CMXGetWidth

Returns width, in pixels, of a CMX11 display window.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXGetWidth(widget)
   INTEGER widget
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
int
CMXGetWidth(Widget widget);
```

ARGUMENT

widget	A CMX11 widget identifier as returned by **CMXGetWidget**.

DESCRIPTION

CMXGetWidth returns the width, in pixels, of the display window identified by *widget*. The width is the horizontal dimension of the window inside any window border that may be used.

SEE ALSO

CMXSetWidth
CMXGetHeight
CMXSetHeight

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CMXGetXAppClass

Gets the X11 application class for a CMX11 display.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

CHARACTER*(*) FUNCTION CMXGetXAppClass( )
```

NOTE: Because the **CHARACTER** array returned by this routine must be declared with an explicit length, **CMXGetXAppClass** cannot be defined in the CMX11 CM Fortran include files. You must declare this routine with the desired string length for the **CHARACTER** argument in an **INTERFACE** block in your program. Sample **INTERFACE** blocks that may be copied into your program are available as comments in the include file **/usr/include/cm/cmx-cmf.h**.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
char*
CMXGetXAppClass(void);
```

ARGUMENTS

None.

DESCRIPTION

CMXGetXAppClass returns the application class set for CMX11. The default class is **CM_display**.

When creating a display, the X11 resource manager uses the application **class** and **name** as a key when reading user defaults from the resource database. The resource manager first attempts to match default values with the application name, and then, where the name is not found, with the application class. The resource database is stored by default in **/usr/lib/x11/app-defaults/**.

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SEE ALSO

CMXSetXAppClass
CMXSetXAppName
CMXGetXAppName
CMXGetXResourceInteger
CMXGetXResourceString

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CMXGetXAppName

Returns the X11 application name for a CMX11 display.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

CHARACTER*(*) FUNCTION CMXGetXAppName( )
```

NOTE: Because the **CHARACTER** array returned by this routine must be declared with an explicit length, **CMXGetXAppName** cannot be defined in the CMX11 CM Fortran include files. You must declare this routine with the desired string length for the **CHARACTER** arguments in an **INTERFACE** block in your program. Sample **INTERFACE** blocks that may be copied into your program are available as comments in the include file **/usr/include/cm/cmx-cmf.h**.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
char*
CMXGetXAppName(void);
```

ARGUMENTS

None.

DESCRIPTION

CMXGetXAppName returns the X11 application name set for CMX11 displays. The default name is **cm_display**.

When creating a display, the X11 resource manager uses the application name and class to read user defaults from the resource database. The resource manager first attempts to match default values with the application name, and then, where the name is not found, with the application class. The resource database is stored by default in **/usr/lib/x11/app-defaults/**.

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SEE ALSO

CMXSetXAppName
CMXSetXAppClass
CMXGetXAppClass
CMXGetXResourceInteger
CMXGetXResourceString

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CMXGetXIconName

Returns the X11 icon name set for CMX11.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

CHARACTER*(*) FUNCTION CMXGetXIconName( )
```

NOTE: Because the **CHARACTER** array returned by this routine must be declared with an explicit length, **CMXGetXIconName** cannot be defined in the CMX11 CM Fortran include files. You must declare this routine with the desired string length for the **CHARACTER** array in an **INTERFACE** block in your program. Sample **INTERFACE** blocks that may be copied into your program are available as comments in the include file **/usr/include/cm/cmx-cmf.h**.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
char*
CMXGetXIconName(void);
```

ARGUMENTS

None.

DESCRIPTION

CMXGetXIconName returns the current icon name set for CMX11. When a display window is created by **CMXCreateSimpleDisplay** or **CMXCreateDisplayClass**, the current icon name is used as a label when the window is closed to an icon. By default the icon name is **cmdisplay**.

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SEE ALSO

CMXSetXIconName
CMXSetXWindowTitle
CMXGetXWindowTitle

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CMXGetXResourceInteger

Returns the X11 resource as an integer.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXGetXResourceInteger(widget, name, class, def)
   INTEGER widget
   CHARACTER*(*) name
   CHARACTER*(*) class
   INTEGER def
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
int
CMXGetXResourceInteger(Widget widget, char *name,
                       char *class, int def);
```

ARGUMENTS

widget	An identifier for an X11 **Widget**. For CMX11 displays, a widget identifier as returned by **CMXGetWidget**. The widget identifies the drawing surface of a CMX11 display.
name	The application name for which you want the resource integer. The application name is set for CMX11 displays by **CMXSetXAppName** and returned by **CMXGetXAppName**.
class	The application class for which you want the resource integer. The application class is set for CMX11 displays by **CMXSetXAppClass** and returned by **CMXGetXAppClass**.
def	The default value to be returned if the resource is not set.

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DESCRIPTION

CMXGetXResourceInteger returns the value of the resource as an integer, or *def* if the resource is not set.

SEE ALSO

CMXGetXResourceString

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CMXGetXResourceString

Returns the X11 resource as a string.

