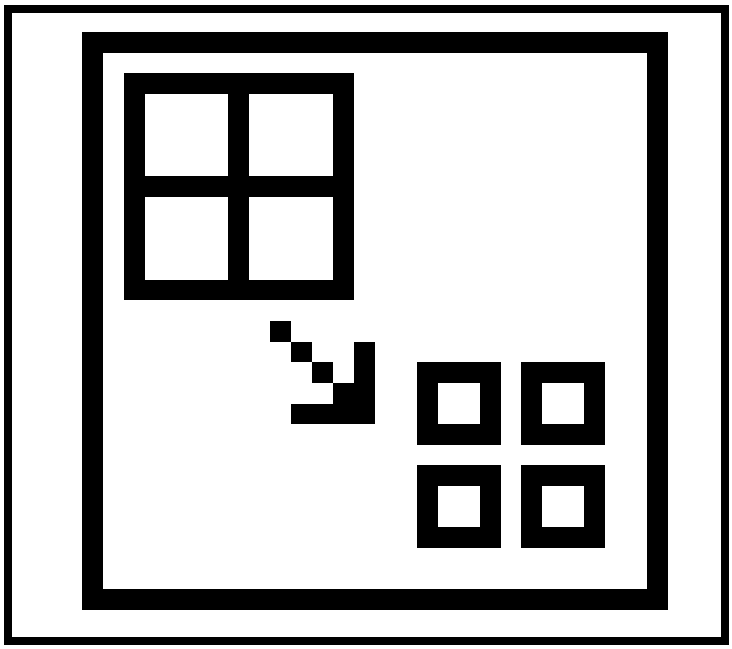
LESSON 3a

Adding an Icon to Toolbar



Objectives:

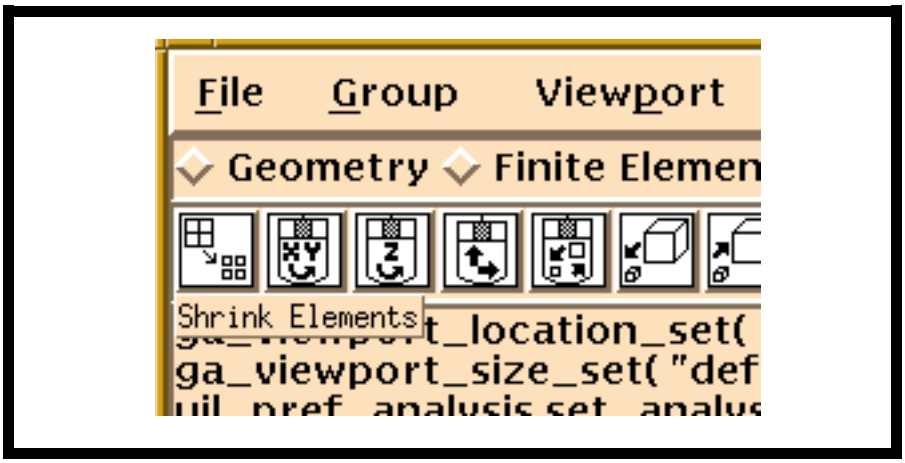
- Write a PCL Class to shrink Finite Elements.
- Create a shrink icon.
- Add the icon to the Toolbar menu.

Adding an Icon to the Toolbar

Exercise Description:

In this exercise you will first create a PCL Class which contains a PCL Built-in function to shrink finite elements. You will then create a icon to invoke the PCL function. By modifying the p3toolbar.def file, you will add the icon to the toolbar menu.

Shown below is the resulting toolbar menu with the new icon.



Suggested Exercise Steps:

- Using Jot (SGI), xedit(SUN), vuepad(HP) or vi, write a PCL class named **p302** which contains a shrink function.The function contains one line:

  ga_display_shrfem_set("general", 0.2)

- Copy the file **$P3_HOME/icons/tbblank.28.icon** to your home directory and rename it **p302_shrink.icon**.

- Using a bitmap editor, edit the icon to make it appear like a shrunk element.

- Copy the file **P3_HOME/p3toolbar.def** into your working

directory.

- Add the following lines to the file at the top
  ***ICON = p302_shrink.icon**
  ***CLASS = p302**
  ***FUNCTION = shrink**
  ***HELP = Shrink Element**
  ***LOAD ITEM**

- Start up PATRAN and type the following at the command line:

  !!compile p302.pcl into p302.plb

- Exit from PATRAN and create a new file called **p3epilog.pcl**.

- Add the following lines to the file:

  !!library p302.plb

- Restart PATRAN.

