Browser standards - DRAFT

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Purpose

This guidance is for all website managers, web developers and web testers delivering public sector websites. It is designed to help you decide which browsers and operating systems to test your website on. Contents include help with testing your website on different browsers, a worked example on how to create a browser standard and a template for effective communication of browser support.

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Introduction

Aims and objectives

The Government aims to provide a consistent high quality experience for users across all of its online services. However, there are a large number of different browsers on the market and to support all of them would be impractical and inefficient. The objective of this guidance is to enable you to develop a robust browser standard that is:

- suitable for your site (i.e. reflects what your users actually use)
- inclusive (i.e. supports Windows, Mac and Linux)
- reasonable (i.e. may not support old or unpopular browsers)

It is important to declare which browsers your website has been tested on. This demonstrates a clear commitment to your audience. Users will want to know whether or not your website works with their browser.

Who is this guidance for?

This guidance is for public sector website managers, web developers and testers.

Website managers

- How to find out which browsers your users are using.
- How often your standard should be reviewed.
- An example browser support statement.

Web developers and testers

- How to determine which browser and platform combinations to support.
- What “support” means.
- What to test on each browser.

Scope

In scope:

- How to develop a browser standard.
- When you should review your standard.

Out of scope:

- How to code for browser compatibility.
- Development methodologies such as *graceful degradation* and *progressive enhancement.*
- Support for mobile platforms and devices.

What you need to know

Which are the most popular browsers accessing my site?

1. There are several websites which provide global statistics for browser usage, for example www.thecounter.com. However, these figures may not be representative of the users of public services or your website in particular.

2. Your browser standard must be based on the most popular browsers accessing **your** website.

3. Information on browser usage is available from your web server log files or from **web analytics** servers.

4. Different target audiences have different browser preferences. For example, students are more likely to use Firefox than corporate or business users. Therefore, browser standards should also take into account **target audience demographics**.

How often should I update my browser standard?

5. Browser standards should be updated at every major website re-development to ensure that the latest versions are catered for.

6. Reviewing the standard should also be considered if a market leader (i.e. the most popular supplier for either operating system or browser) plans a major version upgrade. These are typically an x.0 rather than a 0.x release.

7. As a minimum, your browser standard must be updated every two years.

What should I include in a browser support statement?

8. You must publish a list of the browsers you have tested your website on.

9. The list should be part of your ‘Help’ or ‘Accessibility’ section and directly linked from the home page.

10. This information must be updated whenever the standard itself is updated.

11. Avoid using statements such as, ‘This page is best viewed with Browser X’.

12. The following is an example browser support policy statement that may be used on your website:

    [Website name] has been tested on a wide range of browsers:

[List supported browsers here]

We advise you to upgrade your browser version as far as your computer allows and if possible to one of those listed above. However, the following browsers should also provide access to all of the content and navigation on the site:

[List semi-supported browsers here]

If you are experiencing problems with accessing the site, please contact [details here].

Do I need to test my website on every browser?

13. Public sector websites have a responsibility to be inclusive and not to exclude groups of users. This means that your browser standard should be to be as inclusive as possible. However, this needs to be balanced against increased testing times and costs.

14. Your browser standard must support the three main operating systems: Windows, Mac and Linux.

15. There may be specific browsers that you choose not to fully support because they are either old or unpopular. The following guidance has been devised to help you decide the most appropriate browsers to support.

How to develop the standard

Support popular browsers and operating systems

16. Testing against browsers and operating systems used by 2% or more of your users should lead to a reasonable browser standard and a good overall level of support. This does not imply that browsers used by less than 2% of your users are unsupported. However, the 2% figure is a useful guide to where the appropriate cut-off point is.

17. Browsers used by **2% or more** of your users must be supported.

18. Operating systems used by **2% or more** of your users must be supported.

19. The **two most popular browsers** on each supported operating system must be supported.

20. Browsers and operating systems used by **less than 2%** of your users may be semi-supported. This means that the content and navigation works but the website might not display correctly.

21. The terms supported, semi-supported and unsupported are defined in the section, 'Testing against your standard'.

22. Web analytics for browser usage are usually based on numbers of unique users, visits or page impressions. To ensure equal priority is given to each user, your standard should be based on **unique users**.

23. Unique users are defined according to the industry standard definition from the Joint Industry Committee for Web Standards[1] (JICWEBS).

Support current versions

24. The browser that ships with the **current** version of each supported operating system must be supported.

25. Older browser versions should not be tested on newer operating systems (i.e. those shipped with a later release date).

