

VisualArts

Danny Y. Wong

COLLABORATORS

	<i>TITLE :</i> VisualArts		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY	Danny Y. Wong	November 28, 2024	

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Chapter 1

VisualArts

1.1 VISUAL ARTS DOCUMENTATIONS

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Fido: Danny Wong@1:134/20

Home 403-274-9348 (6:00pm to 11:59pm MST) Internet: danwong@foul.cuug.ab.ca

1.2 Introduction

Visual Arts Introduction

Visual Arts is an Graphical User Interface designer based on the Gadget Tools library for Workbench 2.0 or higher. Visual Arts takes a different approach in creating professional GUIs that will improve your development time.

Visual Arts has some unique features such as creating primitive graphic drawing objects such as [Circles](#), [Lines](#) and [Rectangles](#) with options of filled and custom patterns; a [Menu Manager](#) to manage all menus, a [List Manager](#) to manage lists, and [Scripts](#) can be attached to

any active object or menu items and many other unique features such as PopUp menus, AREXX interface, custom images, custom images for buttons and palette picker and version 2.0 incorporates **Context Sensitive** layout.

What set Visual Arts apart from other GUI designers is its ease of use and object oriented approach. Any objects created such as **GadTools** or Texts can be manipulated such as sized, change its attributes such color, font or positioning; everything you need to do is all visually on screen, no need to dig through multi-level menus or requesters to perform an operation. Unlimited windows can be opened even with the same layout. With Visual Arts simple user interface, prototyping and screen designs can be constructed in minutes with instant **C source code** and dynamic link to other applications thru AREXX.

1.3 create gadtools

Creating Gadget Tools General Requester(IFF)

To create a gadget tool select the Object tool type from the tool palette and draw the outline of the button. Every object requires a name. Once the object is named select a Gadget Tool from the left or by selecting the 'Edit' button to edit the default gadget tool.

The positioning of any gadget tools or objects can be done using the co-ordinates in the middle or by dragging the object in the layout.

To edit any gadget tools simple double click on the object and the attribute requester will be shown with the gadget tool type selected for this Gadget Tool. GadTool Requester(IFF)

Majority of the Gadget Tools you can assign a keyboard equivalent. To assign a keyboard short cut, check the UnderScore box and enter the key short cut. The key short cut must exist in the Gadget Tool name. For example if button gadget is created and name 'My Button' and assigned a key short cut of 'a', the 'a' key must be in 'My Button' which in this example is not. Note: do not use duplicate assignments such assigning the same key value to two different objects. Uppercase 'A' and lowercase 'a' are not the same key value. If your object is assigned an 'A' you will need to press shift-'a' in order to select or activated the object.

Also each Gadget Tool may have its own font, size and style. If you are going to distribute your application make sure that your users have the same type of fonts or simply include the fonts with your distribution.

MX (Radio), Cycle and ListView Gadgets

When these gadgets are created and when setting up their attributes, a

label name is required for each GadTool except for ListView gadgets this is optional. The label name is taken from the **List Manager** and in order to assign a label you must first create a list using the List Manager.

IMPORTANT: When creating a large application with many sub-programs, you must name each object different and thus they must be unique otherwise the compiler will complain.

1.4 Screen Mode Setup

Screen Mode Setup Screen Setup (IFF)

When starting up Visual Arts you can select any of the available screen modes, changes its size or depth. The reason to include all the available types for your environment is that you may want to design in lo-re, hi-res, super-hires or a custom screen size. Visual Arts will handle any types of screen that your system supports under WB2.0+ including AGA modes.

In start up you can also load a project, Visual Arts will use this project as its default screen. You can not change the screen type in the design mode. Any projects loaded will be defaulted to the screen mode selected in start up.

For example. If you loaded a project that has depth of 2 maximum four colors, and then opened a new project that has a depth of 3, it will not use the new project's screen type.

Visual Arts uses Hires 640 x 200 screens therefore when you open a Lores screen without a virtual screen, all requester will be chopped off because of the size difference.

Note: If you set the screens to a virtual screen, it may crash your system on some of the modes.

1.5 Layout Editor

Layout Editor Editor (IFF)

Objects are created, edited or deleted in layout editor. Objects created in the layout editor may not represent the final actual representation. However, Visual Arts produces a close approximation of each object. Because the actual Intuition GadTools are not used in the layout, it does not give the true WYSIWYG but the final output is very close.

When creating an object, you are required to enter the object's name, this name is for identification for non-GadTool objects, and this name

will be the actual function name for GadTools.

Layout Editor has a Tool Bar (IFF) attached to it and any objects you create, you must use the tool bar. The tool bar consists of:

Key Short Cuts description of all key short cuts

Arrow to manipulate an object

Text to create a text object

Circle to create an unfilled circle object

Filled Circle to create an filled circle object

Rectangle to create unfilled rectangle object

Filled Rectangle to create unfilled rectangle object

Line to create a line object

Object to create a GadTool object

DEL to delete selected objects

UND to undelete deleted objects

LIST to create lists

MENU to create menus

GRID to turn on/off grids

WINDOW to customize your window

Justification to justify objects

1.6 Arrow

Layout Editor : Arrow Tool Bar (IFF)

When the Arrow tool is selected, you can select any objects on the layout by moving the pointer to the object and press the left button mouse. Once an object is selected, four handles are drawn on each corner of the object. To size the object move the pointer to any handle and press and hold the left mouse button and drag the mouse in any direction to size the object. Once satisfied with the result, release the mouse button the object is now deselected.

To move an object, move the pointer to the object and press and hold the left mouse button then drag the object to the desire position and release.

To edit the objects attributes select the object by double clicking the object. This will bring up the object **attribute requester**.

To deselect an selected object move the pointer to a none object and press the left button mouse.

Multiple objects can also be selected by drawing an rectangle box around the all the objects. An object will be selected if it is in the drawn box.

You can delete, copy, cut or move the selected objects.

Moving and Copying Multiple Objects

To select multiple objects hold down the LEFT shift key and start selecting objects by clicking on them. When done release the shift key.

To move multiple objects, select all the objects, now select an object and hold down the left mouse button while the LEFT shift key is still down.

Another way is to draw a rectangle box around all the objects to be selected using the mouse.

To copy multiple objects, select the objects and select the Copy edit menu option. To select all the objects, select the ALL menu item in the Edit menu. You can move, delete and copy with the ALL option.

1.7 creating text

Layout Editor : Text Tool Bar (IFF)

The text tool lets you create text objects on the layout. To create a text object, select the 'A' object next the the Arrow tool. Once text tool is selected, move the pointer to the desired position on the layout and press the left mouse button; this will bring the up the text attribute requester. The text attribute requester require that you enter the objects name, the text to be printed on the layout, optional font name, text color, text background color and text box. The text box draws a box around the text. To size the box, select the object and size the handle.

1.8 creating circles

Layout Editor : Circles Tool Bar (IFF)

By selecting this tool it will create a filled or unfilled circle on the layout with optional pattern. To create a circle object, select the either circle tool and position the pointer on the layout and press and hold the left mouse button and drag the pointer to size the object to a desire size. Once satisfied release the mouse button, this will bring up the **general object attribute requester**.

The circle object may have the following attributes set. Object name, border color, fill color, line width and pattern.

The position box on the middle shows the actual position of the object on the layout, the object position may be changed by editing the objects co-ordinates. Selecting the OK button will accept the object and selecting the CANCEL button will abort the creation if this is a new object.

1.9 creating rectangles

Layout Editor : Rectangles Tool Bar (IFF)

By selecting this tool it will create a filled or unfilled rectangle on the layout with optional pattern. To create a rectangle object, select the either rectangle tool and position the pointer on the layout and press and hold the left mouse button and drag the pointer to size the object to a desire size. Once satisfied release the mouse button, this will bring up the **general object attribute requester**.

The rectangle object may have the following attributes set. Object name, border color, fill color, line width and pattern.

