

X3Dv4 Players and Tools Coverage

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X3D Players and Tools Coverage		X3D version 4.0		updated 20 October 2019	https://www.web3d.org/specifications/X3dNodeInventoryComparison.xlsx https://www.web3d.org/specifications/X3dNodeInventoryComparison.pdf						
X3D Abstract Specification Node Index	X3D Player v4.5.16	FreeWRL Player v4.0	view3dscape (Castle Game Engine) v6.4	X3DOM Player v1.8.1	InstantPlayer	X3D Player	X3D-Edit Authoring Tool v3.3				
Supported Nodes	Conformance	Standard X3D Nodes	Nodes Index	Node types	Xi3D viewer: NPS source	X3D-Edit home					
Anchor	Anchor	Anchor	Anchor	Anchor	Anchor	Anchor	Anchor				
Appearance	Appearance	Appearance	Appearance	Appearance	Appearance	Appearance	Appearance				
Arc2D	Arc2D	Arc2D	Arc2D	Arc2D	Arc2D	Arc2D	Arc2D				
ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D				
AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip				
Background	Background	Background	Background	Background	Background	Background	Background				
BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint				
Billboard	Billboard	Billboard	Billboard	Billboard	Billboard	Billboard	Billboard				
BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle				
BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter				
BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer				
BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle				
BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger				
BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle				
BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel				
Box	Box	Box	Box	Box	Box	Box	Box				
CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly				
CADFace	CADFace	CADFace	CADFace	CADFace	CADFace	CADFace	CADFace				
CADLayer	CADLayer	CADLayer	CADLayer	CADLayer	CADLayer	CADLayer	CADLayer				
CADPart	CADPart	CADPart	CADPart	CADPart	CADPart	CADPart	CADPart				
CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle				
Circle2D	Circle2D	Circle2D	Circle2D	Circle2D	Circle2D	Circle2D	Circle2D				
ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane				
CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset				
CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape				
Collision	Collision	Collision	Collision	Collision	Collision	Collision	Collision				
CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection				
CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor				
CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace				
Color	Color	Color	Color	Color	Color	Color	Color				
ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser				
ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper				
ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator				
ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA				
component	component	component	component	component	component	component	component				
ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture				
ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader				
ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D				
ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle				
Cone	Cone	Cone	Cone	Cone	Cone	Cone	Cone				
ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter				
connect	connect	connect	connect	connect	* required for X3D Immersive Profile	connect	connect				
Contact	Contact	Contact	Contact	Contact		Contact	Contact				
Contour2D	Contour2D	Contour2D	Contour2D	Contour2D	Contour2D	Contour2D	Contour2D				
ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D				
Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate				
CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser				
CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper				
CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble				
CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator				
CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D				
Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder				
CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor				
DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight				
DISEntityManager							DISEntityManager				
DISEntityTypeMapping							DISEntityTypeMapping				
Disk2D	Disk2D	Disk2D	Disk2D	Disk2D	Disk2D	Disk2D	Disk2D				
DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint				
EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut				
EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle				
ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid				
EspduTransform							EspduTransform				
ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter				
EXPORT	EXPORT	EXPORT	EXPORT	EXPORT	* required for X3D Immersive Profile	* required for X3D Immersive Profile	* required for X3D Immersive Profile	EXPORT			
ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	* required for X3D Immersive Profile	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare			
Extrusion	Extrusion	Extrusion	Extrusion	Extrusion	Extrusion	Extrusion	Extrusion				
field	field	field	field	field	field	field	field				
fieldValue	fieldValue	fieldValue	fieldValue	fieldValue	* required for X3D Immersive Profile	fieldValue	fieldValue	fieldValue			
FillProperties	FillProperties	FillProperties	FillProperties	FillProperties	* missing, suggested for HTML5	* missing, suggested for HTML5	FillProperties	FillProperties			
FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute				
Fog	Fog	Fog	Fog	Fog	Fog	Fog	Fog				
FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate				
FontStyle	FontStyle	FontStyle	FontStyle	FontStyle	FontStyle	FontStyle	FontStyle				
ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel				
GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture				

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		Node and Statement Support			Nodes Index	Node types	X3D Player	X3D Edit Authoring Tool v3.3		
X3D Abstract Specification Node Index	X_ITE Player v4.5.16	FreeWRL Player v4.0	view3dsence (Castle Game Engine) v6.4	X3DOM Player v1.8.1	InstantPlayer	X3D Player	X3D Edit Authoring Tool v3.3			
	Supported Nodes	Conformance	Standard X3D Nodes	Nodes Index	Node types	X3D viewer: NPS source	X3D-Edit home			
GeoCoordinate	GeoCoordinate	GeoCoordinate	* missing, suggested for HTML5	GeoCoordinate	GeoCoordinate	GeoCoordinate	GeoCoordinate			
GeoElevationGrid	GeoElevationGrid	GeoElevationGrid	* missing, suggested for HTML5	GeoElevationGrid	GeoElevationGrid	GeoElevationGrid	GeoElevationGrid			
GeoLocation	GeoLocation	GeoLocation	* missing, suggested for HTML5	GeoLocation	GeoLocation	GeoLocation	GeoLocation			
GeoLOD	GeoLOD	GeoLOD	* missing, suggested for HTML5	GeoLOD	GeoLOD	GeoLOD	GeoLOD			
GeoMetadata	GeoMetadata	GeoMetadata	* missing, suggested for HTML5	GeoMetadata	GeoMetadata	GeoMetadata	GeoMetadata			
GeoOrigin	GeoOrigin	GeoOrigin	* missing, suggested for HTML5	GeoOrigin	GeoOrigin	GeoOrigin	GeoOrigin			
GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator	* missing, suggested for HTML5	GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator			
GeoProximitySensor	GeoProximitySensor	GeoProximitySensor	* missing, suggested for HTML5	GeoProximitySensor	* missing, suggested for HTML5	GeoProximitySensor	* missing, suggested for HTML5			
GeoTouchSensor	GeoTouchSensor	GeoTouchSensor	* missing, suggested for HTML5	GeoTouchSensor	GeoTouchSensor	GeoTouchSensor	GeoTouchSensor			
GeoTransform	GeoTransform	GeoTransform	* missing, suggested for HTML5	GeoTransform	GeoTransform	GeoTransform	GeoTransform			
GeoViewpoint	GeoViewpoint	GeoViewpoint	* missing, suggested for HTML5	GeoViewpoint	GeoViewpoint	GeoViewpoint	GeoViewpoint			
Group	Group	Group	Group	Group	Group	Group	Group			
HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer			
HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid			
HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint			
HAnimMotion										
HAnimSegment	HAnimSegment	HAnimSegment	HAnimSegment	HAnimSegment	HAnimSegment	HAnimSegment	HAnimSegment			
HAnimSite	HAnimSite	HAnimSite	HAnimSite	HAnimSite	HAnimSite	HAnimSite	HAnimSite			
head	head	head	head	head	head	head	head			
ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture			
ImageTexture	ImageTexture	ImageTexture	ImageTexture	ImageTexture	ImageTexture	ImageTexture	ImageTexture			
ImageTexture3D	ImageTexture3D	ImageTexture3D	ImageTexture3D	ImageTexture3D	ImageTexture3D	ImageTexture3D	ImageTexture3D			
IMPORT	IMPORT	IMPORT	IMPORT	* required for X3D Immersive Profile	* required for X3D Immersive Profile	* required for X3D Immersive Profile	IMPORT			
IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet			
IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet			
IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	IndexedQuadSet			
IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet	* missing, suggested for HTML5	IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet			
IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet			
IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet			
Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline			
IntegerSequencer	IntegerSequencer	IntegerSequencer	IntegerSequencer	IntegerSequencer	IntegerSequencer	IntegerSequencer	IntegerSequencer			
IntegerTrigger	IntegerTrigger	IntegerTrigger	IntegerTrigger	IntegerTrigger	IntegerTrigger	IntegerTrigger	IntegerTrigger			
IS	IS	IS	* required for X3D Immersive Profile	IS	IS	IS	IS			
IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData			
KeySensor	KeySensor	KeySensor	KeySensor	* missing, suggested for HTML5	KeySensor	KeySensor	KeySensor			
Layer	Layer	Layer	Layer		Layer	Layer	Layer			
LayerSet	LayerSet	LayerSet	LayerSet		LayerSet	LayerSet	LayerSet			
Layout	Layout	Layout	Layout		Layout	Layout	Layout			
LayoutGroup	LayoutGroup	LayoutGroup	LayoutGroup		LayoutGroup	LayoutGroup	LayoutGroup			
LayoutLayer	LayoutLayer	LayoutLayer	LayoutLayer		LayoutLayer	LayoutLayer	LayoutLayer			
LinePickSensor	LinePickSensor	LinePickSensor	LinePickSensor							
LineProperties	LineProperties	LineProperties	LineProperties	LineProperties	LineProperties	LineProperties	LineProperties			
LineSet	LineSet	LineSet	LineSet	LineSet	LineSet	LineSet	LineSet			
LoadSensor	LoadSensor	LoadSensor	* missing, suggested for HTML5	* missing, suggested for HTML5	LoadSensor	LoadSensor	LoadSensor			
LocalFog	LocalFog	LocalFog	LocalFog		LocalFog	LocalFog	LocalFog			
LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD			
Material	Material	Material	Material	Material	Material	Material	Material			
Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute		Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute			
Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute			
meta	meta	meta	meta	meta	meta	meta	meta			
MetadataBoolean	MetadataBoolean	MetadataBoolean	MetadataBoolean	MetadataBoolean	* missing, suggested for HTML5	MetadataBoolean	MetadataBoolean			
MetadataDouble	MetadataDouble	MetadataDouble	MetadataDouble	MetadataDouble	MetadataDouble	MetadataDouble	MetadataDouble			
MetadataFloat	MetadataFloat	MetadataFloat	MetadataFloat	MetadataFloat	MetadataFloat	MetadataFloat	MetadataFloat			
MetadataInteger	MetadataInteger	MetadataInteger	MetadataInteger	MetadataInteger	MetadataInteger	MetadataInteger	MetadataInteger			
MetadataSet	MetadataSet	MetadataSet	MetadataSet	MetadataSet	MetadataSet	MetadataSet	MetadataSet			
MetadataString	MetadataString	MetadataString	MetadataString	MetadataString	MetadataString	MetadataString	MetadataString			
MotorJoint	MotorJoint	MotorJoint	MotorJoint	MotorJoint	MotorJoint	MotorJoint	MotorJoint			
MovieTexture	MovieTexture	MovieTexture	MovieTexture	MovieTexture	MovieTexture	MovieTexture	MovieTexture			
MultiTexture	MultiTexture	MultiTexture	MultiTexture	MultiTexture	MultiTexture	MultiTexture	MultiTexture			
MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate			
MultiTextureTransform	MultiTextureTransform	MultiTextureTransform	MultiTextureTransform		MultiTextureTransform	MultiTextureTransform	MultiTextureTransform			
NavigationInfo	NavigationInfo	NavigationInfo	NavigationInfo	NavigationInfo	NavigationInfo	NavigationInfo	NavigationInfo			
Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal			
NormalInterpolator	NormalInterpolator	NormalInterpolator	NormalInterpolator	NormalInterpolator	NormalInterpolator	NormalInterpolator	NormalInterpolator			
NurbsCurve	NurbsCurve	NurbsCurve	NurbsCurve	NurbsCurve	NurbsCurve	NurbsCurve	NurbsCurve			
NurbsCurve2D	NurbsCurve2D	NurbsCurve2D	NurbsCurve2D	NurbsCurve2D	NurbsCurve2D	NurbsCurve2D	NurbsCurve2D			
NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator			
NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface			
NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator			
NurbsSet	NurbsSet	NurbsSet	NurbsSet		NurbsSet	NurbsSet	NurbsSet			
NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator			
NurbsSweptSurface	NurbsSweptSurface	NurbsSweptSurface	NurbsSweptSurface		NurbsSweptSurface	NurbsSweptSurface	NurbsSweptSurface			
NurbsSwungSurface	NurbsSwungSurface	NurbsSwungSurface	NurbsSwungSurface		NurbsSwungSurface	NurbsSwungSurface	NurbsSwungSurface			
NurbsTextureCoordinate	NurbsTextureCoordinate	NurbsTextureCoordinate	NurbsTextureCoordinate		NurbsTextureCoordinate	NurbsTextureCoordinate	NurbsTextureCoordinate			

