



## Accessibility and Usability Standards for Integration Summary

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|-----------------------------|--|-------------|----------------------|
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| <b>Contact(s) for Help</b>  | Claire Jennings  |             |                      |
| <b>Description</b>          | <p><b>Intended Audience:</b> All BBC Staff</p> <p><b>Use:</b> To provide the information and support needed to make educated choices to ensure accessibility and usability are considerations in the process of integration and implementation for internally-facing applications and systems. This document should be used in conjunction with the associated check-list.</p> |             |                      |
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on gateway :- [http://guidelines.gateway.bbc.co.uk/dq/diversity/accessibility\\_standards.shtml](http://guidelines.gateway.bbc.co.uk/dq/diversity/accessibility_standards.shtml)

on bbc.oc.uk :- <http://www.bbc.co.uk/guidelines/dq/contents/diversity.shtml>

# British Broadcasting Corporation

## Accessibility and Usability Standards Document Three – Integration Summary

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# 1. Introduction

This document is the third in a series of seven which cover Accessibility Standards. Other documents which should be consulted are:

Accessibility and Usability Standards Document One – Procurement

Accessibility and Usability Standards Document Two – Procurement and Checklists

Accessibility and Usability Standards Document Four - Integration Checklist

Accessibility and Usability Standards Document Five - Training Inclusively for Disabled People

Accessibility and Usability Standards Document Six - Training Inclusively for Disabled People Checklist

Accessibility and Usability Standards Document Seven – Technical Design Standards

In June 2004, the BBC Governors announced their intention to increase the proportion of disabled staff at the BBC from 2.8 percent to 4 percent by 2007. This target was exceeded: as of May 2009 the figure is 4.4%. There is now a new target in place – 5.5% before the end 2012.

This has inevitably increased the percentage of access technology users needing to access our desktop applications and broadcast technology. Future Media and Technology intend the BBC to be a world class leader for accessibility of technology, implementing corporate ownership of access, rather than the outdated model of associating patch up fixes with the disabled individual. In this way, the BBC will be technologically accessible wherever a disabled person happens to log in and will enable them to move from work-station to work-station or studio to studio.

The Governors' targets are prompted by changes in the law since 1995 and research which clearly demonstrates a strong business case for employing more disabled members of staff. Providing a fully accessible technological environment will help the BBC to employ the most talented individuals. The aim therefore is to provide an accessible environment that disabled members of staff can work in or move into, not to address 'problems' at an individual level.

The 1995 Disability Discrimination Act (DDA) places a duty on the BBC, as it does other UK organisations, 'to make reasonable adjustments' so as not to place a disabled person at a substantial disadvantage compared with people who are not disabled and to ensure that disabled people are not treated less favourably than non-disabled colleagues. What constitutes a 'reasonable adjustment' is an important consideration as well as the process that facilitates the decision. This is because a failure to make reasonable adjustments could have considerable financial consequences for the BBC's reputation and brand, as well as having cost implications if a case is brought before a tribunal.

The BBC also recognises the importance of ensuring its technologies and applications are usable to all members of staff. By following a user centred design approach, based on ISO 9241 Part 210, the BBC can ensure that systems allow staff to work more efficiently, effectively and comfortably. In fact, making a product technically accessible is not enough as accessibility does not always imply usability. For instance, coding a form field so that its label is associated with the data entry field will make the field accessible to JAWS users. However, if the content of the label is not meaningful, then the data entry field becomes meaningless to all users. To ensure all staff can work optimally, accessible products must also be usable, appealing and pleasurable to use.

Investing in accessible and usable products provides a number of significant business benefits:

- Increased effectiveness and efficiency of your workforce

- Decreased training time and learning time
- Reduced maintenance costs
- Better user satisfaction, leading to a happier more confident workforce

## 2. Procurement, Accessibility and Usability

This document provides you with the information and support you need to make educated choices to ensure accessibility and usability are considered in the process of integration and implementation for internally-facing applications and systems. This document should be used in conjunction with the associated checklists.

## 3. High-level questions

These questions will help identify many of the potential accessibility and usability issues. These must be asked at the earliest stage of the project design. Time and focus spent at this stage on key issues can save valuable development effort later.