The position box on the middle shows the actual position of the object on the layout, the object position may be changed by editing the objects co-ordinates. Selecting the OK button will accept the object and selecting the CANCEL button will abort the creation if this is a new object.

1.10 creating line

Layout Editor : Line Tool Bar (IFF)

By selecting this tool it will create a line object on the layout. To create a line object, select the line tool and position the pointer on the layout and press and hold the left mouse button and drag the pointer to size the object to a desire size. Once satisfied release the mouse button, this will bring up the **general object attribute requester**.

The line object may have the following attributes set. Object name, border color and line width.

The position box on the middle shows the actual position of the object on the layout, the object position may be changed by editing the objects co-ordinates. Selecting the OK button will accept the object and selecting the CANCEL button will abort the creation if this is a new object.

1.11 creating a GadTool object

Button

Check Box

Cycle

Integer/String

ListView

MX

Numeric/Text

Palette

Slider

Scroller

1.12 deleting an object

Layout Editor : Deleting an Object Tool Bar (IFF)

Selecting this tool will delete the selected object. To delete an object move the pointer to the object to be deleted and select it by press the left button mouse. Once the object is selected, select the 'DEL' tool from the tool palette. This will delete the object from the layout. You will not be warn when deleting an object. To undelete the deleted object select the 'UNO' tool from the tool palette. Keyboard short cut is the 'DEL' key next to Help.

1.13 undelete an object

Layout Editor : Undelete an Object Tool Bar (IFF)

Selecting this tool will undelete the deleted object. Undelete will only work if no other operation has been done since the object is deleted such as selecting another object or tool. To undelete an **delete object** select the 'UDO' tool.

1.14 create lists

Layout Editor : List Manager Tool Bar (IFF)

One of the unique feature in Visual Arts is the List Manager and the **Menu Manager**. List (IFF)The List Manager enables you to create unlimited number of lists and list items.

To create a list select the menu tool below the 'DEL' tool this will bring up the list manager window. The left side of window shows all the list name that has been created for this project, and on right side it shows the list items that associated with the each list name.

To enter a new list name, type in the list name and press the TAB key or by selecting the 'New' button this will erase the current input buffer.

Once a new list name has been entered you can now add new items to the list by typing in the item on the right labeled 'List Items'.

To delete an existing list name, select the list name from the 'List Names' listview and select the 'Del' button. To delete a list item, select the item from the 'List Items' listview and select the 'Delete' button on the List Items side. To add new items to an existing list name, simply select the list name and starting entering the new list items.

The List Manager includes sorting in Adscending and Descending features.

To sort the selected List to Ascending select 'Sort A' and to sort the List to Descending select 'Sort D'. If you prefer to custom pick the ordering of the list, you can select the 'Pick' button. This will put you into the Pick List requester.

Custom Ordering Pick (IFF)

In the Pick List requester, the left side contains all the list items, and on the right is the ordering. To reorder the list items, simply select an item from the left and select the '>>' button, this will move the item to the right. To move the item back to the item list, simply select the item from the right and select the '<<' button. When all the items have been reordered, the OK button will be enabled. Select the OK button to accept the ordering or CANCEL to revert any changes.

Note: All the lists and list routines will be generated during source code output.

1.15 create menus

Layout Editor : Menu Manager Tool Bar (IFF)

One of the unique feature in Visual Arts is the Menu Manager and the **List Manager**. Menu Manager (IFF) The Menu Manager enables you to create unlimited number of menu bars. To create a new menu bar select the menu tool next to the List tool this will bring up the Menu Manager. The Menu Manager manages each menu bar separately. To create a new menu bar, select the 'New' button, to delete a menu bar first select an existing menu bar from the menus listview and select the 'Delete' button, to edit an menu bar first select an existing menu bar from the menus listview and select the 'Edit' button, and to exit Menu Manager select the 'Cancel' button or the CloseBox'.

Creating/Editing Menu Bar Menu Bar (IFF)

When editing or creating a new menu bar Menu Manager opens another window. The menu window is logically placed so that the Menu Title are on the left, Menu Item in the middle and Sub Items on the right. Each listview contains the 'New', 'Bar' (except for Menu Title), and 'Delete' buttons and an text entry gadgets. To add a new menu select 'New' from the 'Menu Name' listview and enter the new menu name and press RETURN. This will bring you to the Menu Item listview area. To add a new menu item, enter the new menu item name and press RETURN, this will bring you to the Sub Item listview. To add a new sub item enter the new sub item name and press RETURN. To place a separator bar between Menu Items or Sub Items

select the 'Bar' button.

Each Menu Item and/or Sub Item may contain a short cut key equivalent or check mark. To assign a Menu Item or Sub item a short cut, select the Menu Item or Sub Item name from the listview and select the Keyboard, Checkit, Checked, Disabled or MenuToggle flags. Note while assigning a short cut key, you must press enter after assign the key.

To change the default Topaz 8 font for the window, select the 'Font' button and select a font. Note that it only displays the font name when you select it and doesn't display the size and flags.

To test the menu in real time, double click the right mouse and hold on to the right mouse. This will let you preview the current menu bar.

Scripts for Menu Items

Custom codes can be inserted in for each menu item. Select the menu item and click on the Script button, this will open the editor. Make sure the editor path is setup in the Preference menu.

1.16 creating window

Layout Editor : Window Setup Tool Bar (IFF)

Window Type (IFF) Selecting this option will open the window setup window. Here you specify what type of window you want, window flags, window IDCMPs and window attributes such as window co-ordinates and window title. To select a window type click in the window showing. The default window has a CloseGadget and DepthGadget. Currently there are only 12 types will you can choose from. To change the window flags select the 'Flag' button.

This will let you select custom flags for you window.

To change the IDCMP flags, select the 'IDCMP' flag this will let you select custom IDCMP flags. Note that you must select the IDCMP_VANILLAKEY check box if you want short key cut codes generated for you.

To change the window attributes select the 'Attr' button. WindAttr (IFF)

The left, top, width and height values are taken from the physical size of the layout in design mode. To change the size of the window you can change it here or by sizing and moving the layout in design mode. Also an important point to note is that the right and bottom scroll widths and heights is not included in calculating the size of the window. To get the actual size of the window, size the window right and bottom to the last printable line on the layout.

****Note**** Visual Arts presets the window flags and window IDCMP according to the window type you selected and the type of objects your have created in

the layout.

AppWindow Option WindAttr (IFF)

To make the window an AppWindow, select the AppWindow option. This will enable the window to receive any icons dragged into the window, and at the same time retain its original form.

Multi-Processing Windows WindAttr (IFF)

One of the powerful feature in Visual Arts is the ability to generate codes for multi-processing windows which are independent of other windows when opened. You are no longer stuck performing operations on one window, now with Visual Arts you can enter the world of multi-processing windows. To set up multi-processing windows, select the Multi-Process check box. This will enable your window to do multi-process, is that simple! When you generate the codes, the program will be set up for multi-processing for that window.

In order to make other windows multi-process besides the main program, you will need to make every window a multi-process by selecting the 'Multi-Process' option in the Attr setup. Once this is done, you will also need to give it the Main program project name. This is done when generating the actual codes. The entry name can be any sub-program name but the main project name must be the same as the entry name eg: void main(void).

Code Pref

You must select the ALL option for the Main Program which it creates all the necessary routines for doing multi-processing. For sub-programs do not select the Screen Routines option because its created in the main. You will also need to change the Entry Name for sub programs because you can only have one main(...) function. Entry Name can be any name. You will also need to enter the Main Project name which can found in the main project in the Window setup's WindAttr (Project Name). WindAttr (IFF)

In order for the main program to link to your sub programs, you will need to edit the your main program and add the following line at the beginning of the main program, this is the prototype function name.

```
extern void entry_name(arg1, arg2 ... argn)
```

where

entry_name is the name of the sub program entry point.

arg1..argn is the arguments

for example:

```
extern void SubPrg(void);
```

```
extern int OpenDoc(char *filename);
```

now add the second line just before the main program opens its window in

the main program.

for example:

```
OpenDoc("mydoc.data"); //open the doc
if (!(OpenMain("main window")) //open main program window
....
```

1.17 creating grid

Layout Editor : Set Grid On/Off Tool Bar (IFF)

Grids can be turned on or off anytime in the design mode. This gives the designer precision when placing objects together. You can set the X and Y grid size in the Project menu under Preference menu item.

