

# 網頁親和力

無障礙網頁開發規範 2.0：從現在到未來

Jedi, <http://Jedi.org/blog/>

[1]

1.0 → 2.0

《無障礙網頁開發規範》

1-1



取消A+等級？



取消A等級，A+改稱A

1-2



刪掉導盲磚？

渴上鳴火飲



左邊？右邊？

意義不明

# 智能障礙

# 亞思柏格症

# 閱讀障礙

長期認知不順遂



睡眠不足

宿醉

過勞

非母語

邊開車

暫時認知不順遂

VISION

HEARING



COGNITIVE



字符圖案、表情符號、其他挪用文字外型作為表意功能之語言形式等內容，需透過合適組件的標題屬性來提供替代文字，且其值不得為空字串或空白

XH1010103

提供字符圖案、表情符號、其他挪用文字外型作為表意功能之語言形式的替代文字，且其替代文字需有意義、可代替前述內容之目的與功能

EV1010104

除非鏈結的目的對整體使用者來說均不明確，否則就該能以獨立的鏈結文字，或以鏈結文字加上能以程式化判定的鏈結脈絡，來加以判定。

規範 8.4（檢測等級A）

具有連結目的之鏈結組件均需有鏈結文字，且其內容不得為空字串或空白；若此鏈結組件前後尚有其他內容，則亦需有標題屬性，且其值不得為空字串或空白

XH1080401

使用鏈結文字及  
前後的脈絡情境  
來指明鏈結目的

EV1080400

提供描述定位锚  
組件鏈結目的的  
鏈結文字

EV1080403

**任何具有連結目的之  
鏈結組件均需有鏈結  
文字及標題屬性，且  
鏈結文字之內容及標  
題屬性之值均不得為  
空字串或空白**

XH3080900

針對單獨存在的  
鏈結，提供描述  
鏈結目的的鏈結  
文字

EV3080900

針對單獨存在的鏈  
結，提供描述定位  
锚組件鏈結目的的  
鏈結文字

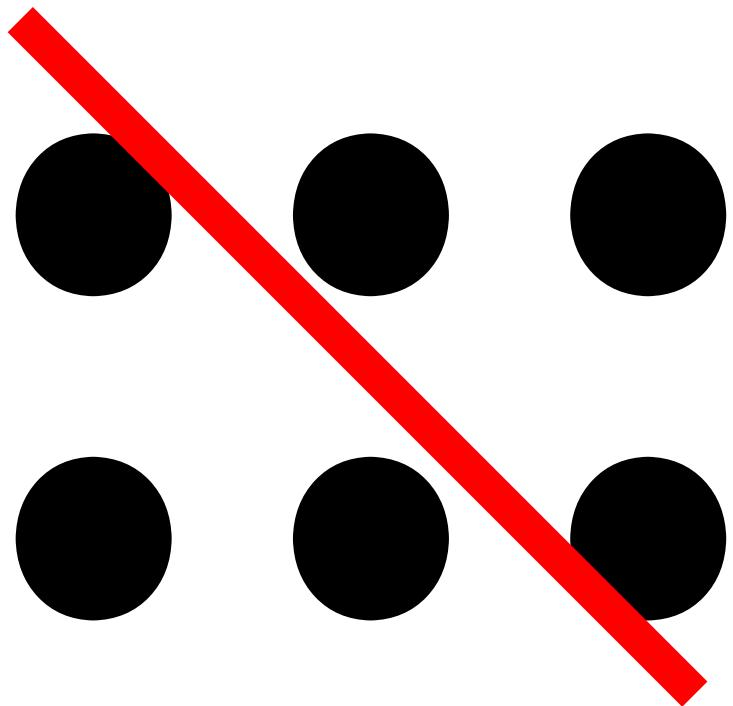
EV3080902

對於所有的使用者介面元件（包括但不限於表單組件、鏈結及由腳本所產生的組件）來說，其名稱及角色要能用程式化的方法判定；其能由使用者所設定的狀態、屬性、值，則要能用程式化的方式設定；而使用者代理，包括輔助科技，則要有這些項目變更的通知。

規範 12.2（檢測等級A）

依據規格使用表單控  
制元件組件及鏈結組  
件，完整提供各組件  
之角色、名稱、屬性、  
值

XH1120200



導覽不靠導盲磚

**b o d y**

mainly

header

mainly

header

mainy

footer

header

main aside

footer

header

aside

main

footer

header

aside

main

aside

footer

header

main

aside

footer

# HTML5

## 結構性標籤

<body>

<main>

**每頁只能有一個，  
不能放在其他區段內**

**<main>**

**<header>**

**<footer>**

**<aside>**

**頁首／區段抬頭**

**頁尾**

**側邊欄**

<nav>

導覽區

常放在<header>

# Landmarks Navigation

# 地標導覽

取代「跳過」連結

```
<header role="banner">
  <a href="#main">直達本頁內容</a>
  <nav role="navigation">...</nav>
</header>
<main id="main" role="main">...</main>
<aside id="aside" role="complementary">
  ...
</aside>
<footer id="footer" role="contentinfo">
  ...
</footer>
```

過渡時期

```
<header role="banner">
  <div id="skiptocontent">
    <a href="#main">直達本頁內容</a>
  </div>
  <nav role="navigation">...</nav>
</header>
<main id="main" role="main">...</main>
<aside id="aside" role="complementary">
  ...
</aside>
<footer id="footer" role="contentinfo">
  ...
</footer>
```

過渡時期，美化版

```
#skiptocontent a {  
    padding: 6px;  
    position: absolute;  
    top: -40px;  
    left: 0;  
    color: white;  
    border-right: 1px solid white;  
    border-bottom: 1px solid white;  
    border-bottom-right-radius: 8px;  
    background: transparent;  
    transition: top 1s ease-out, background 1s linear;  
    z-index: 100; }
```

```
#skiptocontent a:focus {  
    position: absolute;  
    top: 0;  
    left: 0;  
    background: brown;  
    outline: 0;  
    transition: top .1s ease-in, background .5s linear; }
```

