

Alte Browser - neue Techniken

Jens Grochtdreis



Kann ich CSS3 schon heute
nutzen?

JELIN

Manche neuen Eigenschaften
sind in keinem Browser oder in zu
wenigen implementiert.

Can I use...

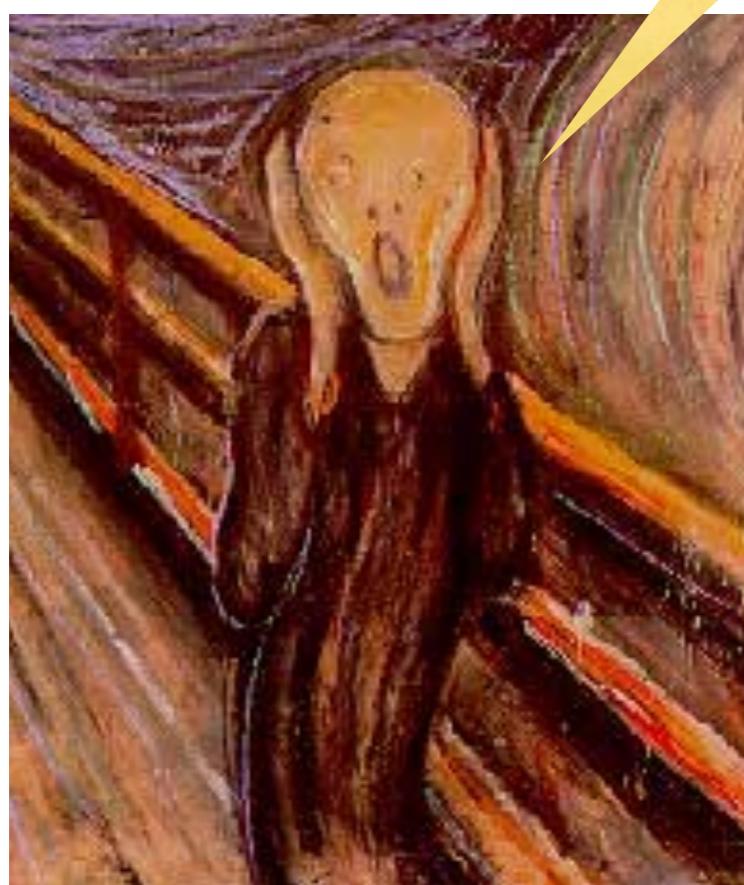
[Suggestions](#)

 [Feed](#)

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Compatibility tables for support of HTML5, CSS3, SVG and more in desktop and mobile browsers.

Funktioniert das
auch im IE?



	WIN								MAC									
	FIREFOX		SAFARI		IE				CHROME		OPERA		FIREFOX		SAFARI		OPERA	
	3.6	4	5		6	7	8	9	10		10		11.1		4	5	11.1	
RGBA	✓	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	87%
HSLA	✓	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	86%
Background Size	✗	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	83%
Multiple Backgrounds	✗	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	83%
Border Image	✓	✓	✓		✗	✗	✗	✗	✗		✓		✓		✓	✓	✓	83%
Border Radius	✓	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	87%
Box Shadow	✓	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	86%
Text Shadow	✓	✓	✓		✗	✗	✗	✗	✗		✓		✓		✓	✓	✓	53%
Opacity	✓	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	86%
CSS Animations	✗	✗	✓		✗	✗	✗	✗	✗		✓		✗		✗	✓	✗	39%
CSS Columns	✓	✓	✓		✗	✗	✗	✗	✓		✓		✓		✓	✓	✓	81%
CSS Gradients	✗	✓	✓		✗	✗	✗	✗	✓		✓		✓		✓	✓	✓	78%
CSS Reflections	✗	✗	✓		✗	✗	✗	✗	✗		✓		✗		✗	✓	✗	39%
CSS Transforms	✓	✓	✓		✗	✗	✗	✓	✓		✓		✓		✓	✓	✓	84%
CSS Transforms 3D	✗	✗	✗		✗	✗	✗	✗	✗		✗		✗		✗	✗	✗	12%
CSS Transitions	✗	✓	✓		✗	✗	✗	✗	✗		✓		✓		✓	✓	✓	47%
CSS FontFace	✓	✓	✓		✓	✓	✓	✓	✓		✓		✓		✓	✓	✓	97%
FlexBox	✓	✓	✓		✗	✗	✗	✗	✓		✓		✗		✓	✓	✗	51%

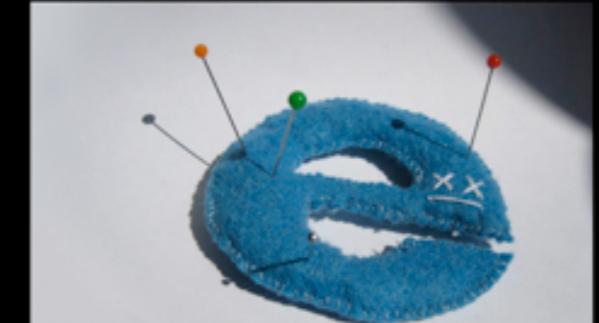
- ▶ Der IE kann bis einschliesslich Version 8 nur mit Webfonts umgehen.
- ▶ Der IE9 kann zumindest gut die Hälfte von CSS3.
- ▶ Aber: es gibt IE-spezifische Methoden, die schon vor 10 Jahren Effekte ermöglicht haben, die es jetzt als CSS3 besser gibt.
- ▶ Man kann sich also teilweise mit alten Methoden der Neuzeit nähern.
- ▶ Nur die runden Ecken bleiben aussen vor :-)

Selektoren

- ▶ Der IE kann erst ab Version 9 wirklich mit CSS3-Selektoren aufwarten.
- ▶ Aber ab Version 7 und vor allem ab 8 kann man sonstige gute Selektoren nutzen, die man wegen des IE6 immer vermied.

**Microsoft ist der Bremsklotz
des Fortschritts - aber nur,
weil wir sie lassen!**

**Die drei &&&
Der untote Browser**



Umgang mit dem IE



**Statistiken checken, ob der
IE8 noch Zielbrowser ist.**

- ▶ Microsoft hat im Wesentlichen erst ab dem IE9 beschlossen, an der technischen Weiterentwicklung des Internets zu partizipieren.
- ▶ Für viele Techniken ist es also egal, ob wir vom IE6 oder IE8 reden.
- ▶ Manches kann man mit Javascript simulieren.
- ▶ Manches kann man ansatzweise mit IE-Filtern realisieren.
- ▶ Ansonsten:
graceful degredation / progressive enhancement

oldIE vom Rest trennen

Wie serviere ich es dem IE?

- ▶ Die meisten separaten Lösungen sollten in ein extra CSS ausgelagert werden, dann laden die anderen Browser keinen unnötigen Code herunter.
- ▶ Im IE-CSS kann man dann mit Hacks die Versionen separieren.
- ▶ Das IE-CSS (oder mehrere) per CC einbinden.

