

# IE9とHTML5

(+ Open Web Platform)

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2010-09-23 小山田 晃浩

HTML5への対応はFirefox、Opera、Webkit系の各ブラウザで既に対応が始まっています。さらに、現在開発中のIE9でもHTML5のマークアップ、video、audio、canvas、DOM、CSS3の一部、SVG1.1など様々な技術へ対応が進められています。

IE9の登場はHTML5やその周辺技術を利用するうえでの重要なターニングポイントとなるでしょう。そこでIE9をベースにHTML5やその周辺技術について、コードを見ながら解説します。

CSS Nite in SHIZUOKA

# IE9とHTML5

(+ OPEN WEB PLATFORM)

2010-09-23 小山田 晃浩

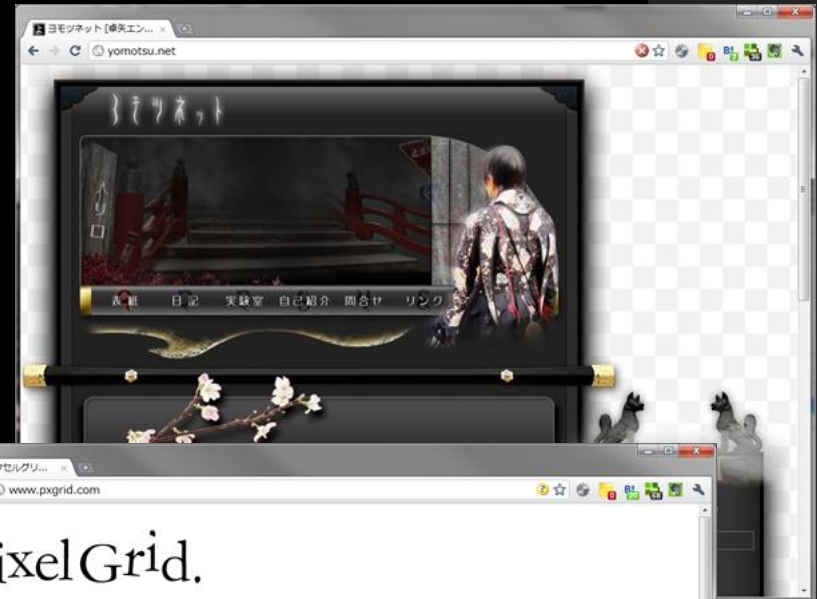
(おやまだ あきひろ)

# 小山田 晃浩

(株)ピクセルグリッド

フロントエンドエンジニア

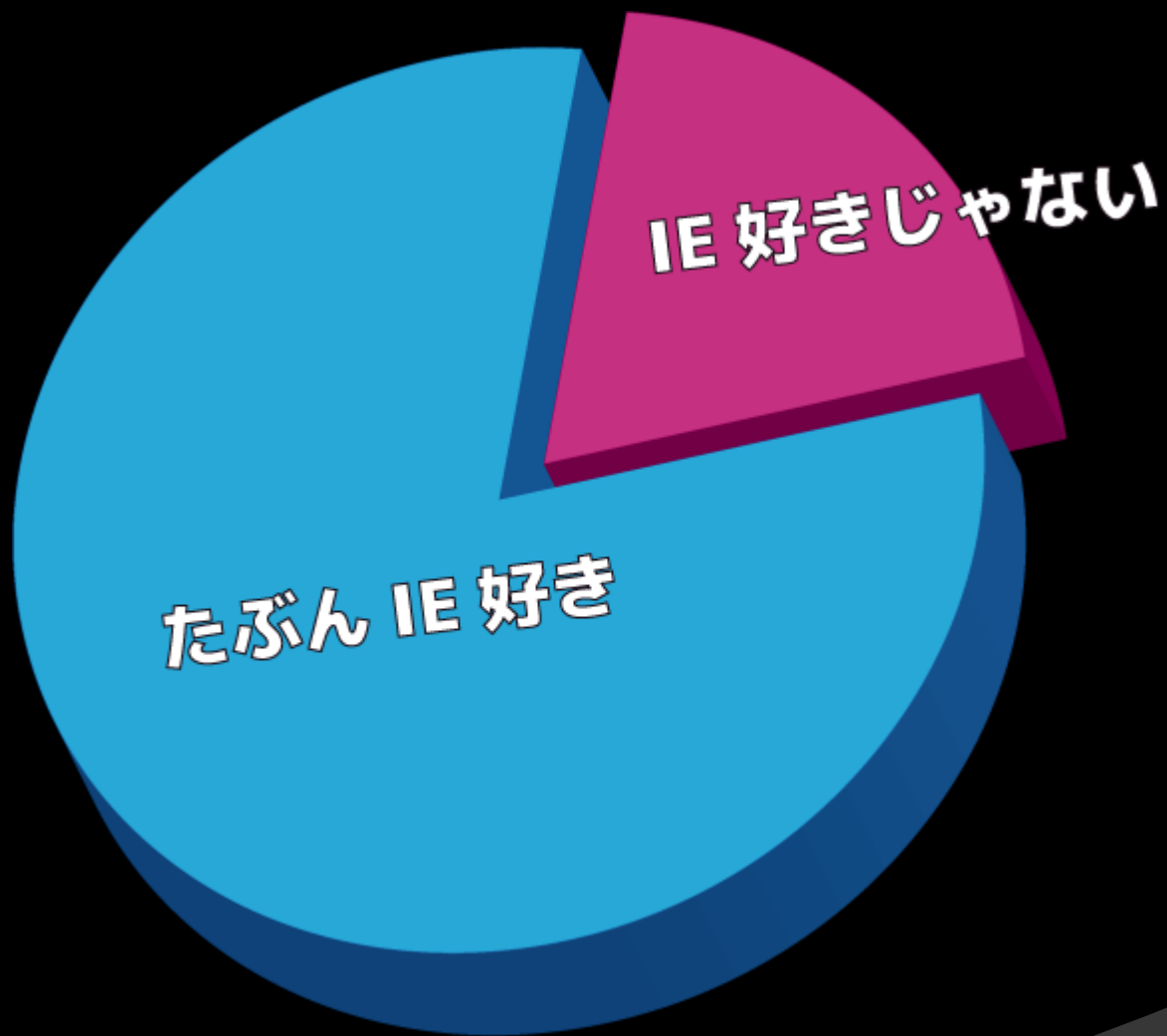
twitter@yomotsu



# このセッションの流れ

1. HTML5?
2. IE9とHTML5
3. IE9が新対応する主な技術
  - HTML5
  - CSS3
  - SVG1.1
4. IE6と疑似HTML5
5. まとめ

IEのこと、好きじゃない人？



これから紹介するdemo

<http://goo.gl/Q3MJ>

**HTML5 ?**



# HTML5ってなに?

- HTML4.01を  
拡張したHTML

## HTML5

<section> <nav>

<article><header><footer>

<audio> <video> <canvas>

<svg> <math>

<time><ruby>

etc...

## HTML4.01

<html> <head>

<body> <a> <h1>

<p><img><input>

etc...

# 追加される要素型

<article> <aside> <audio> <canvas>  
<command> <datalist> <details>  
<embed> <figcaption> <figure>  
<footer> <header> <hgroup> <keygen>  
<mark> <math> <meter> <nav>  
<output> <progress> <rp> <rt>  
<ruby> <section> <source>  
<summary> <svg> <time> <track>  
<video> <wbr>

# いろいろ強化

- ◎ タグによる意味付けの強化  
<section><article><aside>など
- ◎ 埋め込みオブジェクトの強化  
<audio><video><canvas><svg>など
- ◎ フォームの強化  
<input type="range">など

# 様々な技術の受け皿でもある



Web  
Notifications

XHR

WOFF

Web  
Workers

Geo-  
location

ECMAScript

CSS

# HTML5

SVG

Web  
Storage

MathML

Web  
Sockets

Drag  
&  
Drop

Micro-  
data

WebGL

OFFLINE  
Caching  
Manifest

WAI-  
ARIA

Flash

The background consists of numerous yellow sticky notes of varying sizes, each with a different web technology or standard written on it in black text. The notes are scattered across the frame, creating a collage effect. Some of the visible text on the notes includes: 'Web Notifications', 'XHR', 'WOFF', 'Web Workers', 'Geo-location', 'ECMAScript', 'CSS', 'SVG', 'MathML', 'Web Sockets', 'Drag & Drop', 'Micro-data', 'Flash', 'WebGL', 'OFFLINE Caching Manifest', and 'WAI-AREA'. In the center, there is a larger, semi-transparent pinkish-red rounded rectangle containing the word 'HTML5' in a bold, white, sans-serif font. Overlaid on this central area is the main text of the image in a large, white, bold, sans-serif font.