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Supported Nodes	X_ITE Player v4.5.16	Conformance	Standard X3D Nodes	Nodes Index	Node types	X3D viewer: NPS source	X3D-Edit home		
NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface		
OpacityMapVolumeStyle	OpacityMapVolumeStyle	OpacityMapVolumeStyle	OpacityMapVolumeStyle	OpacityMapVolumeStyle	OrientationChaser	OrientationChaser	OpacityMapVolumeStyle		
OrientationChaser	OrientationChaser	OrientationChaser	OrientationChaser	OrientationChaser	OrientationChaser	OrientationChaser	OrientationChaser		
OrientationDamper	OrientationDamper	OrientationDamper	OrientationDamper	OrientationDamper	OrientationDamper	OrientationDamper	OrientationDamper		
OrientationInterpolator	OrientationInterpolator	OrientationInterpolator	OrientationInterpolator	OrientationInterpolator	OrientationInterpolator	OrientationInterpolator	OrientationInterpolator		
OrthoViewpoint	OrthoViewpoint	OrthoViewpoint	OrthoViewpoint	OrthoViewpoint	OrthoViewpoint	OrthoViewpoint	OrthoViewpoint		
PackagedShader	PackagedShader	PackagedShader	PackagedShader	PackagedShader	PackagedShader	PackagedShader	PackagedShader		
ParticleSystem	ParticleSystem	ParticleSystem	ParticleSystem	ParticleSystem	ParticleSystem	ParticleSystem	ParticleSystem		
PickableGroup	PickableGroup	PickableGroup	PickableGroup	PickableGroup	PickableGroup	PickableGroup	PickableGroup		
PixelTexture	PixelTexture	PixelTexture	PixelTexture	PixelTexture	PixelTexture	PixelTexture	PixelTexture		
PixelTexture3D	PixelTexture3D	PixelTexture3D	PixelTexture3D	PixelTexture3D	PixelTexture3D	PixelTexture3D	PixelTexture3D		
PlaneSensor	PlaneSensor	PlaneSensor	PlaneSensor	PlaneSensor	PlaneSensor	PlaneSensor	PlaneSensor		
PointEmitter	PointEmitter	PointEmitter	PointEmitter	PointEmitter	PointEmitter	PointEmitter	PointEmitter		
PointLight	PointLight	PointLight	PointLight	PointLight	PointLight	PointLight	PointLight		
PointPickSensor	PointPickSensor	PointPickSensor	PointPickSensor	PointPickSensor	PointPickSensor	PointPickSensor	PointPickSensor		
PointProperties							PointProperties		
PointSet	PointSet	PointSet	PointSet	PointSet	PointSet	PointSet	PointSet		
Polyline2D	Polyline2D	Polyline2D	Polyline2D	Polyline2D	Polyline2D	Polyline2D	Polyline2D		
PolylineEmitter	PolylineEmitter	PolylineEmitter	PolylineEmitter	PolylineEmitter	PolylineEmitter	PolylineEmitter	PolylineEmitter		
PolyPoint2D	PolyPoint2D	PolyPoint2D	PolyPoint2D	PolyPoint2D	PolyPoint2D	PolyPoint2D	PolyPoint2D		
PositionChaser	PositionChaser	PositionChaser	PositionChaser	PositionChaser	PositionChaser	PositionChaser	PositionChaser		
PositionChaser2D	PositionChaser2D	PositionChaser2D	PositionChaser2D	PositionChaser2D	PositionChaser2D	PositionChaser2D	PositionChaser2D		
PositionDamper	PositionDamper	PositionDamper	PositionDamper	PositionDamper	PositionDamper	PositionDamper	PositionDamper		
PositionDamper2D	PositionDamper2D	PositionDamper2D	PositionDamper2D	PositionDamper2D	PositionDamper2D	PositionDamper2D	PositionDamper2D		
PositionInterpolator	PositionInterpolator	PositionInterpolator	PositionInterpolator	PositionInterpolator	PositionInterpolator	PositionInterpolator	PositionInterpolator		
PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D		
PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor		
ProgramShader		ProgramShader			ProgramShader	ProgramShader	ProgramShader		
ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle		
-	ProtoBody	ProtoBody	ProtoBody	* required for X3D Immersive Profile	ProtoBody	ProtoBody	ProtoBody		
ProtoDeclare	ProtoDeclare	ProtoDeclare	ProtoDeclare	* required for X3D Immersive Profile	ProtoDeclare	ProtoDeclare	ProtoDeclare		
ProtoInstance	ProtoInstance	ProtoInstance	ProtoInstance	* required for X3D Immersive Profile	ProtoInstance	ProtoInstance	ProtoInstance		
-	ProtoInterface	ProtoInterface	ProtoInterface	* required for X3D Immersive Profile	ProtoInterface	ProtoInterface	ProtoInterface		
ProximitySensor	ProximitySensor	ProximitySensor	ProximitySensor	* required for X3D Immersive Profile	ProximitySensor	ProximitySensor	ProximitySensor		
QuadSet	QuadSet	QuadSet	QuadSet	QuadSet	QuadSet	QuadSet	QuadSet		
ReceiverPdu							ReceiverPdu		
Rectangle2D	Rectangle2D	Rectangle2D	Rectangle2D	Rectangle2D	Rectangle2D	Rectangle2D	Rectangle2D		
RigidBody	RigidBody	RigidBody	RigidBody	RigidBody	RigidBody	RigidBody	RigidBody		
RigidBodyCollection	RigidBodyCollection	RigidBodyCollection	RigidBodyCollection	RigidBodyCollection	RigidBodyCollection	RigidBodyCollection	RigidBodyCollection		
ROUTE	ROUTE	ROUTE	ROUTE	ROUTE	ROUTE	ROUTE	ROUTE		
ScalarChaser	ScalarChaser	ScalarChaser	ScalarChaser	ScalarChaser	ScalarChaser	ScalarChaser	ScalarChaser		
ScalarDamper	ScalarDamper	ScalarDamper	ScalarDamper	ScalarDamper	ScalarDamper	ScalarDamper	ScalarDamper		
ScalarInterpolator	ScalarInterpolator	ScalarInterpolator	ScalarInterpolator	ScalarInterpolator	ScalarInterpolator	ScalarInterpolator	ScalarInterpolator		
-	Scene	Scene	Scene	Scene	Scene	Scene	Scene		
ScreenFontStyle	ScreenFontStyle	ScreenFontStyle	ScreenFontStyle	ScreenFontStyle	ScreenFontStyle	ScreenFontStyle	ScreenFontStyle		
ScreenGroup	ScreenGroup	ScreenGroup	ScreenGroup	ScreenGroup	ScreenGroup	ScreenGroup	ScreenGroup		
Script	Script	Script	Script	* required for X3D Immersive Profile	Script	Script	Script		
SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData		
ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle		
ShaderPart	ShaderPart	ShaderPart	ShaderPart	ShaderPart	ShaderPart	ShaderPart	ShaderPart		
ShaderProgram	ShaderProgram	ShaderProgram	ShaderProgram	ShaderProgram	ShaderProgram	ShaderProgram	ShaderProgram		
Shape	Shape	Shape	Shape	Shape	Shape	Shape	Shape		
SignalPdu							SignalPdu		
SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle		
SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint		
SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint		
Sound	Sound	Sound	Sound	Sound	Sound	Sound	Sound		
Sphere	Sphere	Sphere	Sphere	Sphere	Sphere	Sphere	Sphere		
SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor		
SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator		
SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D		
SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator		
SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	SpotLight		
SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator		
StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup		
StringSensor	StringSensor	StringSensor	StringSensor	* missing, suggested for HTML5	StringSensor	StringSensor	StringSensor		
SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter		
Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch		
TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D		
TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D		
Text	Text	Text	Text	Text	Text	Text	Text		
TextureBackground	TextureBackground	TextureBackground	TextureBackground	* missing, suggested for HTML5	TextureBackground	TextureBackground	TextureBackground		
TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate		
TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D		

X3D Players and Tools Coverage		X3D version 4.0 Node and Statement Support		updated 20 October 2019		https://www.web3d.org/specifications/X3dNodeInventoryComparison.xlsx https://www.web3d.org/specifications/X3dNodeInventoryComparison.pdf			
X3D Abstract Specification Node Index	X3D Player v4.5.16	FreeWRL Player v4.0	view3dscape (Castle Game Engine) v6.4	X3DOM Player v1.8.1	InstantPlayer	X3D Player	X3D-Edit Authoring Tool v3.3		
Supported Nodes	Conformance	Standard X3D Nodes	Nodes Index	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D		
TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator		
TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureProperties	TextureProperties	TextureProperties	TextureProperties		
TextureProperties	TextureProperties	TextureProperties	TextureProperties	TextureTransform	TextureTransform	TextureTransform	TextureTransform		
TextureTransform	TextureTransform	TextureTransform	TextureTransform	TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D		
TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D		
TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TimeSensor	TimeSensor	TimeSensor	TimeSensor		
TimeSensor	TimeSensor	TimeSensor	TimeSensor	TimeTrigger	TimeTrigger	TimeTrigger	TimeTrigger		
TimeTrigger	TimeTrigger	TimeTrigger	TimeTrigger	ToneMappedVolumeStyle	ToneMappedVolumeStyle	TouchSensor	TouchSensor		
ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle	Transform	Transform	Transform	Transform		
TouchSensor	TouchSensor	TouchSensor	TouchSensor	TransformSensor	TransformSensor	TransformSensor	TransformSensor		
TransformSensor	TransformSensor	TransformSensor	TransformSensor	TransmitterPdu	TransmitterPdu	TransmitterPdu	TransmitterPdu		
TransmitterPdu	TransmitterPdu	TransmitterPdu	TransmitterPdu	TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleFanSet		
TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleSet	TriangleSet	TriangleSet	TriangleSet		
TriangleSet	TriangleSet	TriangleSet	TriangleSet	TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleSet2D		
TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleStripSet	TriangleStripSet	TriangleStripSet	TriangleStripSet		
TriangleStripSet	TriangleStripSet	TriangleStripSet	TriangleStripSet	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial		
TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	UNIT	UNIT	UNIT	UNIT		
UNIT	UNIT	UNIT	UNIT	UniversalJoint	UniversalJoint	UniversalJoint	UniversalJoint		
UniversalJoint	UniversalJoint	UniversalJoint	UniversalJoint	Viewpoint	Viewpoint	Viewpoint	Viewpoint		
Viewpoint	Viewpoint	Viewpoint	Viewpoint	ViewpointGroup	ViewpointGroup	ViewpointGroup	ViewpointGroup		
ViewpointGroup	ViewpointGroup	ViewpointGroup	ViewpointGroup	Viewport	Viewport	Viewport	Viewport		
Viewport	Viewport	Viewport	Viewport	VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor		
VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor	VolumeData	VolumeData	VolumeData	VolumeData		
VolumeData	VolumeData	VolumeData	VolumeData	VolumeEmitter	VolumeEmitter	VolumeEmitter	WindPhysicsModel		
VolumeEmitter	VolumeEmitter	VolumeEmitter	VolumeEmitter	VolumePickSensor	VolumePickSensor	VolumePickSensor	WorldInfo		
VolumePickSensor	VolumePickSensor	VolumePickSensor	VolumePickSensor	WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WorldInfo		
WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WorldInfo	WorldInfo	WorldInfo	WorldInfo		
WorldInfo	WorldInfo	WorldInfo	WorldInfo	X3D	X3D	X3D	X3D		
X3D	X3D	X3D	X3D						
Supported nodes and statements:	94%	97%	57%	68%	78%	68%	87%		
253	238	245	144	171	197	172	219		
Unimplemented nodes and statements:									
0	15	8	109	82	56	81	34		
References									
X3D v3.3 Specification	X3D supported node list	FreeWRL supported node list	Castle Game Engine documentation	X3DOM supported node list	InstantReality	X3D SourceForge	X3D-Edit v3.3 Authoring Tool		
HTML5 support goals									
* required for X3D Immersive Profile	includes all Immersive Profile nodes	includes all Immersive Profile nodes	includes all Immersive Profile nodes	12	2	2	includes all Immersive Profile nodes		
* suggested for HTML5 support	0	0	14	11	2	5	includes all suggested HTML5 nodes		
* priority nodes and statements missing:	0	0	14	23	4	7	0		

