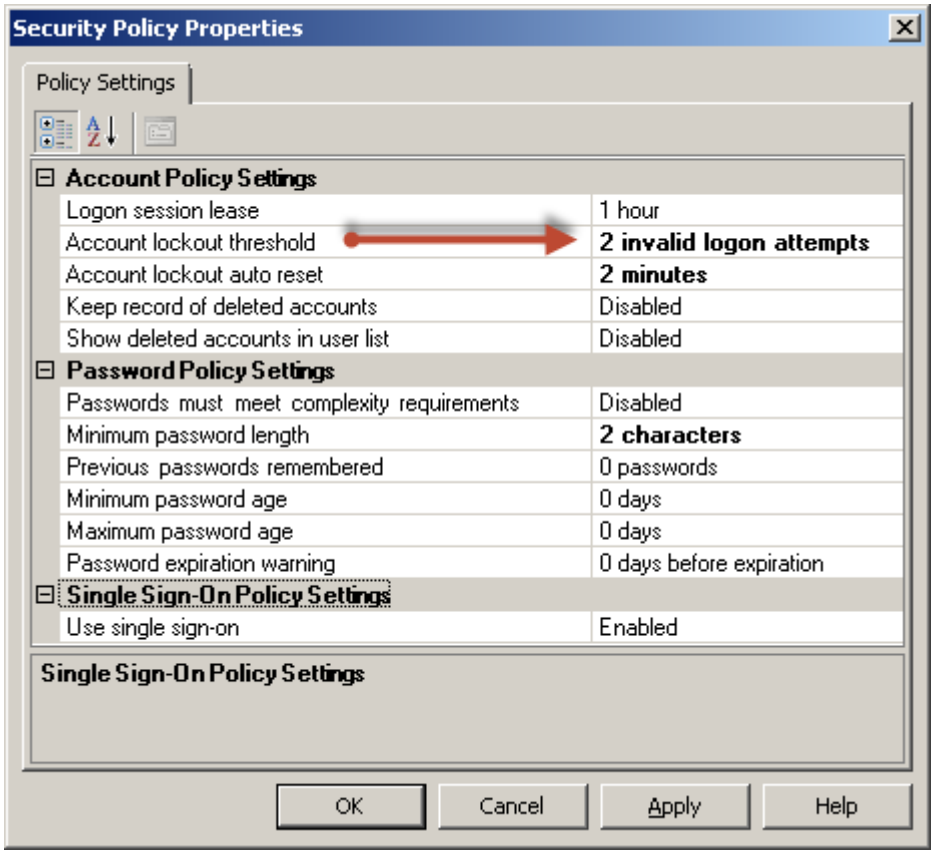
Appendix D - Locked vs. Disabled User Accounts

What is the difference between a disabled and a locked user account?

A user account is *locked* when the account lockout Threshold Policy Setting exceeds the specified logon attempts.

The default value is 0 (zero) which means the account will not be locked regardless how many invalid login attempts were made.

In our application we had changed the value to 2 so a user account is locked after 2 invalid logon attempts.

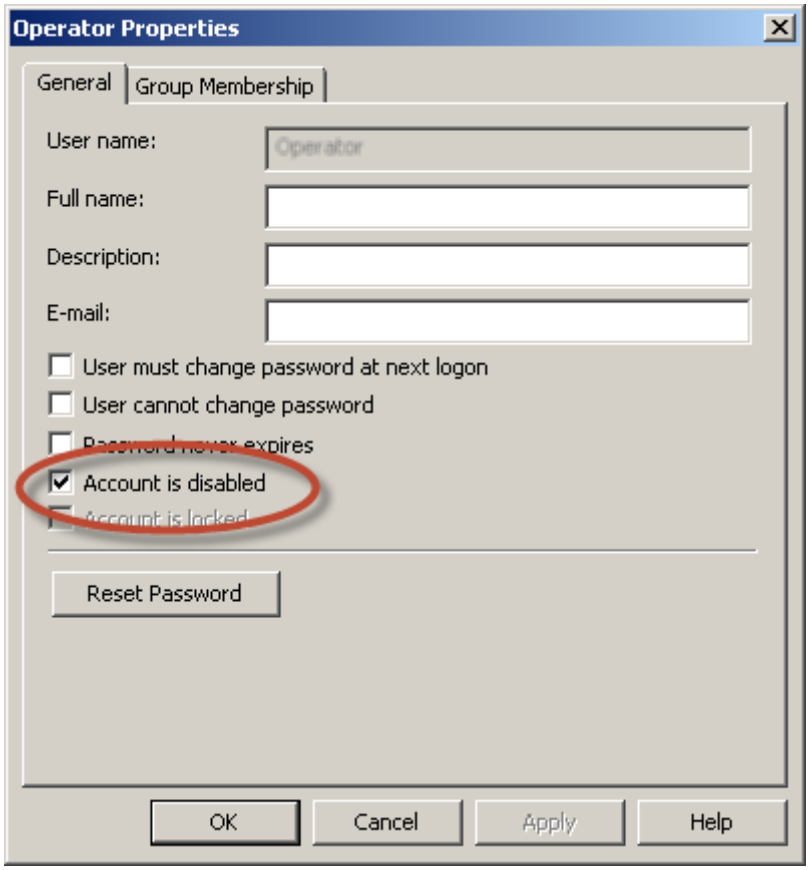


Windows-Linked users can be locked based on the Account lockout threshold in Windows.