The value in considering these questions in the development is two-fold. Firstly a focus is given to accessibility and usability right at the start – experience shows (as with any development project) that it is much more costly and inefficient to try and ‘retro-fit’ changes (either to the project or to the Assistive Technology products) in order to improve accessibility and/or usability than it is to build in from the start. Secondly, many accessibility features (such as tab order, colour settings etc) can easily be incorporated simply by keeping to already existing standards. This is also true for usability features. Again, experience shows that it is the non-adherence to these existing standards that causes most problems.

## 4. Scoping accessibility and usability requirements

Before starting to consider accessibility and usability requirements a number of questions can be asked which will help determine the level of work that is required for the accessibility and usability component. In many ways these questions are not different from the normal questions that would be asked as part of any project – formalising these together with other project issues can ensure that accessibility and usability are built into the project life-cycle from the start. A named person within the team needs to have ownership of the task of ensuring that the application is tested for accessibility by Terry Clarke from Blazie and is tested for usability by Mickela Perera from System Concepts long before it is released onto the desktop or into a broadcast studio. If it has not been signed off by Terry Clarke, it will not be considered accessible. Similarly, if it has not been signed off by Mickela Perera, it will not be considered usable.

Things to consider:

- Determine the extent and complexity of the functionality of the application – for example how many screens are being used, how many fields, are there screens with complex user interaction, is the navigation logical, are similar functions consistent?
- Encourage an inclusive user-centred design process. This aims to design from the perspective of the user first, rather than the technical or functional requirements. For example it may be useful to design screen layouts at an early stage of development so that issues are ironed out here rather than when coding is complete.
- Apply the application software accessibility guidelines and use associated checklists.
- Write accessibility and usability requirements into the Design brief, Request For Questions (RFQ) or Invitation to Tender (ITT). If an evaluation process is to take place ensure that accessibility and usability are given a sufficient weighting.

- Ensure that user evaluation, either in the form of real user testing or an expert review is conducted. Ideally consider iterative testing in order to ensure that users are involved throughout the integration and implementation process. Involving users throughout the process has the added benefit of improving user buy in of the product as well as reducing training costs (through a more intuitive user interface). If you require help with your usability test strategy contact Mickela Perera.
- Incorporate accessibility into testing requirements and schedule accessibility testing with Terry Clarke.
- Consider if training is required. If so, determine how user training and familiarisation will take place for Assistive Technology users. Will separate arrangements need to be made?
- Determine how User Support will operate. Will there need to be a separate regime for Assistive Technology users?

## 5. Verification of Accessibility and Usability

Verification is a way of ensuring that the standards that have been applied through the procurement and design stages have produced a product that is accessible and usable. Verification of accessibility and usability is a **mandatory** process, which must, in all cases, form part of the normal sign off process for the product or project and should be carried out with the assistance of Terry Clarke and Mickela Perera.

If the development design rules are followed as outlined within this series of documents it can be anticipated that the majority of development will be able to be verified as accessible and usable. It is of course far more preferable from the project or product procurement's point of view that this is the case. Although there are further techniques that may be applied (as in the next paragraph) this is a relatively expensive option that can be avoided with pre-planning consideration of accessibility and usability at the design stage.

In some cases the functional design of the product may mean that parts of the product may fail the accessibility design tests carried out by Terry Clarke. In this case it may still be possible to make the product accessible by configuring Assistive Technology products to better work with the application. This is known as "scripting". The following three products are in widespread use within the BBC: JAWS, Zoomtext and Dragon Naturally Speaking. This is of course not a full list as consultation with users may have identified further assistive applications. If this is the case information on the applications and contact points may be obtained from:

**Claire Jennings, Head of Access Technology and usability Strategy**  
**Tel: 07870 582145.**

### JAWS (Job Access With Speech)

JAWS for Windows is the standard product of choice for users with little or no useful sight. JAWS is the world leading screen reader product; screen readers speak text from a screen in a context driven manner. Fairly obviously JAWS can only speak **TEXT** that is on the screen and cannot interpret graphics. (There are some ways that graphics can be interpreted, e.g. ALT text on web pages.)

