

CSS – CASCADING STYLE SHEETS – CONCEPTS*

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Abstract

The module presents the concepts used in the CSS programming language.

1 Introduction

Cascading Style Sheets (abbreviated CSS) are used to describe how (X)HTML or XML text is to be presented. This module is currently a commented link list of important entry points for reading about CSS.

This module¹ gives a simple example how a CSS style sheet works.

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2 CSS rules

A CSS file consists of statements which are either at-rules or rule sets (often just called rules). A rule set (rule) consists of a selector and a declaration block which contains one or more declarations (more see

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[†]<http://creativecommons.org/licenses/by/3.0/>

¹<http://cnx.org/content/m42730/latest/>

Specification²). A declaration contains a property and a value (e.g. "color" and "green"), see example below. These rules describe how the formatting should take place.

Below are some sample rules. In the first part one or several selectors are given and in the second part there are one or more attribute-value pairs enclosed by curly brackets.

```
/* Sample rules */

h1, h2 {color: green}

#box {width: 70%}

.topic {color: red}Sample rules
```

Selector types

- h1 and h2 are tag selectors
- #box is a selector for an identification
- .topic is a selector for a class

A series of tests³ for selectors.

3 Internal and external style sheets

A style sheet may reside in a separate file (**external style sheet**) or within an (X)HTML file (**internal style sheet**).

External style sheet

```
<head>
<link rel="stylesheet" type="text/css" media="screen, projection, handheld, print" href="css/general.cs
<link rel="stylesheet" type="text/css" media="print" href="css/ourPrintStyleSheet.css" />
</head>
```

In the case of the code above taken from a HTML file we load a general style sheet for different kinds of output media called `general.css` and a specific one for printing (`ourPrintStyleSheet.css`). The style sheet for printing adds and overrides some rules to put the content onto paper.

Internal stylesheet (HTML)

```
<style type="text/css">
h1 {
  color: green;
}
</style>
```

Internal stylesheet (XHTML)

```
<style type="text/css"><![CDATA[
h1 {
  color: green;
}
]]></style>
```

²<http://www.w3.org/TR/CSS21/syndata.html>

³<http://www.css3.info/selectors-test/>

@import rule

The `@import` rule (ref.⁴) allows you to import rules from another style sheet into your current one. For an example see 'web fonts' below.

4 Reference

CSS 2.1 specification⁵ (implemented by most browsers); an index⁶

All W3C CSS standards and drafts⁷

The link above includes the documents commonly called CSS 3 which consists of different modules. They are implemented to various degrees in the current browsers.

5 Tutorial

w3.org: Starting with HTML and CSS⁸ (basic introduction)

Complete course with interactive exercises w3schools⁹

Searching for the key words `css cheat sheet` provides helpful links if you have learned CSS in the past. This brings up for example this list which leads to 30 examples¹⁰.

6 Layout with CSS

For doing layout with CSS the 'position' attribute and the box model are used. In the past this was difficult because the box model implemented by the Internet Explorer (IE) differed from the web standard and from the box model implemented by other browsers. In the meantime the Internet Explorer supports the standard W3C box model so using CSS in modern browsers is made easier as there needs not to be a 'switch' anymore for IE and the other browsers. Or at least the effort is reduced.

⁴<http://www.w3.org/TR/CSS21/cascade.html#at-import>

⁵<http://www.w3.org/TR/CSS2/>

⁶<http://meyerweb.com/eric/css/references/index.html>

⁷http://www.w3.org/standards/techs/css#w3c_all

⁸<http://www.w3.org/Style/Examples/011/firstcss>

⁹<http://www.w3schools.com/css/default.asp>

¹⁰<http://www.allwebdesignresources.com/webdesignblogs/graphics/30-css-cheat-sheets-quick-reference-guides/>

