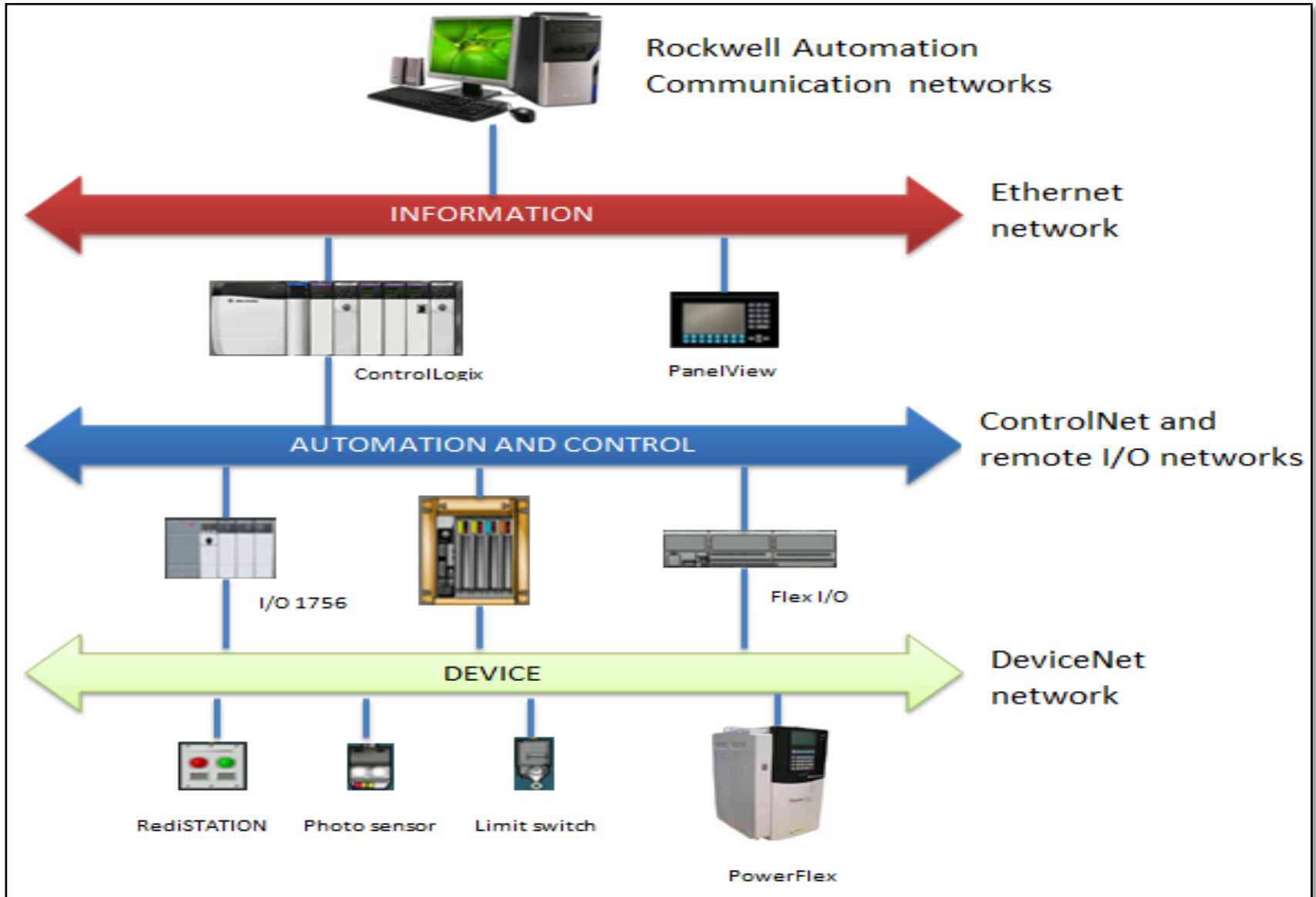


# Factory Talk



# FactoryTalk View Studio

**Factory Talk View Studio includes SE Local, ME and Network.**

➤ **SE Network** Creates or opens a Factory Talk view Network Applications (Distributed application)

➤ **SE Local** creates or opens a Factory Talk View Local Applications( Local applications).

➤ **Machine Edition** creates or opens a Factory Talk View Machine Edition Application (HMI applications)

# FactoryTalk Overview

## FactoryTalk View Site Edition (Local)

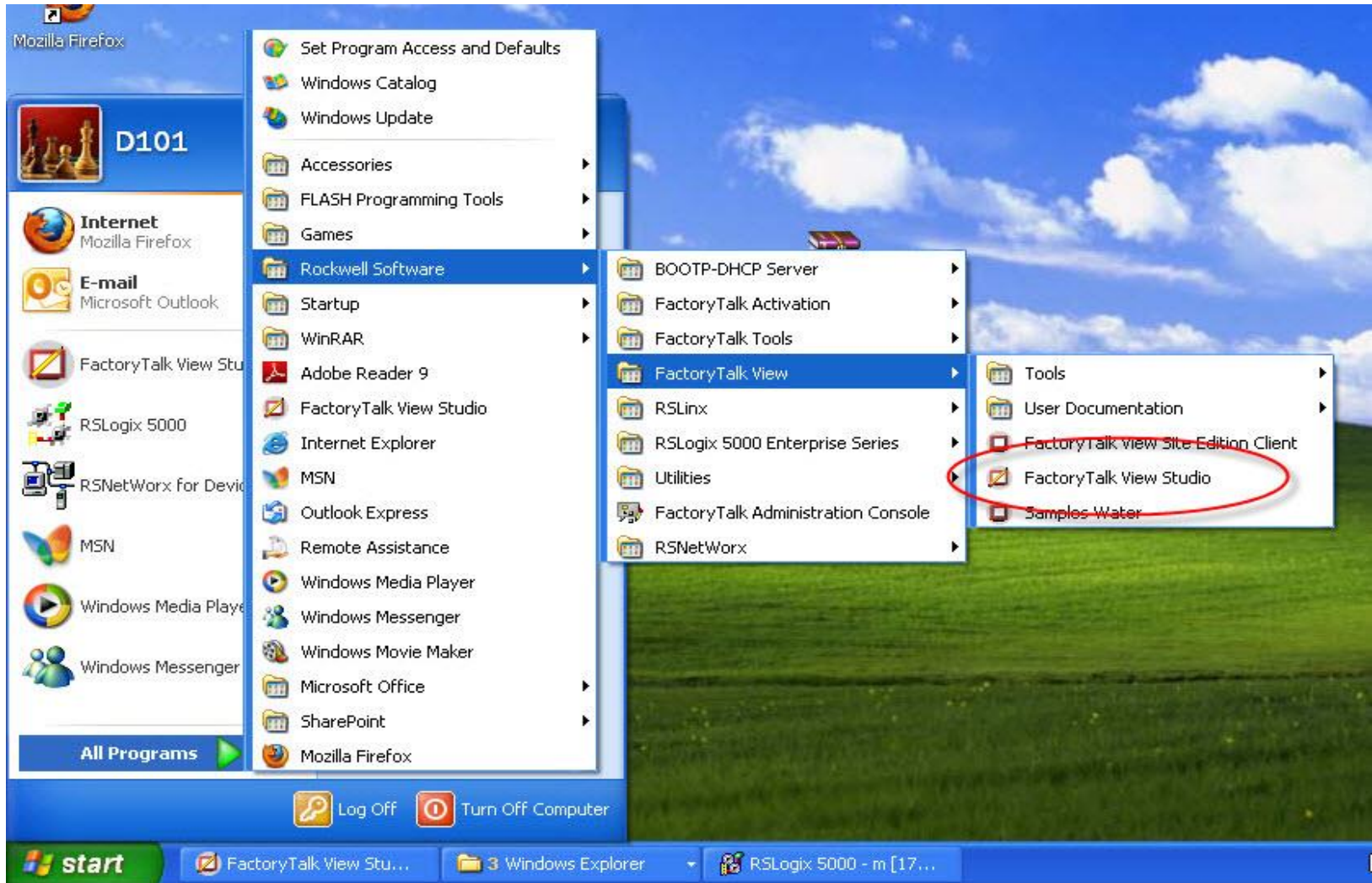


## FactoryTalk View Site Edition (Network)



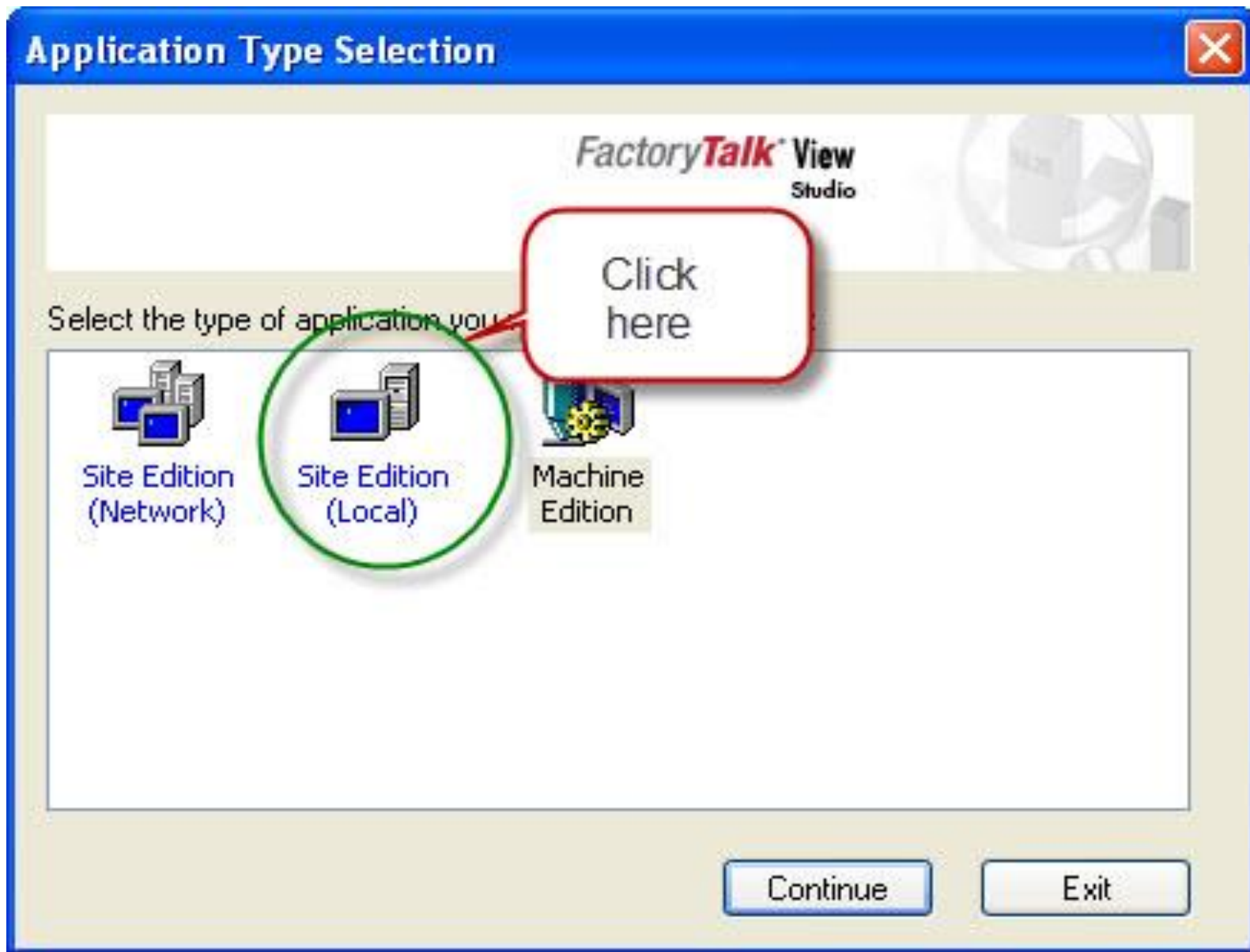
# Factory Talk Overview

*START >> All Program >> Rockwell Software >> FactoryTalk View >> FactoryTalk View Studio.*



# Factory Talk Overview

## Selecting Factory Talk for appropriate application



# Factory Talk Overview

## Parts of the Factory Talk View Studio

The screenshot shows the FactoryTalk View Studio interface with the following components and annotations:

- Menu bar:** File View Settings Tools Window Help
- Toolbar:** Contains icons for file operations and application control.
- Explorer window:** Displays a tree view of the project structure under 'Waste Water Project'. Annotations include 'Browse devices on the network.' pointing to the 'Network (LOCALHOST)' folder and 'View the application.' pointing to the 'Application' folder.
- Workspace:** The main area for editing views. An annotation 'Diagnostics List' points to a list box at the bottom, and 'Status bar' points to the bottom-most bar.
- Trend Example:** A graph showing data over time. The Y-axis is labeled 'Y Scale' with values 0, 11, 23, 35, 47, 59. The X-axis shows times 3:46:47 PM and 3:47:02 PM. The graph is titled 'Trend Example' and dated 'Friday, October 27, 2000'. To the right of the graph are three colored indicators: a green arrow labeled 'NNN', a red arrow labeled 'NNN', and a blue arrow labeled 'NNN'. Below the graph is a 'Trend Controls' panel with buttons for 'Next Pen', 'Pause', 'Move Left', 'Home', 'End', and 'Move Right'. To the left of the graph are 'Move Up' and 'Move Down' buttons.

# WORKING ON FACTORY TALK

1. Configure hardware, create **controller tags**, write logic and download to controller to control the system.
2. Read controller tags in PLC by OPC Server  
(Rslink, Rslink Enterprise, OPC third Party)
3. Create graphic displays to control and monitor automation systems using Objects in library.
4. Link Object's properties to tags in OPC
6. Runtime to check

# WORKING ON FACTORY TALK

Configure hardware, create **controller tags**, write logic and download to controller to control the system using Rslogic 5000

The screenshot displays the RSLogix 5000 software interface. The title bar reads "RSLogix 5000 - WATER\_PROCESS [1769-L32E 20.2] - [Controller Tags - WATER\_PROCESS(controller)]". The main window shows a "Controller Tags" table with the following data:

Name	Value	Force Mask	Style	Data Type
WATER	0.0		Float	REAL

The "Controller Organizer" on the left shows a tree structure for "Controller WATER\_PROCESS" with sub-items: "Controller Tags", "Controller Fault Handler", "Power-Up Handler", "Tasks", "MainTask", "MainProgram", "Program Tags", and "MainRoutine". The "Scope" is set to "WATER\_PROCE" and "Show" is set to "All Tags".



# **WORKING ON FACTORY TALK**

**Read controller tags in PLC by OPC Server**

**There are three ways to read tags from PLC**

➤ **Using RSLinx.**

➤ **Using RSLinx Enterprise of FactoryTalk  
View Studio**

➤ **Using OPC Third Party as Kepware**

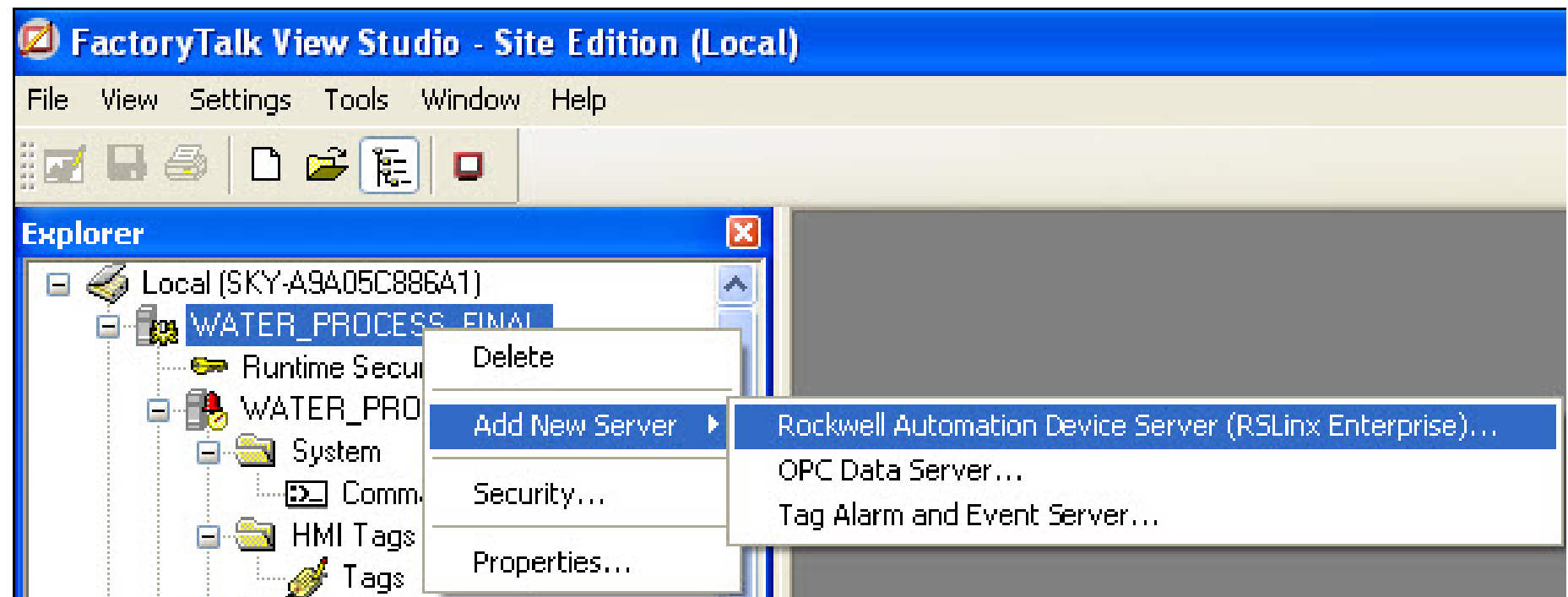
# WORKING ON FACTORY TALK

Read controller tags in PLC by OPC Server

➤ Using RSLinx Enterprise: Open Factory Talk

View Studio/Select Add New Server/Rslink

Enterprise.



# WORKING ON FACTORY TALK

## Read controller tags in PLC by OPC Server

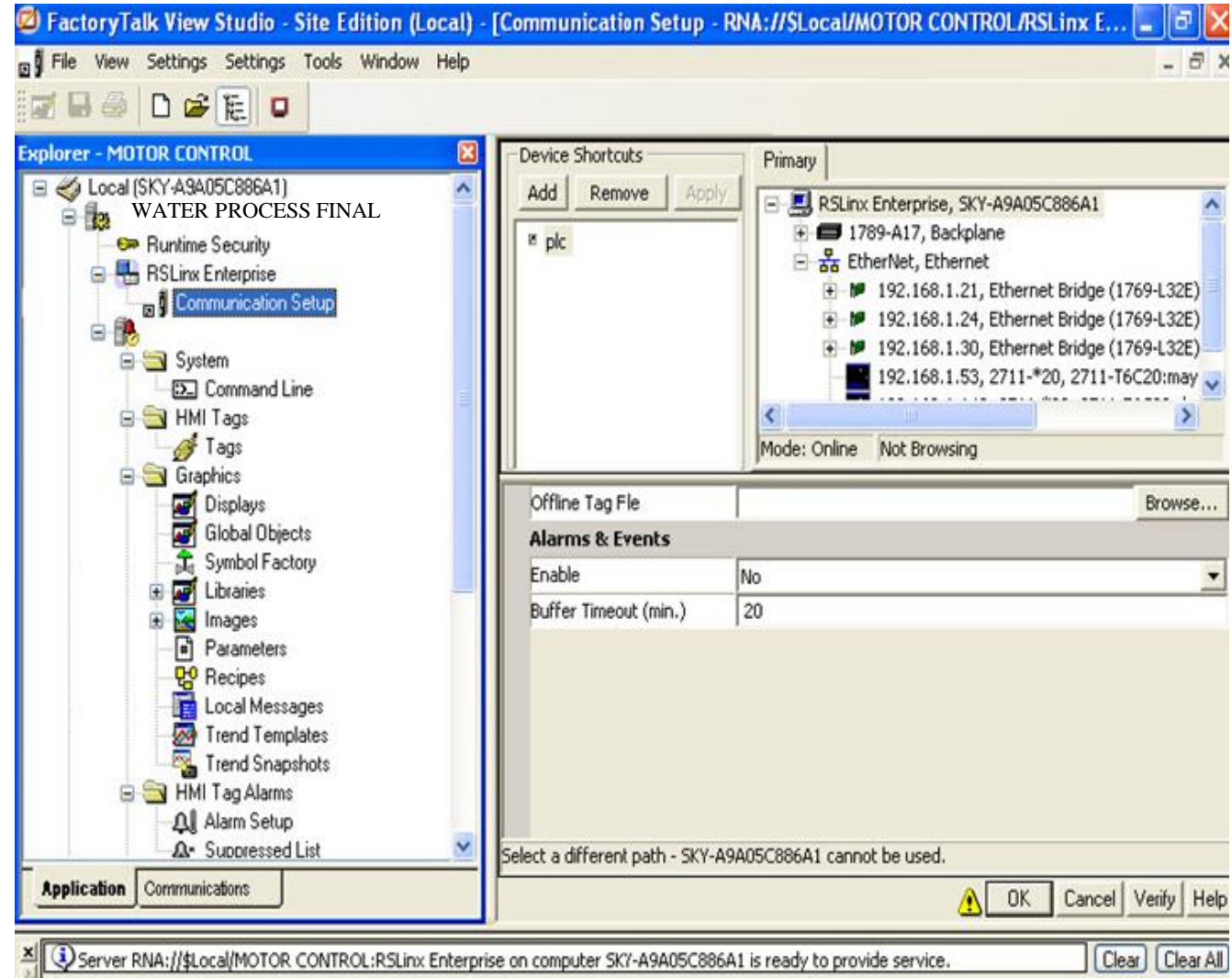
After add a new server, one new folder is created in Rslink Enterprise to communicate with controller



# WORKING ON FACTORY TALK

## Read controller tags in PLC by OPC Server

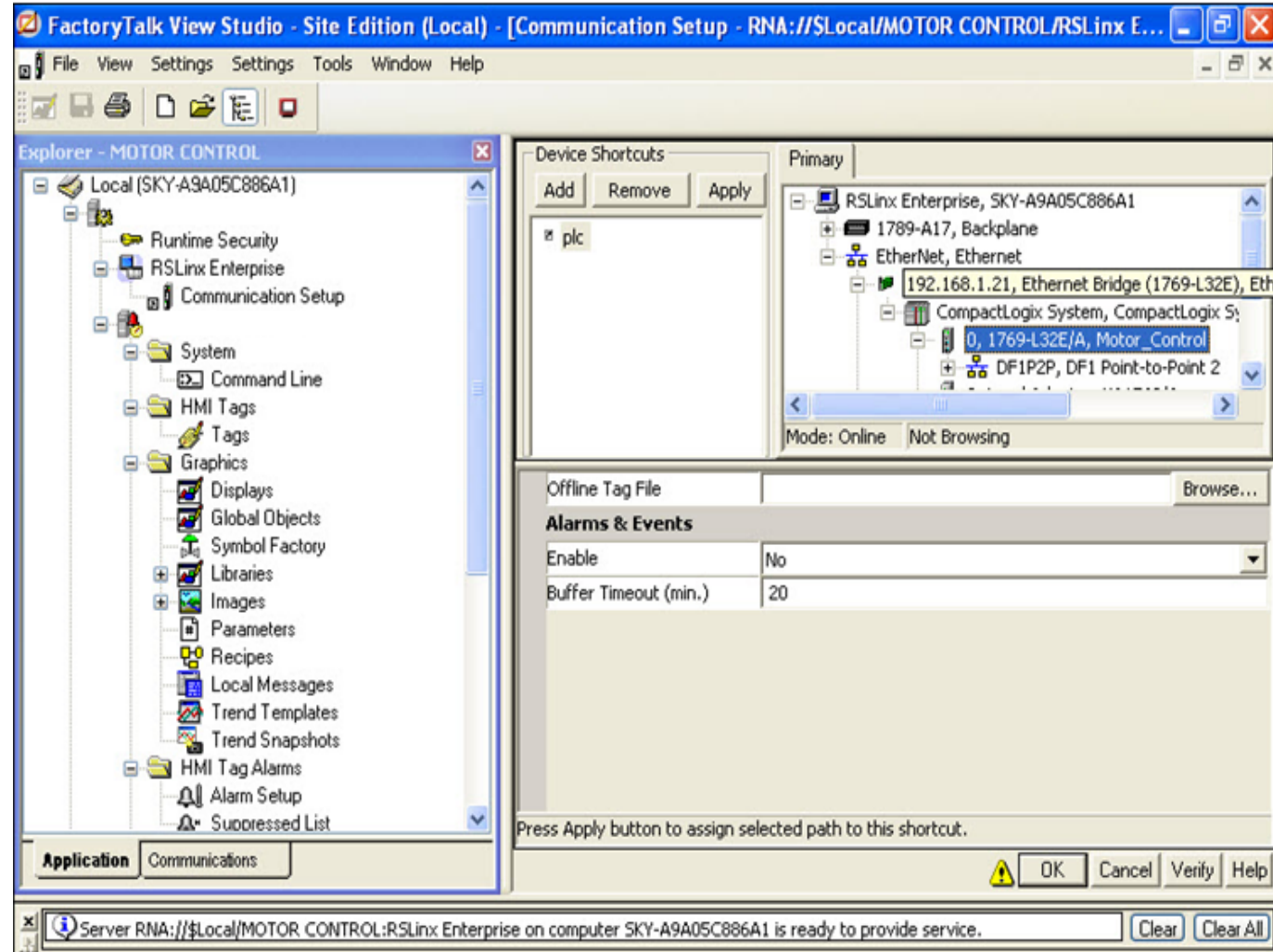
Add a folder to store data from the controller in device shortcuts window