HTML VI

```
<!--[if lte IE 8]>
  <link rel="stylesheet" href="css/oldie.css">
<! [endif]-->

<!--[if gt IE 8]><!-->
  <link rel="stylesheet" href="css/styles.css">
<!--<! [endif]-->
```

HTML v2

```
<!-- Dieses CSS wird vom oldIE definitiv nicht gelesen -->
<link rel="stylesheet" href="css/styles.css" media="all and (min-width: 0px)">

<!-- leeres CC wegen der Performance des IE8 -->
<!--[if IE]><![endif]-->
<!--[if lte IE 8]>
  <script src="js/html5shiv/html5shiv-printshiv.js" media="all"></script>
  <link rel="stylesheet" href="css/oldie.css">
<![endif]-->
```

Conditional Comments

<!--[if IE]>	<i>IE in general</i>	<![endif]-->
<!--[if IE 6]>	<i>IE 6 only</i>	<![endif]-->
<!--[if IE 7]>	<i>IE 6 only</i>	<![endif]-->
<!--[if IE 8]>	<i>IE 6 only</i>	<![endif]-->
<!--[if lte IE 7]>	<i>IE 7 and below</i>	<![endif]-->
<!--[if lte IE 8]>	<i>IE 8 and below</i>	<![endif]-->
<!--[if lt IE 9]>	<i>IE 8 and below</i>	<![endif]-->
<!--[if gte IE 7]>	<i>IE 7 and above</i>	<![endif]-->
<!--[if (IE 7) (IE 8)]>	<i>IE 7 or IE8</i>	<![endif]-->
<!--[if !IE]><!-->	NOT Internet Explorer	<!-- <![endif]-->

Aufbau eines CC

<!--

-->

<!--[if lte IE 8]

[endif]-->

<!--[if lte IE 8]>

<![endif]-->

<!--[if lte IE 8]> <link rel="stylesheet" href="css/oldie.css"> <![endif]-->

Wege im CSS

```
@media only screen {  
    /* Regel schliesst IE < 9 aus */  
}  
  
@media only screen(min-width: 1px) {  
    /* Regel schliesst IE < 9 aus */  
}  
  
@media all and (min-width:0) {  
    /* Regel schliesst IE < 9 aus */  
}  
  
:root .foo {  
    /* Selektor schliesst IE < 9 aus */  
}
```

IE-spezifische CSS-Hacks

```
/*IE 6 and IE 7 */  
.something {*display:block;}  
  
/* IE 7 */  
html > body .something {*display:block;}  
  
/* IE6, IE 7, IE 8 and IE 9 */  
body .something {display:block\9;}  
  
/* IE 8 */  
body .something {display:block \9; *display: none; /* overwrite for ie6 and ie7*/ }  
/* overwrite for ie9 which still also reads the \9 hack */  
body .something:nth-of-type(1n){ display:none;}  
  
/* IE 9+ */  
/* CSS3 Selector that excludes IE prior to v9 */  
/* \9 Hack to target IE 9 so we exclude FF, webkit, etc */  
body .something:nth-of-type(1n){ display:block \9; }
```

```
.selector { property: value\9; }  
.selector { property/*\**/: value\9; }
```

e 6-10

✓ ⌂ #

Everything but Internet Explorer 9-

```
html[lang='\\  
en'].selector  
{}
```

e 9-

✓ ⌂ #

BROWSERHACKS



Contribute on GitHub

What's this?

How to?

Reminder!

Polyfills

Boxmodell-Polyfill für IE6/7

The screenshot shows a GitHub repository page for the user 'Schepp' with the repository name 'box-sizing-polyfill'. The page includes a navigation bar with links for 'Explore', 'Gist', 'Blog', and 'Help'. It also features a search bar, a profile picture for 'jensgro', and icons for watching, starring, forking, and cloning the repository. The repository is marked as 'PUBLIC'. Below the header, there are tabs for 'Code' (which is selected), 'Network', 'Pull Requests', 'Issues', 'Wiki', and 'Graphs'. A summary message states 'A CSS box-sizing: border-box polyfill for IE 6/7 — [Read more](#)'. Below this, there are download options: 'Clone in Mac', 'ZIP', 'HTTP', 'Git Read-Only', and a link to the GitHub page ('https://github.com/Schepp/box-sizing-polyfill.g'). There is also a 'Read-Only access' button. At the bottom of the main content area, there is a commit history section showing two commits: one from 'Schepp' a month ago and another from 'drublic' six months ago. The commit from 'Schepp' has a detailed message about catching error messages during browser reloads.

A CSS box-sizing: border-box polyfill for IE 6/7 — [Read more](#)

[Clone in Mac](#) [ZIP](#) [HTTP](#) [Git Read-Only](#) <https://github.com/Schepp/box-sizing-polyfill.g> [Read-Only access](#)

branch: [master](#) [Files](#) [Commits](#) [Branches](#) (1) [Tags](#) [Downloads](#)

Latest commit to the [master](#) branch

Catching error message when browser reloads and script is trying to a... [...](#)

 [Schepp](#) authored a month ago  [commit 9aa197d2ac](#)

[box-sizing-polyfill /](#)

name	age	message	history
README.md	6 months ago	Add notice in readme to update the content-type via .htaccess for the... [drublic]	history
boxsizing.htc	a month ago	Catching error message when browser reloads and script is trying to a... [Schepp]	history

<https://github.com/Schepp/box-sizing-polyfill>

progressive internet explorer



PIE makes Internet Explorer 6-8 capable of rendering several of the most useful **CSS3** decoration features.

[Learn More](#)

Try the **DEMO**

This quick demo shows just a few of the CSS3 properties PIE can render. Use the controls to adjust the CSS3 applied to the box. Load this page in IE to see that it is rendered properly!

Mmmmm, pie.

CSS3 features

border-radius

Enable

Radius size:

box-shadow

Enable

Blur size: X offset: Y offset:

linear-gradient

Enable

Top color: Bottom color:

Options

Enable PIE (only affects IE)

Show CSS

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Version
1.0beta3

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 - text-shadow
 - transform
 - IE Visual Filters
 - Fonts
 - @font-face
 - converting
 - FontForge
 - HTML
 - Forms
 - HTML5
 - Custom Data

cssSandpaper – a CSS3 JavaScript Library

The cssSandpaper JavaScript library looks at the stylesheets in an HTML document and, where possible, smooths out the browser differences between CSS3 properties like `transform`, `opacity`, `box-shadow` and others. This script is not only useful for developers who want to support CSS3 in IE (which doesn't support it natively) but in other browsers which implement their own vendor-specific variants of these properties.

