

# **Lab Exercise - Manage Display Libraries Using Component Explorer**

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8/00

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# Introduction

## Overview

### Prerequisites

- Familiar with the operation of the Windows NT operating system
- Familiar with the operation of a Honeywell GUS Workstation

### Required Hardware

GUS workstation compatible with TPS R210 Standard Software.

### Required Software

- R210 TPS Standard Software installed from the TPS Standard Software CD-ROM
- Software must run Display Builder.
- Optional Component Library Editor software installed.

### Estimated time to complete

- One to two hours

### References

*Component Explorer Introduction* and the associated sections of *Display Builder User's Guide* (Honeywell document GU23200C).



## Practice Exercises

### Objectives

Upon completion of these exercises, you will have an understanding of Component Explorer behavior and will be able to

- Interpret the architecture of the Component Explorer and its supporting functions.
- Insert Embedded Display components from a library into a GUS display.
- Create a new Component Library and save Embedded Display components into it.
- Register and Unregister embedded display components and understand how parts of Component Explorer are affected.

### Main Idea

#### Description

There are three “software components” to Component Explorer.

- The GUS Base Display Builder software containing the Component Explorer.
- The GUS software that includes the Component Explorer Manager and the Component database software.
- The Component Library Editor software (optional) that allows you to edit, modify, and add to the Component Libraries contained in the Component database.

#### Overview

Interpret the operation of the Component Explorer and associated accessories on a GUS workstation.

- Use Component Explorer to insert Embedded Displays from a library.
- Create an Embedded Display of your own.
- Examine the interaction between Component Explorer and Component Explorer Manager.

Interpret the operation of the Component Library Editor on a GUS workstation.

- Create a Library with the Library Editor.
- Add Embedded Display components to your library and use the library.
- Remove and restore a library with the Library Editor.
- Investigate how libraries and their components are managed.



## Introduction to Component Explorer

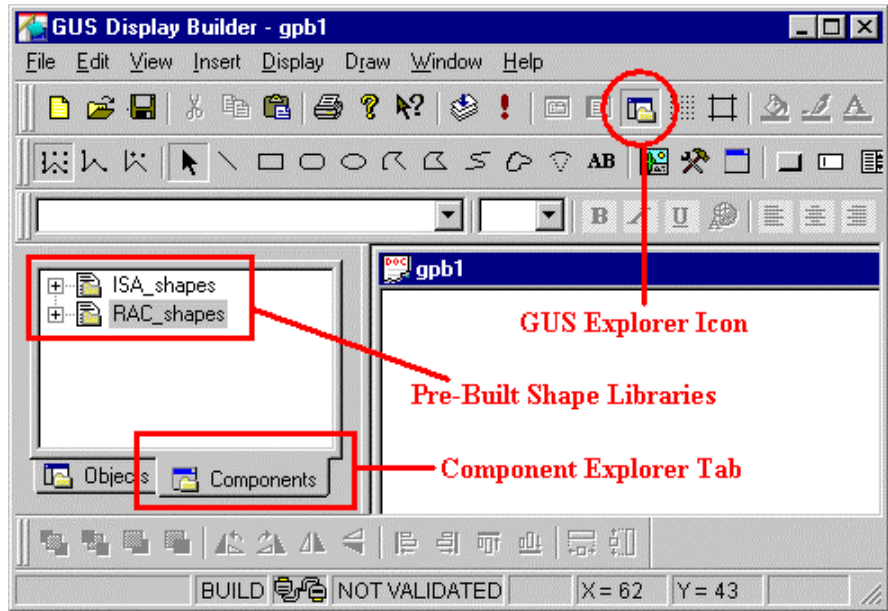
### Use Component Explorer and Accessories on a GUS Workstation

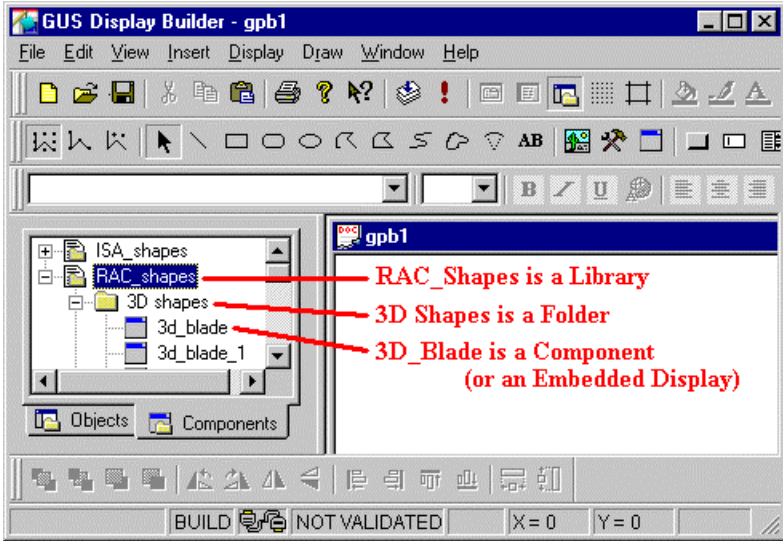
Component Explorer is a standard part of the GUS Explorer on a GUS Workstation. With it, you can keep libraries of pre-drawn shapes of components available to you, then insert them as Embedded Displays (or Components) whenever needed.

In this practice, you will learn to use shape libraries provided by Honeywell, then create a shape library of your own where you will place your own component and a Honeywell-supplied component. You will also learn to use the Component Explorer Manager, an accessory to Component Manager that lets you manage which component libraries are available to a particular GUS workstation.