JAWS uses Visual Basic type scripts (or applets), which operate between JAWS and an application. JAWS is delivered with a number of pre-written scripts (for example for the Microsoft Office suite) and it is also possible to write bespoke scripts to better enable JAWS to work with any application.

## **Zoomtext**

Zoomtext is the standard magnification tool within the BBC. This tool magnifies what is on the screen on a pixel-by-pixel basis to enable someone with poor sight to more clearly see what is on the screen. Importantly it also has logic that enables magnified text fonts to be properly rendered as smoothed characters rather than just on a pixel-by-pixel basis. Consequently, any text that is rendered as a graphic rather than real text may be completely unrecognisable when magnified.

## **Dragon Naturally Speaking**

Dragon Naturally Speaking Professional is the standard product for voice recognition purposes within the BBC. Voice recognition allows a user to control a computer by speaking commands to that computer. Dragon is particularly useful for people who have difficulty using a mouse or a keyboard possibly because of upper-limb motor difficulties or RSI.

Adherence to the accessibility rules usually means that Voice recognition works well. In essence, provided an application can be used by the keyboard alone (i.e. without the use of a mouse) it will be usable by a Dragon user.

## **Accessibility Advice and Verification**

The BBC and Siemens works closely with Terry Clarke from Blazie Engineering on all issues related to application accessibility and Assistive Technology. He should be consulted on both the verification of the accessibility of product design and the necessity or otherwise of any additional Assistive Technology modifications. Blazie's contact details are:

Terry Clarke  
Blazie  
Canada House  
272 Field End Road  
Eastcote  
Middlesex  
HA4 9NA  
Tel: 020 8582 0450  
Fax: 020 8582 0451  
terry@blazie.co.uk

Where scripting (whether Jaws scripts or Dragon macros) has been carried out as part of accessibility and verification provision, it is important that appropriate controls are put into place for the versioning and control of such scripts. Copies of all scripts should be logged with Siemens via their Assistive Technology Manager (Paul Balbi 07764 354827) to ensure correct deployment with applications.

Assistive Technology configuration may also generate keyboard maps and associated documentation which should also be logged with the Siemens Assistive Technology Manager, as this information is crucially important for training purposes. It is also important to recognise that scripts themselves may need further re-work if the application configuration is changed. (This is, of course, another reason to avoid scripting if possible).

## **User Testing and Expert Reviews**

Verification can take two forms: user testing and expert reviews. User testing will allow you to evaluate the ease-of-use of the system, by assessing key usability components such as efficiency, learnability, memorability, errors, satisfaction, consistency and utility (e.g. does it do what users need?).

User testing consists of three activities:

- recruitment of representative users,
- test plan of representative tasks,
- listening and observation.

User testing should be carried out with at least 5 users. When selecting your sample of users, consider if your users vary in requirements across groups, as well as the frequency of use by each group. For example, if you have a range of novice to expert users, you will want to recruit at least 3 novice and 3 expert users; if the functionality and user interface differs significantly by role, you will also want to recruit a sample 3 users per role.

Once you have recruited your sample, prepare a test plan with a list of 3 or 4 representative task scenarios. An example of a task scenario is: "Imagine you have just arrived at your desk in the morning and you notice a new email application on your desktop. Please open this application, set it up to match your preferences and send a test email". The task scenarios do not tell users how to complete the task, but rather presents a typical goal that they may want to achieve as part of their role.

During the task, ask the user to think aloud, and record: any problems they may experience, unclear use of language, inconsistencies and barriers. (For more details on usability and accessibility best practice please refer to the checklists in Accessibility and Usability Standards Document Four and technical standards and guidelines in Accessibility and Usability Standards Document Seven.)

Listen to the user, and do not lead them through the task or ask leading questions. Observe the steps the users take, and areas where they get stuck. Analyse the data and identify trends in issues (e.g. issues reported by 3 users) to prioritise the showstoppers from the 'nice to haves'. Report the findings from the user sessions about the efficiency, effectiveness and satisfaction of the product prior to procurement and use this information to negotiate improvements to the product.

A second method for verification is the Expert Review. This can take place early in the project lifecycle and can be carried out with a demonstrator, screen shots or wireframes. An expert review will allow you to identify usability and accessibility issues in a user interface, as well as potential problems with navigation and content. A usability expert will carry out a 'walkthrough' with the user and check against usability best practice and heuristics. Issues are recorded and prioritised, along with recommendations in a report which is shared with the project team to support the procurement process.