26. Supported browsers and operating systems should be **fully released products.**

27. Beta versions may be semi-supported or unsupported.

[1] Joint Industry Committee for Web Standards http://www.jicwebs.org/standards.php

28. The **latest service pack** or major maintenance release (or point release) for an operating system should be supported.

29. Minor maintenance releases should not be tested separately.

Support secure products

30. Statements and security warnings from manufacturers and developers and from bodies such as the Communications Electronic Security Group[2] (CESG) should be supported to ensure that a defendable pragmatic standard is adopted.

31. Browsers or operating systems that are not **supported from a security perspective** by the supplier (e.g. Windows 98 and Windows NT are no longer supported by Microsoft) may be semi-supported or unsupported.

Support Linux

32. To ensure support for an open source operating system, the Linux operating system must be supported even if less than 2% of your users are using it.

33. There are many versions, or distributions, of Linux.[3] Each distribution has its own strengths and weaknesses, being better suited to some tasks than others. Distributions also vary in terms of licensing, cost and complexity of use, with some being better suited to new users and others towards experienced administrators. Therefore, choosing the distribution to test is difficult.

34. At the time of writing, the most popular versions of Linux are Ubuntu, openSUSE, and Fedora. However, Ubuntu is recommended for the following reasons:

    - According to the Page Hit Ranking statistics[4] it is the most popular version of all distributions.
    - The graphical install and management process makes it easier to learn.

Support Mac

35. To ensure support for the three main operating systems, your website must support the Mac operating system.

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[2] Communications Electronic Security Group http://www.cesg.gov.uk/
[3] There are currently over 300 different distributions of Linux although several of these are now discontinued. The majority of these though are variants of Redhat and Debian.
[4] DistroWatch.com http://distrowatch.com/stats.php?section=popularity

36. The most popular browser available on Mac should be supported.

Other platforms, devices and user agents

37. Your website should be tested with assistive technology (e.g. screen readers, speech recognition software etc.) Plans to test websites with assistive technology should form part of your website accessibility policy. Guidance on developing accessibility policies[5] is available in *Delivering inclusive websites (TG102)*.

38. It is recommended that websites are tested with the Lynx text browser. Lynx has no visual rendering but is a very useful way to ensure that core content and navigation are available to users. It works in a similar way to a screen reader and therefore gives an idea of the website's level of accessibility. More information on testing websites for accessibility[6] is available in *Delivering inclusive websites (TG102).*

39. Guidance on support for mobile platforms will be the subject of future guidance.

Technical standards

40. These guidelines do not advocate specific development methodologies, for example *graceful degradation* or *progressive enhancement*. However, it is widely accepted that sites conforming to open web standards such as XHTML and CSS are more likely to work well across a wide range of browsers. The importance of working to technical standards[7] is highlighted in *Minimum technical standards (TG109)*.

An interesting discussion on graceful degradation vs. progressive enhancement[8] is available on the Yahoo website.

[5] Delivering inclusive websites (TG102)
http://www.coi.gov.uk/guidance.php?page=132#section3a
[6] Delivering inclusive websites http://www.coi.gov.uk/guidance.php?page=129
[7] Minimum technical standards (TG109) http://www.coi.gov.uk/guidance.php?page=176
[8] Yahoo! UI Library: Graded Browser Support
http://developer.yahoo.com/yui/articles/gbs/index.html#progressive-enhancement

Testing against your standard

What does “support” mean?

41. Support for browsers may be broken down into three areas:

    - **Content** – is the message being communicated by the page delivered to the user?
    - **Functionality** – can users do everything they need to?
    - **Display** – does the page look as it should do in terms of style and layout?

42. A browser is **supported** if the content, functionality and display all work as intended.

43. A browser is **semi-supported** if the content and navigation works but the website does not display as intended.

44. A browser is **unsupported** if the content and navigation do not work as intended.

What do I need to test on each browser?

45. You should test your website on each supported browser for content functionality and display.

46. To test functionality, different types of interaction should be examined, for example:

    - Navigation
    - Form filling
    - Browser back button
    - Logging in to secure areas
    - Sessions or cookies
    - Ability to bookmark content
    - Rich internet applications

47. An example template for testing browser support is available in Appendix B.

What are rich internet applications?

48. Rich internet applications (RIAs) are web applications that provide an increased level of interactivity, similar to traditional desktop software. This is achieved through technologies such as JavaScript, AJAX and Flash. RIAs

can deliver a more engaging user experience but may be unavailable to users with scripting disabled or without the correct browser plug-in. For example, corporate users may be excluded due to their organisation's IT policy.

49. RIAs and content that relies on scripting or plug-ins should be tested with scripting and plug-ins turned off to ensure the correct level of support.

