VRML to X3D

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TUT

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Introduction

• Why this topic ?
• VMRL – Virtual Reality Markup/Modeling Language
• For describing multi-participant interactive simulations (virtual worlds)
History of VRML

• Conceived 1994, WWW-conference Geneva
• 'attendees described projects already underway to build three dimensional graphical visualization tools which inter-operate with the Web. Attendees agreed on the need for these tools to have a common language for specifying 3D world description and WWW hyper-links -- an analog of HTML for virtual reality. '
• VRML 1.0, 1995
• VRML 2.0, 1996
  – With support for animations and interaction
• VRML 97, 1997, iso standardized
History of VRML

• Users disappointed on lack of compatibility on VRML 1.0
  – Browsers and viewers
  – Due to slowness of developing VRML 2.0 and lack of documentation

• Developers made their own add-ons and features on VRML 1.0
  – > increased incompatibility issues
VRML-file

• Textual representation of virtual environment

```vrml
#VRML V2.0 utf8
Shape {
  appearance Appearance {
    material Material {
      diffuseColor 1.0 0.0 0.0
      ambientIntensity 0.2
      shininess 0.2
    }
  }
  geometry Box{}
}
```
VRML to X3D

- Differences between VRML and X3D
- X3D has replaced VRML
  - X3D ≈ VRML 3.0
- Tools for converting VRML to X3D
  - http://doc.instantreality.org/tools/x3d_encoding_converter/
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Shape {
appearance Appearance {
material Material {
diffuseColor 1.0 0.0 0.0
ambientIntensity 0.2
shininess 0.2
}
}
geometry Box{}
}

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE X3D PUBLIC "ISO//Web3D//DTD X3D 3.0//EN" "http://www.web3d.org/specifications/x3d-3.0.dtd">
<Scene DEF='scene'>
  <Shape>
    <Appearance>
      <Material diffuseColor='1 0 0'/>
    </Appearance>
    <Box/>
  </Shape>
</Scene>
</X3D>
Advanced example
Benefits of X3D over VRML

- Advanced texture handling
- Structured representation

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  </Scene>
</X3D>
Benefits of X3D over VRML

- VRML compatible
  - X3D has 'classic VRML' encoding, can play most VRML 2.0 non-scripted worlds with minor changes
- XML encoding to integrate smoothly with other applications
- X3D scenes and environments operate predictably between different players/browsers
- X3D is more feature rich
  - Has a lot of features requested in VRML 2.0
- X3D is continually being enhanced and updated
- http://argency.eu/subdomains/blog/blog_html_code/?p=325
Summary

- Conversion works from VRML 2.0 / 97 to X3D
  - And the results usually too
- VRML 1.0 out dated and shouldn't be used
- Use X3D if possible
References and additional info

- http://www.web3d.org/x3d/specifications/vrml/VRML1.0/index.html