HTMLを  
取り巻く技術はとても多い

# HTMLの周りにおける様々な技術

CSS, SVG, WAI-ARIA, MathML, ECMAScript, 2D Context, WebGL, Device API, Drop & Drag API, File API, Web Storage, Indexed Database, Offline Web Applications, Web Workers, Web Sockets Protocol/API, Geolocation, Server-Sent Events, Element Traversal, DOM Level 3 Events, Media Fragments, XMLHttpRequest, Selectors API, CSSOM View Module, Cross-Origin Resource Sharing, File API, RDFa, Microdata, WOFF, HTTP ...

WebGL

OFFLINE  
Caching  
Manifest

WAI-  
AREA

Flash

どこまでやればいいのか？

Web  
Notifications

XHR

WOFF

Web  
Workers

Geo-  
location

ECMAScript

CSS

Web  
Storage

SVG

Web  
Sockets

Drag  
&  
Drop

Micro-  
data

MathML

WebGL

OFFLINE  
Caching  
Manifest

WAI-  
ARIA

Flash



目安のひとつはIE9

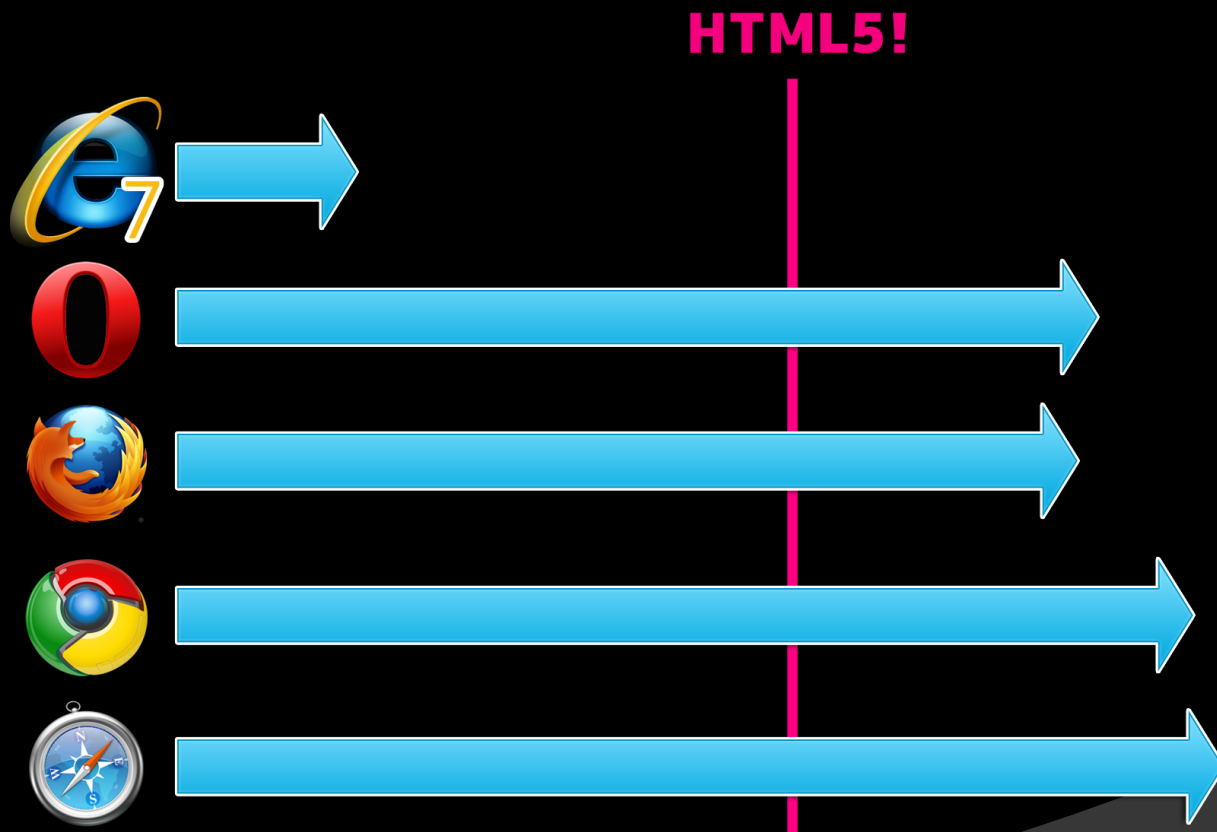


# IE9とHTML5

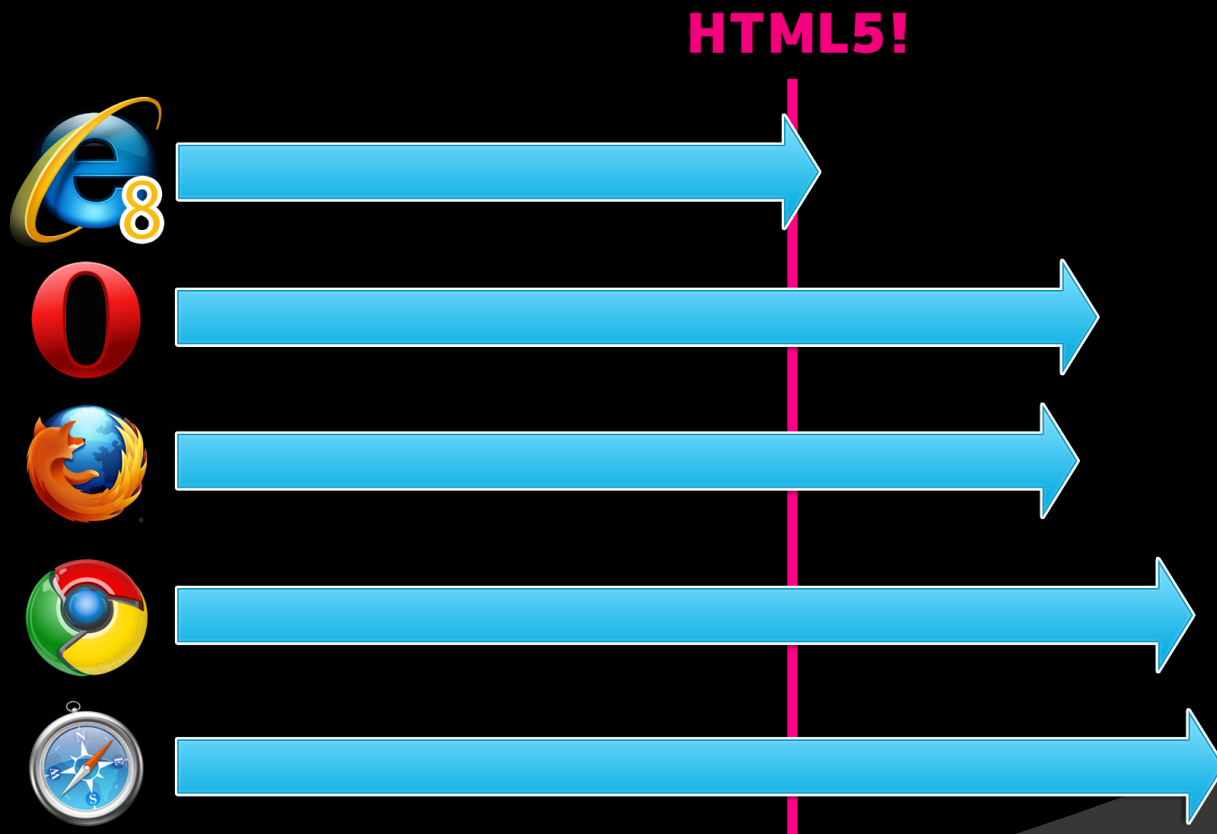
# 各ブラウザの技術対応度



# 各ブラウザの技術対応度



# 各ブラウザの技術対応度



# 各ブラウザの技術対応度



# Webkit, Firefox, Operaに続き IE9も新技術に対応

HTML5!

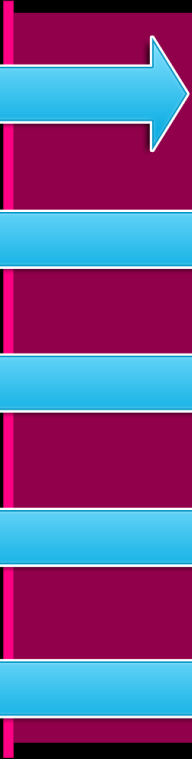
- ◎ 他のブラウザにかなり近づいた
- ◎ すべて対応ではない
- ◎ 安定している技術に対応

# HTML5!





**HTML5!**



HTML5!