1.18 Object Justifications

Object Justifications Tool Bar (IFF)

Selected objects can be justified in any of the four orientations. To justify objects, select the objects to be justified and select the justification button on the tool palette. The first selected object is the anchor object. All objects will be justified according to that object. Currently line objects can not be justified, selected line objects will not do anything if justified with grouped objects.

1.19 Layout Editor Short Cuts

In order to simplify getting around and manipulating objects in the layout editor, there are a number of short cuts which will make your editing much more easier.

Action Descriptions

Alt - Double click on an object -hold the Alt key down and double click the left mouse to go directly to the script editor.

Control - Double Click -hold the control key while double click will open the general requester.

MOVING AN OBJECT

Up Arrow -move the selected object one pixel up.

Down Arrow -move the selected object one pixel down.

Left Arrow -move the selected object one pixel left.

Right Arrow -move the selected object one pixel right.

Alt Up Arrow -move the selected object 5 pixels up.

Alt Down Arrow -move the selected object 5 pixels down.

Alt Left Arrow -move the selected object 5 pixels left.

Alt Right Arrow -move the selected object 5 pixels right.

SIZE AN OBJECT

Alt Shift Up Arrow -size the selected object 1 pixel less.

Alt Shift Down Arrow -size the selected object 1 pixel larger.

Alt Shift Left Arrow -size the selected object 1 pixel more in width.

Alt Shift Right Arrow -size the selected object 1 pixel less in width.

BORDER AN OBJECT

Alt 1 -draw a STANDARD border around the rectangle object such rectangle and GadTools.

Alt 2 -draw a BEVEL border around the rectangle object.

Alt 3 -draw a RECESSED border around the rectangle object.

DEL -delete all the selected objects.

1.20 Screen Setup

Screen Setup

To setup your own custom or public screen select Screen from the menu name 'Design'. In screen setup you can choose the public or custom screen, the screen type and the font for the screen. If you opened an screen with depth of 2 or greater Visual Arts does not know of this, and you will need to select the Custom Screen otherwise Visual Arts will assumed its a Workbench screen.

1.21 Visual Arts Preference Setting

Preference (IFF)

The Preference menu option lets you set the path name for the scripts and the editor to be used for editing scripts etc. You must set these settings if you're going to use the scripting feature. Path names must be a full path name eg: dh1:VisualArts/Objects and the editor program does not have to contain a path name as long as the system can find the editor eg: se will work perfectly fine for SAS/C editor. It is recommended that you

use directories and not volumes.

You can also set the X and Y grid size for the layout grids. The interval saving feature is default to save every 15 minutes. If the history is selected, Visual Arts will make backup copies of the project. The way the history works is, suppose your project name is Inventory. Visual Arts will save the next file to be Inventory1, Inventory2 and so on. But the next time you edit Inventory3 for example Visual Arts will not save the next file to be Inventory4 instead Inventory41. Visual Arts always starts with one and keeps incrementing.

Visual Arts searches in the ENVARC: path for VisualArts.prefs. If it finds the .prefs file then it uses it as the preference file. Any saving will be saved in the paths described in the preference setting.

1.22 Object Master

There are times when you want to save an object for use in other projects and that's where Object Master comes in. Any GadTools can be saved as an Visual Arts object or as an Visual Arts Script. The difference between the two is that a Script is codes and can not be loaded into the layout editor but an Object can be loaded into the layout editor.

To save the object select the object to be saved in the layout editor and select one of the menu item option from the Object menu choice. A file requester will be displayed for you to enter a name for the object to be saved. Objects should be saved in one central location since objects can be shared between different projects. Note only the first selected object will be saved, Object Master does not support multiple save objects.

To load an object or script into the current project, select 'Object Master' from the Object menu. Object Master (IFF)

To edit or add a new script select the 'Add/Edit Script' from the Object menu.

When you have a piece of code and wish to share it between different projects, Visual Arts will convert the script into a Visual Arts script object for sharing. Select 'Script -> Object' to convert the script.

When you add a script object to your project, you can view all the scripts by selecting the 'Object List' in the Design menu. This will list all the scripts you have included for this projects. Now you can call these functions in your other functions. Object List(IFF)

When saving as an object, Object Master also saves the script for that object if it exists.

1.23 Scripting

The Scripting (custom code) in Visual Arts lets you insert custom codes into any active object such as GadTools and menu items. Script (IFF)

To enter a script for an object, double click on the object to open the general requester, or select 'Edit' on GadTools Type and select the 'Script' button; key short cut is Alt - double click on the object will bring you directly into the script editor. **Short Cuts** If the script has not been attached to the object, Visual Arts will create a stub function:

for all GadTools - Obj meaning GadTools object

```
int mybuttonObj(struct VAobject VAObject)
```

```
{
return(1);
}
```

for Menu items - MenuObj meaning Menu object

```
int QuitMenuObj(struct VAobject VAObject)
```

```
{
return(1);
}
```

VAObject structure is defined as:

```
struct VAobject
```

```
{
struct Window *va_Window; //current window
struct Gadget *va_Gadget; //gadget that the user have selected
struct IntuiMessage *va_IntuiMsg; //IntuiMessage
APTR va_UserData; //user data for functions etc..
ULONG va_Flags; //user flags READ/WRITE
}
```

Visual Arts will fill VAObject structure for GadTools objects as follows:

```
VAObject.va_Window = project window
```

```
VAObject.va_Gadget = current gadget selected
```

```
VAObject.va_IntuiMsg = msg - Intuition message
```

```
VAObject.va_UserData = 0 (user definable)
```

```
VAObject.va_Flags = 0 (user definable)
```

Visual Arts will fill VAObject structure for Menu objects as follows:

```
VAObject.va_Window = project window
```

```
VAObject.va_Gadget = NULL
```

```
VAObject.va_IntuiMsg = msg - Intuition message
```

VAObject.va_UserData = 0 (user definable)

VAObject.va_Flags = 0 (user definable)

for menu item functions DO NOT read or write the VAObject.va_Gadget field because it contains NULL values.

example function that use VAObject structure

```
int LoadObj(struct VAObject VAObject) //button object
{
char filename[80];
int rc;
//open file requester and get a file
rc = GetFontName(FALSE, VAObject.va_Window, "Load File", "ram:",
"", (char *)&filename);
if (rc) //got a filename so print it using a TEXT GadTool
{
SetGadgetAttrs(TestGadgets[ID_filename], VAObject.va_Window,
NULL, GTTX_Text, filename, TAG_END);
LoadFile(filename);
//modify VAObject UserData to include a function for displaying
//the text file
VAObject.va_UserData=(APTR)DisplayTextFile;
DisplayTxtObj(VAObject); //call other objects
}
return(1);
}
```

When an Intuition event occurs such as clicking on any GadTools or selecting a menu item, Visual Arts will fill this structure and pass it to the script for this object. In the function, you can programmatically handle the event. In turn, you could pass VAObject structure to another object script and have it execute its function.

VAObject structure can be READ or WRITE by your program with caution.

All scripts must contain atleast one function, and also must return a int value. You can start to insert the codes inside the function. A script may contain more than one function, declare variables or whatever a program maybe contain, think of scripts as an external program.

If your choice of editor supports opening of multiple files, you should see the script on the top (SAS/C SE) and on the bottom it shows the actual codes of the main program. This file is for references only do not edit, it's only for you to reference variables. The second part of the file contains the header include files, this is where all the stub functions for

GadTools and menu items go. As you will see, all the variables are declared extern so that in your script you don't need to redeclare the variables.