過渡時期，美化版

**便捷鍵**

**accesskey=**

便捷鍵

**到處都可以用**

**accesskey=**

**accesskey="1 A"**

HTML5

**但是要注意**

accesskey=

一致姓

accesskey=

好 記 懷

accesskey=

# 不可重複

accesskey=

大小寫有別

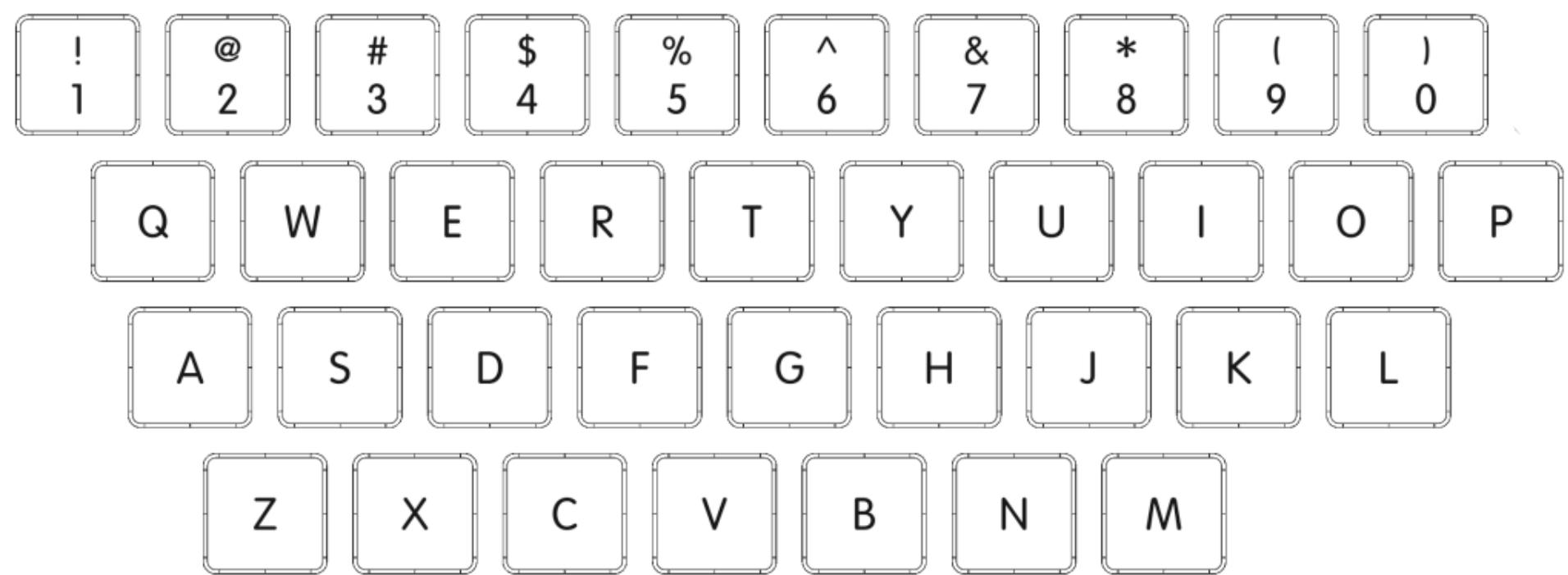
accesskey=

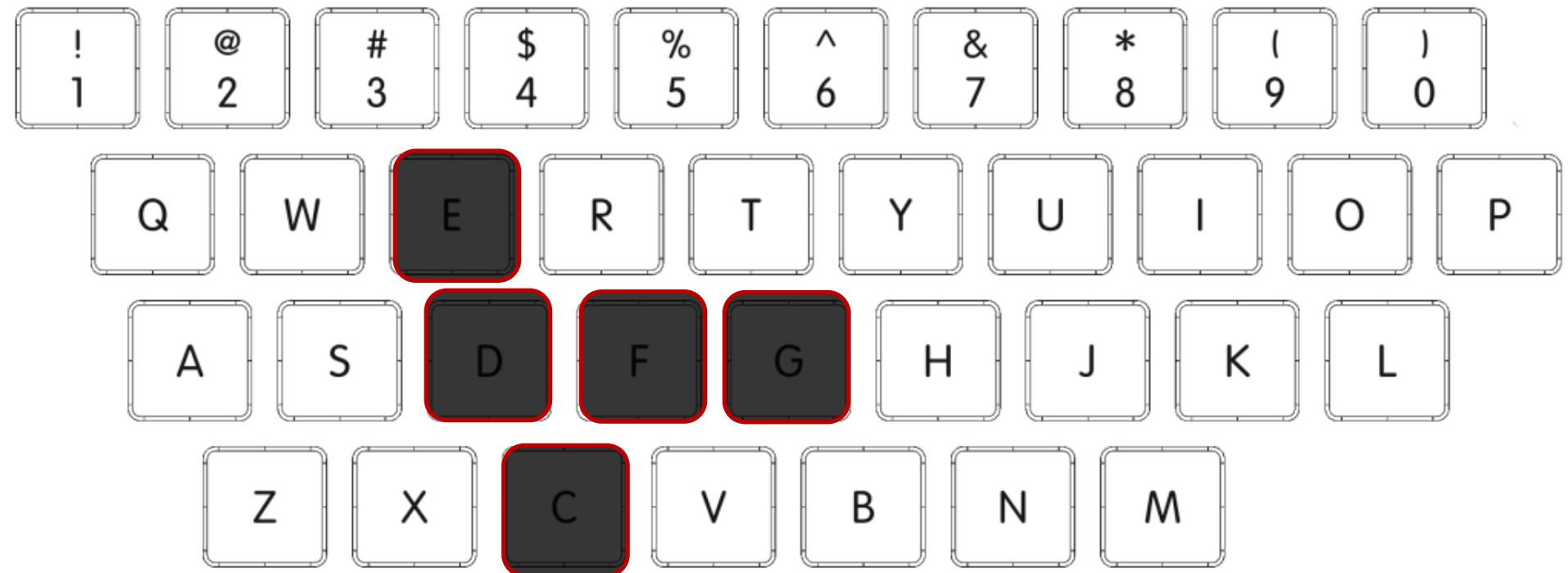
**accesskey="A a"**

HTML5

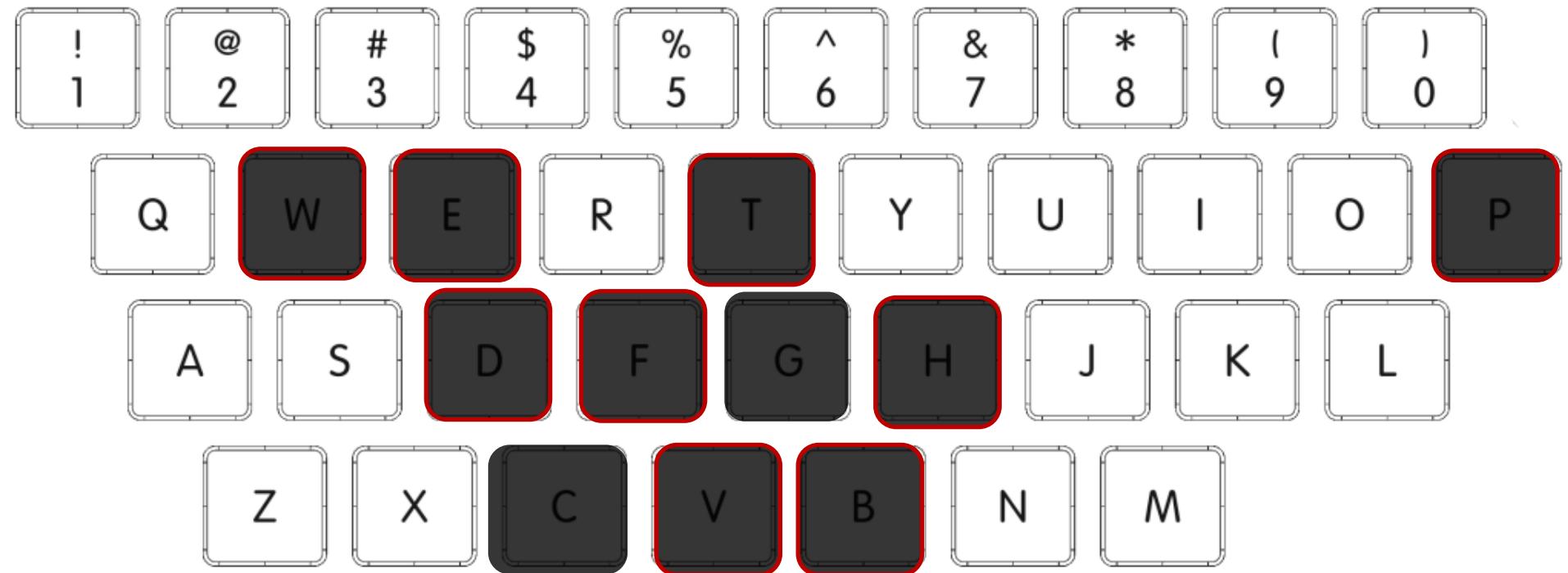
# 避免衝突

accesskey=

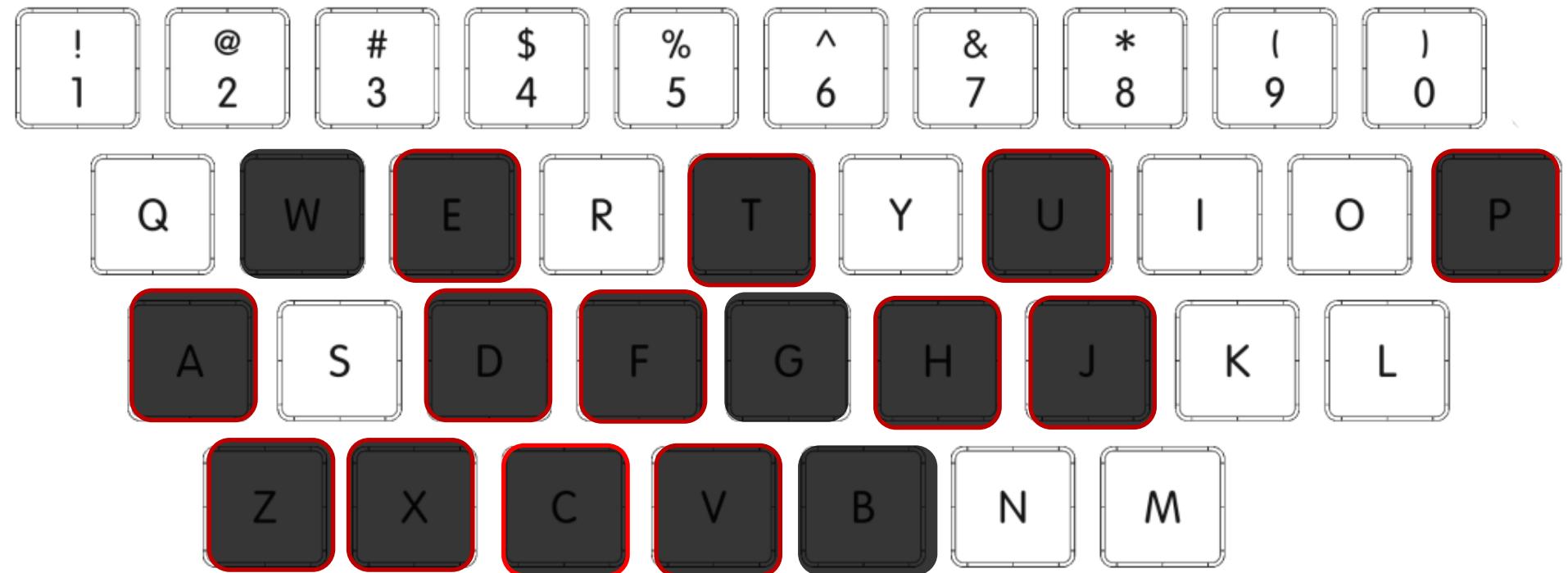




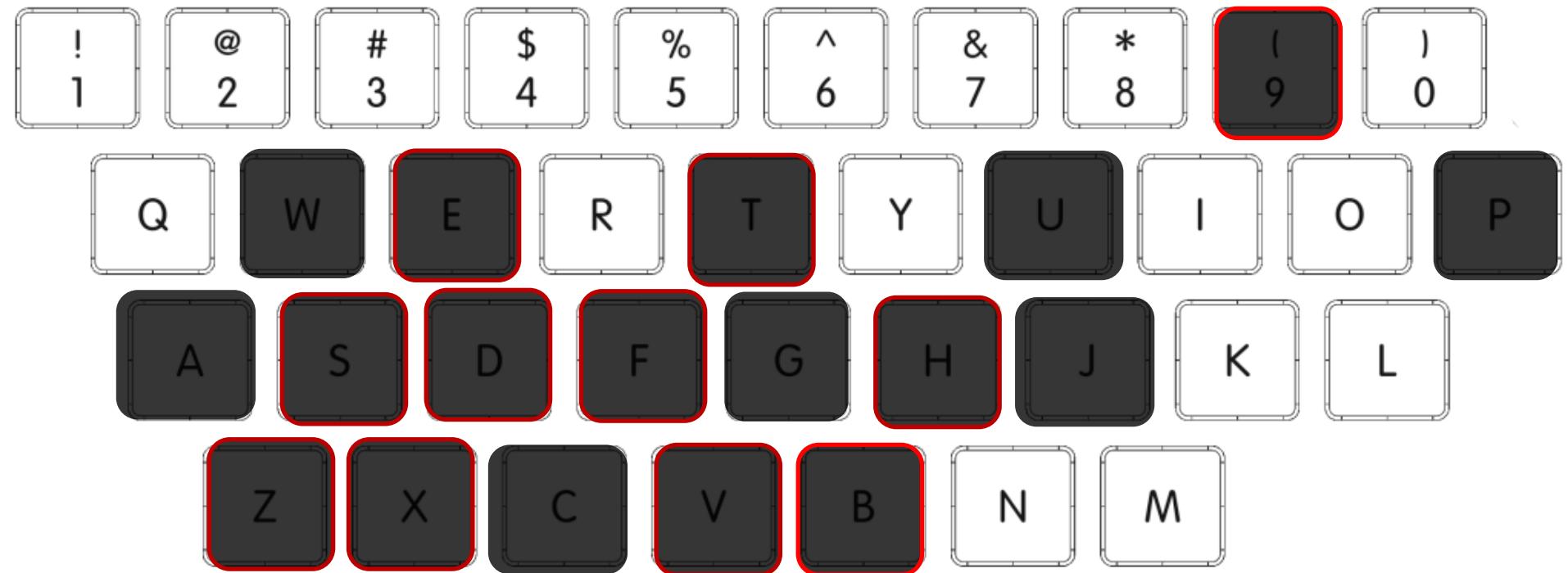
# Chrome



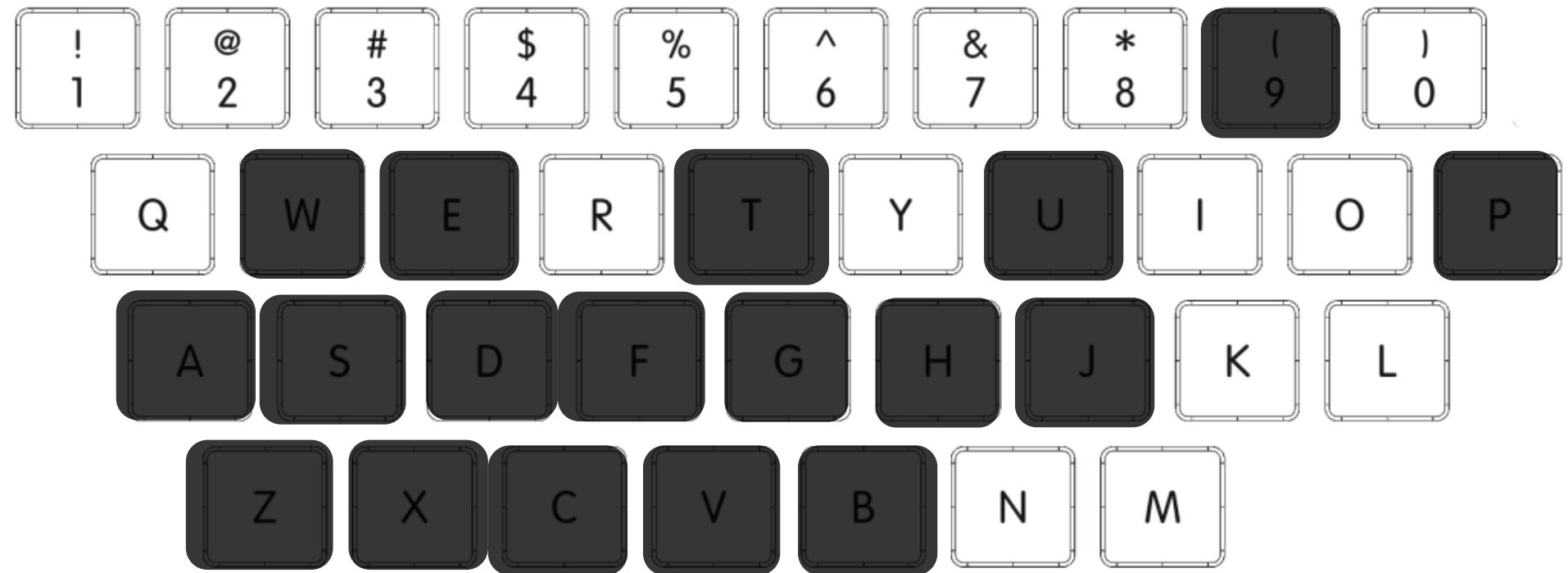
# Opera (Presto)



# Internet Explorer



# Firefox



<b>accesskey="1"</b>	回到網站首頁
<b>accesskey="2"</b>	跳到網頁主要內容
<b>accesskey="3"</b>	網站導覽區
<b>accesskey="4"</b>	網站搜尋功能輸入框
<b>accesskey="5"</b>	跳到側邊欄
<b>accesskey="0"</b>	跳到頁尾或者 內容作者／授權資訊

建議

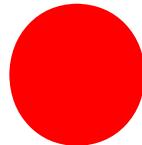
```
<header role="banner">
  <div id="skiptocontent">
    <a href="#main">直達本頁內容</a>
  </div>
  <nav role="navigation" accesskey="3">...</nav>
</header>
<main id="main" role="main"
  accesskey="2">...</main>
<aside id="aside" role="complementary"
  accesskey="5">...</aside>
<footer id="footer" role="contentinfo"
  accesskey="0">...</footer>
```

過渡時期，加上便捷鍵

```
<header role="banner">
  <div id="skiptocontent">
    <a href="#main">直達本頁內容</a>
  </div>
  <h2><a href="/" title="返回首頁" accesskey="1">網站大標題</a></h2>
  <nav role="navigation" accesskey="3">
    <h2>導覽選單</h2>
    ...
  </nav>
</header>
<main id="main" role="main" accesskey="2">
  <h1>主要內容標題</h1>
  ...
</main>
<aside id="aside" role="complementary" accesskey="5">
  <h2>相關資訊</h2>
  ...
</aside>
<footer id="footer" role="contentinfo" accesskey="0">
  <h2>關於本頁內容</h2>
  ...
</footer>
```

過渡時期，再加層次標題

<noscript>



JavaScript ?

**HTML5**

—

**API**

—

**JavaScript**

# 裝置獨立事件

**onFocus, onBlur, onSelect, onChange, onSubmit**

Event Handlers

**onMouseOver** 搭配 **onFocus**

**onMouseOut** 搭配 **onBlur**

**onClick** 搭配 **onKeyPress**

Event Handlers

**document.write**  
通常是可以用的

Dynamic Content

**document.write**  
**避免搭上 onFocus**

Dynamic Content

**document.write**  
**最好由使用者操作產生**

Dynamic Content

**document.write**  
可能搭配 **focus()**

Dynamic Content

# 動態選單

## 改用 CSS 來實現

`a:hover, a:focus { ... }`

Dynamic Content

# <noscript>

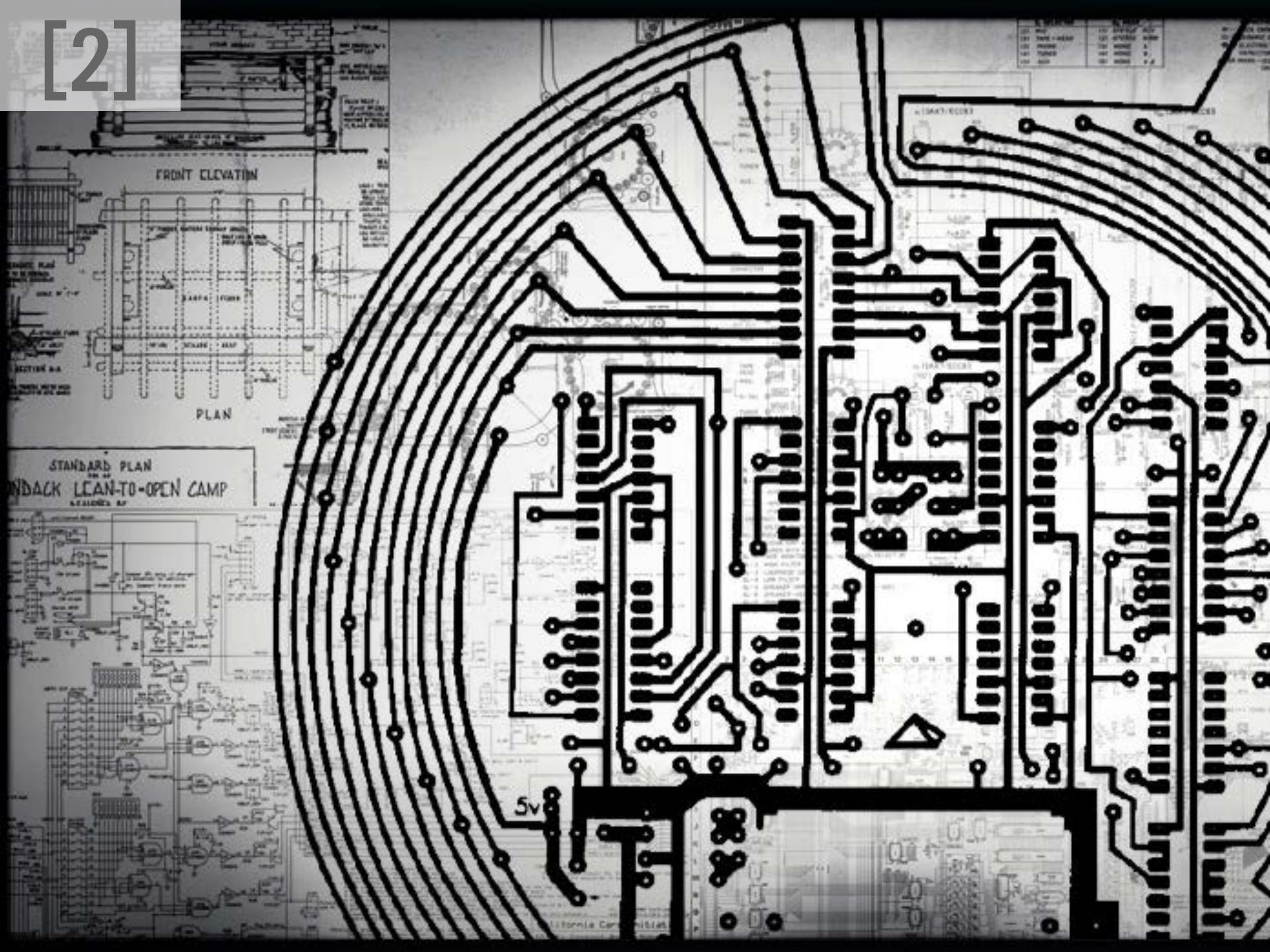
妥協互動性，但是要提供完整內容跟功能性

## Dynamic Content

<script>

增添親和力，減少障礙

[2]



2-1

Can I use \_\_\_\_\_ ?  Settings

<http://caniuse.com/>

**CSS, HTML5,  
JavaScript API,  
SVG, Others**

# Usage Data

## Geography/Global/Own

# Known Issues, Resources

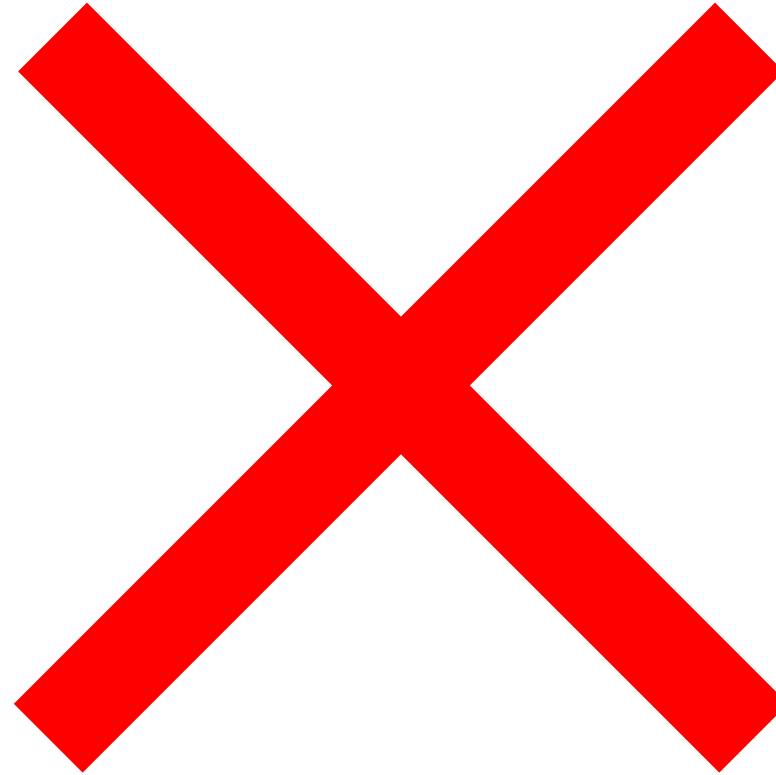
Partial Support, Reference, Demo, Article, Tool, Polyfill



Can I use

? Settings

**-ms-**  
**mso-**  
**-moz-**  
**-o-**  
**-xv-**  
**-atsc-**  
**-wap-**  
**-khtml-**  
**-webkit-**  
**prince-**  
**-ah-**  
**-hp-**  
**-ro-**  
**-rim-**  
**-tc-**



# CSS Vendor Prefix

```
<script src="https://rawgithub.com/ai/  
autoprefixer-rails/master/vendor/  
autoprefixer.js"></script>
```

<https://github.com/postcss/autoprefixer>

2-2



*Web page address...*



Powered by WebAIM

<http://wave.webaim.org/>



# WAVE Evaluation Tool

提供者：WebAIM

★★★★★ (46)

協助工具

43,479 位使用者

已加到 CHROME



總覽

評論

支援

相關項目

G+1

52

The screenshot shows the WAVE Evaluation Tool interface on the left, displaying a sidebar with various accessibility issues categorized into Errors, Alerts, Features, and Structural Elements. The main area shows the Utah State University website with several icons overlaid, indicating specific accessibility findings such as missing alt text for images, multiple form labels, and redundant links.



與您的裝置相容

Evaluate web accessibility within the Chrome browser.

WAVE is a web accessibility evaluation tool developed by WebAIM.org. It provides visual feedback about the accessibility of your web content by injecting icons and indicators into your page. No automated tool can tell you if your page is accessible, but WAVE facilitates human evaluation and educates about accessibility issues. All analysis is done entirely within the Chrome browser allowing secure valuation of intranet, local, password protected, and other sensitive web pages.

## ! 檢舉濫用情形

## 其他資訊

版本 : 1.0.1

更新日期 : 2016年3月21日

大小 : 423KB

語言 : English (United States)

# Google Chrome Extension

[Styles](#) [No Styles](#) [Contrast](#)

## Summary

WAVE has detected the following:

- 14 Errors
- 72 Alerts
- 6 Features
- 81 Structural Elements
- 0 HTML5 and ARIA
- 251 Contrast Errors

## Panel Options

DETAILS: A listing of all the WAVE icons in your page.

DOCUMENTATION: Explanation of the WAVE icons and how you can make your page more accessible.

OUTLINE: The heading structure of the web page.

The following apply to the entire page:

**h1**

交通部中央氣象局  
Central Weather Bureau

生活氣象 預報 觀測 防災氣象 English 兒童網 地圖 常見 意見箱 多語翻譯 關於氣象局 便民 音音

雲和雨

颱風消息  
天氣警特報

生活氣象  
生活好朋友  
生活氣象  
空樂氣象  
打卡報天氣

預報  
天氣預報  
預約氣象  
漁業氣象  
藍色公路  
國際都市  
分析及預測圖  
長期預報  
數值預報  
預報主任談天氣  
風場預報顯示圖

觀測  
目前天氣

日期 22 23 24 25 26 27 28  
時間 06 18 06 18 06 18 06 18 06 18 06 18

連江縣  
金門縣  
澎湖縣  
東沙  
南沙太平島

發布時間: 08/22 05:00  
08/22 06:00 ~ 08/22 18:00

\*Back\*Stop\*Play\* \*Next\*

最近地震

| 臺灣時間        | 規模  | 深度(公里) | 編號  | 位置                        |
|-------------|-----|--------|-----|---------------------------|
| 08/20 16:56 | 3.7 | 6.8    | 小區號 | 嘉義市政府東南方 45.8 公里 (位於高雄市桃源 |

```
<li>
<form target="_blank" method="post" action="/V7/search/search.php">
<input name="query" id="myquery" type="text" style="text-align:left;" autocomplete="off">
<div class="jsonSuggestResults" style="top: 26px; left: 0px; width: 150px; display: none;">
<input type="submit" class="SearchBtn" value="搜尋" name="送出">
<a class="searchAdvance" target="_blank" href="http://www.cwb.gov.tw/cgi-bin/search/qpage.cgi?act=adv&uillang=cht">
    進階
</a>
</form>
</li>
</ul>
<!-- SearchArea-->
```

天氣小幫手  
天氣週報  
雲圖與天氣  
今日常識推薦

熱門話題

什麼是「地震預測」?   
颱風的形容詞知多少?  
新雨量分級Q&A  
生活氣象APP   
兩岸兩會第10次高層會議地點監測合作與氣象合作  
「海峽兩岸地震監測合作協議」及「海峽兩岸氣象  
合作協議」即日生效實施

影音專區

你今天  
了沒?  
雨滴是圓  
的圓的



Styles

No Styles

Contrast

## Summary

WAVE has detected the following:

 **14 Errors**

 **72 Alerts**

 **6 Features**

 **81 Structural Elements**

 **0 HTML5 and ARIA**

 **251 Contrast Errors**

### Panel Options

 **DETAILS:** A listing of all the WAVE icons in your page.

 **DOCUMENTATION:** Explanation of the WAVE icons and how you can make your page more accessible.

 **OUTLINE:** The heading structure of the web page.



Styles

No Styles

Contrast

## Details

Filter: Full ▾

### Errors (14)

1 X Missing alternative text



10 X Linked image missing alternative text



2 X Missing form label



1 X Document language missing



### Alerts (72)

1 X Missing first level heading

[Styles](#)[No Styles](#)[Contrast](#)

## Documentation

### Errors

#### Missing form label

#### What It Means

A form control does not have a corresponding label.

#### Why It Matters

If a form control does not have a properly associated text label, the function or purpose of that form control may not be presented to screen reader users. Form labels also provide visible descriptions and larger clickable targets for form controls.

#### How to Fix It

If a text label for a form control is visible, use the `<label>` element to associate it with its respective form control. If there is no visible label, either provide an associated label, add a descriptive title attribute to the form control, or reference the label(s) using `aria-labelledby`. Labels are not required for image, submit, reset, button, or hidden form controls.

The Algorithm... in English

[Styles](#)[No Styles](#)[Contrast](#)

## Outline

-  **h3** 生活氣象
-  **h3** 預報
-  **h3** 觀測
-  **h3** 防災氣象
-  **h3** 氣候
-  **h3** 地震
-  **h3** 天文
-  **h3** 常識
-  **h3** 關於氣象局
-  **h3** 便民
-  **h3** 影音

[Styles](#)[No Styles](#)[Contrast](#)

## Details

### Contrast Errors (251)

251 X Very Low Contrast 





# WAVE

web accessibility evaluation tool

[Styles](#) [No Styles](#) [Contrast](#)



Does not account for background images, gradients, etc. Ensure fall-back contrast is defined in case images or CSS3 do not display.