# WORKING ON FACTORY TALK

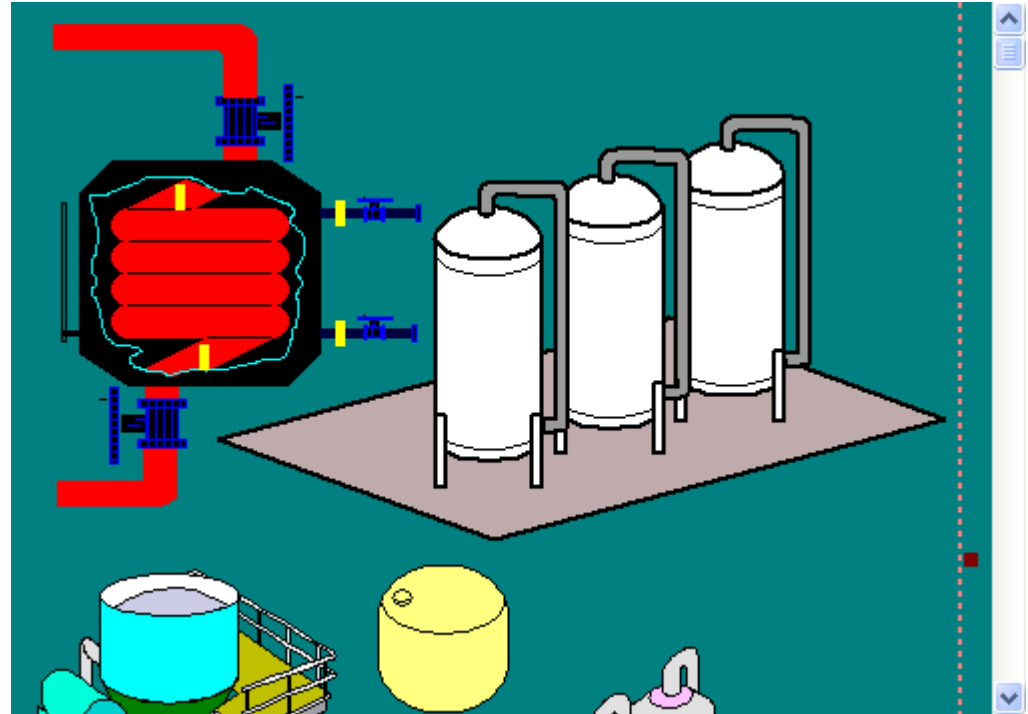
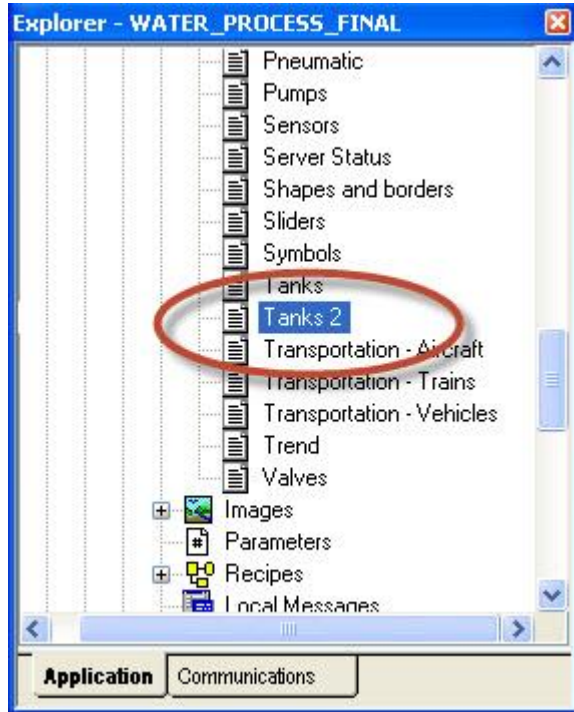
## Read controller tags in PLC by OPC Server

Select the controller to read data.  
*After clicking OK, all tags of the controller are stored in plc folder*



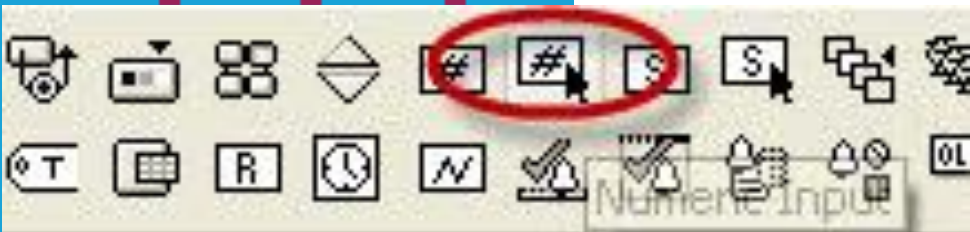
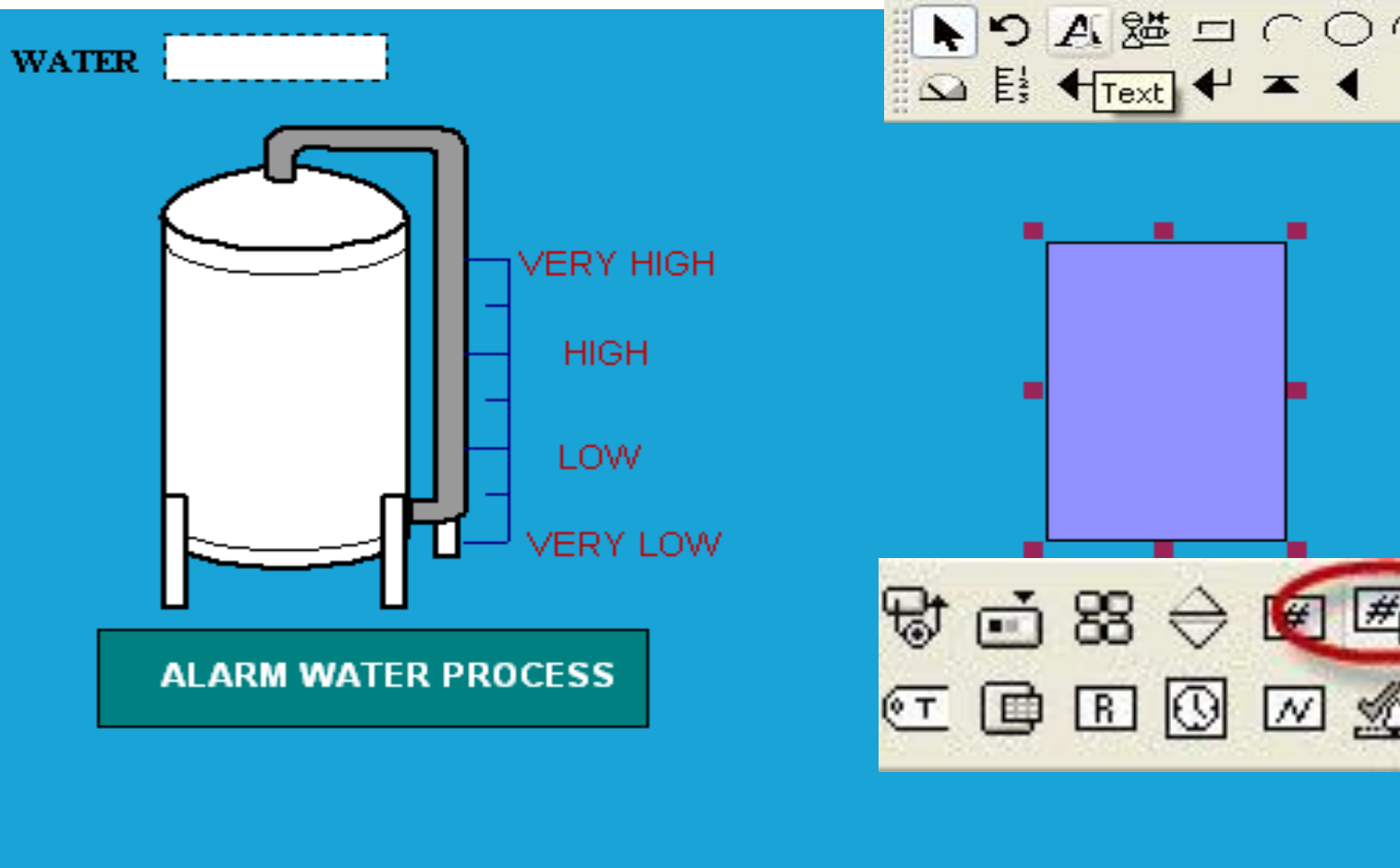
# GRAPHIC DISPLAY

Selecting appropriate Objects and put them into HMI graphic, objects may be copied and pated into HMI graphic



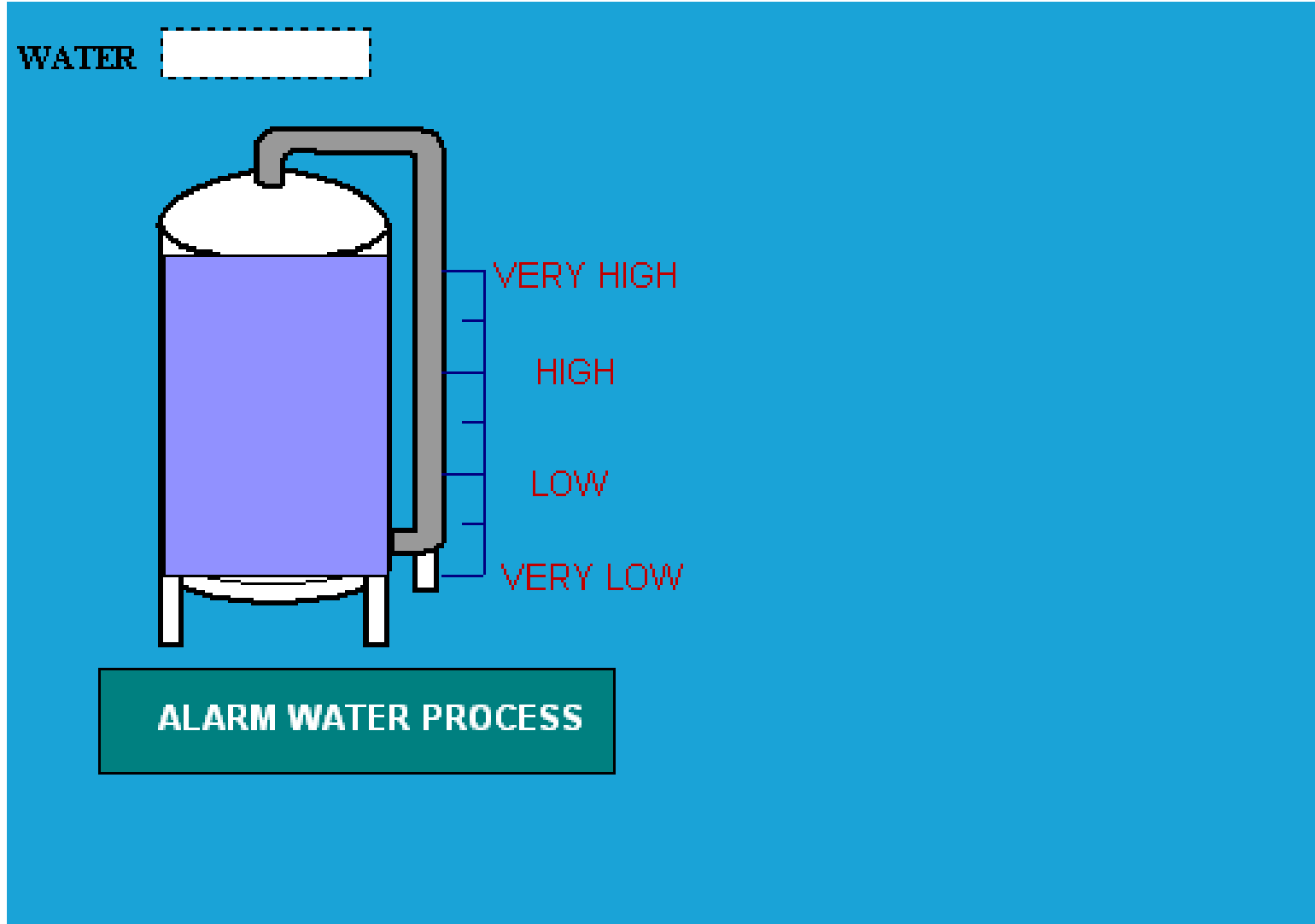
# GRAPHIC DISPLAY

Adding Text, Scale, I/O and Rectangle objects into HMI graphic



# GRAPHIC DISPLAY

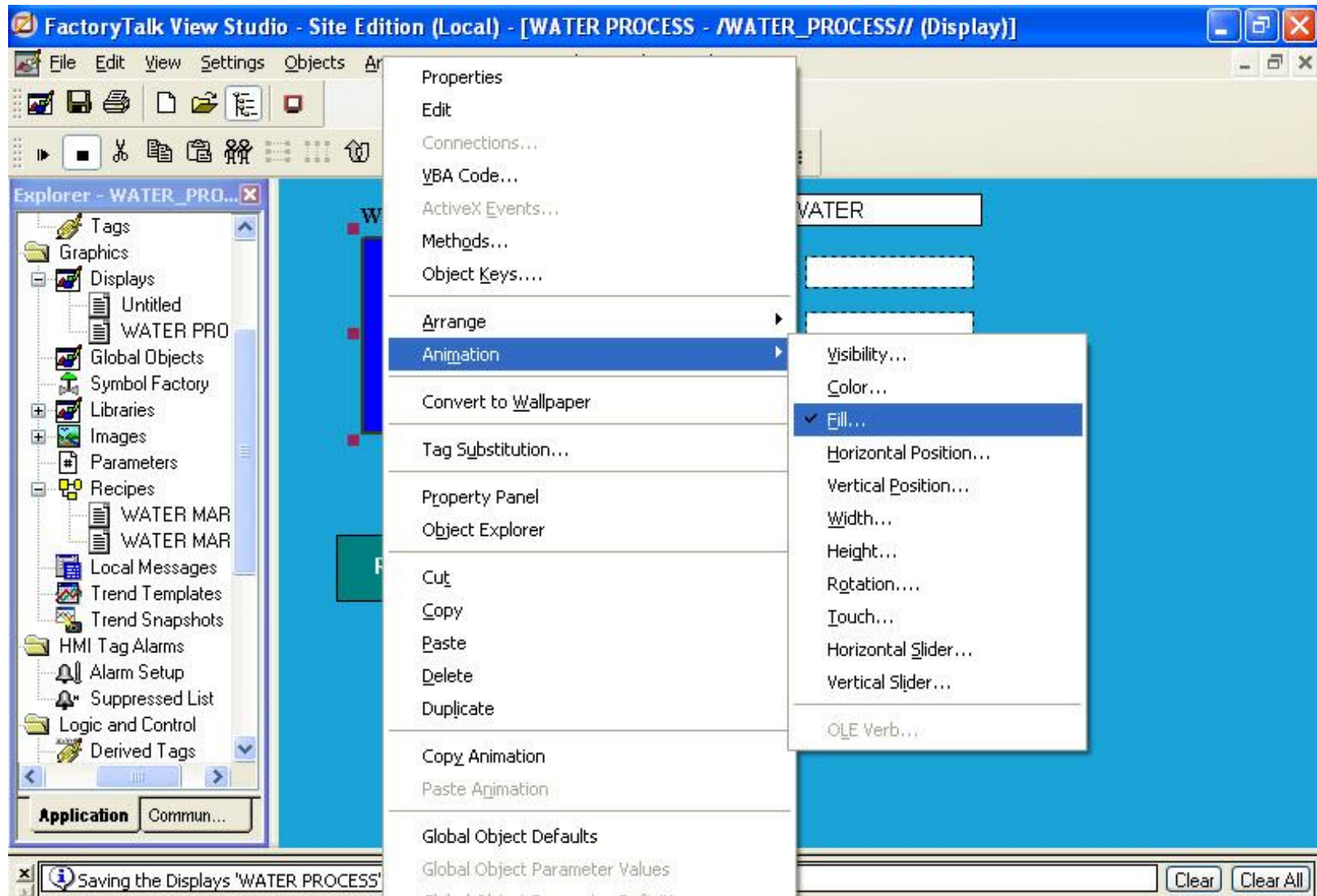
Arrange objects in Graphic display to appropriate positions





# Link properties of Objects to tags in OPC

Linking fill properties of Rectangle object to Water Tag (Fill Percent: 0 - 100%, range: 0 to 32000)



# Link properties of Objects to tags in OPC

Linking fill properties of Rectangle object to Water Tag (Fill Percent: 0 - 100%, range: 0 to 32000)

The screenshot shows the 'Animation' dialog box with the 'Fill' property selected. The 'Expression' field contains the tag name '{[READ DATA|WATER]}'. The 'Expression range' section is set to 'Use constant' with a minimum value of 0 and a maximum value of 32000. The 'Fill (Percent)' section is set to 'At minimum: 0' and 'At maximum: 100'. The 'Fill direction' is set to 'Up'. The 'Inside Only' checkbox is unchecked. The 'Apply', 'Delete', 'Close', and 'Help' buttons are visible at the bottom.

**Animation**

Visibility    Rotation    Width    Height

Horizontal Position    Vertical Position    Horizontal Slider    Vertical Slider

**Fill**    Touch    Color    OLE Verb

Expression

{[READ DATA|WATER]}    Tag...    Expression...

Expression range

Use tag's min and max property values

Use constant    Min: 0    Max: 32000

Read from tags    Min:    Max:

Fill (Percent)

At minimum: 0    At maximum: 100

Fill direction

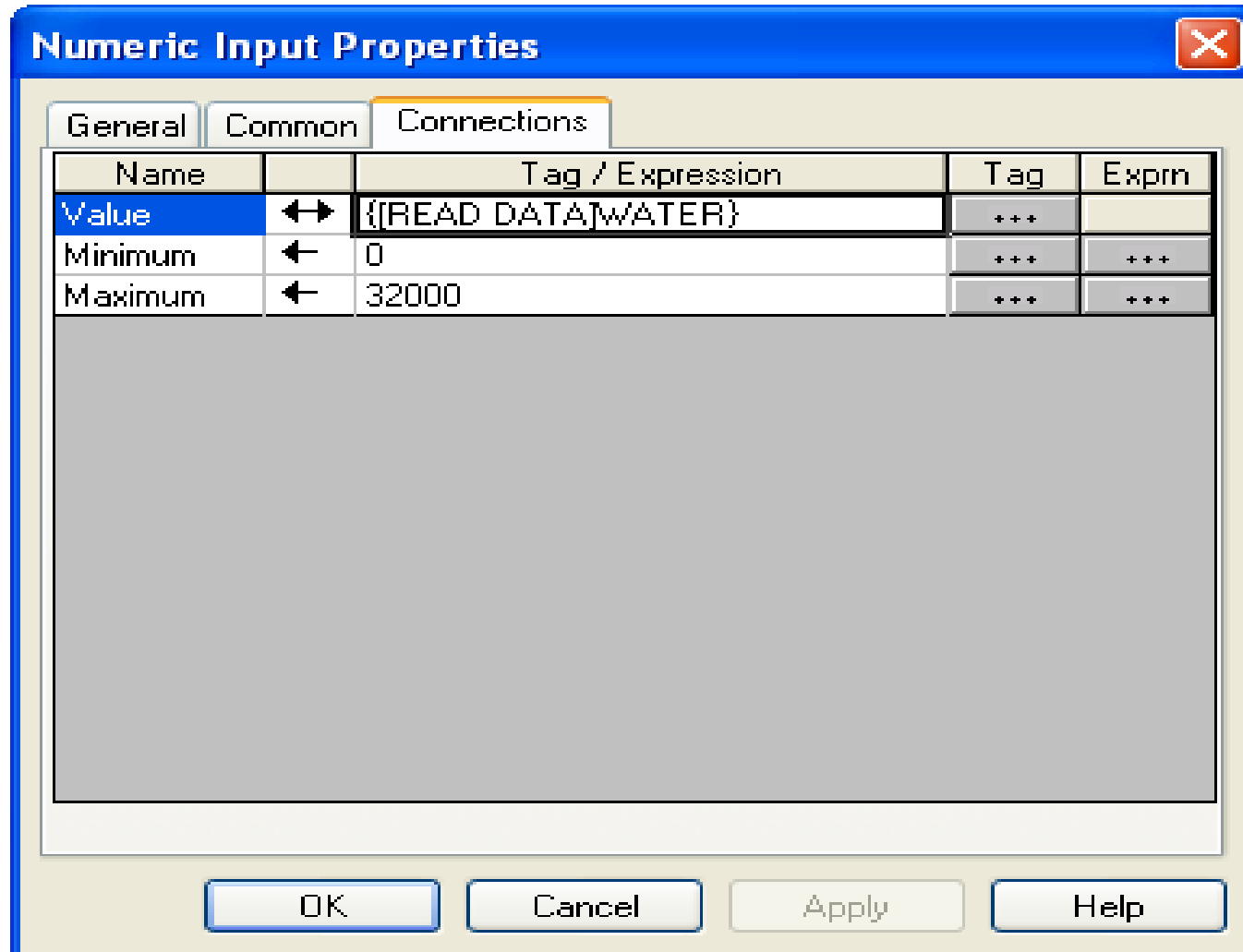
Left     Right     Inside Only

Up     Down

Apply    Delete    Close    Help

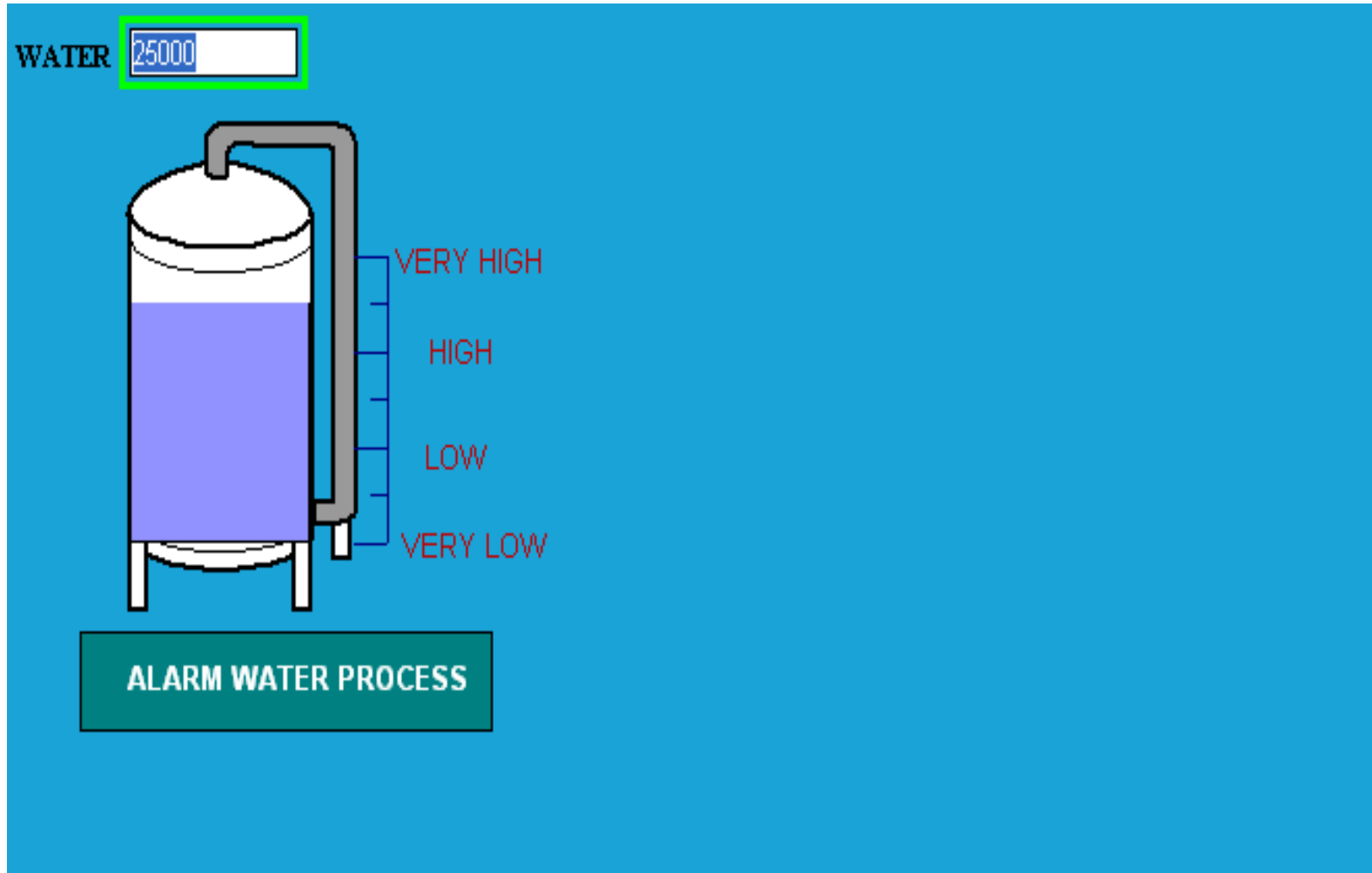
# Link properties of Objects to tags in OPC

Linking number input properties of I/O object to Water Tag  
(Minimum= 0, Maximum = 32000)



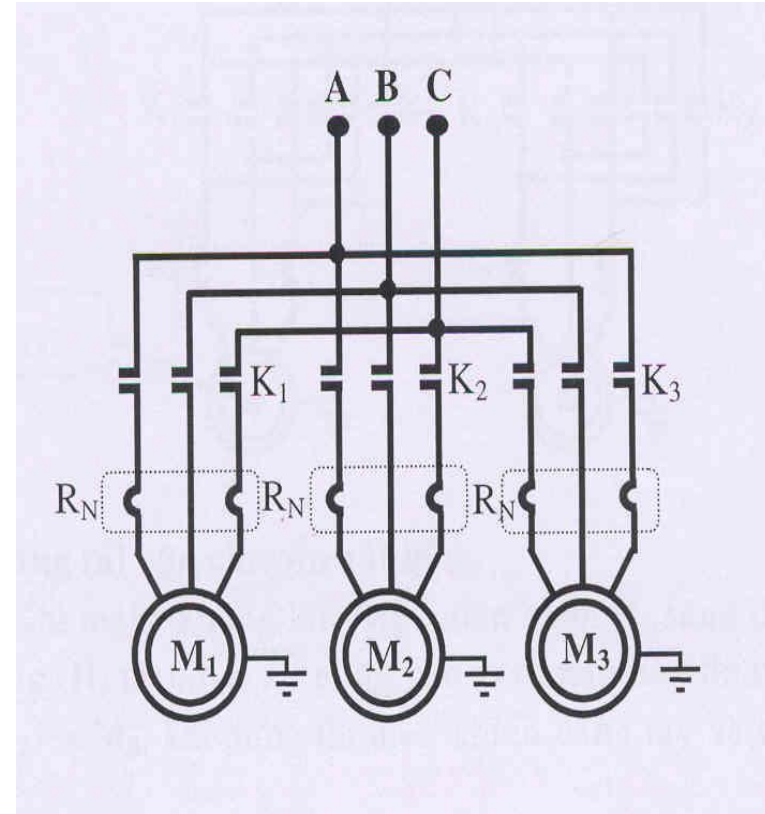
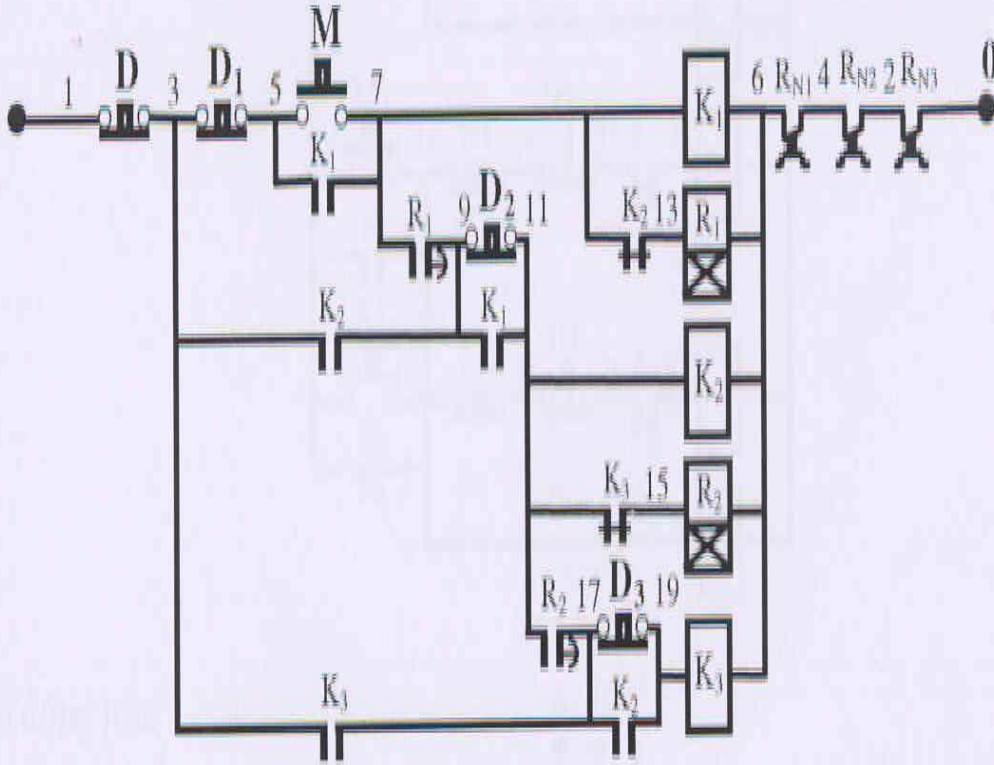
# Link properties of Objects to tags in OPC

Linking number input properties of I/O object to Water Tag  
(Minimum= 0, Maximum = 32000)



# FACTORYTALK PRACTICE

Building a SCADA system to control three ac motor which are controlled by relay logic as following.



