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ID	Project	Category	View Status	Date Submitted	Last Update
0001194	X3D	19775-1 (Abstract)	public	2017-11-08 05:39	2018-01-28 17:51

Reporter	walroy				
Assigned To					
Priority	normal	**Severity**	minor	**Reproducibility**	N/A
Status	acknowledged	**Resolution**	open		

Summary   0001194: 23.4.4 NavigationInfo - VIEWALL should be a required navigation behaviour

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

Comment on 19775-1: Abstract X3D Definitions - V3.3
23.4.4 NavigationInfo
http://www.web3d.org/documents/specifications/19775-1/V3.3/Part01/components/navigation.html#NavigationInfo

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Subject: "VIEWALL" needs to be a required navigation behavior

A common failure mode for end users is to have no viewpoint, or incorrect viewpoints, inside a large X3D model. Such a situation means that there is no way to tell if the scene is empty, or the browser is broken, or what else might be going on.

This pathology is becoming more prevalent as CAD and 3D printing models are created more frequently, especially with varying units.

VIEWALL thus needs to be available as a navigation option (and also recovery mode)

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for users.

A number of X3D browsers have already implemented this functionality, which therefore appears to be well understood.

Suggest adding:

"VIEWALL" zooms back to show all geometry in a scene, either from the current location or from the default viewpoint location.

Additional Information	Submitted on Thursday, 2017, November 2 - 9:52am by brutzman (brutzman) IP: 162.225.68.164
	See: http://www.web3d.org/node/1694/submission/1552
Tags	No tags attached.
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~0002193   Reply may be made public.
walroy (developer)

2017-11-08 05:42

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Isn't this more of a Viewpoint option than a NavigationInfo one? NavigationInfo specifies how a viewer moves in the scene (walk, examine, etc.), not where the viewer is looking from (camera position/orientation).

23.4.4 NavigationInfo: "The NavigationInfo node contains information describing the physical characteristics of the viewer's avatar and viewing model."

23.4.6 - Viewpoint: "The Viewpoint node defines a viewpoint that provides a perspective view of the scene."

Submitted by Leonard Daly on 2nd November 2017
http://web3d.org/mailman/private/x3d_web3d.org/2017-November /006496.html

~0002195
walroy (developer)
2017-11-16 05:34
Last edited: 2018-01-24
09:45
View 2 revisions

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Extract from minutes of X3D Mantis subgroup meeting held 13th November 2017
http://web3d.org/mailman/private/x3d_web3d.org/2017-November /006544.html

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The discussion opened with a restatement of the intended behaviour. If a scene author allows NavigationInfo type "VIEWALL" or "ANY" then the X3D browser user is offered an option to "View All" on the X3D browser interface. On the other hand, If the scene author does not include "VIEWALL" or "ANY" then the "View All" option on the X3D browser interface would be inhibited. The scene author could desire this latter behaviour for privacy or user experience reasons.

When a user selects the "View All" option on the X3D browser, two candidate behaviours might be implemented: 1), The viewpoint moves along the vector from the current viewpoint to the centre of the scene, which might be in or out, in order to view the complete scene, or 2) the X3D browser somehow selects a new viewpoint. There might even be an option to do behaviour 1) on the first selection, and 2) on repeat selection. Both behaviours could be described in the prose. The action for behaviour 1) could be specified as a rotation of the viewpoint to the centre of the scene, followed by a zoom in or out as appropriate.

The use case of a scene author wanting to animate the "View All" behaviour was then considered. An X3D browser can always compute a centre, or a weighted centre of a scene. A scene author could include a separate NavigationInfo node with only the VIEWALL mode selected. On binding that node the "View All" animation would be animated.

It was noted that there would also be a need to consider timing issues with the "isBound" and "bindTime" output events, particularly when a change of viewpoint is being animated. However, it was also recognized that the "Jump" field of the Viewpoint node controls whether the change of viewpoint is instantaneous, or animated.

Remembering the comment submitted by Leonard that this might be considered to be a Viewpoint attribute rather than a NavigationInfo attribute, this alternative approach was considered next. For example, a field could be added to the Viewpoint node called, "fit". This should still allow a scene author to permit, or disallow, the "View All" option as appropriate, by creating a separate Viewpoint with the "fit" field set to true. This Viewpoint, like all Viewpoint nodes, would be listed in the X3D browser interface, so selectable by the user.

A minor drawback of not having a "VIEWALL" type in the NavigationInfo node would mean that scene authors would always have to provide this option, rather than it being available by default provided that "ANY" type of navigation is permitted. Having VIEWALL available by default, unless the scene author chooses to inhibit it, automatically provides a recovery option for an X3D browser user having viewing difficulties.

~0002260
brutzman (developer)
2018-01-25 23:54
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Related:

X3D 19775 Abstract Spec, Annex G Recommended navigation behaviours (informative)
http://www.web3d.org/documents/specifications/19775-1/V3.3/Part01/behaviours.html#SelectFromMulitpleViewpoints

"This annex describes basic X3D scene navigation recommended practice." and
"Features that imply interactivity are fundamental in X3D."

Of note: Annex G is not referred to by NavigationInfo section and likely should be.

Further discussion thread by X3D Working Group, needs to move to x3d-public forum:

[x3d] Thoughts on VIEWALL proposal - Mantis 1194 by Roy Walmsley
http://web3d.org/mailman/private/x3d_web3d.org/2018-January/006769.html

~0002261
brutzman (developer)
2018-01-28 17:49
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One example VIEWALL algorithm for X3D browser:

a. compute bounding box and center for entire current scene.
b. stay at current location, re-orient view to look at that center.
c. move out (or in) along that vector until bounding box is within view frustum.
d. (Dick's variation) if objects are very small, might need to move in further, or draw the bounding box, or something.

Not a goal: strictly specifying such an algorithm to allow compatible browser innovations, since different approaches might be appropriate depending on user/scene context.

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Date Modified	Username	Field	Change
2017-11-08 05:39	walroy	New Issue	
2017-11-08 05:42	walroy	Note Added: 0002193	
2017-11-13 11:39	walroy	Status	new => acknowledged
2017-11-16 05:34	walroy	Note Added: 0002195	
2018-01-24 09:45	brutzman	Note Edited: 0002195	View Revisions
2018-01-25 23:54	brutzman	Note Added: 0002260	
2018-01-28 17:49	brutzman	Note Added: 0002261	
2018-01-28 17:51	brutzman	Description Updated	View Revisions