Visual Arts will generate three files when you output to c source codes, the first as mentioned is the main program, and the second one is the include header files containing all the stub functions and the third file contains all the scripts include for the project.

There are no limitations in scripts, because scripts are functions or extern program when Visual Arts merge the scripts with the main program.

When you are done editing the script, save the script and DO NOT rename the script. You will also need to quit the reference file too since you are editing two files. The reference file will not be saved. Use the editor's option to save and quit.

IMPORTANT: Visual Arts uses the objects name as a reference to the actual script stored on the defined path, if the object name is modified, Visual Arts will rename the script to the new name but the script is left unmodified.

Main Script

The 'main() script' menu item option under menu 'Design' lets you add any global variables to your project. This is useful if you are using Visual Arts for complete development environment. Variables declared in this file can be any valid syntax such as declaring arrays, integers, etc.. This file will be appended to the main program, you can reference this file anytime by editing the script.

Script Initialization

Another feature of Visual Arts is the ability to initialize your declared variables in the Main script. This is very useful if you need to assign a value to a variable but can't be done during declaring but only at runtime. This script works in conjunction with the Main script. For example, if you have defined the following in the main script.

main script:

```
char filename[40];
```

init script:

```
strcpy(filename, "my.datafile");
```

1.24 Generation C Source Codes

Design Mode : C Source Code Code Pref

AppWindow Example Program

****Note:** to generate Context Sensitive application, the 'Sensitive On' menu

item must be checked in 'Context' menu.

Visual Arts currently only supports for C source codes. Future version may include other languages. Generated source codes can be compiled without adding a single line of code, of course you wouldn't be able to doing anything except for playing with GadTools.

Visual Arts lets the programmer choose what part of the codes to generate. There are times when you only need to generate part of the codes such as modifying some gadgets and you don't need to generate all of the codes just because you have modified the gadgets. You can then replace the older gadget definitions with the new codes. Code Pref (IFF)

The preference settings are:

1. Screen. This will generate codes opening and closing public or custom screens.
2. Function. This will generate function codes that's internal to Visual Arts such as drawing primitive shapes, list routines etc. You probably would only generate this once and reuse the codes.
3. Window. This will generate codes for opening and closing window. It will also generate all window variables such as its co-ordinates.
4. Handler. This will generate codes for the IDCMP handler to events.
5. Intuition. This will generate codes for all GadTools, primitive drawings, texts, menus, fonts and lists.
6. All. This will generate a complete application.

There is also an option to name the entry function. Its default is 'int main(int argv, char *argv[])'. By changing the entry function name, you can create a complete sub program which the main can call. The entry name can not contain any spaces and it must be valid in syntax.

For example:

My function --> incorrect

```
void My_function(void)
```

or

```
int Myfunction(short x, short y) --> correct
```

the function can also return values and accept arguments such as above.

Note the entry function name does not contain a semi-colon.

Visual Arts generates four separate files. The first file contains the '.c' extension and second file contains the '.h' extension, and the third file contains '.script' all the scripts and the fourth file contains all the images and color map data. For example:

Calcuator.c -the main file

Calcuator.h -function file

Calcuator.scripts -any included scripts (may not contain any codes)

Calcuator.images -images and colormaps (may not contain any codes)

The main file contains all the intuition codes such as gadget, menu, text, and other definitions, window and screen opening and closing and the event handler. The header file contains all the functions that supports the main program such drawing primitive shapes, text, list creation gadget and menu functions when the user selects a gadget or a menu item.

Things you should know

1. Each Gadget Tools contains a function. Each time the user clicks on a gadget tool it calls the function name. Do your coding in the function.

The function name usually starts with the object name that you defined in the layout editor. eg: mybuttonObj

The menu and gadget tools functions are in the header file. DO NOT have objects with the same name, this is thru out your projects.

2. Menus also has the same characteristics as gadget tools in 1. Each time a menu item or sub item is selected, the function will get executed.

3. Multiple font names with the same size but different styles are supported in this release.

Built-in Function (these functions are in VisualArts.lib link library)

1. DrawBox - this function draws a box in the specified window with the specified dimension, color and pattern type.

```
void DrawBox(struct Window *Wind, int Left, int Top, int Wid,
int Hi, UBYTE APen, short Pattern );
```

APen - any valid pen color for this screen

Pattern - line pattern number support by Visual Arts (0-5)

2. DrawFBox - this function draws a filled box in the specified window with the specified dimension, color, pattern type, outline and filled.

```
void DrawFBox(struct Window *Wind, int Left, int Top, int Wid, int Hi,
UBYTE APen, short Pattern, UBYTE Outline, short Fill );
```

APen - any valid pen color for this screen

Pattern - line pattern number support by Visual Arts (0-5)

Outline - any valid pen color for this screen

Fill - filled pattern number support by Visual Arts (0-47)

3. SetRPortFill - This function set the rast port to a specified fill type.

```
void SetRPortFill(struct Window *Wind, short Type);
```

Type - filled pattern number support by Visual Arts (0-47)

4. ButtonSelected - This function emulates the user as if the button or cylce button has been selected. This only hilights the gadget but it

won't cycle to the next item if the gadget selected was a Cycle.

```
void ButtonSelected(struct Window *wind, struct Gadget *gad);
```

wind - current open window

gad - gadget to select Button or Cycle gadgets

5. GetNewList - This function allocated memory for a new list and returns its address. Returns NULL if can not allocate.

```
struct List *GetNewList(void)
```

Example: mylist = GetNewList();

6. AddNewNode - This function adds a new name node to specified list.

Returns 1 if no memory and 0 for name added.

```
int AddNewNode(struct List *list, char name[255]);
```

Example: rc = AddNewNode(mylist, "Amiga Computers");

7. DeleteNode - This function deletes a name node from a specified list.

Returns 1 if name node not found and 0 for deleted.

```
int DeleteNode(struct List *list, char name[255])
```

Example: rc = DeleteNode(mylist, "Ibm");

8. FindNodeName - This function search a list for a specific name. Returns NULL if not found.

```
struct NameNode *FindNodeName(struct List *list, char name[255]);
```

Example:

```
struct NameNode *mynode;
```

```
mynode = FindNodeName(mylist, "Amiga");
```

```
if (!mynode)
```

```
printf("can't find name\n");
```

9. FreeList - This function frees all the name nodes created using AddNewNode for a specified list name.

```
void FreeList(struct List *list);
```

Example: FreeList(mylist);

IMPORTANT NOTE:

Since Visual Arts lets you output part of the project, it is important to know that each project shares the same built-in routines as described above. When generating only parts of the project, there may be duplicate routines generated such in the project that generates ALL option. When linking your objects you may encounter duplicate functions. To correct this problem, change or delete the duplicate codes in all your projects except your main project. eg: suppose that your main project generates ALL and your other projects only need to generate the Window and Intuition parts. And suppose it does some primitive drawings such as a Circle. Visual Arts may generate the drawing functions that your main program already have.

1.25 General Attribute Requester

General Attribute Requester General Requester (IFF)

The General Object Attribute Requester lets you customize each object such as colors, line width, line color etc. Each object's attribute is different from others. For example, object Rectangle is different from object Circle in that the object Rectangle can be a Bevel or Recessed box. The Attribute Requester is divided into four parts. The top part deals with the objects color and pattern, the middle deals with the positioning of the object on the layout, the bottom deals with only Rectangle objects, a Rectangle object can be any of the three types. The right deals with GadTools only.

1.26 Future Enhancements

Future Enhancements

1. Structure builder for designing your data models. (Designing)
2. AmigaGuide support.
3. Browser support (Help Files)
4. Code generator for other languages

1.27 Demos

Demos

There are some demos program included in the archive. They have not been modified at all except for the AppWin demo which I have added some custom codes to it. The demos are no mean complete, they're just to show some of features in Visual Arts. You can load and generate the source codes your self.