What about cross-platform browsers?

50. Certain browsers (e.g. Firefox) are developed using cross-platform technology (e.g. Java) and therefore behave similarly on different operating systems.

51. Support for cross-platform browsers may be demonstrated by testing on a single operating system.

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Appendix A: Worked example – COI

Which browsers and operating systems to support

Let's work through the process to develop a reasonable browser standard.[9] Taking the COI website as an example, the following table shows the number of visits from different browser and operating system (OS) combinations:

Browser and OS	Visits	% Visits
Internet Explorer / Windows	19,777	83.25%
Firefox / Windows	2,061	8.68%
Safari / Macintosh	948	3.99%
Firefox / Macintosh	602	2.53%
Mozilla / Linux	153	0.64%
Opera / Windows	52	0.22%
Firefox / Linux	35	0.15%
Mozilla / Windows	20	0.08%
Safari / Windows	19	0.08%

Table 1: No. of visits to COI from different browser/OS combinations (July 2008)

Taking everything above 2% and including Linux (which must be supported even though less than 2% of users are using it), leads to the following standard:

- **Windows:** IE and Firefox
- **Mac:** Safari and Firefox
- **Linux:** Mozilla (Firefox)

Which versions to support

To determine which versions to support, we need to drill down further. The following table shows the number of visits to COI from different versions of Windows:

Windows	Visits	% Visits
XP	12,959	59.06%
NT	5,180	23.61%
2000	1,729	7.88%
Vista	1,722	7.85%
Server 2003	311	1.42%
98	28	0.13%

[9] This example is illustrative; your browser standard should be based on the usage statistics for your website.

CE	10	0.05%
ME	2	0.01%

Table 2: No. of visits to COI from different Windows versions (July 2008)

Again, taking everything above 2% but excluding Windows NT (Microsoft no longer support NT from a security perspective) means supporting:

- Windows XP
- Windows 2000
- Windows Vista

The following table shows the number of visits from different versions of Internet Explorer (IE):

Internet Explorer	Visits	% Visits
6	13,100	66.22%
7	6,650	33.61%
5.5	26	0.13%
5.23	3	0.02%
5	2	0.01%
5.01	1	0.01%
5.16	1	0.01%

Table 3: No. of visits from different IE versions (July 2008)

The above table means that the website must be tested on IE6 and IE7.

The following table shows the number of visits from different versions of Firefox:

Firefox	Visits	% Visits
2.0.0.16	663	24.51%
2.0.0.15	657	24.29%
3	476	17.60%
3.0.1	363	13.42%
2.0.0.14	259	9.57%
2.0.0.11	40	1.48%
2.0.0.12	27	1.00%

Table 4: No. of visits from different Firefox versions (July 2008)

Grouping the versions together (we don't need to worry about differences between e.g. version 2.0.*x* and 2.0.*y*) means that the website must also be tested on Firefox 2.0 and Firefox 3.0.

The browser standard

Taking all of the above into account, a reasonable (minimum) browser standard for the current COI website is:

- **Windows XP:** IE 6, IE7, Firefox 2.0, Firefox 3.0
- **Windows 2000:** IE6, Firefox 2.0, Firefox 3.0
- **Windows Vista:** IE7, Firefox 2.0, Firefox 3.0
- **Mac:** Safari 3.1,[10] Firefox 2.0, Firefox 3.0
- **Linux:** Mozilla (Firefox)

Firefox testing

Testing the website on Firefox 2.0 and 3.0 across all supported operating systems is unnecessary because the user experience is likely to be similar, regardless of OS. Testing on one or two of the supported OSs is sufficient.

Note: The COI website is also tested with Lynx.

[10] Safari 3.1 is supported because it is the version shipped with the current version of Mac OS.

Appendix B: Template for testing browser support

You will need to record the level of support for different browsers when testing your website. Test different types of interaction (these are examples only and should be modified for your particular needs) as illustrated in the following template:

Browser:			
Operating system:			
Interaction test	**Pass**	**Fail**	**Semi**
Navigation			
Form filling			
Browser back button			
Logging into secure sections			
Use of cookies (e.g. session expiry)			
Ability to bookmark (i.e. return to the same place)			
Rich internet applications (e.g. AJAX, Flash etc.)			
…			
Level of support: Supported / Semi-supported / Unsupported			
Key to test results • **Pass –** content and functionality work as intended • **Fail –** does not work as intended • **Semi –** works but with display issues			

The level of support is determined as follows:

- **Supported –** all passes
- **Semi-supported –** all passes with some *semis*
- **Unsupported –** any fails