Honeywell

Lab Exercise – Insert a Target Manager

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TotalPlant

Notices and Trademarks

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

TPS is the evolution of TDC 3000^{X}.

Honeywell Inc.
Industrial Automation and Control
Automation College
2820 West Kelton Lane
Phoenix, AZ 85053-3028
1-800 852-3211

Lab Exercise

Introduction

When a GUS display uses a change zone, many users want to identify the selected target in some way (e.g., changing color). When a "new" target is selected, you will only want to redraw the newly selected target and the previously selected target because redrawing all of the objects will have a negative effect on performance.

One approach is to use what is called a target manager. The target manager addresses a common method of using the change zone selection to trigger selected target identification.

The following is a description of a Target Manager developed to "notify" the newly selected target, usually a rectangle in the background, that it has been selected and to "notify" the previously selected rectangle target that it has been deselected. In other words, focus would pass from one selected object to a newly selected object. The Target Manager causes the "new" target (which is now selected) and the "old" target (which has become deselected) to be the only two targets on the display to be redrawn.

The Target Manager requires the following two files:

- Seltarget.pct
- Targetmgr_rev3.pct

Objectives

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

- Insert the Target Manager into a display with a standard change zone or custom change zone and
- Highlight an operator-selected target using the Target Manager.

Functional Description – Target Manager and Selected Target Interaction

The Target Manager notifies the newly selected rectangle target that it has been selected and notifies the previously selected rectangle target that it has been deselected. The selected rectangle target goes to a highlighted state and may provide a larger rectangle target area for operator selection. Only the seltarget.pct target redraws itself. When another target is selected, the Target Manager notifies the previous target that it is no longer selected and causes the previously highlighted target to become deselected.

The target manager technique described uses a display parameter that is an object data type. The object data type allows objects that have been inserted into a display to pass data. To use this Target Manager, your rectangle target(s) must have knowledge of the Target Manager. To have knowledge of the Target Manager means that the rectangle target must have two display parameters:

- A boolean variable, called Selected, to indicate whether the target has been selected
- An object data type variable, called TargtMgr, that contains the object name of the Target Manager. In this manner, the rectangle target can access or notify the Target Manager of its selection state.

How to Implement the Target Manager picture

1. In the lab exercise, you will insert the Target Manager into your main display.

2. The Target Manager has a display parameter defined called "NewTarget" of object data type. Do not enter a value for this parameter at build time. The newly selected rectangle target writes its object ID to this parameter when it is selected during run time. What this means, in everyday non-programming terms, is that the rectangle target is taking temporary ownership of the Target Manager until another target is selected.

3. After you have inserted the Target Manager display object you will rename it. You will then enter this name into the display parameter called "TargetMgr" of each rectangle target that you insert into the display.

4. The Target Manager's purpose is to highlight selected targets, so you may want to make the Target Manager object "not selectable" and "not visible" in your display.

Functional Description – Target

When the inserted target, which is nothing more than a scripted rectangle object, is selected by the user, the target notifies the Target Manager of its object ID. In return, the Target Manager assigns "TRUE" to the newly selected target's boolean parameter called "selected", or "FALSE" if the target was the one that was the previously selected target. Knowing the selected state of the target, the display author may write additional code to change the appearance of the target depending on its selection state.

How to Implement the Target

1. The rectangle object represents the skeleton of a target. While it does contain enough code to cause target selection highlighting to occur, you may want to add code and parameters to make it a fully functional target.

2. First note that a target working with the Target Manager must have two display parameters, "TargetMgr" of data type object and "selected" of data type Boolean. At build time, after you have inserted and renamed your Target Manager object, enter the new name for the Target Manager into the initial value for the "TargetMgr" parameter for the inserted target. You may leave the "selected" parameter blank because it defaults to "FALSE" and is set at runtime.

3. Note that in the script of the target, the user interaction (e.g., OnLButtonClick) causes the object ID of the target to be written to the Target Manager's parameter, "NewTarget".

4. Also note that a change to the "selected" parameter will cause an OnDataChange event for the target. Remember that the Target Manager assigns the values to the "selected" parameter. You may want to write code to change the appearance of the target depending on its selected state.

Target and Target Manager code

Review the following code example of the Selected Target and Target Manager to examine how selection occurs. Both displays use the data type object, with the Target Manager declaring an additional object at runtime whose role is to reset the previously selected target.