## Contrast Tools

Foreground color:

#ff0000



[lighter](#) | [darker](#)

Background color:

#c8def8



[lighter](#) | [darker](#)

Contrast Ratio: 2.9:1

Normal Text: Sample

AA: Fail

AAA: Fail

Large Text: Sample

AA: Fail

AAA: Fail

[Desaturate page](#)

防災氣象

- ▶ 天氣警特報
- ▶ 地震報告
- ▶ 降雨監測系統
- ▶ 颱風消息
- ▶ 歷史颱風
- ▶ 颱風資料庫
- ▶ 颱風暴潮預報
- ▶ 海象暴潮監測
- ▶ 海嘯資訊
- ▶ 防災專區

08/15 23:44 4.0 10.5 小區域

城

宜蘭縣  
31.9  
臺灣東

## ABC 討論話題

量的觀測

臺灣分區雨量氣候特徵

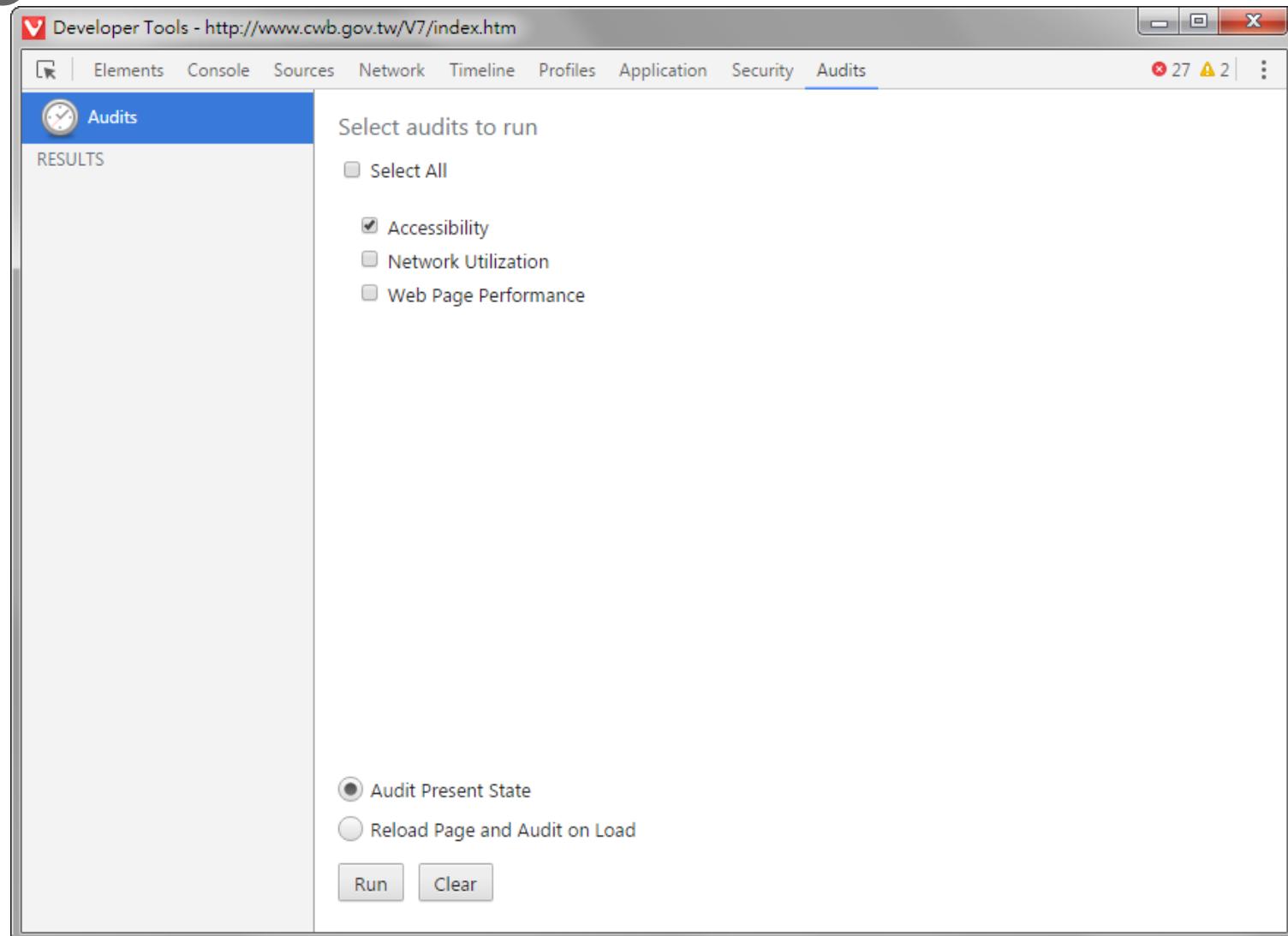
氣象預報？媒體播報？

兩岸地震監測及氣象合作面面

估算颱風強度方法

```
<li>
  <a href="/V7/prevent/typhoon/ty.htm?">
    ABC<font id="TYNEWS" style="color:red;font-weight:bold">
      颱風消息
    </font>
  </a>
</li>
<script>
  Decide_Color_TYNEW('TYNEWS');
</script>
<li>
  <a href="http://rdc28.cwb.gov.tw/TDB/ntdb/pageContr">
```

# 2-3



# Google Chrome Developer Tools (F12)

Developer Tools - http://www.cwb.gov.tw/V7/index.htm

Elements Console Sources Network Timeline Profiles Application Security Audits

RESULTS

http://www.cwb.gov.tw/V7/i

Audits

Accessibility

▼ [Severe] An element's ID must be unique in the DOM (24)  
See AX\_HTML\_02 for more information.

- <div id="weather">...</div>
- <div id="box5" class="BoxContent">...</div>
- <div id="box5" class="MyBoxContent">...</div>
- <div id="newtabs-1" class="ui-tabs-panel ui-widget-content ui-corner-bottom">...</div>
- <div id="newtabs-1">...</div>
- <div id="newtabs-2" class="ui-tabs-panel ui-widget-content ui-corner-bottom ui-tabs-hide">...</div>
- <div id="newtabs-2">...</div>
- <div id="newtabs-3" class="ui-tabs-panel ui-widget-content ui-corner-bottom ui-tabs-hide">...</div>
- <div id="newtabs-3">...</div>
- <div id="Footer">...</div>
- <div id="Footer">...</div>

► [Severe] Controls and media elements should have labels (1)

► [Warning] Images should have a text alternative or presentational role (9)

► [Warning] Meaningful images should not be used in element backgrounds (5)

► [Warning] Text elements should have a reasonable contrast ratio (100+)

► [Warning] The purpose of each link should be clear from the link text (100+)

► [Warning] The web page should have the content's human language indicated in the markup (2)

► [Warning] These elements are focusable but either invisible or obscured by another element (59)

# Chrome / Vivaldi / Opera

# The Paciello Group's



# Web Accessibility Toolbar for IE

<https://www.pacielligroup.com/resources/wat/>

- HTML Validation quick check
  - W3C Nu Markup Checker (all frames)
  - W3C Nu Markup Checker (main page only)
  - Filter Nu Validator Results
- 
- W3C HTML Validator
  - W3C CSS Validator
  - W3C Link Checker
- 
- Functional Accessibility Evaluator
- 
- The Wave
- 
- Juicy Studio Readability Test
- 
- Tenon

- Toggle Image
  - Toggle Javascript
  - Toggle ActiveX
  - Toggle CSS
- 
- Text Size
- 
- Internet Options Dialog
  - Internet Explorer Accessibility Options
  - Windows Accessibility Options

# **手動稽核檢查：**

# **CSS, Images, Structure, Tables, Frames, Document Information**

The screenshot displays the Juicy Studio interface with several floating toolbars and a large watermark in the center.

**Top Bar:**

- Check
- CSS
- Images
- Colour
- Structure
- Tables
- Frames
- Doc Info.
- IE
- Dev
- aViewer
- Refs
- Browsers

**Left Sidebar:**

- List Images
- Remove Images
- Remove CSS Images
- Show Images
- Show Image Maps [new window]
- Active Images
- Larger Images

**Center Context Menu (Large Box):**

- Headings
- Heading Structure
- Heading Count
- List Items
- Fieldset / Labels
- Acronyms / Abbreviations
- Q / Blockquote
- Paragraphs
- Section Elements
- ARIA Landmark Roles
- Access Keys
- Tab Order Indicator
- Show Other Element(s)
- Show Elements with ARIA Attributes
- Visually Show Focus

**Center Context Menu (Small Box):**

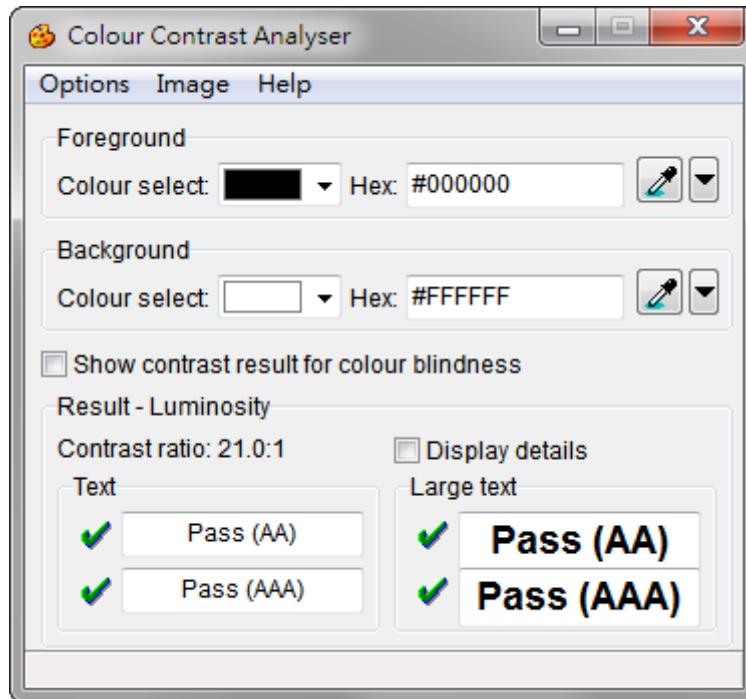
- Juicy Studio Table Inspector
- Table Headers
- Show Data Tables
- Table Borders
- Table Cell Order
- Data Table Count
- Linearize

**Right Context Menu (Large Box):**

- Navigate to Framed Documents
- Frame Borders
- Frame Name / Title
- Page Information [new window]
- Metadata Information [new window]
- Show Lang Attributes
- Show Titles
- Skip Links
- List Links [new window]
- JavaScript / New Window Links
- List Downloadable Files [new window]
- View Partial Source
- DOM Viewer

**Red Arrows:**

- A red arrow points from the "Frames" button in the top bar to the "Frame Name / Title" item in the right context menu.
- A red arrow points from the "Tables" button in the top bar to the "Tables" item in the center context menu.
- A red arrow points from the "Structure" button in the top bar to the "Structure" item in the center context menu.
- A red arrow points from the "CSS" button in the top bar to the "CSS" item in the left sidebar.
- A red arrow points from the "Check" button in the top bar to the "Check" item in the left sidebar.



Contrast Analyser [application]  
Juicy Studio Luminosity Analyser [new window]

[Icons] Check | CSS | Images | Colour | Structure | Tables | Frames | Doc Info. | IE | Dev | aViewer | Refs | Browsers

# Colour Contrast Analyser

08/10

本局105年天氣分析與預報研討會議程大綱\_

Screen convert



Simulation

Protnopia



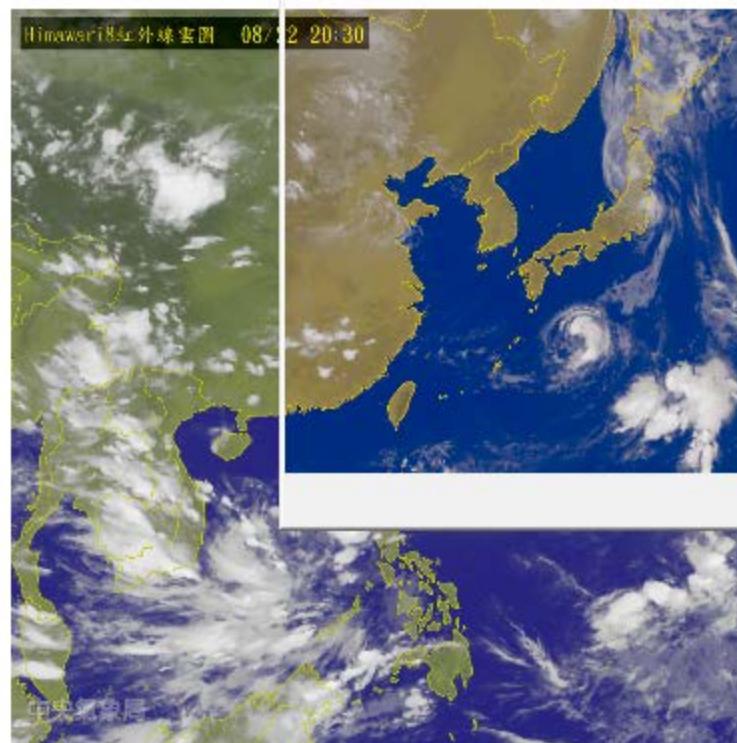
衛星

雨量

雷達

溫度

紫外線



"M" key is window move mode. The window can be moved by pushing the arrow key.

# Colour Contrast Analyser

Accessibility Viewer

View

Interface Value

MSAA	accState accDescription accDefaultAction accValue accParent	可設定焦點，已連結 跳到 javascript:StepBck() 前一張預報地圖
ARIA	Role Attributes	(none) (none)
HTML	Element name Attributes style alt src width height	IMG Back http://www.cwb.gov.tw/V7/images/icon/back.gif 22 20
UIAutomation	CurrentAriaRole CurrentHasKeyboardFocus CurrentNativeWindowHandle CurrentOrientation	(none) False 0 None

Code(outerHTML):  




# Accessibility Viewer

# 自動化 検測方案

# Quail

<http://quailjs.org/>



# jQuery plugin

# aXe

<http://www.deque.com/products/axe/>



Node.js ; Chrome/Firefox Extension

# Pa11y

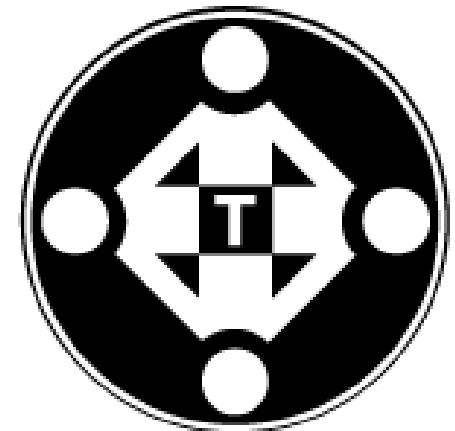
<http://pa11y.org/>



Node.js + PhantomJS + MongoDB ;  
Dashboard + WebService + CommandLine

# PayPal AATT

<http://github.com/paypal/AATT/>



# Node.js



asqatasun

<http://asqatasun.org/>

Docker + Selenium

2-6

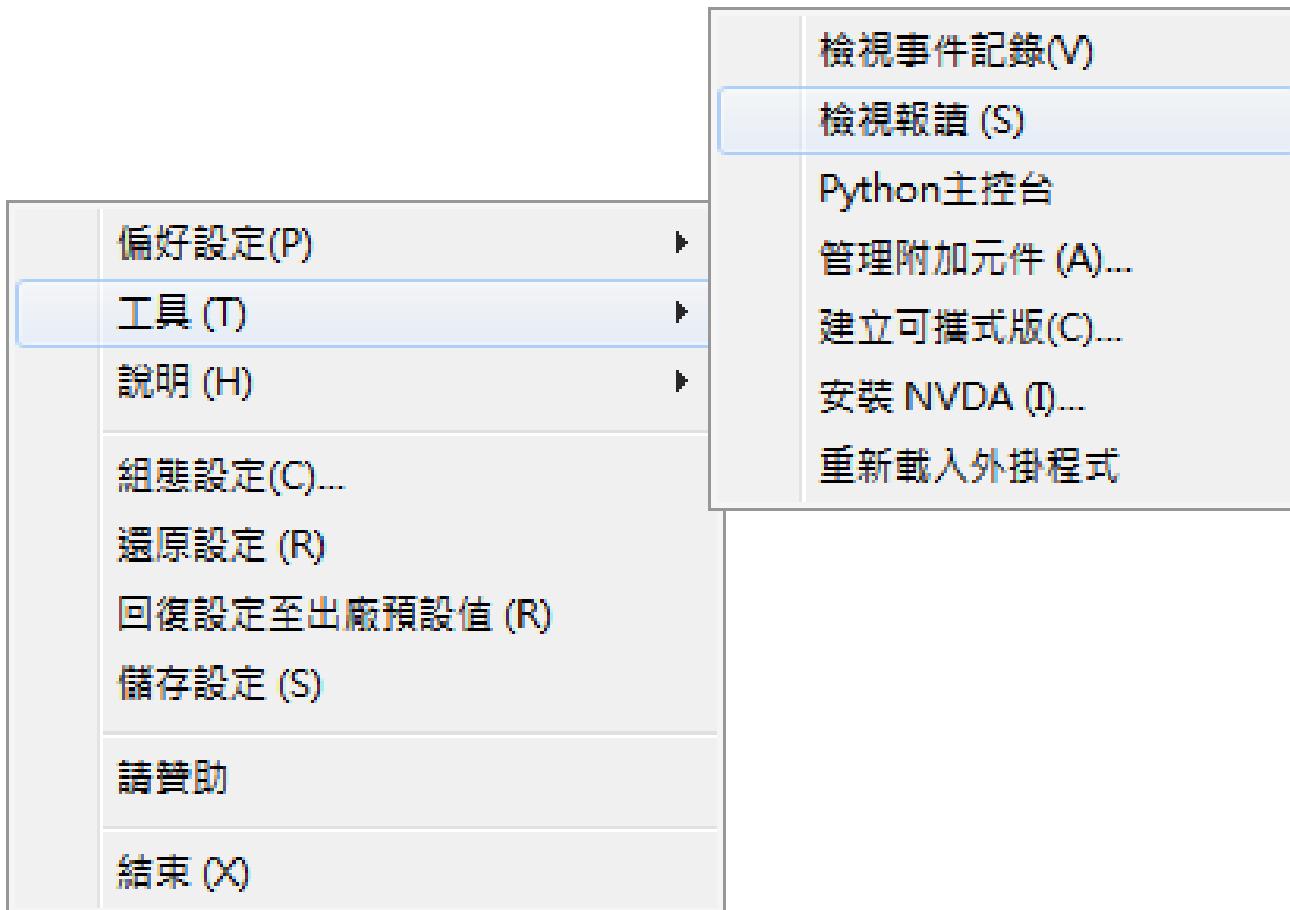
幸 反 読 曹 欠 骨 曲  
報 聽 賣 車 欠 肩 豆



Nvaccess

<http://www.nvaccess.org/>

NVDA

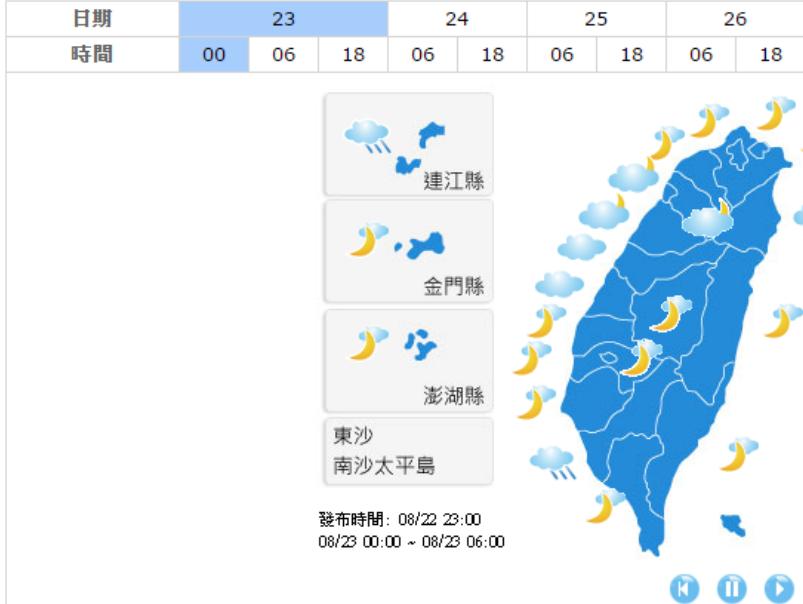


# NVDA



# 聖嬰現象

暖



## NVDA檢視報讀

新北市  
連結 新北市 晴時多雲  
中央氣象局  
到訪過 連結  
清單  
編輯區  
空航  
清單 有1個項目  
可點擊  
搜尋  
按鈕  
進階  
連結  
離開清單  
清單 有4個項目  
可點擊  
R  
連結 RSS服務  
可點擊  
F  
連結 Facebook服務  
可點擊  
P  
到訪過 連結 行動版網頁服務

## 最近地震

臺灣時間	規模	深度 (公里)	編號	位
08/23 00:05	3.4	30.0	小區域	<small>NEW</small> 花蓮縣政府南方 15.8 公里 (位於花蓮縣近海)

# NVDA

[3]

字要好看

3-1

# 網頁自訂字型 WebFont

css

@font-face

網頁自訂字型

```
@font-face {  
    font-family: NSCJK;  
    src: url("path/to/NotoSansCJK.otf");  
}
```

```
@font-face {  
    font-family: NSCJK;  
    src: url("path/to/NotoSansCJK.otf");  
}  
  
*[lang^="zh"] {  
    font-family: NSCJK;  
}
```

# Can I use

# web font



Settings

1 result found

## @font-face Web fonts - CR

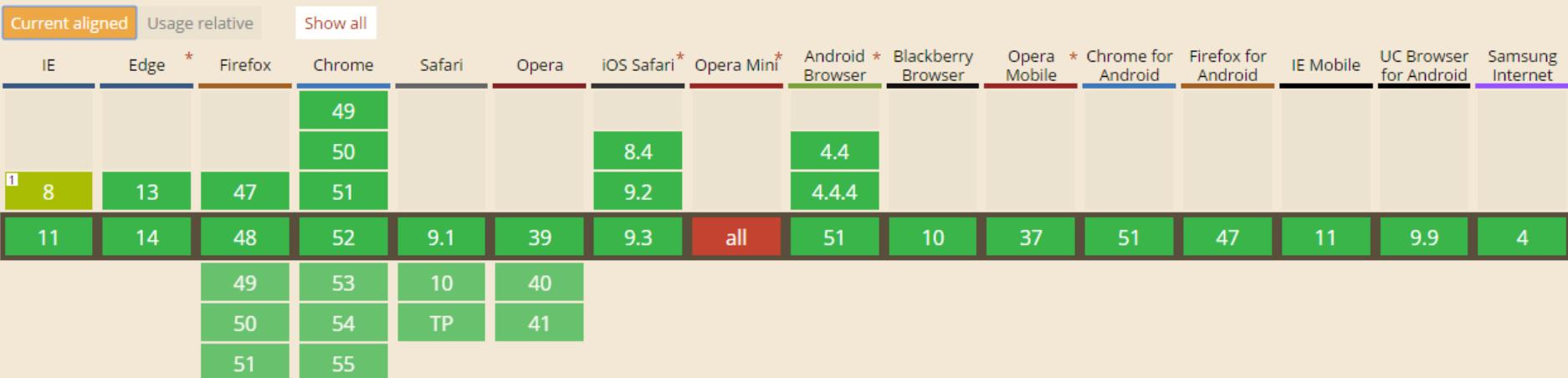
Taiwan

97.49% + 1.51% = 99.01%

Global

91.94% + 0.71% = 92.66%

Method of displaying fonts downloaded from websites

[Notes](#)[Sub-features \(5\)](#)[Known issues \(2\)](#)[Resources \(5\)](#)[Feedback](#)

- Android 2.2 - 3.0 are reported not to support `local()` value
- IE, Firefox and later Chrome versions implement the same origin policy, so any font library served on a different domain from the page will not be downloaded unless using CORS.