IE9は技術のベースラインとなる

# IE9の技術対応度

Internet Explorer 9 Test Drive - Windows Internet Explorer Platform Preview 1.9.7916.6000

Page [Debug](#) [Report Issue](#) [Help](#)

## Windows Internet Explorer 9

Developer Guide | Release Notes | FAQ | Blog

### Test Drive

Welcome and thank you for investigating the fourth Internet Explorer Platform Preview.

Check back often; we update the Platform Preview regularly and add more demos all the time.

#### Speed Demos

Take full advantage of your hardware with background compiled JavaScript

- New! [Psychedelic Browsing](#) <canvas>
- New! [Hamster Dance Revolution](#)
- New! [SVG Dice](#)
- [FishIE Tank](#) <canvas>
- [Flying Images](#)
- [Flickr Explorer](#)
- [Amazon Shelf](#) <canvas>
- [window.msPerformance](#)
- [Asteroid Belt](#) <canvas>
- [Mr. Potato Gun](#) <canvas>

[More >](#)

#### HTML5 Demos

Deliver interoperability with same markup and next generation of Web standards

- New! [IETrade](#) <canvas>
- New! [Enhanced DOM Capabilities](#)
- [Border Radius](#)
- [ECMAScript 5 Game](#)
- [DOM Traversal Gallery](#)
- [HTML5 Audio XML Playlist](#)
- [CSS3 Media Queries](#)
- [DOMContentLoaded](#)
- [getComputedStyle](#)
- [getElementsByName](#)

[More >](#)

#### Graphics Demos

Create next-generation experiences with GPU-powered HTML5 graphics

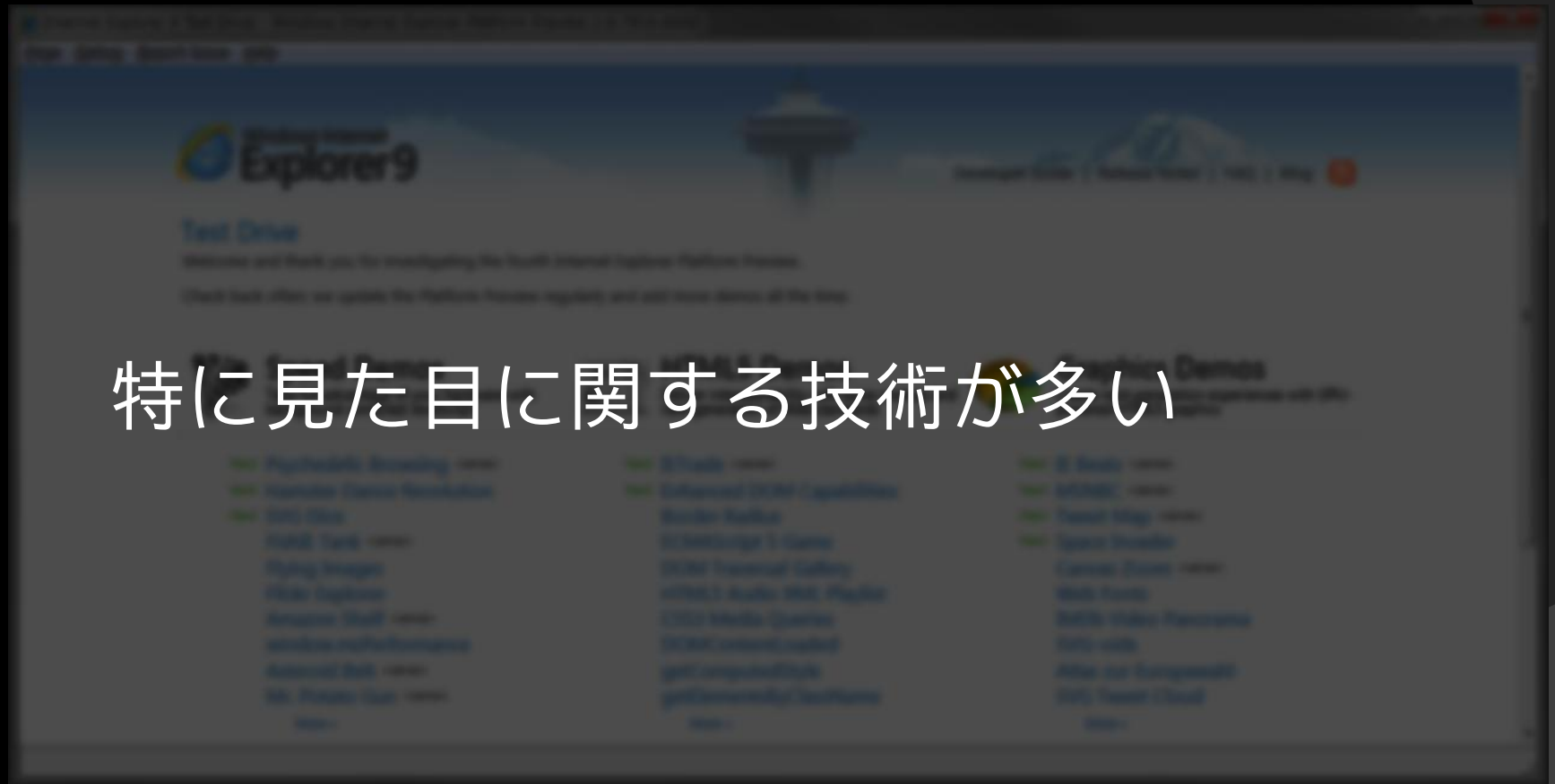
- New! [IE Beatz](#) <canvas>
- New! [MSNBC](#) <canvas>
- New! [Tweet Map](#) <canvas>
- New! [Space Invader](#)
- [Canvas Zoom](#) <canvas>
- [Web Fonts](#)
- [IMDb Video Panorama](#)
- [SVG-oids](#)
- [Atlas zur Europawahl](#)
- [SVG Tweet Cloud](#)

[More >](#)