For a good introduction to cssSandpaper and how it works under the covers, you may want to first read these blog-posts:

- [Cross Browser Transforms — even in IE](#): this article talks about how why cssSandpaper was created and how it works under the hood. It also has several interesting examples that can be seen by all modern web browsers.
- [Cross-Browser Animated CSS Transforms — even in IE](#): introduces scripting CSS3 properties to create some interesting visual effects.

How to Use

1. Download the JavaScript archive linked to at the end of this manual
2. Put the following code in the **head** of your document

```
<script type="text/javascript" src="/path/to/shared/js/EventHelpers.js">
</script>
<script type="text/javascript" src="/path/to/shared/js/cssQuery-p.js">
</script>
<script type="text/javascript" src="/path/to/shared/js/jcoglan.com/sylvester.js">
</script>
<script type="text/javascript" src="/path/to/shared/js/cssSandpaper.js">
</script>
```



Remix of images by Parée Erica and Hans Christophersen

CSS3-Simulation für den IE

- per IE-Filter**

- ▶ Filter können die Performance negativ beeinflussen.
- ▶ Filter bringen kein identisches Ergebnis zu CSS3-Eigenschaften.
- ▶ Filter haben immer eine seltsame Syntax.



- ▷ [MSDN Library](#)
- ▷ [Web Development](#)
- ▷ [Internet Explorer](#)
- ▷ [Internet Explorer API Reference](#)
- ▷ [Internet Explorer Platform APIs](#)
- ▷ [Legacy APIs](#)
- ▷ [Filters and Transitions](#)
- **Visual Filters and Transitions Reference**
 - ▷ [Procedural Surfaces](#)
 - ▷ [Static Filters](#)
 - ▷ [Transitions](#)
 - ▷ [Properties](#)
 - ▷ [Methods](#)

Visual Filters and Transitions Reference

38 out of 60 rated this helpful – [Rate this topic](#)

This topic documents a feature of Visual Filters and Transitions, which is deprecated as of Windows Internet Explorer 9.

As of Microsoft Internet Explorer 4.0, you can apply multimedia-style effects to your Web pages using visual filters and transitions. You can apply visual filters and transitions to standard HTML controls, such as text containers, images, and other windowless objects. Transitions are time-varying filters that create a transition from one visual state to another. By combining filters and transitions with basic scripting, you can create visually engaging and interactive documents.

Internet Explorer 5.5 and later supports a rich variety of optimized filters. Click the following button to see a demonstration of many of these filters and how to use them.

Code example: <http://samples.msdn.microsoft.com/workshop/samples/author/dhtml/DXTidemo/DXTidemo.htm>

The links in the following sections provide access to the object model exposed by the visual filters and transitions.

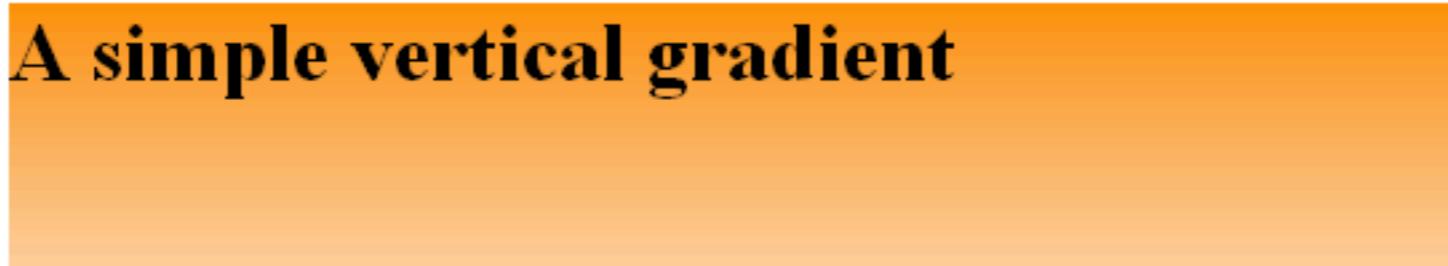
Procedural Surfaces Reference

Procedural surfaces are colored surfaces that display between the content of an object and the object's background. Procedural surfaces define each pixel's RGB color and alpha values dynamically. Only the procedure used to compute the surface is stored in memory. The content of an object with a procedural surface applied is not affected by the procedural surface.

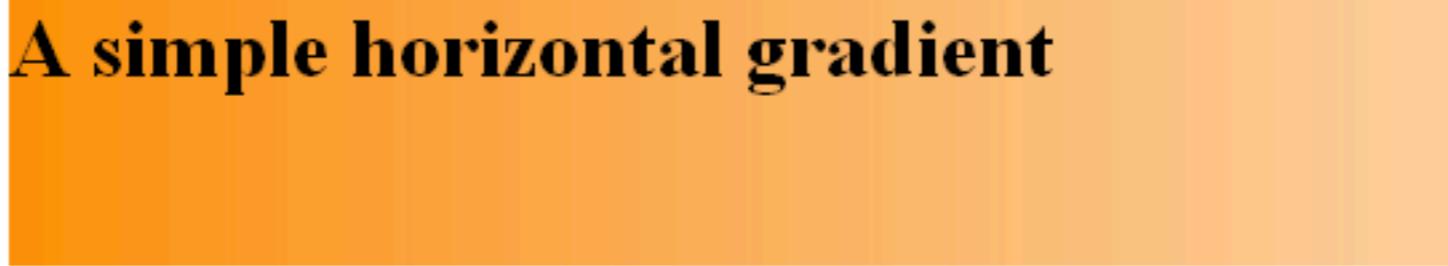
Blurry text with smudge of gray

```
.blur {  
    filter: progid:DXImageTransform.Microsoft.MotionBlur(strength=13, direction=310)  
           progid:DXImageTransform.Microsoft.Blur(pixelradius=2)  
           progid:DXImageTransform.Microsoft.Wheel(duration=3);  
}
```

A simple vertical gradient



A simple horizontal gradient



```
.gradient1 {  
    filter: progid:DXImageTransform.Microsoft.gradient( startColorstr='#f7941e', endColorstr='#fad1a0',GradientType=0 );  
}  
.gradient2 {  
    filter: progid:DXImageTransform.Microsoft.gradient( startColorstr='#f7941e', endColorstr='#fad1a0',GradientType=1 );  
}
```

Mask-Filter

```
.mask {  
    filter:progid:DXImageTransform.Microsoft.MaskFilter(color='#f7941e');  
}
```

rgba auch für oldIE

RGBa and ARGB interaction converter - RGBa for Internet Explorer

CSS3 RGBa color

```
rgba(255,255,255,1)
```

Syntax format:

```
background: rgba(red, green, blue, alpha);
```

ARGB color for IE 6-8

```
#FFFFFF
```

Syntax format:

```
-ms-filter: "progid:DXImageTransform.Microsoft.gradient(GradientType=1, StartColorStr='#FFFFFF', EndColorStr='#FFFFFF')";
filter: progid:DXImageTransform.Microsoft.Gradient(GradientType=1, StartColorStr='#FFFFFF', EndColorStr='#FFFFFF');
zoom: 1!important;
```

Lösungen, die ausschliessen

Select your favorite food:

Note: Currently (Mar 4, 2011) only works in Webkit and Gecko

The screenshot shows a dropdown menu with the following options: Sushi, Blue cheese with crackers, Steak, and Other. The 'Sushi' option is highlighted with a blue background, indicating it is the selected item.

