SMIL 2.0
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http://www.x-smiles.org/

19.9. X-Smiles Workshop 2001
SMIL 2.0 Overview

- Synchronized Multimedia Integration Language
- Recommendation specified by W3C
- XML-based language
- Designed for Internet use
- Easy to write, like HTML
- Doesn’t define media formats, only integrates them
History

- Dec 1995 - SMIL designing started
- Nov 1997 - SMIL 1.0 Recommendation
- Mar 1998 - First SMIL implementation
- Aug 1999 - First public draft of SMIL 2.0
- Aug 2001 - SMIL 2.0 Recommendation
Typical SMIL Elements

<h> - Head element
<meta> - Meta data, such as author, copyright...
<layout> - Layout of the presentation
<region> - Region describing positioning
<body> - Body element
<seq> - Sequential time container
<par> - Parallel time container
<img>, <audio>, <video> - Media to be played
<switch> - Selects between elements
<a>, <area> - Linking
<smil>
  <head>
    <layout>
      <region id="reg1" top="0" left="0" width="300" height="200" />
      <region id="reg2" left="300" width="300" height="200" />
    </layout>
  </head>
  <body>
    <seq>
      <img id="id1" src="intro.jpg" region="reg1" dur="4s" />
      <audio id="id2" src="music.wav" dur="2s" />
      <par>
        <video id="id3" src="movie5s.mpg" region="reg1" />
        <img id="id4" src="intro.jpg" begin="3s" region="reg2" />
      </par>
    </seq>
  </body>
</smil>
SMIL 2.0: Modularization and profiling

• Modularization breaks an XML language into modules
  – One module has only a small set of elements
  – Reusable element packages

• Profiling combines modules into usable languages
  – Small profiles for small devices
  – Complex profiles for big machines
SMIL 2.0 Profiles

- SMIL 2.0 divided into 45 modules
- Modules grouped into functional areas:
  1. Structure
  2. Metainformation
  3. Layout
  4. Timing
  5. Media Objects
  6. Linking
  7. Content Control
  8. Animation
  9. Transitions
  10. Time Manipulations

- SMIL 2.0 Basic Profile
- SMIL 2.0 Full Profile
Use cases for SMIL

- Slideshows
- Advertisements
- Internet TV
- Education
- Corporate communications
- Product information
- User’s Guides
- Net meetings
- etc.
Some SMIL 1.0 Editing Tools

- RealNetworks: RealSlideshow
- Oratrix: GRiNS authoring tools for SMIL
- Sausage Software: SMIL Composer SuperTool
- Alliare: SMIL Tag Pack for HomeSite and Cold Fusion Studio

SMIL 2.0 Editors still not available
Support for SMIL in Players / Browsers

2.0 • X-Smiles 0.40: SMIL 2.0 Basic Profile
2.0 • Oratrix GRiNS player: SMIL 2.0 Language
2.0 • IE 5: many SMIL 2.0 modules
1.0 • QuickTime Player 4.1
1.0 • RealPlayer 8
1.0 • Compaq HPAS
1.0 • Productivity Works Lp Player
1.0 • SOJA from Helio
1.0 • S2M2 by NIST
1.0 • Schmunzel by SunTREC Salzburg
X-Smiles Browser

- XML browser
  - XSL FO, SVG, SMIL, XForms...
  - XSLT transformations
  - ECMAScript
- Java-based
  - Portability, available components, JMF
- Open-source
SMIL support in X-Smiles 0.4

- Currently SMIL 2.0 Basic profile (beta)
- Can be used as a standalone player
- Can be used as a Java-component

```java
// Create the SMIL player
JSMILPlayer smil = new JSMILPlayer();

// Initialize with the filename (could also be URL)
if (smil.init(filename) == false)
    System.out.println("ERROR initializing "+filename);

// Create a frame and add the SMIL component to it
JFrame frame = new JFrame("Simple SMIL player");
frame.setSize(600,400);
frame.getContentPane().add(smil, BorderLayout.CENTER);
frame.show();

// Start the SMIL presentation
smil.start();
```
SMIL features in X-Smiles