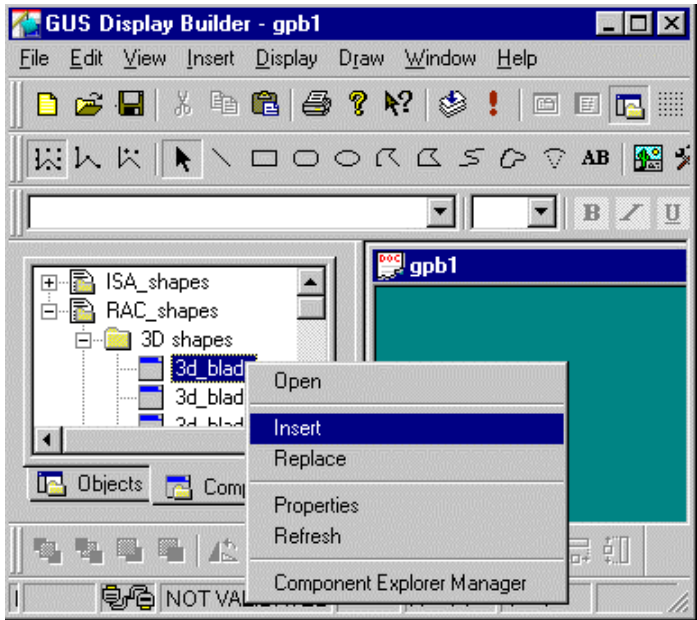
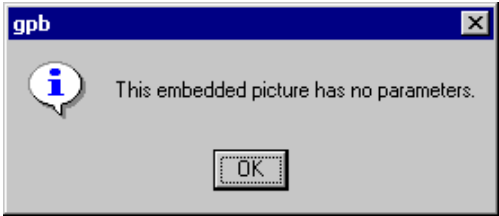
#### Use Component Explorer to insert Embedded Displays from a library

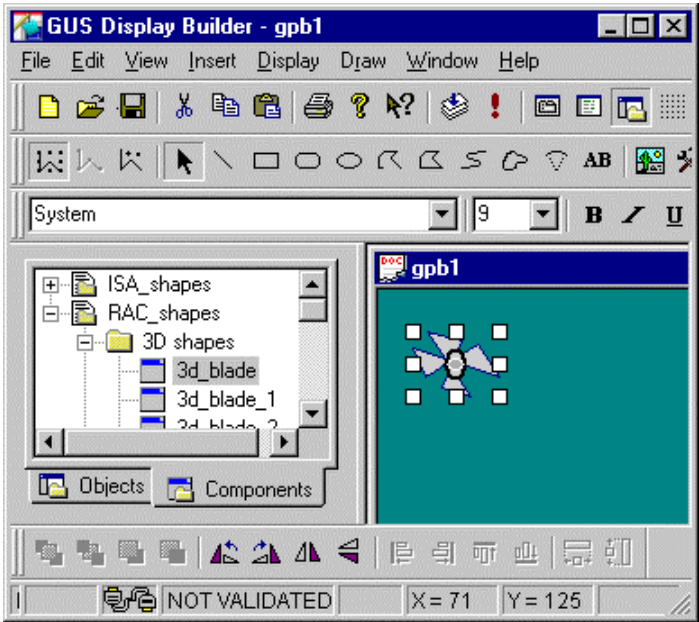
Here we practice the basic use of Component Explorer.

Step	Action
1	<p>From the <b>Start&gt;Programs&gt;Honeywell TPS&gt;GUS Display Builder</b> menu, open GUS Display Builder. If the GUS Explorer is not shown at the left of the display window, toggle its icon.</p> <p>Click the Components tab to open Component Explorer.</p> <p>Result: The Display Builder window opens looking similar to this illustration with two or more pre-built shape libraries in it.</p>  <p>The screenshot shows the GUS Display Builder window with the title bar 'GUS Display Builder - gpb1'. The menu bar includes File, Edit, View, Insert, Display, Draw, Window, and Help. The toolbar contains various icons for file operations and drawing. The main window is divided into two panes. The left pane, titled 'gpb1', shows a list of pre-built shape libraries: 'ISA_shapes' and 'RAC_shapes'. The right pane is titled 'Components' and shows a list of components. Red boxes and arrows highlight the 'GUS Explorer Icon' in the toolbar, the 'Pre-Built Shape Libraries' in the left pane, and the 'Component Explorer Tab' in the right pane.</p>
2	<p>Verify that at least two libraries are already installed in the Component Explorer. If they are not installed, ask your course manager for help.</p>

Step	Action
3	<p>Open a shape library by clicking the plus sign [+] beside it.</p> <p>If present, open the first folder in the library by clicking the plus sign [+] beside it. If there are sub-folders, continue opening them until a component is found (<b>3d_blade</b> in this example).</p>  <p>This arrangement of icons, called a Hierarchical Tree, is similar to those you may have used in your computer's Windows Explorer when you wanted to find the location of a particular file. In this case, however, a "component" is a Display Builder file with a ".pct" extension.</p> <p>Remember what the icons look like for a library, folder, and component. You may see one other icon that looks like a component icon but has a red "X" across it. That usually means the component has been removed from the library and is not available for use.</p>



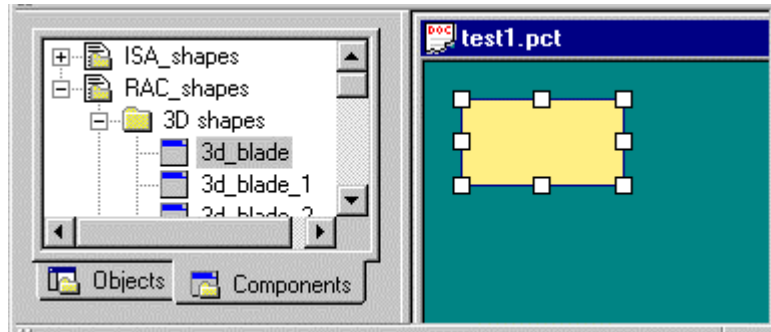
Step	Action
4	<p>Right-click on the first component you find (<b>3d_blade</b> in this example) and select <b>Insert</b>.</p>  <p>Result: An information box is displayed reading "This embedded picture has no parameters."</p>
5	 <p>This is a normal warning when an Embedded Display is inserted without parameters.</p>
6	<p>Click the <b>OK</b> button.</p> <p>Result: Your cursor changes to crosshairs when passed over the display.</p>

Step	Action
7	<p>While your cursor is over the display, click-and-release the mouse button.</p> <p>Result: The embedded display in the library (<b>3d_blade</b> in this example) is inserted into the GUS display.</p> 
8	<p>You have now learned how to open Component Explorer and how to insert an embedded display that has already been stored in a Component Library.</p> <p>At this time, you may experiment by inserting several pre-built components from the libraries into your display and see what they look like. Notice the library components are things like fans, vessels, pipes, pipe joints, etc. that you will use often while constructing a process display.</p> <p>Remember, the Component Explorer will insert any component that has been saved as a Display Builder “.pct” file.</p>
9	<p>When you are finished experimenting, either delete all the components you have put in this display or save the display in your student folder and open a new, empty display.</p>

### Create an Embedded Display of your own

Now, you will build and save a simple “.pct” file of your own that can be used later as an embedded display.