Select your favorite food:

Note: Currently (Mar 4, 2011) only works in Webkit and Gecko

The screenshot shows a dropdown menu with the following options: Sushi, Blue cheese with crackers, Steak, and Other. The 'Sushi' option is highlighted with a blue background, indicating it is the selected item.

Gecko und Webkit

im IE und Opera (alt)
nicht bedienbar

Intelligentes Fallback



```
/* :not(:checked) is a filter, so that browsers that don't support :checked don't
follow these rules. Every browser that supports :checked also supports :not(), so
it doesn't make the test unnecessarily selective */
.rating:not(:checked) > input {
  position: absolute;
  top: -9999px;
  clip: rect(0, 0, 0, 0);
}
```

Please rate: _____

5 stars 4 stars 3 stars 2 stars 1 star

IE 8

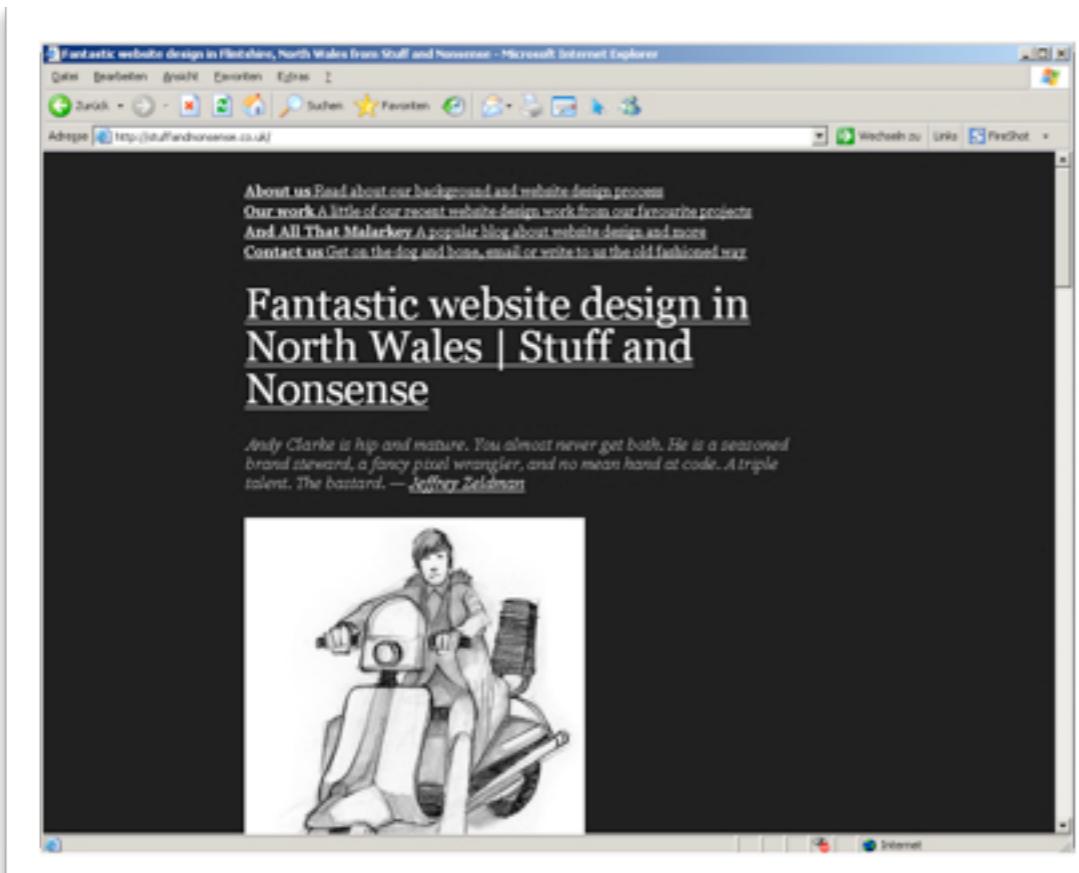


ab v9

Strategien

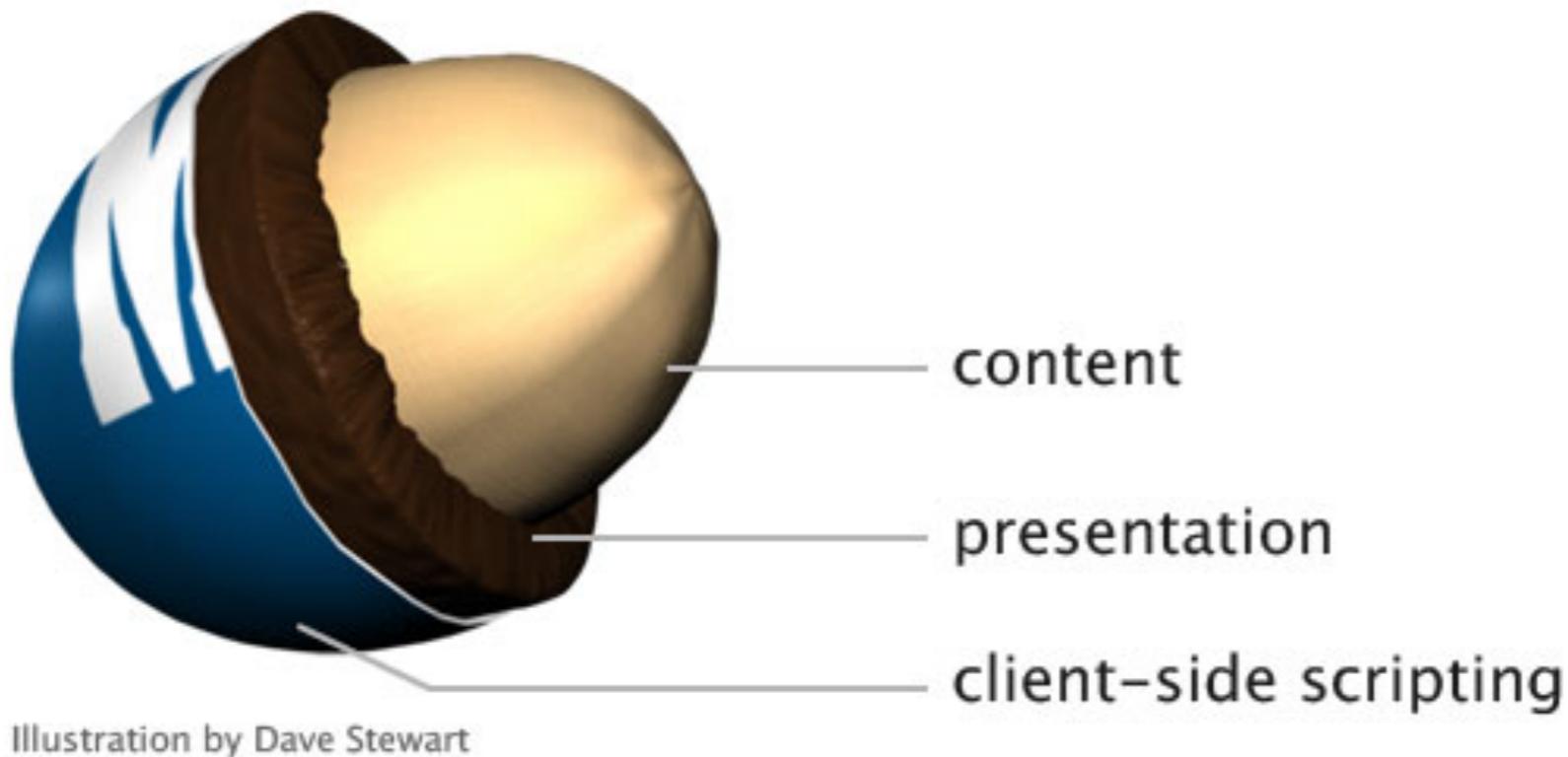
Graceful Degredation

- ▶ Fokus ist auf den modernsten Browzern