- Open a database (icon.db). Create a patch and mesh it with 4 elements.

- Select the first icon, the elements should shrink by 20%.

Files:

All the files used in this exercise are listed below. Each listing includes the file, where it originated, its format (text/binary) and summary information as to how it relates to this exercise.

File	Supplied/Created	Format	Description
p302.pcl	Created	text	This text file contains the PCL Class and PCL Built-in function to shrink finite elements. This file is created using a text editor.
p302.plb	Created	binary	This is the compiled version of the p302.pcl file. This file contains the class and function which is executed by MSC/PATRAN when the Icon is depressed.
tbblank.icon	Supplied	text	This is a PATRAN default toolbar template. This file can be copied and edited by any bitmap editor.

p302_shrink.icon	Created	text	This file is the modified toolbar.28.icon file. This icon is created for this exercise. This icon is called by the p3toolbar.def file which associates the icon to an action.
p3toolbar.def	Supplied	text	This is a PATRAN definition file for the Toolbar. This file can be copied by the user to their home or local directory. This is a text file which relates icons, pcl classes and functions. This file is read when p3 is executed.
p3epilog.pcl	Created	text	This is a text file which contains start-up information when MSC/PATRAN is executed. For this exercise, this file will let PATRAN load the p302.plb.
icon.db	Created	binary	This is a sample database which is used to verify the toolbar icon was successfully built.

Exercise Procedure:

Write the PCL class

1. Write a new PCL class called **p302** by creating a file, **p302.pcl** using an on-line editor, either vi, jot, vuepad or xedit and add the following lines to it:

```
CLASS p302
/*
 * Toolbar icon to shrink elements
 * Exercise for the PAT302 class
*/
        FUNCTION shrink
        ga_display_shrfem_set( "general", 0.2 )
        END FUNCTION

END CLASS /* p302 */
```

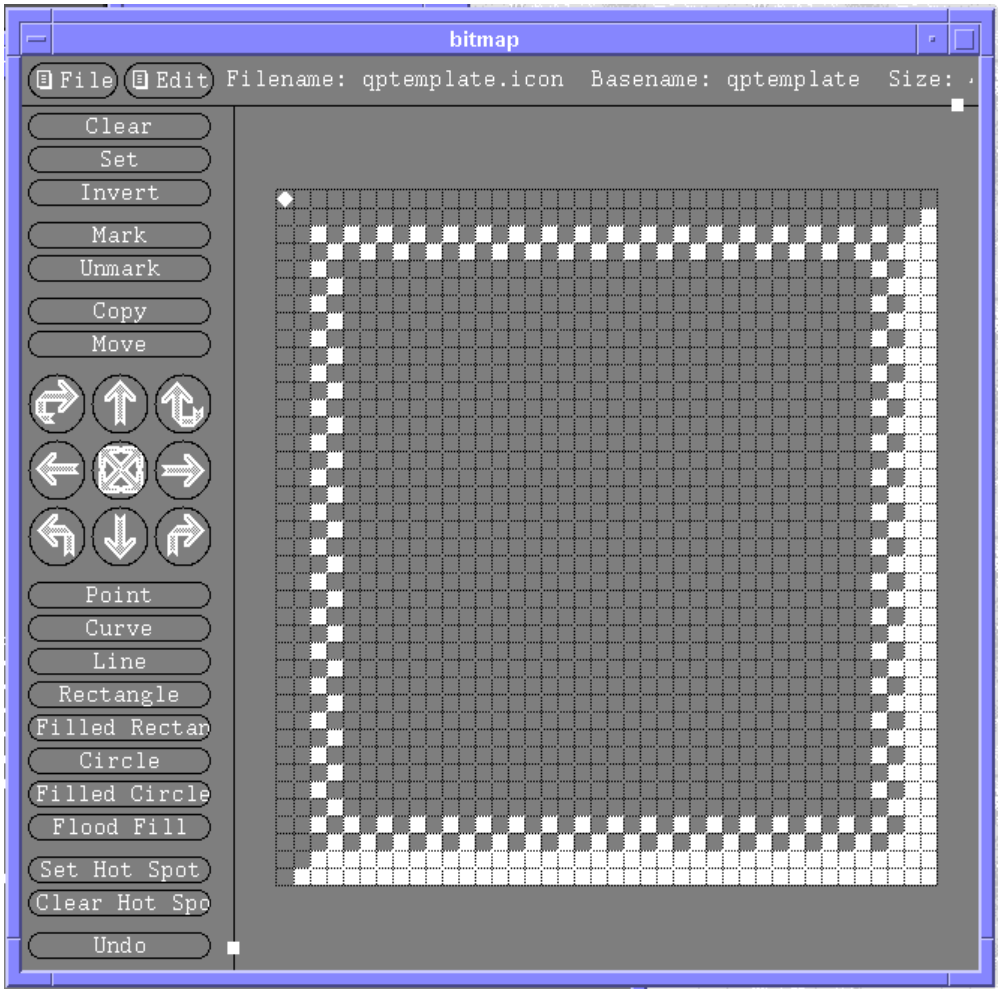
   Save and exit the file.

