Comments on ISO/IEC CD 19775-1

by  
Web3D Consortium

Cover note: The Web3D Consortium Mantis Issue Tracker needs to be visible to all specification editors in order to see full detail surrounding each issue. Best efforts at resolution (drafts and final recommended versions of prose) are found there.

# General

The following comments apply to the entire document:

1. Entire document  
   The entire specification should be processed through a link checker.
2. Entire document  
   Annex Z and the node index should be checked against all node signatures to insure that all nodes are accurately represented.

# Technical

1. **5.3.14 SFString and MFString**, Mantis 1052The definition needs to be updated to be consistent with ISO 10646. The following text is suggested:  
     
   “The SFString field specifies a sequence of characters from the Universal Coded Character Set of ISO 10646:2014. The MFString field specifies 0 or more SFString values.   
     
   The default value of an uninitialized SFString field is the empty string. The default value of an uninitialized MFString is the empty list.”
2. **19.4.13 SquadOrientationInterpolator**The SFBool closed field is missing along with its description. In addition, the SFBool normalizeVelocity does not specify how this is calculated, Mantis 1181 and Mantis 1117

1. **25.3.6 GeoOrigin**, Mantis 741  
   This field is no longer deprecated. The following change should be made:  
     
   Remove " (deprecated)" from the heading and change the first paragraph from:

“GeoOrigin node usage is deprecated and its use is discouraged. The presence of a GeoOrigin node is tolerated but can be ignored in X3D scenes having version 3.0, 3.1 or 3.2. GeoOrigin node is not allowed in X3D scenes having version 3.3 or higher."

To:

"GeoOrigin usage is discouraged because content built with different GeoOrigin nodes cannot be easily combined. GeoOrigin is still needed in some situations to achieve correct visual fidelity. Relevant GeoOrigin examples include centimeter scale positioning in a global context, and deploying to handheld devices which may use lower-precision arithmetic in their graphics pipelines."

1. **36.4.2 Layout Group**, Mantis 887LayoutGroup should be derived from X3DNode and X3DBoundedObject rather than X3DGroupingNode since not all grouping nodes can be included in a LayoutGroup.
2. **37.4.13 SliderJoint**, Mantis 791SliderJoint axis has default 0 0 0 vector values, which is an illegal direction. Also, the SliderJoint axis also needs prose that states this restriction (rather than “normalized vector”).
3. **Table 37.2**, Mantis 844  
   The hyphen as part of enumerated values for appliedParameters should be removed as it is error prone since it can easily be replaced by the Unicode character mdash (—) leading to mysterious failures. The entire document should be checked to remove unnecessary hyphens.
4. **18.4.5 MultiTextureTransform, Mantis 894**

textureTransform field incorrect limits need correction.

# Editorial

## EC

1. The following 247 issues are predominantly editorial. Some may require technical resolution. The X3D Working Group continues refining the recommended disposition of each comment and recording best-phrased reconciliation in the Mantis issues database.

Mantis Specification paragraph and issue summary

1147 02 Normative references - Invalid anchor tags

925 02 Normative References - Missing reference for IEEE floating point specification

1062 02 Normative references - What is the correct RFC for Tags for Identifying Languages

860 03 Terms, definitions, acronyms, and abbreviations

1173 03 Terms, definitions, acronyms, and abbreviations - Definition of node and statement are insufficient

1074 03.1.40 interpolator node - Incorrect definition

848 04 Concepts - Can Prototypes replace any node

884 04 Concepts, Figure 4.2 Interface hierarchy - ProjectionVolumeStyle listed twice

1076 04.2.1 X3D browsers - Improved usage of "viewer" and "viewpoint" terms

836 04.3.2 Root nodes - Additional nodes need to be allowed as root nodes

1077 04.3.7 Behaviour graph - Unclear introduction of "(routes)"

1130 04.4.2.2 Field semantics - Missing application to initializeOnly fields

812 04.4.2.3 Interface hierarchy - Incorrect inheritance tree for ViewpointGroup node

1132 04.4.3 DEF/USE semantics - No definition of "context"

1170 04.4.3 DEF/USE semantics - No general restrictions on valid DEF names

1131 04.4.3 DEF/USE semantics - Unclear statement

261 04.4.4 Prototype semantics - Formal Support for appinfo and documentation fields