1.28 Bugs! Bugs! and more Bugs! This really Bugs Me!

Bugs! Bugs! and more Bugs! This really Bugs Me!

An application is not complete without any bugs right? :-) There are a few known bugs if you have Enforcer (Great Tool) installed.

1. Menu Manager - When deleting a Menu Title, Visual Arts doesn't seem to free up or try to free other allocated memory. This only happens once a while and it doesn't GURU or crash your system. I'm trying very hard to find this bug but this is a very smart bug indeed.

2. The very first thing you create is a text object in the design mode, sometimes it doesn't get stored and thus when you try to manipulate it the object wouldn't get selected. Can't really explain, it shouldn't happen.
 3. This bug is related to the bug number one. When quitting Visual Arts, the allocated memory of the Menu Manager some how got corrupted and when freeing it, it gives you hits in Enforcer.
 4. When Closing a window or quitting and you selected CANCEL, it sometimes won't quit! Go figure. The work around when you can't quit is to resize or drag a window and then it will quit. What stupid coding! :-(
comment: This should be fixed in V0.40.
 5. There seems to be a problem when making lo-res screens larger than the default 320x200 or interlaced with auto-scrolling. If you set these settings other than the defaults it may crash!!! Looking into the problem. Version: V0.40
 6. When creating a image object, the actual size representation on the layout doesn't seem to draw correctly. You will need to double click on the object and select OK again to actually update itself. Version: 1.1
- As of V1.1 bug report are no longer included in the documentation.
- A great deal of time have spent on killing these nasty bugs and there is no guarantee that more bugs won't resurface. If we programmers can write error-free programs, we would be out of a job. So please keep that in mind and support other authors who make THE Amiga as their CHOICE.

1.29 History

Version Released Notes

V 0.10 Feb 2/94 -first initial release (very buggy indeed)

V 0.20 Feb 14/94 -alot of new features added and bug fixes

V 0.30 Apr 01/94 -No April 1 Joke Here :-) lots of fixes

-Added ASL font

-Fixed AppWindow event handler

V 0.40 Apr 03/94 -Added scripts for all active objects and menu items, and sub items.

-fixed the duplicate objects for text objects.

-added key short cuts for manipulating objects.

-added object bordering for GadTools

V 0.41 Apr 17/94 -reworked main preference

-minor fixes on code generation

-added Object Master

May 1/94 -reorganized the doc

V 1.0 May 9, 1994 -official general release

V 1.01 May 15/94 -modified so that you can change between
text and numeric display GadTools

-modified so that the GadTools requester
shows up instead the General requester

V 1.02 May 20/94 -Added PopUpMenuClass as a standard

V 1.03 May 25/94 -Added AREXX

-made most the functions into a library

V 1.04 May 27/94 -Added an include file.

V 1.05 June 1/94 -pre 1.1 official release

V 1.06 June 10/94 -added custom button images

June 15/94 -added images

-fixed the save error during startup

V 1.07 June 23/94 -added get color map from any IFF pic file.

-added color palette

-reworked and add more patterns

V 1.08 July 1/94 -removed recttype when creating a non
rectangle object.

-added automatic object ID

V 1.1 July 5/94 -Official release

V 1.11 July 10/94 -released the CPU when not busy

V 1.12 July 12/94 -added String gadget for ListView

V 1.15 July 19/94 -fixed the Color Map and Color Palette

V 1.2x Aug 3/94 -Beta releases.

V 2.0 Aug 25/94 -Official release

1.30 User Registration

Visual Arts is Shareware meaning that you have the rights to use Visual Arts in a limited time of two weeks. After this date, you must register Visual Arts if you continue to use it. Registration fees are as followings:

non-commerical use \$20.00 US per copy

commerical use \$30.00 US per copy

outside of North American please add \$5.00 US per copy

When you become a registered user, you will receive the full version of Visual Arts with bug fixes and enhancements and crippled codes removed. if ordering by cheque or money order please make payable to: Danny Y. Wong and mail registration form to: (If possible register your mail this way is much safer.)

Danny Y. Wong
131 64 Ave NW
Calgary, Alberta
T2K 0L9 CANADA

Thank you for supporting shareware authors.

Bug Fixes, Comments and Contact:

Home 403-274-9348 (6:00pm to 11:59pm MST)

Fido: Danny Wong@1:134/20

Danny Wong@1:134/180

Internet: danwong@foul.cuug.ab.ca

1.31 Disclaimer

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1.32 Copyright Notice

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I (DANNY Y. WONG) HEREIN GIVE FULL PERMISSION AND THE RIGHTS TO YOU TO DISTRIBUTE THE DEMO VERSION OF VISUAL ARTS AS LONG AS THE ARCHIVE REMAIN UNCHANGED. -----

1.33 Arexx Setup

Arexx Setup(IFF)

Arexx is now part of Visual Arts. Any program created in Visual Arts can now have its own Arexx port for other programs to access. When setting up

Arexx you first must enter the Arexx port name. This is the most important step, if Arexx port name is not defined Arexx will not be included in the source output. Once you have entered the port name, the rest is very easy. To add a Arexx command simply enter the Arexx command in the entry field and press return. Note that Arexx commands are case senesitive. To rename the command, simply click on the name to be changed and type over it and press return when done. To delete a command, select the name and click on the delete button. Select OK when done.

As with all active objects, Visual Arts lets you attach or insert your own custom codes to each Arexx command. When other applications sends a Arexx command to your application the scripts for this command is automatically get executed.

1.34 Custom Images

Visual Arts allow any IFF brush to be loaded although the layout editor doesn't show the actual image, it only draws the size of the image. Images can not be sized in the layout editor. Simply put, you can't change any its attributes except images. One important note that if you load a different depth size brush into the current depth screen the image would have different colors in the compiled application.

Custom Image: Button

Custom Button (IFF)

Visual Arts allow you to use the regular standard Intuition boolean gadget. Boolean gadgets can have its own custom primary and secondary image or one or no image at all. But Visual Arts won't draw the border if the boolean gadget has no images. Visual Arts only recongize IFF brushes they can be any depth as long as your project can handle the brush depth. Multiple brushes can be used and Visual Arts only generate one instance of the same brush when outputing to source. If the brushes to be loaded are in a different directory but with the same name, Visual Arts treats it as the same.

Important: Due to a bug, the initial display of the brush doesn't show the actual size of the image, you will need to double click on the custom button image and select OK again to refresh the object.

1.35 Setting a Color Map

Color Map(IFF)

A totally different color map can be selected from any IFF picture file as long as it has a color map and use it in Visual Arts. If the color map has more or less than the current color map colors, Visual Arts only loads the maximum colors allow for the current screen mode. Note that Visual Arts picks its own random color palette if the project screen has more than 4 colors.

1.36 Why Another GUI Designer?

Why another GUI designer since there are some many already on the market?

And how good is Visual Arts?

Simply put: There are NO PD/Shareware GUI designer in the Amiga market that is simple to use and yet powerful enough for professional use. We've seem many GUI designer lack simplicity in term of use and not enough features to build professional looking interfaces.

Visual Arts was designed to be simple and yet powerful. It was bulid from the start to be user friendly and object oriented. There are features in Visual Arts which aren't found in any GUI designer.

I'm a lazy user and I'm a creative programmer. I want to do as minimal work as possible to get the task done and don't care how its done as long as the task is satisfying with quality.

When is the last time you've evaulated a GUI designer? How's the user interface? Was it easy to use? Powerful features? Keep these questions in mind when you evaulate Visual Arts and compare.

if (VisualArts == SUCKS)

Drag Visual Arts in Trash Can

Select 'Empty Trash' from Icon Menu

else

Cool! Let's register!

1.37 Visual Arts Installation

Visual Arts requires that you install the following libraries in your lib: directory and the two include files in the include: directory.

These are not runtime libraries, they are linkable libs and don't required distribution when you distribute your applications.