# ロゴが変わりましたね！

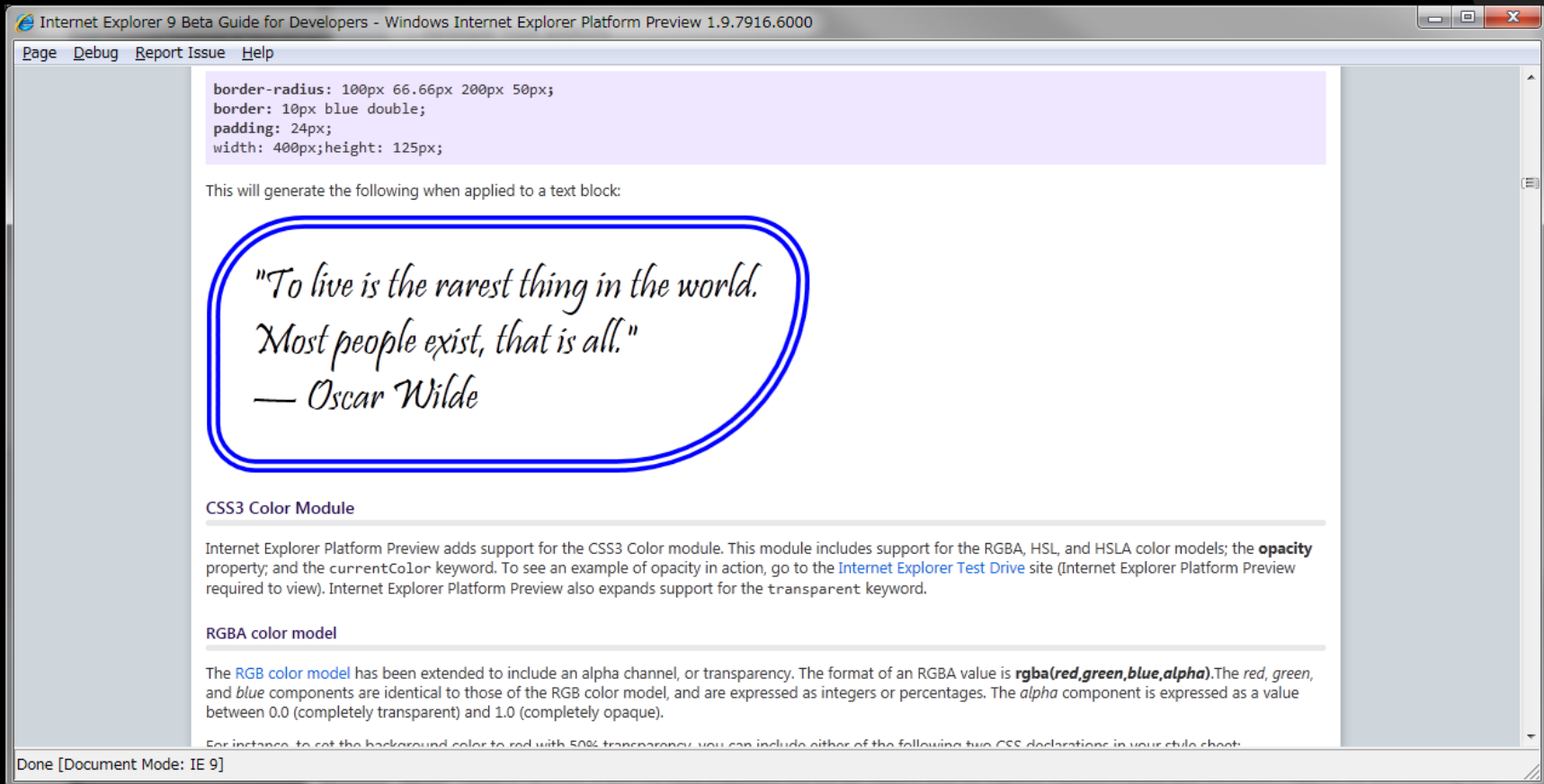


# Test Drive



特に見た目に関する技術が多い

# Internet Explorer 9 Beta Guide for Developers

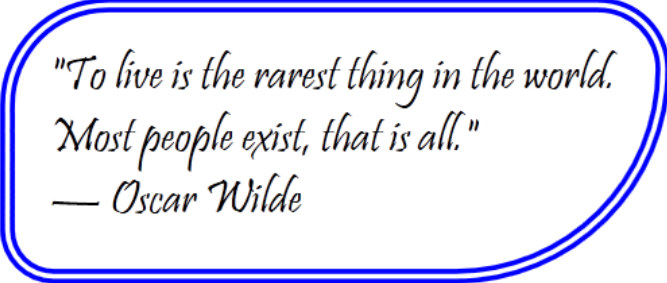


Internet Explorer 9 Beta Guide for Developers - Windows Internet Explorer Platform Preview 1.9.7916.6000

Page Debug Report Issue Help

```
border-radius: 100px 66.66px 200px 50px;  
border: 10px blue double;  
padding: 24px;  
width: 400px; height: 125px;
```

This will generate the following when applied to a text block:



*"To live is the rarest thing in the world.  
Most people exist, that is all."  
— Oscar Wilde*

### CSS3 Color Module

Internet Explorer Platform Preview adds support for the CSS3 Color module. This module includes support for the RGBA, HSL, and HSLA color models; the **opacity** property; and the `currentColor` keyword. To see an example of opacity in action, go to the [Internet Explorer Test Drive](#) site (Internet Explorer Platform Preview required to view). Internet Explorer Platform Preview also expands support for the `transparent` keyword.

### RGBA color model

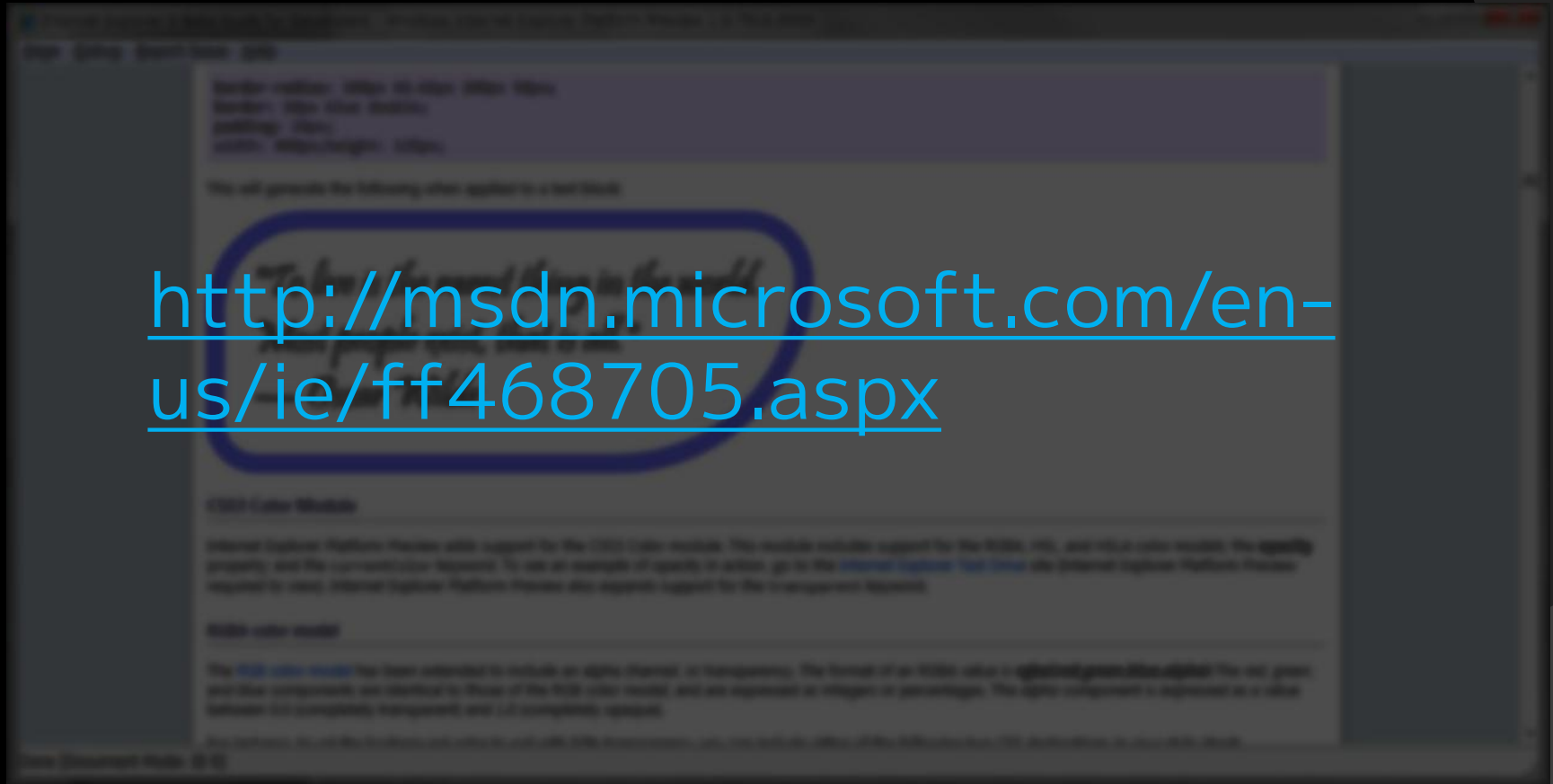
The [RGB color model](#) has been extended to include an alpha channel, or transparency. The format of an RGBA value is **rgba(red, green, blue, alpha)**. The *red*, *green*, and *blue* components are identical to those of the RGB color model, and are expressed as integers or percentages. The *alpha* component is expressed as a value between 0.0 (completely transparent) and 1.0 (completely opaque).

For instance, to set the background color to red with 50% transparency, you can include either of the following two CSS declarations in your style sheet:

Done [Document Mode: IE 9]

# Internet Explorer 9 Beta Guide for Developers

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



# IE9で新たに対応する技術

- ◎ HTML5  
<video><audio><canvas>も
- ◎ CSS3  
selector, background, border など
- ◎ SVG1.1  
描画系、構造系、情報用の要素
- ◎ その他



# IE9で新たに対応する技術

- ◎ HTML5  
<video><audio><canvas>も
- ◎ CSS3  
selector, background, border など
- ◎ SVG1.1  
描画系、構造系、情報用の要素
- ◎ その他
- ◎ (残念ながらAPI関連はまだ...。 Silverlightに注力?)

# IE9の範囲から HTML5を始めてみよう



# IE9が新対応する 主な技術

# IE9が新対応する技術

- HTML5 (Formsを除く)
- CSS3 (安定している一部)
- SVG1.1 (8割くらい)
- その他

**HTML5**

# HTML5: DOCTYPEとか

# HTML5: DOCTYPEとか

```
1. <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
   Transitional//EN"  
   "http://www.w3.org/TR/html4/loose.dtd">  
2. <html lang="ja">  
3.   <head>  
4.     <meta http-equiv="Content-Type "  
           content="text/html; charset=utf-8">  
5.     <title>sample</title>  
6.   </head>  
7.   <body>  
8.     こんにちは世界  
9.   </body>  
10. </html>
```

# HTML5: DOCTYPEとか

1. `<!DOCTYPE html>`
2. `<html lang="ja">`
3. `<head>`
4. `<meta charset="utf-8">`
5. `<title>sample</title>`
6. `</head>`
7. `<body>`
8. `こんにちは世界`
9. `</body>`
10. `</html>`



**HTML5:  
<audio>**



# HTML5:<audio>

1. `<audio controls="controls">`
2. `<source src="***.mp3">`
3. `<source src="***.ogg">`
4. `</audio>`

**HTML5:  
<video>**



# HTML5:<video>

1. `<video controls="controls" width="720" height="406">`
2. `<source src="***.mp4">`
3. `<source src="***.webm">`
4. `</video>`



再生

停止



音量 1 ▾

[return to index](#)

**HTML5:**  
**<canvas>**



draw !