1169 04.4.4.2 PROTO interface declaration semantics - Clarification of encoding text

1155 04.4.4.2 PROTO interface declaration semantics - No restriction on adding a "metadata" field

1108 04.4.4.2 PROTO interface declaration semantics - Prototype field declarations need locally unique names

1109 04.4.6 Import/Export semantics - Need to specify uniqueness of names

1089 04.4.8.2 Route - Ambiguity about route statement location

773 04.5 Components - Undefined concepts

1070 04.6.1 Overview - Profile lists omit MedicalInterchange Profile

1052 05.3.14 SFString and MFString types - Align definitions to ISO/IEC 10646:2014 edition

1092 07 Core component - MetadataSet or Metadata\* node(s) as root nodes

748 07.2.1 Overview of the core - Remove erroneous abstract node

1192 07.2.2 Bindable children nodes - Undefined results if bindable node is under Switch or LOD is problematic

1300 07.2.4 Consistently unify metadata model for GeoMetadata and HAnimHumanoid info array

1218 07.2.4 MetadataDate - New node type, or new data type

753 07.2.4.4 Assigning metadata to an entire X3D world - Incorrect link

1174 07.2.5.1 Organization - Comments are not clearly defined

1164 07.2.5.2 Header statement - Human-readable text in a binary encoding

759 07.2.5.5 UNIT statement - Missing formulae

758 07.2.5.5 UNIT statement - Misspelling

686 07.3.4 metadata field cannot accept X3DMetadataObject type

717 07.3.4 X3DMetadataObject - Add value field

764 07.3.4 X3DMetadataObject - Is name field required?

716 07.4.7 WorldInfo - Change access type

1106 08.2.4.4 Pausing time - Settings on resuming after pause

1080 08.4.1 TimeSensor - TimeSensor cycleInterval needs to be modifiable when running

905 08.5 Support levels - Misnamed field for TimeSensor in table

963 09.2.1 URLs - Is "earth-topo.png" a valid URL?

937 09.2.5 IMPORT statement - Missing definition of where used

670 09.4.2 - Added Capability for Inline Viewpoint binding

1151 09.4.2 Inline - Inline is silent about head, component, unit, and meta statements

966 09.5 Networking component - Support levels - Wrong number of levels

962 10.2.1 Grouping and children node types - improve wording

1195 10.4.4 Transform - Duplicated text

1190 11 Rendering component: Triangle nodes - CoordinateDouble not explicitly listed for Triangle nodes

1217 11.2.2.2 Color - Duplicative paragraph name

971 11.2.3 Common geometry fields - Clarify creaseAngle usage

1219 11.3.3 X3DCoordinateNode, correction to coord references

702 11.4.1 ClipPlane - Incomplete definition

843 11.4.14 TriangleStripSet - Vertex ordering clarification

1341 12.2.3 Two-sided materials, change 'solid' field (single-sided or double-sided rendering) to accessType inputOutput

1340 12.4.2 Appearance: add Appearance alphaMode, alphaCutoff for consistency with glTF

1193 13.2.2 Shape and geometry nodes - Warnings needed about nonplanar and self-intersecting polygons

878 13.3.4 ElevationGrid - No explicit statement of row-major order

923 13.3.5 Extrusion - Edge cases

1209 13.3.5 Extrusion - Tesselation of quadrilaterals missing for various nodes

325 13.3.5.4 Special cases for Extrusion

1198 14.3.2 ArcClose2D - Confusion and missing functionality

1199 14.3.2 ArcClose2D - Diagrams are misleading, node is polygonal, not line-based

939 14.3.4 Disk2D - Add startAngle and endAngle fields

960 15 Text component - Missing overview description

973 17.2.2.3 Lighting 'on' - Alpha modulation

1359 17.2.2.5 Phong lighting model, Change whether ambientParameter is affected by diffuseTexture

672 17.3.1 - Incompatibility between various lighting nodes

1336 17.4.2 EnvironmentLight - Khronos glTF extension for image based lighting

892 18.4.3 MultiTexture - Missing or incorrect range limits

893 18.4.4 MultiTextureCoordinate - texCoord field incorrect limits

894 18.4.5 MultiTextureTransform - textureTransform field incorrect limits

479 18.4.9 TextureProperties - Ambiguous Definitions

921 18.4.9 TextureProperties - borderWidth upper limit

1117 19.4.13 SquadOrientationInterpolator - Missing field and missing explanation