Double click on the VAInstall icon in the VAInstall directory or you can copy to the lib: directory: copy #?.lib lib:

1. VisualArts.lib
2. PopUpMenu.lib

copy to the include: directory: copy #?.h include:

1. VisualArts.h
2. PopUpMenu.h

In your SASCOPT add the two libraries to the library listview.

Note: you must link with the two libraries. You are only required to link with the PopUpMenu if you are using the PopupMenu.

Example of Slink.

slink lib:c.o,myprg.o to MyPrg lib lib:VisualArts.lib lib:PopUpMenu.lib
lib:sc.lib lib:amiga.lib

The two libraries should be searched first before any other libraries as above.

1.38 What's New In Version 2.0

Version 2.0 fixes a major bug that hogs the CPU and wouldn't let go until hell freezes. Other fixes and enhancements are:

1. Freed up the CPU.
2. Creating a GadTool and selecting OK will draw an visible GadTool, its now fixed.
3. Problem with the Color Map and Color Palette if opening a different project with higher depth.
4. Added 'Save' menu option. This will automatically save into the path specified in the Preference setup without asking for a file name.
5. Add a String gadget option for ListView gadgets. Both ListView and the String gadget MUST be the SAME width.
6. Automatically create Button gadget.
7. Context Sensitive layout. Any standard GadTool can be used in context sensitive layout.
8. Many enforcer hits removed.

1.39 Context Sensitive

Context Sensitive (IFF)

Context Sensitive layout applications can dynamically resize the window's content when the window size changes. Visual Arts supports the standard

Intuition GadTools for use in context sensitive. Any GadTool can be made into context sensitive.

Visual Arts does not support text, graphic objects and popup in this release. It will be added in the future releases. If you are designing context sensitive layouts please DO NOT use text, graphic objects and the popup.

In order to set up your project to be context sensitive you will need to do the following:

1. Select 'Sensitive On' menu item from the 'Context' menu.
2. Create an GadTool object.
3. Select the 'Context' button.
4. Select the context type for the GadTool. The valid types are:

MoveX - object can be moved to left or right.

MoveY - object can be moved up or down.

ExpandX - object can be expanded or shrunked.

ExpandY - object can be made taller or shorter.

Static - object can not be moved or expanded.

IMPORTANT:

If you are using scripts in your current project and have never set the context sensitive option, and wants to use context sensitive then you will have problems. When you edit the script the context sensitive codes are not generated if there is a script for the object already exist. The codes will only be generated if editing the script for the first time.

If you want to add context sensitive layout to your existing project, you will need to assign the script path in the 'Preference' setting to a path that doesn't contain any scripts. Once you have done it, select Context Sensitive Layout and generate the codes. Once you have generated the codes for context sensitive, using a editor copy and append the context sensitive codes into the beginning of your current project. You'll need to do this for every object that has a script attached.

An good example of context sensitive is the standard ASL requester. To emulate the ASL requester in Visual Arts, create the following GadTools and list name.

1. Select 'Sensitive On' menu item from the 'Context' menu.
 2. Create a list using the List Manager. Any list will do, make sure that you have enough items.
 3. Create a ListView object on the layout, select the label (list) you've created in step number 2 by clicking on the 'Label' button in the requester.
 4. Select 'Context' button.
-

5. Check 'ExpandX' and 'ExpandY'. This will allow the listview to grow in width and height. Select OK.
6. Create a new String object just under the ListView object. Make sure that the string gadget is the same size of the list view gadget and that the x co-ordinate is the same too. Use Control-Double click on the object to verify their settings.
7. Select 'Context' button.
8. Check 'MoveY' and 'ExpandX'. This will move the string gadget up or down and grow/shrink left or right.
9. Double click on the ListView object, select 'Gadget' button and select the string gadget you just created. This will allow the string gadget to display the item the user selects from the listview. Make sure that the width of the listview is that same as the string gadget otherwise the program will not run if compiled. To check this hold the 'Control' key and double click on the listview object and note the position values. Now double click on the string gadget and compare the position values with the listview value and make sure that it is the same.
10. Select the window type with a size gadget and generate and compile.

1.40 AppWindow Example Codes

```

/* ***** */
/* C code generated by: */
/* Visual Arts Version 2.0 */
/* Copyright 1994 Danny Y. Wong All rights reserved */
/* Calgary, Alberta (CANADA) */
/* Partial of the code is copyright by Java Development */
/* ***** */
#include "VisualArts.h"
//gadget ID's defined by Visual Arts
#define ID_clear 0
#define ID_quit 1
#define ID_icons 2
//number of gadgets in this project
#define Project0NumGads 3
#include "AppWindow.h"
//function prototypes for the three gadgets
int clearObj(struct VAobject VAObject);
int quitObj(struct VAobject VAObject);

```



```
int iconsObj(struct VAobject VAObject);
//program prototypes
int GetPubScreen(void);
void ClosePubScreen(void);
int OpenProject0Window(char windtitle[80]);
void CloseProject0Window(void);
int Project0Handler(void);
int Project0MainHandler(void);
int Project0AppWindHandler(struct MsgPort *appwindport);
void DrawProject0Objs(void);
int main(int argc, char *argv[]);
UBYTE *PubScrName = NULL;
struct DrawInfo *ScrDrawInfo = NULL;
APTR VisualInfo = NULL;
struct Screen *Scr = NULL;
struct Window *Project0Wnd = NULL;
struct AppWindow *Project0AppWind = NULL;
struct MsgPort *Project0AppWindPort = NULL;
struct Gadget *Project0GList = NULL;
struct Gadget *Project0Gadgets[Project0NumGads];
struct IntuiMessage Project0Msg;
UWORD Project0Left = 158;
UWORD Project0Top = 48;
UWORD Project0Width = 224;
UWORD Project0Height = 103;
//program fonts
struct TextAttr topaz8 = { (STRPTR)"topaz.font", 8, 0x00, 0x01 };
struct TextAttr topaz800 = { (STRPTR)"topaz.font", 8, 0x00, 0x00 };
//using Visual Arts internal list, create a NULL list with no
//items in it because you gonna dynamically add them
UBYTE *IconsLabels[] = {
NULL
};
//the three gadget types
WORD Project0GadTypes[] = {
BUTTON_KIND,
BUTTON_KIND,
LISTVIEW_KIND,
};
```

```

//the three gadget structure definitions
struct NewGadget Project0NGads[] = {
6, 73, 56, 12, (UBYTE *)"_Clear",&topaz800, ID_clear, PLACETEXT_IN, NULL, (APTR)clearObj,
153, 73, 56, 12, (UBYTE *)"_Quit",&topaz800, ID_quit, PLACETEXT_IN, NULL, (APTR)quitObj,
6, 2, 203, 68, (UBYTE *)"", &topaz800, ID_icons, PLACETEXT_ABOVE, NULL, (APTR)iconsObj,
};

//tags for the three gadgets
ULONG Project0NTags[] = {
(GT_Underscore), ' ', TAG_DONE,
(GT_Underscore), ' ', TAG_DONE,
(GTLV_Labels), NULL, (GTLV_Top), 0, (GTLV_ReadOnly), TRUE, (GTLV_ScrollWidth), 16, (LAYOUTA_Spacing), 0, TAG_DONE,
};

//get the public screen info
int GetPubScreen(void)
{
if (!(Scr = LockPubScreen(PubScrName)))
return(1L);
if (!(VisualInfo = GetVisualInfo(Scr, TAG_DONE)))
return(2L);
if (!(ScrDrawInfo = GetScreenDrawInfo(Scr)))
return(3L);
return(0L);
}

// close all the resources
void ClosePubScreen(void)
{
if (VisualInfo)
FreeVisualInfo(VisualInfo);
if (Scr)
UnlockPubScreen(NULL, Scr);
if (ScrDrawInfo)
FreeScreenDrawInfo(Scr, ScrDrawInfo);
}

int OpenProject0Window(char windtitle[80])
{
struct NewGadget NewGad;
struct Gadget *Gad;
register UWORD i, j;
UWORD offsetx = Scr->WBorderLeft;

