NAME

XGL_CMAP_RAMP_LIST,
XGL_CMAP_RAMP_NUM – list and number of ramps in a Color Map object

SYNOPSIS

#include <xgl/xgl.h>

Xgl_cmap cmap;

xgl_object_set(cmap, XGL_CMAP_RAMP_LIST, Xgl_segment ∗, 0);
xgl_object_set(cmap, XGL_CMAP_RAMP_NUM, Xgl_usgn32, 0);

xgl_object_get(cmap, XGL_CMAP_RAMP_LIST, Xgl_segment ∗);
xgl_object_get(cmap, XGL_CMAP_RAMP_NUM, Xgl_usgn32 ∗);

DESCRIPTION

The color table associated with an XGL Color Map object can contain one or more *color ramps*. A color ramp is a section of the color table, of specific length, that is frequently used to store color values that change only by intensity. For instance, a gray ramp could have 32 color values from dark gray to light gray, in a monotonically increasing fashion.

Color ramps are important when using vertex shading (see **XGL_3D_CTX_SURF_FRONT_-ILLUMINATION**(3)) on data whose color type is XGL_COLOR_INDEX. The colors that result from XGL's lighting and shading calculations are interpolated along color ramps within the color table to produce smooth shading effects. Therefore, if the application programmer sets the illumination model to XGL_ILLUM_PER_VERTEX, and the Device color type (see **XGL_DEV_COLOR_TYPE**(3)) is XGL_COLOR_INDEX, then at least one color ramp should be defined within the color table associated with the Raster Color Map object (see **XGL_DEV_-COLOR_MAP**(3)). In the typical case, where each ramp contains one color hue with varying intensity values, XGL expects that the intensities will increase with increasing indices in the color table. If the ramp is not initialized in this way, unexpected shading effects can occur.

Similarly, color ramps are necessary for depth-cueing (see **XGL_3D_CTX_DEPTH_CUE_-MODE**(3)) when the data's color type is XGL_COLOR_INDEX.

XGL color ramps are specified by an array of *Xgl_segment* structures, with one member of the array defining each ramp. *Xgl_segment* is defined as:

```
typedef struct {
        Xgl_usgn32    offset;   /∗ starting index of ramp in color table ∗/
        Xgl_usgn32    length;   /∗ length of ramp ∗/
} Xgl_segment;
```

It contains an offset into the color table where the ramp begins, and a length for the ramp.

To make use of ramps, the application should first create a color table (see **XGL_CMAP_-COLOR_TABLE**(3)) containing one or more ramps. Then, the application should declare and initialize an array of *Xgl_segment*s. Each member of the array defines the offset and length of a ramp in the color table. The attribute **XGL_CMAP_RAMP_LIST**(3) defines a pointer to the beginning of this *Xgl_segment* array.

Next, the application should attach both the color table and the *Xgl_segment* array to a Color Map object, via either the **xgl_object_set**(3) or **xgl_object_create**(3) operator, using the attributes XGL_CMAP_COLOR_TABLE and XGL_CMAP_RAMP_LIST, respectively. Finally, the number of color ramps within the color table must be specified by setting the **XGL_-CMAP_RAMP_NUM**(3) attribute.

The default value of XGL_CMAP_RAMP_LIST is NULL.

The default value of XGL_CMAP_RAMP_NUM is 0.

SEE ALSO

xgl_object_set(3)
xgl_object_get(3)
xgl_object_create(3)
XGL_3D_CTX_DEPTH_CUE_MODE(3)
XGL_3D_CTX_SURF_FRONT_ILLUMINATION(3)
XGL_DEV_COLOR_TYPE(3)
XGL_DEV_COLOR_MAP(3)
XGL_CMAP_COLOR_TABLE(3)