- ▶ ältere Browzser bekommen eine abgespeckte Version



Progressive Enhancement

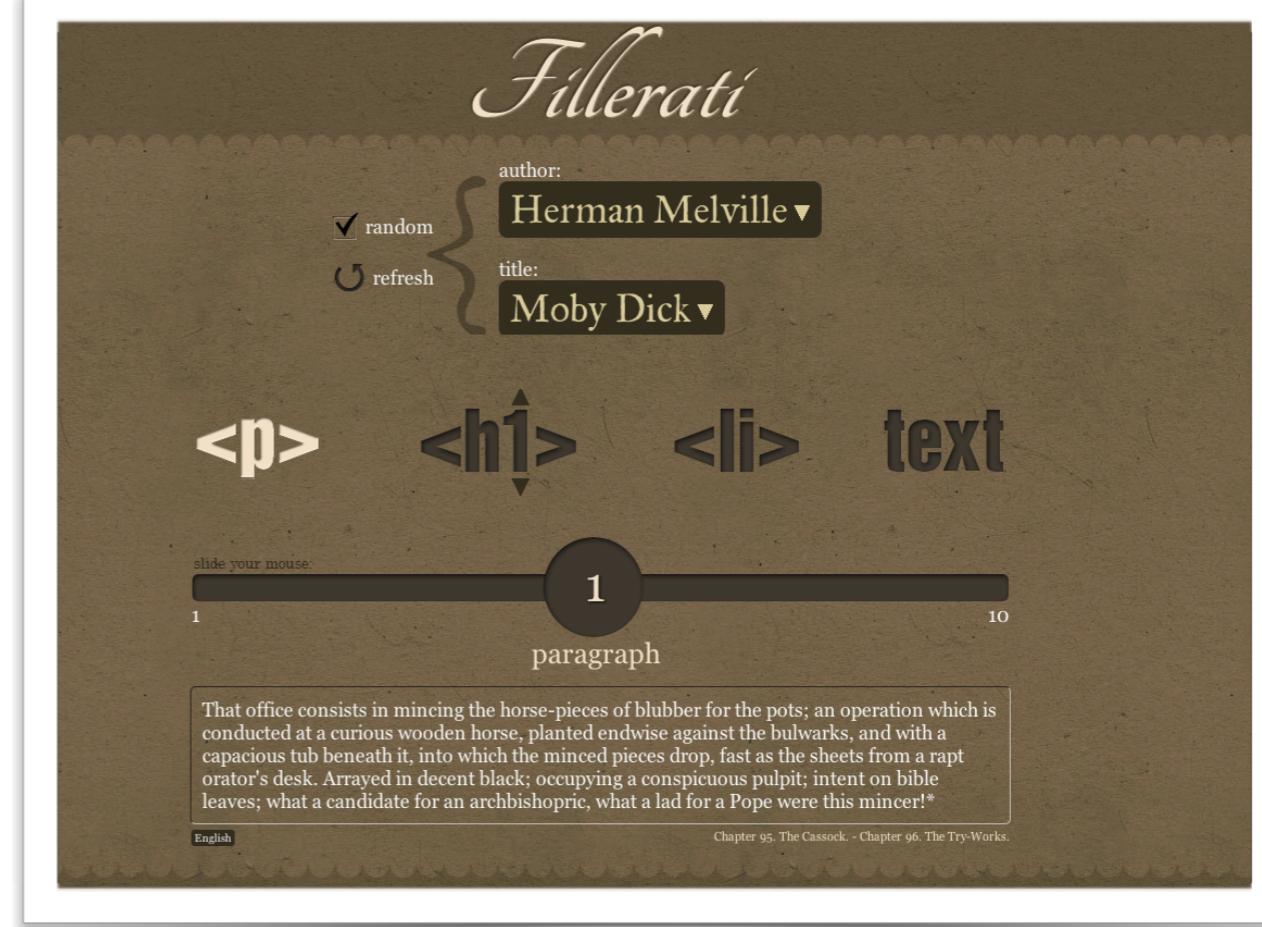
- ▶ Fokus ist auf den Content, denn um den geht es am Ende (fast) immer



Brutal Degredation



bis einschließlich IE8



moderne Browser

Graceful Degredation in der Realität:

Eine Rolltreppe wird zur Treppe, wenn sie nicht läuft.
Die Nutzung ist so prinzipiell gesichert!



*** ist der neue IE6

IE7 is the new IE6

The iPhone is the new Internet Explorer 6, says mobile developer

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Is Google Chrome the New IE6?

BY MICHAEL MUCHMORE

DECEMBER 2, 2011

 COMMENTS

With Google-only features and "standards," Chrome is going down a proprietary path.

Webkit: the new IE6

Microsoft begs Web devs not to make WebKit the new IE6

(source: [Ars Technica](#))

2011.01.31

iPad is the new IE6

Safari and Chrome aren't the new IE6 – chill out!