# FACTORYTALK PRACTICE

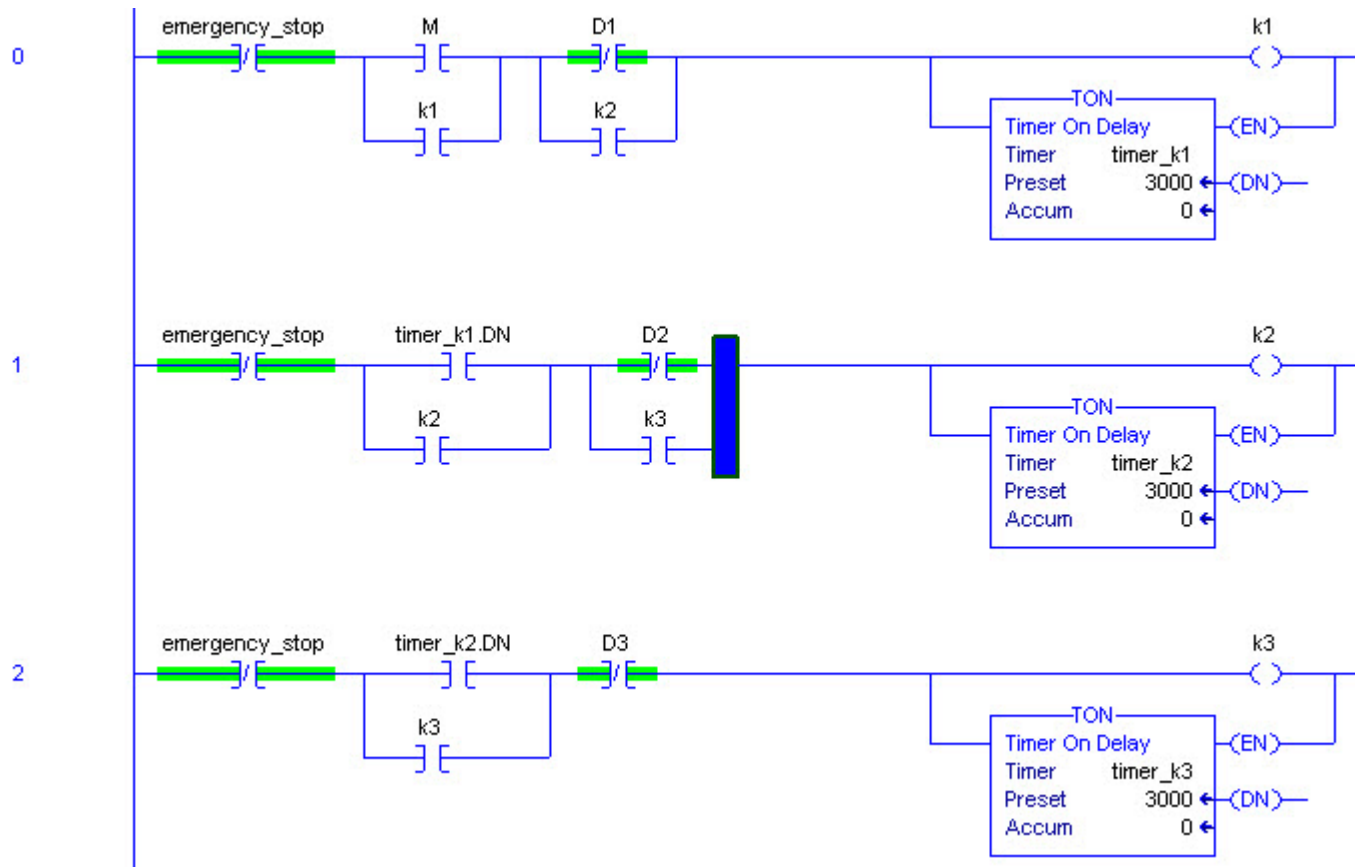
## Creating controller tags to control and monitor in RSlogix5000

The screenshot shows the RSLogix 5000 software interface. The title bar reads "RSLogix 5000 - Motor\_Control [1769-L32E 20.2]\* - [Controller Tags - Motor\_Control(controller)]". The main window displays the "Controller Tags" window for the "Motor\_Control" controller. The "Scope" is set to "Motor\_Control" and "Show" is set to "All Tags". The "Enter Name Filter" field is empty. The table below lists the tags:

Name	Alias For	Base Tag	Data Type	Description	External Access	Cor
emergency_stop			BOOL		Read/Write	
k1			BOOL		Read/Write	
k2			BOOL		Read/Write	
k3			BOOL		Read/Write	
start			BOOL		Read/Write	
D1			BOOL		Read/Write	
D2			BOOL		Read/Write	
D3			BOOL		Read/Write	
+timer_k1			TIMER		Read/Write	
+timer_k2			TIMER		Read/Write	
+timer_k3			TIMER		Read/Write	
M			BOOL		Read/Write	

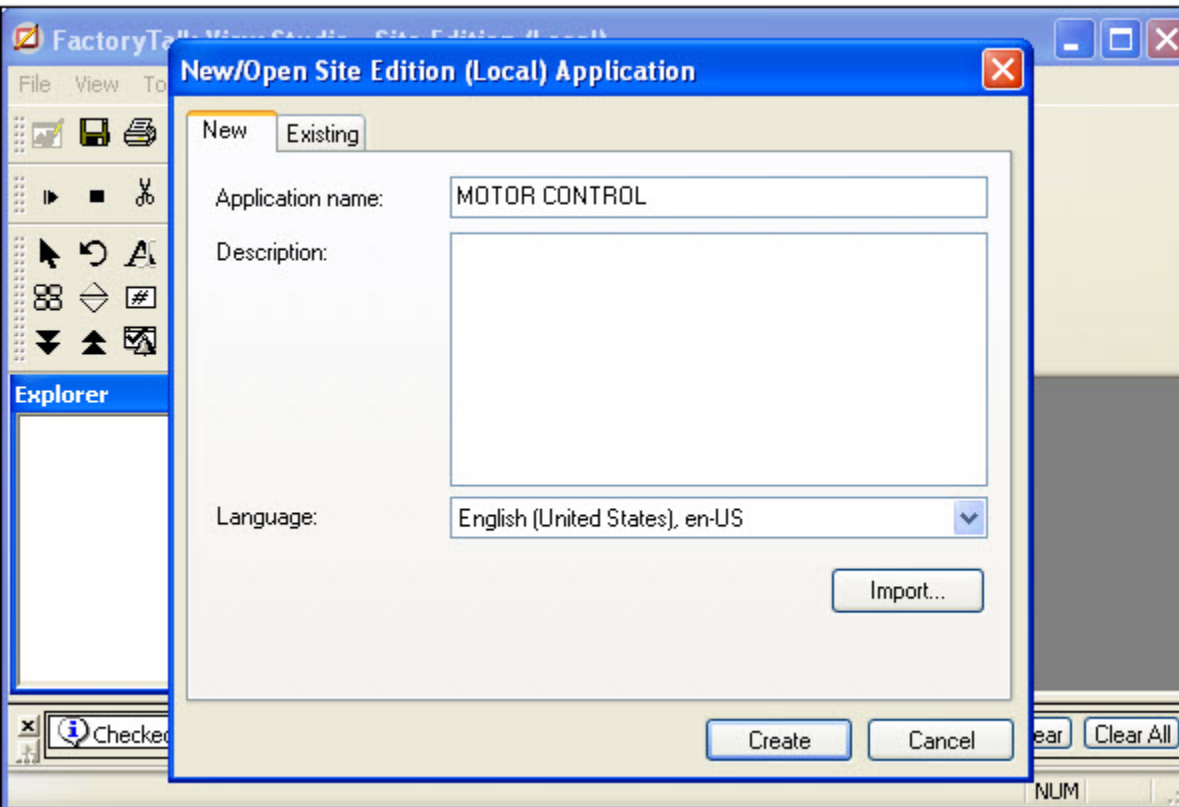
# FACTORYTALK PRACTICE

Writing logic to control the system using RSlogix5000.



# FACTORYTALK PRACTICE

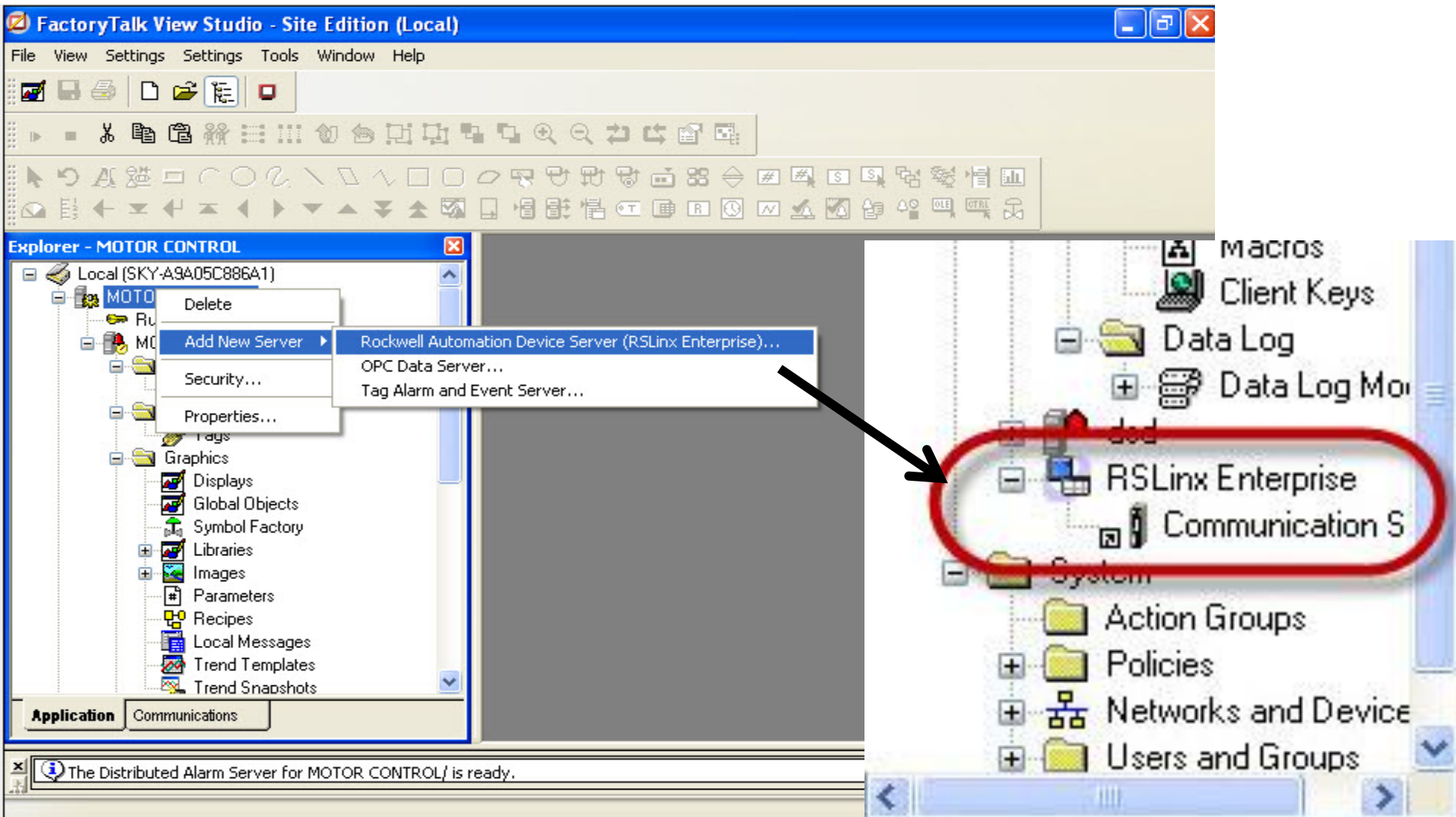
Open Factory Talk View SE(local), enter MOTOR CONTROL for application name





# FACTORYTALK PRACTICE

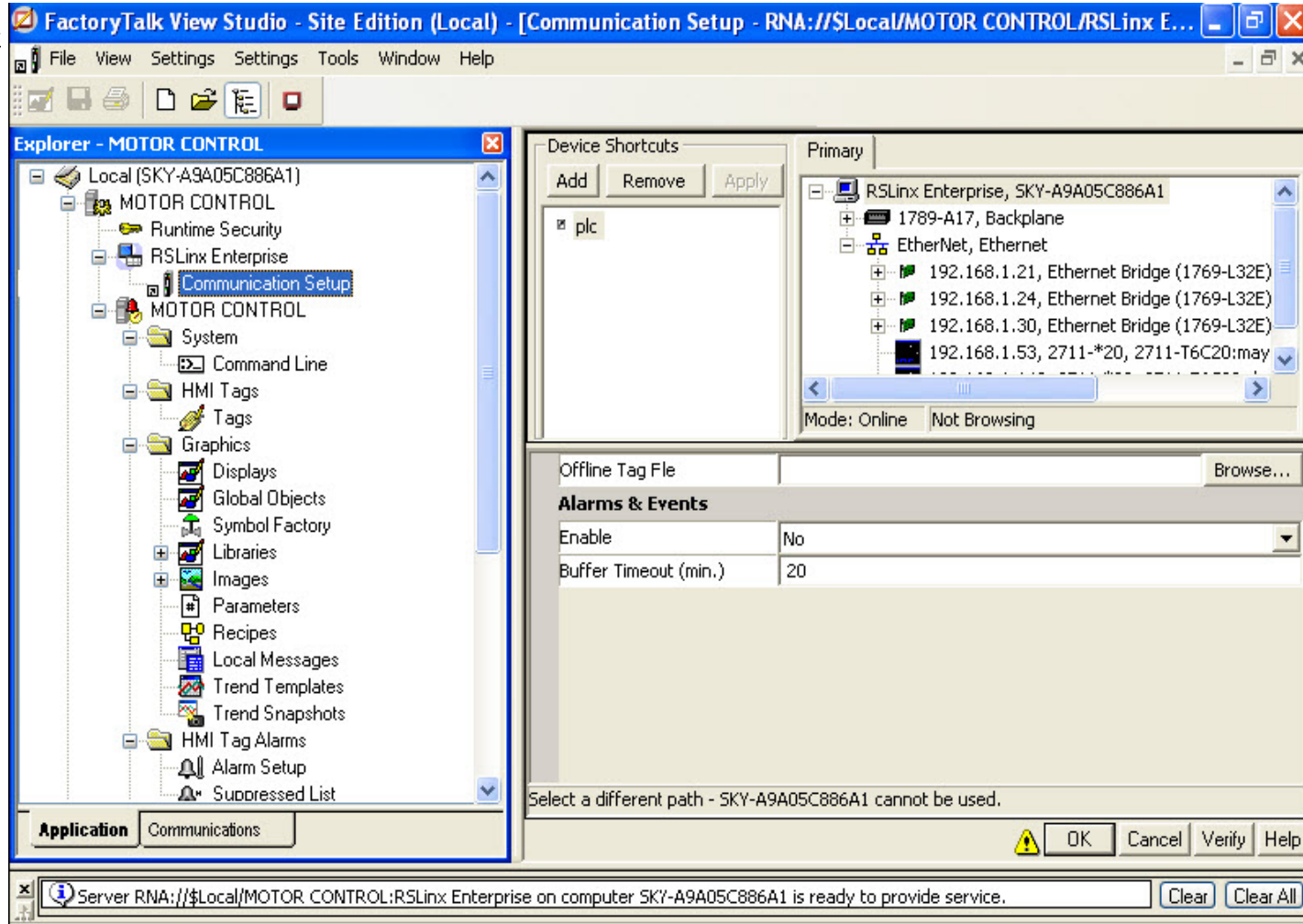
## Adding Rslinx Enterprise to read data from controllers



# FACTORYTALK PRACTICE

## Read controller tags in PLC using RSLinx Enterprise

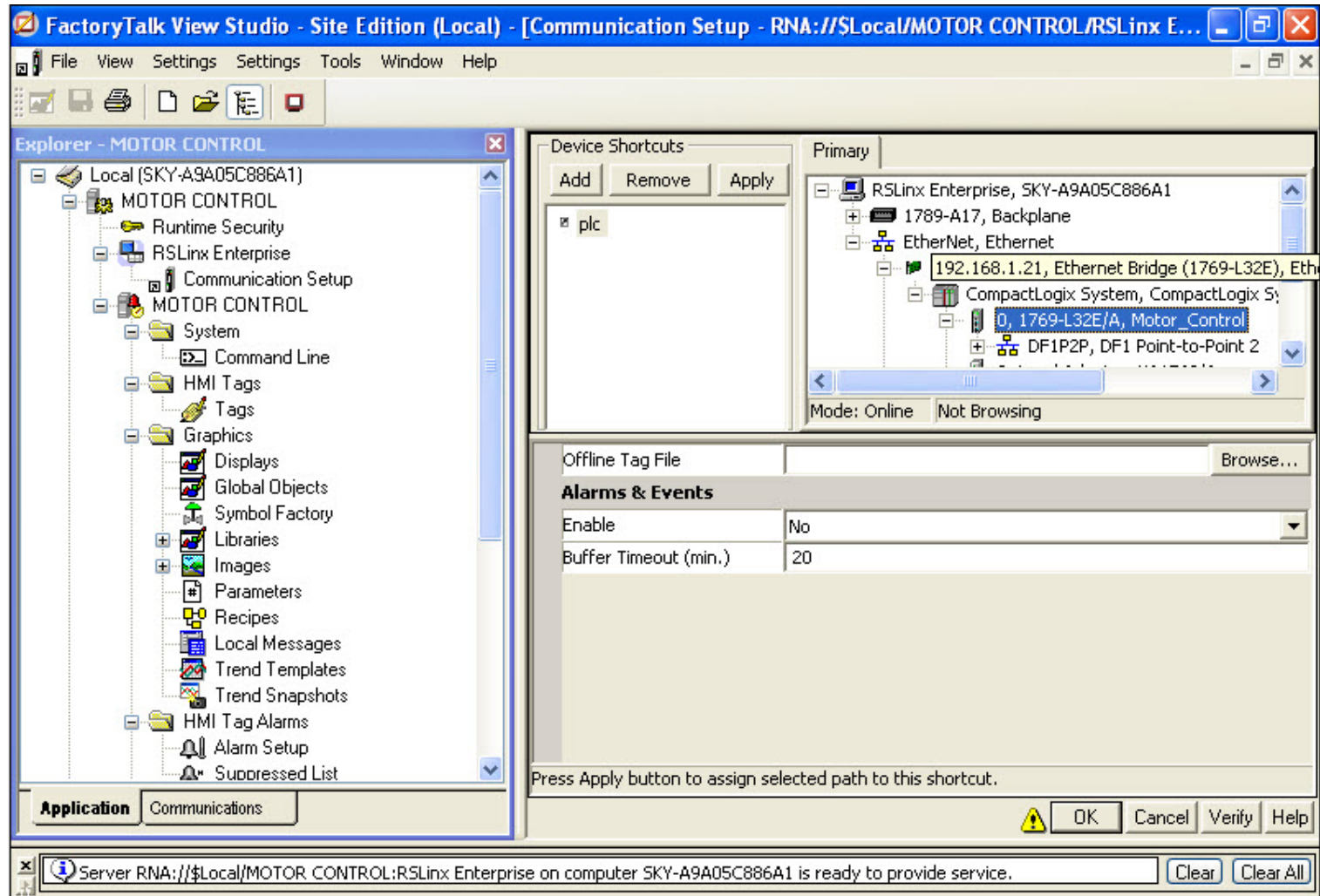
From communication folder, add a folder in device shortcut window to store tags from plc



# FACTORYTALK PRACTICE

## Read controller tags in PLC using RSLinx Enterprise

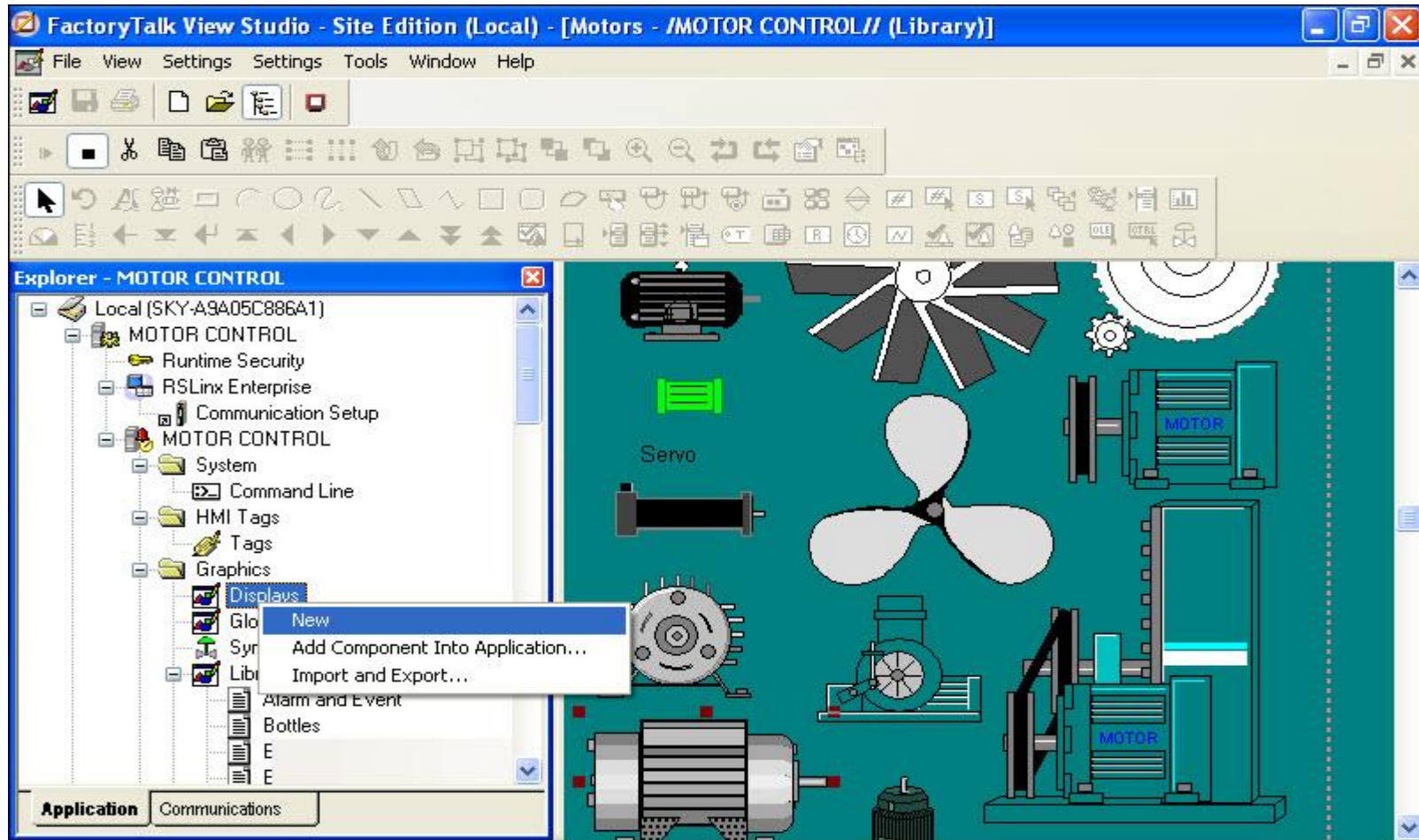
Choosing the CPU to read tags, then click OK to update data