## **Usability Advice and Verification**

For issues relating to the efficiency, effectiveness, user satisfaction and usability of applications or systems, contact Mickela Perera from System Concepts Ltd. Mickela should be consulted during all stages of the development process to ensure that a User Centred Design process is followed. System Concepts' contact details are:

Mickela Perera  
System Concepts Ltd  
2 Savoy Court  
Strand  
London WC2R 0EZ  
Tel: 020 7240 3388  
Fax: 020 7240 5212  
Mickela@system-concepts.com

## **6. Funding.**

Accessibility to technology is one of a number of areas where the BBC, as an employer, may need to make adjustments under the Disability Discrimination Act. Therefore, any associated costings relating to accessibility are the responsibility of the project owner. It is important to include a budget for accessibility in the original Investment Proposal and ensure that on-going finances are available for any adjustments that may be required during upgrades to the project or to the access technology version supplied via the desktop.

Such expenses may be incurred during initial testing or verification of an application or system, when external companies provide application-specific Assistive Technology modifications or the alteration of the application's architecture requires further accessibility work (and the manufacturer feels that the benefits of this work would only be felt by the BBC). If it is felt that such changes benefit a user-base beyond the BBC's specific requirements it may be possible to persuade manufacturers to shoulder the costs of accessibility-related modifications themselves. Having a member of the project team to act as a conduit, linking the manufacturer, the accessibility assessment provider and the project is essential.

## **7. Training and on-going support.**

Responsibility for training Assistive Technology users rests exclusively with the manager of the project to be deployed. It may be that such training will require intervention from a specialist third-party Assistive Technology training resource. Further details about training provision are available in the document "Accessibility Standards Document Five - Training Inclusively for Disabled People".

Further to this it is important that the project manager incorporates Assistive Technology users in any plans for on-going support. This may include, for example, additional help or user-guide documentation for Assistive Technology users and specific targeted documentation for support staff who may be responding to calls from such users.

## 8. History

| Version | Date                      | Author                       | Description  |
|---------|---------------------------|------------------------------|--|
| 0.1     | 25 October, 2004          | Paul Balbi & Claire Jennings |  |
| 0.2     | 26 October                | Paul Balbi & Claire Jennings | Suggested changes by Claire to strengthen verification process and script ownership.   |
| 0.3     | 26 October                | Paul Balbi & Claire Jennings | Change to include reference to keyboard mappings.  |
| 0.4     | 17 March 2005             | Claire Jennings              | Defined funding ownership and training responsibilities.   |
| 0.5     | 4 <sup>th</sup> May 2005  | Paul Balbi                   | Amended checklists   |
| 0.6     | 12 <sup>th</sup> May 2005 | Paul Balbi                   | Removed detail information to separate document Accessibility Standards Detailed. Amended Blazie contact details. Minor text changes.        |
| 0.7     | 16 <sup>th</sup> May 2005 | Paul Balbi                   | Checklist changes  |
| 0.8     | 17 <sup>th</sup> May      | Paul Balbi/Claire Jennings   | Doc name change for consistency  |
| 0.9     | 18 <sup>th</sup> May      | Paul Balbi/Claire Jennings   | Text changes   |
| 0.10    | 8 <sup>th</sup> June      | Paul Balbi/Claire Jennings   | Incorporation of suggestion from Tim Harness   |
| 1.0     | 12.12.05                  | DQ Team                      | Published for DQ   |
| 2.0     | 16/07/2007                | Claire Jennings              | Addition of wording to section 3   |
| 2.01    | 24/01/2008                | Claire Jennings              | Update to include provision of Broadcast Technology as part of accessibility considerations.   |
| 2.1     | 03/07/2009                | Terry Clarke/Paul Bepey      | Updated BBC's diversity targets plus some general re-writing and strengthening of language from, for example, <b>should</b> to <b>must</b> . |
| 2.2     | 21/08/2009                | Mickela Perera/ Terry Clarke | Added usability related information to the document  |

Any comments, queries or change control requests about this document should be addressed to: Claire Jennings