2. Copy the file from **$P3_HOME/icons/tbblank.28.icon** to your working directory and rename it to **p302_shrink.icon**. There are many icon editors and the specific icon editor you will use for this exercise and they are depend on which system you are working on (see Appendix C for a list of icon editors). To invoke an icon editor, simply type the icon editor

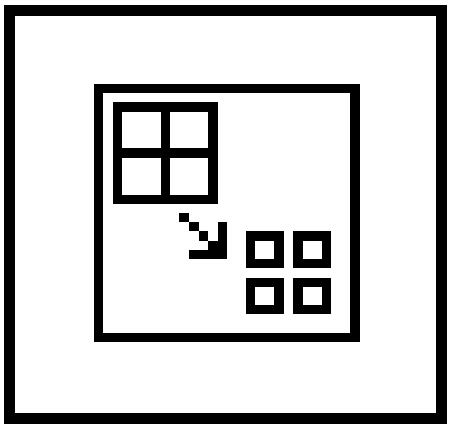
command for your system. For example, if you are using a machine that operates under the Motif Window Manager (mwm), you could invoke the mwm icon editor, bitmap, by typing:

bitmap p302_shrink.icon

at the command line. The following should appear:



Edit the bitmap by using the editing tools on the right bar to produce something like:



Save the file and quit the bitmap editor.

Edit p3toolbar .def

3. Copy the file **$P3_HOME/p3toolbar.def** into the home directory. NOTE: the new Icon will not be recognized by PATRAN version 5.0 if the p3toolbar.def is not located in the users home directory! Change the permission mode of the file from *read_only* to *write-able* using the following command:

   chmod 666 p3toolbar.def

   Insert the following at the top of the file:

   ```
   *ICON          = p302_shrink.icon
   *CLASS         = p302
   *FUNCTION = shrink
   *HELP          = Shrink Element
   *LOAD ITEM
   ```

Using the PCL Compiler

4. Type the following command in the prompt window to start the P3/PCL Compiler:

   p3pclcomp

   After that, type in the command shown below:

   -> !!compile p302.pcl into p302.plb

Exit the P3/PCL compiler.