X3D Codebases for Scene Access Interface (SAI)	X3D version 4.0 Node and Statement Support		updated 20 October 2019	https://www.web3d.org/specifications/X3dNodeInventoryComparison.xlsx https://www.web3d.org/specifications/X3dNodeInventoryComparison.pdf		
X3D Nodes and Statements	JavaScript X3DJSONLD	Java X3DJSAIL	Python Package	C implementation	C++ implementation	C# implementation
X3D Unified Object Model (X3DUOM)	X3D to JSON Converter	X3DJSAIL	Python X3D Package	(work in progress)	(work in progress)	(work in progress)
Anchor		Anchor	Anchor			
Appearance	Can John Carlson's open-source X3DJSONLD be regularized to match JavaScript SAI standard?	Appearance	Appearance	Example codebase templates provided by Myeong Won Lee. TODO apply X3DUOM code-autogeneration patterns, similar to Java and Python.		
Arc2D		Arc2D	Arc2D			
ArcClose2D		ArcClose2D	ArcClose2D			
AudioClip		AudioClip	AudioClip			
Background		Background	Background			
BallJoint		BallJoint	BallJoint			
Billboard		Billboard	Billboard	https://sourceforge.net/p/x3d/code/HEAD/tree/www.web3d.org/x3d/languages		
BlendedVolumeStyle		BlendedVolumeStyle	BlendedVolumeStyle			
BooleanFilter		BooleanFilter	BooleanFilter			
BooleanSequencer		BooleanSequencer	BooleanSequencer			
BooleanToggle		BooleanToggle	BooleanToggle			
BooleanTrigger		BooleanTrigger	BooleanTrigger			
BoundaryEnhancementVolumeStyle		BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle			
BoundedPhysicsModel		BoundedPhysicsModel	BoundedPhysicsModel			
Box		Box	Box			
CADAssembly		CADAssembly	CADAssembly			
CADFace		CADFace	CADFace			
CADLayer		CADLayer	CADLayer			
CADPart		CADPart	CADPart			
CartoonVolumeStyle		CartoonVolumeStyle	CartoonVolumeStyle			
Circle2D		Circle2D	Circle2D			
ClipPlane		ClipPlane	ClipPlane			
CollidableOffset		CollidableOffset	CollidableOffset			
CollidableShape		CollidableShape	CollidableShape			
Collision		Collision	Collision			
CollisionCollection		CollisionCollection	CollisionCollection			
CollisionSensor		CollisionSensor	CollisionSensor			
CollisionSpace		CollisionSpace	CollisionSpace			
Color		Color	Color			
ColorChaser		ColorChaser	ColorChaser			
ColorDamper		ColorDamper	ColorDamper			
ColorInterpolator		ColorInterpolator	ColorInterpolator			
ColorRGBA		ColorRGBA	ColorRGBA			
component		component	component			
ComposedCubeMapTexture		ComposedCubeMapTexture	ComposedCubeMapTexture			
ComposedShader		ComposedShader	ComposedShader			
ComposedTexture3D		ComposedTexture3D	ComposedTexture3D			
ComposedVolumeStyle		ComposedVolumeStyle	ComposedVolumeStyle			
Cone		Cone	Cone			
ConeEmitter		ConeEmitter	ConeEmitter			
connect		connect	connect			
Contact		Contact	Contact			
Contour2D		Contour2D	Contour2D			
ContourPolyline2D		ContourPolyline2D	ContourPolyline2D			
Coordinate		Coordinate	Coordinate			
CoordinateChaser		CoordinateChaser	CoordinateChaser			
CoordinateDamper		CoordinateDamper	CoordinateDamper			
CoordinateDouble		CoordinateDouble	CoordinateDouble			
CoordinateInterpolator		CoordinateInterpolator	CoordinateInterpolator			
CoordinateInterpolator2D		CoordinateInterpolator2D	CoordinateInterpolator2D			
Cylinder		Cylinder	Cylinder			
CylinderSensor		CylinderSensor	CylinderSensor			
DirectionalLight		DirectionalLight	DirectionalLight			
DISEntityManager		DISEntityManager	DISEntityManager			
DISEntityTypeMapping		DISEntityTypeMapping	DISEntityTypeMapping			
Disk2D		Disk2D	Disk2D			
DoubleAxisHingeJoint		DoubleAxisHingeJoint	DoubleAxisHingeJoint			
EaseInEaseOut		EaseInEaseOut	EaseInEaseOut			
EdgeEnhancementVolumeStyle		EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle			
ElevationGrid		ElevationGrid	ElevationGrid			
EspduTransform		EspduTransform	EspduTransform			
ExplosionEmitter		ExplosionEmitter	ExplosionEmitter			

EXPORT		EXPORT	EXPORT				
ExternProtoDeclare		ExternProtoDeclare	ExternProtoDeclare				
Extrusion		Extrusion	Extrusion				
field	field	field	field				
fieldValue	fieldValue	fieldValue	fieldValue				
FillProperties	FillProperties	FillProperties	FillProperties				
FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute				
Fog	Fog	Fog	Fog				
FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate				
FontStyle	FontStyle	FontStyle	FontStyle				
ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel				
GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture				
GeoCoordinate	GeoCoordinate	GeoCoordinate	GeoCoordinate				
GeoElevationGrid	GeoElevationGrid	GeoElevationGrid	GeoElevationGrid				
GeoLocation	GeoLocation	GeoLocation	GeoLocation				
GeoLOD	GeoLOD	GeoLOD	GeoLOD				
GeoMetadata	GeoMetadata	GeoMetadata	GeoMetadata				
GeoOrigin	GeoOrigin	GeoOrigin	GeoOrigin				
GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator				
GeoProximitySensor	GeoProximitySensor	GeoProximitySensor	GeoProximitySensor				
GeoTouchSensor	GeoTouchSensor	GeoTouchSensor	GeoTouchSensor				
GeoTransform	GeoTransform	GeoTransform	GeoTransform				
GeoViewpoint	GeoViewpoint	GeoViewpoint	GeoViewpoint				
Group	Group	Group	Group				
HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer				
HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid				
HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint				
HAnimMotion	HAnimMotion	HAnimMotion	HAnimMotion				
HAnimSegment	HAnimSegment	HAnimSegment	HAnimSegment				
HAnimSite	HAnimSite	HAnimSite	HAnimSite				
head	head	head	head				
ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture				
ImageTexture	ImageTexture	ImageTexture	ImageTexture				
ImageTexture3D	ImageTexture3D	ImageTexture3D	ImageTexture3D				
IMPORT	IMPORT	IMPORT	IMPORT				
IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet				
IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet				
IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	IndexedQuadSet				
IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet				
IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet				
IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet				
Inline	Inline	Inline	Inline				
IntegerSequencer	IntegerSequencer	IntegerSequencer	IntegerSequencer				
IntegerTrigger	IntegerTrigger	IntegerTrigger	IntegerTrigger				
IS	IS	IS	IS				
IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData				
KeySensor	KeySensor	KeySensor	KeySensor				
Layer	Layer	Layer	Layer				
LayerSet	LayerSet	LayerSet	LayerSet				
Layout	Layout	Layout	Layout				
LayoutGroup	LayoutGroup	LayoutGroup	LayoutGroup				
LayoutLayer	LayoutLayer	LayoutLayer	LayoutLayer				
LinePickSensor	LinePickSensor	LinePickSensor	LinePickSensor				
LineProperties	LineProperties	LineProperties	LineProperties				
LineSet	LineSet	LineSet	LineSet				
LoadSensor	LoadSensor	LoadSensor	LoadSensor				
LocalFog	LocalFog	LocalFog	LocalFog				
LOD	LOD	LOD	LOD				
Material	Material	Material	Material				
Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute				
Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute				
meta	meta	meta	meta				
MetadataBoolean	MetadataBoolean	MetadataBoolean	MetadataBoolean				
MetadataDouble	MetadataDouble	MetadataDouble	MetadataDouble				
MetadataFloat	MetadataFloat	MetadataFloat	MetadataFloat				
MetadataInteger	MetadataInteger	MetadataInteger	MetadataInteger				
MetadataSet	MetadataSet	MetadataSet	MetadataSet				