<http://caniuse.com/#feat=fontface>

	IE	Chrome	Firefox	Safari	Opera
TTF/OTF	△	○	○	○	○
WOFF	○	○	○	○	○
WOFF2	✗	○	△	✗	○
SVG	✗	○	✗	○	○
EOT	○	✗	✗	✗	✗

字型格式支援

# 字型授權

困難

**中文字型檔案尺寸很大**

**困難**

# Dynamic Subsetting

解決問題的辦法



iFontCloud  
雲端字型服務平台

創・造・無・限

文鼎 iFontCloud

<http://www.ifontcloud.com/index/webFont.jsp>



華康 DynaFont Online  
<http://dfo.dynacw.com.tw/>

DynaFont Online  
華康威font



就是字 justfont

<http://www.justfont.com/>

3-2

# 文字排版

漢字標準格式

<https://css.hanzi.co/>



豐

,

丰

àéi

豐

ㄩㄩㄍㄕㄕ  
나忸우ㅑ

驛

.

駅

東京晴空塔原文「東

京スカイツリー」，英

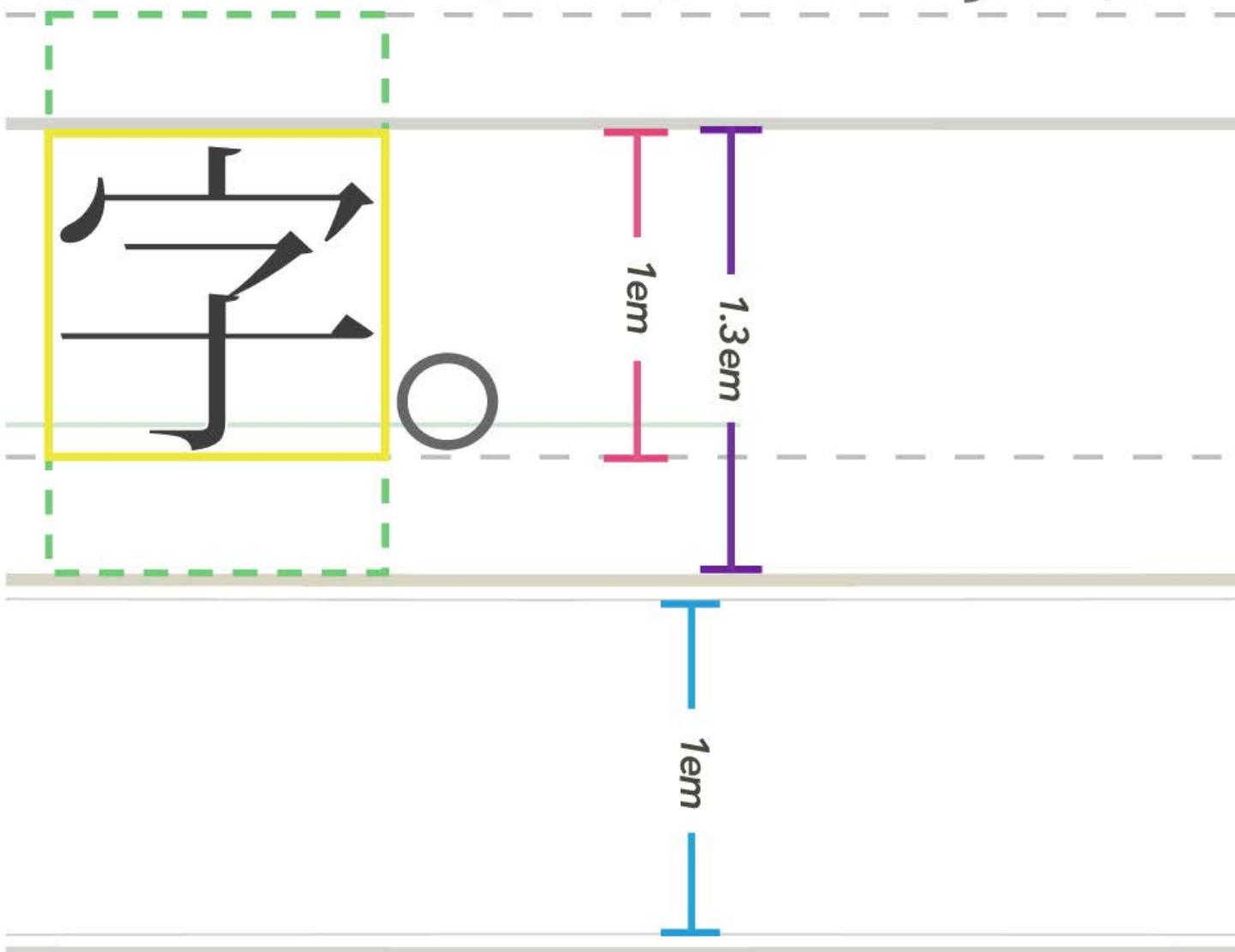
譯作 *Tokyo Skytree*。

這是棟座落於日本東

京都墨田區的電波塔，

當前為「世界第二高」

的人工構造物。



垂直的



親和力



歷代書體

親和力

親 ㄑㄧㄣ 和 ㄏㄝ 力 ㄌㄧˋ

qīn hé lì



1. 親近和諧的力量。

如：「王先生對待員工一向關懷備至，因此頗具親和力。」

2. 化學上指兩種以上的物質結合時互相作用的力量。

漢字標準格式

<https://css.hanzi.co/>

[4]

# Responsive Web Design

響應式網頁設計，RWD

**INTERNET IMAGES** sr

creare forme e sostanze della nostra presenza online

Ci sono infiniti modi di fare un sito.

Ma i siti che realizzano funzionalità sono fatti in un modo solo: con passione.

Io ti consigli di scegliere tra le infinite forme, diverse tra loro e ogni lavoro, da quello più semplice a quello più complesso, il tuo che ti consenta una risposta tecnologica, economica ed estetica.

Che tu scelga di far nascere un sito a costo zero o a costo minimo, che tu sceli di realizzarlo solo a partire da iPad, con apposite applicazioni alla tecnologia e alla grande passione verso gli ingredienti per raggiungere il risultato.

Vi consiglio di scegliere in che modo lavorare e perché inizia la risposta alla vostra esigenza e possibilità del "Nuovo budget".

Mi consiglio a me stesso di lavorare sempre con passione e professionalità rispetto alle mie esigenze e possibilità del "Nuovo budget".



Un buon sito Internet deve essere:

**ACCESSIBILE AI PORTATORI DI HANDICAP**  
consultabile per favoreggiare il

**POSIZIONAMENTO SUI MOTORI DI RICERCA**  
consultabile comodamente anche da

**CELLULARI TABLET E CONSOLE**

**INTERNET IMAGES** sr

creare forme e sostanze della nostra presenza online

**Ci sono infiniti modi di fare un sito.**

Ma i siti che realizzano funzionalità sono fatti in un modo solo: con passione.

In questo, di un intero e più diffuso tipo, dipende cosa e ogni lavoro, da quello più semplice a quello più complesso, il tuo che ti consenta una risposta tecnologica, economica ed estetica.

Che si tratti di un sito inserito automaticamente in un circuito e-commerce, che sia una applicazione web o per iPad, un'apposita integrata alla tecnologia e alla grande passione verso gli ingredienti per raggiungere il risultato.

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consultabile comodamente anche da

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**ACCESSIBILE AI PORTATORI DI HANDICAP**  
consultabile per favoreggiare il

**POSIZIONAMENTO SUI MOTORI DI RICERCA**  
consultabile comodamente anche da

**CELLULARI TABLET E CONSOLE**

# INTERNET IMAGES SRL

cattura forma e sostanza della vostra presenza online

## Ci sono infiniti modi di fare un sito.

Ma i siti che realizziamo hanno tutti un punto solo  
con passione.

In 15 anni, di siti internet ne abbiamo fatti davvero tutti e ogni lavoro, da quello più semplice a quello più complesso, è frutto dell'incisiva  
nostra ricerca tecnologica, creatività ed esperienza.

Che si tratta di un sito internet aziendale o un sito di e-commerce, che sia una  
sua applicazione web o per iPad, un apposito consapevole alle tecnologie e una  
grande passione sono gli ingredienti per raggiungere il risultato.

Vi invitiamo a scoprire in che modo lavoriamo e perché siamo la  
ragione alle vostre esigenze e preoccupazioni del Vostro Budget.



Un buon sito internet deve essere  
**ACCESSIBILE AI PORTATORI DI HANDICAP**  
costruito per favorirne il  
**POSIZIONAMENTO SUI MOTORI DI RICERCA**  
consultabile comodamente anche da  
**CELLULARI TABLET E CONSOLE**

## Ci sono infiniti modi di fare un sito.

Ma i siti che realizziamo sono fatti in un modo solo con passione.

In 15 anni, di siti internet ne abbiamo fatti davvero tutti e ogni lavoro, da quello  
più semplice a quello più complesso, e frutto dell'incisiva nostra ricerca tecnologica,  
creatività ed esperienza.

Che si tratta di un sito internet aziendale o un sito di e-commerce, che sia una  
sua applicazione web o per iPad, un apposito consapevole alle tecnologie e una  
grande passione sono gli ingredienti per raggiungere il risultato.

Vi invitiamo a scoprire in che modo lavoriamo e perché siamo la risposta alle  
vostre esigenze e preoccupazioni del Vostro Budget.

# INTERNET IMAGES SRL

cattura forma e sostanza della vostra presenza online



Un buon sito internet deve essere  
**ACCESSIBILE AI PORTATORI DI HANDICAP**  
costruito per favorirne il  
**POSIZIONAMENTO SUI MOTORI DI RICERCA**  
consultabile comodamente anche da  
**CELLULARI TABLET E CONSOLE**

想解決  
什麼問題？

RWD

# 行動設備螢幕尺寸 千變萬化

想解決的問題

讓不同設備  
都有最佳體驗

想解決的問題

# 解決問題

## 的辦法

RWD

# 先考慮 行動設備

解決問題的辦法

**提出假設：**  
**使用者透過不同設**  
**備的操作企圖不同**

**解決問題的辦法**

# 判斷 設備特性

解決問題的辦法

**針對不同特性的設備  
調整內容或功能**

**解決問題的辦法**

# CSS3

## Media Queries

+

## Grid Layout Module

解決問題的辦法

# CSS3 Media Queries

解決問題的辦法

```
<link rel="stylesheet"  
      type="text/css"  
      media="..."  
      href="foo.css">
```

.html

@media ..... {



}

.css

```
@import url(foo.css) .....;
```

.CSS

# **types and (features)**

## Media Query

**types and (features),**  
**types and (features),**  
**types and (features)**

Media Query

all  
print  
screen  
speech

types

所有媒體  
印表機  
任何螢幕  
報讀軟體

not 除了

only 只限

types 前綴

**width, min-width, max-width,  
height, min-height, max-height,  
device-width, min-device-width, max-device-width,  
device-height, min-device-height, max-device-height**

值：長度

features

# orientation

值 : **portrait** 或 **landscape**

## features

**aspect-ratio,**  
**min-aspect-ratio, max-aspect-ratio,**  
**device-aspect-ratio,**  
**min-device-aspect-ratio, max-device-aspect-ratio**

值：比（寬/高）

features

**color,**  
**min-color,**  
**max-color**

值：正整數

features

**color-index, min-color-index, max-color-index,  
monochrome, min-monochrome, max-monochrome**

值：數值零或正整數

features

**resolution,**  
**min-resolution,**  
**max-resolution**

值：解析度（單位 **dpi** 或 **dpcm**）

features

**screen and (min-device-width: 1024px),  
screen and (device-aspect-ratio: 16/9),  
all and (monochrome),  
print and (color),  
all and (orientation:landscape)**

範例

**@media (max-width: 767px;) { ... }**

**@media (min-width: 760px;) { ... }**

**@media (min-width: 992px;) { ... }**

**@media (min-width: 1200px;) { ... }**

解決問題的辦法

處理瀏覽器

尺寸變化

剛好可以.....

# CSS3 Media Queries - REC

Taiwan

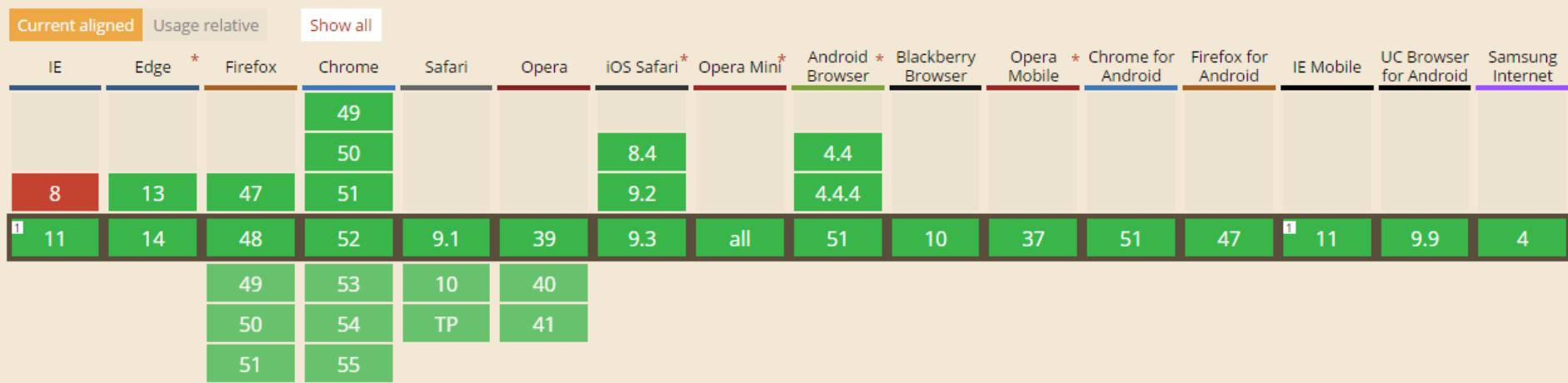
97.56%

Global

97.17%

+ 0.01% = 97.18%

Method of applying styles based on media information. Includes things like page and device dimensions



Notes

Sub-features (2)

Known issues (2)

Resources (5)

Feedback

<sup>1</sup> Does not support nested media queries

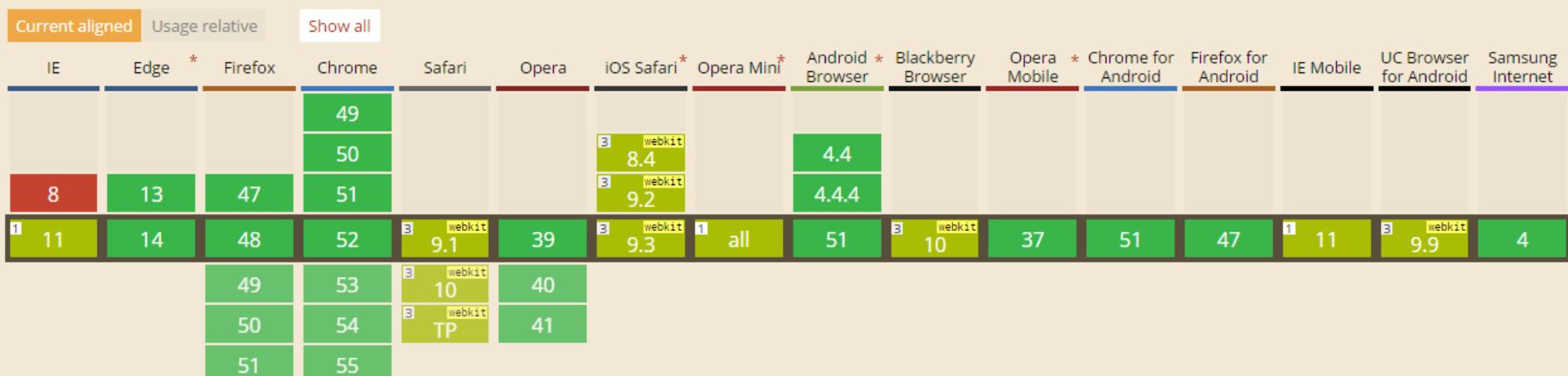
<sup>2</sup> Partial support refers to only acknowledging different media rules on page reload

<http://caniuse.com/#feat=css-mediaqueries>

## Media Queries: resolution feature - REC

Allows a media query to be set based on the device pixels used per CSS unit. While the standard uses min/max-resolution for this, some browsers support the older non-standard device-pixel-ratio media query.

Taiwan	76.73%	+ 20.83% =	97.56%
unprefixed:	76.73%	+ 7.82% =	84.55%
Global	66.26%	+ 30.91% =	97.17%
unprefixed:	66.26%	+ 10.98% =	77.24%



Notes Known issues (1) Resources (7) Feedback

<sup>1</sup> Supports the `dpi` unit, but does not support `dppx` or `dpcm` units.