# FACTORYTALK PRACTICE

## Creating graphic displays

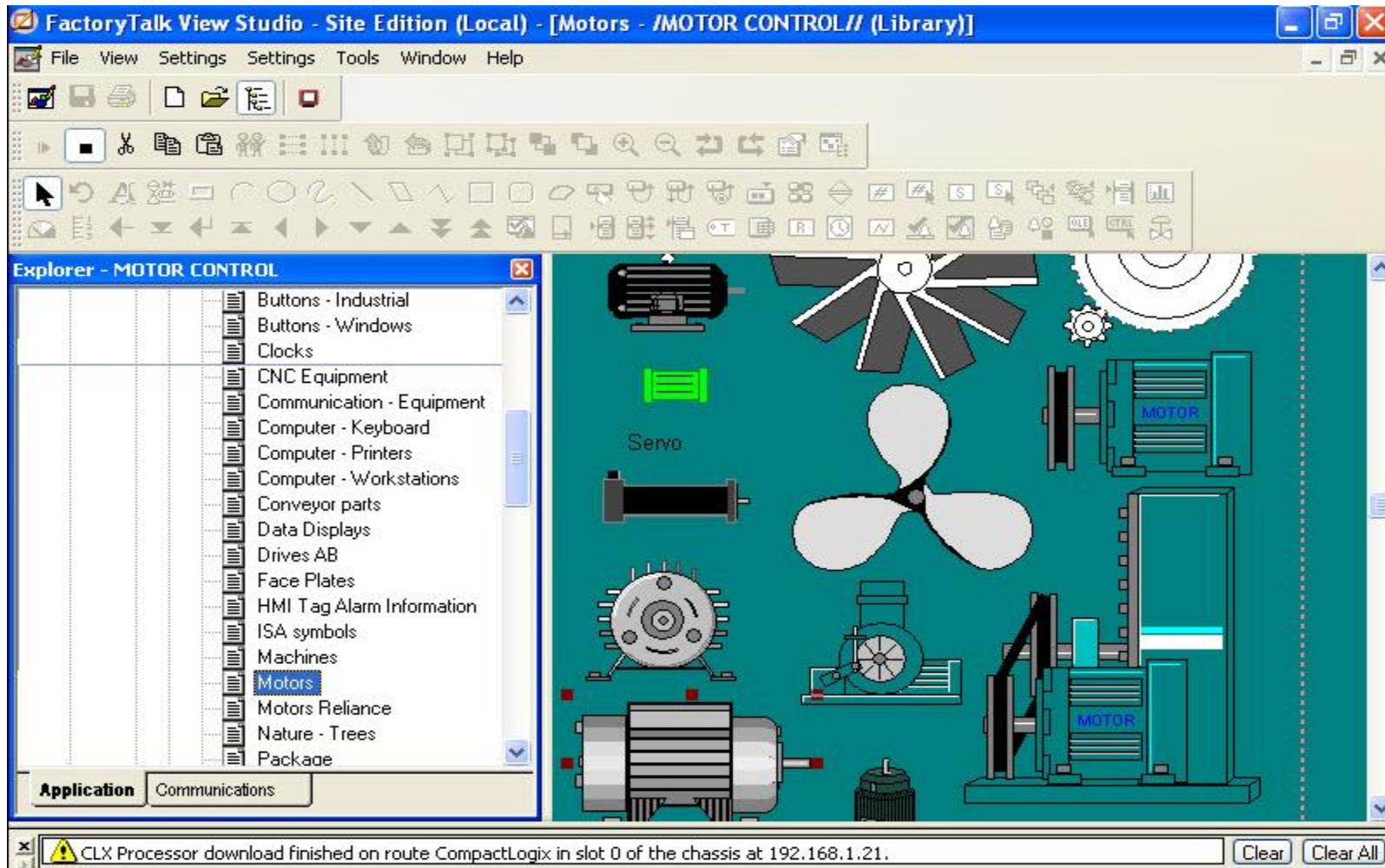
From Graphic folder, add new graphic, selecting appropriate objects and put them in to HMI graphic



# FACTORYTALK PRACTICE

## Creating graphic displays

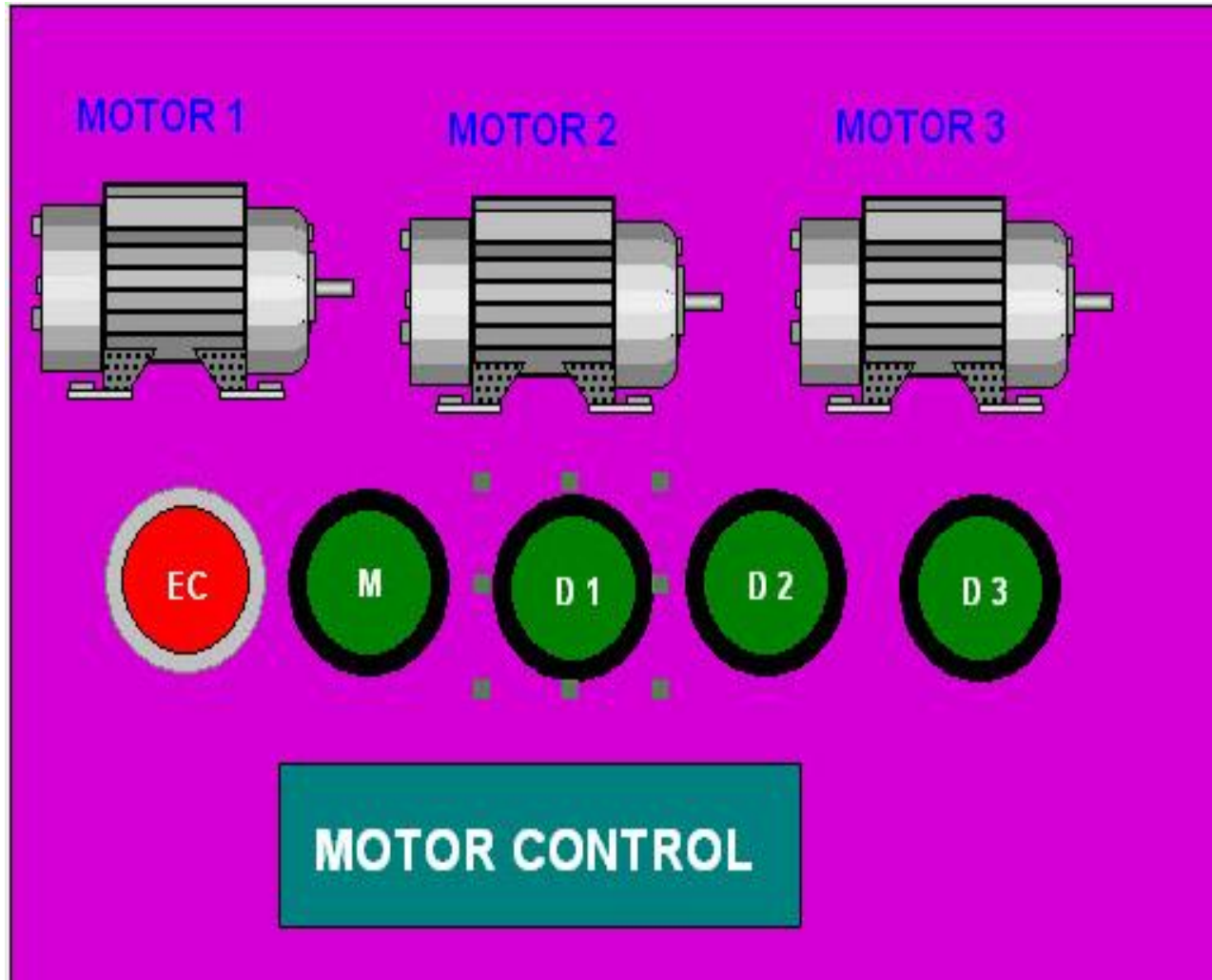
Users can use objects in the library of Factory Talk



# FACTORYTALK PRACTICE

## Creating graphic displays

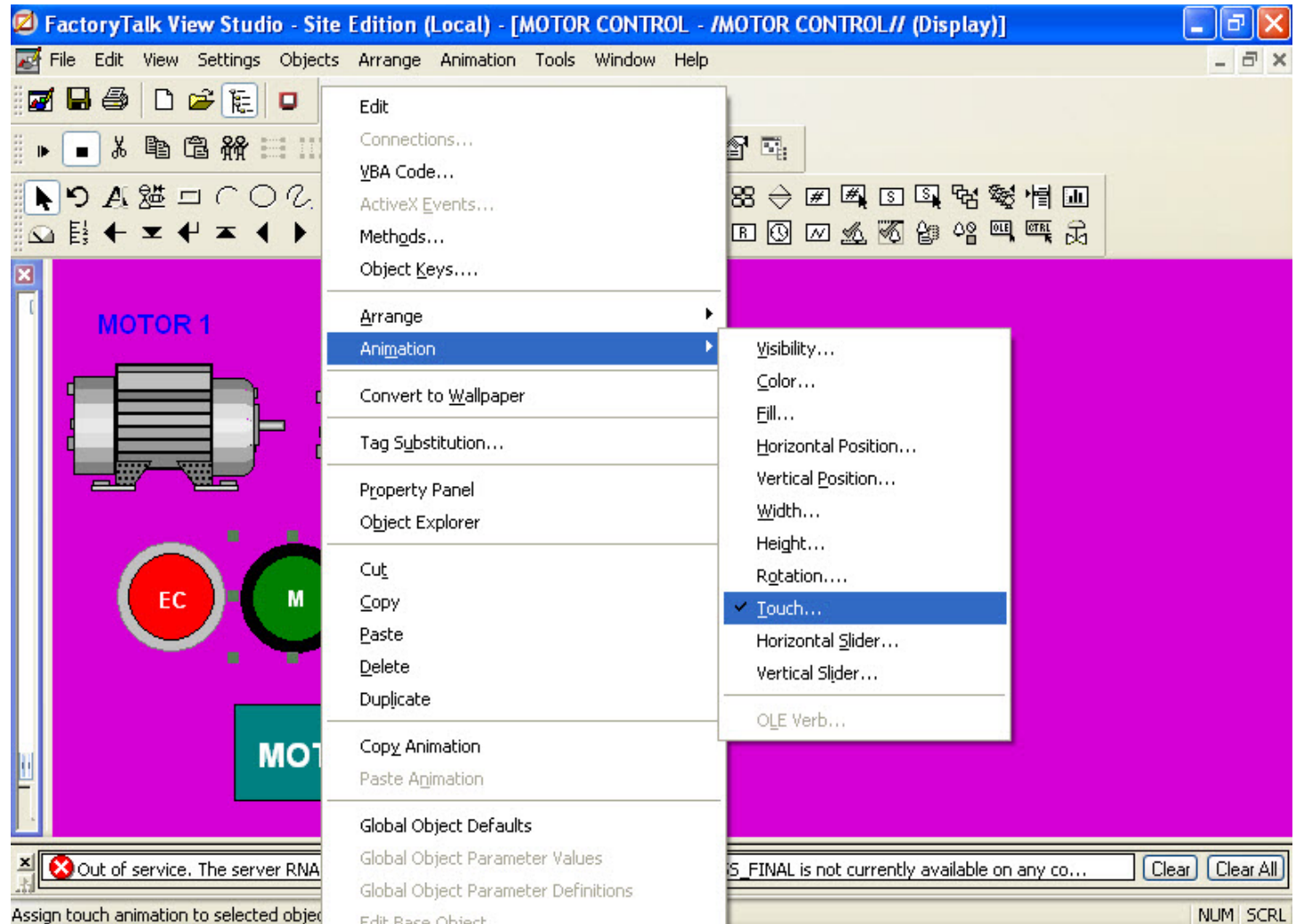
Graphic display of three ac motors as following



# FACTORYTALK PRACTICE

Animating graphic objects

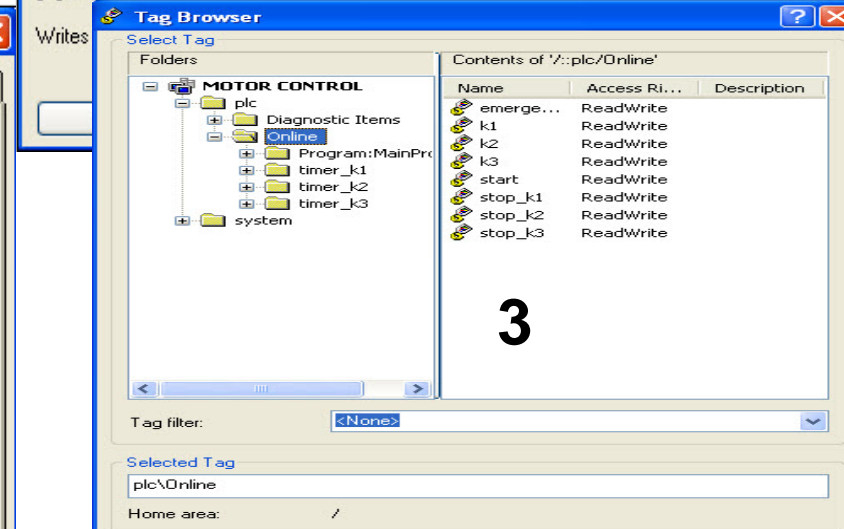
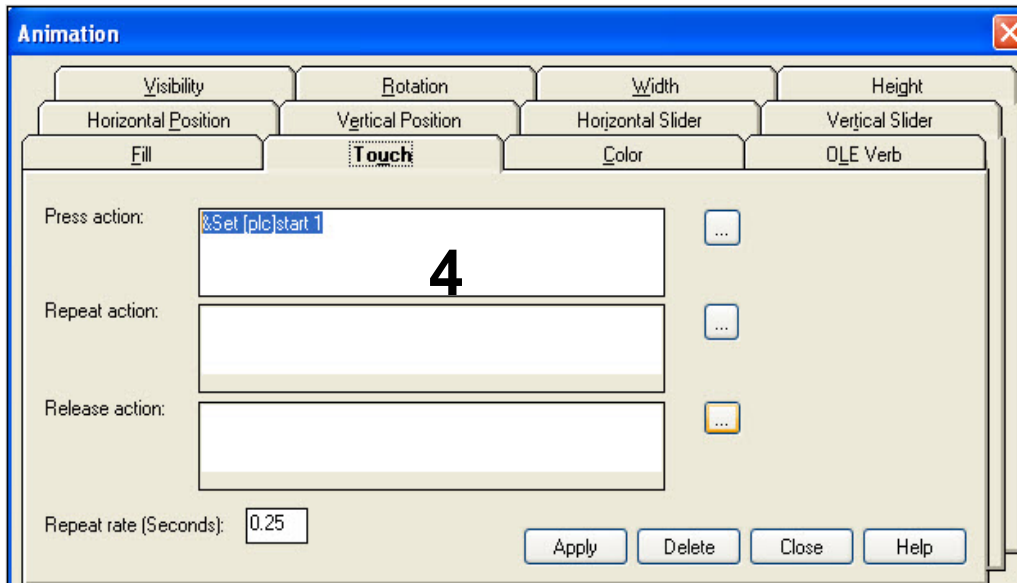
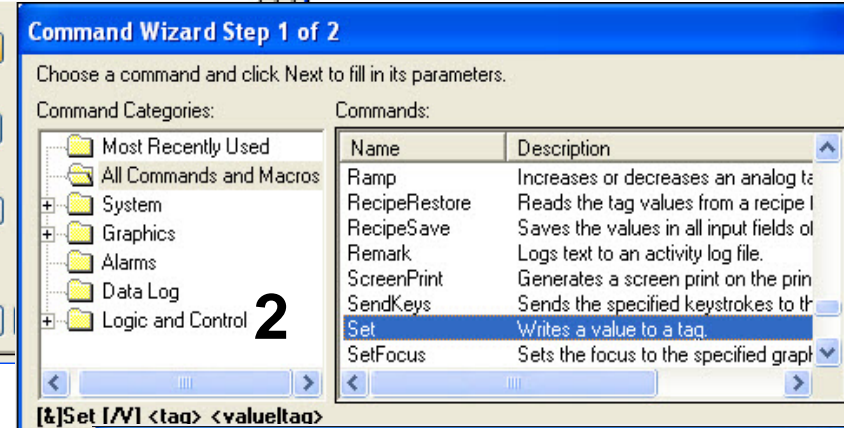
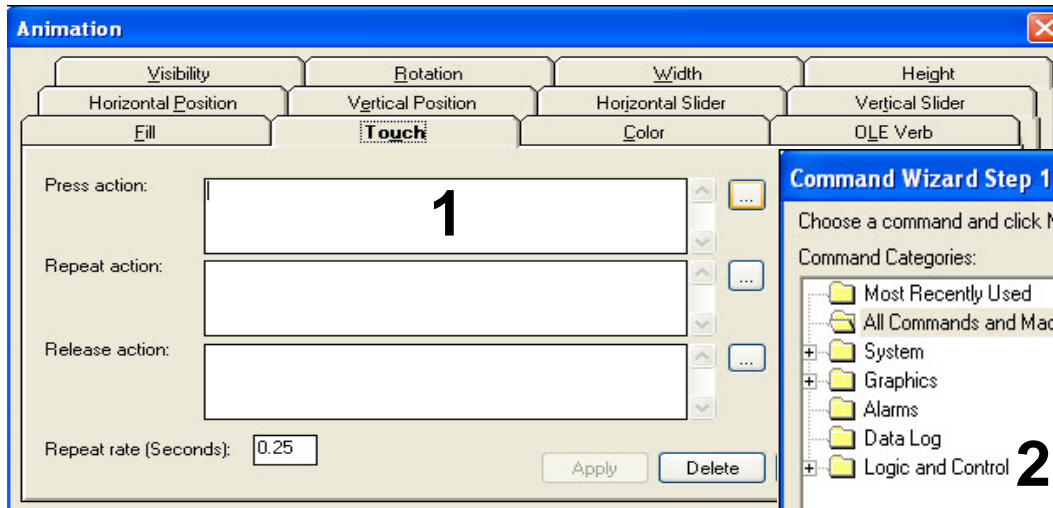
Selecting the button/animation/touch property to write code



# FACTORYTALK PRACTICE

Animating graphic objects

In the press action window/select **Set** command to set value to **Start** tag

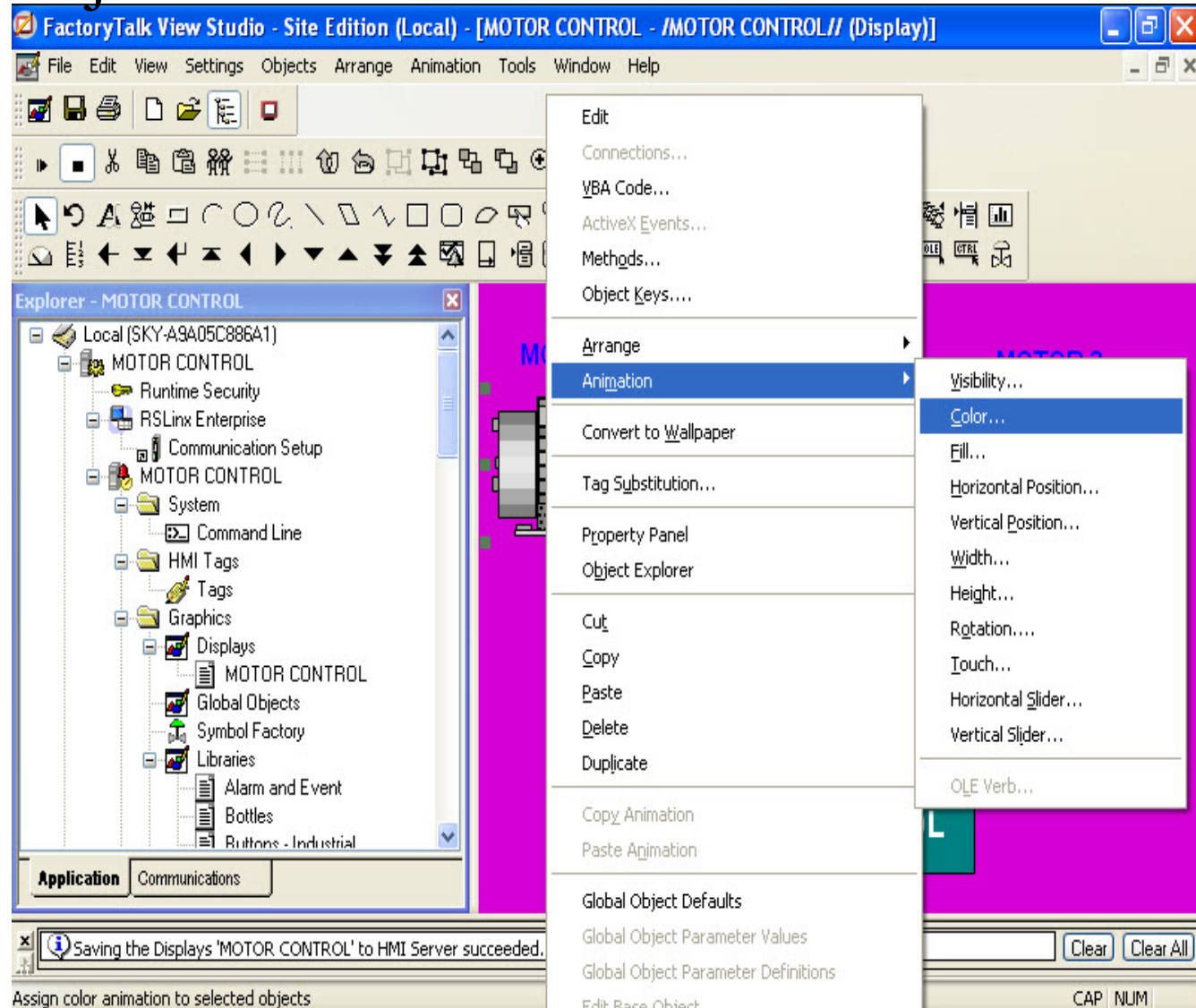




# FACTORYTALK PRACTICE

## Animating graphic objects

Selecting the  
motor  
/animation  
/color property  
to write code



# FACTORYTALK PRACTICE

Animating graphic objects

In the expression select appropriate color depend on value of **k1** tag

The image displays three screenshots of the FactoryTalk software interface, illustrating the process of animating a graphic object based on a tag value.

**1** The first screenshot shows the **Animation** window. The **Color** property is selected, and the expression field contains the number **1**. Below the expression field, a color selection palette is visible with three options: A) 0 (black), B) 1 (red), and C) No value (green). The **Value** field is set to **0**.

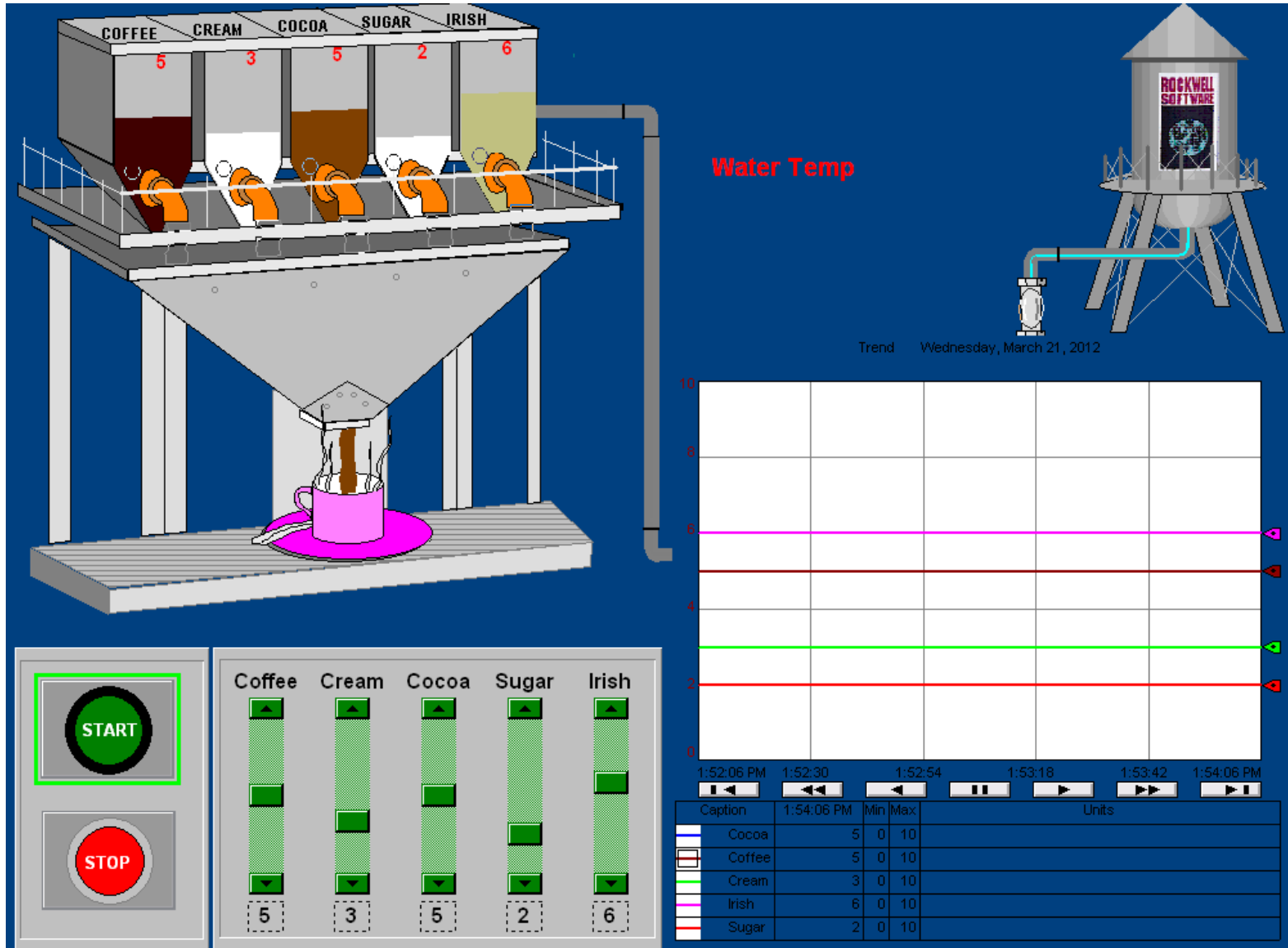
**2** The second screenshot shows the **Tag Browser** window. A context menu is open over the **sys** folder, with the **Refresh All Folders** option selected. The **Tag filter** is set to **<None>**.

**3** The third screenshot shows the **Tag Browser** window with the **Online** folder selected. The **Contents of 'plc/Online'** table is displayed:

Name	Access Ri...	Description
emerge...	ReadWrite	
k1	ReadWrite	
k2	ReadWrite	
k3	ReadWrite	
start	ReadWrite	
stop_k1	ReadWrite	
stop_k2	ReadWrite	
stop_k3	ReadWrite	

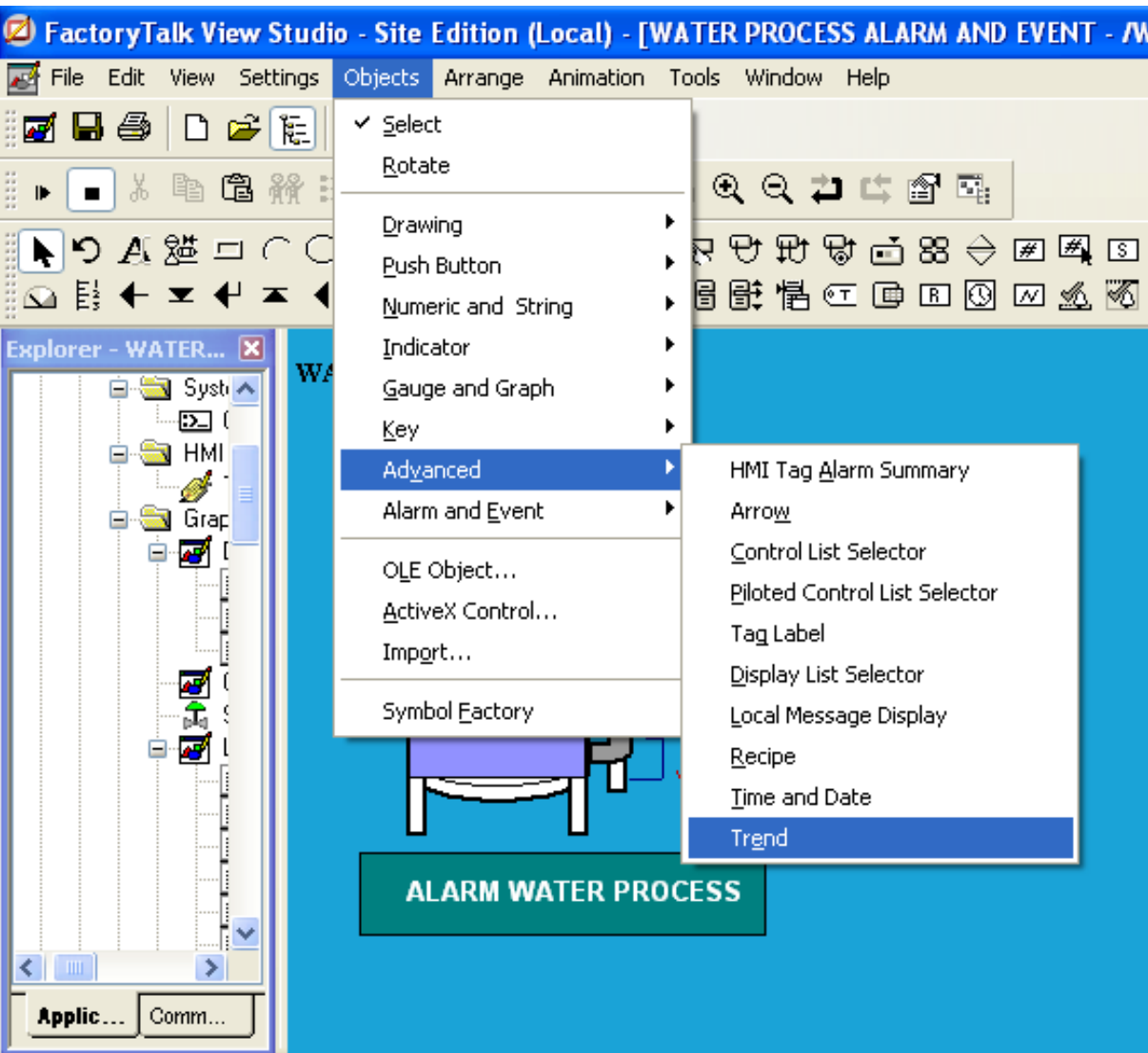
The **Tag filter** is set to **<None>**, and the **Selected Tag** field contains **plc\Online**.