CM FORTRAN SYNTAX

```
 INCLUDE '/usr/include/cm/cmx-cmf.h'

 CHARACTER*(*) FUNCTION CMXGetXResourceString(widget, name, class,
&                                             def)
   INTEGER widget
   CHARACTER*(*) name
   CHARACTER*(*) class
   CHARACTER*(*) def
```

NOTE: because the **CHARACTER** arrays must be declared with an explicit length, these routines cannot be defined in the CMX11 CM Fortran include files. You must declare these routines with the desired string length for the **CHARACTER** return value in an **INTERFACE** block in your program. Sample **INTERFACE** blocks that may be copied into your program are available as comments in the include file **/usr/include/cm/cmx-cmf.h**.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
char*
CMXGetXResourceString(Widget widget, char *name,
                      char *class, char *def);
```

ARGUMENTS

widget	An identifier for an X11 **Widget**. For CMX11 displays a widget identifier as returned by **CMXGetWidget**. The widget identifies the drawing surface of a CMX11 display.
name	The application name for which you want the resource string. The application name is set for CMX11 displays by **CMXSet-XAppName** and returned by **CMXGetXAppName**.

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class The application class for which you want the resource string. The application class is set for CMX11 displays by **CMXSetXAppClass** and returned by **CMXGetXAppClass**.

def A character string containing the default value to be returned if the resource is not set.

DESCRIPTION

CMXGetXResourceString returns the value of the resource defined by *widget*, *name*, and *class* as a string, or *def* if there is no such resource.

SEE ALSO

CMXGetXResourceInteger

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CMXGetXWindowTitle

Returns the window title to be used for CMX11 displays.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

CHARACTER*(*) FUNCTION CMXGetXWindowTitle( )
```

NOTE: Because the **CHARACTER** array returned by this routine must be declared with an explicit length, **CMXGetXWindowTitle** cannot be defined in the CMX11 CM Fortran include files. You must declare these routines with the desired string length for the **CHARACTER** argument in an **INTERFACE** block in your program. Sample **INTERFACE** blocks that may be copied into your program are available as comments in the include file **/usr/include/cm/cmx-cmf.h**.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
char*
CMXGetXWindowTitle(void);
```

ARGUMENTS

None.

DESCRIPTION

CMXGetXWindowTitle returns the window title to be used to label windows created for CMX11 displays. The window title is set by **CMXSetXWindowTitle**.

When one of the CMX11 create routines opens a window on a screen that has a window manager that supports window titles, the window title is placed in the border at the top of the window. The default title is **CM display**.

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SEE ALSO

CMXSetXWindowTitle
CMXSetXIconName
CMXGetXIconName

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CMXHasColormap

Queries whether display has writable colormap.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

LOGICAL FUNCTION CMXHasColormap(widget)
   INTEGER widget
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
logical
CMXHasColormap(Widget widget);
```

ARGUMENT

widget	A CMX11 widget identifier as returned by **CMXGetWidget**. The widget identifies the drawing surface of a CMX11 display.

DESCRIPTION

CMXHasColormap returns .TRUE. if the display supports a writable colormap and .FALSE. if it does not. Note that type **LOGICAL** is the same as **INTEGER**; the type name serves as a reminder that only 1 and 0 are valid return values.

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SEE ALSO

CMXIsColor
CMXIsRGB
CMXColormapSize
CMXColormapRedSize
CMXColormapGreenSize
CMXColormapBlueSize
CMXBitsOfRed
CMXBitsOfGreen
CMXBitsOfBlue

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CMXHasMBuffers

Queries whether display supports double buffering of images.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

LOGICAL FUNCTION CMXHasMBuffers(display)
   INTEGER display
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
logical
CMXHasMBuffers(Display *display);
```

ARGUMENT

display	An integer identifying the X11 display you wish to query. The value for this argument is returned for a CMX11 display by **CMXGetDisplay**.

DESCRIPTION

CMXHasMBuffers returns .TRUE. if the display supports double buffering and .FALSE. if it does not. Note that type **LOGICAL** is the same as **INTEGER**; the type name serves as a reminder that only 1 and 0 are valid return values.

The display's workstation must have special hardware to support double buffering. If you write your program to use the multibuffer routines and the display does not support true double buffering, CMX11 redraws the images into the display window as if no double buffering had been attempted.

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SEE ALSO

CMXAllocMBuffers
CMXGetDrawMBuffer
CMXGetDisplayMBuffer
CMXSwitchMBuffers

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CMXIsColor

Queries whether display is color.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

LOGICAL FUNCTION CMXIsColor(widget)
   INTEGER widget
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
logical
CMXIsColor(Widget widget);
```

ARGUMENT

widget	A CMX11 widget identifier as returned by **`CMXGetWidget`**. The widget identifies the drawing surface of a CMX display.

DESCRIPTION

`CMXIsColor` returns .TRUE. if the display supports TrueColor, DirectColor, PseudoColor, or StaticColor visuals. The routine returns .FALSE. if the display is grayscale or monochrome. Note that type **`LOGICAL`** is the same as **`INTEGER`**; the type name serves as a reminder that only 1 and 0 are valid return values.