# HTML5: <canvas>

1. `<canvas width="600" height="600">`  
`</canvas>`

1. `document.querySelector('canvas')`  
`.getContext('2d');`  
...

# HTML5:<canvas>

1. toDataURL () などはサポートしておらず全てではない。
2. WebGLはサポートしていない

**HTML5:**

**<svg>**



# HTML5: <svg>

1. <!DOCTYPE html>
2. <html>
3.     (snip)
4.     <body>
5.         <svg width="500" height="500">
6.             <path d="M475, ... (snip) " />
7.         </svg>
8.     </body>
9. </html>

CSS3

# CSS3: Selectors



# li:nth-child(2n)

- 1
- 2
- 3
- 4
- 5
- 6

[return to index](#)

# HTML5:Selectors

## li:nth-child(2n)

- 1
- 2
- 1. `li:nth-child(2n) {`
- 2. `background:#FC9;`
- 3. `}`
- 6

[return to index](#)

# ほかにも

li:nth-child(2n)

E:root, E:nth-child(n), E:nth-last-child(n),  
E:nth-of-type(n), E:nth-last-of-type(n),  
E:last-child, E:first-of-type, E:last-of-  
type, E:only-child, E:only-of-type,  
E:empty, E:target, E:enabled, E:disabled,  
E:checked, E:indeterminate, E:not(s),  
E::selection

[return to index](#)

**CSS3:**

**Values and Units** (rem?, calc()...)

Internet Explorer 9

Internet Explorer 9

# CSS3:

## Values and Units (calc())

### Internet Explorer 9

```
1. div.sample {  
2.   font-size:calc(1em * 2 - 10px);  
3.   margin-top:calc(1em - 10px);  
4. }
```

**CSS3:**

**Backgrounds**

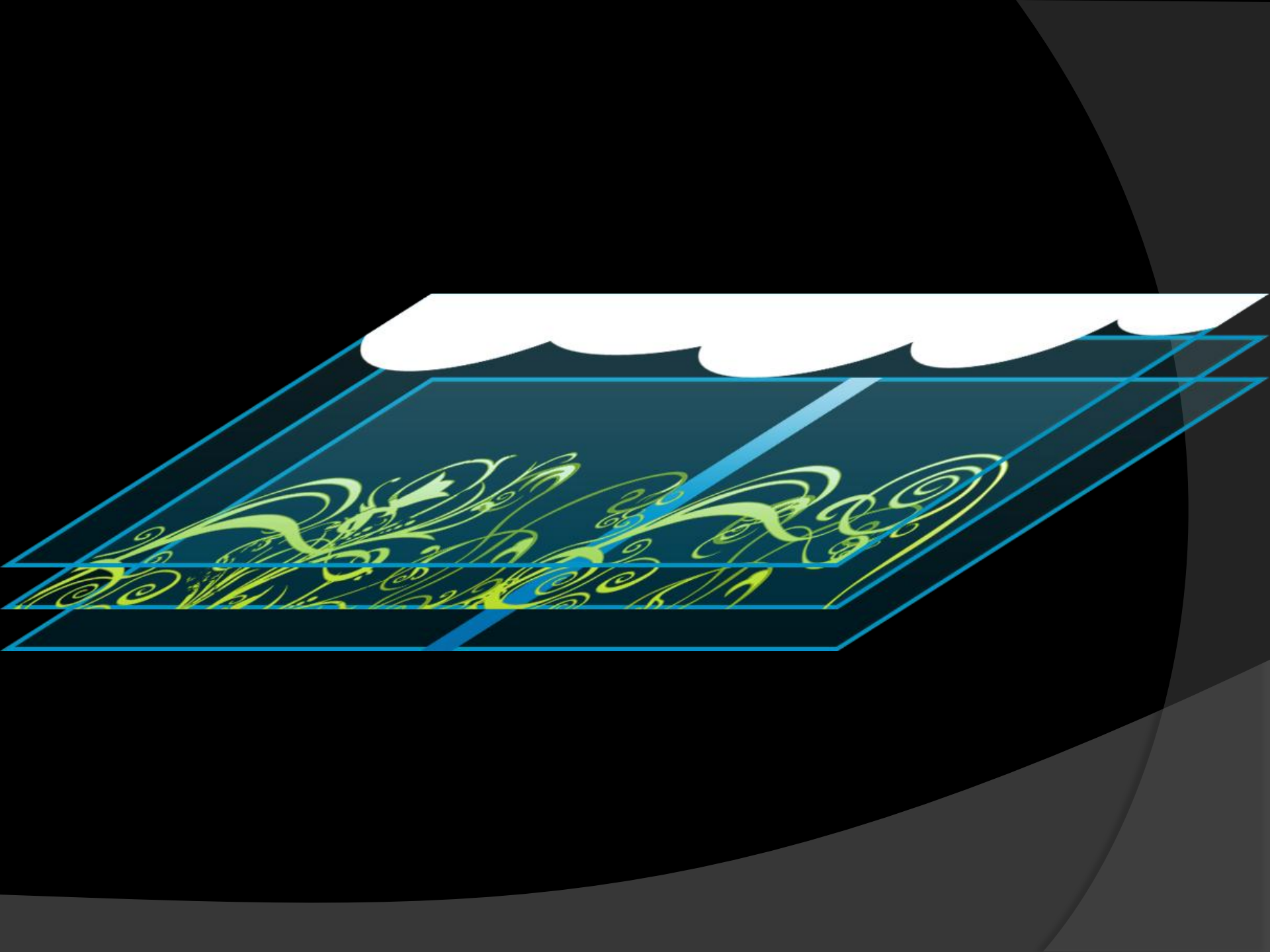
**(multiple-backgrounds, box-shadow...)**



[return to index](#)









text text text ?

[return to index](#)

# CSS3:

## Backgrounds (multiple-backgrounds)

```
1. .block1 {  
    background-image: url (bg_top.png),  
                    url (bg_bottom.png),  
                    url (bg_middle.png);  
2.    background-repeat: repeat-x,  
                    repeat-x,  
                    repeat-x;  
3.    background-position: 0 0,  
                    0 100%,  
                    0 0;  
4. }
```

# CSS3: Borders (border-radius)



**border-radius**

**border-radius border-radius border-radius  
border-radius border-radius  
border-radius border-radius**



**nested border-radius**

# CSS3:

## Borders (border-radius)

1. `div.sample {`
2. `border-radius: 30px;`
3. `}`

**CSS3:**

**Fonts** (@font-face,WOFF)



# Internet Explorer 9

Internet Explorer 9

- Cut
- Copy
- Paste
- Select All
- Print...
- Print Preview...
- Add to Evernote
- Adobe PDF に変換
- リンクの参照先を Adobe PDF に変換
- リンクの参照先を既存の PDF に追加
- 既存の PDF に追加