# SETTING UP TREND



# SETTING UP TREND

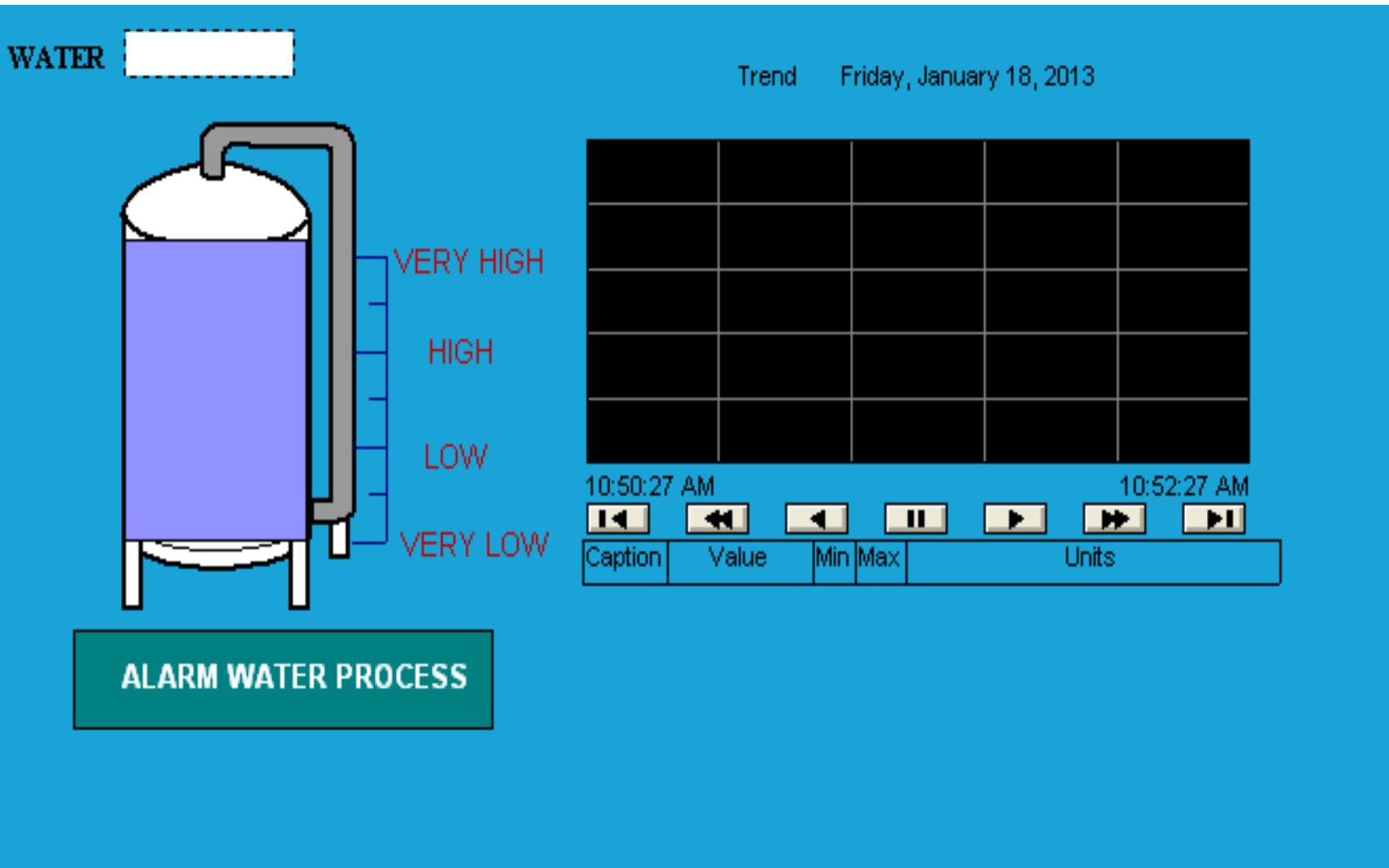
Display water level of tank using Trend



Adding Trend object  
in to graphic display

# SETTING UP TREND

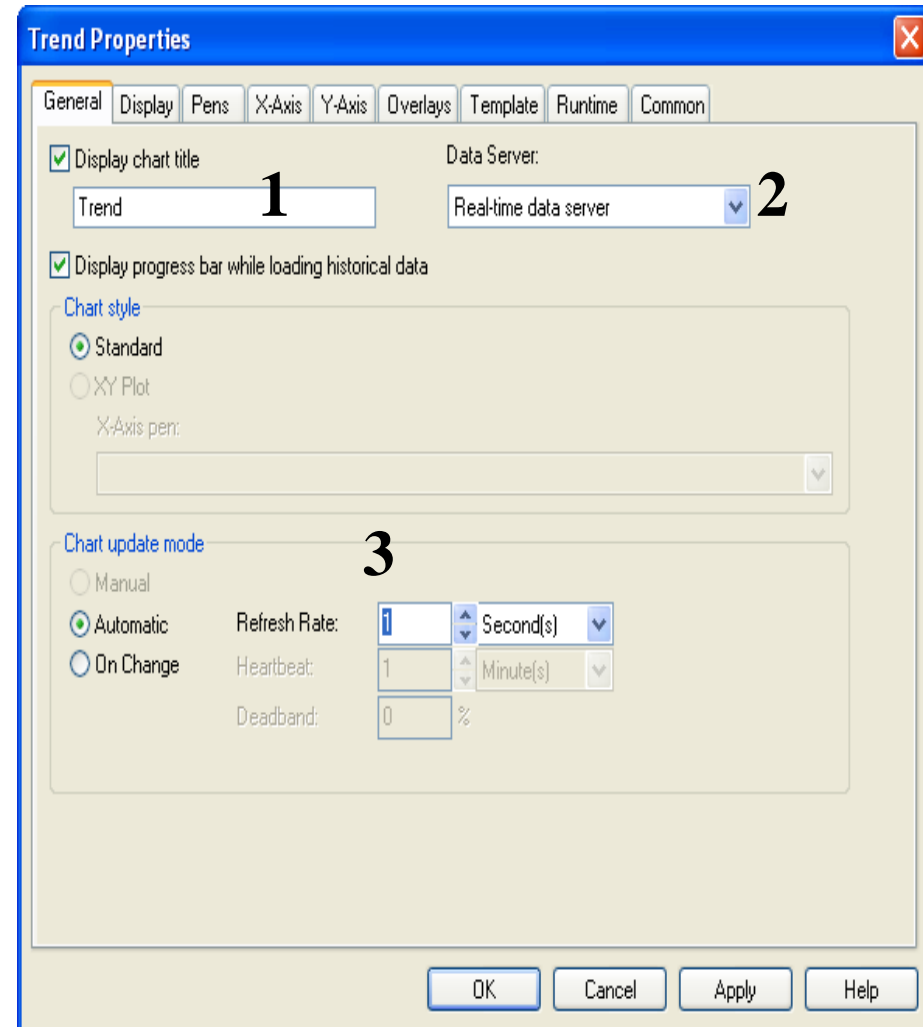
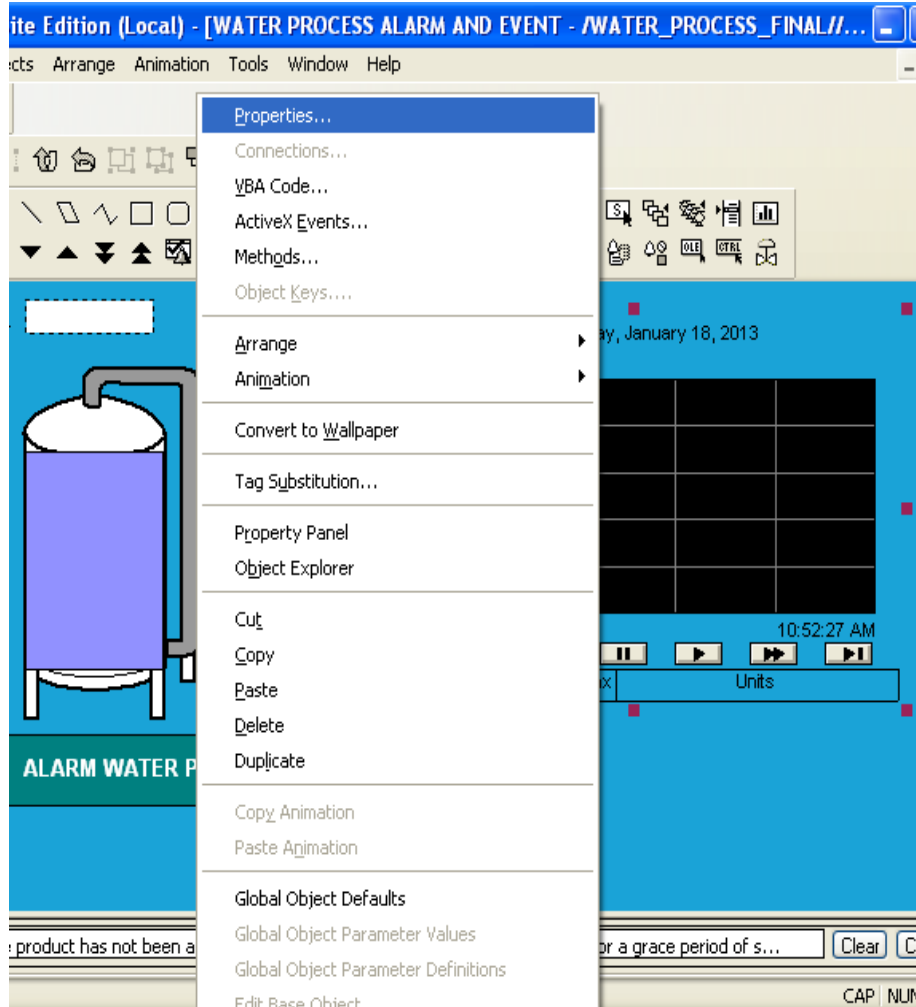
Display water level of tank using Trend



# SETTING UP TREND

Display water level of tank using Trend

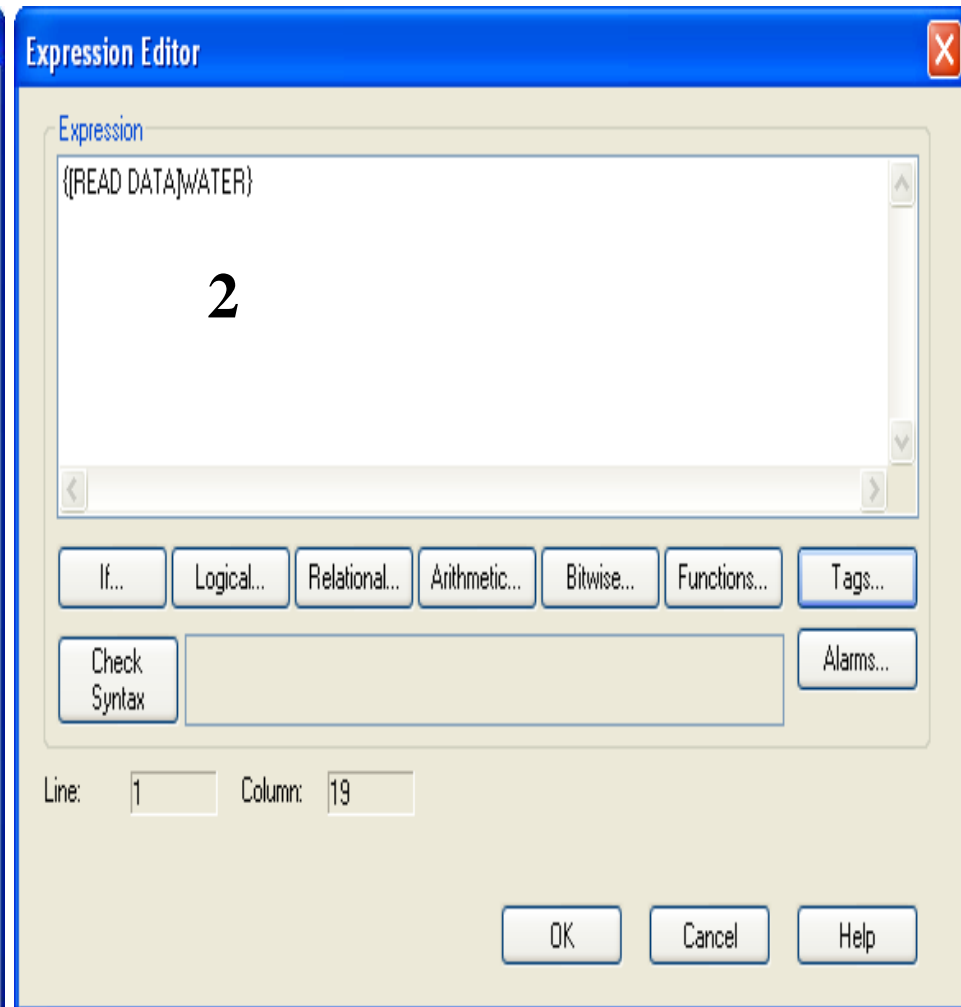
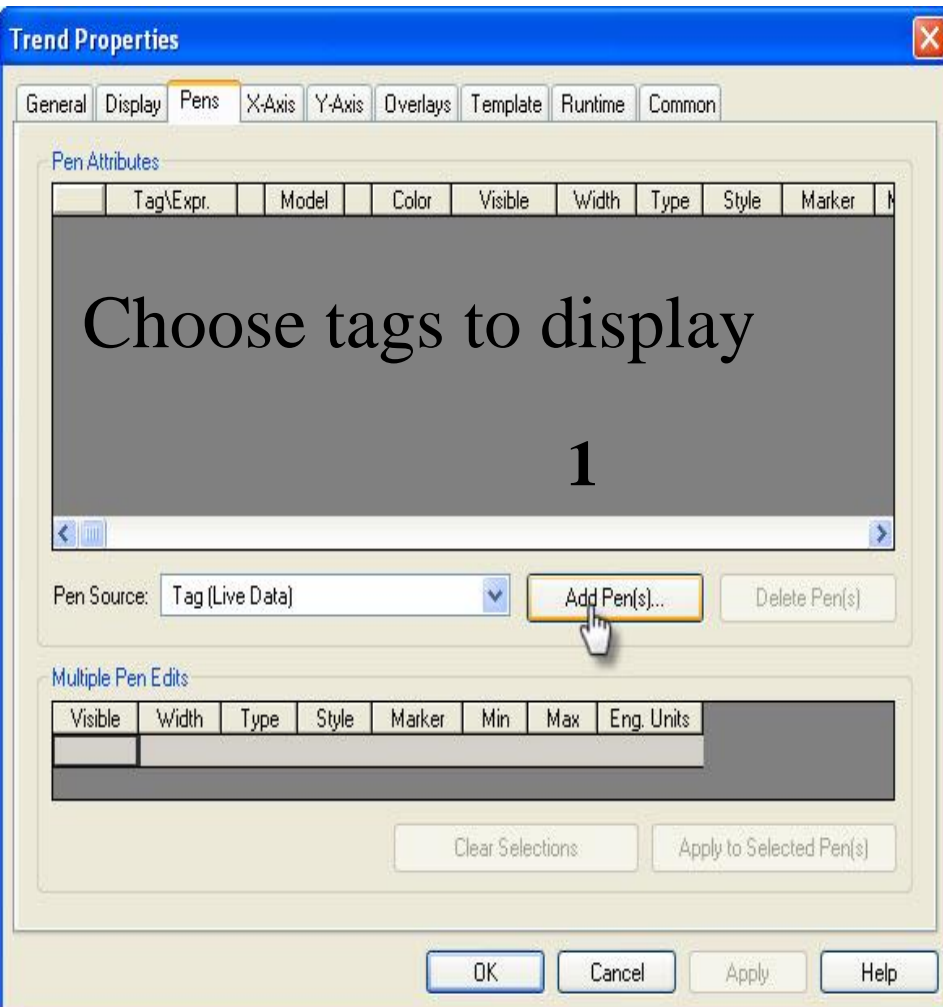
Set up Trend Properties: **General Tab**



# SETTING UP TREND

Display water level of tank using Trend

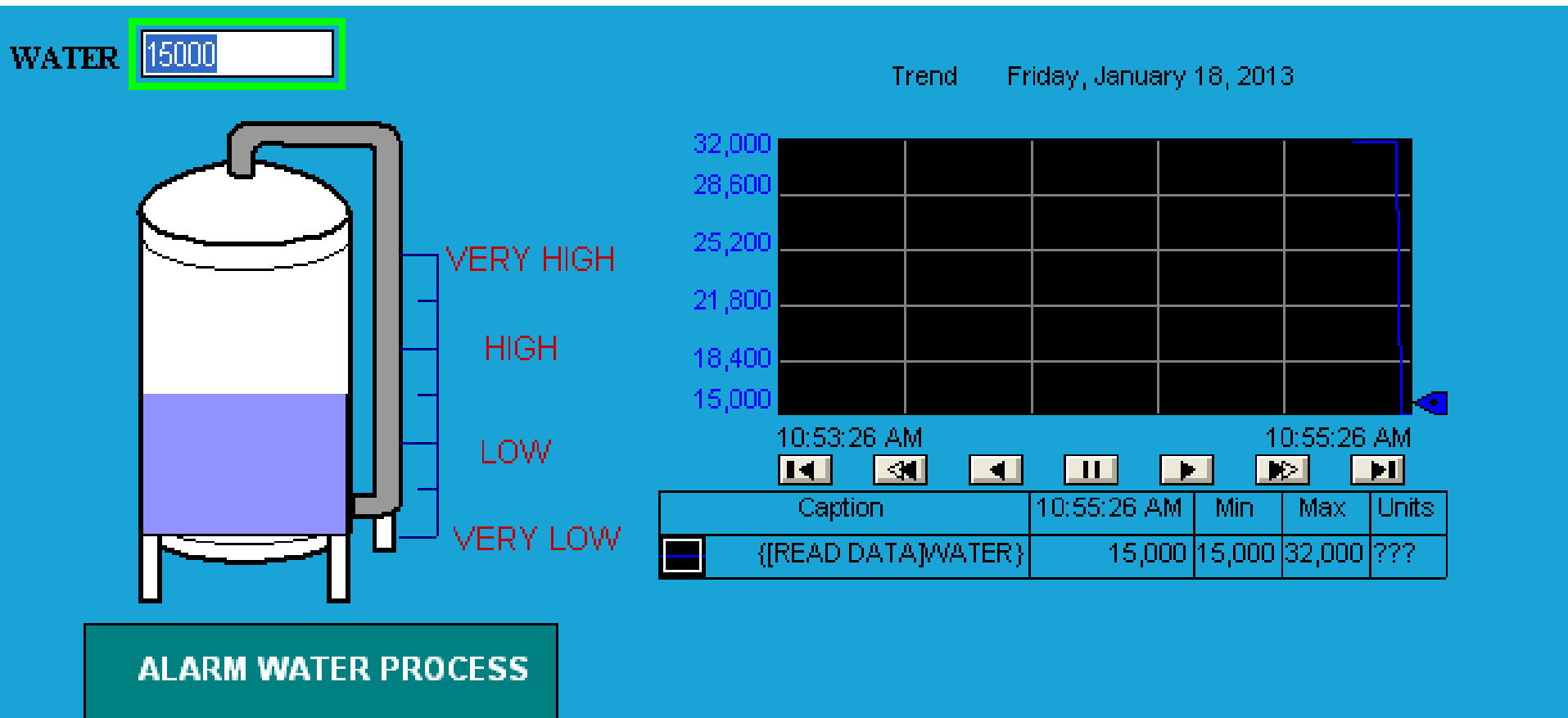
Set up Trend Properties: **Pens Tab**



# SETTING UP TREND

Display water level of tank using Trend

At runtime mode, water level is displayed in real time





# SETTING UP FACTORY TALK ALARM

## Alarm introduction

Alarms are the most important part of the plant control applications because they alert operators when something goes wrong. There are three type of alarms

**Digital alarms** are either on or off. A digital alarm is triggered when the tag being monitored has a value of 1, or a value of 0.

**Level alarms** obtain data from analog tags. A level alarm is triggered when the value of the tag being monitored crosses predefined limits. A single tag can generate several alarms of different severities, at various limits (also called thresholds).

**Deviation alarms** compare the value of an input tag to the value of a target for a deviation value. A deviation alarm is triggered when the target differs from the input tag by greater or less than the deviation value

# SETTING UP FACTORY TALK ALARM

## Creating a new digital alarm

Name the alarm and specify the tag being monitored.

Specify the alarm condition and the corresponding severity value.

Select to make the alarm latched.

Select to require acknowledgment.

Select to expose the alarm as a tag.

Specify a minimum alarm duration.

Create or select an alarm message.

Associate tags with the alarm.

Select a class for the alarm.

Associate a FactoryTalk View command with the alarm.

The screenshot shows the 'Digital Alarm Properties' dialog box with the following fields and controls:

- Name:** Text input field.
- Input Tag:** Text input field with a browse button (...).
- Condition:** Dropdown menu showing 'Input < 0'.
- Severity:** Spin box set to '500'.
- Minimum duration:** Spin box set to '0' with the unit 'Seconds'.
- Message:** Text area with a browse button (...).
- Associated tags:** A table with columns for selection and 'Tag Name'. The table contains four rows: Tag1, Tag2, Tag3, and Tag4.
- Alarm Class:** Dropdown menu.
- FactoryTalk View Command:** Text input field.
- Options:** Checkboxes for 'Latched', 'Acknowledge required' (checked), and 'Show Alarm as a Tag'.
- Buttons:** 'New...', 'Edit...', 'Browse...' buttons below the message field.
- Footer:** Navigation icons and 'OK', 'Cancel', 'Help' buttons.

Annotations with arrows point from the text on the left to the corresponding fields in the dialog box:

- 'Name the alarm and specify the tag being monitored.' points to the Name and Input Tag fields.
- 'Specify the alarm condition and the corresponding severity value.' points to the Condition and Severity fields.
- 'Select to make the alarm latched.' points to the Latched checkbox.
- 'Select to require acknowledgment.' points to the Acknowledge required checkbox.
- 'Select to expose the alarm as a tag.' points to the Show Alarm as a Tag checkbox.
- 'Specify a minimum alarm duration.' points to the Minimum duration field.
- 'Create or select an alarm message.' points to the Message field.
- 'Associate tags with the alarm.' points to the Associated tags table.
- 'Select a class for the alarm.' points to the Alarm Class dropdown.
- 'Associate a FactoryTalk View command with the alarm.' points to the FactoryTalk View Command field.

# SETTING UP FACTORY TALK ALARM

## Creating a new level alarm

Name the alarm and specify the tag being monitored.

Define alarm limits and corresponding severity values.

Specify a minimum alarm duration.

Define a deadband value (0 means no buffer is required).

Select to require acknowledgment.

Select to expose the alarm as a tag.

Select a class for the alarm.

Associate a FactoryTalk View command with the alarm.

The screenshot shows the 'Level Alarm Properties' dialog box with the following fields and controls:

- Level** | Messages | Status Tags
- Name:** [Text Field]
- Input Tag:** [Text Field] ...
- Limit - Value of Tag** | **Severity**
- High High | [Text Field] ... | 500 [Spin Box]
- High | [Text Field] ... | 500 [Spin Box]
- Low | [Text Field] ... | 500 [Spin Box]
- Low Low | [Text Field] ... | 500 [Spin Box]
- Minimum duration:** 0 [Spin Box] Seconds
- Deadband:** 0 [Text Field]
- Acknowledge required
- Show Alarm as a Tag
- Alarm Class:** [Dropdown Menu]
- FactoryTalk View Command:** [Text Field]
- Buttons: [File Icon], [Print Icon], [Back], [Forward], [OK], [Cancel], [Help]

# SETTING UP FACTORY TALK ALARM

## Creating a new deviation alarm

Name the alarm and specify the tag being monitored.

Define the target, severity, condition, and deviation values.

Select to require acknowledgment.

Select to expose the alarm as a tag.

Specify a minimum alarm duration.

Define a deadband value (0 means no buffer is required).

Create or select an alarm message.

Associate tags with the alarm.

Select a class for the alarm.

Associate a FactoryTalk View command with the alarm.

