

Lab Exercise – Programming Techniques

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This module supports **TotalPlant** Solution (TPS) system network.

TPS is the evolution of TDC 3000^X.

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Lab Exercise

Introduction

The following lab helps you utilize programming techniques which are related to Display Builder scripts.

Objectives

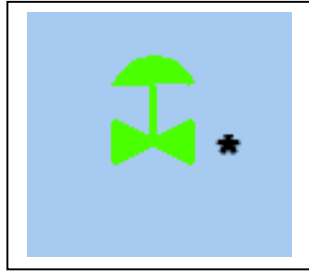
At the end of this lab exercise, you will be able to do the following:

- Analyze the task and define the problem.
- Design and plan the solution to the task.
- Create the interface for the user.
- Create the code - script for the task.
- Test and debug your code.
- Document your code.

Design Criteria

- 1) In this lab exercise, you will build a display that will utilize the 'ackstat' collector.
- 2) The intent of this lab is to design a display object that will monitor an alarm condition and display certain color and blinking attributes to the object.
- 3) Use the Authoring Tutorial as a guideline for script that uses the "ACKSTAT" collector. (Refer to Section 7 for a scripting example)

4)



When the valve is in alarm, it should change color and the asterisk (*) should have the following attributes.

ALMSTAT	BLINK	VISIBLE
NOALARM	FALSE	FALSE
UNAKALRM	TRUE	TRUE
AKDALRM	FALSE	TRUE

Sample script for Asterisk

```
Sub OnDataChange()  
Dim almstat as string  
Almstat = collector("ACKSTAT(tagname)")  
If almstat = "NOALARM" then  
Me.blink = false  
Me.visible = false  
Elseif almstat = "UNAKALRM" then  
Me.textcolor = tdc_red  
Me.blink = true  
Me.visible = true  
Elseif almstat = "AKDALRM" then  
Me.textcolor = tdc_red  
Me.blink = false  
Me.visible = true  
End if  
End sub
```

Sample script for Valve color

```
Sub OnDataChange()  
If lcn.tagname.ptinal then me.fillcolor=tdc_red else me.fillcolor=tdc_green  
End sub
```

Lab Prerequisites

Before you begin this lab exercise, make sure that the following are met:

1. Must have the Native Window loaded on the Global User Station.
2. Must have the Display Builder running.
3. The HOPC indicator must be green, which indicates that a valid connection has been made.
4. Must have a student folder called *Library* on your harddrive.

Lab Procedure

Step	Action
1.	Using your classnotes as a guide, use the programming techniques to carry out the following tasks according to the Design Criteria. <ul style="list-style-type: none"> • ANALYZE • DESIGN • INTERFACE • CODE • TEST & DEBUG • DOCUMENT
2.	Create a flowchart, using your classnotes as a guide.
3.	From the GUS Display Builder, open a new display.
4.	From your Library folder, open the valves.pct. Copy one of the valves into your display.
5.	Add 1 text object to the display. The text object should be an asterisk(*)
6.	Add script to the 2 objects as shown in the Design Criteria section.
7.	Syntax check your code.
8.	Validate your display.
9.	Save your display as valalm.pct. in your student folder.
10.	Run your display.
11.	Generate alarms on the selected point and verify that your display responds accordingly.

End of Lab

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