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SEE ALSO

CMXIsColor
CMXIsRGB
CMXHasColormap
CMXColormapSize
CMXColormapRedSize
CMXColormapGreenSize
CMXColormapBlueSize
CMXBitsOfRed
CMXBitsOfGreen
CMXBitsOfBlue

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CMXIsRGB

Queries whether display supports RGB color.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

LOGICAL FUNCTION CMXIsRGB(widget)
   INTEGER widget
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
logical
CMXIsRGB(Widget widget);
```

ARGUMENT

widget	A CMX11 widget identifier as returned by **CMXGetWidget**. The widget identifies the drawing surface of a CMX11 display.

DESCRIPTION

CMXIsRGB returns .TRUE. if the display's pixels contain separate red, green, and blue components and .FALSE. if the pixel color is a single component. Note that type **LOGICAL** is the same as **INTEGER**; the type name serves as a reminder that only 1 and 0 are valid return values.

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SEE ALSO

CMXIsColor
CMXHasColormap
CMXColormapSize
CMXColormapRedSize
CMXColormapGreenSize
CMXColormapBlueSize
CMXBitsOfRed
CMXBitsOfGreen
CMXBitsOfBlue

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CMXLoadColorArrays

Loads user arrays with standard colormaps.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXLoadColorArrays(name, len, r, g, b)
      CHARACTER*(*) name
      INTEGER len
      INTEGER r(len), g(len), b(len)
CMF$  LAYOUT r(:SERIAL), g(:SERIAL), b(:SERIAL)
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXLoadColorArrays(char *name, int len,
    int r[], int g[], int b[]);
```

ARGUMENTS

name	A string containing the name of the colormap to be loaded into the arrays. Valid values are **Density**, **GrayScale**, **GreyScale**, **Random**, or **Rainbow**.
len	An integer indicating the number of entries in the arrays that are to be loaded.
r, *g*, *b*	Integer arrays, *len* long, into which the colormap entries are to be loaded.

DESCRIPTION

CMXLoadColorArrays writes the color components for the named colormap into the *r*, *g*, and *b* arrays supplied by the user. The *r*, *g*, and *b* arrays must be serial. You can pass these arrays to **CMXStoreColors** to write them to a display colormap.

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The standard colormaps provided by CMX11 are

Density A scale from dark blue to cyan to yellow to red. This is the default colormap.

GrayScale or **GreyScale**
A linear sequence of gray shades from black in the first colormap entry to white at the last.

Random Randomizes the entire red, green, and blue colormaps.

Rainbow A sinusoidal distribution of colors ranging smoothly from red at the second index to green to blue and back to red. The intensity is constant throughout; only the hue changes. Index 0 is set to black.

SEE ALSO

CMXAllocateColors
CMXStoreColor
CMXStoreColors

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CMXMousePointButton

Retrieves the button member of a mouse point.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXMousePointButton(point)
   INTEGER point
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
int
CMXMousePointButton(CMXMousePoint_t point);
```

ARGUMENT

point	Specifies the point's *x* and *y* coordinates, and its button member.

DESCRIPTION

CMXMousePointButton retrieves the button member of a mouse point. The button member of the point contains information about the mouse buttons.

After a call to **CMXCurrentMousePoint**, the button member is the logical OR of any or all the following constants: **ShiftMask**, **LockMask**, **ControlMask**, **Mod1Mask**, **Mod2Mask**, **Mod3Mask**, **Mod4Mask**, **Mod5Mask**, **Button1Mask**, **Button2Mask**, **Button3Mask**, **Button4Mask**, **Button5Mask**, depending on which buttons or keys were pressed.

After a call to **CMXGetMousePoint**, **CMXGetMouseLine**, or **CMXGetMouseRectangle**, the button member contains only one of **Button1**, **Button2**, or **Button3**, corresponding to the button that was last pressed or released.

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SEE ALSO

CMXMousePointX
CMXMousePointY
CMXGetMousePoint
CMXGetMouseLine
CMXGetMouseRectangle
CMXCurrentMousePoint

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CMXMousePointX

Retrieves the *x* member of a mouse point.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXMousePointX(point)
   INTEGER point
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
int
CMXMousePointX(CMXMousePoint_t point);
```

ARGUMENT

point	Specifies the point's *x* and *y* coordinates, and its button member.

DESCRIPTION

CMXMousePointX retrieves the *x* part of the pixel coordinate of a mouse point.

SEE ALSO

CMXMousePointY
CMXMousePointButton

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CMXMousePointY

Retrieves the *y* member of a mouse point.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXMousePointY(point)
   INTEGER point
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
int
CMXMousePointY(CMXMousePoint_t point);
```

ARGUMENT

point	Specifies the point's *x* and *y* coordinates, and its button member.

DESCRIPTION

CMXMousePointY retrieves the *y* part of the pixel coordinate of a mouse point.

SEE ALSO

CMXMousePointX
CMXMousePointButton

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CMXProcessEvents

Allows the window to respond to input events while a program is running.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXProcessEvents(widget)
   INTEGER widget
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXProcessEvents(Widget widget);
```

ARGUMENT

widget	Specifies a widget.

