

## HTML5 features

Wojciech Bielawski  
[w.bielawski@samsung.com](mailto:w.bielawski@samsung.com)

# Agenda

- **Introduction**
- **HTML5 elements and features overview**
- **Availability**
- **Future**



# Introduction

# History

- **Beginning**

- Tim Berners-Lee proposed ENQUIRE at CERN
- HTML was created in 1990
- The first description published late 1991
- 18 elements

- **Fifth revision of the HTML standard**

- Standardized as HTML 4 as of 1997
- Currently Candidate Recommendation of the W3C
- About 113 tags



# WHATWG vs W3C

- **WHATWG** – community interested in evolving HTML and related technologies (Apple, Mozilla, Opera)
- **W3C** – international standards organization for the WWW

WHATWG	W3C
Living standard	Long time development
Maintenance	New features

# XHTML vs HTML

- **XHTML is more restrictive subset of SGML**
- **Developed to make HTML more extensible**
- **Increase interoperability with other data formats**

XHTML	HTML5
No backward compatibility	Cons not so important
Hard to convince all at once	Convenience wins

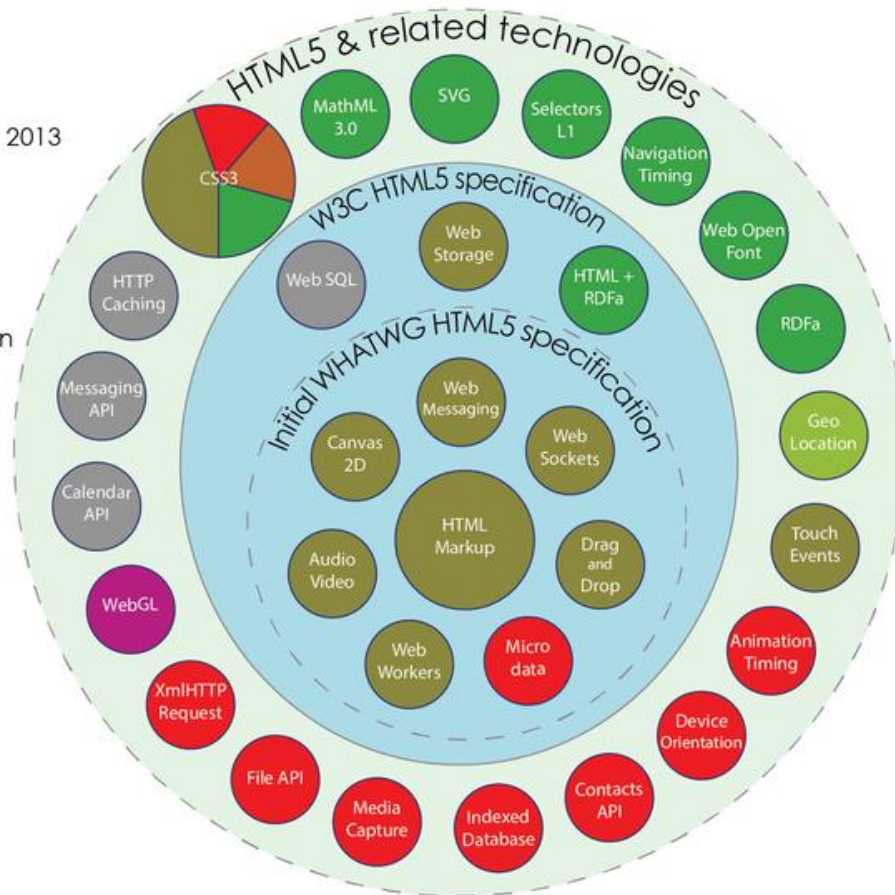


# HTML5 elements and features overview

# HTML5

Taxonomy & Status on January 20, 2013

- W3C Recommendation
- Proposed Recommendation
- Candidate Recommendation
- Last Call
- Working Draft
- Non-W3C Specifications
- Deprecated



by Sergey Mavrody BY · SA

Source: <http://en.wikipedia.org/wiki/File:HTML5-APIs-and-related-technologies-by-Sergey-Mavrody.png>