The screenshot shows the 'Deviation Alarm Properties' dialog box with the following fields and controls:

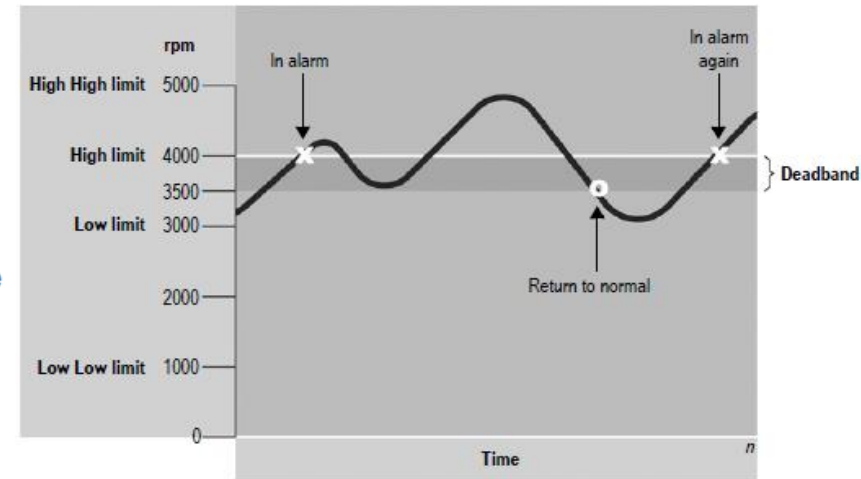
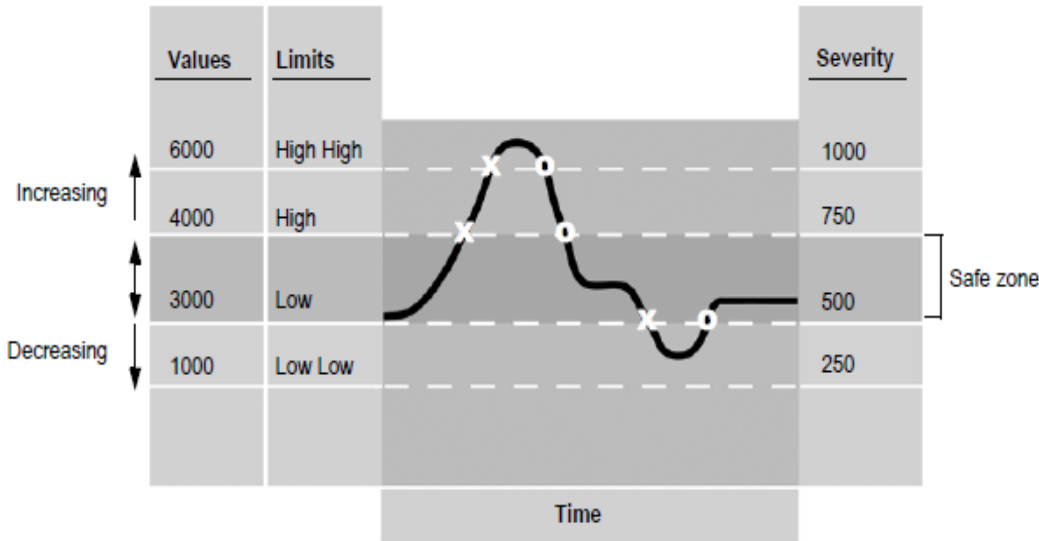
- Deviation** | **Status Tags** (Tabs)
- Name:** [Text Field]
- Input Tag:** [Text Field] ...
- Target - Value or Tag:** [Text Field] ...
- Severity:** [Spin Box: 500] (1-1000)
- Condition:** [Dropdown: Input <= (Target - Deviation)]
- Deviation:** [Text Field: 0]
- Minimum duration:** [Spin Box: 0] Seconds
- Deadband:** [Text Field: 0]
- Message:** [Text Field]
- Associated tags:** [ID: (not assigned)] [New...] [Edit...] [Browse...]
- Table:**

	Tag Name
	Tag1
	Tag2
	Tag3
	Tag4
- Alarm Class:** [Dropdown]
- FactoryTalk View Command:** [Text Field]
- Checkboxes:**  Acknowledge required,  Show Alarm as a Tag
- Buttons:** [File Icon], [Print Icon], [Back], [Forward], [OK], [Cancel], [Help]

# SETTING UP FACTORY TALK ALARM

goes wrong.

## Alarm thresholds for analog tags and Deadband



	This priority value	Includes this range of severities
!!!	Urgent	751 to 1000
! (diamond)	High	501 to 750
! (triangle)	Medium	251 to 500
! (square)	Low	1 to 250

# SETTING UP FACTORY TALK ALARM

## Alarm states for digital tags

To trigger an alarm	Create this type of digital alarm
When a tag has a value of 1.	On
When a tag has a value of 0.	Off
When a tag value changes from 0 to 1 or from 1 to 0	Any Change*
Only when a tag value changes from 0 to 1.	Changes to On*
Only when a tag value changes from 1 to 0.	Changes to Off*

# SETTING UP FACTORY TALK ALARM

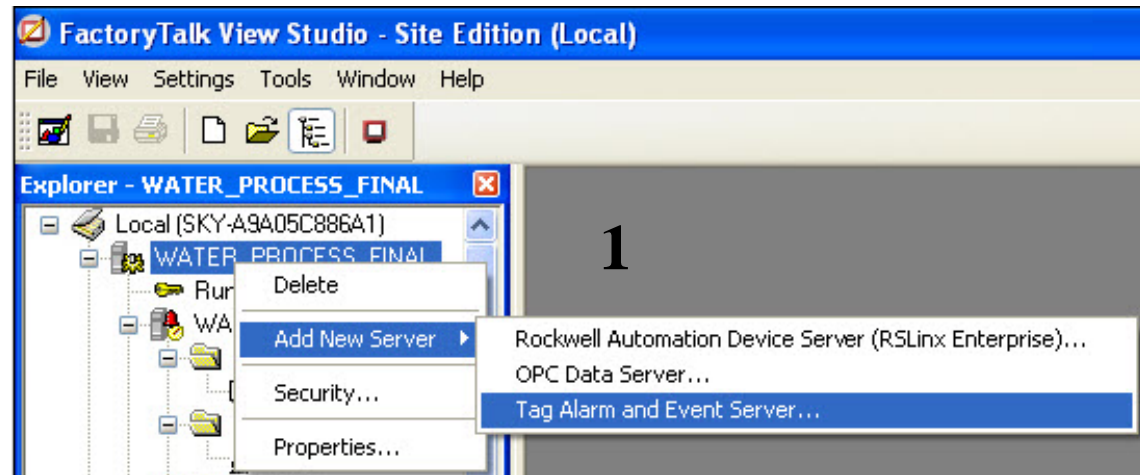
## Summary of basic steps for setting up FactoryTalk alarms

- Creating tags based Alarms: In the Alarm and Event Setup editor, create digital, level, and deviation alarm conditions, for the tags you want to monitor for alarms..
- In FactoryTalk View Studio, in the Graphics editor, set up FactoryTalk alarm and event objects in graphic displays, to monitor and interact with tags based alarms at run time
- Set up FactoryTalk View SE Clients to run the graphic displays.

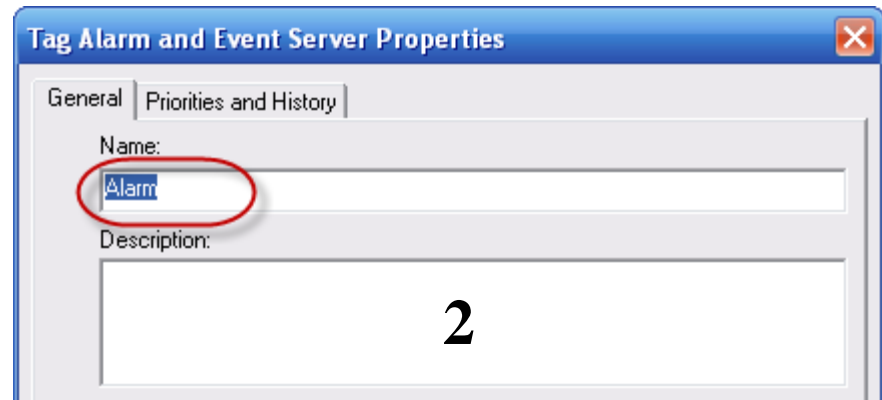
# CREATING TAG-BASED ALARMS

## Insert Alarms and Events and setup properties

➤ From Explorer Window, select Application, Add *Tag Alarm and Event Server*



➤ Enter an appropriate name





# CREATING TAG-BASED ALARMS

## Setting up properties

From *Priorities and History Tab*, enter **alarm levels** and choose **data** for alarm

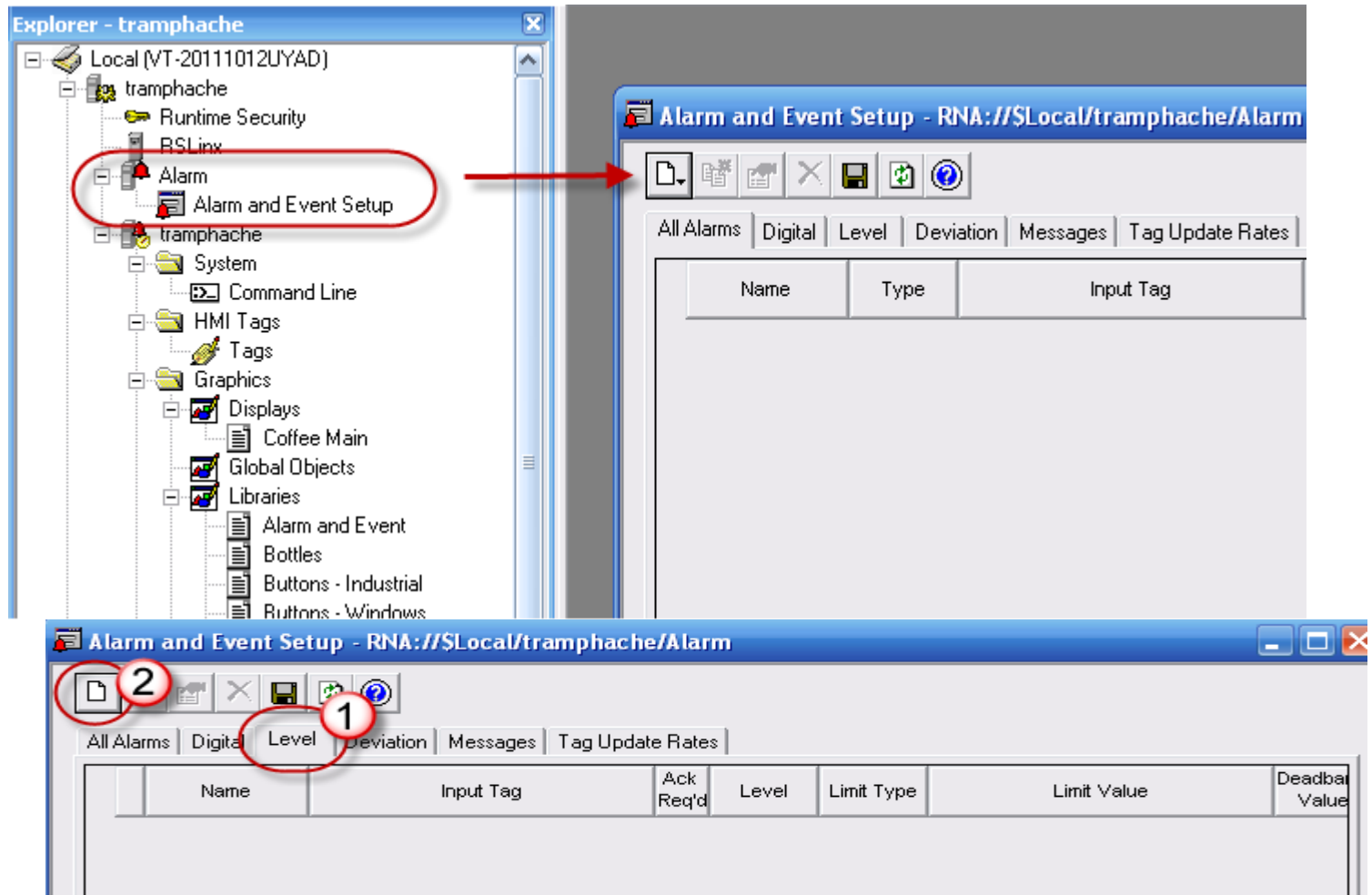
*Notice: To save data, check in Enable history*

The screenshot shows the 'Alarm Properties' dialog box with the 'Priorities and History' tab selected. The 'Priorities' section has a table with columns 'Priority', 'Low', and 'High'. The 'Alarm and Event History' section has several fields, including 'Enable history' (checked), 'Database definition' (set to 'data'), 'Computer name' (set to 'WINDOW\$-E0DFE05\SQLExpress'), 'Database name' (set to 'data'), 'Cache file path' (set to 'C:\Documents and Settings\All Users\Application Data\Rockwell\Alarm'), and 'Log language' (set to 'English (United States), en-US').

Priority	Low	High
Urgent	751	1000
High	501	750
Medium	251	500
Low	1	250

# CREATING TAG-BASED ALARMS

Creating tag-based alarms in *Alarm and Event Setup*



Double click on **Alarm and Event Setup**, choose **Level** for analog tag then click **New**

# CREATING TAG-BASED ALARMS

## Set up properties for Level Alarm

- **Name:** Name of Alarm
- **Input Tag:** Tag for alarm
- **Limit value or tag:** Value level for alarm
- **Messages:** Display message as alarm appear

**Level Alarm Properties**

Level | Messages | Status Tags | Control Tags

Name: WATER TANK ALARM

Input Tag: [ALARM]WATER

	Limit - Value or Tag	Severity
<input checked="" type="checkbox"/> High High	25000	1000
<input checked="" type="checkbox"/> High	20000	750
<input checked="" type="checkbox"/> Low	10000	500
<input checked="" type="checkbox"/> Low Low	5000	250

Minimum duration: 0 Seconds

Deadband: 0

Acknowledge required

Show Alarm as a Tag

Alarm Class: TANK

FactoryTalk View Command:

# CREATING TAG-BASED ALARMS

Setting up message and value for level alarm limits

The dialog box is titled "Level Alarm Properties" and has four tabs: "Level", "Messages", "Status Tags", and "Control Tags". The "Level" tab is selected. It contains four sections, each with a label, a message text box, an ID field, and three buttons: "New...", "Edit...", and "Browse...".

Level	Message	ID
High High:	WATER TANK LEVEL OVER FULL /*N:8 %InputValue NOFILL DP:0*/	1
High:	WATER TANK LEVEL FULL /*N:8 %InputValue NOFILL DP:0*/	2
Low:	WATER TANK LEVEL LOW /*N:8 %InputValue NOFILL DP:0*/	3
Low Low:	WATER TANK LEVEL VERY LOW /*N:8 %InputValue NOFILL DP:0*/	4

The dialog box is titled "Alarm and Event Setup - RNA://SLocal/SETTING\_UP\_ALARM/WATER TANK ALARM". It has a toolbar with icons for file operations and a tabbed interface with "All Alarms", "Digital", "Level", "Deviation", "Messages", and "Tag Update Rates". The "Level" tab is selected. Below the tabs is a table with columns: Name, Input Tag, Ack Req'd, Level, Limit Type, Limit Value, and Deadband Value.

Name	Input Tag	Ack Req'd	Level	Limit Type	Limit Value	Deadband Value
+ WATER TANK AL [ALARM]WATER		<input checked="" type="checkbox"/>				0

2

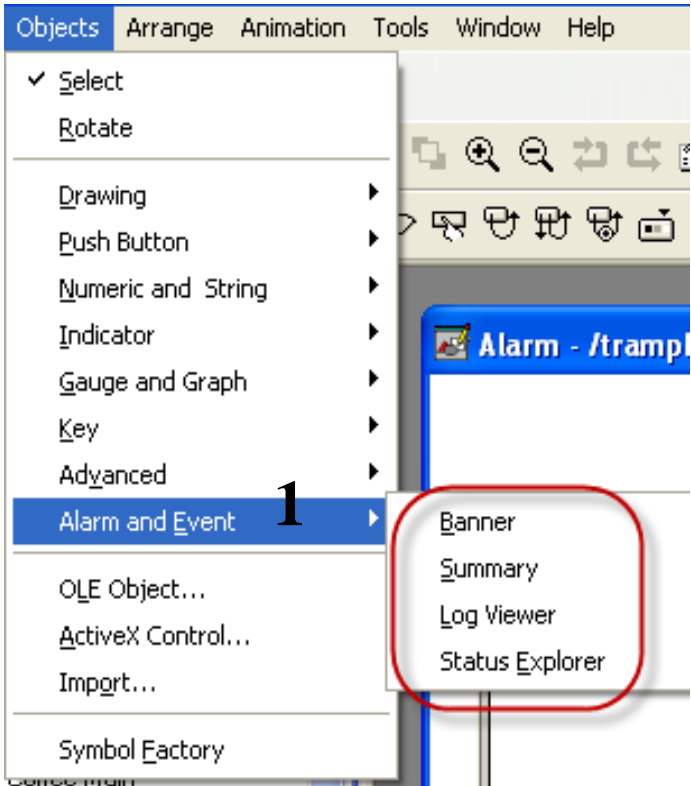
# Setting up FactoryTalk alarm and event objects in graphic displays

**Banner:** The alarm and event banner can display up to 5 of the highest priority, most severe, and most recent alarms in the FactoryTalk system.

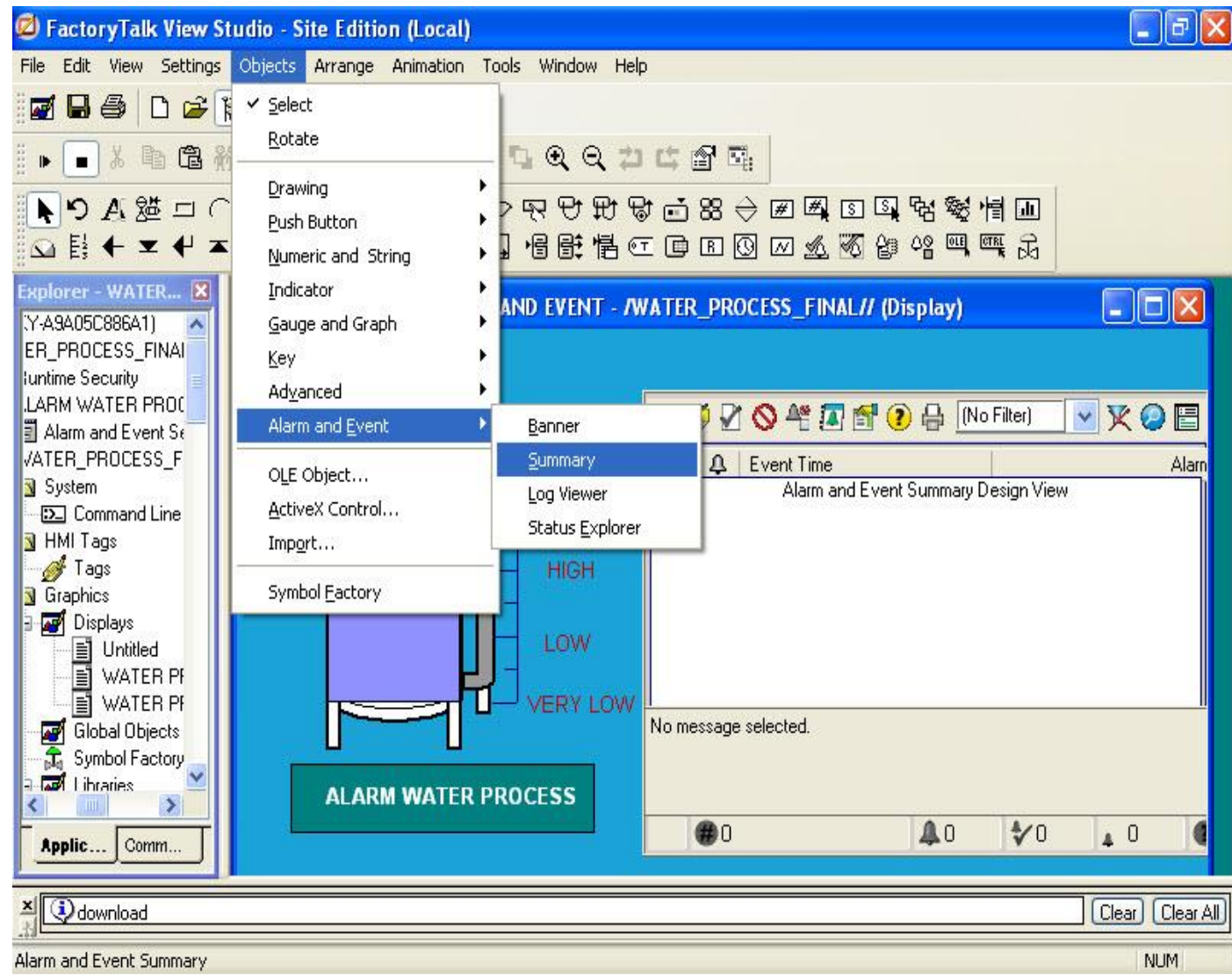
**Summary: View, acknowledge, suppress, and disable alarms from multiple FactoryTalk alarm sources**

**Log Viewer:** View, sort, filter, and print historical alarm information

**Status Explorer:** View alarm sources, suppress or unsuppress, and enable or disable alarms



# Setting up FactoryTalk alarm and event objects in graphic displays



# Setting up FactoryTalk alarm and event objects in graphic displays

The image shows a graphic display for a water process. On the left, a blue water tank is labeled "WATER" with a white level indicator. The tank has a grey pipe on top and a grey pipe on the right side. The right pipe has four horizontal tick marks labeled "VERY HIGH", "HIGH", "LOW", and "VERY LOW" from top to bottom. Below the tank is a green rectangular button with the text "ALARM WATER PROCESS".

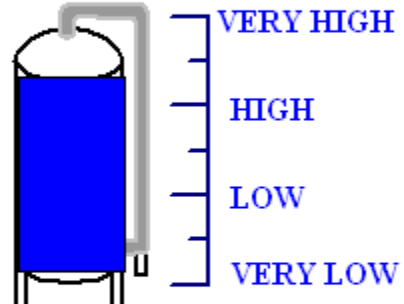
Overlaid on the right side of the tank is a window titled "Alarm and Event Summary Design View". The window has a toolbar at the top with icons for checkmark, unchecked checkmark, document, no, alarm, calendar, document, question mark, printer, "(No Filter)", a dropdown arrow, a close button, a refresh button, and a list icon. Below the toolbar is a header bar with a warning icon, a bell icon, "Event Time", and "Alarm". The main area of the window is empty. Below the main area is a status bar that says "No message selected." At the bottom of the window is a footer bar with icons for a globe, a bell, a checkmark, and a bell, each followed by a "0".

# Setting up FactoryTalk View SE Clients to run the graphic displays.

MAIN - /SETTING\_UP\_ALARM//

**WATER LEVEL**

26600



VERY HIGH  
HIGH  
LOW  
VERY LOW

ALARM WATER PROCESS

Event Time	In Alarm Time	Out of Al...	Message
12/13/2014 4:00:58 PM	12/13/2014 3:55:59 PM	12/13/20...	WATER TANK LEVEL FULL 2800
12/13/2014 4:02:40 PM	12/13/2014 4:02:08 PM	12/13/20...	WATER TANK LEVEL FULL 2999
12/13/2014 4:03:14 PM	12/13/2014 4:02:40 PM	12/13/20...	WATER TANK LEVEL VERY LOW 26600
12/13/2014 4:03:14 PM	12/13/2014 4:02:40 PM	12/13/20...	WATER TANK LEVEL LOW 26600
12/13/2014 4:03:14 PM	12/13/2014 4:03:14 PM		WATER TANK LEVEL OVER FULL 26600
12/13/2014 4:03:14 PM	12/13/2014 4:03:14 PM		WATER TANK LEVEL FULL 26600
12/13/2014 3:55:59 PM	12/13/2014 3:35:19 PM	12/13/20...	WATER TANK LEVEL VERY LOW 28000
12/13/2014 3:55:59 PM	12/13/2014 3:35:19 PM	12/13/20...	WATER TANK LEVEL LOW 28000
12/13/2014 4:02:08 PM	12/13/2014 4:00:58 PM	12/13/20...	WATER TANK LEVEL VERY LOW 29999
12/13/2014 4:02:08 PM	12/13/2014 4:00:58 PM	12/13/20...	WATER TANK LEVEL LOW 29999

# 10    2    0    2    0    Filter: Not Filtered    Sorted by: Curre



# RECIPES

## Đặc điểm của recipes

- Recipe (công thức) được dùng hầu hết trong các ngành công nghiệp sản xuất bia, rượu, nước ngọt, sơn... hiện đại và hiện nay đã được tích hợp sẵn trong SCADA.
- Chức năng chính là để lưu trữ hoặc xuất dữ liệu các biến thành phần để làm nên nhiều dạng khác nhau của cùng một loại sản phẩm.
- Người vận hành có thể lưu được rất nhiều công thức cũng như nếu thấy sản phẩm mới tạo ra đẹp, phù hợp, có thể lưu lại công thức để làm lại sản phẩm đó.

# RECIPES

1. Thiết kế chương trình plc và giao diện SCADA.

2. Gán biến cho từng đối tượng thành phần của mẻ.

3. Xem số Tab Index của từng đối tượng biến thành phần.

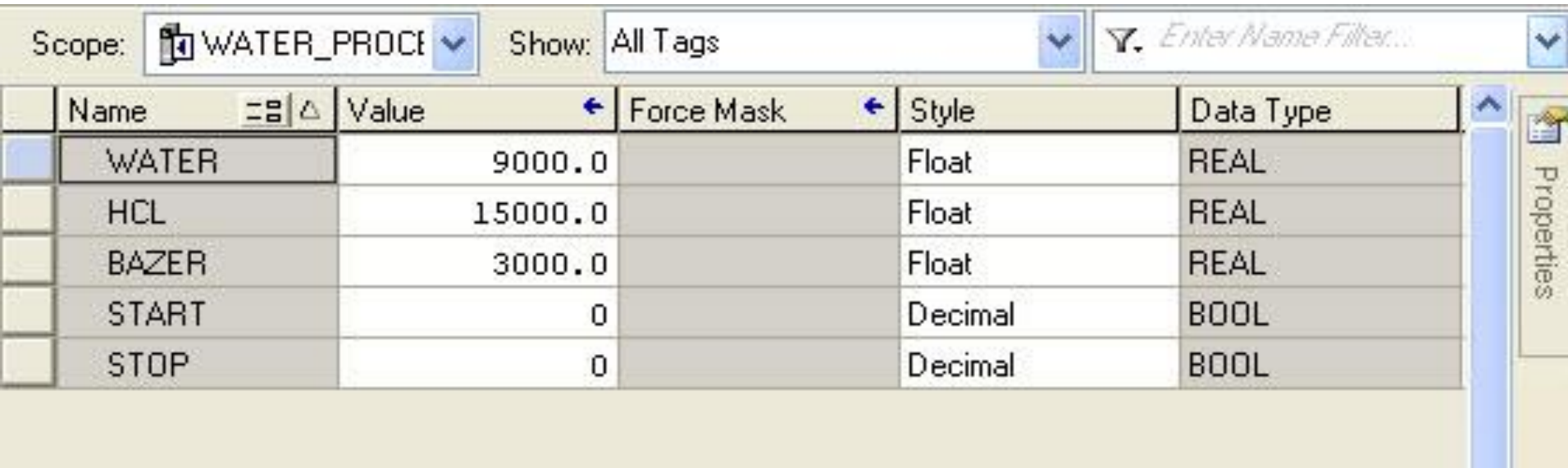
4. Tạo Recipe cho các biến thành phần theo TabIndex của đối tượng.

5. Dùng Recipe Tool và lệnh Recipe Restore để load các biến

# RECIPES

Trong tài liệu này trình bày cách thiết kế Recipes cho hệ thống xử lý nước gồm có 3 thành phần đầu vào: Water, HCL và Bazer. Mỗi biến tương ứng với số analog đọc về từ cảm biến trong dải từ 0-32000.