<sup>2</sup> Firefox before 16 supports only `dpi` unit, but you can set `2dppx` per `min--moz-device-pixel-ratio: 2`

<sup>3</sup> Supports the non-standard `min/max-device-pixel-ratio`

<http://caniuse.com/#feat=css-media-resolution>

4-2

CSS

Grid Layout Module

網格布局模組

header

main aside

footer

```
<body>
  <header>...</header>
  <main>...</main>
  <aside>...</aside>
  <footer>...</footer>
</body>
```

.html

**header**  
**main**  
**aside**  
**footer**

{ grid-area: hd; }  
{ grid-area: mn; }  
{ grid-area: as; }  
{ grid-area: ft; }

.CSS

header

```
header { grid-area: hd; }
main   { grid-area: mn; }
aside  { grid-area: as; }
footer { grid-area: ft; }
```

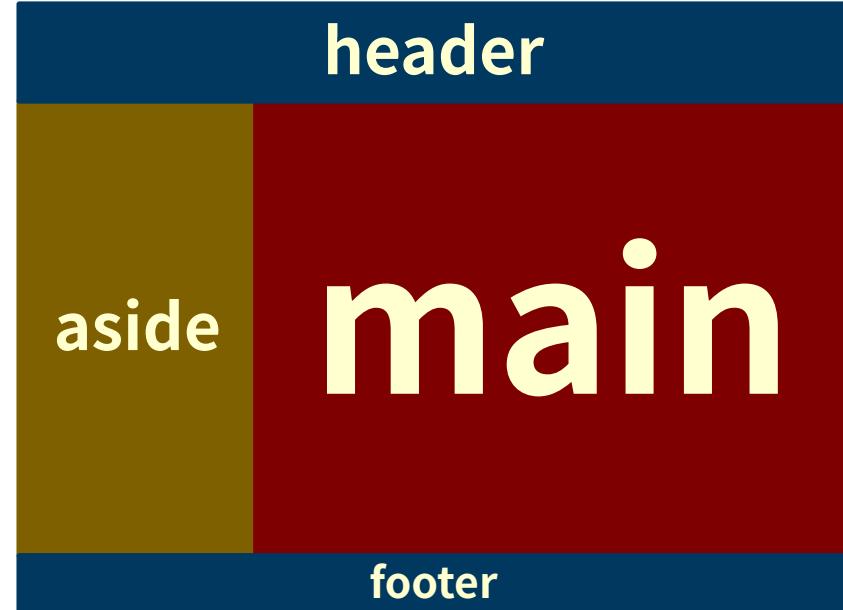
```
body {
  display: grid;
  width: 90%;
  grid-template-columns: 30% auto 30%;
  grid-template-rows: auto;
  grid-template-areas: "hd   hd   hd"
                      "mn   mn   as"
                      "ft   ft   ft"; }
```



.CSS

```
header { grid-area: hd; }
main { grid-area: mn; }
aside { grid-area: as; }
footer { grid-area: ft; }
```

```
body {
  display: grid;
  width: 90%;
  grid-template-columns: 30% auto 30%;
  grid-template-rows: auto;
  grid-template-areas: "hd   hd   hd"
                      "as   mn   mn"
                      "ft   ft   ft"; }
```



.CSS

header

```
header { grid-area: hd; }
main   { grid-area: mn; }
aside  { grid-area: as; }
footer { grid-area: ft; }
```

body {

display: grid;  
width: 90%;

grid-template-columns: 30% auto 30%;

grid-template-rows: auto;

grid-template-areas: "hd hd hd"
 "as mn mn"
 "as ft ft"; }



.CSS

header

```
header { grid-area: hd; }
main { grid-area: mn; }
aside { grid-area: as; }
footer { grid-area: ft; }
```

main

```
body {
  display: grid;
  width: 90%;
  grid-template-columns: auto;
  grid-template-rows: auto;
  grid-template-areas: "hd"
                      "mn"
                      "as"
                      "ft"; }
```

aside

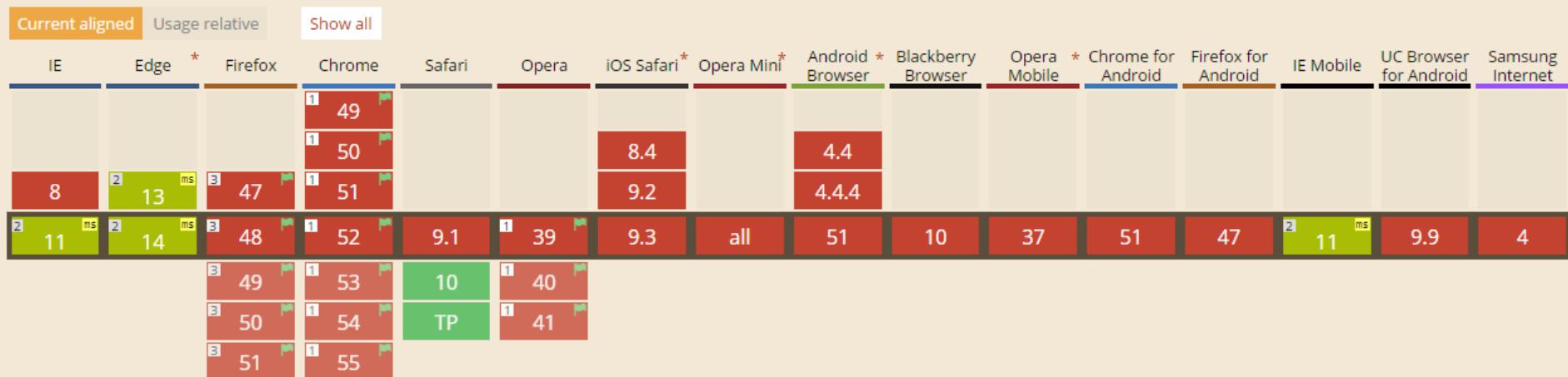
footer

.CSS

# CSS Grid Layout - WD

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for lay out into columns and rows using a set of predictable sizing behaviors

Taiwan	0.01% + 8.6%	= 8.61%
unprefixed:	0.01%	
Global	0.01% + 6.79%	= 6.8%
unprefixed:	0.01%	



Notes Known issues (0) Resources (10) Feedback

- Specification [w3.org] [ref](#)
- IE Blog post [blogs.msdn.com] [info](#)
- Webkit (Chrome, Safari, etc.) feature request [bugs.webkit.org] [info](#)
- Mozilla (Firefox) feature request [bugzilla.mozilla.org] [info](#)
- Polyfill based on old spec [github.com] [polyfill](#)
- Polyfill based on new spec [github.com] [polyfill](#)
- IE platform status: Prefixed [status.modern.IE] [official status](#)
- Chrome platform status: In development [chromestatus.com] [official status](#)
- Firefox platform status: in-development [platform-status.mozilla.org] [official status](#)
- WebKit platform status: In Development [webkit.org] [official status](#)

<http://caniuse.com/#feat=css-grid>

# CSS-Grid-Polyfill

<https://github.com/FremyCompany/css-grid-polyfill>

過度時期

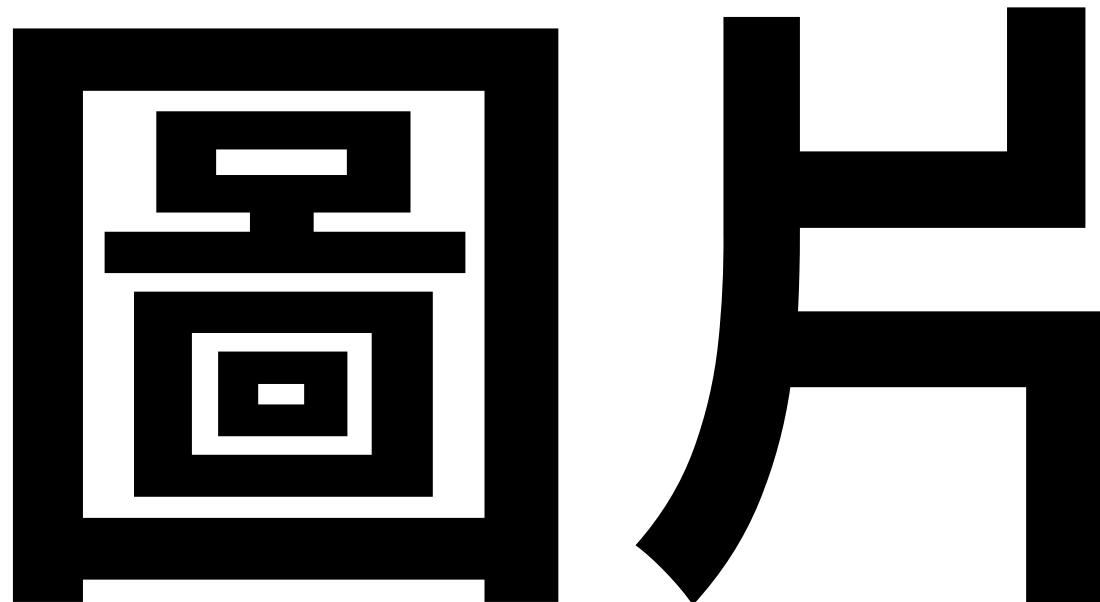
**除了跟一般網頁  
同樣該顧到的地方**

# 可以怎麼做？

行動裝置優先

考慮  
行動裝置畫面

4-3



**密度、尺寸、裁切**

可以怎麼做

# HTML 5.1

預計今年九月成為正式推薦標準

解決問題的辦法：圖片

```
...
```

HTML 5.1：密度響應

```
"
```

HTML 5.1：尺寸響應

```
<picture>
  <source media="(min-width: 960px)"
    srcset="overall.png">
  <source media="(min-width: 580px)"
    srcset="medium.png">
  
</picture>
```

HTML 5.1 : 裁切響應

1 result found

Srcset attribute  - LS

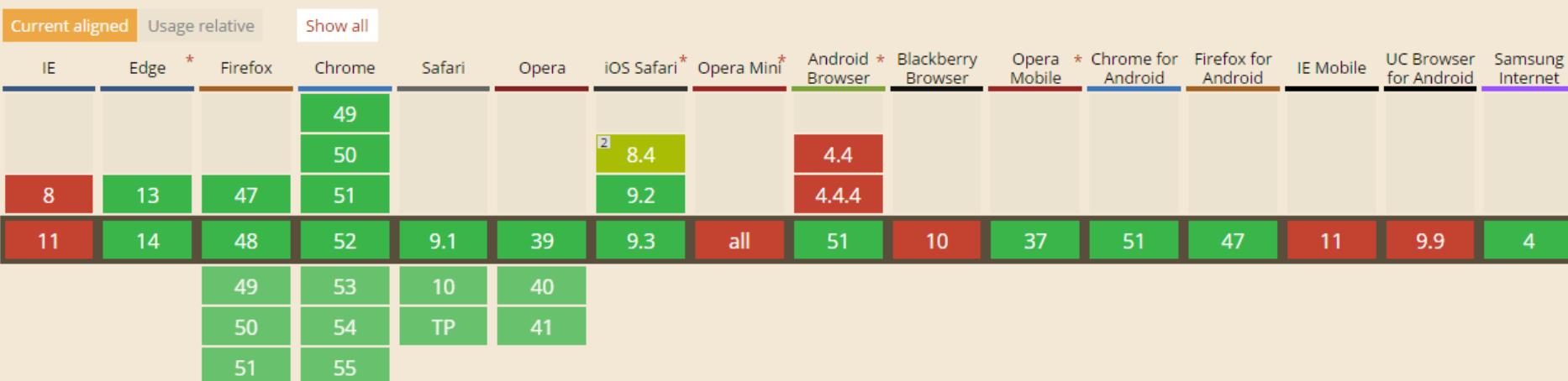
Taiwan

84.51% + 0.83% = 85.34%

Global

71.92% + 1% = 72.92%

Allows authors to define various image resources and "hints" that assist a user agent to determine the most appropriate image source to display (e.g. high-resolution displays, small monitors, etc).



Notes

Known issues (0)

Resources (6)

Feedback

<sup>1</sup> Can be enabled in Firefox by setting the about:config preference dom.image.srcset.enabled to true

<sup>2</sup> Supports the subset of the syntax for resolution switching (using the x descriptor), but not the full syntax that can be used with sizes (using the w descriptor).

<http://caniuse.com/#feat=srcset>

字型

有無襯線、輕重、間距、行距、韻律

可以怎麼做

色彩對比

要更高

可以怎麼做

拿掉背景圖

也要有

充足文字對比

可以怎麼做

前景色彩背景色彩  
一起設好

可以怎麼做

行動裝置  
也有  
螢幕報讀軟體

內容順序

要合宜

可以怎麼做

也許不該用

display: none;

隱藏內容

可以怎麼做

也許直接動

DOM

可以怎麼做

行動裝置手勢操作慣例

兩指縮放

要能讓  
使用者縮放

至少到 200%

可以怎麼做

# 要能讓 使用者縮放

```
<meta name="viewport"  
      content="maximum-scale=1.0;">
```

可以怎麼做

螢幕報讀軟體  
也有手勢操作

**tabindex=**

**跳位順序依然重要**

**可以怎麼做**

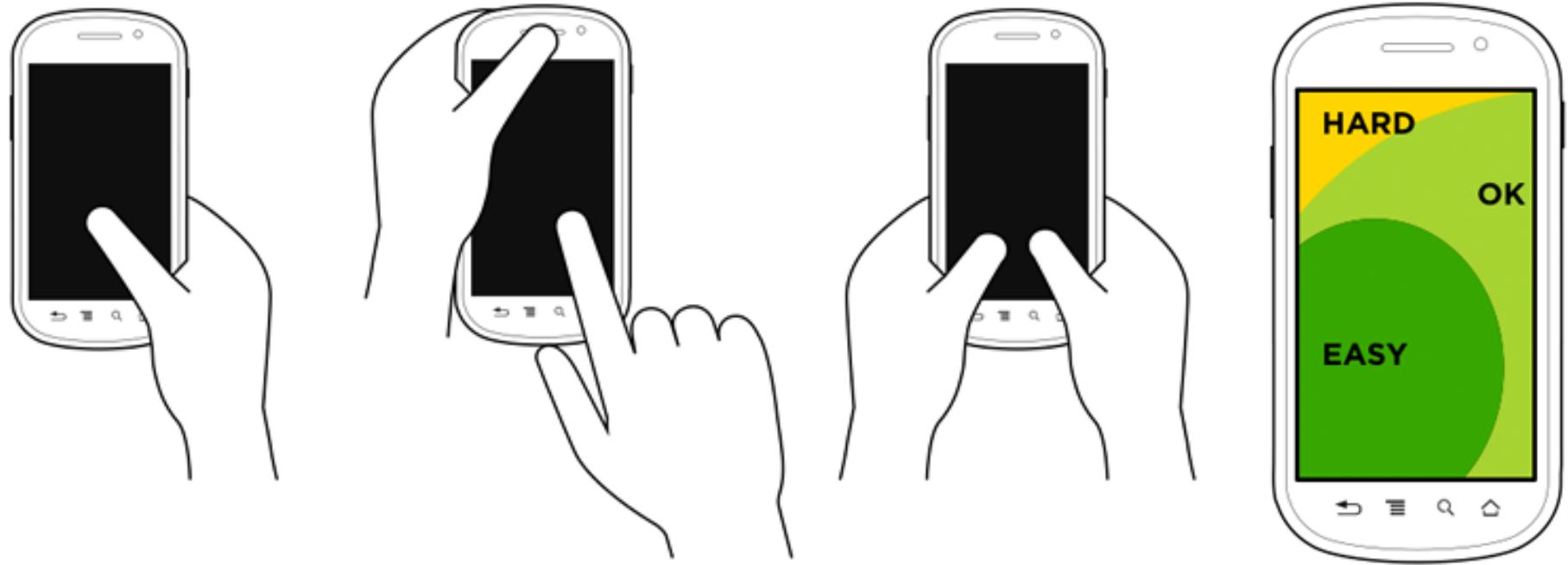
有意義的內容不要  
**overflow: hidden;**  
(有時該有捲軸)

可以怎麼做

留心

網頁操控容易度

可以怎麼做



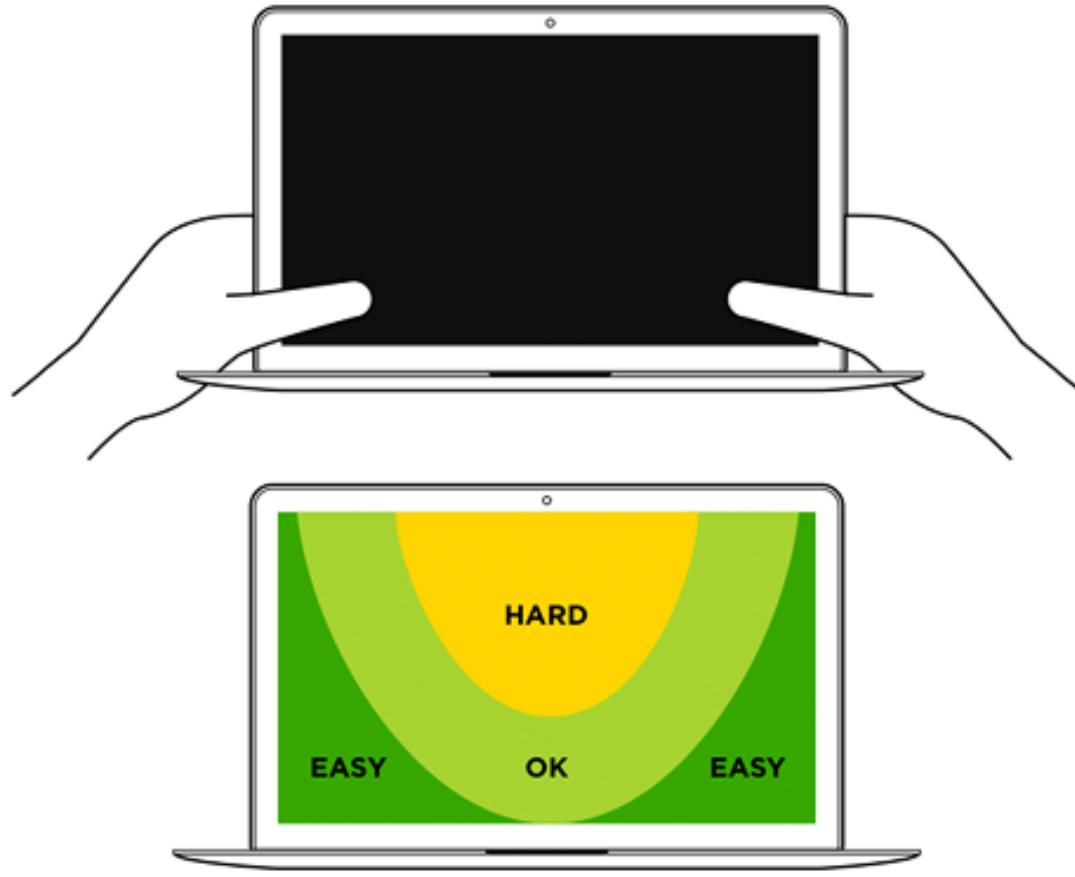
<http://www.lukew.com/ff/entry.asp?1649>

可以怎麼做：網頁操控



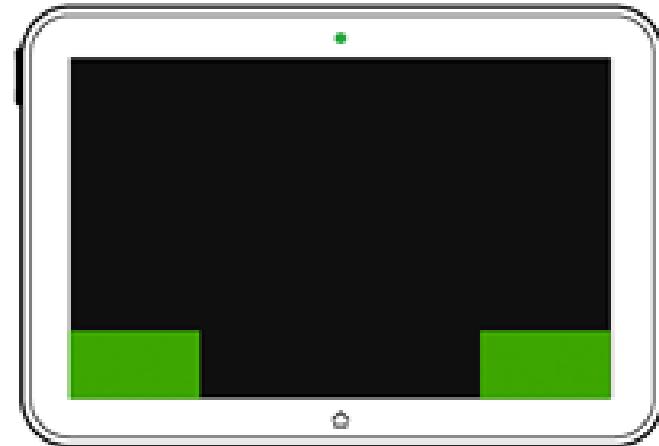
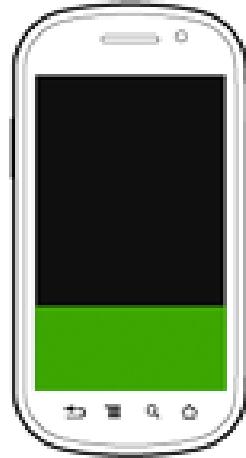
<http://www.lukew.com/ff/entry.asp?1649>

可以怎麼做：網頁操控



<http://www.lukew.com/ff/entry.asp?1649>

可以怎麼做：網頁操控



<http://www.lukew.com/ff/entry.asp?1649>

可以怎麼做：網頁操控

4-6

關節多二

利於活動

可以怎麼做

# 內容拆成 小單元

可以怎麼做

小單元  
也要有完整結構

<section>

可以怎麼做

**最重要的一段文字、  
最關鍵的一張圖**

可以怎麼做

圖文

易讀性

# Progressive Disclosure

逐步揭露



逐步揭露

# 內容拆成小單元

## 相對尺寸格線布局、流動分欄排版

**<header>, <nav>,  
<footer>, <section>,  
<article>, <aside>**

可以怎麼做

**無論如何，都應該  
遵循標準、重視語意**

**從行動裝置出發……**

……止於至善

(不要停在行動裝置)

# **Responsive Web Design**

# **Responsive & Accessible Web Design**

[5]

影音媒體

5-1

YouTube

—陣子以前

# Flash

一陣子以前

<object>

一陣子以前

```
<!--[if IE]>
<object classid="clsid:D27CDB6E-AE6D-11CF-96B8-444553540000"
width="320" height="265" standby="正在載入..."
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=10,0,0,0">
<param name="movie"
value="http://www.youtube.com/v/XXXXXXXXXXXXXX&fs=1&rel=0" />
<param name="allowFullScreen" value="true" />
<param name="allowScriptAccess" value="always" />
    替代內容:
    <a href="http://www.youtube.com/watch?v=XXXXXXXXXXXXXX">原始影片</a>
</object>
<![endif]-->

<!--[if !IE]> <!-->
<object type="application/x-shockwave-flash"
data="http://www.youtube.com/v/XXXXXXXXXXXXXX&fs=1&rel=0"
width="320" height="265" standby="正在載入...">
<param name="allowFullScreen" value="true" />
<param name="allowScriptAccess" value="always" />
    替代內容:
    <a href="http://www.youtube.com/watch?v=XXXXXXXXXXXXXX">原始影片</a>
</object>
<!--<![endif]-->
```

一陣子以前

現存

2015/02之後

# HTML5

+

# Flash

2015/02之後

# <iframe>

2015/02之後

```
<iframe width="560" height="315"
src="https://www.youtube.com/embed/XXXXXXXXXXXXXX"
frameborder="0" allowfullscreen>
<!-- 替代內容: -->
<a
  href="http://www.youtube.com/watch?v=XXXXXXXXXXXX">原始影片
</a>
</iframe>
```

2015/02 之後

是否為  
私人影片？

權限設定

是否  
允許嵌入？

權限設定

5-2

# HTML5 video

<video>

HTML5

```
<video>
  <source>
  <track>
    替代內容
</video>
```

HTML5

寬度 (像素)

**width=**

高度 (像素)

**height=**

**<video>**

縮圖畫面（網址）

**poster=**

**<video>**

# 預先載入方式

**preload=**

`<video>`

載入影片

auto

僅載入詮釋資料

metadata

不要自動載入

none

<video preload="...">

顯示控制介面  
自動播放  
循環播放  
靜音播放

**controls**  
**autoplay**  
**loop**  
**muted**

**<video>**

<source>

<video>

# 指定影片 檔案

<source>

**src="path/to/video"**  
**type="video/TYPE"**

**<source>**

video/mp4	<b>MPEG 4 (A: AAC / V: H.264)</b>
video/webm	<b>WebM (A: Vorbis / V: VP8)</b>
video/ogg	<b>Ogg (A: Vorbis / V: Theora)</b>

`<source type="...">`

<b>Chrome</b>	MP4	WebM	Ogg
<b>Firefox</b>	MP4	WebM	Ogg
<b>IE</b>	MP4		
<b>Opera</b>	MP4	WebM	Ogg
<b>Safari</b>	MP4	WebM	Ogg

瀏覽器支援

```
<source  
    src="path/to/video.mp4"  
    type="video/mp4">
```

```
<video>
  <source>
  <source>
  <source>
</video>
```

瀏覽器依序嘗試

<track>

<video>

# 指定字幕檔案

<track>

# WebVTT

<track>

**WEBVTT**

空一列

**cue**

空一列

**cue**

空一列

**cue**

空一列

.....