The code for the rectangle target follows.

```
Sub OnLButtonClick()
        set display.params.targetmgr.params.newtarget = display        'notify TM of selection
        dispdb.[$cz_enty].external = "f2014"                           'assign your tag to the change zone
            'put additional code here
```

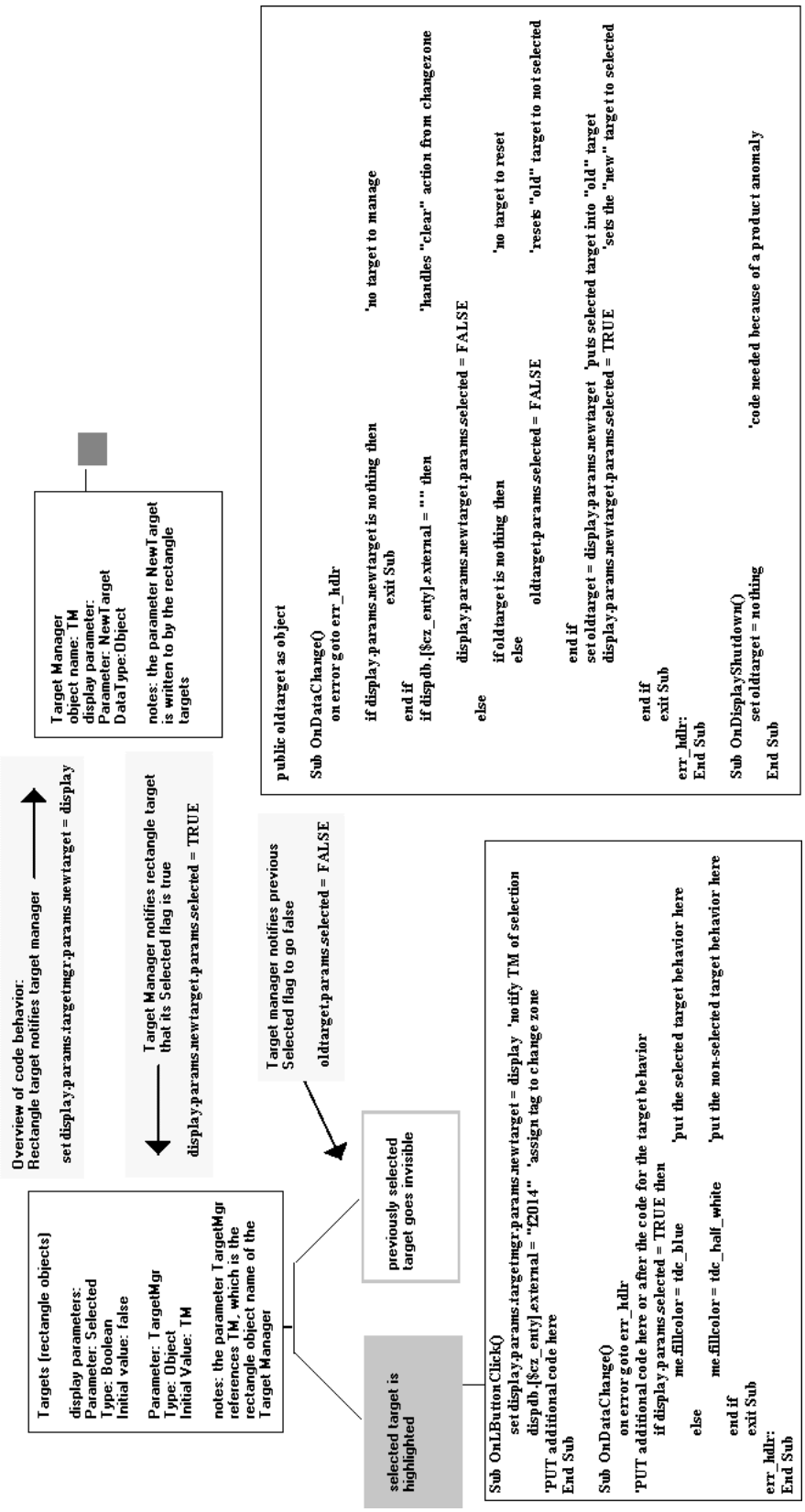
End Sub

```
Sub OnDataChange()
        on error goto err_hdlr
'put additional code here or after the code for the target behavior
        if display.params.selected = TRUE then
                me.fillcolor = tdc_blue                 'put the selected target behavior here
        else
                me.fillcolor = tdc_half_white           'put the non-selected target behavior here
        end if
        exit Sub
err_hdlr:
End Sub
```

The code for the Target Manager follows.