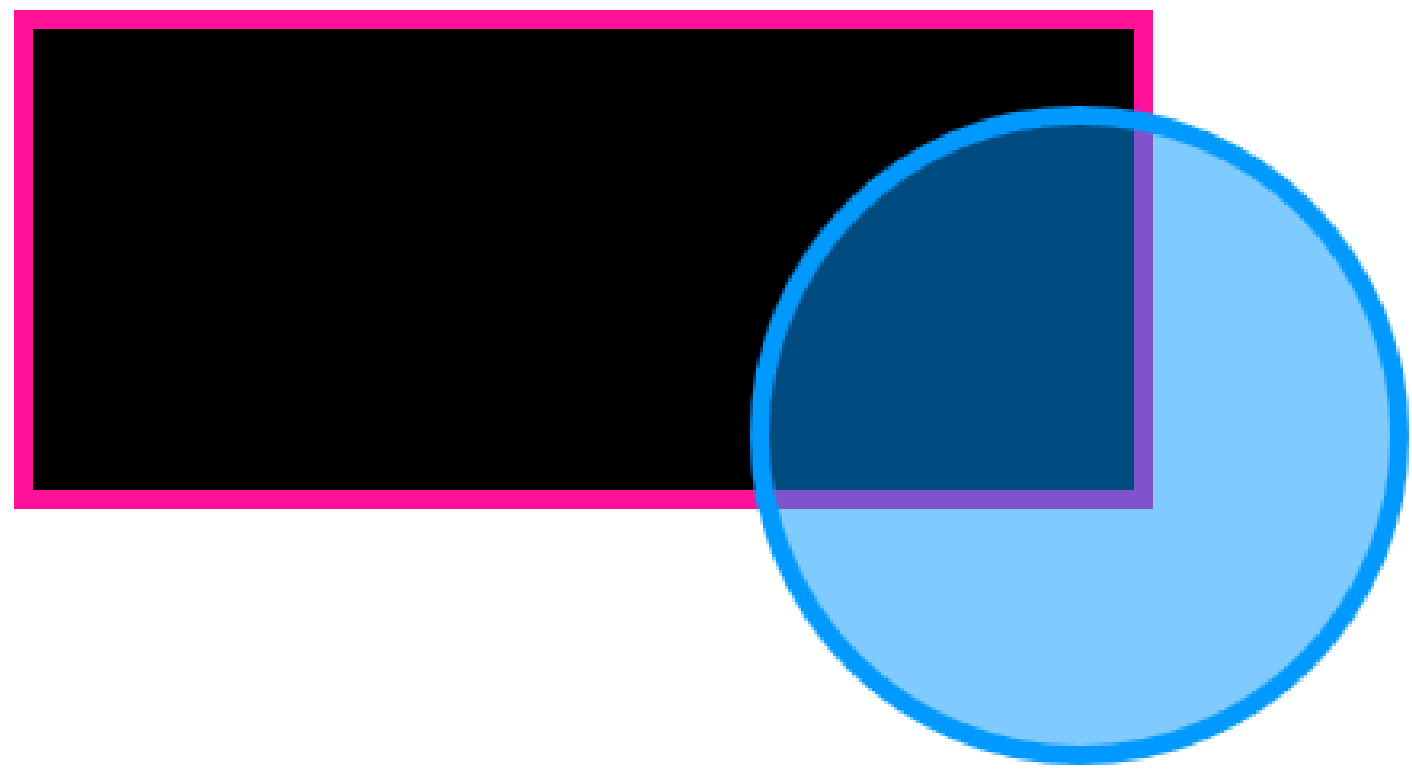
# CSS3:

## Fonts (@font-face,WOFF)

1. @font-face {
2.     font-family: 'MyFont';
3.     src: url(testfont.woff) format('woff');
4. }
  
5. div. sample {
6.     font-family: 'MyFont';
7. }

**SVG1.1**

# **SVG1.1: Basic Shapes and Filling**



# SVG1.1: Basic Shapes and Filling

1. 

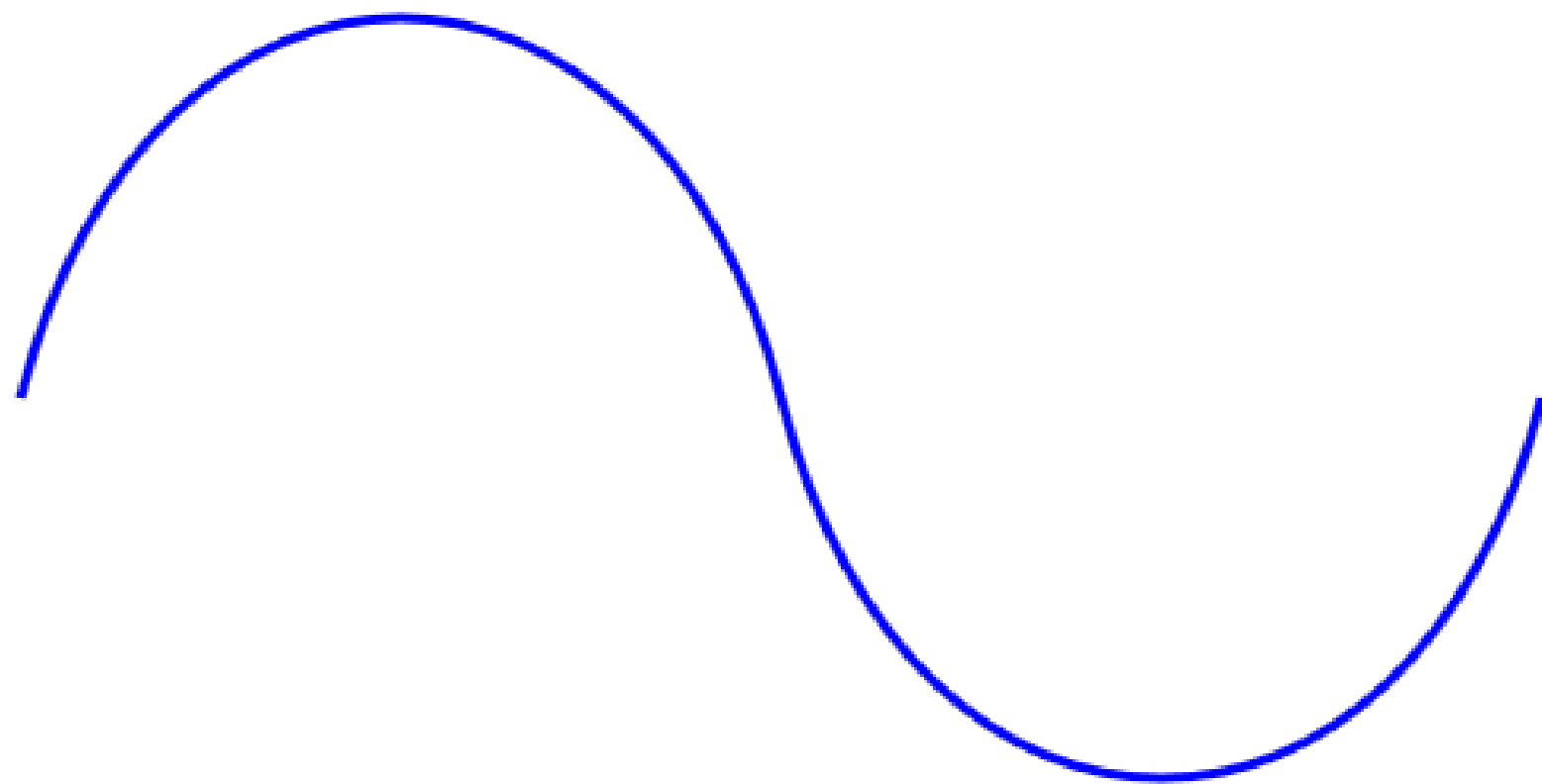
```
<svg xmlns="http://www.w3.org/2000/svg"
    width="500" height="500">
```
2. 

```
  <rect x="20" y="20"
    width="350" height="150"
    fill="#000" stroke="#f19" stroke-width="6"/>
```
3. 

```
  <circle cx="350" cy="150" r="100"
    fill="rgba(0, 150, 255, .5)"
    stroke="#09f" stroke-width="6"/>
```
4. 

```
</svg>
```