# Semantic and structure

- **New Doctype – living standard**

```
<!DOCTYPE html>
```

**instead of**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.0.1 Transitional//EN"  
"http://www.w3.org/TR/html4/loose.dtd">
```

- **New elements**

<code>&lt;article&gt;</code>	<code>&lt;aside&gt;</code>	<code>&lt;bdi&gt;</code>	<code>&lt;command&gt;</code>	<code>&lt;details&gt;</code>
<code>&lt;dialog&gt;</code>	<code>&lt;summary&gt;</code>	<code>&lt;figure&gt;</code>	<code>&lt;figcaption&gt;</code>	<code>&lt;footer&gt;</code>
<code>&lt;header&gt;</code>	<code>&lt;mark&gt;</code>	<code>&lt;meter&gt;</code>	<code>&lt;nav&gt;</code>	<code>&lt;progress&gt;</code>
<code>&lt;ruby&gt;</code>	<code>&lt;rt&gt;</code>	<code>&lt;rp&gt;</code>	<code>&lt;section&gt;</code>	<code>&lt;time&gt;</code>

# Semantic and structure

- **Standard approach to slip over semantic**

`<div id="nav">`, `<div class="header">`, `<div id="footer">`

- **Some elements were removed**

`<acronym>`

`<applet>`

`<basefont>`

`<big>`

`<center>`

`<dir>`

`<font>`

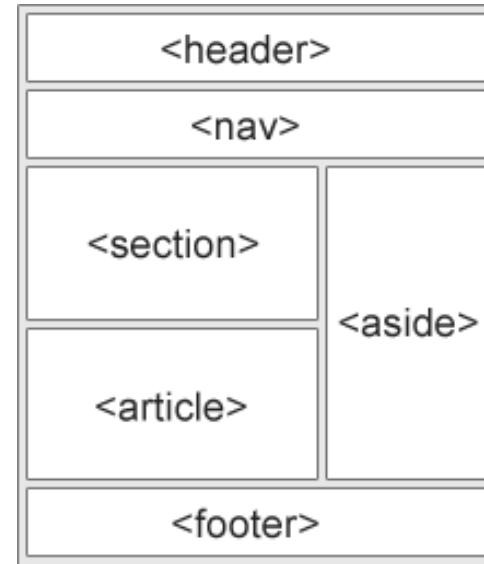
`<frame>`

`<frameset>`

`<noframes>`

`<strike>`

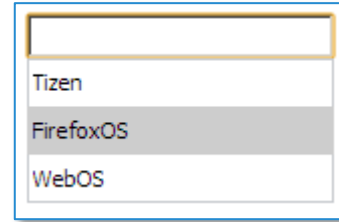
`<tt>`



# Form's new elements

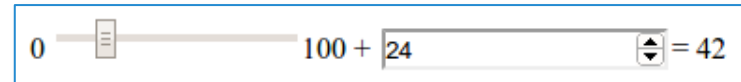
- **<datalist>**

```
<input list=„WebOS“>
<datalist id=„WebOS“>
  <option value=„Tizen“>
  <option value="FirefoxOS">
  <option value=„WebOS“>
</datalist>
```



- **<output>**