WebVTT

**ID**

**hh:mm:ss.sss --> hh:mm:ss.sss POSITION**

**text**

cue

# **getCueById()**

cue ID

<b>line</b>	相對於影片高度的縱軸位置 (%)
<b>position</b>	相對於影片寬度的橫軸位置 (%)
<b>size</b>	相對於影片高度的字幕高度 (%)
<b>align</b>	start = left, center, right = end

(以上都可省略)

cue POSITION

**text text text**

cue text

**text <hh:mm:ss.sss>text <hh:mm:ss.sss>text**

cue text

<v Speaker>text

cue text

<c.class>text

cue text

<b>, <i>, <u>

cue text

```
::cue(#ID) { ... }  
::cue(.Class) { ... }  
::cue(v[voice="Speaker"]) { ... }
```

cue style with CSS3

**字幕檔案網址**

**src=**

**字幕語言**

**srclang=**

**字幕本身的標題**

**label=**

**<track>**

**指定字幕類型（用途）**

**kind=**

**<track>**

提供給「聽不懂」者的字幕  
提供給「聽不到」者的字幕  
提供給「看不到」者的描述  
導覽用的章節標題  
提供給電腦軟體的詮釋資料

subtitles  
captions  
descriptions  
chapters  
metadata

<track kind="...">

指定為預設字幕

default

<track>

```
<track default  
kind="captions"  
label="中文字幕"  
srclang="zh-Hant-TW"  
src="path/to/video_TW.vtt">
```

<video>中，除了  
<source>和<track>以  
外的所有內容

替代內容

```
<video width="560" height="315" poster="thumb.png"
preload="auto" controls>
<source type="video/mp4" src="video.mp4">
<source type="video/webm" src="video.webm">
<source type="video/ogg" src="video.ogg">
<track default kind="captions" label="中文字幕"
srclang="zh-Hant-TW" src="cap_TW.vtt">
<track kind="captions" label="Caption in English"
srclang="en" src="cap_EN.vtt">
<iframe width="560" height="315"
src="https://www.youtube.com/embed/XXXXXXXXXXXXXX"
frameborder="0" allowfullscreen>
<a href="video.mp4" title="MP4 格式">下載原始影片 </a>
</iframe>
</video>
```

# Methods:

`play()`, `pause()`, `load()`, `canPlayType()`

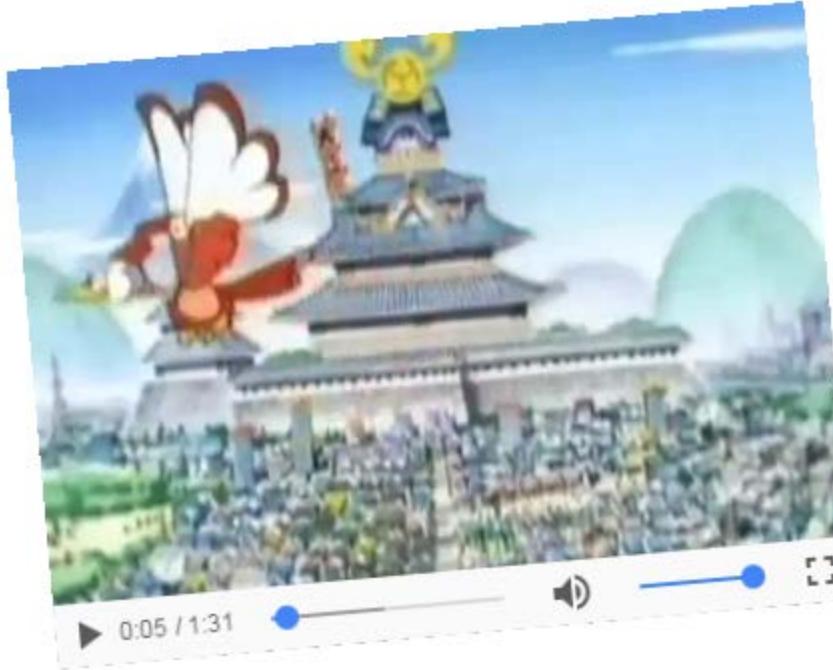
# Properties:

`currentSrc`, `currentTime`, `startTime`, `videoWidth`,  
`videoHeight`, `duration`, `ended`, `error`, `paused`, `muted`,  
`seeking`, `volume`, `height`, `width`, `seekable`, `played`

# Events:

`play`, `pause`, `progress`, `error`, `timeupdate`, `ended`,  
`abort`, `empty`, `emptied`, `waiting`, `loadedmetadata`

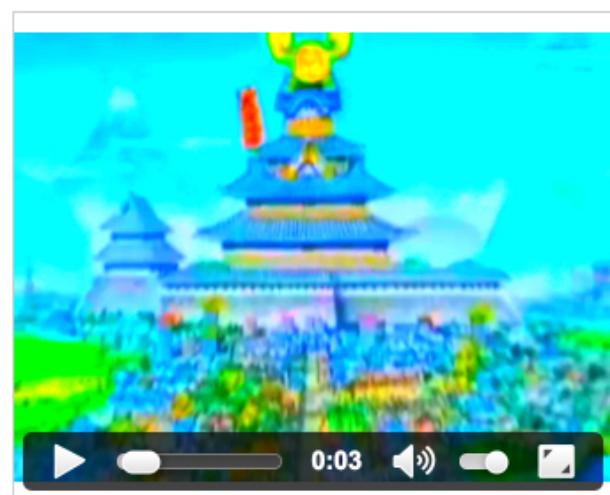
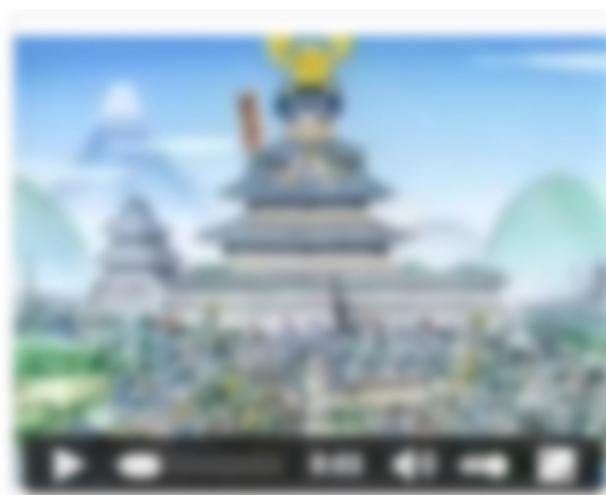
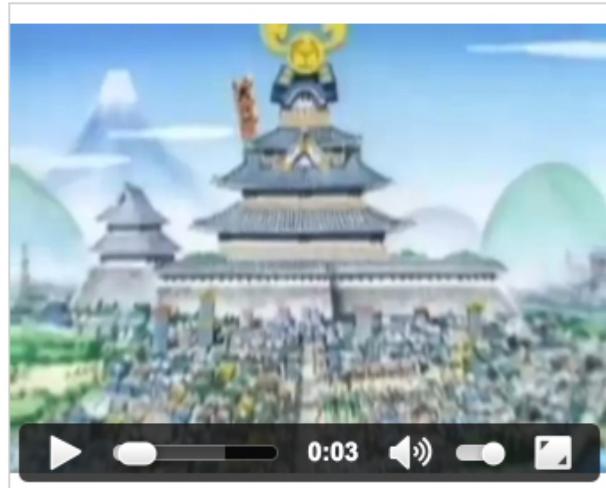
`<video>` Element API



```
video { width: 300px;  
        transition: all 0.5s ease-in-out; }
```

```
video:hover { width: 400px;  
               transform: rotate(-5deg); }
```

# CSS3 Transition/Transform



# CSS3 Filter

- American Federation for the Blind Media Player
- AblePlayer – Terril Thompson
- Acorn Media Player
- AlphaGov Accessible Media Player – a forked version of Nomensa's accessible video player on Github
- AMI player – from Accessible Media INC
- Brightcove accessible video player
- BBC Standard Media Player (SMP) – used on iPlayer, News, Sport, Live etc, including the SMP help page
- Accessible JW Player and [JW Player](#) which claims WCAG 2.0 compliance
- E-Standards accessible HTML5 video player – Created by e-Works this player recently got won a captioning award
- Nomensa's accessible video player (Github)
- OzPlayer
- Accessible HTML5 Video Player – by PayPal
- The Workshop accessible media player
- Video.js
- Accessible YouTube player – Vision Australia
- Web Experience Toolkit Multimedia Player

<http://www.iheni.com/accessible-media-player-resources/>



06:01

09:58

HD



# JW Player



Caravan Palace -



Caravan Palace - Rock It



Caravan Palace - Clash

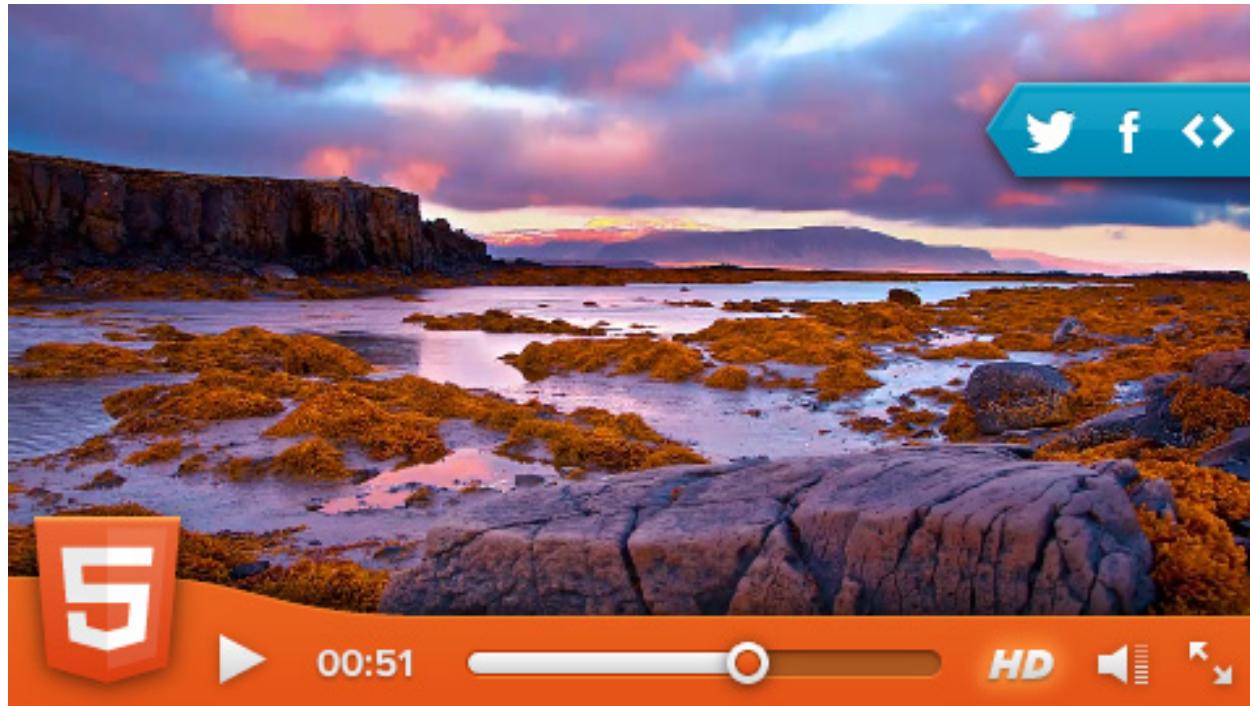


Caravan Palace - Rock It



Caravan Palace - Suzy

# JW Player



# Sublime video player

# Can I use

# video

[Settings](#)

11 results found

## Video element - LS

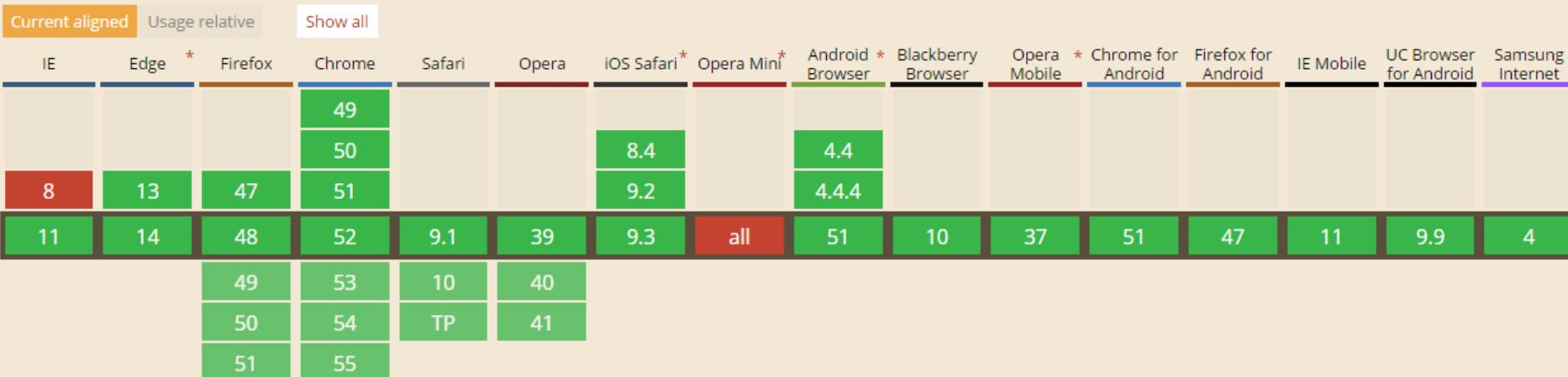
Taiwan

97.5%

Global

92%

Method of playing videos on webpages (without requiring a plug-in).

[Notes](#)[Sub-features \(4\)](#)[Known issues \(0\)](#)[Resources \(7\)](#)[Feedback](#)

Different browsers have support for different video formats, see sub-features for details.

<sup>1</sup> The Android browser (before 2.3) requires [specific handling](#) to run the video element.

<http://caniuse.com/#feat=video>

# Can I use

# source

?  Settings

7 results found

## Media Source Extensions - CR

API allowing media data to be accessed from HTML video and audio elements.

Taiwan

76.73% + 6.7% = 83.42%

unprefixed:

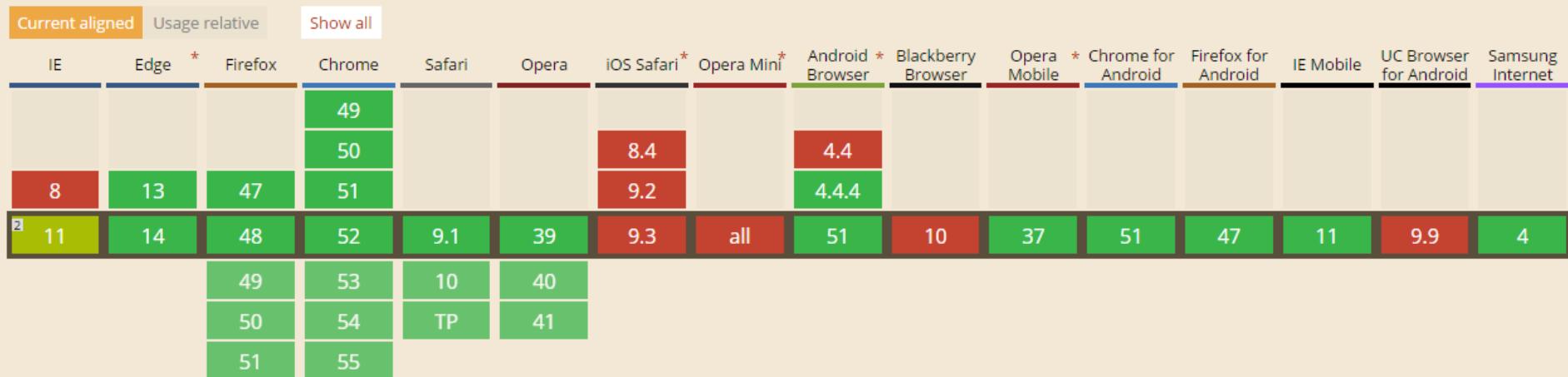
76.27% + 6.7% = 82.96%

Global

66.39% + 4.18% = 70.57%

unprefixed:

65.6% + 4.18% = 69.77%



Notes

Known issues (0)

Resources (7)

Feedback

<sup>1</sup> Requires the `media.mediasource.enabled` flag to be enabled, support is limited to a whitelist including the YouTube, Netflix, and Dailymotion websites

<sup>2</sup> Partial support in IE11 refers to only working in Windows 8+

<http://caniuse.com/#feat=mediasource>

# Can I use

# webvtt

[?](#)

Settings

1 result found

## WebVTT - Web Video Text Tracks WD

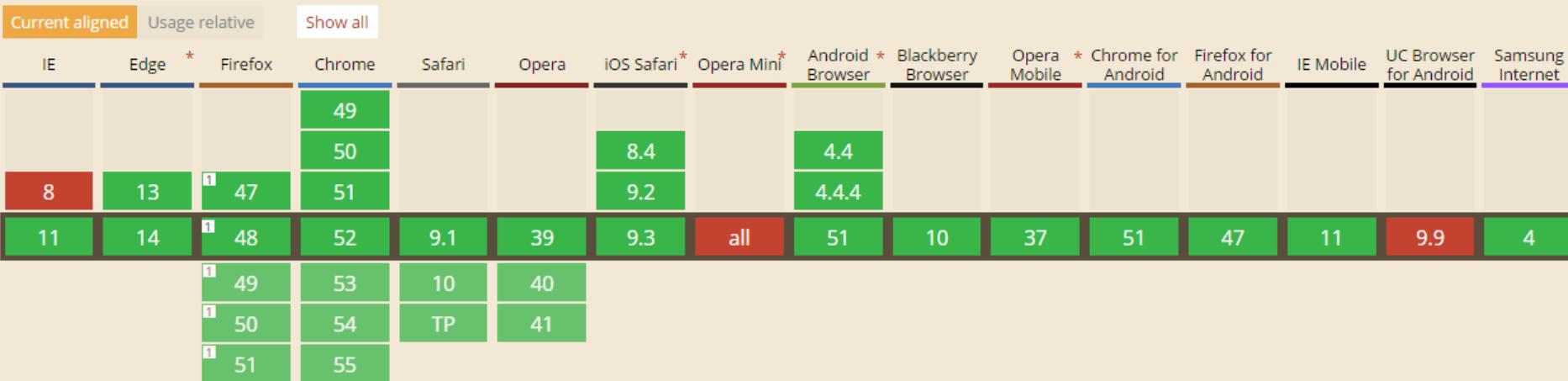
Taiwan

95.86%

Global

82.47%

Format for marking up text captions for multimedia resources.