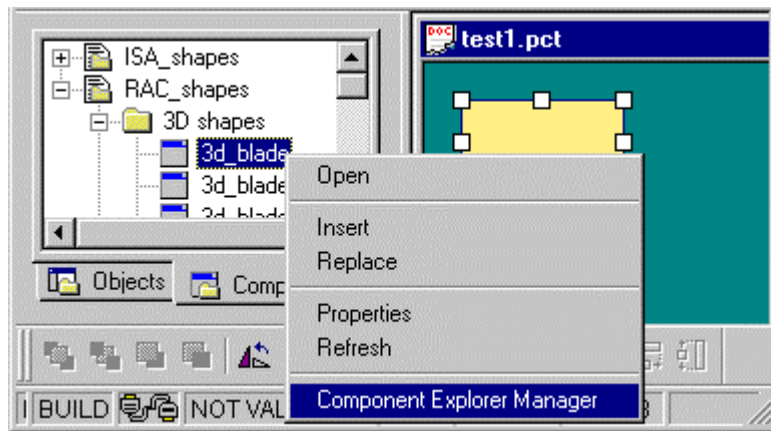
Step	Action
1	Be sure to follow the last step from the previous section where you either delete any components you put in your practice display or save it and open a new blank display.  Result: Your Display Builder display is a blank “gpb <sub>n</sub> ” display where “n” is a number.
2	Draw a simple graphic. If you use more than one object to make the graphic, be sure to group it into a single component (in this example, we just drew a simple rectangle).  Save the display in your student folder (here, we saved it as “Test1.pct.”)



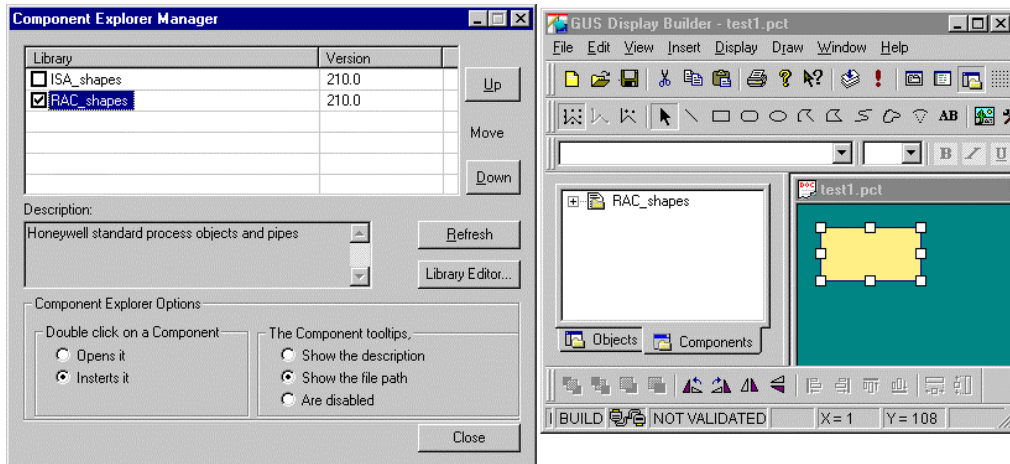
### Examine the interaction between Component Explorer and Component Explorer Manager

We will now study the interaction between the Component Explorer and its manager.

Step	Action
1	In the RAC_shapes library, right-click a library, folder, or component icon (any one will do) to open the pop-up menu. Select <b>Component Explorer Manager</b> .



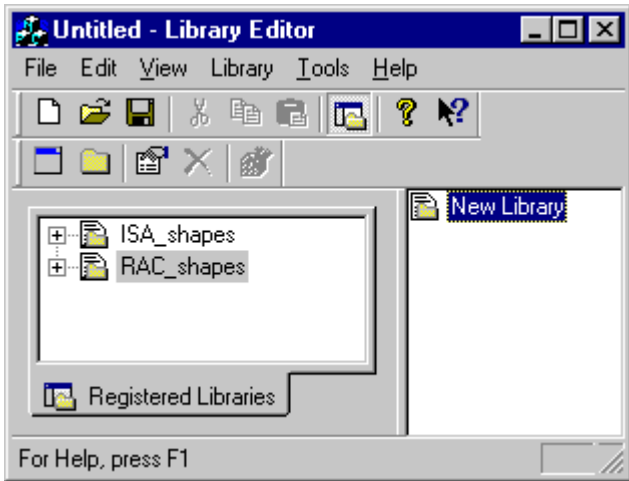
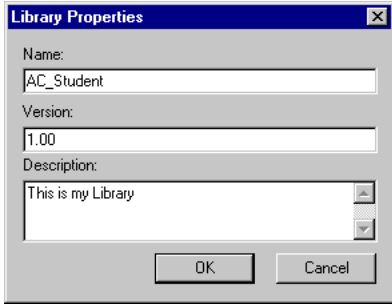
Result: The Component Explorer Manager window is opened.