DESCRIPTION

CMXProcessEvents allows the window to respond to input events while a program is running. This routine is seldom needed; use it only if you need the window to change size or otherwise respond to input events while your program is running.

This routine returns immediately if there are no events pending; if there *are* pending events, it processes them and returns. It never waits for additional events to arrive.

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CMXPutImage, CMXPutImage1

Displays an image, one pixel per array element.

CM FORTRAN SYNTAX

```
 INCLUDE '/usr/include/cm/cmx-cmf.h'

 SUBROUTINE CMXPutImage(dpy, drawable, gc, data, depth, src_x, src_y,
&                       dst_x, dst_y, width, height)

 SUBROUTINE CMXPutImage1(dpy, drawable, gc, data, depth, src_x, src_y,
&                        dst_x, dst_y, width, height)

   INTEGER dpy
   INTEGER drawable
   INTEGER gc
   INTEGER data(array_size, array_size)
   INTEGER depth
   INTEGER src_x, src_y
   INTEGER dst_x, dst_y
   INTEGER width, height
```

NOTE: Because the array argument must be declared with an explicit rank, these routines cannot be defined in the CMX11 CM Fortran include files. If you want parameter type checking when the program is compiled, you must declare these routines with the desired dimensions in an **INTERFACE** block in your program. Sample **INTERFACE** blocks that may be copied into your program are available as comments in the include file **/usr/include/cm/cmx-cmf.h**.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXPutImage(Display *dpy, Drawable drawable, GC gc,
    int:current data, int depth, int src_x, int src_y,
    int dst_x, int dst_y, int width, int height);
```


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```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXPutImage1(Display *dpy, Drawable drawable, GC gc,
    bool:current data, int depth, int src_x, int src_y,
    int dst_x, int dst_y, int width, int height);
```

ARGUMENTS

dpy	An integer identifying the X11 display to which you wish to draw. The value for this argument is returned for a CMX11 display by **CMXGetDisplay**.
drawable	An integer identifying the window on *dpy* to which you wish to draw. The value for this argument is returned for a CMX11 display by **CMXGetDrawable**.
gc	An integer identifying the X11 graphics context to be applied when drawing the image to the display. The value for this argument is returned for a CMX11 display by **CMXGetGC**.
data	A 2D parallel array containing integer color values to be transferred to the display. The *data* array elements must be 8 or 32 bits.
depth	The image depth of the display in bits.
src_x, *src_y*	The coordinates in the *data* array of the first element to be read.
dst_x, *dst_y*	The coordinates in the *dpy* window where the first color value is to be written.
width, *height*	The dimensions of the array to be transferred to the display. *width* is the number of pixels in the horizontal (x) dimension, and *height* is the number of pixels in the vertical (y) dimension.

DESCRIPTION

CMXPutImage and **CMXPutImage1** transfer an image stored in the *data* parallel array to the X display. Each element of the array corresponds to a pixel of the image.

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The *data* describes an image on the CM that is to be combined with a rectangle in the display window. The *data* elements are integer color values. With this release of the CMX11 library, the *data* array elements must be 8 or 32 bits, and the *depth* of the display drawable must be 1 or 8 bits. The *dst_x* and *dst_y* coordinates define where the upper left corner of the *data* image is to be placed in the window.

`CMXPutImage` combines the color values in the *data* array with the pixel values already present in the display according to the value of **`function`** in the *gc* graphics context. The first data element (1,1) will be combined with the pixel value in the display window at (*dst_x*, *dst_y*), element (2,1) is combined with the value at (*dst_x* + 1, *dst_y*), and so on. Each successive data element is written to the pixel in the display window corresponding to its position in the *data* array.

`CMXPutImage1` transfers the least significant bit of each *data* element to the display. If the least significant bit is set, the corresponding pixel in the image is set to the color defined by the **`foreground`** element of the graphics context. If the least significant bit is not set, the pixel is set to the graphic context's background color.

Both routines automatically decompose the request to make sure that the maximum request size of the display's X Window System server is not exceeded.

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CMXSetArgcArgv

Enables X11 command line options for C*.

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetArgcArgv(int argc, char **argv);
```

ARGUMENTS

argc	Comes from argument to main.
argv	Comes from arguments to main.

DESCRIPTION

CMXSetArgcArgv enables the CMX11 create routines to parse the command line for user-supplied options.

After **CMXSetArgcArgv** has been called in a program, **CMXCreateSimpleDisplay** and **CMXCreateDisplayClass** automatically parse command line arguments. These routines recognize the CMX11 option **-display** or any of the options recognized by the X11 routine **XtOpenDisplay**. After the **-display** option you may specify the X11 server on which you wish to open the CMX11 display. For information on the X11 options see your X Window System documentation.

SEE ALSO

CMXCreateSimpleDisplay
CMXCreateDisplayClass
CMXSetArgcArgvF

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CMXSetArgcArgvF

Enables X11 command line options for CM Fortran.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetArgcArgvF( )
```

ARGUMENTS

None.