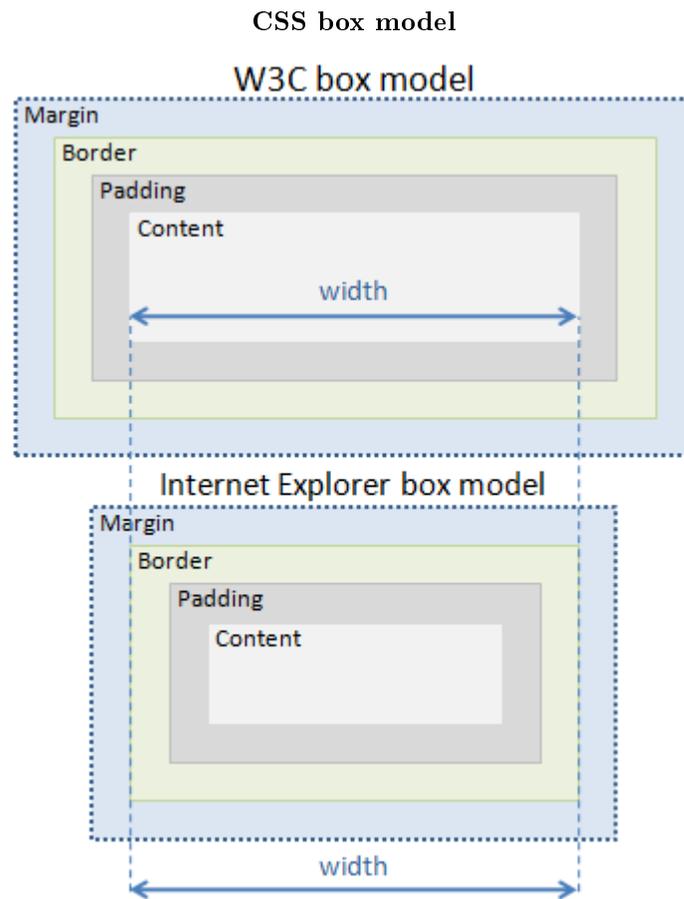


Figure 1: The W3C standard and the Internet Explorer (earlier versions) box model

7 Validator

A validator checks if a CSS file contains no erroneous CSS selectors and rules. W3C validator¹¹

8 CSS 3

CSS3 is modularized and consists of several separate recommendations. See current work¹² of W3C.

News about the implementation of the new features [css3.info](http://www.css3.info)¹³. Google demonstration website¹⁴. CSS3 test¹⁵ of browser implementation.

Interactive construction of CSS3 code (e.g. rounded corners, shadow, etc) css3please.com¹⁶

¹¹<http://jigsaw.w3.org/css-validator/>

¹²<http://www.w3.org/Style/CSS/current-work#table>

¹³<http://www.css3.info>

¹⁴<http://slides.html5rocks.com/#css3-title>

¹⁵<http://css3test.com/>

¹⁶<http://css3please.com>

- Multicolumn Layout¹⁷ e.g. `column-width: 20em;`
- Rounded Corners (exploration / code generator¹⁸)
- Web Fonts (see example below)
- Text Wrapping
- Text Stroke
- Transitions
- 2d Transforms
- Animations
- Gradients
- Selectors¹⁹

9 Implementation

- <http://www.quirksmode.org/compatibility.html> ²⁰
- <http://www.caniuse.com/>²¹ answers in which web browsers a particular CSS selector or attribute may be used.
- Gecko (used in Firefox) CSS support²² chart

10 Debugging

There is an add-on called Firebug²³ to the Firefox web browser which helps to debug CSS style sheets. It helps as well to learn about CSS <http://getfirebug.com/css>²⁴ .

InternetExplorer 8, 9 and 10 give access to developer tools (Manual)²⁵ through the F12 key.

11 CSS versus XSL

Why does W3C recommend two different style languages? Which one should you use? Basically, the rule can be summarized very succinctly: Use CSS when you can, use XSL when you must. <http://www.w3.org/Style/CSS-vs-XSL>²⁶

12 CSS in mobile devices

CSS mobile²⁷ (current status) aims at describing a subset of CSS useful for mobile devices.