```
<form oninput="x.value=parseInt(a.value)+
  parseInt(b.value) ">0
<input type="range" id="a" value="50">100 +
<input type="number" id="b" value="50">=
<output name="x" for="a b"></output>
</form>
```



- **<keygen>**

# Input types

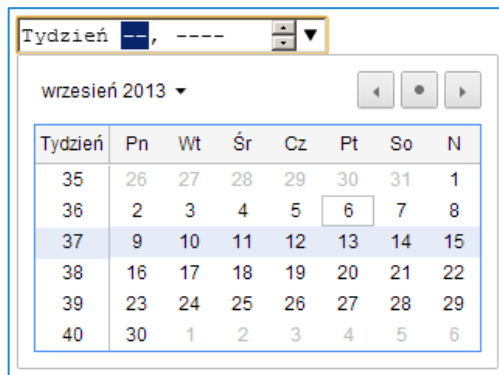
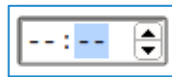
- Color
- Date, datetime, datetime-local

- Email
- Month

- Number

# Input types

- Range
- Time
- Search
- Tel
- URL
- Week

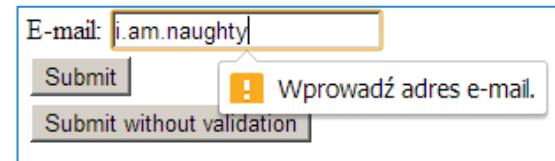


# Input element new attributes

autocomplete	autofocus	form	formaction	formenctype
formmethod	formnovalidate	formtarget	height	width
list	min	max	multiple	pattern
placeholder	required	step		

- **Built in input value validation**

```
<form>
  E-mail: <input type="email" name="user"><br>
  <input type="submit" value="Submit"><br>
  <input type="submit" formnovalidate
    value="Submit without validation">
</form>
```

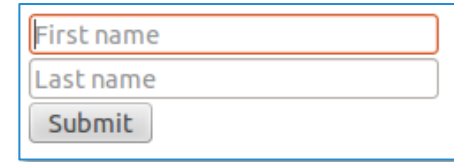


- **Not obligatory – may be disabled with `novalidate` attribute**

# Form

- **Placeholder text**