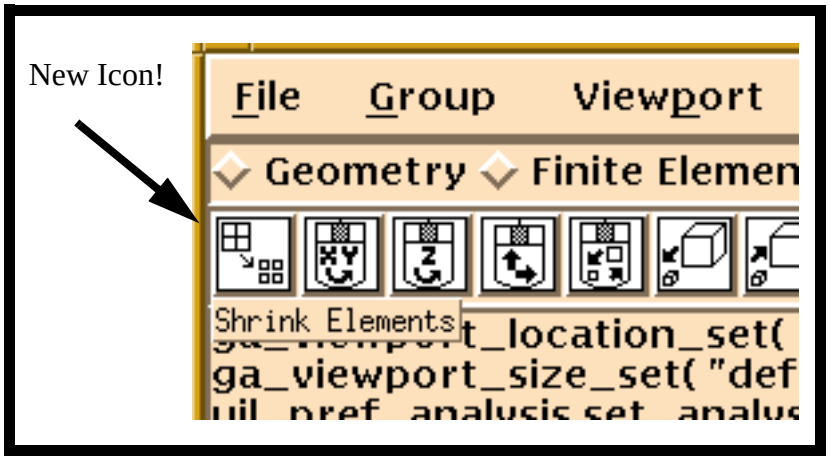
Edit p3epilog.pcl

5. Edit or create a new file, **p3epilog.pcl** in your working directory. Add this line:

   !!library p302.plb

Display the icon bar

6. Start MSC/PATRAN and open a new database **icon.db.** The following should appear:



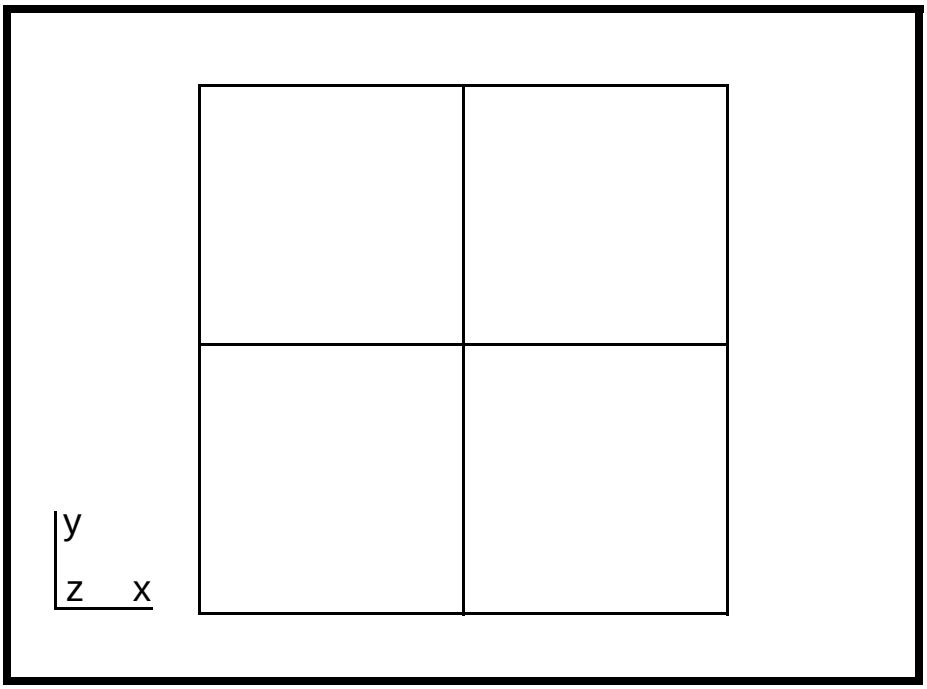
Test the icon

7. Create a square surface by typing **PA** at the command line. Mesh the surface with 4 quad elements.

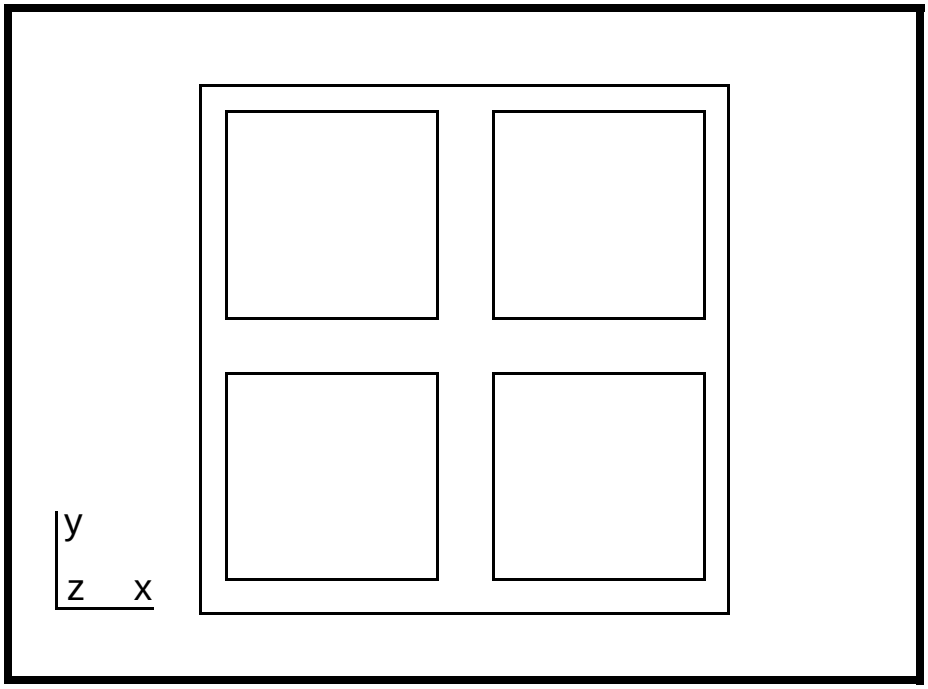
◆ **Finite Elements**

Action:	**Create**
Object:	**Mesh**
Method:	**Surface**
Global Edge Length	**0.5**
Element Topology	**Quad4**
Mesher	**Isomesh**
Surface List	**Surface 1**

Press **Apply** and the following should appear:



Now press the new icon on the toolbar and the finite elements will shrink by 20% as shown below.



Close the database to complete this exercise.