1181 19.4.13 SquadOrientationInterpolator - normalizeVelocity field should be closed field

928 19.4.8 PositionInterpolator2D - typo in PositionInterpolator2D description

959 20 Pointing device sensor component - Missing top-level description

1203 20.4.1 CylinderSensor and 20.4.2 PlaneSensor - Clarification of axisRotation field

956 22 Environmental sensor component - Missing top level description

903 22.3.1 X3DEnvironmentalSensorNode - Definition improvement

873 22.3.1 X3DEnvironmentalSensorNode - size field incorrect minimum value

922 22.4.2 TransformSensor - Inconsistent content model

958 23 Navigation component - Missing top-level description

694 23.3.1 X3DViewpointNode - Incorrect indefinite article

866 23.3.1 X3DViewpointNode - Viewpoint change prose not clear

1149 23.4.2 Collision proxy: child content model insufficiently strict

951 23.4.3 LOD - Avoiding nested LOD nodes

889 23.4.3 LOD - range field has incorrect limits

674 23.4.3 LOD and 25.3.4 GeoLOD - Missing default behavior when no range value provided

1301 23.4.4 check geospatial navigation to see if NavigationInfo modes are sufficient

707 23.4.4 NavigationInfo - TURNTABLE type

1238 23.4.5 Clarify ambiguous functional specification for OrthoViewpoint

909 24.5 Support levels - X3DFogObject not listed in table

1215 25.2.3 Specifying a spatial reference frame - Inaccurate UTM example

938 25.2.3 Specifying a spatial reference frame - UTM values don't include optional "N"

924 25.3.1 GeoCoordinate - Missing link entries for spatial reference frames

876 25.3.10 GeoTransform - Inconsistent scale field limits

780 25.3.11 GeoViewpoint - Inconsistent hierarchy

872 25.3.2 GeoElevationGrid - Inconsistent limits/default values

802 25.3.5 GeoMetadata "data" field: append type restriction or consider deprecating

741 25.3.6 GeoOrigin - removing deprecation status

776 26 Humanoid animation (H-Anim) component - Component levels

961 26.1.1 HAnim vice H-Anim: removing hyphen in X3D component name

772 26.3 Node reference - name field required

886 26.3.1 HAnimDisplacer: corrected bounds for coordIndex field

1213 26.3.2 HAnimHumandoid - skin field has mismatched node type

1127 26.3.2 HAnimHumanoid - joints field clarification

883 26.3.3 HAnimJoint - No bounds for skinCoordIndex field

1113 26.3.3 HAnimJoint - stiffness field has incorrect default value

692 27 Nurbs component - Inconsistent access type for all fields relating to geometry definition

1102 27.2.3 Common geometry fields and correctness - Consecutive equal valued knots

967 27.2.3 NURBS component - Common geometry fields and correctness - Wrong lower range limits for weight

898 27.4.10 NurbsSurfaceInterpolator - Incorrect text description

932 27.4.13 NurbsTextureCoordinate - Inconsistent type for weight field

896 27.4.6 NurbsOrientationInterpolator - Incorrect text description

897 27.4.8 NurbsPositionInterpolator - Incorrect text description

700 27.4.9 NurbSet - Change child model

955 28 Distributed Interactive Simulation (DIS) component - missing Overview statement

800 28.3.1 DISEntityManager - Append type restriction

929 28.3.1 DISEntityManager - Mislabeled section title

782 28.3.3 EspduTransform - Inconsistent hierarchy

930 28.3.3 EspduTransform - Incorrect access type for rtpHeaderExpected field

540 28.3.3 EspduTransform - Review Definition

901 28.3.4 ReceiverPdu - Inconsistent field type

783 28.3.4 ReceiverPdu - Inconsistent hierarchy

784 28.3.5 SignalPdu - Inconsistent hierarchy

785 28.3.6 TransmitterPdu - Inconsistent hierarchy

869 29.2.8 Script languages - broken relative link, need to check all links

859 3 Terms, definitions, acronyms and abbreviations - Review terms

1185 30.2.4 Sequencing single field (SF) events - Discrete value sequencing function