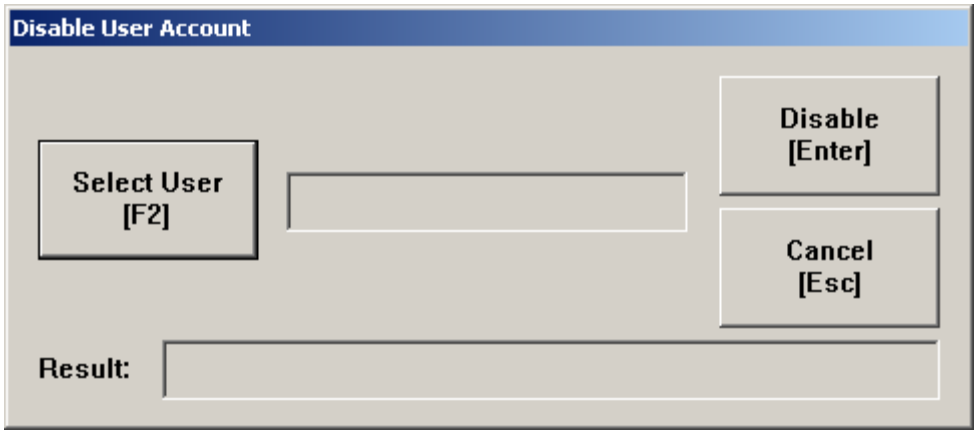
On the other hand, *disabling* a user is an action that an administrator would take. For example, in a highly secured environment, when a user takes an extended leave of absence, company policy may state that this user credentials must be inactive. This means that the administrator will have to either delete the user account or disable it. The latter is often chosen because it is much easier to enable the account when the user is back instead of spending hours figuring out all credentials that were granted prior to the extended leave.

There are 4 ways in View ME where a user can be disabled.

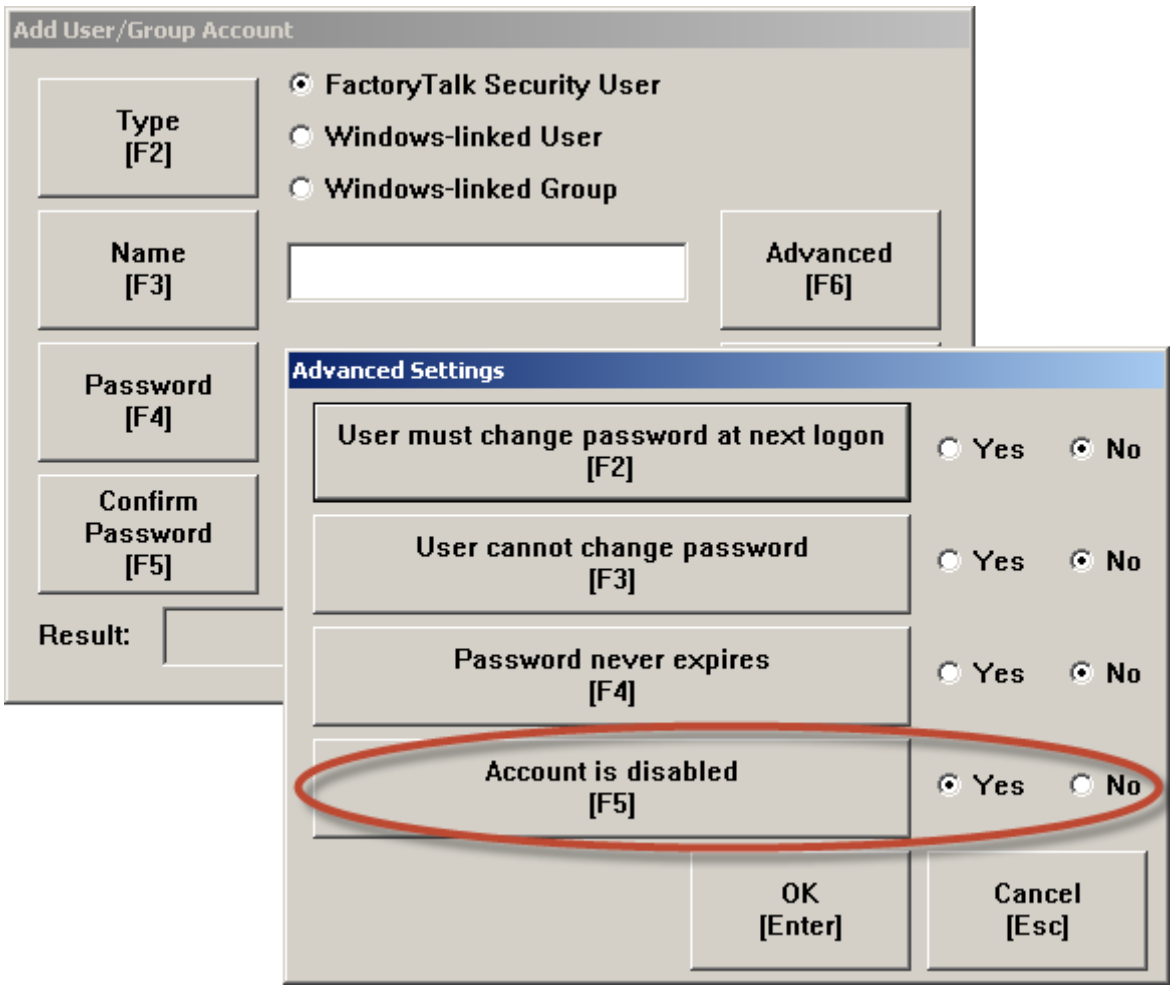
1- In FactoryTalk View Studio (design-time), you are given the option to disable a user account as part of the properties of that user.



2- At runtime, in ME Station, you can use the Disable User Account button.



3- At runtime, in ME Station, you have the option to disable a user account while creating that user.



4- Windows-Linked users can be disabled in Microsoft Active Directory (Windows Domain Controller.)

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