[Notes](#)[Known issues \(2\)](#)[Resources \(4\)](#)[Feedback](#)

WebVTT must be used with the <track> element.

<sup>1</sup> Firefox currently lacks support for the ::cue pseudo-element. See bug #865395.

<http://caniuse.com/#feat=webvtt>

# Video on the Web

<http://diveintohtml5.info/video.html>

5-3

HTML5

Audio

<audio>

HTML5

```
<audio>
  <source>
    替代內容
  </source>
</audio>
```

HTML5

# 預先載入方式

**preload=**

**<audio>**

載入影片

auto

僅載入詮釋資料

metadata

不要自動載入

none

<audio preload="...">

顯示控制介面  
自動播放  
循環播放

**controls**  
**autoplay**  
**loop**

**<audio>**

<source>

<audio>

# 指定聲音檔案

<source>

```
src="path/to/audio"  
type="audio/TYPE"
```

<source>

audio/mpeg	MP3
audio/ogg	Ogg
audio/wav	Wave

<source type="...">

<b>Chrome</b>	MP3	Ogg	Wave
<b>Firefox</b>	MP3	Ogg	Wave
<b>IE</b>	MP3		
<b>Opera</b>	MP3	Ogg	Wave
<b>Safari</b>	MP3		Wave

瀏覽器支援

```
<source  
    src="path/to/audio.mp3"  
    type="audio/mpeg">
```

```
<audio>
  <source>
  <source>
  <source>
</audio>
```

瀏覽器依序嘗試

音訊描述

---

口述影像

Audio Description

**指定媒體群組**

**mediagroup=**

**<audio>, <video>**

```
<video id="video" preload="auto"  
       width="640" height="380"  
       mediagroup="avgroup" controls>  
  <source src="path/to/video.mp4"  
          type="video/mp4">  
</video>
```

```
<audio id="audio" preload="auto"  
       mediagroup="avgroup">  
  <source src="path/to/audio.mp3"  
          type="audio/mpeg">  
</audio>
```

強制使用口述影像／音訊描述

```
<video id="video" preload="auto"  
       width="640" height="380"  
       controls>  
  <source src="path/to/video.mp4"  
         type="video/mp4">  
</video>
```

```
<audio id="audio" preload="auto">  
  <source src="path/to/audio.mp3"  
         type="audio/mpeg">  
</audio>
```

提供更多控制.....

```
var video = document.getElementById('video');
var audio = document.getElementById('audio');

if(typeof(window.MediaController) === 'function') {
    var controller = new MediaController();
    audio.controller = controller;
    video.controller = controller; } else { controller = null; }

audio.volume = 1;
video.volume = 0.8;

video.addEventListener('play', function() {
    if(!controller && audio.paused) { audio.play(); } }, false);

video.addEventListener('pause', function() {
    if(!controller && !audio.paused) { audio.pause(); } }, false);

video.addEventListener('ended', function() {
    if(controller) { controller.pause(); } else {
        video.pause();
        audio.pause(); } }, false);

video.addEventListener('timeupdate', function() {
    if(!controller && audio.readyState >= 4) {
        if(Math.ceil(audio.currentTime) != Math.ceil(video.currentTime))
        { audio.currentTime = video.currentTime; } } }, false);
```

# Can I use

# audio

?  Settings

9 results found

## Audio element - LS

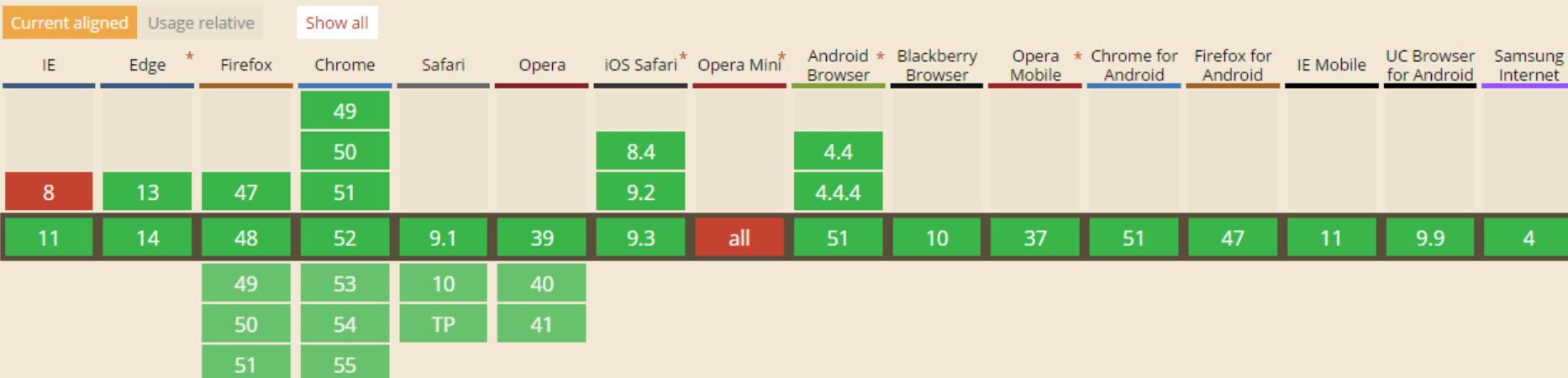
Taiwan

97.5%

Global

92% + 0.02% = 92.02%

Method of playing sound on webpages (without requiring a plug-in).



Notes Sub-features (5) Known issues (3) Resources (9) Feedback

- Chrome on Android does **not support changing playbackrate** as advised by the specification.
- Volume is **read-only** on iOS.
- Chrome on Android does **not support autoplay** as advised by the specification.

<http://caniuse.com/#feat=audio>

HTML5

Canvas

<canvas>

HTML5

<canvas>

替代內容

</canvas>

HTML5

寬度 (像素)

**width=**

高度 (像素)

**height=**

**<canvas>**

## Canvas element

### Attributes

Name	Type	Default
width	unsigned long	300
height	unsigned long	150

### Methods

Return string	Name <code>toDataURL([Optional] string type, [Variadic] any args)</code>
Object	<code>getContext(string contextId)</code>

## 2D Context

### Attributes

Name	Type	Default
canvas	HTMLCanvasObject	[readonly]

### Methods

Return void	Name <code>save()</code>
void	<code>restore()</code>

## Transformation

### Methods

Return void	Name <code>scale(float x, float y)</code>
void	<code>rotate(float angle)</code>
void	<code>translate(float x, float y)</code>
void	<code>transform(float m11, float m12, float m21, float m22, float dx, float dy)</code>
void	<code>setTransform(float m11, float m12, float m21, float m22, float dx, float dy)</code>

## Image drawing

### Methods

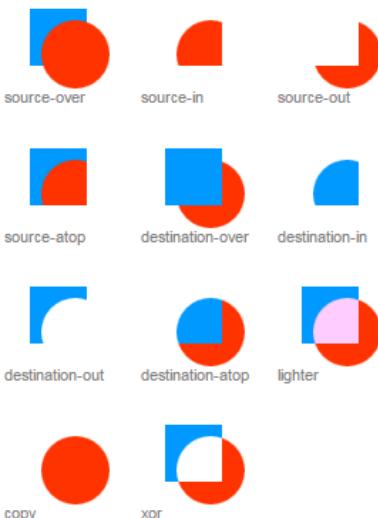
Return void	Name <code>drawImage(Object image, float dx, float dy, [Optional] float dw, float dh)</code>
Argument image can be of type <code>HTMLImageElement</code> , <code>HTMLCanvasElement</code> or <code>HTMLVideoElement</code> .	
void	<code>drawImage(Object image, float sx, float sy, float sw, float sh, float dx, float dy, float dw, float dh)</code>

## Compositing

### Attributes

Name	Type	Default
globalAlpha	float	1.0

`globalCompositeOperation` string source-over  
Supports any of the following values:

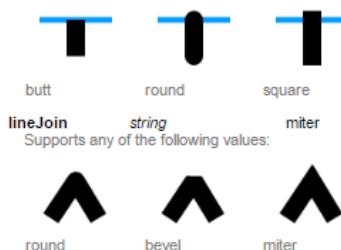


## Line styles

### Attributes

Name	Type	Default
lineWidth	float	1.0

Supports any of the following values:



`lineJoin` string miter  
Supports any of the following values:



Source: <http://www.whatwg.org/specs/web-apps/current-work/> (2009-02-26)

This is a modified version of <http://blog.nihilogic.dk/2009/02/html5-canvas-cheat-sheet.html>

`miterLimit` float 10

## Colors, styles and shadows

### Attributes

Name	Type	Default
strokeStyle	any	black
fillStyle	any	black
shadowOffsetX	float	0.0
shadowOffsetY	float	0.0
shadowBlur	float	0.0
shadowColor	string	transparent black

### Methods

Return void	Name <code>createLinearGradient(float x0, float y0, float x1, float y1)</code>
void	<code>createRadialGradient(float x0, float y0, float r0, float x1, float y1, float r1)</code>
void	<code>createPattern(Object image, string repetition)</code> image is <code>HTMLImageElement</code> or <code>HTMLCanvasElement</code> . repetition supports any of the following values: repeat (default) repeat-x repeat-y no-repeat

## CanvasGradient interface

Return void	Name <code>addColorStop(float offset, string color)</code>
-------------	--

## CanvasPattern interface

No attributes or methods.

## Paths

### Methods

Return void	Name <code>beginPath()</code>
void	<code>closePath()</code>
void	<code>fill()</code>
void	<code>stroke()</code>
void	<code>clip()</code>
void	<code>moveTo(float x, float y)</code>
void	<code>lineTo(float x, float y)</code>
void	<code>quadraticCurveTo(float cpx, float cpy, float x, float y)</code>
void	<code>bezierCurveTo(float cp1x, float cp1y, float cp2x, float cp2y, float x, float y)</code>
void	<code>arcTo(float x1, float y1, float x2, float y2, float radius)</code>
void	<code>arc(float x, float y, float radius, float startAngle, float endAngle, boolean anticlockwise)</code>
void	<code>rect(float x, float y, float w, float h)</code>
boolean	<code>isPointInPath(float x, float y)</code>

## Text

### Attributes

Name	Type	Default
font	string	10px sans-serif
textAlign	string	start
textBaseline	string	alphabetic

### Methods

Return void	Name <code>fillText(string text, float x, float y, [Optional] float maxWidth)</code>
void	<code>strokeText(string text, float x, float y, [Optional] float maxWidth)</code>
TextMetrics	<code>measureText(string text)</code>

## TextMetrics interface

Name	Type	Default
width	float	[readonly]

## Rectangles

### Methods

Return void	Name <code>clearRect(float x, float y, float w, float h)</code>
void	<code>fillRect(float x, float y, float w, float h)</code>
void	<code>strokeRect(float x, float y, float w, float h)</code>

## Pixel manipulation

### Methods

Return ImageData	Name <code>createImageData(float sw, float sh)</code>
ImageData	<code>getImageData(float sx, float sy, float sw, float sh)</code>
void	<code>putImageData(ImageData imagedata, float dx, float dy, [Optional] float dirtyX, float dirtyY, float dirtyWidth, float dirtyHeight)</code>

## ImageData interface

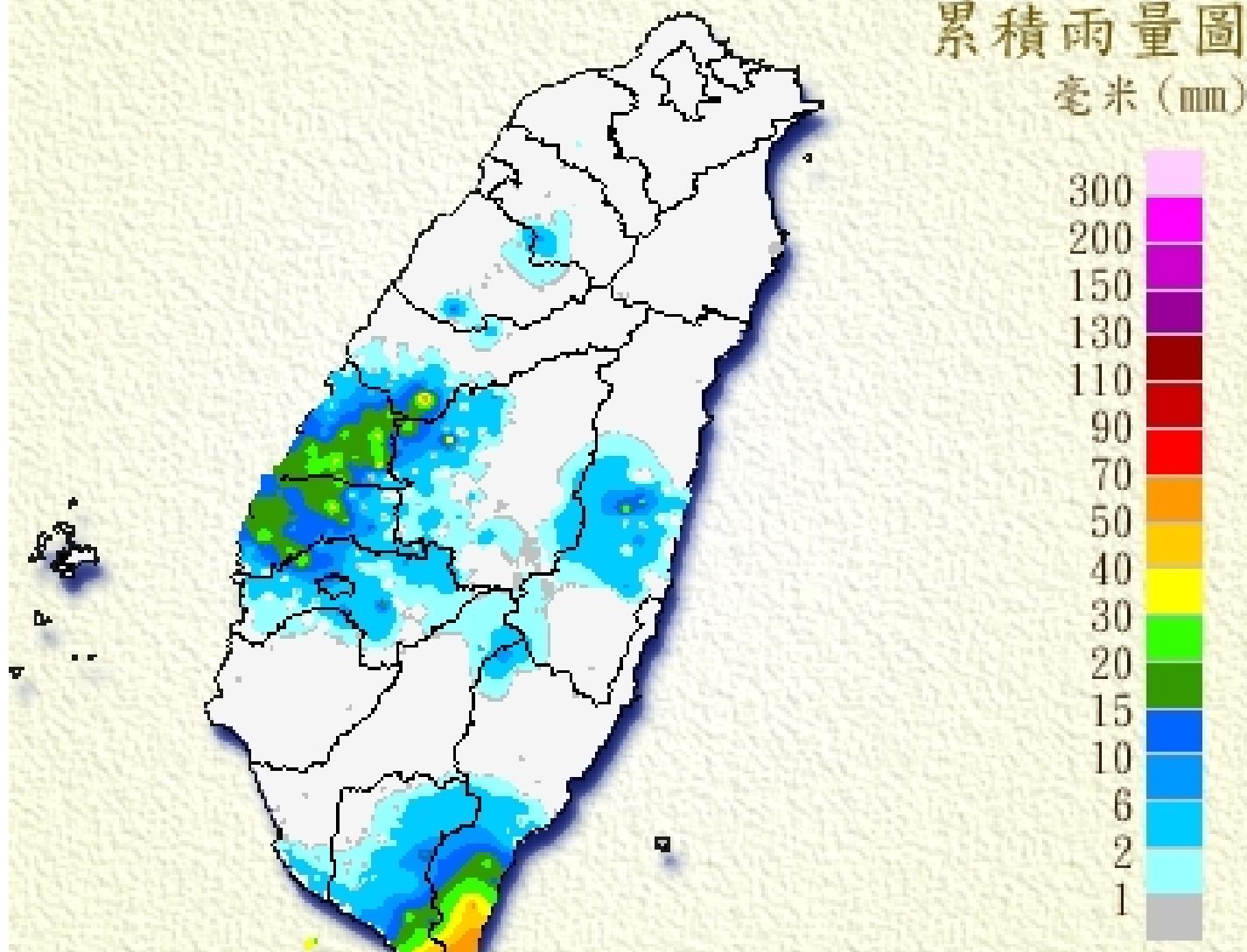
Name	Type	Default
width	unsigned long	[readonly]
height	unsigned long	[readonly]

## CanvasPixelArray interface

Name	Type	Default
length	unsigned long	[readonly]

8/15 00:00 ~ 8/16 00:00

累積雨量圖  
毫米 (mm)



中央氣象局製

```
<canvas id="myCanvas" width="400" height="400"></canvas>
<script>
var canvas = document.getElementById('myCanvas');
var context = canvas.getContext('2d');
var imageObjTaiwan = new Image();
var imageObjLevel01 = new Image();

imageObjTaiwan.onload = function() {
    context.drawImage(imageObjTaiwan, 0, 0);
};
imageObjTaiwan.src = 'http://cwb.org.tw/path/to/taiwan.png';

imageObjLevel01.onload = function() {
    context.drawImage(imageObjLevel01, 0, 0);
};
imageObjLevel01.src = 'http://cwb.org.tw/path/to/level01.png';
</script>
```

疊加多層透明PNG圖檔

載入圖層，  
改變色彩再繪製

還可以這樣.....



6 results found

## Canvas (basic support) - LS

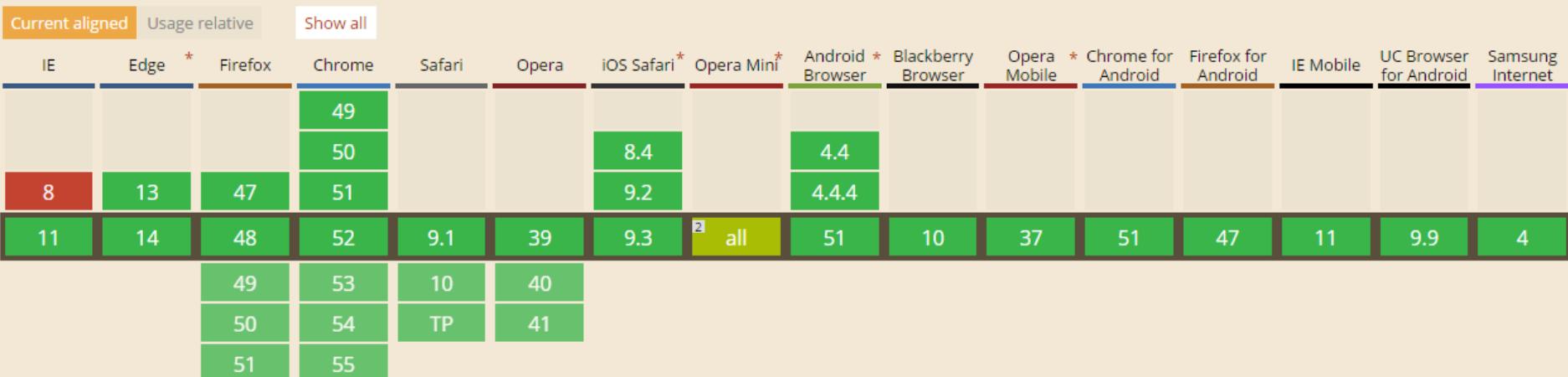
Taiwan

97.5% + 0.08% = 97.58%

Global

92% + 5.23% = 97.23%

Method of generating fast, dynamic graphics using JavaScript.



Notes

Sub-features (4)

Known issues (6)

Resources (9)

Feedback

For screen readers, IE, Chrome & Firefox support the [accessible canvas element sub-DOM](#).

Firefox &amp; Chrome also support the drawfocus ring.

<sup>1</sup> Does not support `toDataURL()`<sup>2</sup> Opera Mini supports the canvas element, but is unable to play animations or run other more complex applications.