Das Webkit-Problem

- ▶ Webkit ist kein Browser, sondern eine Plattform
- ▶ Chrome auf Desktop und mobil
- ▶ Safari auf Desktop und mobil
- ▶ Opera (neu) auf Desktop und mobil
- ▶ Android Browser
- ▶ Chromium (vor allem Linux)

Das Webkit-Problem

- ▶ Es gibt keine Conditional Comments
- ▶ Versionscheck per JavaScript (igitt!)
- ▶ Featurecheck per JavaScript
 - ▶ Hoffnung, dass die Features auch korrekt berichtet werden.
 - ▶ Partiell implementierte Features bekommen wir so leider nicht raus.

Das Webkit-Problem

- ▶ Safari und Chrome sind beide Teile der Webkit-Plattform, entwickeln sich aber auseinander.
- ▶ Smartphones und Tablets bekommen selten ein Update
 - ▶ Der Android Browser bleibt unverändert
- ▶ Safari bekommt nur selten ein Update.
Immer an OS-Release gekoppelt.

```
<meta name="viewport" content="width=device-width">
```

```
<meta name="viewport" content="initial-scale=1">
```

```
<meta name="viewport" content="width=device-width; initial-scale=1">
```

1. Zu großes Bild in eine Seite platzieren.
2. Einer der drei obigen Meta-Tags
3. Welches Verhalten zeigt der Browser?
 1. Zoomt raus, bis das Bild ganz gezeigt wird?
(out)
 2. Zoomt rein, der Viewport wird korrekt ausgefüllt, das Bild abgeschnitten **(in)**

Browser	initial-scale=1	width=device-width	Both
Android WebKit	out	in	in
BlackBerry 10	out	out	out
Chrome 28 (Samsung)	in	in	in
Chrome 31 (Google)	in	out	in
Firefox 25	in	in	in
IE10	in	in	in
Safari	out	out	in
UC9	out	in	in

Vergleich: IE v9, v10, v11

Supported (no prefixes needed)

::selection CSS pseudo-element	CSS3 Colors	Geolocation
CSS position:fixed	CSS3 Media Queries	Web Storage - name/value pairs
CSS Counters	CSS3 Opacity	JSON parsing
CSS 2.1 selectors	CSS3 Border-radius (rounded corners)	getComputedStyle
CSS inline-block	CSS3 Background-image options	Navigation Timing API
CSS min/max-width/height	SVG in CSS backgrounds	Hashchange event
CSS Table display	Text API for Canvas	XHTML served as application/xhtml+xml
CSS outline	Canvas (basic support)	EOT - Embedded OpenType fonts
CSS Generated content	querySelector/querySelectorAll	WAI-ARIA Accessibility features
CSS3 Multiple backgrounds	Audio element	JPEG XR image format
CSS3 Text-overflow	New semantic elements	MPEG-4/H.264 video format
@font-face Web fonts	Video element	WOFF - Web Open Font Format
CSS3 word-break	contenteditable attribute (basic support)	PNG alpha transparency
rem (root em) units	getElementsByClassName	SVG in HTML img element
CSS3 selectors	Inline SVG in HTML5	SVG (basic support)
CSS3 Box-shadow		

Supported (some prefix)

	IE 9	IE 10	IE 11
CSS3 Transforms	Yes ^{-ms-}	Yes	Yes

At least partially supported

	IE 9	IE 10	IE 11
calc() as CSS unit value	Partial	Yes	Yes
defer attribute for external scripts	Partial	Yes	Yes
Cross-Origin Resource Sharing	Partial	Yes	Yes
Viewport units: vw, vh, vmin, vmax	Partial	Partial	Yes
dataset & data-* attributes	Partial	Partial	Yes
Cross-document messaging	Partial	Partial	Yes
CSS3 Cursors (original values)	Partial	Partial	Partial
TTF/OTF - TrueType and OpenType font support	Partial	Partial	Partial
CSS3 Box-sizing	Partial	Partial	Partial
CSS3 Overflow-wrap	Partial	Partial	Partial
Ruby annotation	Partial	Partial	Partial
Drag and Drop	Partial	Partial	Partial
Clipboard API	Partial	Partial	Partial
matches() DOM method	Partial ^{-ms-}	Partial ^{-ms-}	Partial ^{-ms-}
Data URIs	Partial	Partial	Partial
SVG effects for HTML	Partial	Partial	Partial

Mixed support

	IE 9	IE 10	IE 11
CSS Grid Layout	No	Yes	-ms-
CSS user-select: none	No	Yes	-ms-
CSS3 Multiple column layout	No	Yes	
CSS Hyphenation	No	Yes	-ms-
CSS3 Transitions	No	Yes	
Font feature settings	No	Yes	
CSS3 Animation	No	Yes	
CSS Gradients	No	Yes	
CSS Repeating Gradients	No	Yes	
CSS3 Text-shadow	No	Yes	
classList (DOMTokenList)	No	Yes	
async attribute for external scripts	No	Yes	
matchMedia	No	Yes	
XMLHttpRequest 2	No	Yes	
Offline web applications	No	Yes	
Form validation	No	Yes	
Session history management	No	Yes	
sandbox attribute for iframes	No	Yes	
Range input type	No	Yes	
input placeholder attribute	No	Yes	
Channel messaging	No	Yes	
Web Sockets	No	Yes	

Mixed support

	IE 9	IE 10	IE 11
Blob constructing	No	Yes	Yes
Page Visibility	No	Yes	Yes
IndexedDB	No	Yes	Yes
FileReader API	No	Yes	Yes
Blob URLs	No	Yes	Yes
High Resolution Time API	No	Yes	Yes
Typed Arrays	No	Yes	Yes
Web Workers	No	Yes	Yes
requestAnimationFrame	No	Yes	Yes
File API	No	Yes	Yes
User Timing API	No	Yes	Yes
ECMAScript 5 Strict Mode	No	Yes	Yes
WebVTT - Web Video Text Tracks	No	Yes	Yes
SVG filters	No	Yes	Yes
SVG fragment identifiers	No	Yes	Yes

Mixed support

	IE 9	IE 10	IE 11
Flexible Box Layout Module	No	Partial ^{-ms-}	Yes
Pointer events	No	Partial ^{-ms-}	Yes
CSS3 3D Transforms	No	Partial	Partial
CSS Regions	No	Partial ^{-ms-}	Partial ^{-ms-}
Number input type	No	Partial	Partial
Datalist element	No	Partial	Partial
Progress & Meter	No	Partial	Partial
HTML5 form features	No	Partial	Partial
Content Security Policy	No	Partial ^{-ms-}	Partial ^{-ms-}
CSS pointer-events (for HTML)	No	No	Yes
CSS3 Border images	No	No	Yes
WebGL - 3D Canvas graphics	No	No	Yes
Mutation Observer	No	No	Yes
Full Screen API	No	No	Yes ^{-ms-}
DeviceOrientation events	No	No	Partial
SPDY networking protocol	No	No	Partial