```
<form>
  <input type="text" name="fname"
    placeholder="First name"><br>
  <input type="text" name="lname"
    placeholder="Last name"><br>
  <input type="submit" value="Submit">
</form>
```



First name

Last name

Submit

- **Input elements may be located outside a form and still submitted**

# Canvas

- **<canvas> tag is used to draw graphics, on the fly, via scripting**
- **Provides API for:**
  - Colors, styles, shadows
  - Line styles
  - Rectangles
  - Paths
  - Transformations
  - Text
  - Image Drawing
  - Pixel manipulation
  - Compositing
  - Other...

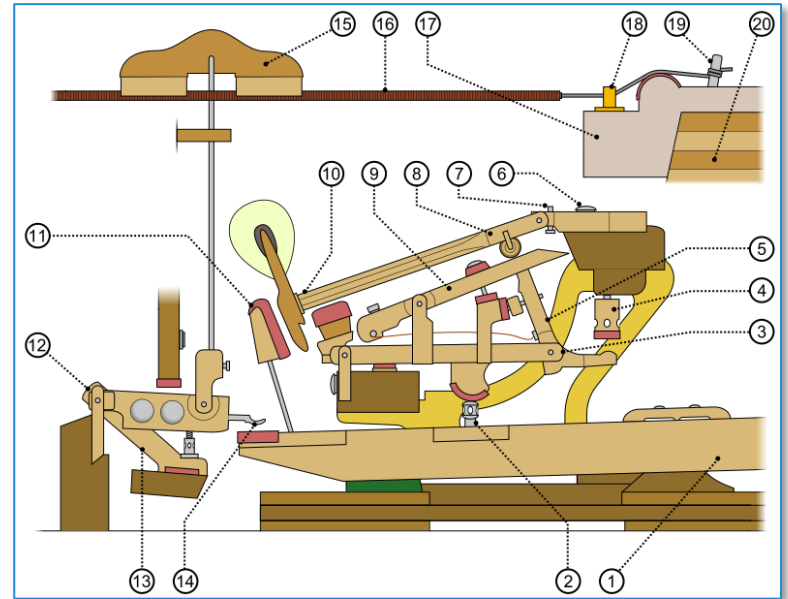






# Scalable Vector Graphics

- Scalable Vector Graphics
- XML format
- Don't lose quality if transformed
- Every element can be animated
- Can be accessed through DOM



Source [http://pl.wikipedia.org/wiki/Plik:Fortepian\\_-\\_mechanizm\\_angielski.svg](http://pl.wikipedia.org/wiki/Plik:Fortepian_-_mechanizm_angielski.svg)

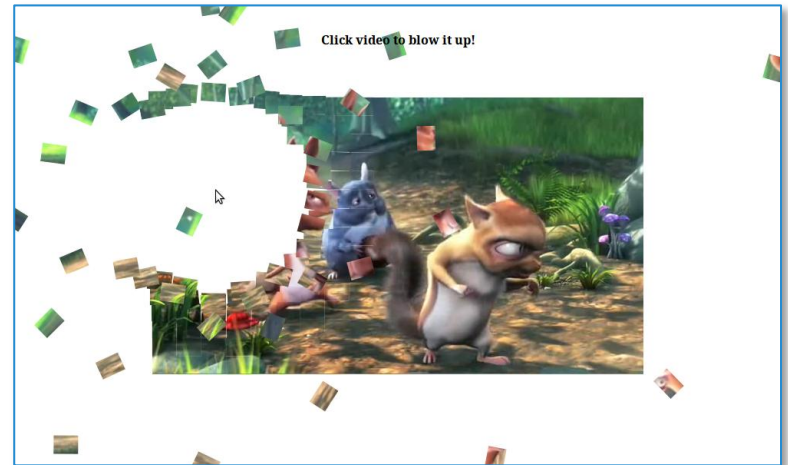
# Audio/Video

- **Just like any other element – apply styles etc.**
- **Alternative info as fallback**
- **No required supported formats specified. Most browsers support at least one of below:**
  - **Mp4/h.264 – licence and patent issues**
  - **Ogg Theora – free but not web optimized, few tools**