DESCRIPTION

CMXSetArgcArgvF enables the CMX11 create routines to parse the command line for user-supplied options.

After **CMXSetArgcArgvF** has been called in a program, **CMXCreateSimpleDisplay** and **CMXCreateDisplayClass** automatically parse command line arguments. These routines recognize the CMX11 option **-display** or any of the options recognized by the X11 routine **XtOpenDisplay**. After the **-display** option you may specify the X11 server on which you wish to open the CMX11 display. For information on the X11 options see your X Window System documentation.

SEE ALSO

CMXCreateSimpleDisplay
CMXCreateDisplayClass
CMXSetArgcArgv

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CMXSetBackground

Sets background color for a CMX11 display.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetBackground(display, gc, background)
   INTEGER display
   INTEGER gc
   INTEGER background
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetBackground(Display *display, GC gc, int background);
```

ARGUMENTS

display	An integer identifying the X11 display. The value for this argument is returned for a CMX11 display by **CMXGetDisplay**.
gc	An integer identifying the X11 graphics context for which the color is to be set. The value for this argument is returned for a CMX11 display by **CMXGetGC**.
background	An integer specifying the background color. The *background* value is a index into the display's current colormap.

DESCRIPTION

CMXSetBackground sets the **background** element in the graphics context used by certain CMX11 calls, such as **CMXPutImage1**. It does *not* set the background color for the window.

NOTE: This routine is simply a wrapper for the X11 routine **XSetBackground**. C* programmers can just call the X11 routine.

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SEE ALSO

CMXSetForeground

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CMXSetColormap

Sets the **Colormap** field in a CMX11 display structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXSetColormap(cmx_display_t, cmap)
   INTEGER cmx_display_t
   INTEGER cmap
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
Colormap
CMXSetColormap(CMX_display_t cmx_display_t, Colormap cmap);
```

ARGUMENTS

cmx_display_t	A CMX11 display identifier as created by **CMXDisplayAlloc**.
cmap	A pointer to an X11 **Colormap** structure. For CMX11 displays, *cmap* is returned by **CMXGetColormap**.

DESCRIPTION

CMXSetColormap sets the colormap field in a CMX11 display structure to *cmap*. You can return *cmap* with **CMXGetColormap**. The display structure is used to identify a CMX11 display and to carry information about it.

NOTE: Normally, you do not need to create or access a CMX11 **cm_display_t** structure directly. The structure is created and the **Colormap** field is set by the routines that create the CMX11 displays: **CMXCreateSimpleDisplay**, **CMXCreateDisplayClass**, or **CMXCreateDisplay**.

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You can set the colors in a colormap for a CMX11 display with the routines **CMXAllocateColors**, **CMXLoadColorArrays**, **CMXStoreColor**, and **CMXStoreColors**. Other CMX11 routines allow you to get information about the display's color characteristics:

CMXBitsOfBlue
CMXBitsOfGreen
CMXBitsOfRed
CMXColormapBlueSize
CMXColormapGreenSize
CMXColormapRedSize
CMXColormapSize
CMXGetDepth
CMXHasColormap
CMXIsColor
CMXIsRGB

SEE ALSO

CMXGetColormap
CMXSetDisplay
CMXSetDrawable
CMXSetGC
CMXSetVisualInfo
CMXSetWidget

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CMXSetDisplay

Sets the **Display** field in a CMX11 display structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetDisplay(cmx_display_t, display)
   INTEGER cmx_display_t
   INTEGER display
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
Display*
CMXSetDisplay(CMX_display_t cmx_display_t, Display *display);
```

ARGUMENTS

cmx_display_t	A CMX11 display structure as created by **CMXDisplayAlloc**.
display	A pointer to an X11 **Display** structure. For CMX11 displays, this is returned by **CMXGetDisplay**.

DESCRIPTION

CMXSetDisplay sets the **Display** field in a CMX11 **cm_display_t** structure to *display*. The **cm_display_t** display structure is used by the CMX11 library to identify a CMX11 display and to carry information about it.

NOTE: Normally, you do not need to create or access a CMX11 **cm_display_t** structure directly. The structure is created and the **Display** field is set by the routines that create the CMX11 displays: **CMXCreateSimpleDisplay**, **CMXCreateDisplayClass**, or **CMXCreateDisplay**.

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SEE ALSO

CMXGetDisplay
CMXSetColormap
CMXSetDisplay
CMXSetDrawable
CMXSetGC
CMXSetVisualInfo
CMXSetWidget

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CMXSetDrawable

Sets the **Drawable** field in a CMX11 display structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXSetDrawable(cmx_display_t, drawable)
   INTEGER cmx_display_t
   INTEGER drawable
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
Drawable
CMXSetDrawable(CMX_display_t cmx_display_t, Drawable drawable);
```

ARGUMENTS

cmx_display_t	A CMX11 display identifier as created by **CMXDisplayAlloc**.
drawable	A pointer to an X11 **Drawable** structure. You can return the *drawable* for a CMX11 display with **CMXGetDrawable**.