1093 30.2.4 Sequencing Single Field (SF) events - Notation in sequencing function

1094 30.3.1 X3DSequencerNode - Initial output value assumed by next and previous events unspecified

1128 30.3.1 X3DSequencerNode - next, previous field response missing behavior of fraction field

519 30.4.6 IntegerTrigger, 30.4.7 TimeTrigger - Additional Text

1154 31.3.3 X3DVertexAttributeNode - "name" field needs to be required

842 31.4.7 ShaderPart - Wording improvement

793 32.4.2 CADFace - Change field signature

1189 32.4.5 IndexedQuadSet - Consistent definitions that quadrilaterals are planar

863 32.4.5 IndexedQuadSet, 32.4.6 QuadSet - Are quads rectangular? Planar?

862 32.4.6 QuadSet, 32.4.5 IndexedQuadSet - Awkward description, planar

978 33, Figure 33.1 Formation of 3D texture from 2D textures - Wrong handed coordinate system

1242 33.4.2 ImageTexture3D, 3D texture formats listed in wrong location

786 34.3.1 X3DEnvironmentTextureNode - Inconsistent hierarchy

805 34.4.1 ComposedCubeMapTexture - Missing textureProperties field

314 35 Layering component - derivation Question

891 35.3.2 X3DViewportNode - Lower limit for bboxSize needs to include 0

885 35.4.2 LayerSet - Inconsistent limits for order field

326 35.4.3 Viewport - Clipping Plane Clarification

975 36.4.1 Layout - Typo in align field signature

887 36.4.2 LayoutGroup - Incorrect inheritance

789 37.4.10 RigidBody - Non zero vector values

401 37.4.10 RigidBody -- Missing Definition

405 37.4.10 RigidBody -- Missing Definition

407 37.4.11 RigidBodyCollection -- Missing Definition

790 37.4.12 SingleAxisHingeJoint - Non zero vector values

791 37.4.13 SliderJoint - Non zero vector values

792 37.4.14 UniversalJoint - Default values for axis1 and axis2 fields

807 37.4.4 CollisionCollection - Incorrect default field type

806 37.4.4 CollisionCollection - Incorrect node type; also fix 4.4.2.3 Interface hierarchy layout

935 37.4.5 CollisionSensor - Inconsistent field name

1084 37.4.8 DoubleAxisHingeJoint - Angle vs angular velocity

788 37.4.8 DoubleAxisHingeJoint - Non zero vector values

399 37.4.9 MotorJoint -- Missing Definitions

803 38.3.2 X3DPickSensorNode - Append type restriction

933 38.3.2 X3DPickSensorNode - Derived nodes missing matchCriterion field

888 38.3.2 X3DPickSensorNode - remove pickingGeometry field from X3DPickSensorNode abstract type

900 38.4.3 PointPickSensor - Missing enumeration in sortOrder

957 39 Followers component - minimalist top level description

832 39.3.1 X3DChaserNode - Equation errors

1176 40.3.1 X3DParticleEmitterNode - Speed units needs to be added

768 40.4.10 WindPhysicsModel - Clarification

798 40.4.10 WindPhysicsmodel - Non zero vector values

1177 40.4.14 WindPhysicsModel - Incorrect units for speed

968 40.4.2 Particle systems component - ConeEmitter PointEmitter WindPhysicsModel - Missing value bounds for direction

867 41.4.1 BlendedVolumeStyle - Incorrect enumerations

545 41.4.2 BoundaryEnhancementVolumeStyle - Missing Signature & Description

804 41.4.7 OpacityMapVolumeStyle - Grammar correction

899 41.4.7 OpacityMapVolumeStyle - Inconsistent content models

373 7.3.1: Change to X3DBindable Node

1342 add X3D Unified Object Model (X3DUOM) to specification

839 All - Tab title for browsers

809 Annex D MPEG-4 interactive profile - Missing enumeration string

1206 Annex G Recommended navigation behaviours - Incorrect formatting of title and status

529 Annex H CADInterchange profile improvements

833 Annex Z Version content - Incorrect X3DScriptNode details

825 Contents page - Annexes don't indicate status

1157 General - Misuse of term "base units"

1334 General, editorial review Lighting, Rendering and Shape components for satisfactory specification phrasing

1333 General: consistent HTML style for reference links

1319 General: errata in Multiple Sections from X3dSpecificationChecker

1269 glTF physically based rendering PBR, advanced material textures and lighting