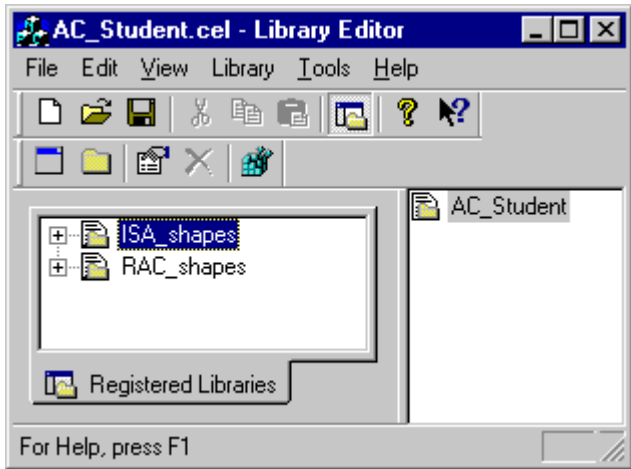
Step	Action
2	<p>Reduce the size of your Display Builder window so you can view both the <b>Component Explorer Manager</b> window and the Display Builder's <b>Component Explorer</b> window at the same time. You will want to study the interaction between them in the following steps.</p> <p>Notice both of the shape libraries (<b>ISA_shapes</b> and <b>RAC_shapes</b> in this example) are listed at the top of the Component Explorer Manager. Also notice they both have checkmarks in their checkboxes.</p>
3	<p>Click one of the checkboxes so the checkmark is removed.</p> <p>Result: You have caused the Component Explorer Manager to remove that library from the Component Explorer hierarchical tree, therefore, it is temporarily unavailable for use on your Display Builder.</p> <p>Also, you can have more than one shape library with the same library name but different version numbers. This is useful if you have libraries that work with different GUS releases. However, you cannot have checkmarks beside more than one Library with the same name.</p> 
4	<p>While one of the libraries is selected in the Component Explorer Manager, click on either the <b>Up</b> or <b>Down</b> buttons beside the list. Notice you can arrange the libraries with these buttons.</p> <p>This is useful if you have several libraries available to you but are only using a few of them on your Display Builder. You can group just the libraries you are using at the top of the list.</p>
5	<p>Notice, when a library is selected, the <b>Description</b> box explains what that library contains.</p>
6	<p>Click on the <b>Refresh</b> button.</p> <p>Result: Clicking the Refresh button causes all components in each folder in each library in the entire Component Explorer library to be refreshed. When a component is refreshed, the Component Explorer Manager checks to see if the ".pct" file specified for the component still exists. (Note: Depending upon what state the libraries and components are in, you may not see an apparent change now, but the refresh did take place.)</p> <p>If the refresh process found one or more components missing, those component icons are displayed with a red "X" across them.</p>
7	<p>Notice the <b>Component Explorer Options</b> let you decide how you want the icons in the Component Explorer to work. You can also set-up how you want the Tooltips to work.</p>
8	<p>Next, we will study the Library Editor.</p> <p>Before leaving this section, keep both the <b>Component Explorer Manager</b> and the <b>Display Builder</b> windows open, and make sure <b>both libraries have their checkboxes checked</b>.</p>

## Use Component Library Editor on a GUS Workstation

In this practice, you will learn to use the Component Library Editor, an optional application. People who are just using components from component libraries don't need it, but it is very useful to people engaged in creating, modifying, saving, and deleting individual libraries and components.

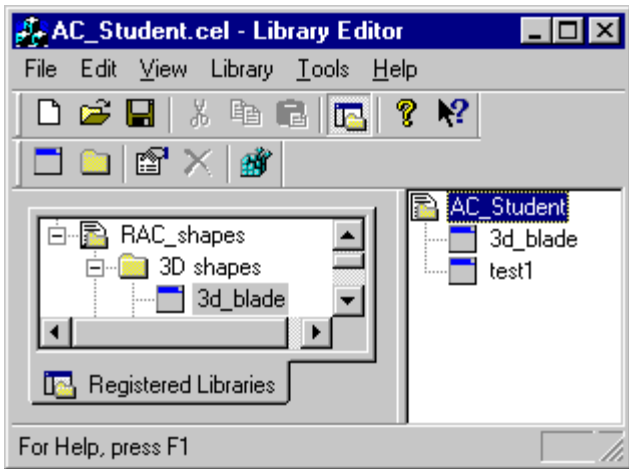
### Create a Library with the Library Editor

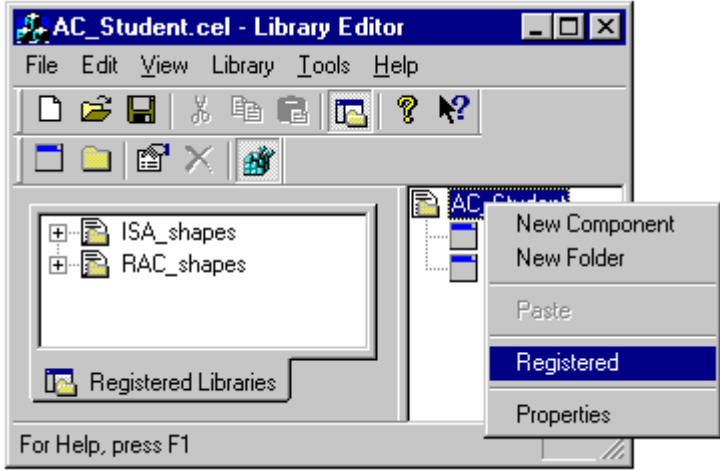
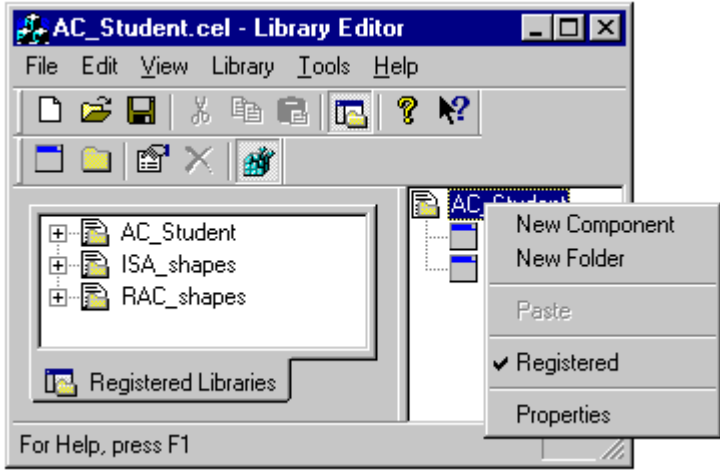
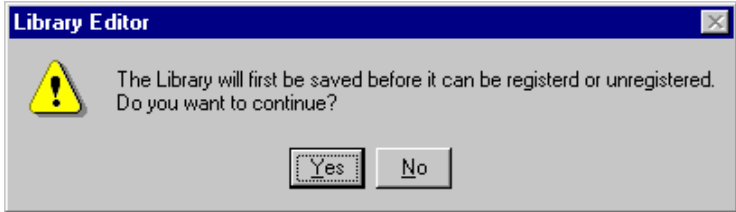
Step	Action
1	<p>From the Component Explorer Manager dialog, click on the <b>Library Editor</b> button.</p> <p>Result: the Library Editor window opens with all the "Registered Libraries" listed in the left window and a "New Library" ready to be created on the right.</p> <p>Make the Library Editor small enough so you can view the Component Explorer Manager, the Display Builder, and the Library Editor all at the same time.</p> 
<p><b>A Note about Registration</b>—A Component Explorer library consists of two main parts:</p> <ul style="list-style-type: none"> <li>- A file segment (the single component in a ".pct" file), and</li> <li>- A <b>registry</b> segment.</li> </ul> <p>The registry segment identifies the library by using a number of sub-keys that contain a description of the library, its location, name, and version number, and a flag that indicates whether or not it is visible to the Component Explorer. This information is kept in the Windows NT Registry.</p> <p>A Component Explorer library <b>must be registered</b> before the Component Explorer can use it.</p>	
2	<p>Right-click the icon labeled New Library, then select <b>Properties</b>.</p> <p>Result: a blank <b>Library Properties</b> dialog box opens.</p>
3	<p>Enter a unique <b>Name</b> and <b>Description</b> for your new library. In this example, we have entered <b>AC_Student</b> for the name and a poor description (we're sure you can do a much better job!).</p> <p>If you are creating a library with the same name as a library already in your list of component libraries, you can change the <b>Version</b> number and the Library Editor will accept it as a new and different library.</p> <p>Click the <b>OK</b> button when finished.</p> 

