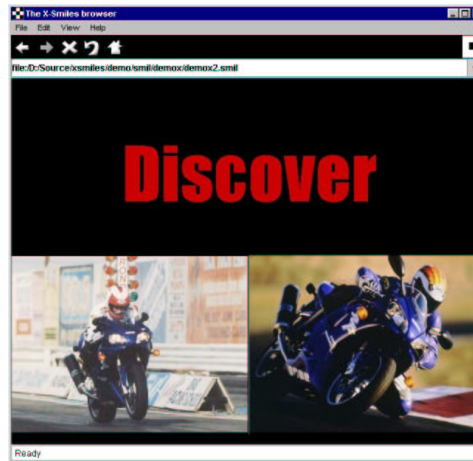


# SMIL 2.0

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<http://www.x-smiles.org/>



# SMIL 2.0 Overview

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- 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

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- 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

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- <head>- 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 Document Example

---

```
<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>
      
      <audio id="id2" src="music.wav" dur="2s" />
      <par>
        <video id="id3" src="movie5s.mpg" region="reg1" />
        
      </par>
    </seq>
  </body>
</smil>
```



## SMIL 2.0: Modularization and profiling

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- 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

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- 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

- Slideshows
- Advertisements
- Internet TV
- Education
- Corporate communications
- Product information
- User's Guides
- Net meetings
- etc.



## Some SMIL 1.0 Editing Tools

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- 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

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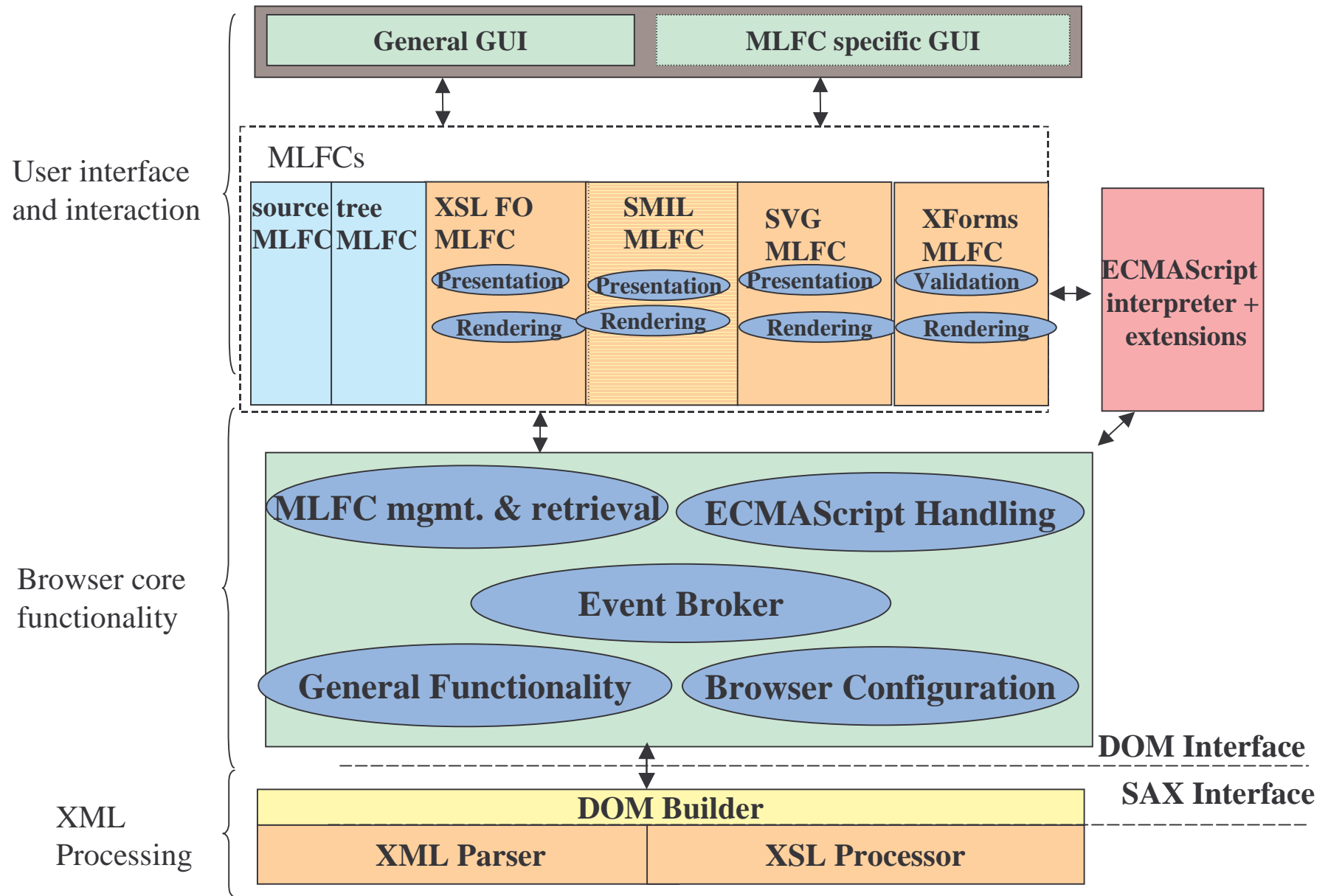
- 2.0 • X-Smiles 0.40: SMIL 2.0 Basic Profile**
- 2.0 • Oratrix GRiNS player: SMIL 2.0 Language**
- 2.0 • IE 5: many SMIL 2.0 modules**
- 1.0 • *QuickTime Player 4.1***
- 1.0 • *RealPlayer 8***
- 1.0 • Compaq HPAS**
- 1.0 • Productivity Works Lp Player**
- 1.0 • SOJA from Helio**
- 1.0 • S2M2 by NIST**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



# X-Smiles Browser

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- 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

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

```
// 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

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- 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

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

# Missing features

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



# SMIL Demos

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

**Try it out at [www.x-smiles.org](http://www.x-smiles.org) !**



# The End

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