  - **WebM/VP8 – free and web optimized, owned by Google**
  - **Mp3 – license problems**
  - **Ogg vorbis – free and opened**
  - **Wav**



# Audio/Video

- **May be combined with other HTML elements**
  - JS
  - CSS
  - Canvas
  - SVG



# Audio/Video

Method	Description
addTextTrack()	Adds a new text track to the audio/video
canPlayType()	Checks if the browser can play the specified audio/video type
load()	Re-loads the audio/video element
play()	Starts playing the audio/video
pause()	Pauses the currently playing audio/video

And

- **29 properties**
- **22 events**

# Geolocation

- `getCurrentPosition()` and `watchPosition()` return data
  - Latitude
  - Longitude
  - Accuracy
  - Altitude
  - Altitude accuracy
  - Heading
  - Speed
  - Timestamp



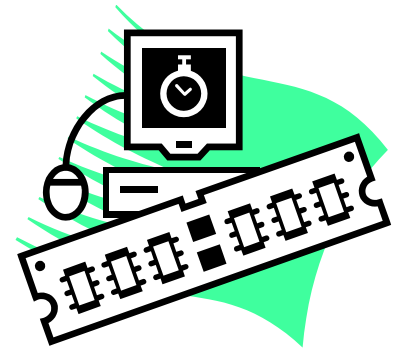
# Web storage

- **Key-value pair storage**
- **Stored always as strings**
- **Two kinds:**
  - **Session storage**
    - Gets deleted after browser window is closed
    - Not shared between tabs
  - **Local storage**
    - Shared between tabs in same origin
    - Crash-safe



# Application cache

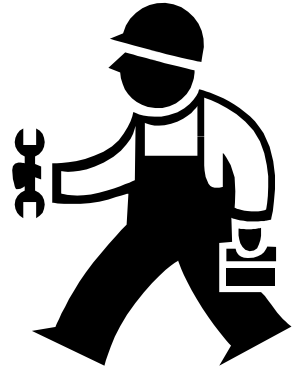
- **Offline browsing**
- **Speed**
- **Reduced server load**
- **Different size limits for cached data**





# Web workers

- **Concurrency is implemented as workers**