MetadataString		MetadataString	MetadataString				
MotorJoint		MotorJoint	MotorJoint				
MovieTexture		MovieTexture	MovieTexture				
MultiTexture		MultiTexture	MultiTexture				
MultiTextureCoordinate		MultiTextureCoordinate	MultiTextureCoordinate				
MultiTextureTransform		MultiTextureTransform	MultiTextureTransform				
NavigationInfo		NavigationInfo	NavigationInfo				
Normal		Normal	Normal				
NormalInterpolator		NormalInterpolator	NormalInterpolator				
NurbsCurve		NurbsCurve	NurbsCurve				
NurbsCurve2D		NurbsCurve2D	NurbsCurve2D				
NurbsOrientationInterpolator		NurbsOrientationInterpolator	NurbsOrientationInterpolator				
NurbsPatchSurface		NurbsPatchSurface	NurbsPatchSurface				
NurbsPositionInterpolator		NurbsPositionInterpolator	NurbsPositionInterpolator				
NurbsSet		NurbsSet	NurbsSet				
NurbsSurfaceInterpolator		NurbsSurfaceInterpolator	NurbsSurfaceInterpolator				
NurbsSweptSurface		NurbsSweptSurface	NurbsSweptSurface				
NurbsSwungSurface		NurbsSwungSurface	NurbsSwungSurface				
NurbsTextureCoordinate		NurbsTextureCoordinate	NurbsTextureCoordinate				
NurbsTrimmedSurface		NurbsTrimmedSurface	NurbsTrimmedSurface				
OpacityMapVolumeStyle		OpacityMapVolumeStyle	OpacityMapVolumeStyle				
OrientationChaser		OrientationChaser	OrientationChaser				
OrientationDamper		OrientationDamper	OrientationDamper				
OrientationInterpolator		OrientationInterpolator	OrientationInterpolator				
OrthoViewpoint		OrthoViewpoint	OrthoViewpoint				
PackagedShader		PackagedShader	PackagedShader				
ParticleSystem		ParticleSystem	ParticleSystem				
PickableGroup		PickableGroup	PickableGroup				
PixelTexture		PixelTexture	PixelTexture				
PixelTexture3D		PixelTexture3D	PixelTexture3D				
PlaneSensor		PlaneSensor	PlaneSensor				
PointEmitter		PointEmitter	PointEmitter				
PointLight		PointLight	PointLight				
PointPickSensor		PointPickSensor	PointPickSensor				
PointProperties		PointProperties	PointProperties				
PointSet		PointSet	PointSet				
Polyline2D		Polyline2D	Polyline2D				
PolylineEmitter		PolylineEmitter	PolylineEmitter				
Polypoint2D		Polypoint2D	Polypoint2D				
PositionChaser		PositionChaser	PositionChaser				
PositionChaser2D		PositionChaser2D	PositionChaser2D				
PositionDamper		PositionDamper	PositionDamper				
PositionDamper2D		PositionDamper2D	PositionDamper2D				
PositionInterpolator		PositionInterpolator	PositionInterpolator				
PositionInterpolator2D		PositionInterpolator2D	PositionInterpolator2D				
PrimitivePickSensor		PrimitivePickSensor	PrimitivePickSensor				
ProgramShader		ProgramShader	ProgramShader				
ProjectionVolumeStyle		ProjectionVolumeStyle	ProjectionVolumeStyle				
-		ProtoBody	ProtoBody				
ProtoDeclare		ProtoDeclare	ProtoDeclare				
ProtoInstance		ProtoInstance	ProtoInstance				
		ProtoInterface	ProtoInterface				
ProximitySensor		ProximitySensor	ProximitySensor				
QuadSet		QuadSet	QuadSet				
ReceiverPdu		ReceiverPdu	ReceiverPdu				
Rectangle2D		Rectangle2D	Rectangle2D				
RigidBody		RigidBody	RigidBody				
RigidBodyCollection		RigidBodyCollection	RigidBodyCollection				
ROUTE		ROUTE	ROUTE				
ScalarChaser		ScalarChaser	ScalarChaser				
ScalarDamper		ScalarDamper	ScalarDamper				
ScalarInterpolator		ScalarInterpolator	ScalarInterpolator				
-		Scene	Scene				
ScreenFontStyle		ScreenFontStyle	ScreenFontStyle				
ScreenGroup		ScreenGroup	ScreenGroup				
Script		Script	Script				
SegmentedVolumeData		SegmentedVolumeData	SegmentedVolumeData				

ShadedVolumeStyle		ShadedVolumeStyle	ShadedVolumeStyle				
ShaderPart		ShaderPart	ShaderPart				
ShaderProgram		ShaderProgram	ShaderProgram				
Shape		Shape	Shape				
SignalPdu		SignalPdu	SignalPdu				
SilhouetteEnhancementVolumeStyle		SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle				
SingleAxisHingeJoint		SingleAxisHingeJoint	SingleAxisHingeJoint				
SliderJoint		SliderJoint	SliderJoint				
Sound		Sound	Sound				
Sphere		Sphere	Sphere				
SphereSensor		SphereSensor	SphereSensor				
SplinePositionInterpolator		SplinePositionInterpolator	SplinePositionInterpolator				
SplinePositionInterpolator2D		SplinePositionInterpolator2D	SplinePositionInterpolator2D				
SplineScalarInterpolator		SplineScalarInterpolator	SplineScalarInterpolator				
SpotLight		Spotlight	SpotLight				
SquadOrientationInterpolator		SquadOrientationInterpolator	SquadOrientationInterpolator				
StaticGroup		StaticGroup	StaticGroup				
StringSensor		StringSensor	StringSensor				
SurfaceEmitter		SurfaceEmitter	SurfaceEmitter				
Switch		Switch	Switch				
TexCoordChaser2D		TexCoordChaser2D	TexCoordChaser2D				
TexCoordDamper2D		TexCoordDamper2D	TexCoordDamper2D				
Text		Text	Text				
TextureBackground		TextureBackground	TextureBackground				
TextureCoordinate		TextureCoordinate	TextureCoordinate				
TextureCoordinate3D		TextureCoordinate3D	TextureCoordinate3D				
TextureCoordinate4D		TextureCoordinate4D	TextureCoordinate4D				
TextureCoordinateGenerator		TextureCoordinateGenerator	TextureCoordinateGenerator				
TextureProperties		TextureProperties	TextureProperties				
TextureTransform		TextureTransform	TextureTransform				
TextureTransform3D		TextureTransform3D	TextureTransform3D				
TextureTransformMatrix3D		TextureTransformMatrix3D	TextureTransformMatrix3D				
TimeSensor		TimeSensor	TimeSensor				
TimeTrigger		TimeTrigger	TimeTrigger				
ToneMappedVolumeStyle		ToneMappedVolumeStyle	ToneMappedVolumeStyle				
TouchSensor		TouchSensor	TouchSensor				
Transform		Transform	Transform				
TransformSensor		TransformSensor	TransformSensor				
TransmitterPdu		TransmitterPdu	TransmitterPdu				
TriangleFanSet		TriangleFanSet	TriangleFanSet				
TriangleSet		TriangleSet	TriangleSet				
TriangleSet2D		TriangleSet2D	TriangleSet2D				
TriangleStripSet		TriangleStripSet	TriangleStripSet				
TwoSidedMaterial		TwoSidedMaterial	TwoSidedMaterial				
UNIT		UNIT	UNIT				
UniversalJoint		UniversalJoint	UniversalJoint				
Viewpoint		Viewpoint	Viewpoint				
ViewpointGroup		ViewpointGroup	ViewpointGroup				
Viewport		Viewport	Viewport				
VisibilitySensor		VisibilitySensor	VisibilitySensor				
VolumeData		VolumeData	VolumeData				
VolumeEmitter		VolumeEmitter	VolumeEmitter				
VolumePickSensor		VolumePickSensor	VolumePickSensor				
WindPhysicsModel		WindPhysicsModel	WindPhysicsModel				
WorldInfo		WorldInfo	WorldInfo				
X3D		X3D	X3D				

Supported nodes and statements:	0%	100%	100%	0%	0%	0%	0%
253	0	253	253	0	0	0	0
Unimplemented nodes and statements:	0	253	0	0	253	253	253

X3D Model Validation		X3D version 4.0 Node and Statement Support		updated 20 October 2019	https://www.web3d.org/specifications/X3dNodeInventoryComparison.xlsx https://www.web3d.org/specifications/X3dNodeInventoryComparison.pdf			
X3D Abstract Specification Node Index		X3D Schema validation	X3D DTD validation	X3D JSON Schema	X3D Tooltips	X3D Schematron validation	VRML97 Specification	X3dToVrml97.xslt
	(includes X3DUOM integration)				TODO upgrade json schema to draft 2019 09 once application and command-line validation tools are finally available			(Grey background = forward compatibility for .wrl VRML97)
Anchor	Anchor	Anchor	Anchor	Anchor	Anchor	Anchor	Anchor	Anchor
Appearance	Appearance	Appearance	Appearance	Appearance	Appearance	Appearance	Appearance	Appearance
Arc2D	Arc2D	Arc2D	Arc2D	Arc2D	Arc2D	Arc2D	(Prototype available) Arc2D	(Prototype available) Arc2D
ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	ArcClose2D	(Prototype available) ArcClose2D	(Prototype available) ArcClose2D
AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip	AudioClip
Background	Background	Background	Background	Background	Background	Background	Background	Background
BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint	BallJoint
Billboard	Billboard	Billboard	Billboard	Billboard	Billboard	Billboard	Billboard	Billboard
BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	BlendedVolumeStyle	(Prototype available) BlendedVolumeStyle	(Prototype available) BlendedVolumeStyle
BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	BooleanFilter	(Prototype available) BooleanFilter	(Prototype available) BooleanFilter
BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	BooleanSequencer	(Prototype available) BooleanSequencer	(Prototype available) BooleanSequencer
BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	BooleanToggle	(Prototype available) BooleanToggle	(Prototype available) BooleanToggle
BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	BooleanTrigger	(Prototype available) BooleanTrigger	(Prototype available) BooleanTrigger
BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle	BoundaryEnhancementVolumeStyle
BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel	BoundedPhysicsModel
Box	Box	Box	Box	Box	Box	Box	Box	Box
CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly	CADAssembly	(Prototype available) CADAssembly	(Prototype available) CADAssembly
CADFace	CADFace	CADFace	CADFace	CADFace	CADFace	CADFace	(Prototype available) CADFace	(Prototype available) CADFace
CADLayer	CADLayer	CADLayer	CADLayer	CADLayer	CADLayer	CADLayer	(Prototype available) CADLayer	(Prototype available) CADLayer
CADPart	CADPart	CADPart	CADPart	CADPart	CADPart	CADPart	(Prototype available) CADPart	(Prototype available) CADPart
CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle	CartoonVolumeStyle
Circle2D	Circle2D	Circle2D	Circle2D	Circle2D	Circle2D	Circle2D	(Prototype available) Circle2D	(Prototype available) Circle2D
ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane	ClipPlane
CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset	CollidableOffset
CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape	CollidableShape
Collision	Collision	Collision	Collision	Collision	Collision	Collision	Collision	Collision
CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection	CollisionCollection
CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor	CollisionSensor
CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace	CollisionSpace
Color	Color	Color	Color	Color	Color	Color	Color	Color
ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser	ColorChaser
ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper	ColorDamper
ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator	ColorInterpolator
ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA	ColorRGBA
component	component	component	component	component	component	component	component	(Prototype available) component
ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture	ComposedCubeMapTexture
ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader	ComposedShader
ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D	ComposedTexture3D
ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle	ComposedVolumeStyle
Cone	Cone	Cone	Cone	Cone	Cone	Cone	Cone	Cone
ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter	ConeEmitter
connect	connect	connect	connect	connect	connect	connect	connect	connect
Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact
Contour2D	Contour2D	Contour2D	Contour2D	Contour2D	Contour2D	Contour2D	(Prototype available) Contour2D	(Prototype available) Contour2D
ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	ContourPolyline2D	(Prototype available) ContourPolyline2D	(Prototype available) ContourPolyline2D
Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate	Coordinate
CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser	CoordinateChaser
CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper	CoordinateDamper
CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	CoordinateDouble	(Prototype available) CoordinateDouble	(Prototype available) CoordinateDouble
CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator	CoordinateInterpolator
CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	CoordinateInterpolator2D	(Prototype available) CoordinateInterpolator2D	(Prototype available) CoordinateInterpolator2D
Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder
CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor	CylinderSensor
DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight	DirectionalLight
DISEntityManager	DISEntityManager	DISEntityManager	DISEntityManager	DISEntityManager	DISEntityManager	DISEntityManager	DISEntityManager	DISEntityManager
DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping	DISEntityTypeMapping
Disk2D	Disk2D	Disk2D	Disk2D	Disk2D	Disk2D	Disk2D	(Prototype available) Disk2D	(Prototype available) Disk2D
DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	DoubleAxisHingeJoint	EaseInEaseOut	EaseInEaseOut
EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut	EaseInEaseOut
EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	EdgeEnhancementVolumeStyle	ElevationGrid	ElevationGrid
ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	ElevationGrid	(Java Prototype available) EspduTransform	(Java Prototype available) EspduTransform
Espdutransform	Espdutransform	Espdutransform	Espdutransform	Espdutransform	Espdutransform	Espdutransform	ExplosionEmitter	ExplosionEmitter
ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	ExplosionEmitter	EXPORT	EXPORT
EXPORT	EXPORT	EXPORT	EXPORT	EXPORT	EXPORT	EXPORT	ExternProtoDeclare	ExternProtoDeclare
ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	ExternProtoDeclare	Extrusion	Extrusion
Extrusion	Extrusion	Extrusion	Extrusion	Extrusion	Extrusion	Extrusion	field	field
field	field	field	field	field	field	field	field	field

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X3D Abstract Specification Node Index		X3D Schema validation	X3D DTD validation	X3D JSON Schema	X3D Tooltips	X3D Schematron validation	VRML97 Specification	X3dToVrml97.xslt
fieldValue	(includes X3DUOM integration)	fieldValue	fieldValue	fieldValue	fieldValue	fieldValue	(Grey background = forward compatibility for .wrl VRML97)	
FillProperties	FillProperties	FillProperties	FillProperties	FillProperties	FillProperties	FillProperties	Fog	Fog
FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	FloatVertexAttribute	Fog	Fog	FogCoordinate	FogCoordinate
Fog	Fog	Fog	Fog	Fog	Fog	Fog	FontStyle	FontStyle
FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	FogCoordinate	ForcePhysicsModel	ForcePhysicsModel
FontStyle	FontStyle	FontStyle	FontStyle	FontStyle	FontStyle	FontStyle	GeneratedCubeMapTexture	GeneratedCubeMapTexture
ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	ForcePhysicsModel	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeoCoordinate	GeoCoordinate
GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeneratedCubeMapTexture	GeoCoordinate	GeoCoordinate	GeoCoordinate	GeoElevationGrid	GeoElevationGrid
GeoCoordinate	GeoCoordinate	GeoCoordinate	GeoCoordinate	GeoElevationGrid	GeoCoordinate	GeoElevationGrid	GeoLocation	GeoLocation
GeoElevationGrid	GeoElevationGrid	GeoElevationGrid	GeoElevationGrid	GeoLocation	GeoLocation	GeoLocation	GeoLOD	GeoLOD
GeoLocation	GeoLocation	GeoLocation	GeoLocation	GeoLOD	GeoLOD	GeoLOD	GeoMetadata	GeoMetadata
GeoLOD	GeoLOD	GeoLOD	GeoLOD	GeoMetadata	GeoMetadata	GeoMetadata	GeoOrigin	GeoOrigin
GeoMetadata	GeoMetadata	GeoMetadata	GeoMetadata	GeoOrigin	GeoOrigin	GeoOrigin	GeoPositionInterpolator	GeoPositionInterpolator
GeoOrigin	GeoOrigin	GeoOrigin	GeoOrigin	GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator	GeoProximitySensor	GeoProximitySensor
GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator	GeoPositionInterpolator	GeoProximitySensor	GeoProximitySensor	GeoProximitySensor	GeoTouchSensor	GeoTouchSensor
GeoProximitySensor	GeoProximitySensor	GeoProximitySensor	GeoProximitySensor	GeoTouchSensor	GeoTouchSensor	GeoTouchSensor	GeoTransform	GeoTransform
GeoTouchSensor	GeoTouchSensor	GeoTouchSensor	GeoTransform	GeoTransform	GeoViewpoint	GeoViewpoint	GeoViewpoint	GeoViewpoint
GeoTransform	GeoTransform	GeoViewpoint	GeoViewpoint	GeoViewpoint	Group	Group	Group	Group
GeoViewpoint	GeoViewpoint	Group	Group	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer	HAnimDisplacer
Group	Group	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid	HAnimHumanoid
HAnimDisplacer	HAnimDisplacer	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint	HAnimJoint
HAnimHumanoid	HAnimHumanoid							
HAnimJoint	HAnimJoint							
HAnimMotion	HAnimMotion	HAnimMotion		HAnimMotion			(perhaps prototype possible?)	
HAnimSegment	HAnimSegment	HAnimSegment		HAnimSegment	HAnimSegment	HAnimSegment	(Prototype available) HAnimSegment	
HAnimSite	HAnimSite	HAnimSite		HAnimSite	HAnimSite	HAnimSite	(Prototype available) HAnimSite	
head	head	head		head	head	head		
ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture		ImageCubeMapTexture	ImageCubeMapTexture	ImageCubeMapTexture	ImageTexture	ImageTexture
ImageTexture	ImageTexture	ImageTexture		ImageTexture	ImageTexture	ImageTexture	ImageTexture	ImageTexture
ImageTexture3D	ImageTexture3D	ImageTexture3D		ImageTexture3D	ImageTexture3D	ImageTexture3D		
IMPORT	IMPORT	IMPORT		IMPORT	IMPORT	IMPORT		
IndexedFaceSet	IndexedFaceSet	IndexedFaceSet		IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet	IndexedFaceSet
IndexedLineSet	IndexedLineSet	IndexedLineSet		IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet	IndexedLineSet
IndexedQuadSet	IndexedQuadSet	IndexedQuadSet		IndexedQuadSet	IndexedQuadSet	IndexedQuadSet	(Prototype available) IndexedQuadSet	
IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet		IndexedTriangleFanSet	IndexedTriangleFanSet	IndexedTriangleFanSet	(Prototype available) IndexedTriangleFanSet	
IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet		IndexedTriangleSet	IndexedTriangleSet	IndexedTriangleSet	(Prototype available) IndexedTriangleSet	
IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet		IndexedTriangleStripSet	IndexedTriangleStripSet	IndexedTriangleStripSet	(Prototype available) IndexedTriangleStripSet	
Inline	Inline	Inline		Inline	Inline	Inline	Inline	Inline
IntegerSequencer	IntegerSequencer	IntegerSequencer		IntegerSequencer	IntegerSequencer	IntegerSequencer	(Prototype available) IntegerSequencer	
IntegerTrigger	IntegerTrigger	IntegerTrigger		IntegerTrigger	IntegerTrigger	IntegerTrigger	(Prototype available) IntegerTrigger	
IS	IS	IS		IS	IS	IS		
IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData		IsoSurfaceVolumeData	IsoSurfaceVolumeData	IsoSurfaceVolumeData		
KeySensor	KeySensor	KeySensor		KeySensor	KeySensor	KeySensor		
Layer	Layer	Layer		Layer	Layer	Layer		
LayerSet	LayerSet	LayerSet		LayerSet	LayerSet	LayerSet		
Layout	Layout	Layout		Layout	Layout	Layout		
LayoutGroup	LayoutGroup	LayoutGroup		LayoutGroup	LayoutGroup	LayoutGroup		
LayoutLayer	LayoutLayer	LayoutLayer		LayoutLayer	LayoutLayer	LayoutLayer		
LinePickSensor	LinePickSensor	LinePickSensor		LinePickSensor	LinePickSensor	LinePickSensor		
LineProperties	LineProperties	LineProperties		LineProperties	LineProperties	LineProperties	(Prototype available) LineSet	
LineSet	LineSet	LineSet		LineSet	LineSet	LineSet	(Prototype available) LoadSensor	
LoadSensor	LoadSensor	LoadSensor		LoadSensor	LoadSensor	LoadSensor		
LocalFog	LocalFog	LocalFog		LocalFog	LocalFog	LocalFog	LOD	LOD
LOD	LOD	LOD		LOD	LOD	LOD		
Material	Material	Material		Material	Material	Material	Material	Material
Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute		Matrix3VertexAttribute	Matrix3VertexAttribute	Matrix3VertexAttribute		
Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute		Matrix4VertexAttribute	Matrix4VertexAttribute	Matrix4VertexAttribute		
meta	meta	meta		meta	meta	meta		
MetadataBoolean	MetadataBoolean	MetadataBoolean		MetadataBoolean	MetadataBoolean	MetadataBoolean	(Prototype available) MetadataBoolean	
MetadataDouble	MetadataDouble	MetadataDouble		MetadataDouble	MetadataDouble	MetadataDouble	(Prototype available) MetadataDouble	
MetadataFloat	MetadataFloat	MetadataFloat		MetadataFloat	MetadataFloat	MetadataFloat	(Prototype available) MetadataFloat	
MetadataInteger	MetadataInteger	MetadataInteger		MetadataInteger	MetadataInteger	MetadataInteger	(Prototype available) MetadataInteger	
MetadataDataSet	MetadataDataSet	MetadataDataSet		MetadataDataSet	MetadataDataSet	MetadataDataSet	(Prototype available) MetadataDataSet	
MetadataString	MetadataString	MetadataString		MetadataString	MetadataString	MetadataString	(Prototype available) MetadataString	
MotorJoint	MotorJoint	MotorJoint		MotorJoint	MotorJoint	MotorJoint	MovieTexture	
MovieTexture	MovieTexture	MovieTexture		MovieTexture	MovieTexture	MovieTexture	MovieTexture	
MultiTexture	MultiTexture	MultiTexture		MultiTexture	MultiTexture	MultiTexture	MultiTexture	

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X3D Abstract Specification Node Index		X3D Schema validation	X3D DTD validation	X3D JSON Schema	X3D Tooltips	X3D Schematron validation	VRML97 Specification	X3dToVrml97.xslt
	(includes X3DUOM integration)						(Grey background = forward compatibility for .wrl VRML97)	
MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate	MultiTextureCoordinate		MultiTextureCoordinate		NavigationInfo	NavigationInfo
MultiTextureTransform	MultiTextureTransform	MultiTextureTransform	MultiTextureTransform		MultiTextureTransform		Normal	Normal
NavigationInfo	NavigationInfo	NavigationInfo	NavigationInfo		NavigationInfo		NormalInterpolator	NormalInterpolator
Normal	Normal	Normal	Normal		Normal		Normal	Normal
NormalInterpolator	NormalInterpolator	NormalInterpolator	NormalInterpolator		NormalInterpolator		NormalInterpolator	NormalInterpolator
NurbsCurve	NurbsCurve	NurbsCurve	NurbsCurve		NurbsCurve		(Java Prototype available) NurbsCurve	
NurbsCurve2D	NurbsCurve2D	NurbsCurve2D	NurbsCurve2D		NurbsCurve2D		(Java Prototype available) NurbsCurve2D	
NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator	NurbsOrientationInterpolator		NurbsOrientationInterpolator		(Java Prototype available) NurbsOrientationInterpolator	
NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface	NurbsPatchSurface		NurbsPatchSurface		(Java Prototype available) NurbsPatchSurface	
NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator	NurbsPositionInterpolator		NurbsPositionInterpolator		(Java Prototype available) NurbsPositionInterpolator	
NurbsSet	NurbsSet	NurbsSet	NurbsSet		NurbsSet		(Java Prototype available) NurbsSet	
NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator	NurbsSurfaceInterpolator		NurbsSurfaceInterpolator		(Java Prototype available) NurbsSurfaceInterpolator	
NurbsSweptSurface	NurbsSweptSurface	NurbsSweptSurface	NurbsSweptSurface		NurbsSweptSurface		(Java Prototype available) NurbsSweptSurface	
NurbsSwungSurface	NurbsSwungSurface	NurbsSwungSurface	NurbsSwungSurface		NurbsSwungSurface		(Java Prototype available) NurbsSwungSurface	
NurbsTextureCoordinate	NurbsTextureCoordinate	NurbsTextureCoordinate	NurbsTextureCoordinate		NurbsTextureCoordinate		(Java Prototype available) NurbsTextureCoordinate	
NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface	NurbsTrimmedSurface		NurbsTrimmedSurface		(Java Prototype available) NurbsTrimmedSurface	
OpacityMapVolumeStyle	OpacityMapVolumeStyle	OpacityMapVolumeStyle	OpacityMapVolumeStyle		OpacityMapVolumeStyle		(Java Prototype available) OpacityMapVolumeStyle	
OrientationChaser	OrientationChaser	OrientationChaser	OrientationChaser		OrientationChaser		(Java Prototype available) OrientationChaser	
OrientationDamper	OrientationDamper	OrientationDamper	OrientationDamper		OrientationDamper		(Java Prototype available) OrientationDamper	
OrientationInterpolator	OrientationInterpolator	OrientationInterpolator	OrientationInterpolator		OrientationInterpolator		OrthoViewpoint	OrthoViewpoint
OrthoViewpoint	OrthoViewpoint	OrthoViewpoint	OrthoViewpoint		OrthoViewpoint		OrthoViewpoint	OrthoViewpoint
PackagedShader	PackagedShader	PackagedShader	PackagedShader		PackagedShader		(Prototype available) PackagedShader	
ParticleSystem	ParticleSystem	ParticleSystem	ParticleSystem		ParticleSystem		(Prototype available) ParticleSystem	
PickableGroup	PickableGroup	PickableGroup	PickableGroup		PickableGroup		(Prototype available) PickableGroup	
PixelTexture	PixelTexture	PixelTexture	PixelTexture		PixelTexture		PixelTexture	PixelTexture
PixelTexture3D	PixelTexture3D	PixelTexture3D	PixelTexture3D		PixelTexture3D		PlaneSensor	PlaneSensor
PlaneSensor	PlaneSensor	PlaneSensor	PlaneSensor		PlaneSensor		PointEmitter	PointEmitter
PointEmitter	PointEmitter	PointEmitter	PointEmitter		PointEmitter		PointLight	PointLight
PointLight	PointLight	PointLight	PointLight		PointLight		PointPickSensor	PointPickSensor
PointProperties	PointProperties	PointProperties	PointProperties		PointProperties		PointSet	PointSet
PointSet	PointSet	PointSet	PointSet		PointSet		(Prototype available) PointSet	
Polyline2D	Polyline2D	Polyline2D	Polyline2D		Polyline2D		(Prototype available) Polyline2D	
PolylineEmitter	PolylineEmitter	PolylineEmitter	PolylineEmitter		PolylineEmitter		(Prototype available) PolylineEmitter	
Polypoint2D	Polypoint2D	Polypoint2D	Polypoint2D		Polypoint2D		(Prototype available) Polypoint2D	
PositionChaser	PositionChaser	PositionChaser	PositionChaser		PositionChaser		(Prototype available) PositionChaser	
PositionChaser2D	PositionChaser2D	PositionChaser2D	PositionChaser2D		PositionChaser2D		(Prototype available) PositionChaser2D	
PositionDamper	PositionDamper	PositionDamper	PositionDamper		PositionDamper		(Prototype available) PositionDamper	
PositionDamper2D	PositionDamper2D	PositionDamper2D	PositionDamper2D		PositionDamper2D		(Prototype available) PositionDamper2D	
PositionInterpolator	PositionInterpolator	PositionInterpolator	PositionInterpolator		PositionInterpolator		PositionInterpolator	PositionInterpolator
PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D	PositionInterpolator2D		PositionInterpolator2D		(Prototype available) PositionInterpolator2D	
PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor	PrimitivePickSensor		PrimitivePickSensor		(Prototype available) PrimitivePickSensor	
ProgramShader	ProgramShader	ProgramShader	ProgramShader		ProgramShader		ProgramShader	ProgramShader
ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle	ProjectionVolumeStyle		ProjectionVolumeStyle		ProjectionVolumeStyle	ProjectionVolumeStyle
-	-	-	-		ProtoBody		ProtoBody	ProtoBody
ProtoDeclare	ProtoDeclare	ProtoDeclare	ProtoDeclare		ProtoDeclare		ProtoDeclare	ProtoDeclare
ProtoInstance	ProtoInstance	ProtoInstance	ProtoInstance		ProtoInstance		ProtoInstance	ProtoInstance
-	ProtolInterface	ProtolInterface	ProtolInterface		ProtolInterface		ProtolInterface	ProtolInterface
ProximitySensor	ProximitySensor	ProximitySensor	ProximitySensor		ProximitySensor		ProximitySensor	ProximitySensor
QuadSet	QuadSet	QuadSet	QuadSet		QuadSet		(Prototype available) QuadSet	
ReceiverPdu	ReceiverPdu	ReceiverPdu	ReceiverPdu		ReceiverPdu		(Java Prototype available) ReceiverPdu	
Rectangle2D	Rectangle2D	Rectangle2D	Rectangle2D		Rectangle2D		(Prototype available) Rectangle2D	
RigidBody	RigidBody	RigidBody	RigidBody		RigidBody		(Prototype available) RigidBody	
RigidBodyCollection	RigidBodyCollection	RigidBodyCollection	RigidBodyCollection		RigidBodyCollection		(Prototype available) RigidBodyCollection	
ROUTE	ROUTE	ROUTE	ROUTE		ROUTE		(Prototype available) ROUTE	
ScalarChaser	ScalarChaser	ScalarChaser	ScalarChaser		ScalarChaser		(Prototype available) ScalarChaser	
ScalarDamper	ScalarDamper	ScalarDamper	ScalarDamper		ScalarDamper		(Prototype available) ScalarDamper	
ScalarInterpolator	ScalarInterpolator	ScalarInterpolator	ScalarInterpolator		ScalarInterpolator		ScalarInterpolator	ScalarInterpolator
Scene	Scene	Scene	Scene		Scene		Scene	Scene
ScreenFontStyle	ScreenFontStyle	ScreenFontStyle	ScreenFontStyle		ScreenFontStyle		(Prototype available) ScreenFontStyle	
ScreenGroup	ScreenGroup	ScreenGroup	ScreenGroup		ScreenGroup		(Prototype available) ScreenGroup	
Script	Script	Script	Script		Script		Script	Script
SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData	SegmentedVolumeData		SegmentedVolumeData		(Prototype available) SegmentedVolumeData	
ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle	ShadedVolumeStyle		ShadedVolumeStyle		(Prototype available) ShadedVolumeStyle	
ShaderPart	ShaderPart	ShaderPart	ShaderPart		ShaderPart		ShaderPart	ShaderPart
ShaderProgram	ShaderProgram	ShaderProgram	ShaderProgram		ShaderProgram		ShaderProgram	ShaderProgram
Shape	Shape	Shape	Shape		Shape		Shape	Shape

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X3D Abstract Specification Node Index		X3D Schema validation	X3D DTD validation	X3D JSON Schema	X3D Tooltips	X3D Schematron validation	VRML97 Specification	X3dToVrml97.xslt
SignalPdu	(includes X3DUOM integration)	SignalPdu	SignalPdu	SignalPdu	SignalPdu	SignalPdu	(Grey background = forward compatibility for .vrml VRML97)	
SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	SilhouetteEnhancementVolumeStyle	(Java Prototype available) SignalPdu	
SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint	SingleAxisHingeJoint		
SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint	SliderJoint		
Sound	Sound	Sound	Sound	Sound	Sound	Sound	Sound	
Sphere	Sphere	Sphere	Sphere	Sphere	Sphere	Sphere	Sphere	
SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	SphereSensor	
SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator	SplinePositionInterpolator		
SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D	SplinePositionInterpolator2D		
SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator	SplineScalarInterpolator		
SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	SpotLight	
SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SquadOrientationInterpolator	SpotLight	SpotLight
StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup	StaticGroup		
StringSensor	StringSensor	StringSensor	StringSensor	StringSensor	StringSensor	StringSensor		
SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter	SurfaceEmitter		
Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch
TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D	TexCoordChaser2D		
TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D	TexCoordDamper2D		
Text	Text	Text	Text	Text	Text	Text	Text	Text
TextureBackground	TextureBackground	TextureBackground	TextureBackground	TextureBackground	TextureBackground	TextureBackground		
TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	TextureCoordinate	
TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	TextureCoordinate3D	
TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	TextureCoordinate4D	
TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	TextureCoordinateGenerator	
TextureProperties	TextureProperties	TextureProperties	TextureProperties	TextureProperties	TextureProperties	TextureProperties	TextureProperties	
TextureTransform	TextureTransform	TextureTransform	TextureTransform	TextureTransform	TextureTransform	TextureTransform	TextureTransform	
TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D	TextureTransform3D	
TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	TextureTransformMatrix3D	
TimeSensor	TimeSensor	TimeSensor	TimeSensor	TimeSensor	TimeSensor	TimeSensor	TimeSensor	TimeSensor
TimeTrigger	TimeTrigger	TimeTrigger	TimeTrigger	TimeTrigger	TimeTrigger	TimeTrigger	(Prototype available) TimeTrigger	
ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle	ToneMappedVolumeStyle		
TouchSensor	TouchSensor	TouchSensor	TouchSensor	TouchSensor	TouchSensor	TouchSensor	TouchSensor	
Transform	Transform	Transform	Transform	Transform	Transform	Transform	Transform	
TransformSensor	TransformSensor	TransformSensor	TransformSensor	TransformSensor	TransformSensor	TransformSensor		
TransmitterPdu	TransmitterPdu	TransmitterPdu	TransmitterPdu	TransmitterPdu	TransmitterPdu	TransmitterPdu		
TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleFanSet	TriangleFanSet		
TriangleSet	TriangleSet	TriangleSet	TriangleSet	TriangleSet	TriangleSet	TriangleSet		
TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleSet2D	TriangleSet2D		
TriangleStripSet	TriangleStripSet	TriangleStripSet	TriangleStripSet	TriangleStripSet	TriangleStripSet	TriangleStripSet		
TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial	TwoSidedMaterial		
UNIT	unit	unit	unit	unit	unit	unit		
UniversalJoint	UniversalJoint	UniversalJoint	UniversalJoint	UniversalJoint	UniversalJoint	UniversalJoint		
Viewpoint	Viewpoint	Viewpoint	Viewpoint	Viewpoint	Viewpoint	Viewpoint	Viewpoint	
ViewpointGroup	ViewpointGroup	ViewpointGroup	ViewpointGroup	ViewpointGroup	ViewpointGroup	ViewpointGroup		
Viewport	Viewport	Viewport	Viewport	Viewport	Viewport	Viewport		
VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor	VisibilitySensor	
VolumeData	VolumeData	VolumeData	VolumeData	VolumeData	VolumeData	VolumeData		
VolumeEmitter	VolumeEmitter	VolumeEmitter	VolumeEmitter	VolumeEmitter	VolumeEmitter	VolumeEmitter		
VolumePickSensor	VolumePickSensor	VolumePickSensor	VolumePickSensor	VolumePickSensor	VolumePickSensor	VolumePickSensor		
WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WindPhysicsModel	WindPhysicsModel		
WorldInfo	WorldInfo	WorldInfo	WorldInfo	WorldInfo	WorldInfo	WorldInfo	WorldInfo	WorldInfo
X3D	X3D	X3D	X3D	X3D	X3D	X3D	#VRML	#X3D, #VRML
Supported nodes and statements:	100%	100%	100%	100%	66%	33%	48%	
253	253	253	253	253	166	56	121	
Unimplemented nodes and statements:								
0	0	0	0	0	87	-1	76	
References								
X3D v3.3 Specification	X3D Schema Validation	X3D DOCTYPE (DTD) Validation			X3D Resources: Tooltips	X3D Schematron validation		
HTML5 support goals								
* required for X3D Immersive Profile								
* suggested for HTML5 support								
* priority nodes and statements missing:								
						VRML prototypes total: 55 VRML+Java prototypes total: 15		

X3D v4.0 Node and Statement Profiles, Components and Levels						updated 20 October 2019
X3D Abstract Specification Nodes, Statements	Version	Minimum Profile	Component	Component Level for Full Support	Notes	
Anchor	3.0	Interactive	Networking	2		
Appearance	3.0	Interchange	Shape	1	textureTransform, fillProperties, lineProperties option until level 2	
Arc2D	3.0	Full	Geometry2D	2		
ArcClose2D	3.0	Full	Geometry2D	2		
AudioClip	3.0	Immersive	Sound	1	alpha value optionally supported until level 4	
Background	3.0	Interchange	EnvironmentalEffects	1		
BallJoint	3.2	Full	RigidBodyPhysics	2		
Billboard	3.0	Immersive	Navigation	2		
BlendedVolumeStyle	3.3	Full	VolumeRendering	3		
BooleanFilter	3.0	Interactive	EventUtilities	1		
BooleanSequencer	3.0	Interactive	EventUtilities	1		
BooleanToggle	3.0	Interactive	EventUtilities	1		
BooleanTrigger	3.0	Interactive	EventUtilities	1		
BoundaryEnhancementVolumeStyle	3.3	Full	VolumeRendering	2		
BoundedPhysicsModel	3.2	Full	ParticleSystems	2		
Box	3.0	Interchange	Geometry3D	1		
CADAssembly	3.1	Full	CADGeometry	2		
CADFace	3.1	Full	CADGeometry	2		
CADLayer	3.1	Full	CADGeometry	2		
CADPart	3.1	Full	CADGeometry	2		
CartoonVolumeStyle	3.3	Full	VolumeRendering	3		
Circle2D	3.0	Full	Geometry2D	2		
ClipPlane	3.2	Full	Rendering	5		
CollidableOffset	3.2	Full	RigidBodyPhysics	1		
CollidableShape	3.2	Full	RigidBodyPhysics	1		
Collision	3.0	Immersive	Navigation	2		
CollisionCollection	3.2	Full	RigidBodyPhysics	1		
CollisionSensor	3.2	Full	RigidBodyPhysics	1	contacts_changed requires level 2	
CollisionSpace	3.2	Full	RigidBodyPhysics	1		
Color	3.0	Interchange	Rendering	1	15,000 colors	
ColorChaser	3.3	Full	Followers	1		
ColorDamper	3.2	Full	Followers	1		
ColorInterpolator	3.0	Interchange	Interpolation	2		
ColorRGBA	3.0	Interchange	Rendering	1	15,000 colors, alpha optional until level 4	
component	3.0	Core	Core	1	X3D statement	
ComposedCubeMapTexture	3.1	Full	CubeMapTexturing	1		
ComposedShader	3.1	Full	Shaders	1		
ComposedTexture3D	3.1	Full	Texturing3D	1		
ComposedVolumeStyle	3.3	Full	VolumeRendering	2	ordered field is treated as field unless level 2	
Cone	3.0	Interchange	Geometry3D	1		
ConeEmitter	3.2	Full	ParticleSystems	1		
connect	3.0	Immersive	Core	1	in support of ProtoDeclare statement	
Contact	3.2	Full	RigidBodyPhysics	2		
Contour2D	3.0	Full	NURBS	4		
ContourPolyline2D	3.0	Full	NURBS	3		
Coordinate	3.0	Interchange	Rendering	1		
CoordinateChaser	3.3	Full	Followers	1		
CoordinateDamper	3.2	Full	Followers	1		
CoordinateDouble	3.0	Full	NURBS	1		

X3D v4.0 Node and Statement Profiles, Components and Levels						updated 20 October 2019
X3D Abstract Specification Nodes, Statements	Version	Minimum Profile	Component	Component Level for Full Support	Notes	
Anchor	3.0	Interactive	Networking	2		
CoordinateInterpolator	3.0	Interchange	Interpolation	1		
CoordinateInterpolator2D	3.0	Full	Interpolation	3		
Cylinder	3.0	Interchange	Geometry3D	1		
CylinderSensor	3.0	Interactive	PointingDeviceSensor	1		
DirectionalLight	3.0	Interchange	Lighting	1	Not scoped by parent Group or Transform	
DISEntityManager	3.2	Full	DIS	2		
DISEntityTypeMapping	3.2	Full	DIS	2		
Disk2D	3.0	Full	Geometry2D	2		
DoubleAxisHingeJoint	3.2	Full	RigidBodyPhysics	2		
EaseInEaseOut	3.2	Full	Interpolation	4		
EdgeEnhancementVolumeStyle	3.3	Full	VolumeRendering	2		
ElevationGrid	3.0	Interactive	Geometry3D	3		
EspduTransform	3.0	Full	DIS	1		
ExplosionEmitter	3.2	Full	ParticleSystems	1		
EXPORT	3.0	Interactive	Networking	3	X3D statement in support of Inline	
ExternProtoDeclare	3.0	Core	Core	1	X3D statement in support of ProtoDeclare statement	
Extrusion	3.0	Immersive	Geometry3D	4		
field	3.0	Core	Core	1	Prototypes fields are Core, Script fields are Immersive	
fieldValue	3.0	Core	Core	1	Optional until Interactive profile or Core component level 2	
FillProperties	3.0	Full	Shape	3		
FloatVertexAttribute	3.1	Full	Shaders	1		
Fog	3.0	Immersive	EnvironmentalEffects	2		
FogCoordinate	3.1	Full	EnvironmentalEffects	4		
FontStyle	3.0	Immersive	Text	1		
ForcePhysicsModel	3.2	Full	ParticleSystems	1		
GeneratedCubeMapTexture	3.1	Full	CubeMapTexturing	3		
GeoCoordinate	3.0	Full	Geospatial	1		
GeoElevationGrid	3.0	Full	Geospatial	1		
GeoLocation	3.0	Full	Geospatial	1		
GeoLOD	3.0	Full	Geospatial	1		
GeoMetadata	3.0	Full	Geospatial	1		
GeoOrigin	3.0	Full	Geospatial	1		
GeoPositionInterpolator	3.0	Full	Geospatial	1		
GeoProximitySensor	3.2	Full	Geospatial	2		
GeoTouchSensor	3.0	Full	Geospatial	1		
GeoTransform	3.2	Full	Geospatial	2		
GeoViewpoint	3.0	Full	Geospatial	1		
Group	3.0	Interchange	Grouping	1	addChildren, removeChildren optional until Interactive profile or component level 2	
HAnimDisplacer	3.0	Full	H-Anim	1		
HAnimHumanoid	3.0	Full	H-Anim	1	level 2 for addition of skinning	
HAnimJoint	3.0	Full	H-Anim	1		
HAnimMotion	4.0	Full	H-Anim	3	higher level than X3D v3.3	
HAnimSegment	3.0	Full	H-Anim	1		
HAnimSite	3.0	Full	H-Anim	1		
head	3.0	Core	Core	1	X3D statement	
ImageCubeMapTexture	3.1	Full	CubeMapTexturing	2		
ImageTexture	3.0	Interchange	Texturing	1		
ImageTexture3D	3.1	Full	Texturing3D	2		

X3D v4.0 Node and Statement Profiles, Components and Levels						updated 20 October 2019
X3D Abstract Specification Nodes, Statements	Version	Minimum Profile	Component	Component Level for Full Support	Notes	
Anchor	3.0	Interactive	Networking	2		
IMPORT	3.0	Interactive	Networking	3	X3D statement in support of inline	
IndexedFaceSet	3.0	Interchange	Geometry3D	2		
IndexedLineSet	3.0	Interchange	Rendering	1		
IndexedQuadSet	3.1	Full	CADGeometry	1		
IndexedTriangleFanSet	3.0	Interchange	Rendering	3		
IndexedTriangleSet	3.0	Interchange	Rendering	3		
IndexedTriangleStripSet	3.0	Interchange	Rendering	3		
Inline	3.0	Interactive	Networking	2	Inline scene may require higher profile in parent scene. Optional support for load field.	
IntegerSequencer	3.0	Interactive	EventUtilities	1		
IntegerTrigger	3.0	Interactive	EventUtilities	1		
IS	3.0	Immersive	Core	1	in support of ProtoDeclare statement	
IsoSurfaceVolumeData	3.3	Full	VolumeRendering	2		
KeySensor	3.0	Interactive	KeyDeviceSensor	1		
Layer	3.2	Full	Layering	1		
LayerSet	3.2	Full	Layering	1		
Layout	3.2	Full	Layout	1		
LayoutGroup	3.2	Full	Layout	1		
LayoutLayer	3.2	Full	Layout	1		
LinePickSensor	3.2	Full	Picking	1		
LineProperties	3.0	Immersive	Shape	2		
LineSet	3.0	Interchange	Rendering	1		
LoadSensor	3.0	Immersive	Networking	3		
LocalFog	3.1	Full	EnvironmentalEffects	4		
LOD	3.0	Immersive	Navigation	2		
Material	3.0	Interchange	Shape	1		
Matrix3VertexAttribute	3.1	Full	Shaders	1		
Matrix4VertexAttribute	3.1	Full	Shaders	1		
meta	3.0	Core	Core	1		
MetadataBoolean	3.3	Core	Core	1		
MetadataDouble	3.0	Core	Core	1		
MetadataFloat	3.0	Core	Core	1		
MetadataInteger	3.0	Core	Core	1		
MetadataSet	3.0	Core	Core	1		
MetadataString	3.0	Core	Core	1		
MotorJoint	3.2	Full	RigidBodyPhysics	2		
MovieTexture	3.0	Immersive	Texturing	3		
MultiTexture	3.0	Interchange	Texturing	2		
MultiTextureCoordinate	3.0	Interchange	Texturing	2		
MultiTextureTransform	3.0	Interchange	Texturing	2		
NavigationInfo	3.0	Interchange	Navigation	1		
Normal	3.0	Interchange	Rendering	2		
NormalInterpolator	3.0	Interchange	Interpolation	2		
NurbsCurve	3.0	Full	NURBS	1		
NurbsCurve2D	3.0	Full	NURBS	3		
NurbsOrientationInterpolator	3.0	Full	NURBS	1		
NurbsPatchSurface	3.0	Full	NURBS	1		
NurbsPositionInterpolator	3.0	Full	NURBS	1		
NurbsSet	3.0	Full	NURBS	2		