```

```

UWORD offsety = Scr->WBorTop + Scr->RastPort.TxHeight + 1;
//create the context first, if NULL then something is really wrong
if (!(Gad = CreateContext(&Project0GList)))
return(1L);
//for the three gadgets create it them
for (i=0, j=0; i < Project0NumGads; i++)
{
CopyMem((char *)&Project0NGads[i], (char *)&NewGad, (long)sizeof(struct NewGadget));
NewGad.ng_VisualInfo = VisualInfo;
NewGad.ng_LeftEdge += offsetx;
NewGad.ng_TopEdge += offsety;
Project0Gadgets[i] = Gad = CreateGadgetA((ULONG)Project0GadTypes[i], Gad, &NewGad,
(struct TagItem *)&Project0NTags[j]);
while (Project0NTags[j])
j +=2;
j++;
if (!Gad)
return(2L);
}
//now open the window
if (!(Project0Wnd = OpenWindowTags(NULL,
WA_Left, Project0Left,
WA_Top, Project0Top,
WA_Width, Project0Width,
WA_Height, Project0Height - Scr->WBorTop,
WA_NewLookMenus, TRUE,
WA_IDCMP, IDCMP_CLOSEWINDOW | IDCMP_MOUSEBUTTONS | IDCMP_MOUSEMOVE | IDCMP_GADGETUP |
IDCMP_GADGETDOWN | IDCMP_VANILLAKEY | IDCMP_INTUITICKS ,
WA_Flags, WFLG_CLOSEGADGET | WFLG_SMART_REFRESH |
WFLG_ACTIVATE | WFLG_DRAGBAR | WFLG_DEPTHGADGET,
WA_Gadgets, Project0GList,
WA_Title, windtitle,
WA_ScreenTitle, "Visual Arts V2.0 Copyright 1994 Danny Y. Wong All Rights Reserved.",
WA_PubScreen, Scr,
WA_MinWidth, 160,
WA_MinHeight, 50,
WA_MaxWidth, 640,
WA_MaxHeight, 200,
TAG_DONE)))

```

```
return(3L);
//create the list gonna hold the icon names
CreateProject0Lists();
//create the AppWindow port and inits here
if (Project0AppWindPort = CreateMsgPort())
{
Project0AppWind = AddAppWindow(1, 0, Project0Wnd, Project0AppWindPort, NULL);
if (Project0AppWind == NULL)
{
CloseProject0Window();
return(-1L);
}
}
else
return(-2L);
//we need to refresh the GadTools we've just create. very important
GT_RefreshWindow(Project0Wnd, NULL);
//refresh other gadgets if any
RefreshGadgets(Project0Gadgets[0], Project0Wnd, NULL);
//now attach the list to the list view gadget, we need to do this here
//because the list is not created before the listview gadget
GT_SetGadgetAttrs(Project0Gadgets[2], Project0Wnd, NULL,
GTLV_Labels, Project0Lists[0], TAG_END);
return(0L); //return 0 means OK
}
//close everything cuz we are done
void CloseProject0Window(void)
{
struct AppMessage *appwindmsg;
if (Project0Wnd)
CloseWindow(Project0Wnd);
if (Project0GList)
FreeGadgets(Project0GList);
//remove the appwindow port and any msgs
if (Project0AppWind)
{
RemoveAppWindow(Project0AppWind);
while (appwindmsg = (struct AppMessage *)GetMsg(Project0AppWindPort))
ReplyMsg((struct Message *)appwindmsg);
```

```
DeleteMsgPort(Project0AppWindPort);
}
}
//window msg port handler, for all the msgs
//when running = 1 then exit handler
int Project0Handler(void)
{
    struct IntuiMessage *msg;
    struct VAobject VAObject; //Visual Arts object
    int running = 1;
    int (*func)(struct VAobject VAObject);
    ULONG class;
    UWORD code;
    while (msg=GT_GetIMsg(Project0Wnd->UserPort))
    {
        CopyMem((char *)msg, (char *)&Project0Msg, (long)sizeof(struct IntuiMessage));
        class = msg->Class;
        code = msg->Code;
        GT_ReplyIMsg(msg); //reply to the msg
        switch(class) //which msg
        {
            case IDCMP_MOUSEBUTTONS :
                break;
            case IDCMP_MOUSEMOVE :
                break;
            case IDCMP_INTUITICKS :
                break;
            case IDCMP_CLOSEWINDOW: //done
                return(0);
                break;
            //use has selected a gadget so fill the VAObject and pass it on to
            //the function.
            case IDCMP_GADGETUP:
                VAObject.va_Window = (struct Window *)Project0Wnd;
                VAObject.va_Gadget = (struct Gadget *)msg->IAddress;
                VAObject.va_IntuiMsg = (struct IntuiMessage *)msg;
                VAObject.va_Flags = 0;
                VAObject.va_UserData = 0;
                func = (void *)((struct Gadget *)Project0Msg.IAddress)->UserData;
```

```
if (func != NULL)
running = func(VAObject);
break;
//short key cuts
//Visual Arts does not generate the function call for you, you'll
//have to add them your self.
case IDCMP_VANILLAKEY:
switch(code)
{
case 'C':
case 'c': //not generated by Visual Arts
ButtonSelected(Project0Wnd, Project0Gadgets[0]);
running = clearObj(VAObject); //not generated by VA
break;
case 'Q':
case 'q': //not generated by Visual Arts
ButtonSelected(Project0Wnd, Project0Gadgets[1]);
running = quitObj(VAObject);
break;
}
break;
}
}
return(running);
}
//appwindow handler
int Project0AppWindHandler(struct MsgPort *appwindport)
{
struct WBArg *wbargptr;
struct AppMessage *appwindmsg;
int i;
int rc;
while (appwindmsg = (struct AppMessage *)GetMsg(appwindport))
{
wbargptr = appwindmsg->am_ArgList;
/* examine the icons dragged into the window here. */
/* wbargptr->wa_Name ---> name of the icon */
/* wbargptr->wa_Lock ---> directory this icon is in. */
//have to detach the list from the listview gadget first.
```

```
//very important
GT_SetGadgetAttrs(Project0Gadgets[ID_icons], Project0Wnd, NULL,
GTLV_Labels, ~0, TAG_END);
for (i=0; i < appwindmsg->am_NumArgs; i++)
{
//add the new icon name to the list
rc = AddNewNode(Project0Lists[0], wbargptr->wa_Name);
wbargptr++;
}
//now reattach the list to the listview with the update items
GT_SetGadgetAttrs(Project0Gadgets[ID_icons], Project0Wnd, NULL,
GTLV_Labels, Project0Lists[0], TAG_END);
ReplyMsg((struct Message *)appwindmsg);
}
return(0);
}
//this is the main handler for all msgs
int Project0MainHandler(void)
{
int running = 1;
ULONG windsig, signals;
ULONG appwindsig;
while (running == 1)
{
appwindsig = 1L << Project0AppWindPort->mp_SigBit;
windsig = 1L << Project0Wnd->UserPort->mp_SigBit;
signals = Wait( windsig | appwindsig );
if (signals & windsig) //regular intuition msgs
{
running = Project0Handler();
}
else //appwindow msgs
if (signals & appwindsig)
Project0AppWindHandler(Project0AppWindPort);
}
return(running);
}
int main(int argc, char *argv[])
{
```

```

int rc;
if (!(GetPubScreen()))
{
for (rc=0; rc < 1; rc++) //create a list
Project0Lists[rc]=GetNewList();
if (!(OpenProject0Window("Visual Arts -- AppWindow Demo")))
{
rc = Project0MainHandler();
CloseProject0Window();
}
for (rc=0; rc < 1; rc++) //free lists
FreeList(Project0Lists[rc]);
ClosePubScreen();
}
}