No support

CSS text-stroke	HTML templates	Web SQL Database
CSS Masks	Touch events	Web Speech API
CSS position:sticky	Promises	Battery Status API
Blending of CSS image	Details & Summary elements	Filesystem & FileWriter API
CSS Reflections	Download attribute	getUserMedia/Stream API
CSS Canvas Drawings	Toolbar/context menu	Opus
CSS3 tab-size	Date/time input types	Strict Transport Security
CSS Feature Queries	Color input type	Ogg/Theora video format
CSS Variables	Scoped CSS	WebP image format
Intrinsic & Extrinsic Sizing	Web Audio API	XHTML+SMIL animation
CSS resize property	Web Notifications	MathML
CSS3 object-fit/object-position	Shared Web Workers	WebM video format
CSS Filter Effects	Vibration API	Animated PNG (APNG)
Canvas blend modes	Server-sent DOM events	SVG fonts
Shadow DOM	WebRTC Peer-to-peer connections	SVG SMIL animation

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Supported (no prefixes needed)

CSS position:fixed	CSS Table display	
CSS 2.1 selectors	CSS min/max-width/height	
CSS inline-block	CSS Counters	CSS outline
CSS Generated content for pseudo-elements		
@font-face Web fonts	CSS3 Multiple backgrounds	
CSS3 Border images		
CSS3 Background-image options	CSS3 selectors	
CSS3 Text-shadow	CSS3 Box-shadow	CSS3 Colors
CSS3 Media Queries		
CSS3 Border-radius (rounded corners)		
CSS3 Transitions	CSS Gradients	
calc() as CSS unit value	CSS3 Opacity	
CSS3 Text-overflow	rem (root em) units	
CSS pointer-events (for HTML)		
CSS Repeating Gradients		

CSS background-position edge offsets		
getComputedStyle	SVG in CSS backgrounds	
Canvas (basic support)	Text API for Canvas	
querySelector/querySelectorAll		
DOMContentLoaded	getElementsByClassName	
async attribute for external scripts		
classList (DOMTokenList)		
defer attribute for external scripts		
XMLHttpRequest 2	matchMedia	
Mutation Observer	Video element	Audio element
contenteditable attribute (basic support)		
New semantic elements	Offline web applications	
hidden attribute	Session history management	
dataset & data-* attributes	Range input type	
sandbox attribute for iframes		

input placeholder attribute	Hashchange event	
Inline SVG in HTML5	Web Workers	
Web Storage - name/value pairs	Geolocation	
File API	Web Sockets	
Cross-Origin Resource Sharing	JSON parsing	
Blob constructing	FileReader API	Blob URLs
Typed Arrays	requestAnimationFrame	
Page Visibility	Base64 encoding and decoding	
WOFF - Web Open Font Format		
ECMAScript 5 Strict Mode		
XHTML served as application/xhtml+xml		
WebVTT - Web Video Text Tracks		
PNG alpha transparency	SVG (basic support)	
SVG filters	SVG in HTML img element	
SVG fragment identifiers		

Supported (some prefix)

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
CSS user-select: none	-ms-	-moz-	-webkit-	-webkit-	-webkit-	-webkit-	-webkit-	-webkit-	-moz-
CSS3 Transforms	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSS3 Animation	Yes	Yes	Yes	-webkit-	-webkit-	-webkit-	-webkit-	-webkit-	Yes
Flexible Box Layout Module	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
crypto.getRandomValue()	Yes	-ms-	Yes	Yes	Yes	Yes	Yes	Yes	Yes

At least partially supported

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
Online/offline status	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSS3 3D Transforms	Partial	Yes	Yes	Yes <small>-webkit-</small>	Yes	Yes <small>-webkit-</small>	Yes	Yes	Yes
TTF/OTF - TrueType and OpenType font support	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Viewport units: vw, vh, vmin, vmax	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cross-document messaging	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data URIs	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HTTP/2 protocol / SPDY	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Content Security Policy 1.0	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MPEG-4/H.264 video format	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Partial
matches() DOM method	Partial <small>-ms-</small>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial <small>-moz-</small>
Progress & Meter	Partial	Yes	Yes	Yes	Yes	Partial	Yes	Yes	Yes

				-webkit-		-webkit-		
Media Queries: resolution feature	Partial	Yes	Yes	Partial	Yes	Partial	Yes	Yes
IndexedDB	Partial	Yes	Yes	Partial	Yes	Partial	Yes	Yes
CSS3 Overflow-wrap	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Partial
Spellcheck attribute	Yes	Yes	Yes	Yes	Yes	Partial	Partial	Partial
Number input type	Partial	Yes	Yes	Yes	Yes	Partial	Partial	Partial
CSS3 word-break	Yes	Yes	Partial	Partial	Partial	Partial	Partial	Yes
WAI-ARIA Accessibility features	Yes	Yes	Partial	Partial	Partial	Partial	Partial	Yes
WebGL - 3D Canvas graphics	Yes	Partial	Yes	Partial	Partial	Yes	Partial	Partial
CSS3 Box-sizing	Partial	Yes	Partial	Partial	Partial	Partial	Partial	Yes
Clipboard API	Partial	Yes	Partial	Partial	Partial	Partial	Partial	Yes
SVG effects for HTML	Partial	Yes	Partial	Partial	Partial	Partial	Partial	Yes
CSS3 Multiple column layout	Yes	Partial	-moz-	-webkit-	-webkit-	-webkit-	-webkit-	-moz-
:placeholder-shd CSS pseudo-class	-ms-	-moz-	-webkit-	-webkit-	-webkit-	-webkit-	-webkit-	-moz-
HTML5 form features	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial

Mixed support

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
::selection CSS pseudo-element	Yes	Yes <small>-moz-</small>	Yes	Yes	Yes	No	Yes	Yes	Yes
Navigation Timing API	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Autofocus attribute	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
PNG favicons	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
High Resolution Time API	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
CSS background-blend-mode	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improved kerning pairs & ligatures	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSS Appearance	No	Yes <small>-moz-</small>	Yes <small>-webkit-</small>	Yes <small>-moz-</small>					
Intrinsic & Extrinsic Sizing	No	Yes <small>-moz-</small>	Yes <small>-webkit-</small>	Yes <small>-moz-</small>					
CSS3 tab-size	No	Yes <small>-moz-</small>	Yes	Yes	Yes	Yes	Yes	Yes	Yes <small>-moz-</small>
CSS box-decoration-inset	No	Yes	Yes <small>-webkit-</small>	Yes					
Canvas blend modes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HTML templates	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Server-sent events	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Promises	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strict Transport Security	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Mixed support

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
SVG SMIL animation	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Form validation	Yes	Yes	Yes	Partial	Yes	No	Yes	Yes	Yes
Font feature settings	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Internationalization API	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Channel messaging	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Web Cryptography	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes	No
Web Audio API	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
CSS Filter Effects	No	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Partial
Datalist element	Partial	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Multiple file selection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Screen Orientation	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes
Full Screen API	Yes	Partial	Yes	Yes	Yes	No	No	Yes	Partial
Font unicode-range subsetting	Partial	No	Yes	Partial	Yes	Partial	Yes	Yes	Partial
CSS resize property	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes
CSS Feature Queries	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
CSS.supports() API	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Color input type	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Download attribute	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Mixed support

