## The XsMotifWindow Class

The *XsMDICanvas* requires that all documents be a subclass of *XsMDIWindow* or a subclass of a class derived from it. By itself *XsMDIWindow* does not define any appearance or behavior for the documents. However, *XsMotifWindow*, derived from *XsMDIWindow*, defines a MWM-like look-and-feel to a document.

Documents in your application should be derived from *XsMotifWindow*. This class provides the look-and-feel of Motif window and supports the interaction with the *XsMDICanvas*. It is up to the application to define the contents of each document.

**Constructor and Destructor:**

The *XsMotifWindow* constructor accepts one argument:

XsMotifWindow (const char \*name)

The *name* parameter specifies the name of the document and is used as the widget name for the underlying implementation. The name parameter is also used as the default title and icon-name for the document.

**Note:** The *XsMotifWindow* constructor does not create any widgets. Rather it only initializes internal variables. The widgets are not created until the document is added to the canvas. The *XsMDICanvas* calls the member-function *XsMotifWindow::\_buildClientArea()* when it needs to create the document widgets.

The *XsMotifWindow* destructor destroys the document widgets (if they have been created) and frees its internal storage. It is up to the application to free all documents. The *XsMDICanvas* will **not** destroy the documents for you.

**Document Utilities:**

Although rarely called from the application, the *XsMotifWindow* supports a number of utility functions to manipulate the document.

virtual void raise ( ) virtual void lower ( ) virtual void minimize ( ) virtual void maximize ( ) virtual void restore ( ) virtual void close ( )

The *close* member-function does not destroy the document, it simply hides it from view. You can restore a closed document with *XsMotifWindow::show()*.

The following member-functions are used to change/query the appearance of the document:

void setTitle (const char \*name) const char \*title ( ) const void setIconName (const char \*name) const char \*iconName ( ) const void setPixmap (Pixmap pixmap) Pixmap pixmap ( ) const Widget icon ( ) const Boolean minimized ( ) const Boolean maximized ( ) const virtual void setPosition (Position x, Position y) virtual void setSize (Dimension width, Dimension height)

The *setPixmap* member-function accepts a pixmap which the document then uses as the decoration on the icon. Because the document does not make a copy of the pixmap, it is important that the application not free the pixmap until all documents that reference it are deleted. The document does, however, make a local copy of the title or icon-name string passed to it, so the application is free to do whatever it wants to the passed-in string. The *icon* member-function returns the widget that is used to implement the icon.

**Creating Window Subclasses:**

The application must derive its documents from *XsMotifWindow* in order to define the contents of the document. The *XsMDICanvas* calls the protected member-function *\_buildClientArea* when it creates the document. Each class derived from *XsMotifWindow* **must** override this pure-virtual member-function.

The member-function *\_buildClientArea* is called with a single argument:

virtual void \_buildClientArea (Widget parent) The *parent* argument should be used as the parent of the contents of the document. This widget is an unmanaged *XmForm* widget, and all of the standard resources and constrains apply to it. The *XsMDICanvas* is responsible for managing the parent widget at the appropriate time.

As an example, consider the following:

// \_buildClientArea (called to create document contents)  
  
void MyDocument::\_buildClientArea (Widget parent)  
{  
 assert (parent != 0);  
   
// Create a main window with some dummy menus  
  
 Widget mainW = XtVaCreateWidget ("mainWin", xmMainWindowWidgetClass, parent,  
 XmNtopAttachment, XmATTACH\_FORM, XmNbottomAttachment, XmATTACH\_FORM,  
 XmNleftAttachment, XmATTACH\_FORM, XmNrightAttachment, XmATTACH\_FORM,  
 NULL);  
 ...  
   
 XtManageChild (mainW);  
}

In this case, an *XmMainWindow* is created as the child of the parent widget. The *XmMainWindow* is then attached to the 4 sides of the parent form. Note also that the main window is managed before returning from the function.

**Resources:**

The *XsMotifWindow* supports the following resources:

Name Class Type Default  
------------------------------------------------------------------------------  
 borderSize BorderSize Dimension 6  
 buttonSize ButtonSize Dimension 23  
 title Title String dynamic  
 titleFont TitleFont String -\*-helvetica-bold-o-normal-\*-14-\*-\*-\*-\*-\*-iso8859-1  
 iconSize IconSize Dimension 70  
 iconName IconName String dynamic  
 iconFont IconFont String \*-helvetica-bold-r-normal-\*-12-\*-\*-\*-\*-\*-iso8859-1  
 XmNiconX XmCIconX Position dynamic  
 XmNiconY XmCIconY Position dynamic  
 saveUnder SaveUnder Boolean True  
 restoreString RestoreString String "Restore"  
 moveString MoveString String "Move"  
 sizeString SizeString String "Size"  
 minimizeString MinimizeString String "Minimize"  
 maximizeString MaximizeString String "Maximize"  
 raiseString RaiseString String "Raise"  
 lowerString LowerString String "Lower"  
 closeString CloseString String "Close"  
 menuFont MenuFont String -\*-helvetica-bold-o-normal-\*-14-\*-\*-\*-\*-\*-iso8859-1  
 showBorder ShowBorder Boolean True  
 showResize ShowResize Boolean True  
 showTitle ShowTitle Boolean True  
 showMenu ShowMenu Boolean True  
 showMinimize ShowMinimize Boolean True   
 showMaximize ShowMaximize Boolean True  
 lowerOnIconify LowerOnIconify Boolean False  
 XmNminWidth XmCMinWidth Dimension dynamic  
 XmNmaxWidth XmCMaxWidth Dimension dynamic  
 XmNminHeight XmCMinHeight Dimension dynamic  
 XmNmaxHeight XmCMaxHeight Dimension dynamic

borderSize Size of the window border. buttonSize Size of the window buttons. title Title of the window. The default is the name of the window instance. titleFont Font used to draw the window title. iconSize Size of the icon representation. iconName String used on the title. If unspecified, the window title is used. iconFont Font used to draw the icon-name. XmNiconX X-position of the icon. The default location is the top-left corner of the window when it is iconified. XmNiconY Y-position of the icon. The default location is the top-left corner of the window when it is iconified. saveUnder Enables/Disables save-unders for the menu. restoreString String used as the "restore" menu item. moveString String used as the "move" menu item. sizeString String used as the "size" menu item. minimizeString String used as the "minimize" menu item. maximizeString String used as the "maximize" menu item. raiseString String used as the "raise" menu item. lowerString String used as the "lower" menu item. closeString String used as the "close" menu item. menuFont Font used to draw the menu strings. showBorder Enables/Disables the window border. If the border is disabled, the resize-handles are automatically disabled. showResize Enables/Disables the window resize handles. showTitle Enables/Disables the window title. If the title is disabled, all of the window buttons are automatically disabled. showMenu Enables/Disables the window menu button. showMinimize Enables/Disables the window minimize button. showMaximize Enables/Disables the window maximize button. lowerOnIconify Automatically lower windows when iconified. XmNminWidth Minimium window width. The default is about four times the size of the window button. XmNmaxWidth Maximum window width. The default is not to constrain the maximum size. XmNminHeight Minimum window height. The default is about four times the size of the window button. XmNmaxHeight Maximum window height. The default is not to constrain the maximum size.

**XsMotifWindow Implementation:**

As a convenience to those who wish to modify the *XsMotifWindow* code, here is a diagram of the internal class structure:

