Extensible 3D (X3D)
Part 1: Architecture and base components

ISO/IEC 19775-1:20xx

This document is Edition 4 of ISO/IEC 19775-1, Extensible 3D (X3D). The full title of this part of the International Standard is: *Information technology — Computer graphics, image processing and environmental representation — Extensible 3D (X3D) — Part 1: Architecture and base components*.

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The ***Foreword*** provides background on the standards process for X3D. The ***Introduction*** describes the purpose, design criteria, and functional characteristics of X3D. The following clauses define Part 1 of ISO/IEC 19775:

1. ***Scope*** defines the problem area that X3D addresses.
2. ***Normative references*** lists the normative standards referenced in this part of ISO/IEC 19775.
3. ***Definitions, acronyms, and abbreviations*** contains the glossary of terminology used in this part of ISO/IEC 19775.
4. ***Concepts*** describes the workings of the X3D runtime system.
5. ***Field type reference*** describes the fundamental data types in X3D.
6. ***Conformance*** describes the conformance requirements for X3D implementations.
7. ***Core component*** provides a detailed specification of the Core component of X3D.
8. ***Time component*** provides a detailed specification of the Time component of X3D.
9. ***Networking component*** provides a detailed specification of the Networking component of X3D.
10. ***Grouping component*** provides a detailed specification of the Grouping component of X3D.
11. ***Rendering component*** provides a detailed specification of the Rendering component of X3D.
12. ***Shape component*** provides a detailed specification of the Shape component of X3D.
13. ***Geometry3D component*** provides a detailed specification of the Geometry3D component of X3D.
14. ***Geometry2D component*** provides a detailed specification of the Geometry2D component of X3D.
15. ***Text*** provides a detailed specification of the Text component of X3D.
16. ***Sound component*** provides a detailed specification of the Time component of X3D.
17. ***Lighting component*** provides a detailed specification of the Lighting component of X3D.
18. ***Texturing component*** provides a detailed specification of the Texturing component of X3D.
19. ***Interpolation component*** provides a detailed specification of the Interpolation component of X3D.
20. ***Pointing device sensor component*** provides a detailed specification of the Pointing device sensor component of X3D.
21. ***Key device sensor component*** provides a detailed specification of the Key device sensor component of X3D.

22. ***Environmental sensor component*** provides a detailed specification of the Environmental sensor component of X3D.
23. ***Navigation component*** provides a detailed specification of the Navigation component of X3D.
24. ***Environmental effects component*** provides a detailed specification of the Environmental effects component of X3D.
25. ***Geospatial component*** provides a detailed specification of the Geospatial component of X3D.
26. ***Humanoid animation (H-Anim) component*** provides a detailed specification of the Humanoid animation (H-Anim) component of X3D.
27. ***NURBS component*** provides a detailed specification of the NURBS component of X3D.
28. ***Distributed interactive simulation (DIS) component*** provides a detailed specification of the DIS component of X3D.
29. ***Scripting component*** provides a detailed specification of the Scripting component of X3D.
30. ***Event utilities component*** provides a detailed specification of the Event utilities component of X3D.
31. ***Shader component*** provides a detailed specification of the Shader component of X3D.
32. ***CAD geometry component*** provides a detailed specification of the CAD geometry component of X3D.
33. ***Texturing3D component*** provides a detailed specification of the 3D texturing component of X3D.
34. ***Environmental texturing component*** provides a detailed specification of the environmental texturing component of X3D.
35. ***Layering component*** provides a detailed specification for organizing the content of worlds into independent, overlapping layers.
36. ~~***Layout component*** provides a detailed specification for arranging content to appear in specific regions of the display surface.~~
37. ***Rigid body physics component*** provides a detailed specification for applying rigid body physics properties to content.
38. ***Picking sensor component*** provides a detailed specification for selecting items in the content by user interaction.
39. ***Followers component*** provides a detailed specification for using follower transitions.
40. ***Particle systems component*** provides a detailed specification for specifying and using particle systems in X3D worlds.
41. ***Volume rendering component*** provides a detailed specification for the rendering of volumetric data sets as part of X3D worlds.
42. ***Annotation component*** provides a detailed specification on how to present information that always faces the viewer.

43. ***Projective texture mapping component*** provides a detailed specification for projecting textures onto geometry.

There are several annexes included in the specification:

A. ***Core profile*** defines a minimal subset of X3D functionality that constitutes the Core profile.
B. ***Interchange profile*** defines the proper subset of X3D functionality that constitutes the Interchange profile.
C. ***Interactive profile*** defines the proper subset of X3D functionality that constitutes the Interactive profile.
D. ***MPEG-4 interactive profile*** defines the proper subset of X3D functionality that constitutes the MPEG-4 interactive profile.
E. ***Immersive profile*** defines the proper subset of X3D functionality that corresponds to the base profile defined in ISO/IEC 14772-1.
F. ***Full profile*** defines the proper subset of X3D functionality that constitutes the Full profile.
G. ***Recommended navigation behaviours*** specifies some recommended behaviours that may be adopted by browser implementers.
H. ***CADInterchange profile*** defines the proper subset of X3D functionality that constitutes the CADInterchange profile.
I. ***OpenGL shading language (GLSL) binding*** provides a mapping of Programmable shader component functionality to the GLSL shading language.
J. ***Microsoft DirectX shading language (HLSL) binding*** provides a mapping of Programmable shader component functionality to the HLSL shading language.
K. ***nVidia CG shading language binding*** provides a mapping of Programmable shader component functionality to the Cg shading language.
L. ***MedicalInterchange profile*** defines the proper subset of X3D functionality that constitutes the MedicalInterchange profile.
Z. ***Version content*** specifies which X3D functionality is in which version.

Bibliography lists the informative, non-standard topics referenced in this part of ISO/IEC 19775.

Component index lists the available components defined in this part of ISO/IEC 19775 in alphabetical order with hyperlinks to their respective definitions.

Profile index lists the profiles defined in this part of ISO/IEC 19775 in alphabetical order with hyperlinks to their respective definitions.

Node index lists the nodes defined in this part of ISO/IEC 19775 in alphabetical order with hyperlinks to their respective definitions.