- Supports simple CSS (colors/fonts)
- Supports ECMAScripts
  - click, mousedown, mouseover...
- Can integrate several media formats
  - Images: GIF, JPEG and PNG
  - Audio: AIFF, AU, AVI, MIDI, MP3 and WAV
  - Video: AVI, MPEG-1, QT
  - XML: SMIL, XSL FO and SVG
- Uses Java Media Framework for audio/video
- Works also without JMF
## X-Smiles SMIL features

<table>
<thead>
<tr>
<th>Module</th>
<th>Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>All</td>
</tr>
<tr>
<td>Basic Content Control</td>
<td><code>&lt;switch&gt;</code>, in-line tests, almost all systemAttributes</td>
</tr>
<tr>
<td>Skip Content Control</td>
<td>Not implemented</td>
</tr>
<tr>
<td>Meta info</td>
<td><code>&lt;meta&gt;</code>, <code>&lt;metadata&gt;</code></td>
</tr>
<tr>
<td>Basic Layout</td>
<td><code>&lt;layout&gt;</code>, <code>&lt;region&gt;</code>, <code>&lt;root-layout&gt;</code></td>
</tr>
<tr>
<td>Basic Linking</td>
<td><code>&lt;a&gt;</code>, <code>&lt;area&gt;</code>, <code>href</code>, <code>coords</code></td>
</tr>
<tr>
<td>Basic Media</td>
<td><code>&lt;ref&gt;</code>, <code>&lt;animation&gt;</code>, <code>&lt;audio&gt;</code>, <code>&lt;img&gt;</code>, <code>&lt;text&gt;</code>, <code>&lt;textstream&gt;</code> and <code>&lt;video&gt;</code></td>
</tr>
<tr>
<td>Basic Inline Timing</td>
<td>begin, <code>dur</code>, <code>end</code> attributes</td>
</tr>
<tr>
<td>Min Max Timing</td>
<td><code>min</code>, <code>max</code> attributes</td>
</tr>
<tr>
<td>Basic Time Containers</td>
<td><code>&lt;seq&gt;</code>, <code>&lt;par&gt;</code>, <code>fill</code>, <code>endsync</code></td>
</tr>
<tr>
<td>Repeat Timing</td>
<td><code>repeatDur</code>, <code>repeatCount</code></td>
</tr>
<tr>
<td>Syncbase Timing</td>
<td>Only between siblings</td>
</tr>
</tbody>
</table>
## Missing features

<table>
<thead>
<tr>
<th>Module</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>-</td>
</tr>
<tr>
<td>Basic Content Control</td>
<td>systemRequired, systemComponent</td>
</tr>
<tr>
<td>Skip Content Control</td>
<td>Not implemented</td>
</tr>
<tr>
<td>Meta info</td>
<td>base, title</td>
</tr>
<tr>
<td>Basic Layout</td>
<td>z-index, fit</td>
</tr>
<tr>
<td>Basic Linking</td>
<td>Timing not resolved completely</td>
</tr>
<tr>
<td>Basic Media</td>
<td>XMLBase</td>
</tr>
<tr>
<td>Basic Inline Timing</td>
<td>Negative begin times</td>
</tr>
<tr>
<td>Min Max Timing</td>
<td>value ’media’</td>
</tr>
<tr>
<td>Basic Time Containers</td>
<td>Negative begin times</td>
</tr>
<tr>
<td>Repeat Timing</td>
<td>repeat attribute (SMIL 1.0)</td>
</tr>
<tr>
<td>Syncbase Timing</td>
<td>only between siblings</td>
</tr>
</tbody>
</table>
SMIL Demos

- Example
- Ahma Gulo Gulo
- Drinks
- Bikes
- SVG in SMIL

Try it out at www.x-smiles.org!
The End