NAME

xgl_gcache_nurbs_surface – builds a Gcache of a NURBS surface

SYNOPSIS

```
#include <xgl/xgl.h>

void xgl_gcache_nurbs_surface (
        Xgl_gcache                   gcache,
        Xgl_ctx                      ctx,
        Xgl_nurbs_surf               *surface,
        Xgl_trim_loop_list           *trimming,
        Xgl_nurbs_surf_simple_geom   *hints, /* optional */
        Xgl_surf_color_spline        *color_spline, /* optional */
        Xgl_surf_data_spline_list    *data_splines ); /* not supported */
```

DESCRIPTION

This operator caches the NURBS surface defined by surface, trimming, hints, color spline, and data splines parameters in the Gcache *gcache*. Depending on the value of **XGL_GCACHE_NURBS_SURF_MODE**(3) attribute, tessellation-independent and/or polygon representations (quadrilateral meshes, triangle strips, and/or polylines) are created.

The parameters *surface*, *trimming*, *hints*, *color_spline*, and *data_splines* have the same meaning as they do in **xgl_nurbs_surface**(3).

A Gcache of a surface can contain 3D data only, so the Context *ctx* has to be a 3D context. The attribute **XGL_GCACHE_USE_APPL_GEOM**(3) is ignored. The *Xgl_gcache_nurbs_mode* structure is defined as follows:

```
typedef enum {
        XGL_GCACHE_NURBS_DYNAMIC,
        XGL_GCACHE_NURBS_COMBINED,
        XGL_GCACHE_NURBS_STATIC
} Xgl_gcache_nurbs_mode;
```

If the value of **XGL_GCACHE_NURBS_SURF_MODE**(3) attribute is XGL_GCACHE_NURBS_STATIC, the following attribute values are used to compute the tessellated representation of the surface and are also saved in the Gcache for later validation:

XGL_CTX_MIN_TESSELLATION(3)
XGL_CTX_MAX_TESSELLATION(3)
XGL_CTX_NURBS_SURF_APPROX(3)
XGL_CTX_NURBS_SURF_APPROX_VAL_U(3)
XGL_CTX_NURBS_SURF_APPROX_VAL_V(3)
XGL_CTX_NURBS_SURF_ISO_CURVE_U_NUM(3)
XGL_CTX_NURBS_SURF_ISO_CURVE_V_NUM(3)
XGL_CTX_NURBS_SURF_ISO_CURVE_PLACEMENT(3)
XGL_CTX_NURBS_SURF_PARAM_STYLE(3)
XGL_3D_CTX_MODEL_CLIP_PLANE_NUM(3)
XGL_3D_CTX_MODEL_CLIP_PLANES(3)
/* if MODEL_CLIP_PLANE_NUM > 0 */

For Gcache mode XGL_GCACHE_NURBS_STATIC, the Gcache contains the tessellated version of the surface in model coordinates (MC).

For Gcache modes XGL_GCACHE_NURBS_DYNAMIC and XGL_GCACHE_NURBS_COMBINED, no context attributes are saved for validation. For XGL_GCACHE_NURBS_DYNAMIC mode, only tessellation-independent form is stored in the Gcache. For XGL_GCACHE_NURBS_COMBINED mode, both tessellation-independent and polygon representations are stored. Also, in these cases, model clipping according to the Context *ctx* is not performed at Gcache creation time.

The display of Gcache is affected by the full transformation and clipping pipeline. The Gcache does not save the value of the parameters *surface*, *trimming*, *hints*, *color_spline*, and *data_splines*. The application is responsible for building a new Gcache with the new value of these parameters.

RETURN VALUE

Nothing is returned.

SEE ALSO

xgl_object_create(3)
xgl_context_display_gcache(3)
xgl_nurbs_surface(3)
XGL_3D_CTX_MODEL_CLIP_PLANES(3)
XGL_3D_CTX_MODEL_CLIP_PLANE_NUM(3)
XGL_CTX_MAX_TESSELLATION(3)
XGL_CTX_MIN_TESSELLATION(3)
XGL_CTX_NURBS_SURF_APPROX(3)
XGL_CTX_NURBS_SURF_APPROX_VAL_U(3)
XGL_CTX_NURBS_SURF_APPROX_VAL_V(3)
XGL_CTX_NURBS_SURF_ISO_CURVE_U_NUM(3)
XGL_CTX_NURBS_SURF_ISO_CURVE_V_NUM(3)
XGL_CTX_NURBS_SURF_ISO_CURVE_PLACEMENT(3)
XGL_CTX_NURBS_SURF_PARAM_STYLE(3)
XGL_GCACHE_NURBS_SURF_MODE(3)
XGL_GCACHE_USE_APPL_GEOM(3)