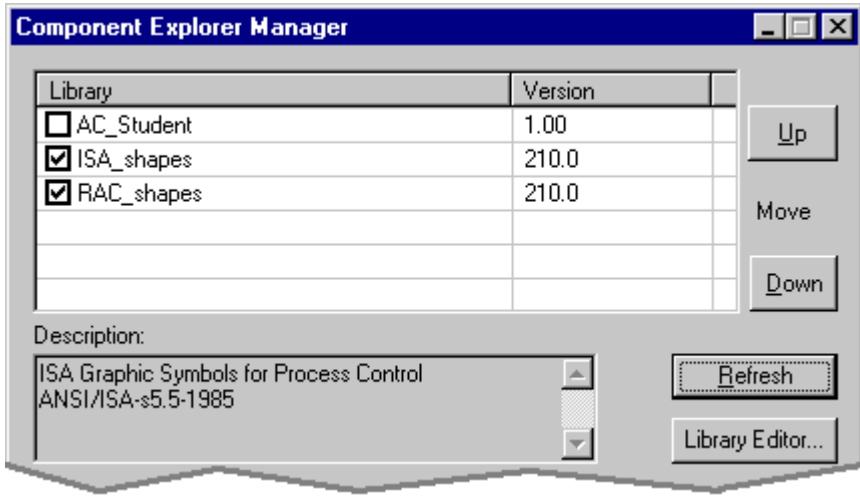
Step	Action
4	<p>Select <b>File&gt;Save As</b>, then browse to save your new library in your student folder. Be sure you give it the <b>same name</b> as you entered in the Properties dialog box.</p> <p>Result: The Library Editor title bar has replaced "Untitled" with the "AC_Student.cel" name</p>  <p><b>THIS IS IMPORTANT</b>—A library can't be registered <i>until it is saved!</i></p>

### Add Embedded Display Components to your library

You will now add a couple of embedded displays to your library.

Step	Action
1	<p>In the <b>right window</b>, right-click on the <b>AC_Student</b> library icon then select <b>New Component</b>.</p> <p>Result: An Open dialog box is displayed.</p>
2	<p>Use the dialog box to find and select the <b>Test1.pct</b> component you saved in your student folder. Click the <b>Open</b> button on the dialog box.</p> <p>Result: the <b>Test1</b> component is added to your <b>AC_Student</b> library.</p>
3	<p>In the <b>Registered Libraries</b> window, open a library, then open one of its sub-folders.</p> <p>Select one of the components in the sub-folder (3d_blade in this example) and copy it to your clipboard. (Tip: You can copy/paste from the Edit menu, the key commands, or the right-click pop-up menu.)</p> <p>Go to the right window, select your <b>AC_Student</b> library and paste the component.</p> <p>Result: The registered library component is also added to your new library.</p> 

Step	Action
4	<p data-bbox="404 264 1024 296">Right-click the <b>AC_Student</b> library and select <b>Registered</b>.</p>  <p data-bbox="404 856 1317 888">Result: AC_Student is registered so it is shown in the left window of the Library Editor.</p> <p data-bbox="404 903 1385 959">Also, if you right-click on AC_Student in the right window, you will find <b>Registered</b> has a checkmark indicating it is registered now. <b>Don't select anything from the menu this time!</b></p> <p data-bbox="404 976 1360 1033">Notice the Component Explorer Manager still doesn't show AC_Student registered! Hum? Well, let's continue to the next step!</p>  <p data-bbox="404 1539 1373 1596">Note: If you did not Save the Library in an earlier step, a Warning dialog box reminds you to perform the step now.</p>  <p data-bbox="404 1831 1162 1862">Click <b>Yes</b>. The computer continues on to save the library and register it.</p>

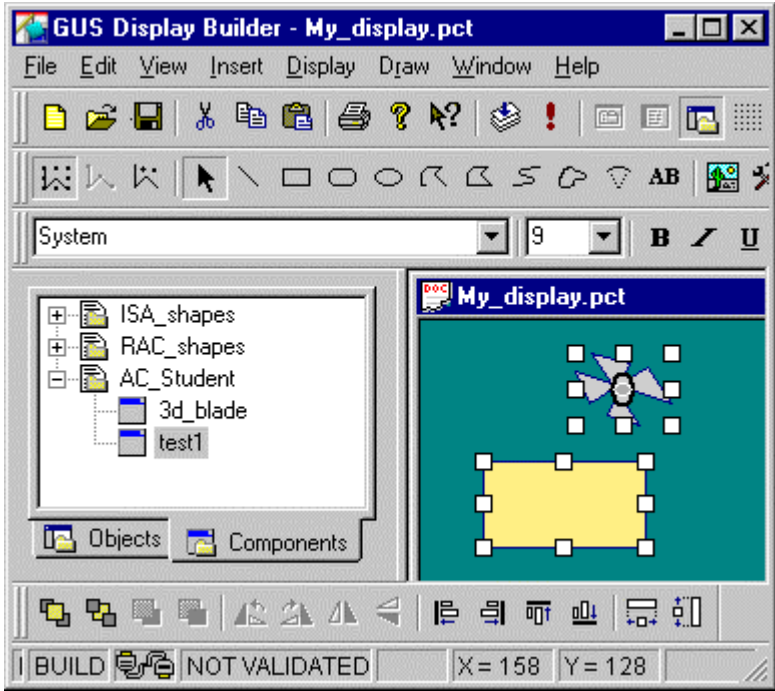
Step	Action
5	<p>Click the <b>Refresh</b> button on the <b>Component Explorer Manager</b>.</p> <p>Result: The <b>AC_Student</b> library now appears in the <b>Component Explorer Manager</b> window, indicating that it has been registered. Notice it <b>does not have a checkmark</b> and it does not appear in the <b>Display Builder's Component Explorer</b>.</p> 
6	<p>On the Component Explorer Manager, click the <b>checkmark</b> beside <b>AC_Student</b>.</p> <p>Result: AC_Student is added to your Display Builder's <b>Component Explorer</b>.</p>