# **SVG1.1: Lines**

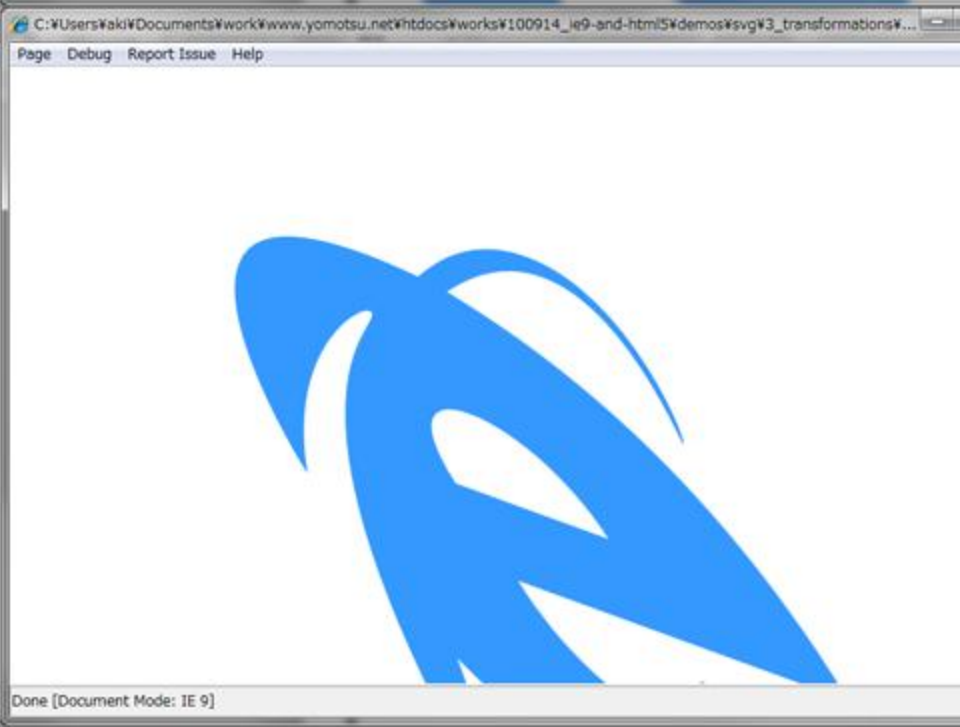
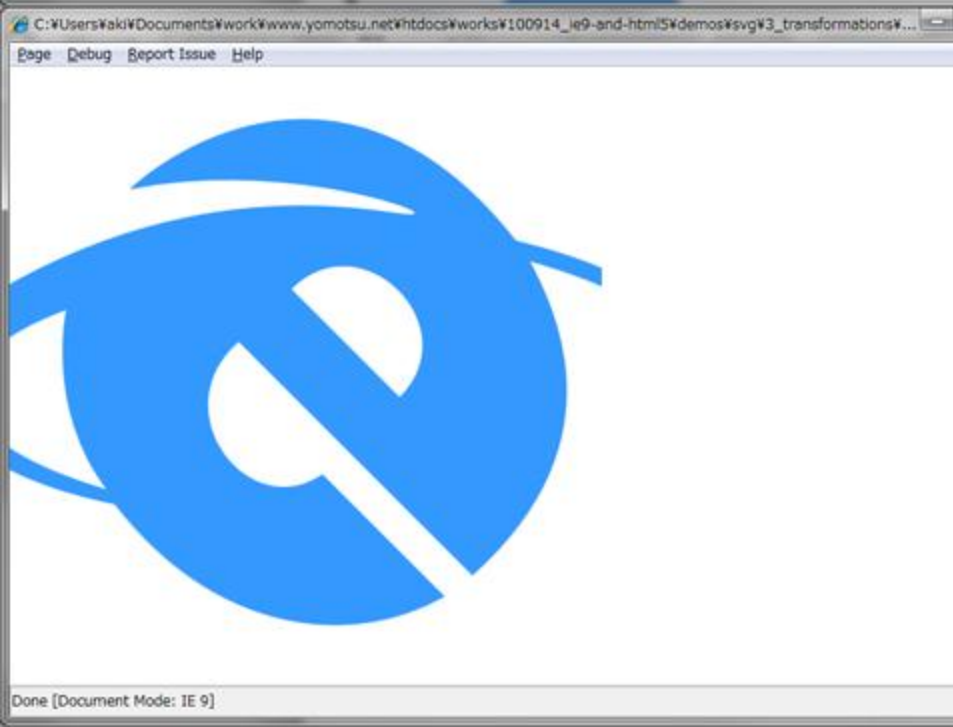
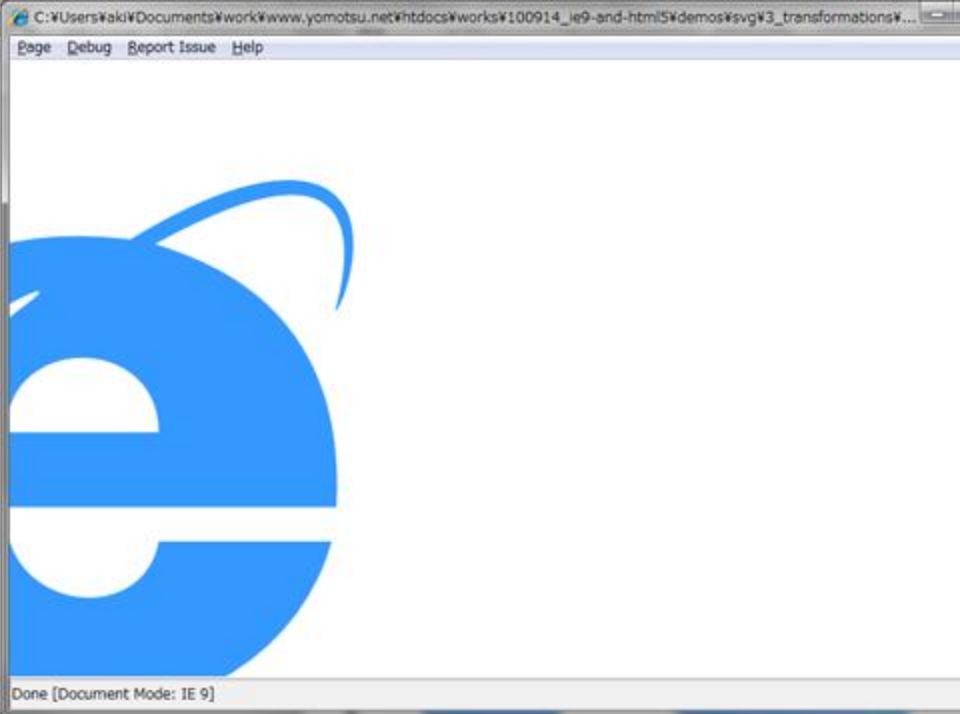




# SVG1.1: Basic Shapes and Filling

1. `<svg xmlns="http://www.w3.org/2000/svg" width="500" height="500">`
2. `<path d="M10, 160 C50, 0 210, 0 250, 160 S450, 320 490, 160" (snip...) />`
3. `</svg>`

# **SVG1.1: Transformations**



# SVG1.1: Transformations

- `<g transform="scale (0.3) ">`
- `<g transform="translate (-200, 100) ">`
- `<g transform="rotate (45 250, 250) ">`
- `<g transform="skewY (20) skewX (40) ">`

# SVG1.1: CSS

Notifications

Geo-location

Web Workers

Web Strage

Web Sockets

Drag & Drop

HTA

Notifications

Geo-location

Web Workers

Web Strage

Web Sockets

Drag & Drop

HTA

# SVG1.1:CSS

```
1. <defs>
2.   <style>
3.     #postit path {
4.       fill:#09f;
5.       stroke:#000;
6.       stroke-width:6px;
7.     }
8.   </style>
9. </defs>
```

# SVG1.1:CSS

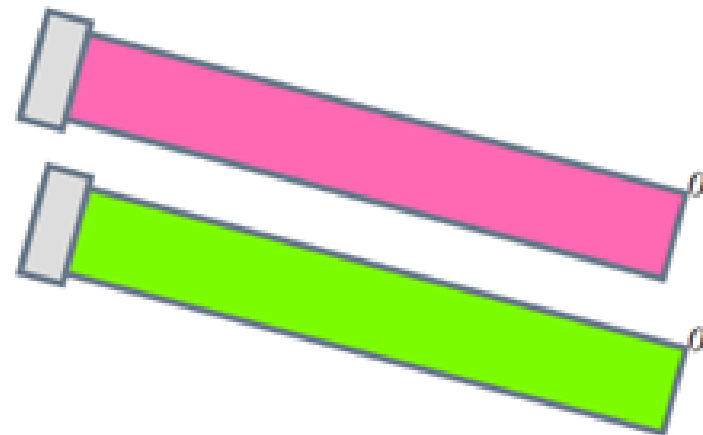
[demo](#)





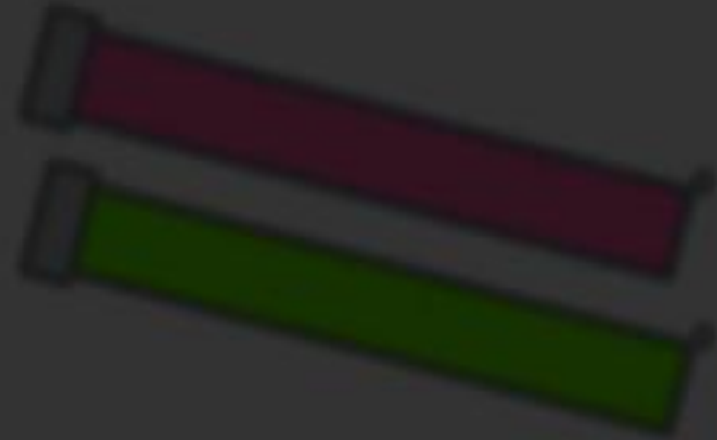
# **SVG1.1:** **Interactivity** (DOM + events)

# SVG demo



# SVG1.1: Interactivity

- demo



# IE6と疑似HTML5

# IE6とIE9

- ◎ IE6,7の存在は根強い
- ◎ すぐにはIE9へ移行しないだろう...