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
getUserMedia/SI API	No	Yes <small>-moz-</small>	Yes <small>-webkit-</small>	No	Yes <small>-webkit-</small>	No	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	Yes <small>-moz-</small>
WebRTC Peer-to-peer connections	No	Yes <small>-moz-</small>	Yes <small>-webkit-</small>	No	Yes <small>-webkit-</small>	No	Yes	Yes	Yes <small>-moz-</small>
Vibration API	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
CSS Canvas Drawings	No	No	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	Yes	Yes	Yes	No
CSS Reflections	No	No	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	Yes	Yes	Yes	No
CSS text-stroke	No	No	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	No				
CSS image-set	No	No	Yes <small>-webkit-</small>	Yes <small>-webkit-</small>	No				
CSS Shapes Level 1	No	No	Yes	Yes <small>-webkit-</small>	Yes	Yes <small>-webkit-</small>	Yes	Yes	No
Details & Summary elements	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Web SQL Database	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Touch events	No	No <small>✓</small>	Yes	No	Yes	Yes	Yes	Yes	Yes
Web Notifications	No	Yes	Yes	Yes	Yes	No	Partial <small>-webkit-</small>	No	Yes
WebM video format	No	Yes	Yes	No	Yes	No	Partial	Yes	Yes
CSS3 Cursors (original values)	Yes	Yes	Yes	Yes	Yes	No	No	No	No
CSS Hyphenation	Yes <small>-ms-</small>	Yes <small>-moz-</small>	No	Yes <small>-webkit-</small>	No	Yes <small>-webkit-</small>	No	No	Yes <small>-moz-</small>
CSS touch-action property	Yes	No <small>✓</small>	Yes	No	Yes	No	Yes	Yes	No
User Timing API	Yes	No	Yes	No	Yes	No	Yes	Yes	No
Resource Timing	Yes	No <small>✓</small>	Yes	No	Yes	No	Yes	Yes	No

Mixed support

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
CSS3 object-fit/object-position	No	No	Yes	Partial	Yes	Partial	Yes	Yes	No
Srcset attribute	No	No	Yes	Partial	Yes	Partial	Yes	Yes	No
Date and time input types	No	No	Yes	No	Yes	Yes	Yes	Yes	No
Drag and Drop	Partial	Yes	Yes	Yes	Yes	No	No	No	No
DeviceOrientation events	Partial	Partial	Partial	No	Partial	Partial	Partial	Partial	Partial
CSS3 Cursors (new values)	No	Yes	Yes	Yes	Yes	No	No	No	No
Shared Web Workers	No	Yes	Yes	No	Yes	No	No	No	Yes
Ogg/Theora video format	No	Yes	Yes	No	Yes	No	No	No	Yes
Opus	No	Yes	Yes	No	Yes	No	No	No	Yes
CSS position:sticky	No	Yes	No	Yes	No	Yes	No	No	Yes
Blending of HTML/SVG elements	No	Yes	No	Yes	No	Yes	No	No	Yes
MathML	No	Yes	No	Yes	No	Yes	No	No	Yes
Animated PNG (APNG)	No	Yes	No	Yes	No	Yes	No	No	Yes
Battery Status API	No	Partial	Yes	No	Yes	No	No	Yes	Partial
CSS Masks	No	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial
CSS clip-path property	No	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial
Speech Synthesis API	No	No	Yes	Yes	No	Yes	No	Yes	No
CSS will-change property	No	No	Yes	No	Yes	No	Yes	Yes	No
CSS Font Loading	No	No	Yes	No	Yes	No	Yes	Yes	No

Mixed support

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
Shadow DOM	No	No	Yes	No	Yes	No	Yes	Yes	No
Dialog element	No	No	Yes	No	Yes	No	Yes	Yes	No
Custom Elements	No	No	Yes	No	Yes	No	Yes	Yes	No
HTML Imports	No	No	Yes	No	Yes	No	Yes	Yes	No
Web Animations API	No	No	Yes	No	Yes	No	Yes	Yes	No
Object.observe data binding	No	No	Yes	No	Yes	No	Yes	Yes	No
WebP image format	No	No	Yes	No	Yes	No	Yes	Yes	No
WOFF 2.0 - Web Open Font Format	No	No	Yes	No	Yes	No	Yes	Yes	No
Ruby annotation	Partial	No	Partial	Partial	Partial	Partial	Partial	Partial	No
CSS font-stretch	Yes	Yes	No	No	No	No	No	No	Yes
Gamepad API	No	Yes	Yes	No	Yes	No	No	No	No
text-decoration styling	No	Yes	-moz-	-webkit-	-webkit-	-webkit-	Partial	No	-moz-
Picture element	No	No	Yes	No	Yes	No	No	Yes	No
Filesystem & FileWriter API	No	No	-webkit-	No	-webkit-	No	No	-webkit-	No
SVG fonts	No	No	No	Yes	No	Yes	Yes	No	No
CSS Regions	Partial	-ms-	No	Yes	No	Yes	-webkit-	No	No
CSS3 image-orientation	No	Yes	No	No	No	Partial	No	No	Yes
CSS Variables	No	Yes	No	No	No	No	No	No	Yes
Scoped CSS	No	Yes	No	No	No	No	No	No	Yes
relList (DOMTokenList)	No	Yes	No	No	No	No	No	No	Yes
Ambient Light API	No	Yes	No	No	No	No	No	No	Yes

Mixed support

	IE 11	Firefox 34	Chrome 39	Safari 8	Opera 26	iOS Safari 8.1	Android Browser 37	Chrome for Android 39	Firefox for Android 33
Proximity API	No	Yes	No	No	No	No	No	No	Yes
Web Speech API	No	No	Partial	Partial	No	Partial	No	Partial	No
CSS text-size-adjust	No	No	No	No	No	Yes	No	No	-moz-
Pointer events	Yes	No	No	No	No	No	No	No	No
EOT - Embedded OpenType fonts	Yes	No	No	No	No	No	No	No	No
JPEG XR image format	Yes	No	No	No	No	No	No	No	No
CSS font-size-adjust	No	Yes	No	No	No	No	No	No	No
SVG favicons	No	Yes	No	No	No	No	No	No	No
Service Workers	No	Partial	No	No	Partial	No	No	No	No
CSS Grid Layout	Partial	No	No	No	No	No	No	No	No
CSS Device Adaptation	Partial	No	No	No	No	No	No	No	No
Toolbar/context menu	No	Partial	No	No	No	No	No	No	No

No support

seamless attribute for iframes | XHTML+SMIL animation



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