### Using your own Library

Now, you will use your new AC\_Library to add components to a display. This process is similar to the one you used before with the pre-built shape library.

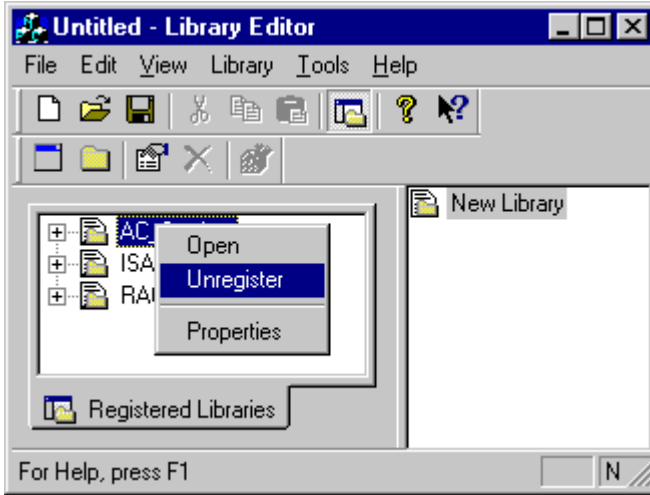
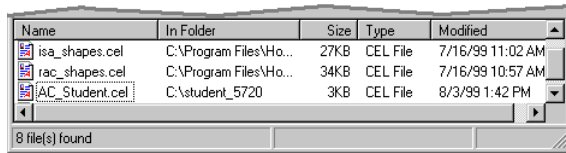
Step	Action
1	If you haven't already done so, close the Test1 display you built previously in Display Builder and select a new, blank display from the File menu.
2	<p>In Display Builder's Component Explorer, open the <b>AC_Student</b> library by clicking the [+] sign.</p> <p>Result: The components available to this Display Builder are displayed.</p>
3	<p>In Display Builder's Component Explorer, right-click the component you took from the pre-built shapes library and select the <b>Insert</b> command.</p> <p>Result: A warning message "The embedded picture has no parameters." is displayed.</p>
4	Click OK. Result: Your cursor changes to crosshairs when passed over the display.
5	<p>While your cursor is over the display, click-and-release the mouse button.</p> <p>Result: The embedded display is inserted into the GUS display.</p>
6	In Display Builder's Component Explorer, right-click the "Test1" component built and select the <b>Insert</b> command.
7	Result: Your cursor changes to crosshairs when passed over the display.



Step	Action
8	<p>While your cursor is over the display, click-and-release the mouse button.</p> <p>Result: The "Test1" embedded display is also inserted into the GUS display.</p> 
9	<p>Close the Library Editor by clicking the "X" in the upper right corner.</p> <p>Result: The Library Editor has closed.</p>

## Removing and Restoring your Library

Although a library is unregistered, it isn't lost—it still exists wherever you put it when it was created. This practice shows you how to remove your library, then get it back again.

Step	Action
1	Click the <b>Library Editor</b> button in the <b>Component Explorer Manager</b> to open the Library Editor.  Result: The <b>Registered Libraries</b> window shows your <b>AC_Student</b> library is still registered.
2	Right-click on the <b>AC_Student</b> icon and select <b>Unregister</b> from the pop-up menu.   Result: AC_Student is removed from the Library Editor.
3	Observe the <b>Component Explorer Manager</b> and notice AC_Student is still listed. Observe your Display Builder <b>Component Explorer</b> and notice AC_Student is still shown.  Now, click the <b>Refresh</b> button on the Component Explorer Manager.  Result: AC_Student is removed from the <b>Component Explorer Manager</b> and the Display Builder's <b>Component Explorer</b> . It was really removed when you first unregistered it in the Library Editor but you had to "refresh" to see it was gone.  Your wonderful library is <b>GONE, GONE, GONE!!!</b>
4	But wait! Let's use the NT Find command. We'll search for *.cel.  There it is! It's still in the Student folder.  
5	From the Library Editor <b>File</b> menu, select <b>Open</b> .  Result: An Open dialog box is displayed.
6	Browse to find the <b>AC_Student.cel</b> file in your Student folder and <b>select</b> it.
7	Click <b>Open</b> .  Result: The dialog box closes and an AC_Student icon is placed in the right window.  Register your AC_Student library before proceeding to the next topic.

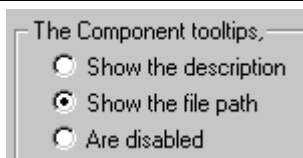

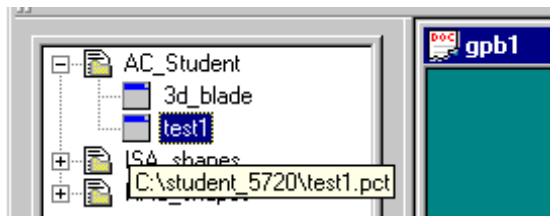
Step	Action
8	Click the <b>Refresh</b> button so that the AC_Student Library appears in the Component Explorer Manager.
9	From the Component Explorer Manager, click the checkmark beside AC_Student. Result: AC_Student appears in the Display Builder's Component Explorer.