## Tạo tag trong PLC(Controller Tag).



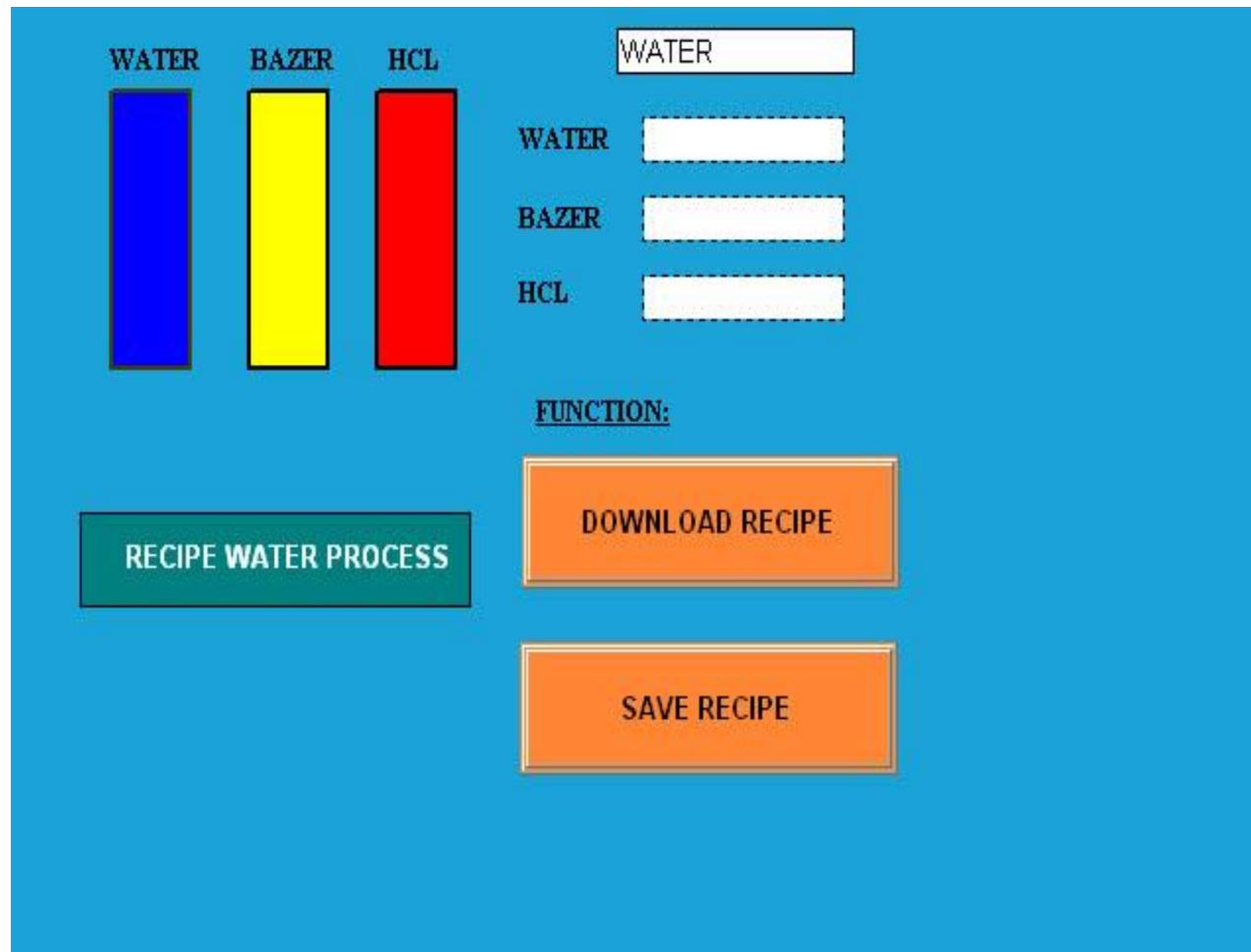
The screenshot shows a software interface for managing PLC tags. At the top, the 'Scope' is set to 'WATER\_PROCI' and 'Show' is set to 'All Tags'. A search filter is present with the text 'Enter Name Filter...'. Below this is a table with the following columns: Name, Value, Force Mask, Style, and Data Type. The table contains five rows of data:

Name	Value	Force Mask	Style	Data Type
WATER	9000.0		Float	REAL
HCL	15000.0		Float	REAL
BAZER	3000.0		Float	REAL
START	0		Decimal	BOOL
STOP	0		Decimal	BOOL

# RECIPES

## Thiết kế giao diện SCADA

Thiết kế giao diện scada gồm 3 rectangle (Graphics) 3 numeric input (Object trên Task Bar) và 2 nút nhấn



# RECIPES

## Thiết kế giao diện SCADA

- 2 nút nhấn để lập trình và đặt tên cho các nút nhấn trong mục *Up Appearance*.



- 3 numeric input để hiển thị chiều cao 3 cột nguyên liệu Water, HCL và Bazer theo phần trăm.



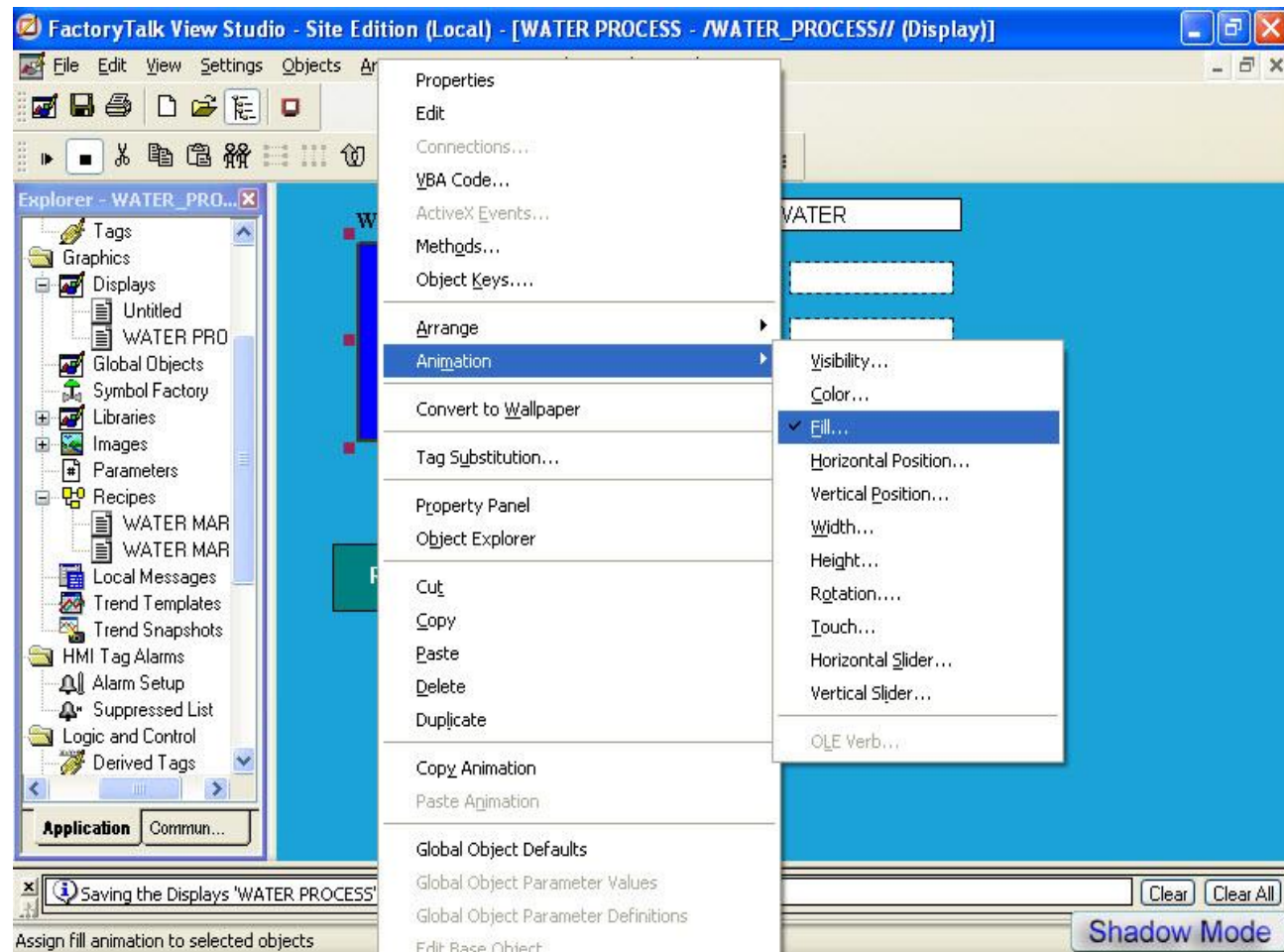
- Dùng thuộc tính *Text* trong Graphics để ghi chú tên mỗi nguyên liệu



# RECIPES

Gán thuộc tính cho các đối tượng.

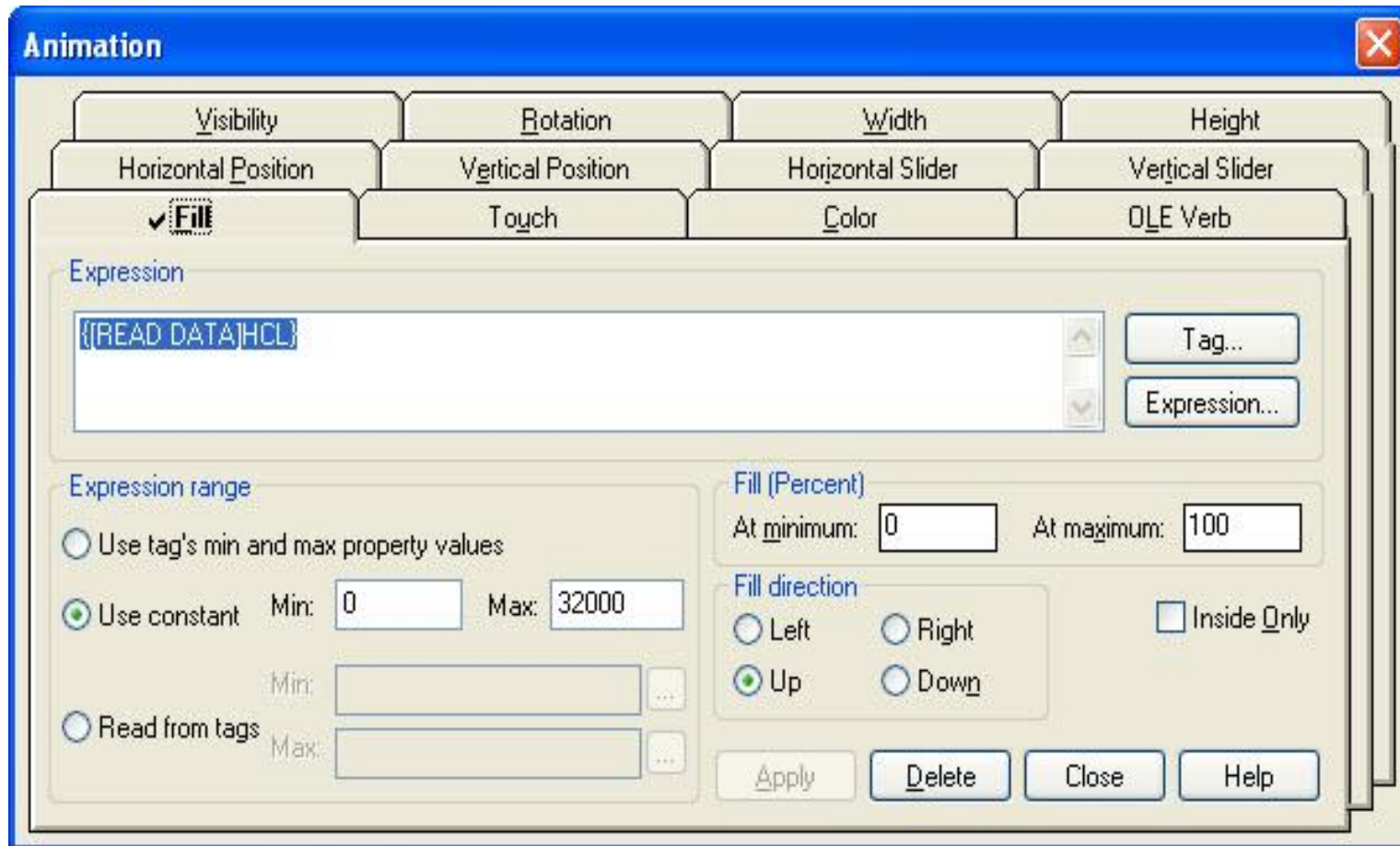
Gán thuộc tính Fill cho từng Rectangle tương ứng với phần trăm chiều cao cho từng cột nguyên liệu.



# RECIPES

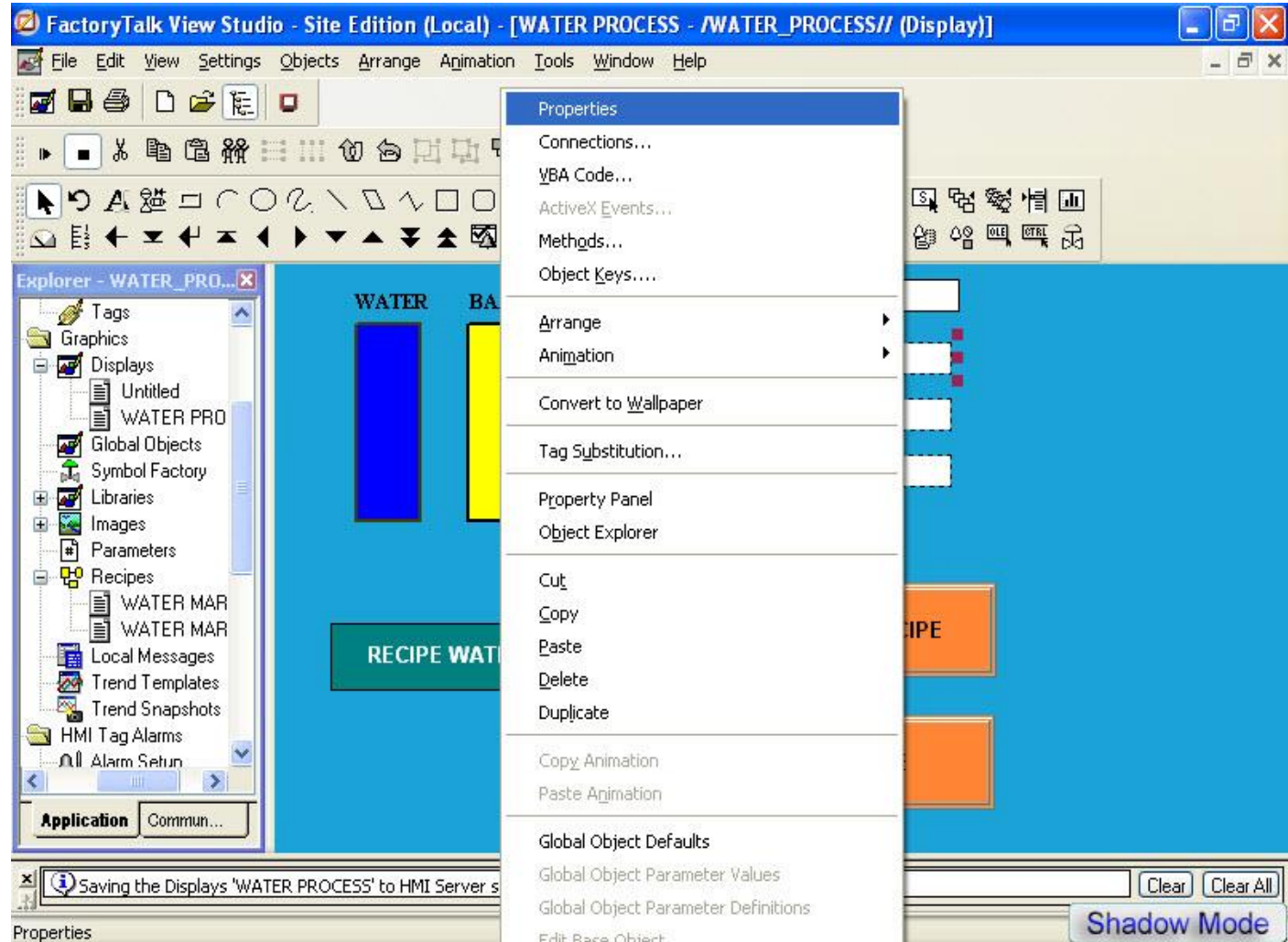
Gán thuộc tính cho các đối tượng.

Gán thuộc tính Fill cho từng Rectangle tương ứng với phần trăm chiều cao cho từng cột nguyên liệu.



# RECIPES

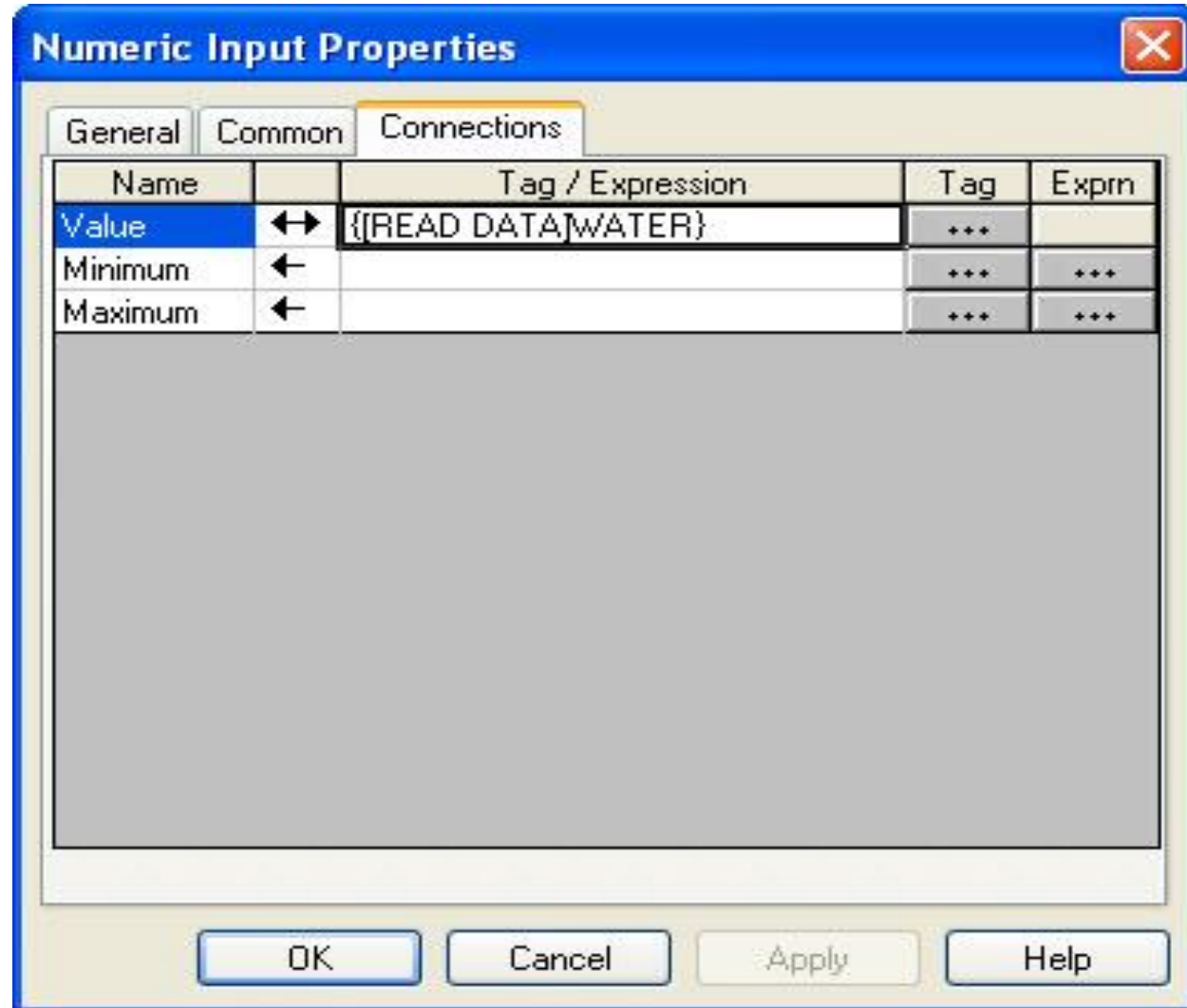
Gán biến cho 3 ngõ vào numeric input





# RECIPES

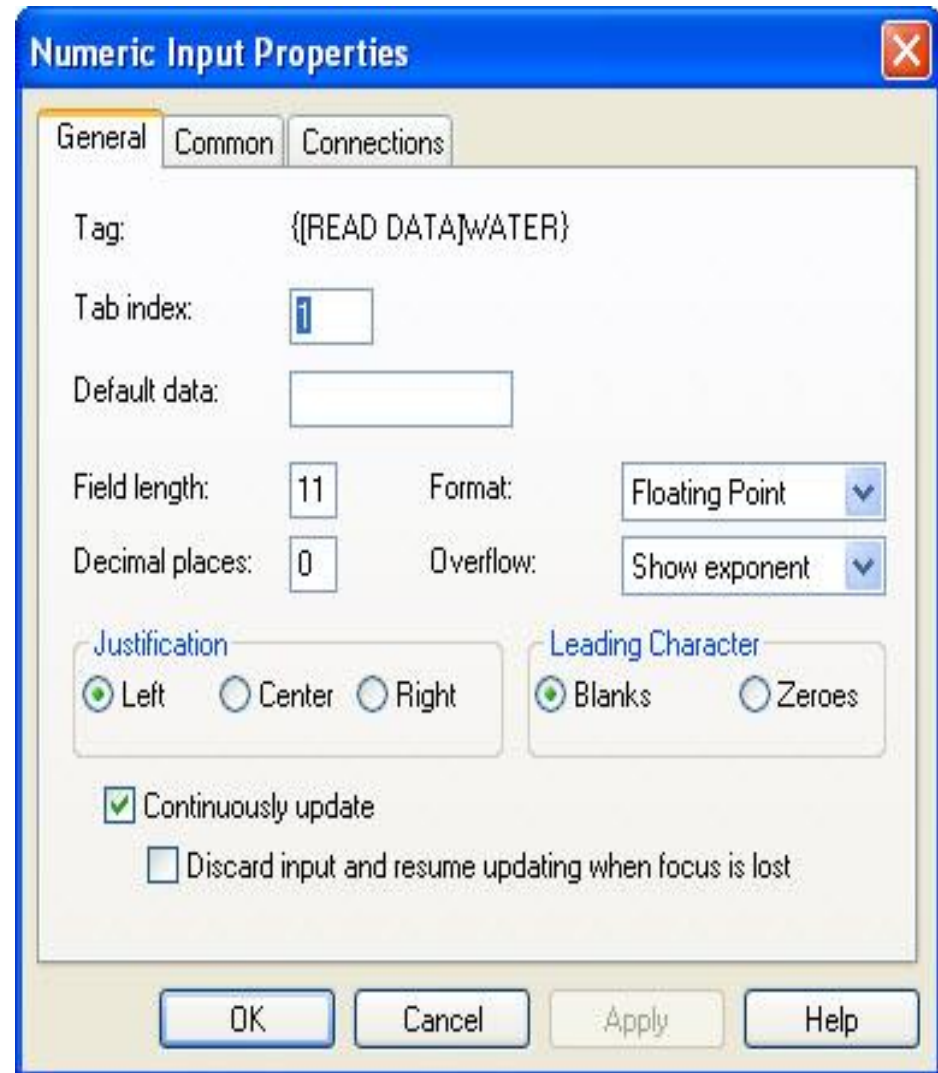
Gán biến cho 3 ngõ vào numeric input



# RECIPES

## Xác định Tab Index

Thông số của Tab Index sẽ được dùng cho việc gán dữ liệu đến biến cũng như tạo một Recipe mới



# RECIPES

## Tạo Recipes

Trong Explorer, chọn Recipe và tạo 2 file mới.

Tùy thuộc vào từng ứng dụng mà có thể tạo số lượng file phù hợp



# RECIPES

## Tạo Recipes

Tương ứng với mỗi số *Tab Index*, một giá trị chiều cao cột nguyên liệu được gán.