691 Illegal default values for fields in HAnim component

1357 incorrectly formatted fields for 12.4.2 Appearance

814 Index - Copyright notice

1022 Index page - Improved wording for "Scope" sections

1353 Irregular whitespace indenting/newlines for node signatures

1358 ISO Registry for NavigationInfo type definitions

880 Multiple X3DNode Inheritance - Proposed solution Part 1

881 Multiple X3DNode inheritance - Proposed solution Part 2

882 Multiple X3DNode inheritance - Proposed solution Part 3

926 MultiTexture Table 18.4 Values for the source field - incorrect column title

927 MultiTexture Table 18.5 Values for the function field - Incorrect column title

1276 name types: whitespace constraints, NMTOKEN and SFString

1239 NavigationInfo avatarSize type should be SFVec3f rather than MFFloat

1264 NavigationInfo type TURNTABLE HELICOPTER GAME FREEFLY

1316 need to add prose explicitly describe mapping to HAnim2 Humanoid skinCoord, skinNormal

1292 numbering of z order of layers in LayerSet

1252 PointProperties node specification; PointSet /LineSet/IndexedLineSet can contain Normal

1354 regularization of HAnimHumanoid.info and GeoMetadata.summary information as MetadataSet collection

191 Section: 23.3 : 4 and 5 -- Navigation & Viewpoint Recommendations

190 Section: AMD 2, Navigation Component -- Near Clipping Plane

904 ShaderPart, ShaderProgram: incorrect value list for type field

1267 Strategies to Improve X3Dv4 Audio and Sound Component

907 Table 20.2 Pointing device sensor component support levels - Incorrect abstract node names

908 Table 23.2 Navigation component support levels - Move conditional support from Viewpoint to X3DViewpointNode

910 Table 24.2 Environmental effects component support levels - skyAngle, skyColor support restrictions incorrectly placed

911 Table 32.2 CADGeometry component support levels - X3DProductStructureChildNode missing from table

913 Table 37.3 Rigid body physics component support levels - mismatch field name

914 Table 40.2 Particle systems component support levels - missing entries

916 Table 41.7 Volume rendering component support levels - misnamed nodes and incorrect field

917 Table 41.7 Volume rendering component support levels - ShadedVolumeStyle shadows support unclear

919 Table A.4 Other limitations - remove "All url fields" row

711 Table E.3 - Nodes for conforming to the Immersive profile - Incorrect ordering

996 Table E.3 - Nodes for Immersive profile - Table entry typo and sorting

936 Table F.4 Other limitations - Missing MFImage entry

651 Table Z.2 - Incorrect Link

708 Table Z.2 - Version content (nodes) - Incorrect link

687 Table Z.2 Missing GeoViewpoint fields

797 Table Z.2 Version content (nodes) - GeoViewpoint fields

720 Table Z.2 Version content (nodes) - Incorrect links for volume nodes

728 Table Z.2 Version content (nodes) - Missing entry

982 Table Z.2 Version content (nodes) - Missing forceOutput field

879 Table Z.2 Version content (nodes) - Multiple nodes missing textureProperties field

808 Table Z.2 Version content (nodes) - Text node missing origin field

852 Table Z2 Version content (nodes) - Incorrect WorldInfo link address

1265 Text size clarification, relative to baseline

1255 Texture Projector component

763 UNITS General - Application

1347 UnlitMaterial emissiveColor has incorrect default value, should be 0 0 0

1349 versionContent page is missing entry for HAnimMotion node

1275 whether CollisionCollection, RigidBody, RigidBodyCollection implement X3DBoundedObject interface (as does NurbsSet)

1345 whitespace issue when preparing pristine specification

1348 whitespace problems in node signature 12.4.5 Material

1346 X3DLightNode ambientIntensity default value

1307 X3DParticleEmitterNode mass and surfaceArea accessType initializeOnly rather than inputOutput?