- **Basically thread running particular JavaScript file**
- **Two types of workers**
  - Dedicated
  - SharedWorkers
- **Messages based synchronization**
- **No access to DOM or parent from web worker**
- **Limited read-only access to window object**



# What else?

- Drag&drop
- Web fonts
- SSE
- File system API
- WebGL



Source <http://www.webgl.com/2013/02/webgl-demo-unigine-crypt/>

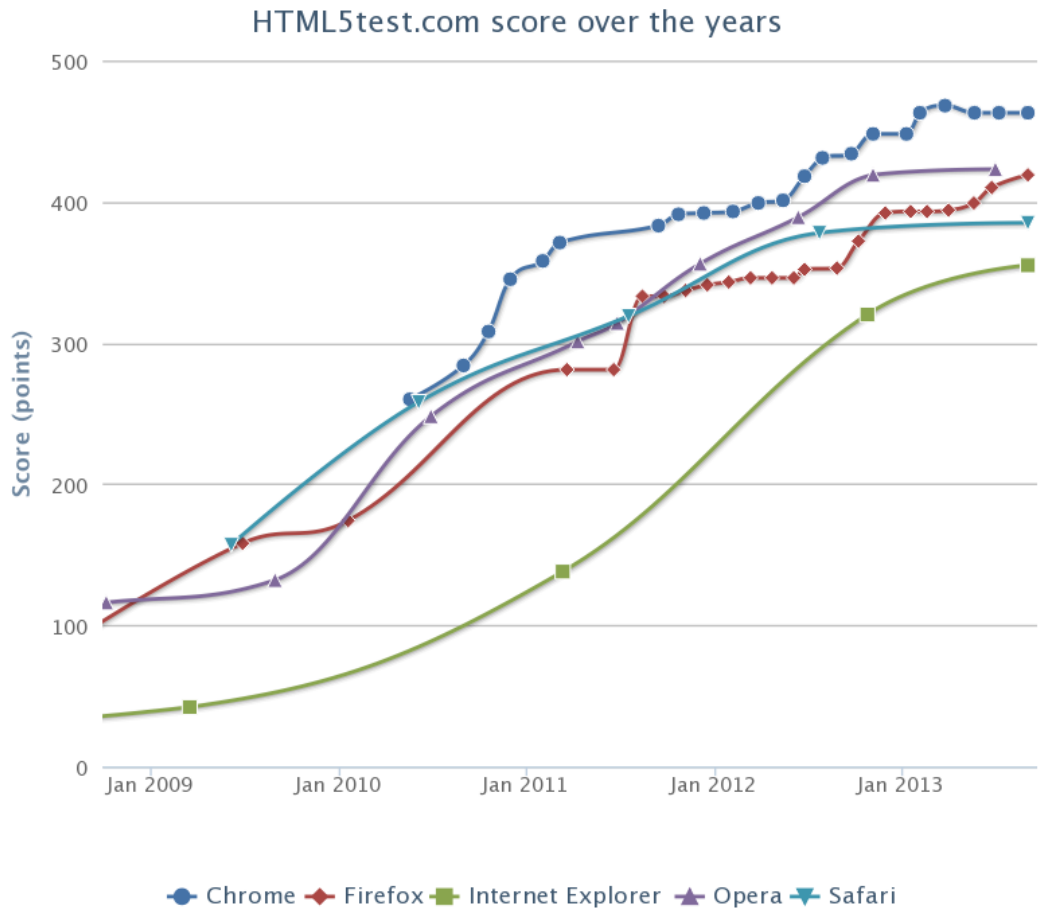


Availability

# Desktop browsers

Browser	Score	Bonus
Maxthon 4.0	476	15
Chrome 28	463	13
Opera 15	423	9
Firefox 22	410	14
Safari 6.0	378	8
IE 10	320	6

Max. 500 points + 15 bonus



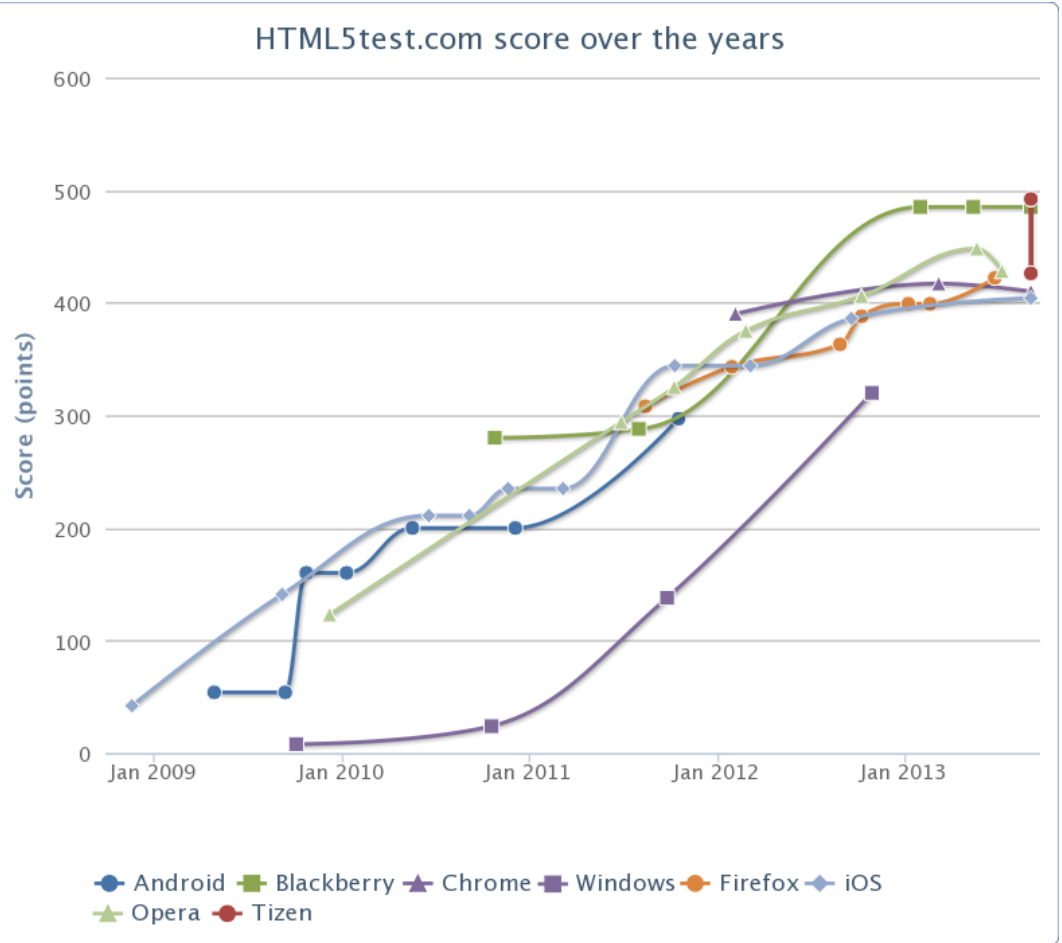
Source:<http://html5test.com/results/desktop.html>

# Mobile browsers

Browser	Score	Bonus
BlackBerry 10.1	485	11
Opera Mobile 15	428	11
Firefox Mobile 22	422	14
Chrome 25	417	11
Opera Mobile 12.10	406	12
iOS 6.0	386	9
Windows Phone 8	320	6
<b>Tizen 2.2</b>	<b>492</b>	<b>16</b>

Max. 500 points + 15 bonus

Source: <http://html5test.com/results/mobile.html>





Future

# „The world is moving to HTML5” – Steve Jobs, Apple

	2013	2014	2015	2016
HTML 5.0	Call for Review	Recommendation		
HTML 5.1		Last Call	Candidate Rec	Recommendation
HTML 5.2			1st Working Draft	



**Thank you.**

**Questions?**