



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.

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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.

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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.