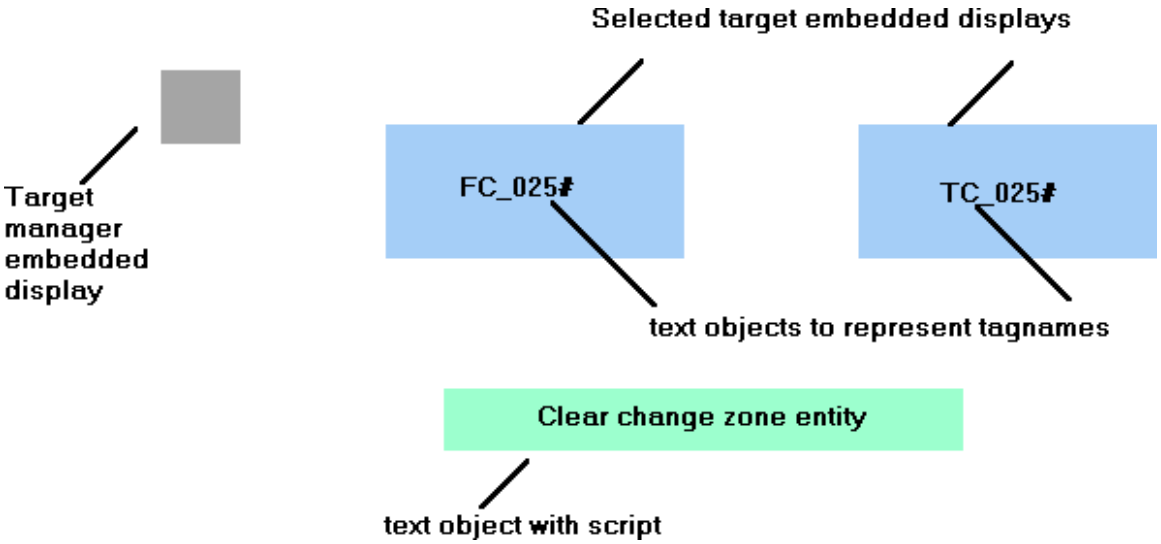
```
public oldtarget as object

Sub OnDataChange()
        on error goto err_hdlr
        if display.params.newtarget is nothing then             'no target to manage
        exit Sub
        end if
                        'handles "clear" action from change zone
        if dispdb.[$cz_enty].external = HOPC_CONFIGURATION_ERROR then
                display.params.newtarget.params.selected = FALSE
        else
                if oldtarget is nothing then                    'no target to reset
                else
                oldtarget.params.selected = FALSE               'resets "old" target to not selected
                end if
        set oldtarget = display.params.newtarget                'puts selected target into "old" target
        display.params.newtarget.params.selected = TRUE         'sets the "new" target to selected
        end if
        exit Sub
err_hdlr:
End Sub

Sub OnDisplayShutdown()
        set oldtarget = nothing                         'code needed because of a product anomaly
End Sub
```

The following figure provides a description of target manager behavior.



Design Criteria

The example below represents the display you will build in the following lab exercise. You will modify the script on the selected target display to reference tagnames from your partition. You will then insert the selected target display and Target Manager display into a new display and test.



lab_desgn_tm.gif

Lab Prerequisites

Lab prerequisites are the following:

- GUS Display Builder
- Two off process control points
- Native Window is loaded
- Embedded display pictures(seltarget.pct and targetmgr.pct)

Lab Procedure

Step	Action
1.	Open the GUS Display Builder.
2.	Open the display seltarget.pct from your Library folder.
3.	Modify its script to reference a tagname from your partition.
4.	Syntax check the display.
5.	Validate the display.
6.	Save the display as seltarget1.pct in your Student folder.
7.	Modify the seltarget1.pct's script to reference another tagname from your partition
8.	Syntax check your display.
9.	Validate your display.
10.	Save this display as seltarget2.pct in your Student folder.
11.	From the GUS Display Builder, open a new display.
12.	Insert both seltarget1 and seltarget2 into the new display. For their display parameter definitions, define the following: Parameter: selected Initial value: **False** Parameter: TargetMgr Initial value: **TM** (Note: When the target manager pct is inserted, it will be renamed "TM")
13.	Add two static text objects on top of each rectangle target. The text objects should represent the names of your tagnames; they must be non-selectable.
14.	Insert the targetmgr.pct into this display. For its display parameter definition, you do not need to make any entry, it is assigned at runtime. BUT, you do need to selected the Target Manager rectangle and change its name from EmbeddedPicture# to **TM**
15.	Add a simple text object to this display that can be used to clear the change zone. Text object properties: Text: Clear CZ_Entity Selectable: true Fill pattern: solid

16.	Add the following script to your text object for clearing the change zone entity:
	
	`Sub OnLButtonClick()`
	`  dispdb.[$cz_enty].external = ""`
	`End Sub`

17.	Add the following script to your **display** for clearing the change zone entity at displaystartup:
	
	`Sub OnDisplayStartup()`
	`  dispdb.[$cz_enty].external = ""`
	`End Sub`

18.	Syntax check your display.
19.	Validate your display.
20.	Save your display as mgr_test.pct in your Student folder.
21.	Insert the Honeywell standard change zone into your display
22.	Validate your display.
23.	Save your display as mgr_test.pct.
24.	Run your mgr_test display to test the Target Manager functionality.
25.	Select either of your tagname targets. Expected result: The selected tagname goes highlighted, the previously selected target returns to a non-highlighted state. Clear the change zone entity and both targets should be deselected.

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