## Managing Libraries and Components

Knowledge of how the Library Editor manages libraries and their components is essential to its complete understanding. We will try to acquaint you with this short practice.

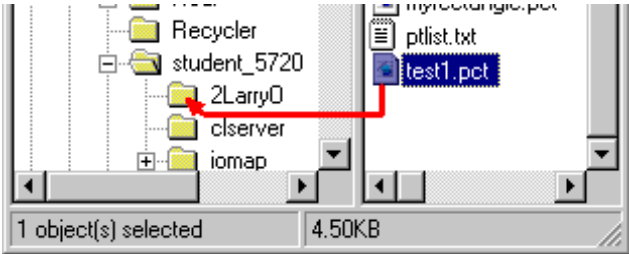
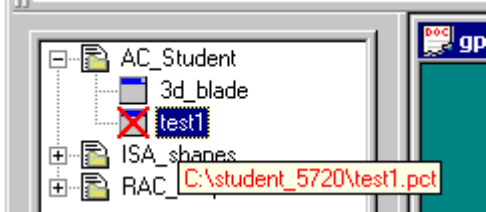
### Where do Library Components reside?

Let's take a short look at where library components actually reside.

Step	Action
1	<p>In the <b>Component Explorer Manager</b> make sure your <b>Component Tooltips</b> are set to "Show the file path."</p> <p>Note: Did you remember to select the <b>Refresh</b> button so that your AC_Student Library shows up, once again, in the Display Builder Component Explorer window?</p> 
2	In your Display Builder <b>Component Explorer</b> , open your AC_Student library.
3	<p>Point your cursor to the component you got from the shape library (3d_blade in our example) and notice its pathname.</p>  <p>Result: Your library <b>doesn't contain the actual library component</b>. Even though you "copied" and "pasted" that icon, it is still just a "pointer" to the real component residing in Honeywell's RAC library.</p> <p>In Windows terminology, the icon represents a "Shortcut" to the actual ".pct" file.</p>
4	<p>Now check the icon representing the component you made (Test1.pct in our example).</p> <p>Result: Since only one file exists, it's no surprise to find it in the Student folder where you put it.</p> 
5	<p>In the <b>Library Editor</b>, right-click on the library component you created, then select <b>Properties</b>.</p> <p>Result: The Properties dialog box opens displaying the pathname as you saw it above.</p>

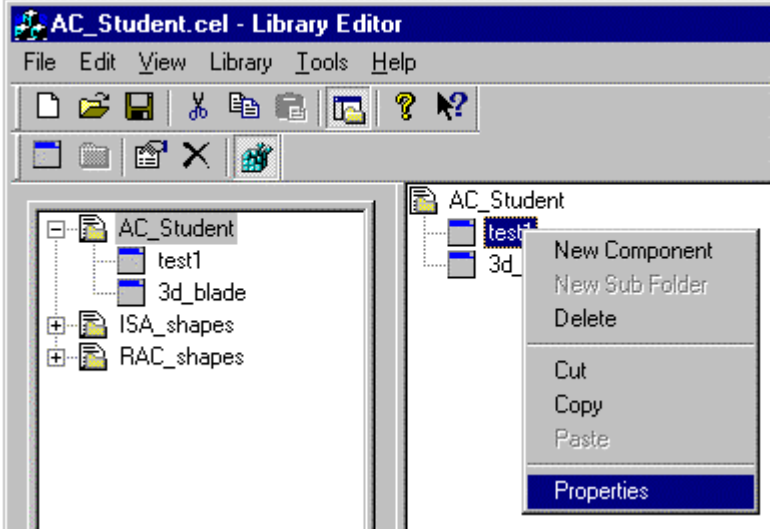
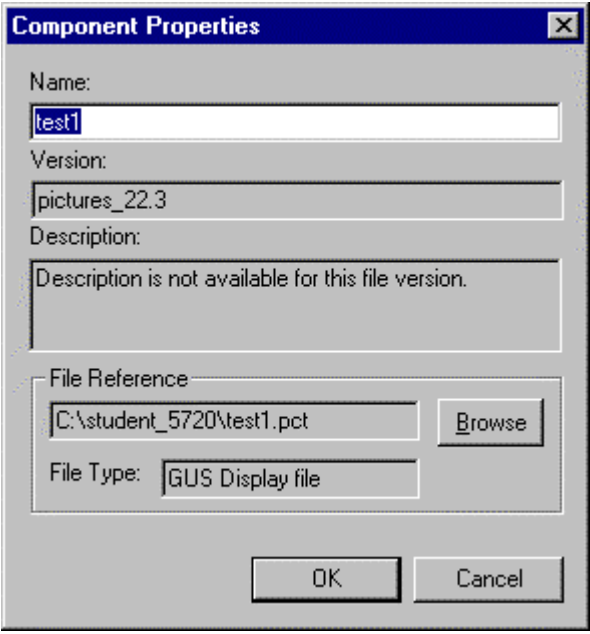
## What happens when a Component is Moved?

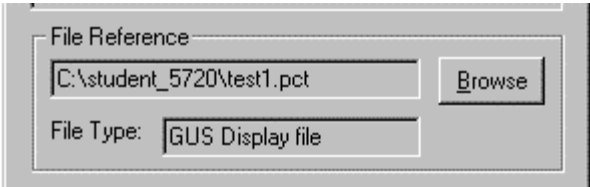
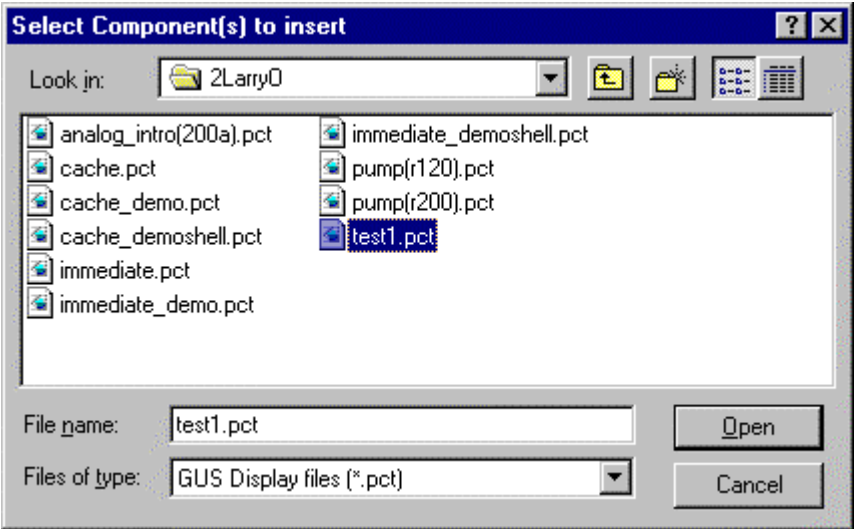
Now let's see what happens when a component is moved.