DESCRIPTION

CMXSetDrawable sets the **Drawable** field in *cmx_display_t* to *drawable*. The **cm_display_t** display structure is used by the CMX11 library to identify a CMX11 display and to carry information about it.

NOTE: Normally, you do not need to create or access a CMX11 **cm_display_t** structure directly. The structure is created and the **Drawable** field is set by the routines that create the CMX11 displays: **CMXCreateSimpleDisplay**, **CMXCreateDisplayClass**, or **CMXCreateDisplay**.

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SEE ALSO

CMXGetDrawable
CMXSetColormap
CMXSetDisplay
CMXSetGC
CMXSetVisualInfo
CMXSetWidget

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CMXSetForeground

Sets foreground color for a CMX11 display.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetForeground(display, gc, foreground)
   INTEGER display
   INTEGER gc
   INTEGER foreground
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetForeground(Display *display, GC gc, int foreground);
```

ARGUMENTS

display	An integer identifying the X11 display. The value for this argument is returned for a CMX11 display by **CMXGetDisplay**.
gc	An integer identifying the X11 graphics context for which the color is to be set. The value for this argument is returned for a CMX11 display by **CMXGetGC**.
foreground	An integer specifying the foreground color to be used for the display. The *foreground* value is a index into the display's current colormap.

DESCRIPTION

CMXSetForeground sets the **foreground** element in the graphics context that defines the color to be used as the foreground for this display.

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This color is used by the CMX11 drawing functions that do not specify a color array: **CMXDrawPoint**, **CMXDrawLine**, **CMXDrawRectangle**, **CMXDrawArc**, **CMXFillArc**, and **CMXDrawString**.

NOTE: This routine is simply a wrapper for the X11 routine **XSetForeground**. C* programmers can just call the X11 routine.

SEE ALSO

CMXSetBackground

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CMXSetGC

Sets the **GC** (graphics context) field in a CMX11 display structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetGC(cmx_display_t, gc)
   INTEGER cmx_display_t
   INTEGER gc
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
GC
CMXSetGC(CMX_display_t cmx_display_t, GC gc);
```

ARGUMENTS

cmx_display_t	A CMX11 display identifier as created by **CMXDisplayAlloc**.
gc	A pointer to an X11 **GC** (graphics context) structure. You can return the *gc* for a CMX11 display with **CMXGetGC**.

DESCRIPTION

CMXSetGC sets the **GC** field in *cmx_display_t* to *gc*. The **cm_display_t** display structure is used by the CMX11 library to identify a CMX11 display and to carry information about it.

NOTE: Normally, you do not need to create or access a CMX11 **cm_display_t** structure directly. The structure is created and the **GC** field is set by the routines that create the CMX11 displays: **CMXCreateSimpleDisplay**, **CMXCreateDisplayClass**, or **CMXCreateDisplay**.

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SEE ALSO

CMXGetGC
CMXSetColormap
CMXSetDisplay
CMXSetDrawable
CMXSetVisualInfo
CMXSetWidget

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CMXSetHeight

Sets the height of an X11 widget.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetHeight(widget, height)
   INTEGER widget
   INTEGER height
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetHeight(Widget widget, int height);
```

ARGUMENTS

widget	A pointer to an X11 **Widget**. The **Widget** for a CMX11 display is returned by **CMXGetWidget**. The widget identifies the drawing surface of a display.
height	The height (vertical dimension) of the drawing area of the *widget* in pixels.

DESCRIPTION

CMXSetHeight sets the vertical size of *widget* to *height*. If the widget is displayed the size will change immediately. You can change the size of a CMX11 display by calling **CMXSetHeight** with a widget identifier returned by **CMXGetWidget**.

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SEE ALSO

CMXGetDisplay
CMXGetDrawable
CMXGetColormap

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CMXSetMousePointLocation

Fills in the *x* and *y* members of the mouse point structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetMousePointLocation(point, x, y)
   INTEGER point
   INTEGER x, y
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetMousePointLocation(CMXMousePoint_t point, int x, int y);
```

ARGUMENTS

point	Contains the point's *x* and *y* coordinates, and its button member.
x	Specifies the point's *x* coordinate.
y	Specifies the point's *y* coordinate.

DESCRIPTION

CMXSetMousePointLocation fills in the *x* and *y* members of *point*. This enables you to set the coordinates of a mouse point. The routine is useful for setting a point's coordinates before performing an "anchored" routine such as **CMXGetMouseLine** or **CMXGetMouseRectangle**.