13 Media queries

CSS **media queries**(W3C spec)²⁸ allow that style rules are only applied to specific output media, i.e. screen, print, handheld or other. They can as well depend on conditions like display width. The following example demonstrates the idea

¹⁷<http://www.w3.org/TR/css3-multicol/>

¹⁸<http://www.cssportal.com/css3-rounded-corner/>

¹⁹<http://www.css3.info/selectors-test/>

²⁰<http://www.quirksmode.org/compatibility.html>

²¹<http://www.caniuse.com/>

²²https://developer.mozilla.org/en/Mozilla_CSS_support_chart

²³<http://getfirebug.com/>

²⁴<http://getfirebug.com/>

²⁵<http://msdn.microsoft.com/en-us/ie/ff468705.aspx>

²⁶<http://www.w3.org/Style/CSS-vs-XSL>

²⁷http://www.w3.org/standards/techs/cssmobile#w3c_all

²⁸<http://www.w3.org/TR/css3-mediaqueries/>

```

@media (min-width: 320px) {
    /* rules for devices with larger screens go here */
}

@media (max-width: 320px) {
    /* rules for mobile devices go here */
}

```

More²⁹ about media queries; collection of example sites³⁰

14 Frameworks

A CSS framework is one or more CSS files which include style declarations on which you can build by either extending or replacing them. The aim is that you do can rely on ready-made designs and do not need to create workarounds for the browser inconsistencies.

YAML³¹ (web site in German), in English³²

YUI³³ grids

Less Framework³⁴ is a cross-device CSS grid system based on using inline media queries.

Blueprint.css³⁵

Mobile devices

iwebkit³⁶ (Ipad, Iphone)

cssgrid³⁷ – all the way down from a desktop browser to a mobile device.

15 Web fonts

Current browsers may load fonts front the web (@font-face property) and thus support the font part of CSS 3³⁸.

Google font service

Google provides a service³⁹ from which you can choose free fonts. It generates some code which you can add to your website. They as well provide a font API⁴⁰ and host a repository⁴¹ with free fonts. So you might add the **Gentium** font by adding an import rule at the beginning of your style sheet @import url(<http://fonts.googleapis.com/css?family=Gentium+Basic&subset=latin,latin-ext>);

But you may as well copy a free font to a directory of your own website and serve it from there. An example of loading a font

```

@font-face {
font-family: Gentium;
src: url(http://yoursite/fonts/Gentium.ttf);
}

```

²⁹<http://cnx.org/content/m42727/latest/>

³⁰<http://mediaqueries.es/>

³¹<http://www.yaml.de/>

³²<http://www.yaml.de/en/>

³³<http://developer.yahoo.com/yui/grids/>

³⁴<http://lessframework.com/>

³⁵<http://www.blueprintcss.org/>

³⁶<http://www.apple.com/webapps/productivity/iwebkit5.html>

³⁷<http://cssgrid.net/>

³⁸<http://www.w3.org/TR/css3-fonts/>

³⁹<http://www.google.com/webfonts#ChoosePlace:select>

⁴⁰<http://code.google.com/apis/webfonts/>

⁴¹<http://code.google.com/p/googlefontdirectory/>

```
p { font-family: Gentium, serif; }
```

Gentium is a free font under the Open Font License (OFL).

16 XHTML plus CSS to PDF

- Printing a book with CSS⁴² (PrinceXML)
- pd4ml⁴³ (free for non-commercial use)
- ...

17 Further Reading

Useful coding techniques⁴⁴

⁴²<http://www.alistapart.com/articles/boom/>

⁴³<http://pd4ml.com/>

⁴⁴<http://www.smashingmagazine.com/2011/02/16/css-useful-coding-techniques-and-design-solutions//#more-90289>