X3D v4.0 Node and Statement Profiles, Components and Levels						updated 20 October 2019
X3D Abstract Specification Nodes, Statements	Version	Minimum Profile	Component	Component Level for Full Support	Notes	
Anchor	3.0	Interactive	Networking	2		
NurbsSurfaceInterpolator	3.0	Full	NURBS	1		
NurbsSweptSurface	3.0	Full	NURBS	3		
NurbsSwungSurface	3.0	Full	NURBS	3		
NurbsTextureCoordinate	3.0	Full	NURBS	1		
NurbsTrimmedSurface	3.0	Full	NURBS	4		
OpacityMapVolumeStyle	3.3	Full	VolumeRendering	2		
OrientationChaser	3.2	Full	Followers	1		
OrientationDamper	3.2	Full	Followers	1		
OrientationInterpolator	3.0	Interchange	Interpolation	1		
OrthoViewpoint	3.2	Full	Navigation	3		
PackagedShader	3.1	Full	Shaders	1		
ParticleSystem	3.2	Full	ParticleSystems	1	Need level 3 for geometry field	
PickableGroup	3.2	Full	Picking	1		
PixelTexture	3.0	Interchange	Texturing	1		
PixelTexture3D	3.1	Full	Texturing3D	1		
PlaneSensor	3.0	Interactive	PointingDeviceSensor	1		
PointEmitter	3.2	Full	ParticleSystems	1		
PointLight	3.0	Interactive	Lighting	2	radius optionally supported, linear attenuation	
PointPickSensor	3.2	Full	Picking	1		
PointProperties	4.0	Full	Shape	5		
PointSet	3.0	Interchange	Rendering	1		
Polyline2D	3.0	Immersive	Geometry2D	1		
PolylineEmitter	3.2	Full	ParticleSystems	1		
Polypoint2D	3.0	Immersive	Geometry2D	1		
PositionChaser	3.2	Full	Followers	1		
PositionChaser2D	3.2	Full	Followers	1		
PositionDamper	3.2	Full	Followers	1		
PositionDamper2D	3.2	Full	Followers	1		
PositionInterpolator	3.0	Interchange	Interpolation	1		
PositionInterpolator2D	3.0	Full	Interpolation	3		
PrimitivePickSensor	3.2	Full	Picking	2	Non-uniform scale not supported until level 3	
ProgramShader	3.1	Full	Shaders	1		
ProjectionVolumeStyle	3.3	Full	VolumeRendering	2		
ProtoBody	3.0	Core	Core	1	Optional until Interactive profile or Core component level 2	
ProtoDeclare	3.0	Core	Core	1	Optional until Interactive profile or Core component level 2	
ProtoInstance	3.0	Core	Core	1	Optional until Interactive profile or Core component level 2	
ProtoInterface	3.0	Core	Core	1	Optional until Interactive profile or Core component level 2	
ProximitySensor	3.0	Interactive	EnvironmentalSensor	1	Optional until Interactive profile or Core component level 2	
QuadSet	3.1	Full	CADGeometry	1	position_changed, orientation_changed optional until level 2	
ReceiverPdu	3.0	Full	DIS	1		
Rectangle2D	3.0	Immersive	Geometry2D	1		
RigidBody	3.2	Full	RigidBodyPhysics	2		
RigidBodyCollection	3.2	Full	RigidBodyPhysics	2		
ROUTE	3.0	Core	Core	1		
ScalarChaser	3.2	Full	Followers	1		
ScalarDamper	3.3	Full	Followers	1		
ScalarInterpolator	3.0	Interchange	Interpolation	1		
Scene	3.0	Core	Core	1	X3D statement in XML encoding (implicit in ClassicVRML, VRML97)	

X3D v4.0 Node and Statement Profiles, Components and Levels						updated 20 October 2019
X3D Abstract Specification Nodes, Statements	Version	Minimum Profile	Component	Component Level for Full Support	Notes	
Anchor	3.0	Interactive	Networking	2		
ScreenFontStyle	3.2	Full	Layout	2		
ScreenGroup	3.2	Full	Layout	2		
Script	3.0	Immersive	Scripting	1		
SegmentedVolumeData	3.3	Full	VolumeRendering	2		
ShadedVolumeStyle	3.3	Full	VolumeRendering	3	Use level 4 for full capabilities	
ShaderPart	3.1	Full	Shaders	1		
ShaderProgram	3.1	Full	Shaders	1		
Shape	3.0	Interchange	Shape	1		
SignalPdu	3.0	Full	DIS	1		
SilhouetteEnhancementVolumeStyle	3.3	Full	VolumeRendering	2		
SingleAxisHingeJoint	3.2	Full	RigidBodyPhysics	2		
SliderJoint	3.2	Full	RigidBodyPhysics	2		
Sound	3.0	Immersive	Sound	1		
Sphere	3.0	Interchange	Geometry3D	1		
SphereSensor	3.0	Interactive	PointingDeviceSensor	1		
SplinePositionInterpolator	3.2	Full	Interpolation	4		
SplinePositionInterpolator2D	3.2	Full	Interpolation	4		
SplineScalarInterpolator	3.2	Full	Interpolation	4		
SpotLight	3.0	Interactive	Lighting	2		
SquadOrientationInterpolator	3.2	Full	Interpolation	5		
StaticGroup	3.0	Full	Grouping	3		
StringSensor	3.0	Interactive	KeyDeviceSensor	2		
SurfaceEmitter	3.2	Full	ParticleSystems	2		
Switch	3.0	Interactive	Grouping	2		
TexCoordChaser2D	3.3	Full	Followers	1		
TexCoordDamper2D	3.2	Full	Followers	1		
Text	3.0	Immersive	Text	1		
TextureBackground	3.0	Full	EnvironmentalEffects	3		
TextureCoordinate	3.0	Interchange	Texturing	1		
TextureCoordinate3D	3.1	Full	Texturing3D	1		
TextureCoordinate4D	3.1	Full	Texturing3D	1		
TextureCoordinateGenerator	3.0	Interchange	Texturing	2		
TextureProperties	3.2	Full	Texturing	2		
TextureTransform	3.0	Interchange	Texturing	1		
TextureTransform3D	3.1	Full	Texturing3D	1		
TextureTransformMatrix3D	3.1	Full	Texturing3D	1		
TimeSensor	3.0	Interchange	Time	1		
TimeTrigger	3.0	Interactive	EventUtilities	1		
ToneMappedVolumeStyle	3.3	Full	VolumeRendering	2		
TouchSensor	3.0	Interactive	PointingDeviceSensor	1		
Transform	3.0	Interchange	Grouping	1		
TransformSensor	3.2	Full	EnvironmentalSensor	3		
TransmitterPdu	3.0	Full	DIS	1		
TriangleFanSet	3.0	Interchange	Rendering	3		
TriangleSet	3.0	Interchange	Rendering	3		
TriangleSet2D	3.0	Full	Geometry2D	1		
TriangleStripSet	3.0	Interchange	Rendering	3		
TwoSidedMaterial	3.2	Full	Shape	4		

X3D v4.0 Node and Statement Profiles, Components and Levels						updated 20 October 2019
X3D Abstract Specification Nodes, Statements	Version	Minimum Profile	Component	Component Level for Full Support	Notes	
Anchor	3.0	Interactive	Networking	2		
unit	3.3	Core	Core	1	X3D statement	
UniversalJoint	3.2	Full	RigidBodyPhysics	2		
Viewpoint	3.0	Interchange	Navigation	1		
ViewpointGroup	3.2	Full	Navigation	3		
Viewport	3.2	Full	Layering	1		
VisibilitySensor	3.0	Immersive	EnvironmentalSensor	2		
VolumeData	3.3	Full	VolumeRendering	1		
VolumeEmitter	3.2	Full	ParticleSystems	2		
VolumePickSensor	3.2	Full	Picking	3		
WindPhysicsModel	3.2	Full	ParticleSystems	1		
WorldInfo	3.0	Core	Core	1		
X3D	3.0	Core	Core	1	X3D statement	

TODO Projective Texture Mapping (PTM)

[X3D v3.3 Specification](#)

X3D Interactive, X3D MPEG4 Interactive Profile Comparison

<http://www.web3d.org/specifications/X3dNodeInventoryComparison-X3dInteractiveMpeg4Interactive.pdf>

X3D Interactive Profile	MPEG4 Interactive Profile	To be added
Anchor	Anchor	
Appearance	Appearance	
Background	Background	
BooleanFilter	* not included by MPEG	
BooleanSequencer	* not included by MPEG	
BooleanToggle	* not included by MPEG	
BooleanTrigger	* not included by MPEG	
Box	Box	
Color	Color	
ColorInterpolator	ColorInterpolator	
ColorRGBA	ColorRGBA	
Cone	Cone	
Coordinate	Coordinate	
CoordinateInterpolator	CoordinateInterpolator	
Cylinder	Cylinder	
CylinderSensor	CylinderSensor	
DirectionalLight	DirectionalLight	
ElevationGrid	ElevationGrid	
Group	Group	
ImageTexture	ImageTexture	
IndexedFaceSet	IndexedFaceSet	
IndexedLineSet	IndexedLineSet	
IndexedTriangleFanSet	* not included by MPEG	
IndexedTriangleSet	* not included by MPEG	
IndexedTriangleStripSet	* not included by MPEG	
Inline	Inline	
IntegerSequencer	* not included by MPEG	
IntegerTrigger	* not included by MPEG	
KeySensor	* not included by MPEG	
LineSet	LineSet	
Material	Material	
MetadataBoolean	* not included by MPEG	
MetadataDouble	MetadataDouble	
MetadataFloat	MetadataFloat	
MetadataInteger	MetadataInteger	
MetadataSet	MetadataSet	
MetadataString	MetadataString	
MultiTexture	* not included by MPEG	
MultiTextureCoordinate	* not included by MPEG	
MultiTextureTransform	* not included by MPEG	
NavigationInfo	NavigationInfo	
Normal	* not included by MPEG	
NormalInterpolator	NormalInterpolator	

X3D Interactive, X3D MPEG4 Interactive Profile Comparison

<http://www.web3d.org/specifications/X3dNodeInventoryComparison-X3dInteractiveMpeg4Interactive.pdf>

X3D Interactive Profile	MPEG4 Interactive Profile	To be added
OrientationInterpolator	OrientationInterpolator	
PixelTexture	PixelTexture	
PlaneSensor	PlaneSensor	
PointLight	PointLight	
PointSet	PointSet	
PositionInterpolator	PositionInterpolator	
ProximitySensor	ProximitySensor	
ScalarInterpolator	ScalarInterpolator	
Shape	Shape	
Sphere	Sphere	
SphereSensor	SphereSensor	
SpotLight	SpotLight	
StringSensor	* not included by MPEG	
Switch	Switch	
TextureCoordinate	TextureCoordinate	
TextureCoordinateGenerator	* not included by MPEG	
TextureTransform	TextureTransform	
TimeSensor	TimeSensor	
TimeTrigger	* not included by MPEG	
TouchSensor	TouchSensor	
Transform	Transform	
TriangleFanSet	* not included by MPEG	
TriangleSet	* not included by MPEG	
TriangleStripSet	* not included by MPEG	
Viewpoint	Viewpoint	
VisibilitySensor	* not included by MPEG	
WorldInfo	WorldInfo	

Total nodes:

70	48	0
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Missing nodes:

0	22	0
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References:

- <http://www.web3d.org/files/specifications/19775-1/V3.3/Part01/interactive.html>
- <http://www.web3d.org/files/specifications/19775-1/V3.3/Part01/MPEG4interactive.html>