<http://caniuse.com/#feat=canvas>

5-4

替代內容？

檔案下載、分鏡圖集、  
劇本、逐字轉譯稿、  
改作作品（廣播劇等）、  
說明描述、劇情簡介、  
資料圖表、數據表格、  
長描述網頁……

影音媒體替代內容

[6]

地圖資訊

為什麼這裡需要用到地圖？  
簡短的文字資訊為什麼不足？

核心問題

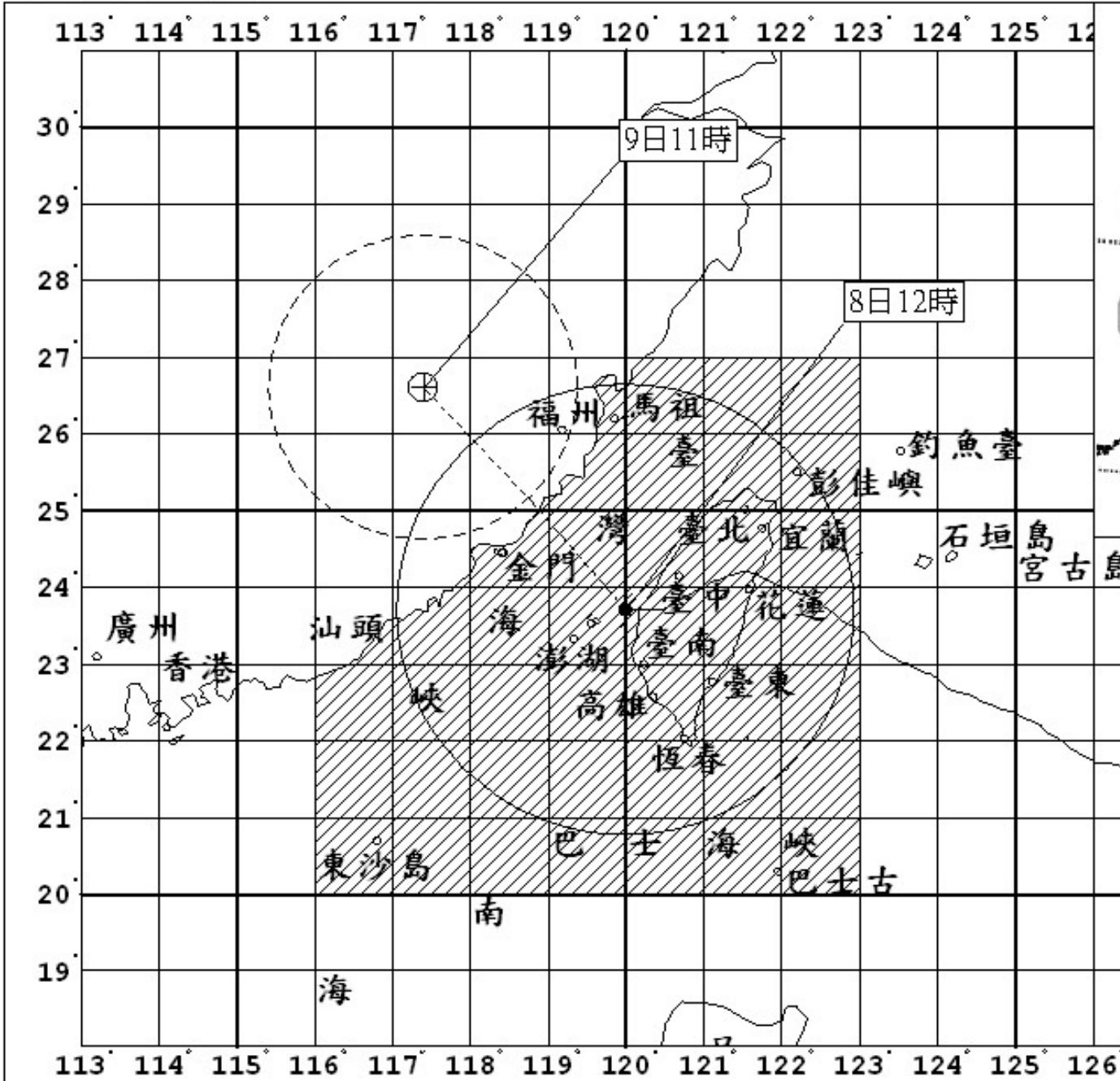
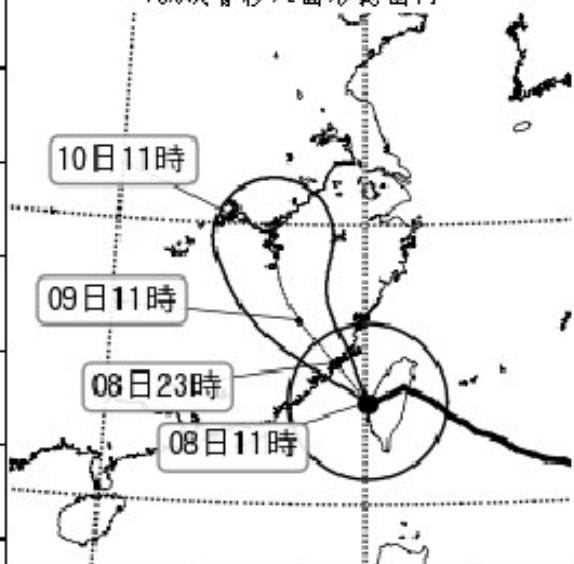
6-1

# 描述整體狀態 (說故事)

可能的原因

颱風路徑潛勢預報圖(70%機率)

○: 未來颱風中心位置將有  
70%機會移入圓形範圍內



現任中心位置及暴風範圍	熱帶性低氣壓	輕度颱風	中度颱風	強烈颱風	預測中心位置及暴風範圍	預測路徑	過去路徑	警報區域
-------------	--------	------	------	------	-------------	------	------	------

longdesc

長描述網址

.....

### 第17—1報颱風動態與預測位置

#### 颱風動態

根據最新氣象資料顯示，第13號颱風過去3小時強度略微減弱，其中心已於今（8）日11時在雲林縣臺西鄉出海，繼續向西北移動。此颱風暴風圈仍籠罩臺灣各地及澎湖、金門、馬祖，北部及東半部風雨持續中，中南部地區及澎湖、金門、馬祖風雨持續增強。預計此颱風強度仍有持續減弱，暴風半徑亦有縮小的趨勢。

#### 預測位置

9日11時的中心位置在北緯26.6度，東經117.4度，即在金門的北北西方約260公里之處。

[返回颱風警報圖](2015typhoon13pic.html#17-1)

.....

# 2015typhoon13.html

```
<a id="17-1"
  href="2015typhoon13.html#alert17-1">

</a>
```

2015typhoon13pic.html

```
<figure>

<figcaption id="alert17-1">颱風中心已於今（8）日11時  
在雲林縣臺西鄉出海，繼續向西北移動，暴風圈仍  
籠罩臺灣各地及澎湖、金門、馬祖。預測颱風9日  
11時的中心位置在北緯26.6度，東經117.4度，即在  
金門的北北西方約260公里之處。</figcaption>
</figure>
```

HTML5

6-2

依照地理位置  
排列資料順序

可能的原因



點選都市名稱，顯示氣象平均統計資料

```

<map id="Map">
  <area shape="rect" coords="321,259,377,282"
    href="#Guangzhou" alt="廣州" title="廣州">
  .....
</map>
```

# 影像地圖

<img alt=" ? ? ? ? ">

糟糕了！

圖不是重點，  
重點是那些標出  
來的都市的資料

原來.....

**<dl>**

**定義清單**

**<dt>**

**項目名稱**

**<dd>**

**項目定義**

**定義清單**

```
<dl class="map">
  <dt><a href="#Guangzhou" class="location" id="locGuangzhou">
    廣州</a></dt>
  <dd><strong>廣州</strong>天氣預報：多雲，氣溫 27~36°C<hr>
    廣州月平均氣溫 25.2~32.6°C，月平均雨量 221 毫米，月平均降雨
    16 日（降雨量 ≥ 0.1 毫米）。
  .....
</dl>
```

# HTML

```
dl.map { position: relative;  
        width: 490px;  
        height: 365px;  
        background: url('china.jpg') no-repeat;  
        text-align: left;  
        margin: 0px;  
        padding: 0px;  
        border: #999 1px solid; }  
dl.map dt { list-style: none;  
            display: inline; }  
dl.map dd { position: absolute;  
            left: -9999px;  
            width: 200px;  
            padding: 4px;  
            border: #222 2px solid;  
            background: #666;  
            color: #fff;  
            border-radius: 8px;  
            z-index: 11;  
            font-size: 0.8em; }  
dl.map a.location { display: block;  
                  position: absolute;  
                  text-indent: -9999px;  
                  background: url('point.png') no-repeat;  
                  width: 10px;  
                  height: 10px;  
                  outline: none;  
                  z-index: 10;  
                  text-decoration: none; }  
dl.map a.location:hover { background: url('point-hover.png') no-repeat -1px -1px; }
```

# CSS (1/2)

```
dl.map a#locGuangzhou {  
    top: 267px;  
    left: 335px;  
}
```

CSS (2/2)

# 再搭配 JavaScript 繪製「工具提示」效果

(略)

# 中國大陸都市

發布時間:2016/08/23 16:30  
有效時間:08/24 00:00~08/24 24:00



- 可純鍵盤操作
- 可用滑鼠操作
- 地點超鏈結
- 用 JavaScript 增強體驗
- 用 CSS 增強體驗
- 螢幕報讀軟體相容

效果

廣州  
到訪過 連結  
廣州天氣預報：多雲，氣溫 27~36°C  
分隔線  
廣州月平均氣溫 25.2~32.6°C，月平  
均雨量 221 毫米，月平均降雨 16 日  
(降雨量  $\geq$  0.1 毫米)。

NVDA 報讀顯示

6-3

顯示鄰近地標  
展現周遭環境

可能的原因



地址：台北市100中正區公園路64號 電話：02-23491234(24hr)

交通參考資料：

捷運	
淡水信義線	台大醫院站-出口1、中正紀念堂站-出口7
松山新店線	中正紀念堂站-出口7

公車站牌	
站牌1 - 市立大學附小	5、204、235、236、236夜間公車、241、243、251、630、644、662、663、706

本局地址為台北市中正區公園路 64 號，  
介於貴陽街一段與愛國西路之間，與北  
一女中、台北市立教育大學坐落同一街  
區，正對面是台北市弘道國中。本局位  
於捷運台大醫院站及中正紀念堂站之間，  
鄰近外交部與介壽公園。

可能合適的描述

- ? alt=
- ? longdesc=
- ? <figure>

都不適合

<details>

<summary>

HTML 5.1

**<details>**

**<summary>**

**摘要部分**

**</summary>**

**完整描述**

**</details>**

HTML 5.1

```
<details>
  <summary>
    
  </summary>
  <p>本局地址為台北市中正區公園路 64 號，  

    介於貴陽街一段與愛國西路之間，與北  

    一女中、台北市立教育大學坐落同一街  

    區，正對面是台北市弘道國中。本局位  

    於捷運台大醫院站及中正紀念堂站之間，  

    鄰近外交部與介壽公園。</p>
</details>
```



地址：台北市100中正區公園路64號 電話：02-23491234(24hr)

交通參考資料：

## 捷運

淡水信義線

台大醫院站-出口1、中正紀念堂站-出口7



本局地址為台北市中正區公園路 64 號，介於貴陽街一段與愛國西路之間，與北一女中、台北市立教育大學坐落同一街區，正對面是台北市弘道國中。本局位於捷運台大醫院站及中正紀念堂站之間，鄰近外交部與介壽公園。

地址：台北市100中正區公園路64號 電話：02-23491234(24hr)

交通參考資料：

# Details & Summary elements - LS

Taiwan

84.09%

Global

76.71%

The <details> element generates a simple no-JavaScript widget to show/hide element contents, optionally by clicking on its child <summary> element.

Current aligned	Usage relative	Show all	IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser	Blackberry Browser	Opera Mobile	* Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet
						49					4.4							
						50			8.4									
			8	13	1 47 	51			9.2		4.4							
			11	14	1 48 	52	9.1	39	9.3	all	51	10	37	51	47	11	9.9	4
						49	53	10	40									
						50	54	TP	41									
						51	55											

Notes Known issues (2) Resources (9) Feedback

- Specification [html.spec.whatwg.org] [ref](#)
- WebPlatform Docs [docs.webplatform.org] [ref](#)
- HTML5 Doctor article [html5doctor.com] [info](#)
- Bug on Firefox support [bugzilla.mozilla.org] [info](#)
- Fallback script [gist.github.com] [polyfill](#)
- jQuery fallback script [mathiasbynens.be] [info](#) [polyfill](#)
- has.js test [raw.github.com] [info](#)
- IE platform status: Under Consideration [status.modern.IE] [official status](#)
- Chrome platform status: Enabled by default [chromestatus.com] [official status](#)

<http://caniuse.com/#feat=details>

提供交通資訊  
協助路徑規劃

可能的原因



地址：台北市100中正區公園路64號 電話：02-23491234(24hr)

交通參考資料：

捷運	
淡水信義線	台大醫院站-出口1、中正紀念堂站-出口7
松山新店線	中正紀念堂站-出口7

公車站牌	
站牌1 - 市立大學附小	5、204、235、236、236夜間公車、241、243、251、630、644、662、663、706

鄰近的大眾交通工具  
路線、班次頻率、最  
末段徒步指引

固定的文字資訊

# **HTML5 Geolocation API**

**+**

# **Google Maps Directions API**

**動態產生文字資訊**

# Can I use geolocation

?  Settings

1 result found

## Geolocation - REC

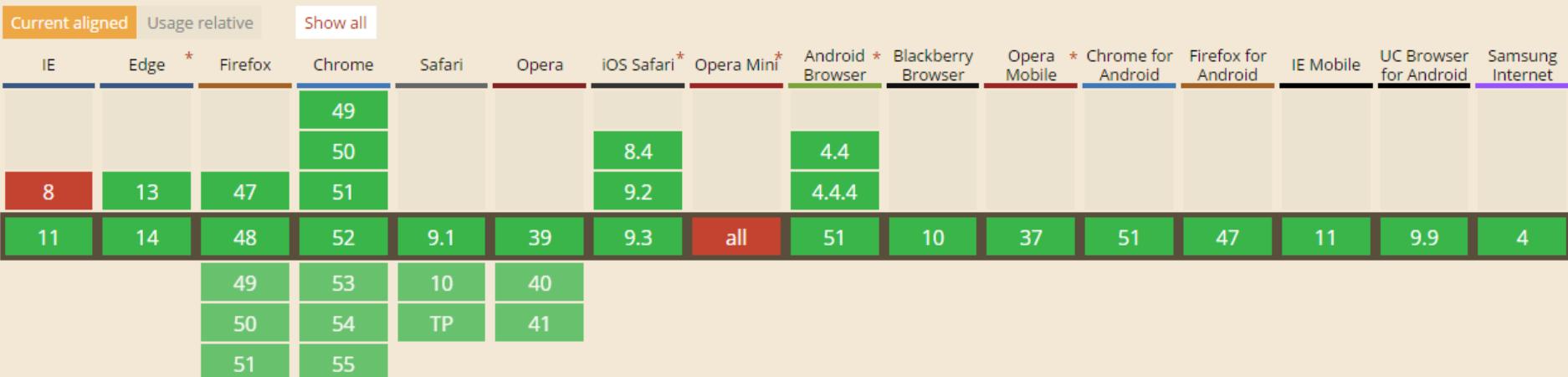
Taiwan

97.48%

Global

91.97% + 0.01% = 91.98%

Method of informing a website of the user's geographical location



Notes Known issues (4) Resources (6) Feedback

- Firefox sometimes fails to call the success or error callbacks [see bug](#)
- Safari 5 & 6 seem to not provide geolocation data [when using a wired connection](#).
- iOS6 has problems with returning [high accuracy data](#).
- IE9 appears to [have some issues](#) in correctly determining longitude/latitude.

<http://caniuse.com/#feat=geolocation>

[7]

# 網頁應用程式

## Rich Internet Application

# JavaScript / AJAX

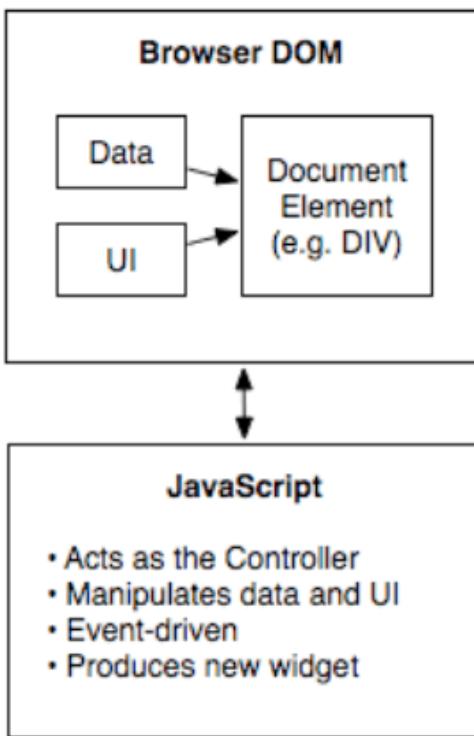
通常會用

# WAI-ARIA

<https://www.w3.org/TR/wai-aria/>

可以怎麼做

## User Agent



## Accessibility API

### Role

- Widget Types
- Navigational landmarks

### States and Properties

- Widgets
- Form
- Live Region
- Relationships
- Value

### DOM-implied hierarchy

### State and Property Events

## Assistive Technology

# 名稱、角色、狀態、屬性、值

## Names, Roles, States, Properties, Values

WAI-ARIA

# Can I use

# wai-aria

?  Settings

1 result found

## WAI-ARIA Accessibility features - REC

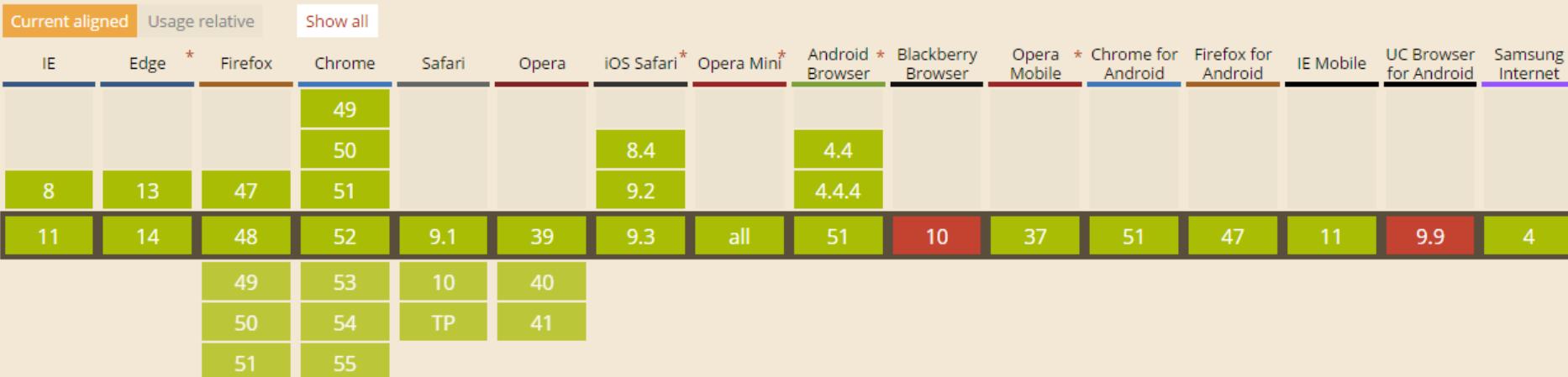
Taiwan

0% + 98.07% = 98.07%

Global

0% + 89.68% = 89.68%

Method of providing ways for people with disabilities to use dynamic web content and web applications.



Notes

Known issues (0)

Resources (6)

Feedback

Support for ARIA is rather complex and currently is not fully supported in any browser. For detailed information on partial support see the [ARIA 1.0 Implementation Report](#)

<http://caniuse.com/#feat=wai-aria>

**tabindex="0"**

**tabindex="-1"**

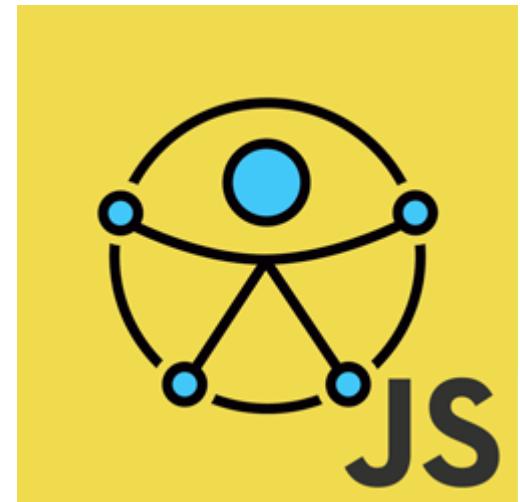
**focus()**

Focus Management

**role="alert"**  
**aria-live="polite"**  
**aria-live="assertive"**

Live Regions

**ally.js**  
**<http://allyjs.io/>**



JavaScript

# A11y Kit Library

[http://bit.ly/a11y\\_kit](http://bit.ly/a11y_kit)

[https://github.com/patrickfox/a11y\\_kit](https://github.com/patrickfox/a11y_kit)

jQuery



**jQWidgets**  
better web, less time

**<http://www.jqwidgets.com/>**

jQuery

# ngA11y

<https://github.com/dequelabs/ngA11y>

## Angular.js

# React ARIA

<https://github.com/souporserious/react-aria>

React

# Authoring Practices

<https://www.w3.org/TR/wai-aria-practices/>

WAI-ARIA



[https://dl.dropboxusercontent.com/u/784910/p4/slide/20160829\\_CWB/02-practice.pdf](https://dl.dropboxusercontent.com/u/784910/p4/slide/20160829_CWB/02-practice.pdf)