```

1.41 AppWindwo Example Codes -- Header File

```

/* function stubs are located in this file */
/* C code generated by: */
/* Visual Arts Version 2.0 */
/* Copyright 1994 Danny Y. Wong All rights reserved */
/* Calgary, Alberta (CANADA) */
extern struct Window *Project0Wnd;
extern struct Gadget *Project0Gadgets[Project0NumGads];
extern void CreateProject0Lists(void);
extern UBYTE *IconsLabels[];
struct List *Project0Lists[1]; //list
//add the items to the lists it there are any
void CreateProject0Lists(void)
{
short i;
i=0;
while (IconsLabels[i])
AddNewNode(Project0Lists[0], IconsLabels[i++]);
}
/* gadget functions */
int clearObj(struct VAobject VAObject)
{

```



```

GT_SetGadgetAttrs(Project0Gadgets[ID_icons], Project0Wnd, NULL,
GTLV_Labels, ~0, TAG_END);
FreeList(Project0Lists[0]);
Project0Lists[0]=GetNewList();
GT_SetGadgetAttrs(Project0Gadgets[ID_icons], Project0Wnd, NULL,
GTLV_Labels, Project0Lists[0], TAG_END);
//add your customer codes here.
return(1L);
}
/* Button Clear */
int quitObj(struct VAobject VAObject)
{
//add your customer codes here.
return(-1L); //-1 to quit the loop
}
/* Button Quit */
int iconsObj(struct VAobject VAObject)
{
//add your customer codes here.
return(1L);
}
/* ListView */

```

1.42 Visual Arts Header File

```

/*
** $Filename: VisualArts.h $
** $Includes, V2.0 $
** $Date: 94/08/24 $
**
**
** (C) 1994 Danny Y. Wong
** All Rights Reserved
**
** DO NOT MODIFY
*/
#include <exec/types.h>
#include <exec/memory.h>
#include <exec/lists.h>

```

```
#include <exec/nodes.h>
#include <intuition/intuition.h>
#include <intuition/intuitionbase.h>
#include <intuition/gadgetclass.h>
#include <intuition/imageclass.h>
#include <intuition/classes.h>
#include <intuition/icclass.h>
#include <graphics/displayinfo.h>
#include <graphics/gfxbase.h>
#include <graphics/gfxmacros.h>
#include <libraries/gadtools.h>
#include <libraries/dos.h>
#include <workbench/workbench.h>
#include <workbench/startup.h>
#include <clib/wb_protos.h>
#include <clib/exec_protos.h>
#include <clib/intuition_protos.h>
#include <clib/gadtools_protos.h>
#include <clib/graphics_protos.h>
#include <clib/utility_protos.h>
#include <clib/alib_protos.h>
#include <clib/dos_protos.h>
#include "string.h"
#include "stdio.h"
#include "stdlib.h"
#include "ctype.h"
#include "PopUpMenuClass.h"
/* context sensitive */
#define VA_Static 0x0001
#define VA_ExpandX 0x0002
#define VA_MoveX 0x0004
#define VA_ExpandY 0x0008
#define VA_MoveY 0x0010
/* defines for scroller window with super bitmap */
#define MAX_LEVEL (0xFFFFL)
#define LAYERXOFFSET(win) (win->RPort->Layer->Scroll_X)
#define LAYERYOFFSET(win) (win->RPort->Layer->Scroll_Y)
/* define for Image */
#ifndef IM
```

```
#define IM(o) ((struct Image *) o)
#endif

/* define for determining the max value */
#ifndef MAX
#define MAX(x,y) ((x) > (y) ? (x) : (y))
#endif

/* for new menus in V38 */
#ifndef WA_NewLookMenus
#define WA_NewLookMenus (WA_Dummy + 0x30)
#endif

/* macros for easy access to Gadget data */
#define GetString(gad) (((struct StringInfo *)gad->SpecialInfo)->Buffer)
#define GetUndoString(gad) (((struct StringInfo *)gad->SpecialInfo)->UndoBuffer)
#define GetNumber(gad) (((struct StringInfo *)gad->SpecialInfo)->LongInt)
/* List node name. Each node have the following */
struct NameNode
{
    struct Node nn_Node; //linked list node to previous or next node
    UBYTE nn_Data[255]; //name of the node, this is the same as
    //nn_Node.ln_Name
};
/* Visual Arts message object. Every GADGETUP event, the object is
sent to the attached function. For Menus, the va_Gadget field is
always NULL.
*/
struct VAobject {
    struct Window *va_Window; //window the object originated
    struct Gadget *va_Gadget; //the gadget that sent this object
    struct IntuiMessage *va_IntuiMsg; //the IntuiMessage
    ULONG va_Flags; //user flags
    APTR va_UserData; //user data, function pointer etc..
};
/* Every AREXX command have the following */
struct rexxCommandList
{
    char *name; //name of the AREXX command, note its case sensitive
    APTR userdata; //user data, in this case it's a function pointer
};
/* Structure for Multi-Processing windows. This structure is a linked
```

List for every window opened as Multi-Processing

```

*/
struct WindowNode
{
    struct Node nn_Node; //linked list to prev or next window
    UBYTE nn_Data[80]; //window name
    struct Window *nn_Window; //window pointer
    struct AppWindow *nn_AppWindow; //AppWindow pointer if window is a AppWindow
    struct MsgPort *nn_AppWindPort; //AppWindow Port
    short ID; //WindowNode ID
    APTR UserData; //window Handler for this window
};

/* Visual Arts function prototypes. All are in the VisualArts.lib
*/

extern void DrawBox(struct Window *Wind, int Left, int Top, int Wid, int Hi, UBYTE APen, short Pattern );
extern void DrawFBox(struct Window *Wind, int Left, int Top, int Wid, int Hi, UBYTE APen, short Pattern, UBYTE Outline,
short Fill );
extern void DrawLine(struct Window *Wind, int Left, int Top, int Wid, int Hi, UBYTE APen, short Pattern );
extern void DrawNCircle(struct Window *Wind, int Left, int Top, int Right, int Bottom, UBYTE APen);
extern void DrawFCircle(struct Window *Wind, int Left, int Top, int Right, int Bottom, UBYTE APen, short Pattern, UBYTE
Outline, short Fill );
extern void SetRPortFill(struct Window *Wind, short Type);
extern void ButtonSelected(struct Window *wind, struct Gadget *gad);
extern int AddNewNode(struct List *list, char name[255]);
extern int DeleteNewNode(struct List *list, char name[255]);
extern struct List *GetNewList(void);
extern struct NameNode *FindNodeName(struct List *list, char name[255]);
extern void FreeList(struct List *list);
extern APTR VisualInfo;
extern struct Screen *Scr;
extern struct WindowNode *AddWindowNode(struct List *list, char name[80], APTR handler);
extern int DelWindowNode(struct List *list, char name[80]);
extern struct WindowNode *FindWindowNode(struct List *list, char name[80]);
extern void FreeWindowList(struct List *list);
extern void ReMakeWindowID(struct List *list);
extern void closeRexxPort(void);
extern void handlerRexxPort(void);
extern struct RexxMsg *asyncRexxCmd(char *s);
extern void replyRexxCmd(register struct RexxMsg *msg, register long primary,

```

```
register long secondary, register char *string);
extern long InitRexxPort(char *s, struct rexxCommandList *rcl,
char *exten, int (*uf)());
extern int dispatchRexx(register struct RexxMsg *msg, register struct rexxCommandList *dat, char *p);
extern Object *NewImageObject(ULONG which);
extern struct Gadget *NewPropObject(ULONG freedom, Tag tag1, ...);
extern struct Gadget *NewButtonObject(Object *image, Tag tag1, ...);
extern int SysISize(void);
extern int VA_GadLayout(struct Window *window, struct Gadget *glist,
struct Gadget *projgadgets[],
ULONG fsgads[], WORD gadtypes[],
struct NewGadget *gadgets, ULONG tags[],
struct List *lists[], UBYTE *projvars[]);
void InitLayoutVars(ULONG types[], UBYTE *vars[]);
```