# IE6でHTML5を再現

- 疑似的にIE6の能力を引き上げる
  - JScript
  - VBScript
  - Behaviors (HTC)
  - CSS Filter
  - EOT (WebFonts)
  - VML
  - HTML+TIME
  - ActiveX
  - Flash



# HTML5 : <section>、<video>、<audio>...

- ◎ 一般の要素には「html5.js」

<http://remysharp.com/2009/01/07/html5-enabling-script/>

- ◎ 埋め込み系要素はいろいろ

(ここではhtml5media.jsを利用

<http://github.com/etianen/html5media>

現在うまくダウンロードできないがリソースは以下から確認可能 :

<http://static.etianen.com/html5media/html5media/> )

# video



# audio



# HTML5: <video>

## video

1. `<script src="html5media/html5media.js">  
</script>`
1. `<video controls="controls"  
width="640" height="360">`
2. `<source src="bunny.mp4">`
3. `<source src="bunny.webm">`
4. `</video>`

## audio

# HTML5:<audio>

## audio



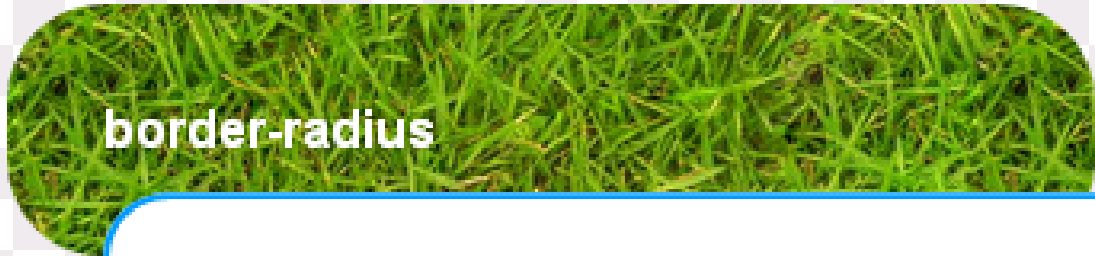
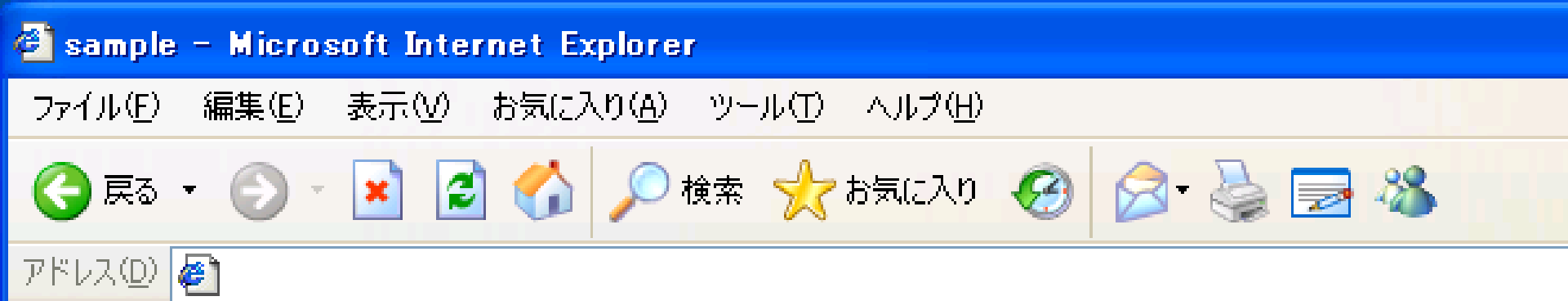
1. `<script src="html5media/html5media.js">  
</script>`

1. `<audio controls="controls">`
2. `<source src="audio.mp3">`
3. `<source src="audio.ogg">`
4. `</audio>`

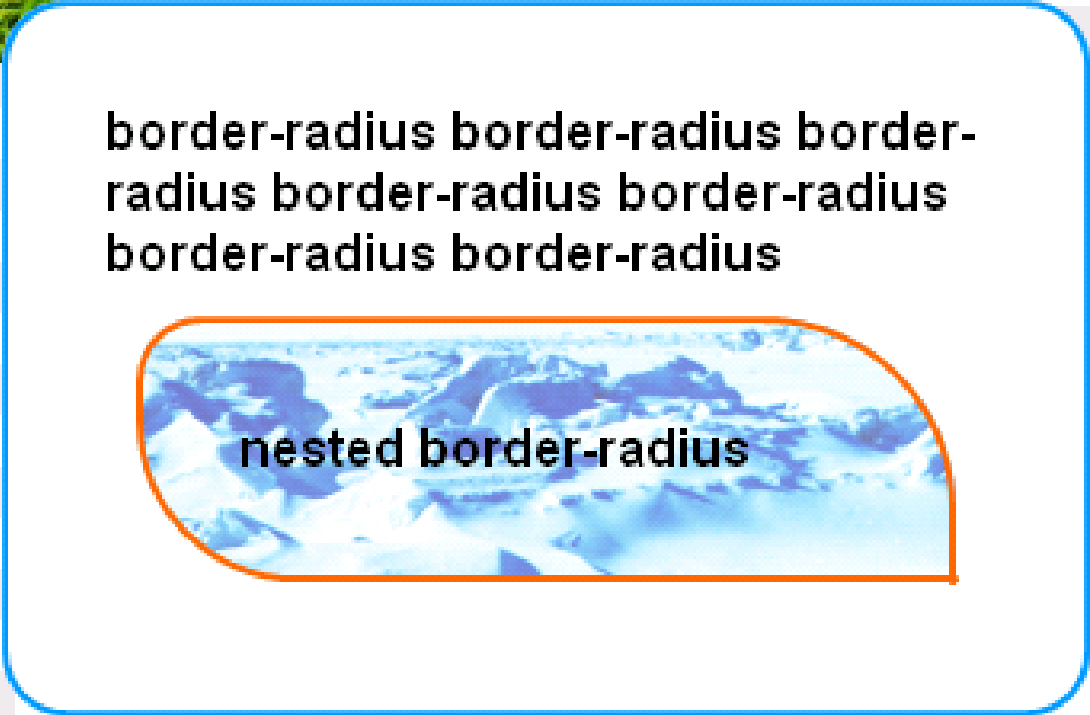
# CSS3 : border-radius, box-shadow...

◎ 「PIE」がおすすすめ

<http://css3pie.com/>



**border-radius**

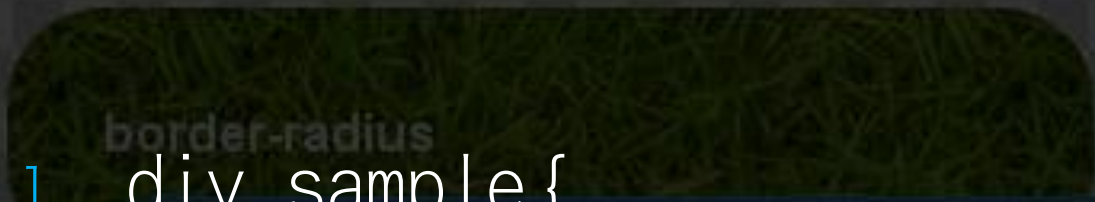


**border-radius border-radius border-radius border-radius border-radius border-radius border-radius border-radius**



**nested border-radius**

# CSS3



```

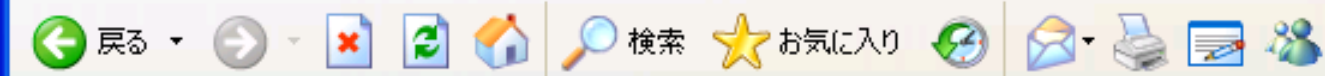
1. div.sample {
2.   border-radius: 30px;
3.   behavior: url(/css/PIE.htc);
4. }

```



# SVG1.1 : <path/>, <rect/>, <circle/>...

- ◎ 「SIE」 など (最良といえるライブラリはなし...今後に期待)  
<http://sie.sourceforge.jp/>



アドレス(D)



# SVG1.1

```
1. <!-- [if lt IE 9] >
2. <script src="sie.js"></script>
3. <script src="svghtml.js"></script>
4. <!-- [endif] -->
```

```
1. <body>
2. <svg width="500" height="500">
3.   <path d=" (snip) " />
4. </svg>
5. </body>
```



まとめ

# まとめ

- IE9は見た目に関する新対応が多い
- 見た目から始めてみよう！
- IE9基準でIE6～8をパワーアップさせる
- HTML5は機能面に注目されがちだが、デザイナーもデベロッパーも「見た目」の技術を抑えておこう！

# ちなみに

- 普段の仕事で  
安全なHTML5を利用しています。

ご清聴ありがとうございました

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