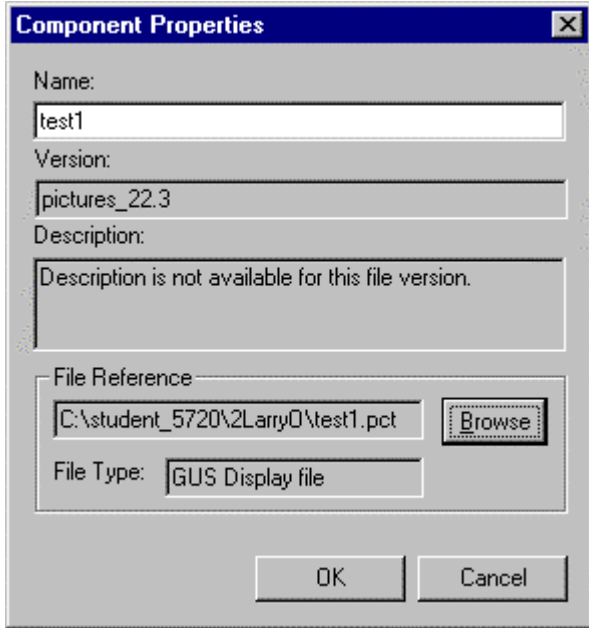
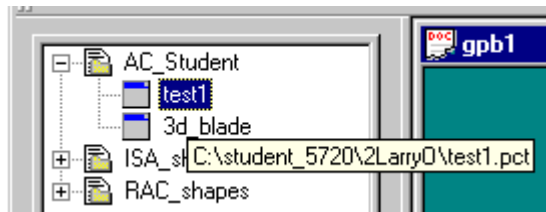
Step	Action
1	<p>Use <b>Windows Explorer</b> to move the component you built to a different folder.</p> <p>For lab convenience, you may wish to move the file to your desktop.</p> <p>In this example, we move the <b>Test1.pct</b> file from the opened <b>student_5720</b> folder to another folder that is inside your student folder.</p> 
2	<p>In the <b>Component Explorer Manager</b>, click the <b>Refresh</b> button.</p> <p>Result: Nothing appears to have changed, but <b>we know the component is moved!</b></p>
3	<p>In the Display Builder <b>Component Explorer</b>, right-click on the component you built and select <b>Insert</b> in an attempt to insert the component.</p> <p>Result: <b>WHOA!!</b> Now a red "X" appears over the component icon indicating it doesn't exist.</p> <p>Also notice the tooltips for the icon shows the incorrect pathname <b>in red</b>.</p> <p>Furthermore, note the <b>Insert</b> command has turned to gray so you can't use it.</p> 
4	<p>Now check the <b>Library Editor</b> to see if your component has changed.</p> <p>Result: There is <b>NO</b> red "X" across the missing component.</p> <p>The Properties dialog box <b>still thinks</b> the component is in the student folder.</p>

**How can we use the Moved Component?**

Now let's see how to get the component back into the library.

Step	Action
1	<p>From the <b>Library Editor</b>, right click on test1.pct then select <b>Properties</b>.</p>  <p>The screenshot shows the 'AC_Student.cel - Library Editor' window. The left pane displays a tree view with 'AC_Student' as the root, containing 'test1', '3d_blade', 'ISA_shapes', and 'RAC_shapes'. The right pane shows a detailed view of the 'test1' component. A context menu is open over the 'test1' component, with options: 'New Component', 'New Sub Folder', 'Delete', 'Cut', 'Copy', 'Paste', and 'Properties' (which is highlighted in blue).</p> <p>Result: The <b>Component Properties</b> dialog appears.</p>  <p>The screenshot shows the 'Component Properties' dialog box. It has the following fields: 'Name' (test1), 'Version' (pictures_22.3), and 'Description' (Description is not available for this file version.). Below these is the 'File Reference' section with a text box containing 'C:\student_5720\test1.pct' and a 'Browse' button. The 'File Type' is set to 'GUS Display file'. At the bottom are 'OK' and 'Cancel' buttons.</p>

Step	Action
2	<p>Note that the File Reference port in the <b>Component Properties</b> dialog shows your file's previous pathname, not the current pathname.</p> 
3	<p>Select the Browse button from the <b>Component Properties</b> dialog and locate the folder where your test1.pct currently resides.</p> <p>Result: A <b>Select Component(s) to insert</b> dialog appears.</p> 

Step	Action
4	<p>Select the test1.pct file the click <b>Open</b> from the dialog.</p> <p>Result: The <b>Component Properties</b> dialog appears with an updated reference to your pct file's new location.</p> 
5	From the <b>Library Editor</b> , save your AC_Student Library so that the test1.pct file's pathname reference is updated.
6	From the <b>Component Explorer Manager</b> dialog, click <b>Refresh</b> to provide an updated pathname reference.
7	Place a checkmark next to the AC_Student Library so that the library appears in the Display Builder's Component Explorer.
8	<p>From the Display Builder, insert the test1.pct into a display.</p> <p>Result: The test1.pct display successfully inserts into a GUS Display.</p>
9	<p>Now check the icon representing the component you made (Test1.pct in our example).</p> <p>Result: The component's pathname has changed to the correct path.</p> 

Why did we go through all that moving and changing pathnames?

- It is not readily apparent when you do a “copy-and-paste” in the Library Editor, that you are not copying the actual component, but simply inserting “shortcuts” (or “pointers”) to the component.



- It's always best to have a "central area" (maybe on a server) where Component Libraries are kept. "Shortcuts" are a good way of assuring that all of the library's users have access to exactly the same components.
- When you must copy a library of components from a server to a "stand alone" GUS, remember it can be done, but the process may involve more work than expected.

*This completes the Lab Exercise.*

**LAST PAGE**