

HTML5

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Lecture outline

- HTML5 as a Web Standard
- Basic Elements, Semantic and Visual Markup, MathML, SVG, ...
- Differences between HTML5 and XHTML
- HTML5 DOM
- Relation to CSS and ECMAScript (JavaScript)

HTML5 - The Web Standard

HTML5

- Defines HTML5 language
 - Can be instance of either SGML (HTML) or XML (XHTML).
 - Both syntaxes are allowed.
- Defines detailed processing model supporting interoperable implementations.
- Improves documents markup.
- Introduces web application markup and API.

HTML5

- Objectives:
 - HTML 4 and older - too vague structure.
 - XHTML 1.x - too strict structure.
 - To create standard that combines positive from both specifications.
- Latest version [HTML 5.2](#) [HTML 5.2]
 - Commonly used [HTML5](#)

HTML5 Syntaxes

- HTML

- Backward compatible with HTML 4 and XHTML 1
- Not fully compatible with SGML HTML 4 specification:
 - Do not support processing instructions.
 - Short markup notation
 - Empty start tag (<>)
 - Empty end tag (</>)
 - ...
 - mimetype text/html

HTML5 Syntaxes

- HTML sandboxed
 - Uses HTML Syntax
 - Suitable for pages from untrusted sources
 - mimetype text/html-sandboxed
- XML
 - XHTML 1 compatible
 - Namespace <http://www.w3.org/1999/xhtml> must be defined
 - Mimetype:
 - application/xhtml+xml
 - application/xml

Document Type Declaration

- Used by browser to select correct web page rendering mode.
- No other purpose.
- For XML syntax is optional.
- DOCTYPE: `<!DOCTYPE html>`
- Case insensitive at HTML syntax.
- No reference to DTD.
 - Used by browser to select correct web page rendering mode.

What's new

- SVG and MathML markup can be placed directly.
- HTML document with SVG figure:

```
<!DOCTYPE html>
<title>SVG in text/html</title>
<body>
  <p>
    Blue ellipse
  <svg>
    <ellipse cx="100" cy="100" rx="90" ry="30" fill="blue"/>
  </svg>
</p>
</body>
```

Language Changes

- Many new elements added.
 - Structure description:
 - section, article, aside, header, footer, figure,
- Multimedia support:
 - video, audio.

```
<figure>  
<video src="sample.mp4"></video>  
<figcaption>Ukázkové video</figcaption>  
</figure>
```

Language changes

- Many new elements and attributes introduced
 - New HTML forms input types
 - Element input attribute type values
 - Omitted some elements:
 - frame
 - frameset
 - noframes
 - ...
 - Omitted some attributes.
 - See specification [HTML5 Differences from HTML4](#) for more.

Language changes

- New attributes:
 - Attribute media on elements a and area
 - Global attribute contenteditable
 - Attribute draggable
 - Element input types values has changed.
 - ...
- Omitted elements
 - frame, frameset, noframes -
 - Frames not allowed to display pages.
 - Reduces accessibility.
 - Font
 - Applet

Language changes

- Omitted some attributes:
 - rev, charset (link, a)
 - longdesc (img, iframe)
 - target (link)
 - align
 - background
 - bgcolor

Language changes

- Added RIA accessibility improving attributes (see [WAI ARIA](#)).
 - ARIA roles attributes - values:
 - link
 - button
 - checkbox
 - menuitem
 - ...
 - States and properties attributes (attributes aria-*):
 - aria-atomic
 - aria-busy
 - ...

Language changes

● API

- Multimedia (video/audio) playback
- Web application off-line work.
- Content type processing application registration.
- Content editing in cooperation with contenteditable cooperation.
- Using Drag&Drop in cooperation with attribute draggable.
- ...

Generating HTML5 using XSLT

- HTML 5 document declaration does not contain DTD reference.
- Document declaration is used only to select proper HTML5 rendering mode.

- The document type declaration

```
<!DOCTYPE html SYSTEM 'about:legacy-compat'>
```

```
<xsl:output method="html" doctype-system="about:legacy-compat" encoding="UTF-8" indent="yes"/>
```

- When using saxon 9.4+

```
<xsl:output method="html" version="5.0" encoding=UTF-8" indent="yes"/>
```

- Should not be used if the short version can be generated.

HTML5 Resources

- [HTML5 specification](#).
- [XHTML 1.0, HTML 4 and HTML5 differences](#)
- HTML5 devoted pages
 - [html5tutorial](#)
 - [Canvas tutorial](#)
 - [HTML 5 tag reference na w3schools](#)
- GUG Brno meeting presentation of [HTML5](#)
 - Fully operational in Google Chrome and Safari, viewable in Opera.
- HTML5 support testing [On-line tool](#).
- ...

HTML5 DOM

HTML DOM

- What is HTML DOM?
 - Object oriented representation of web page.
 - Defines document logical structure.
 - Based on W3C DOM
 - General API for XML processing.
 - A set of interfaces and objects designed for managing HTML and XML documents.
 - API for HTML processing.
 - Closely tied to Java and JavaScript.
 - Allows programmer to create, navigate and modify document content.
- DOM originated as a specification to allow JavaScript script and Java programs to be portable among web browsers.
 - Also influenced by SGML.

HTML DOM

- What the HTML DOM is not?
 - Although DOM is influenced by Dynamic HTML, in Level 1 does not implement all Dynamic HTML.
 - It's not binary specification – it's source code in particular language compatible across platforms.
 - It's not way to persist objects into XML or HTML.
 - It's not set of data structures.
 - DOM does not define “the true inner semantics” of XML or HTML.

DOM Interfaces and Objects

- Many objects are based on several interfaces:
 - Node
 - Document
 - Element
 - Entity
 - EntityReference
 - Event
 - Text
 - ... (see [DOM Documentation](#))

DOM and CSS

- Cascading Style Sheets
 - Used to visualize (X)HTML and XML Data
 - Describe various visual properties of document elements.
 - CSS Selector corresponds to the path in DOM