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SEE ALSO

CMXGetMouseLine
CMXGetMouseRectangle

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CMXSetVisualInfo

Sets the **XVisualInfo** field in a CMX11 display structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXSetVisualInfo(cmx_display_t, vinfo)
   INTEGER cmx_display_t
   INTEGER vinfo
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
XVisualInfo*
CMXSetVisualInfo(CMX_display_t cmx_display_t, XVisualInfo *vinfo);
```

ARGUMENTS

cmx_display_t	A CMX11 display identifier as created by **CMXDisplayAlloc**.
vinfo	A pointer to an X11 **XVisualInfo** structure. You can return *vinfo* for a CMX11 display with **CMXGetVisualInfo**.

DESCRIPTION

CMXSetVisualInfo sets the **XVisualInfo** field in the *cmx_display_t* structure to *vinfo*. The *cm_display_t* display structure is used by the CMX11 library to identify a CMX11 display and to carry information about it.

NOTE: Normally, you do not need to create or access a CMX11 **cm_display_t** structure directly. The structure is created and the **vinfo** field is set by the routines that create the CMX11 displays: **CMXCreateSimpleDisplay**, **CMXCreateDisplayClass**, or **CMXCreateDisplay**.

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SEE ALSO

CMXGetVisualInfo
CMXSetColormap
CMXSetDisplay
CMXSetDrawable
CMXSetGC
CMXSetWidget

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CMXSetWidget

Sets the **Widget** field in a CMX11 display structure.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

INTEGER FUNCTION CMXSetWidget(cmx_display_t, widget)
   INTEGER cmx_display_t
   INTEGER widget
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
Widget
CMXSetWidget(CMX_display_t cmx_display_t, Widget widget);
```

ARGUMENTS

cmx_display_t	A CMX11 display identifier as created by **CMXDisplayAlloc**.
widget	A pointer to an X11 **Widget** structure. You can return *widget* for a CMX11 display with **CMXGetWidget**.

DESCRIPTION

CMXSetWidget sets the **Widget** field in the *cmx_display_t* structure to *widget*. The *cm_display_t* display structure is used by the CMX11 library to identify a CMX11 display and to carry information about it.

NOTE: Normally, you do not need to create or access a CMX11 **cm_display_t** structure directly. The structure is created and the **Widget** field is set by the routines that create the CMX11 displays: **CMXCreateSimpleDisplay**, **CMXCreateDisplayClass**, or **CMXCreateDisplay**.

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SEE ALSO

CMXGetWidget
CMXSetColormap
CMXSetDisplay
CMXSetDrawable
CMXSetGC
CMXSetVisualInfo

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CMXSetWidth

Sets the width of an X11 **Widget**.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetWidth(widget, width)
   INTEGER widget
   INTEGER width
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetWidth(Widget widget, int width);
```

ARGUMENTS

widget	A pointer to an X11 **Widget**. The **Widget** for a CMX11 display is returned by **CMXGetWidget**. The widget identifies the drawing surface of a display.
width	The width (horizontal dimension) of the drawing area of the *widget* in pixels.

DESCRIPTION

CMXSetWidth sets the horizontal size of *widget* to *width*. If the widget is being displayed, the size of the window will change immediately. You can change the size of a CMX11 display by calling **CMXSetWidth** with a widget identifier returned by **CMXGetWidget**.

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SEE ALSO

CMXGetDisplay
CMXGetDrawable
CMXGetColormap

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CMXSetXAppClass

Sets the X11 application class for CMX11 displays.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetXAppClass(application_class)
   CHARACTER*(*) application_class
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetXAppClass(char *application_class);
```

ARGUMENT

application_class A character string containing the application class for CMX11. The default class is **CM_display**.

DESCRIPTION

CMXSetXAppClass sets the application class to be used by the X11 resource manager for CMX11 displays. The resource manager uses the application name and class to read user defaults from the resource database. The resource manager first attempts to match default values with the application name, and then, where no name is found, with the application class. The resource database is stored by default in **/usr/lib/x11/app-defaults/**, in **~/.Xdefaults**, and in the display's internal resource database loaded by **Xrdb**.

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SEE ALSO

CMXGetXAppClass

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CMXSetXAppName

Sets the X11 application name for CMX11 displays.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetXAppName(application_name)
   CHARACTER*(*) application_name
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetXAppName(char *application_name);
```

ARGUMENT

application_name A character string containing the application name for CMX11. The default name is **cm_display**.

DESCRIPTION

CMXSetXAppName sets the application name to be used by the X11 resource manager for CMX11 displays. The resource manager uses the application name and class to read user defaults from the resource database. The resource manager first attempts to match default values with the application name, and then, where no name is found, with the application class. The resource database is stored by default in **/usr/lib/x11/app-defaults/**, in **~/.Xdefaults**, and in the display's internal resource database loaded by **Xrdb**.

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SEE ALSO

CMXGetXAppName

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CMXSetXIconName

Sets the icon name for CMX11 displays.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetXIconName(icon_name)
   CHARACTER*(*) icon_name
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetXIconName(char *icon_name);
```

ARGUMENT

icon_name	A string specifying the name to be used to label the window icon.

DESCRIPTION

CMXSetXIconName sets the current icon name for CMX11. Displays created by **CMXCreateSimpleDisplay** or **CMXCreateDisplayClass** use the current icon name as a label when the display window is closed to an icon. By default the icon name is **cmdisplay**.

NOTE: The icon name is read when the display is created. For **CMXSetXIconName** to have any effect, it must be called before **CMXCreateSimpleDisplay** or **CMXCreateDisplayClass**.