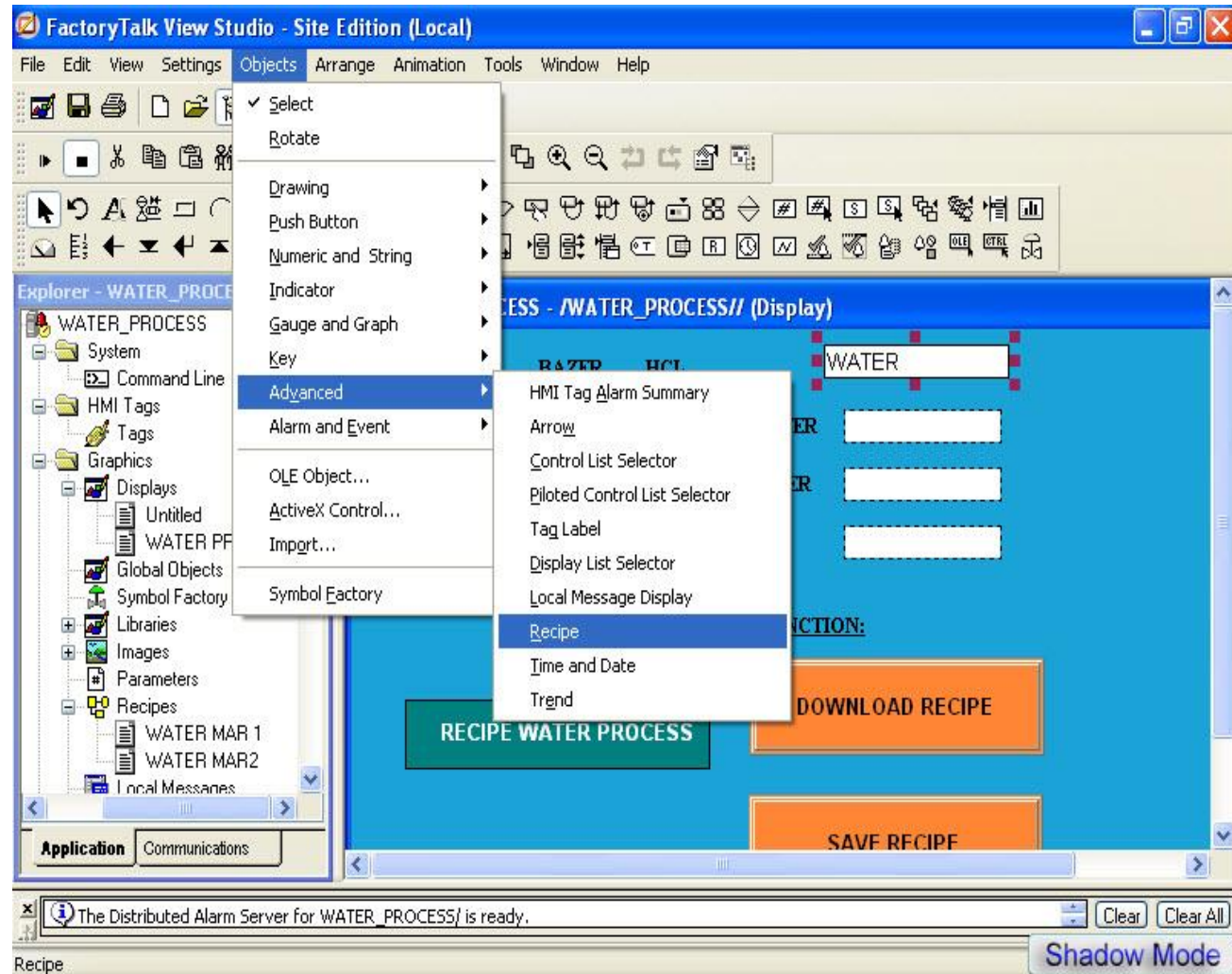
```
!===== Recipe File created 11/11/2012 =====  
! Recipe files are used with graphic displays to load specified values into  
! numeric or string input fields.  
! Syntax:  
!   index,Value  
! Example:  
!   1,44  
!   2,56  
! The field specified by index 1 would have the value 44 placed into it when  
! the RecipeRestore command is used. The field specified by index 2 would  
! have the value 56 placed into it.  
!=====
```

```
1,5000  
2,3000  
3,6000
```

Gán giá trị cho WATER MAR 1  
MAR2 được thực hiện tương tự như MAR 1

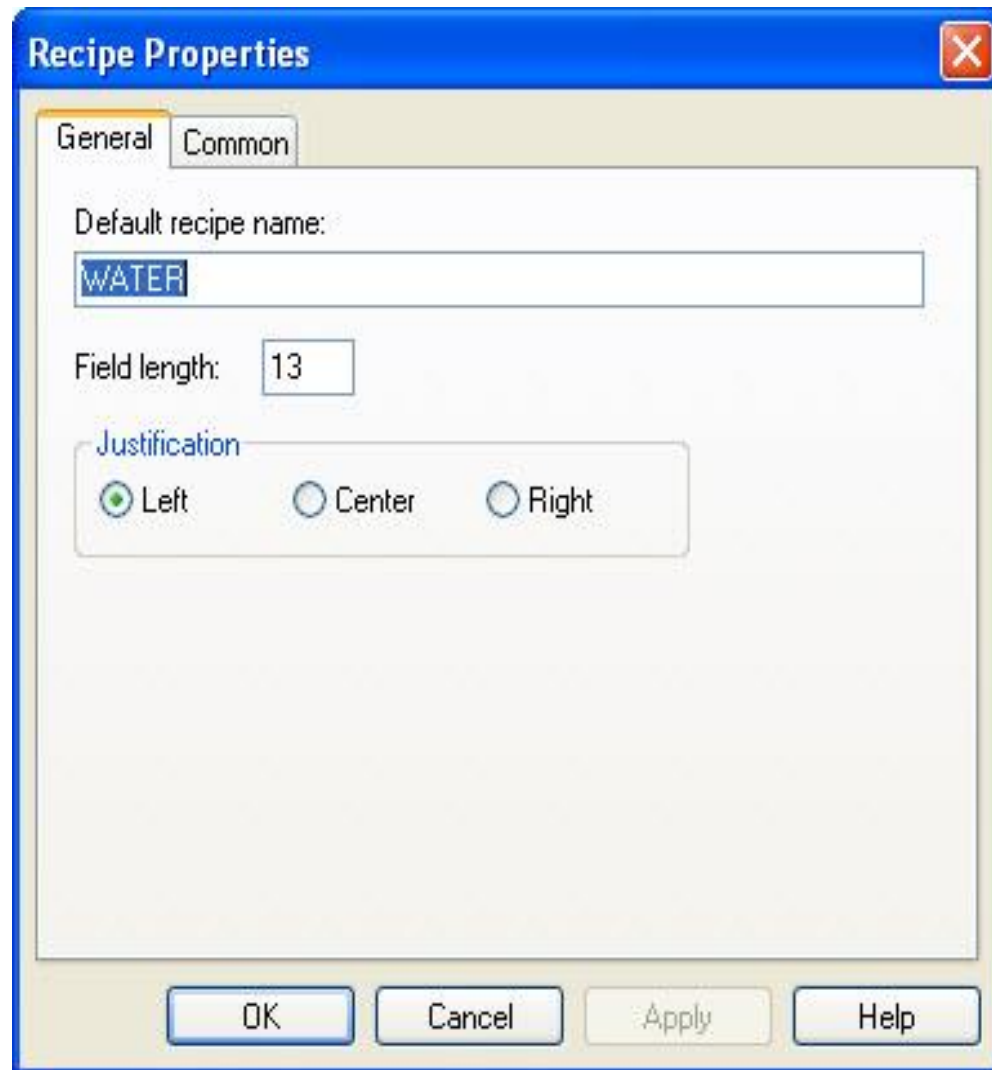
# RECIPE TOOL

Recipe Tool được sử dụng để kích hoạt reipes nào được liên kết với HMI.



# RECIPE

Chọn Recipe được liên kết và click OK.



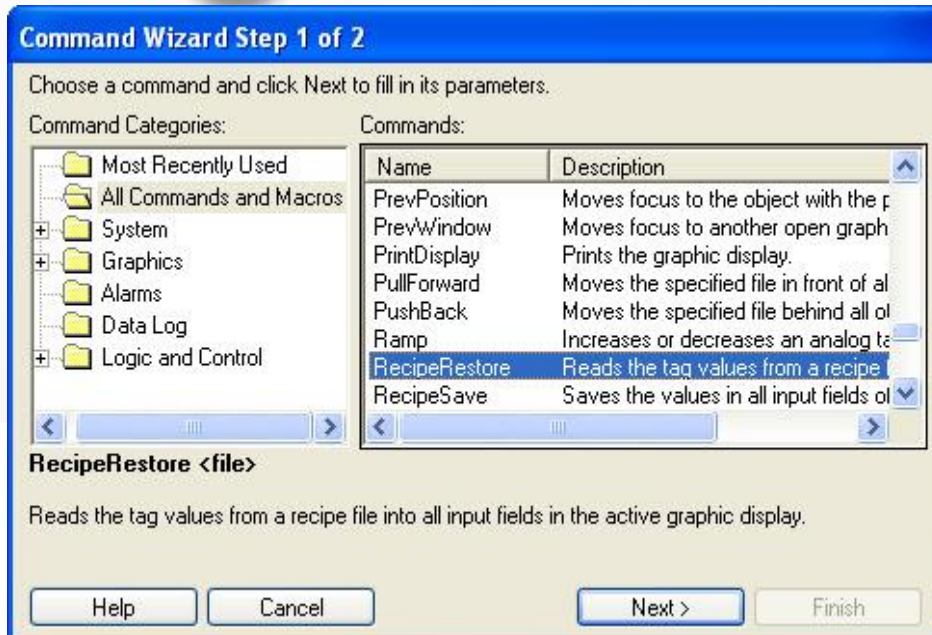
The image shows a software dialog box titled "Recipe Properties". It has two tabs: "General" (selected) and "Common".

- Default recipe name:** A text input field containing the word "WATER".
- Field length:** A numeric input field containing the value "13".
- Justification:** A group box containing three radio buttons: "Left" (selected), "Center", and "Right".

At the bottom of the dialog, there are four buttons: "OK", "Cancel", "Apply", and "Help".

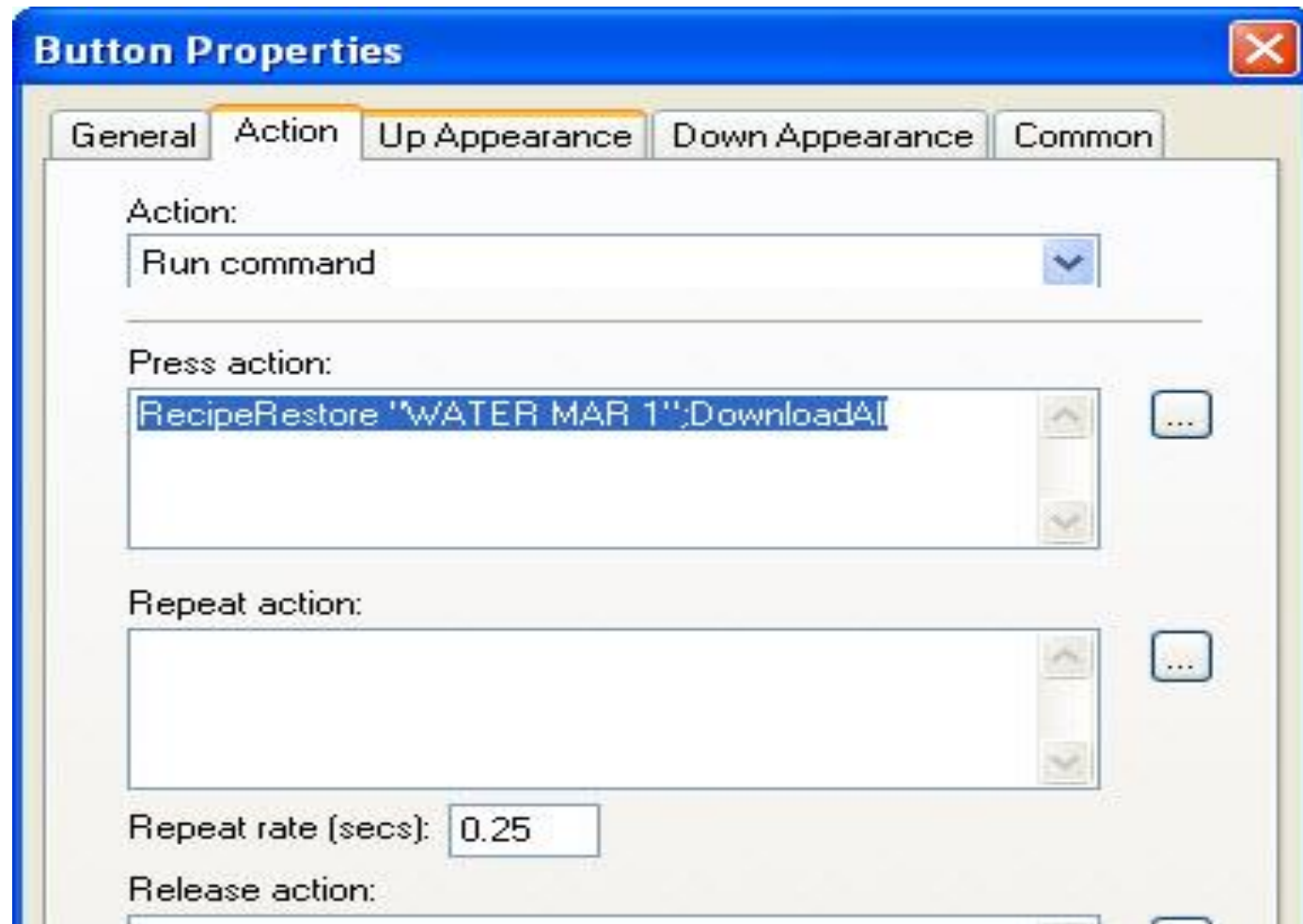
# RECIPE RESTORE

Tại các nút nhấn đã tạo, chọn *Action*, chọn lệnh *Recipe Download* với đường dẫn là tên file Recipe vừa tạo.



# RECIPE RESTORE

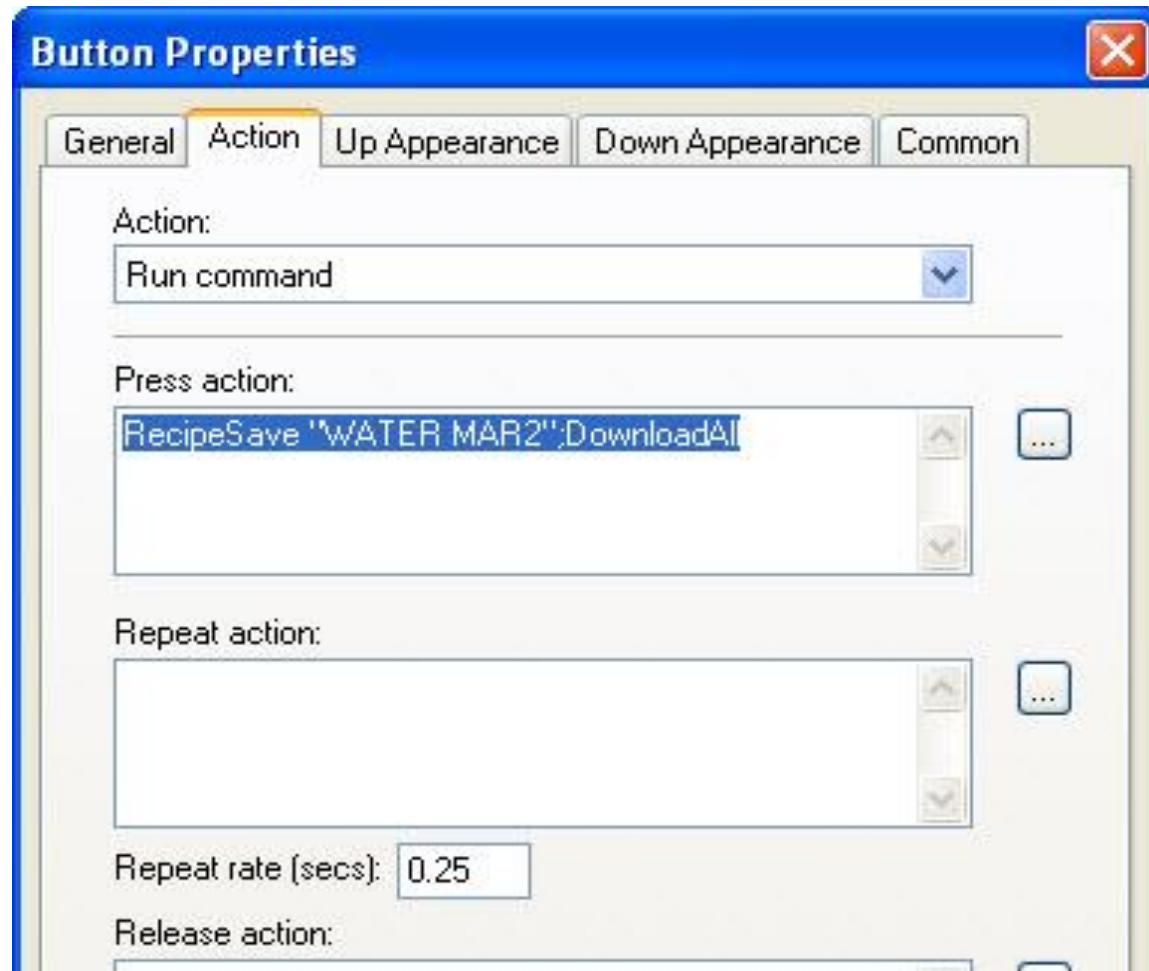
Tại các nút nhấn đã tạo, chọn *Action*, chọn lệnh *Recipe Restore* với đường dẫn là tên file Recipe vừa tạo.





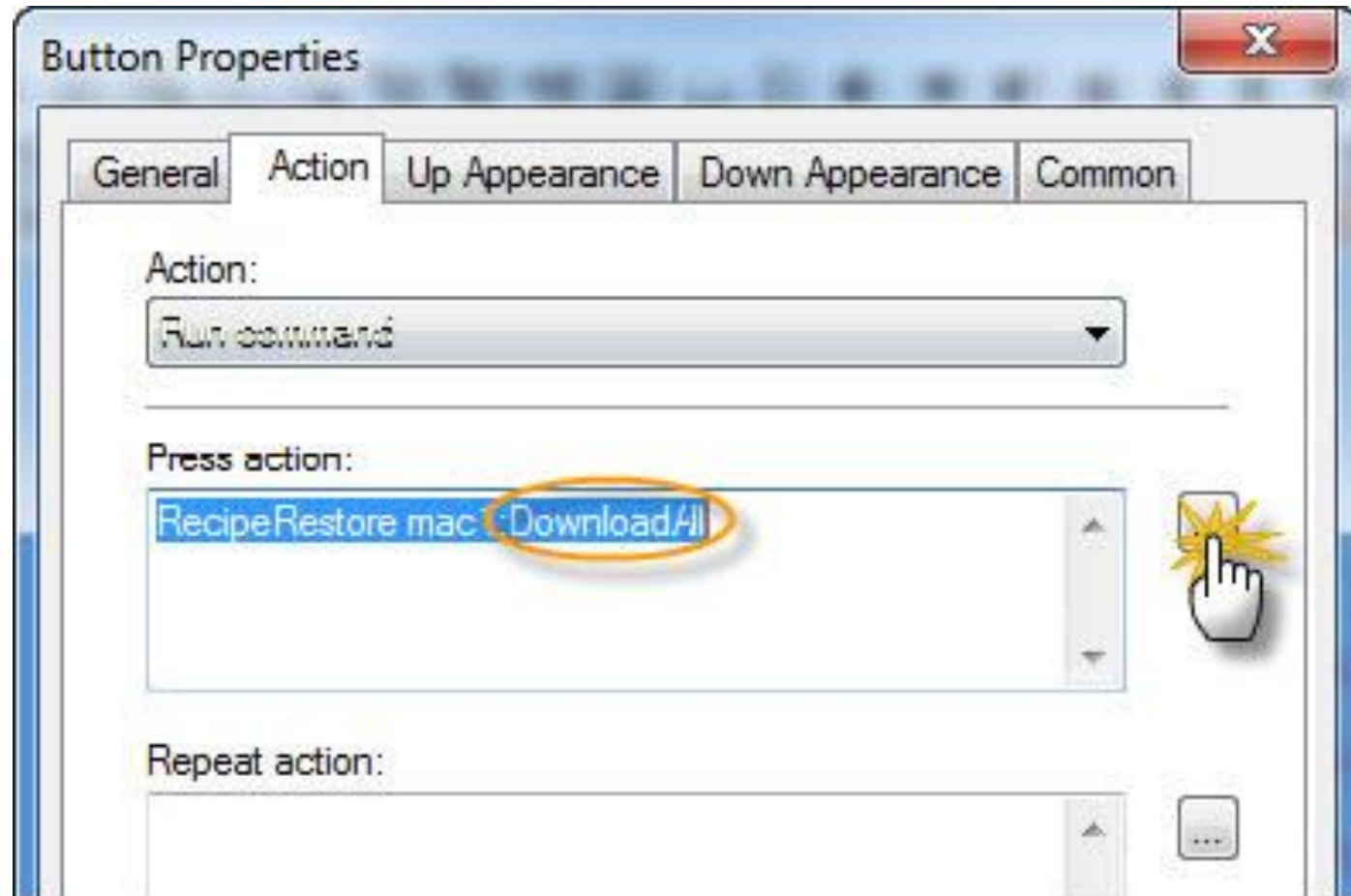
# RECIPE SAVE

Tại các nút nhấn đã tạo, chọn *Action*, chọn lệnh *Recipe Save* với đường dẫn là tên file Recipe vừa tạo.



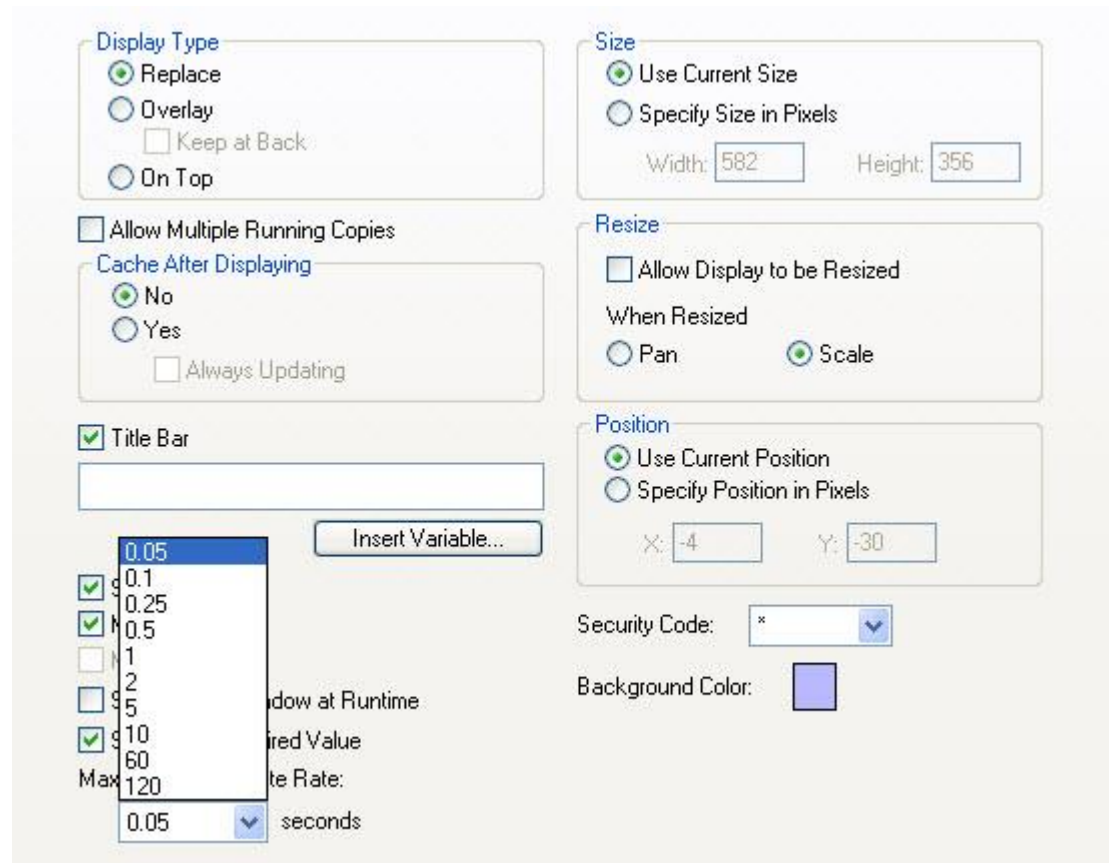
# DOWNLOAD ALL

Dùng lệnh Download All để download tất cả các thiết đặt Recipe đó xuống PLC.



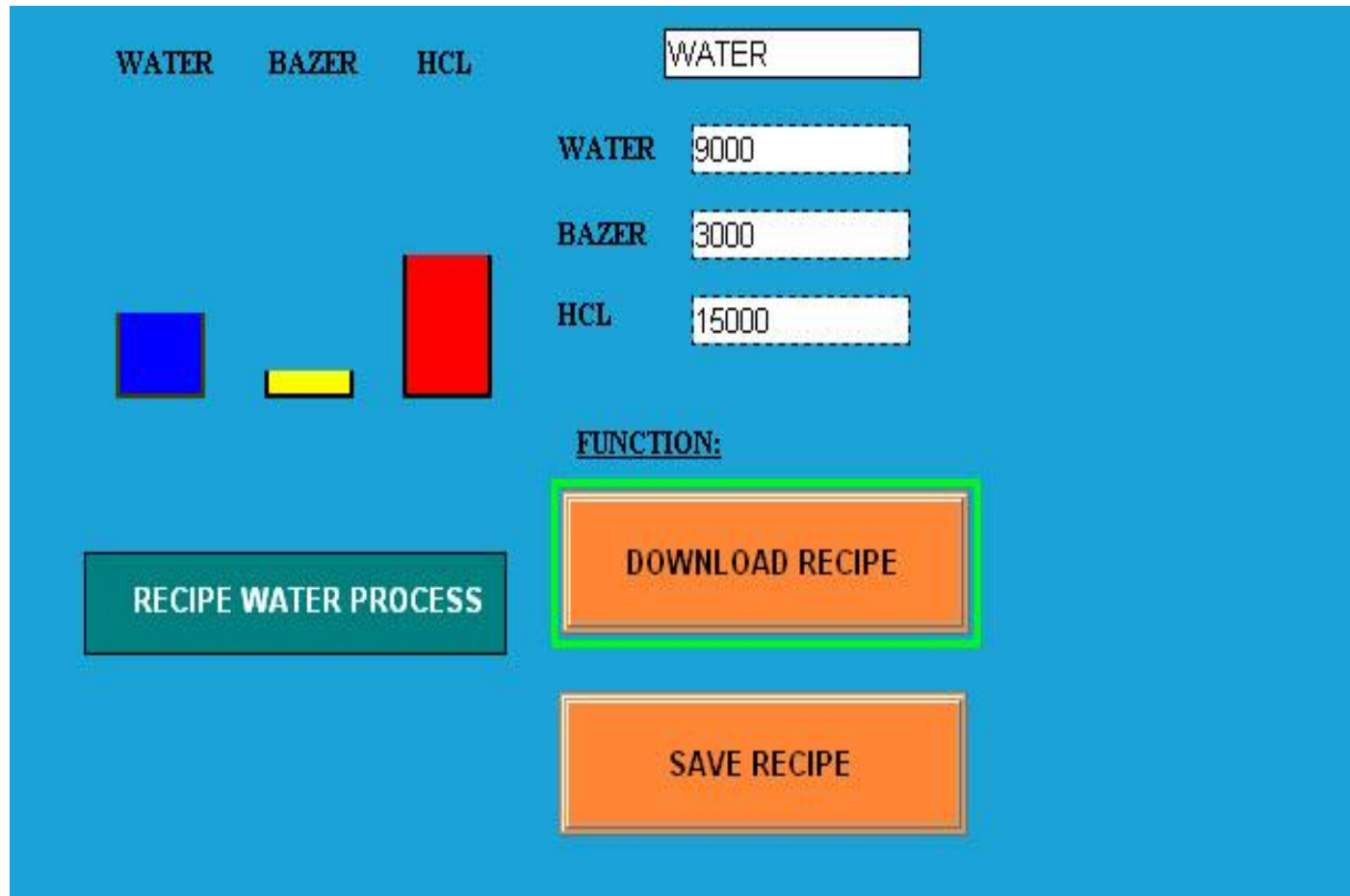
# ĐIỀU CHỈNH CHẾ ĐỘ CẬP NHẬT DATA

Chọn giao diện thiết kế, chọn Display Settings và chọn tốc độ cập nhật trong mục Maximum Update Rate.



# RECIPE SAVE

## Kết quả chạy Recipe



Giao diện SCADA chạy MAR 1

# RECIPE SAVE

## Kết quả chạy Recipe MAR 1 trên PLC



Scope: WATER\_PROCI Show: All Tags Enter Name Filter...

Name	Value	Force Mask	Style	Data Type
WATER	9000.0		Float	REAL
HCL	15000.0		Float	REAL
BAZER	3000.0		Float	REAL
START	0		Decimal	BOOL
STOP	0		Decimal	BOOL

Monitor Tags / Edit Tags