



Logged in as: *brutzman* (Don Brutzman - developer) 2020-05-31
08:52 PDT

Project: X3D



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Issue #

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|--------------------|----------|-----------------------|-------------|------------------------|---------------------|
| 0001280 | X3D | 19775-1 (Abstract) | public | 2020-02-01 12:34 | 2020-05-31 08:52 |
| Reporter | brutzman | | | | |
| Assigned To | npolys | | | | |
| Priority | normal | Severity | minor | Reproducibility | have not tried |
| Status | assigned | Resolution | open | | |

Summary 0001280: Add quality parameter for Geometry3D primitives

Description Nicholas Polys writes:

-- Submitter indicates that this comment may be public: *Yes* --

Comment on 19775-1: Abstract X3D Definitions - V3.3 13 Geometry3D
<https://www.web3d.org/documents/specifications/19775-1/V3.3/Part01/components/geometry3D.html#Nodereference>

Browser.PrimitiveQuality ... (as X_ITE does)

OR

put a field on each primitive:

like X3DOM subdivision='32' for Cone and Cylinder

subdivision='24,24' for Sphere

Additional Information See: <https://www.web3d.org/node/1694/submission/3849>

Tags V4.0

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Notes

~0002520

brutzman (developer)

2020-02-01 13:10

Last edited: 2020-05-31

08:37

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Related:

* Part 2: Scene access interface (SAI), 6 Services reference, 6.3.21
getRenderingProperties<https://www.web3d.org/documents/specifications/19775-2/V3.3/Part02/servRef.html><https://www.web3d.org/documents/specifications/19775-2/V3.3/Part02/servRef.html#getRenderingProperties>

Properties listed: Shading, MaxTextureSize, TextureUnits, AntiAliased, ColorDepth, TextureMemory

"The user shall not be able to directly effect the rendering properties of the browser by modifying the properties returned by this service."

Xj3D has added Browser property primitiveQuality. This is helpful if using Browser class within an SAI script, but such properties are rarely used in practice, and are not simply available as settable parameter in a plain scene under Interchange/Interactive Profiles where the nodes are allowed.

* BrowserConfig.java

/** Primitive geometry quality. "low"|"medium"|"high". Default "medium". */

public String primitiveQuality;

Discussion:

a. Historically no mention of polygonal quality was made in VRML/X3Dv3.0 because browser implementers wanted flexibility to tessellate as they see

fit.

b. Since no mention of rendering quality appears to be made in the specification, one might surmise that the geometry is considered perfect mathematically and should always be smooth.

c. In practice many/most players create a one-time mesh and then do not consider user proximity or perceived fidelity. This makes primitive rendering very efficient.

d. If added to the specification, definition prose should include (or allow definition of) polygonal resolution.

Email thread:

* [x3d-public] Add quality parameter to Geometry3D primitives
https://web3d.org/pipermail/x3d-public_web3d.org/2020-February/011748.html

Followup:

Defining something like "subdivision" field as mentioned there does not pass common-sense test. Any mechanism must be sensible to new authors, since primitive nodes are typically what they learn first.

Of note is that browsers are welcome to substitute any geometry they wish at run time, including parametric surfaces (as long as geometric results are a Sphere with correct radius, for example).

Suggested approach, if included:

```
=====
[initializeOnly] SFString primitiveQuality "MEDIUM" ["LOW", "MEDIUM",
"HIGH"]
```

The /primitiveQuality/ field is an authoring hint regarding tessellation resolution expected for this geometry. Browser implementations may vary.
=====

~0002583

brutzman (developer)

2020-05-31 08:52

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|---------------------|--------------------------|-------------------------|---|
| 2020-02-01 12:34 | brutzman | New Issue | |
| 2020-02-01 12:34 | brutzman | Status | new => assigned |
| 2020-02-01 12:34 | brutzman | Assigned To | => npolys |
| 2020-02-01 12:34 | brutzman | Tag Attached: V4.0 | |
| 2020-02-01 12:35 | brutzman | Summary | Add quality parameter to Geometry3D primitives => Add quality parameter for Geometry3D primitives |
| 2020-02-01 13:10 | brutzman | Note Added: 0002520 | |
| 2020-02-01 13:21 | brutzman | Note Edited: 0002520 | View Revisions |
| 2020-05-31 08:37 | brutzman | Note Edited: 0002520 | View Revisions |
| 2020-05-31 08:52 | brutzman | Note Added: 0002583 | |

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