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SEE ALSO

CMXGetXIconName

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CMXSetXWindowTitle

Sets the title to be used to label CMX11 display windows.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSetXWindowTitle(window_title)
   CHARACTER*(*) window_title
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSetXWindowTitle(char *window_title);
```

ARGUMENT

window_title	A character string specifying the window title.

DESCRIPTION

CMXSetXWindowTitle sets the window title to be used to label windows created for CMX11 displays. The default title is **CM display**.

When one of the CMX11 create routines opens a window on a screen that has a window manager that supports window borders, the window title is placed in the border at the top of the window.

NOTE: The window title is read when the display is created. For **CMXSetXWindow-Name** to have any effect, it must be called before **CMXCreateSimpleDisplay** or **CMXCreateDisplayClass**.

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SEE ALSO

CMXGetXWindowTitle

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CMXStoreColor

Loads RGB colors into a single entry of a colormap.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXStoreColor(display, cmap, index, r, g, b)
   INTEGER display
   INTEGER cmap
   INTEGER index
   INTEGER r, g, b
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXStoreColor(Display *display, Colormap cmap, int index,
    int r, int g, int b);
```

ARGUMENTS

display	An integer identifying the X11 display. The value for this argument is returned for a CMX11 display by **CMXGetDisplay**.
cmap	An integer identifying the X11 **Colormap** on *display* on which you wish to store the color. The value for this argument is returned for a CMX11 display by **CMXGetColormap**.
index	An integer specifying the colormap entry number to which you wish to write. This color cell must have been allocated to by **CMXAllocateColors**.
r, *g*, *b*	Integers specifying the color values for each component to be loaded into the colormap *index* entry.

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DESCRIPTION

CMXStoreColor sets the color cell at *index* in *cmap* with the color values contained in *r*, *g*, and *b*. The value for each color component controls the intensity of that color for the combined color created by the cell. 0 is off; 65535 is full intensity.

NOTE: This routine is simply a wrapper for the X11 routine **XStoreColor**. C* programmers can just call the X11 routine.

SEE ALSO

CMXAllocateColors
CMXStoreColors
CMXLoadColorArrays

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CMXStoreColors

Writes an array of RGB colors into display colormap.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXStoreColors(display, cmap, base, len, r, g, b)
   INTEGER display
   INTEGER cmap
   INTEGER base
   INTEGER len
   INTEGER r(len), g(len), b(len)
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXStoreColors(Display *display, Colormap cmap, int base,
    int len, int r[], int g[], int b[]);
```

ARGUMENTS

display	An integer identifying the X11 display. The value for this argument is returned for a CMX11 display by **CMXGetDisplay**.
cmap	An integer identifying the X11 **Colormap** on *display* on which you wish to store colors. The value for this argument is returned for a CMX11 display by **CMXGetColormap**.
base	An integer specifying the colormap entry number of the first color cell allocated to you. This is the number set in the *base* argument in **CMXAllocateColors**.
len	An integer specifying the number of color entries to be entered. The number of entries must not be more than the number of colors you allocated with **CMXAllocateColors**.

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r, *g*, *b* — Integer arrays, *len* long, containing the color values in the range of 0 to 65535 for each component to be written into the colormap.

DESCRIPTION

CMXStoreColors sets the color cells in *cmap* with the color values contained in the *r*, *g*, and *b* arrays. The first color components are written at the *base* entry. The value for each color component controls the intensity of that color for the combined color created by the cell. 0 is off; 65635 is full intensity.

The arrays can be either colormaps you have written yourself or can be one of the standard CMX colormaps created by **CMXLoadColorArrays**.

Note that an error is generated if you attempt to write color values into color cells that have been allocated to another window.

SEE ALSO

CMXAllocateColors
CMXStoreColor
CMXLoadColorArrays

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CMXSwitchMBuffers

Reverses display and draw multibuffers.

CM FORTRAN SYNTAX

```
INCLUDE '/usr/include/cm/cmx-cmf.h'

SUBROUTINE CMXSwitchMBuffers(widget, buffers)
   INTEGER widget
   INTEGER buffers
```

C* SYNTAX

```
#include <cm/cmxdisplay.h>
#include <cm/cmx-cs.h>
void
CMXSwitchMBuffers(Widget widget, Multibuffer *buffers);
```

ARGUMENTS

widget	A CMX11 widget identifier as returned by **CMXGetWidget**. The widget identifies the drawing surface of a display.
buffers	An integer identifying the multibuffer pair to be used for double buffering. This value is returned by **CMXAllocMBuffers**.

DESCRIPTION

CMXSwitchMBuffers swaps the display and draw multibuffers; the image in the draw buffer replaces the current image on *widget* and the display buffer becomes the draw buffer and is cleared. You can then write a new image to the new draw buffer and swap it in by calling **CMXSwitchMBuffers** again.

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SEE ALSO

CMXAllocMBuffers
CMXGetDrawMBuffer
CMXGetDisplayMBuffer
CMXFreeMBuffers

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