Oracle's Commitment to Accessibility

A White Paper by Bloor Research
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Publish date : October 2007

Oracle recognizes that accessibility is a continuing journey and it will continue to invest to ensure a high level of support in its current and future products

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People with disabilities want to be independent; they want to do things for themselves by themselves. This is a fundamental issue of human dignity, which is enshrined and enacted in good corporate responsibility and legislation and also enabled by good business practice. Disabled people may be amongst your staff and will be an increasingly large proportion of your client base too.

The word 'accessibility' is used to cover all the technologies, standards and practices involved in making Information and Communication Technology accessible to the widest possible community, including people with disabilities such as vision impairments, upper limb disorders, hearing loss and cognitive disorders.

This report investigates Oracle's support of accessibility. It considers:

- The role and scope of Oracle's product and services in the implementation of an accessible solution.

- Oracle's commitment to accessibility both internally and in its relation to clients, other hardware and software vendors, legislation and standards.

- Oracle's support of accessibility within its software and services offerings.

The report concludes that Oracle has an ongoing commitment to accessibility and its implementation with Oracle products and services.

Implementing an accessible solution requires the joint support of multiple players, including Oracle. To understand Oracle's role it is necessary to identify the other players and their relationship to Oracle and each other. Taking an e-commerce website as an example the stakeholders include:

- The enterprise that owns the site must have ultimate responsibility for ensuring the site is accessible to any client or member of staff who may wish to use it. However the enterprise can only create an accessible solution with the support of the other stakeholders.

- Some users with disabilities need to use Assistive Technologies such as screen readers, screen magnifiers or single switches. The vendors of these products have to ensure that they work in combination with the other hardware and software vendors.

- The end user of the system (the client or member of staff) must know how to use the system and in particular how to use and configure any specialized Assistive Technology (AT) products.

- Accessible solutions require that applications honor accessibility-related functionality supplied by the operating system and browser, such as user preferences for color, contrast, font type, font size, and focus cursor.

- The browser must properly interoperate with the Assistive Technology, and pass information supplied by the application correctly.

- Oracle, and possibly other vendors, will supply middleware including portals, databases, content management systems, application servers and development tools. All these middleware components can have an impact on the accessibility of the complete solution. They must all support and enable accessibility. This can only be done if they support common standards.

- Applications, such as Oracle's E-Business Suite, that are ready to use, or easily configured, need to have been built to be accessible both directly 'out-of-the-box' and after configuration.

- International standards and guidelines are essential if all the parts are going to work together and provide an accessible and usable solution, now and in the future. Major players, such as Oracle, need to be involved in the development of future standards and guidelines.

- Developers and consultants must fully understand the needs of people with disabilities in order to bring all the components together to create a compliant solution. Oracle needs to be a leader in making developers and consultants aware of the issues and in educating them in the solutions.

- Developers of content need to be aware of the requirements of people with disabilities. They need to provide useful and usable text descriptions of images, explicit descriptions of the structure of a document with the use of headers, bullets, acronyms etc, and clear and simple language suitable for the expected reader.

It is clear from this list that Oracle has responsibility in many of these areas but an accessible solution is only possible if all the parts work together.

Oracle's commitment to accessibility is driven from the top as can be seen in this quote from Edward Screven, who is Oracle's Chief Corporate Architect and reports directly to Oracle's CEO Larry Ellison:

"Oracle's business is information—how to manage it, use it, share it, protect it. Our commitment to create products that simplify, standardize and automate extends to all users, including users who are disabled."

The genesis of this high level commitment to accessibility can be traced to the story of Don Raikes joining Oracle:

"In the fall of 1999, I was working for the Arizona Republic Newspaper in Phoenix. The management decided to convert our entire system to use Oracle's financials and Oracle database. As a blind developer, my first challenge was to be able to use FormsBuilder 6i. It did not work with JAWS 3.5 at all.

The newspaper then hired an Oracle Forms developer, and my wife was bothered by the fact that as I was unable to do my job they had hired someone else. I had worked with Oracle products several years earlier back in the day of Forms 3.0, which was accessible. At Nancy's prompting, I wrote a fax to Larry Ellison simply stating that he was losing a part of his market because his tools were not accessible to the blind. Within 3 weeks I got a call asking how Oracle could help me to be successful, and offering any resources I needed. I was also asked to evaluate and provide feedback on other Oracle products.

I talked with the forms expert that the newspaper had hired, and he explained how FormsBuilder worked. I then started the daunting task of writing jaws scripts to enable JAWS to work with forms builder.

A month or two later, I was asked to come to Oracle and demo my scripts. The trip actually was a 'show us your scripts and we will show you all our problem areas.' At the end of the trip, an Oracle manager asked me if I would consider working for Oracle to help fix the accessibility issues.

What I later learned was that at roughly the same time I sent Larry the fax, Janet Reno (US Attorney General) had made a ruling that software needed to be accessible per section 508 of the Rehabilitation Act[1], which was in draft status at that time.

So in October of 2000, I started at Oracle."

To ensure that this commitment is implemented across the whole corporation, Oracle appointed a Director of Accessibility who heads up the Oracle Accessibility Program Office and reports directly to the Chief Corporate Architect. The Program Office is responsible for the co-ordination and implementation of all the accessibility initiatives in Oracle, which are described in the following sections.

Standards and guidelines

Oracle has appointed senior members of staff to be active members on major international standards committees and industry bodies working on accessibility such as:

- W3C Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines (WCAG)—version 1.0[2] of these guidelines are commonly used to create accessible web interfaces; a public working draft of a version 2.0[3] has been published.

- W3C WAI Authoring Tool Accessibility Guidelines (ATAG)—version 1.0[4] provides guidelines that promote accessibility by providing an accessible user interface to authors with disabilities as well as enabling, supporting, and promoting the production of accessible Web content by all authors. There is a working draft of Version 2.0[5].

- W3C Roadmap for Accessible Rich Internet Applications (WAI-ARIA Roadmap)[6] that is being developed to ensure that applications developed using advanced technologies such as AJAX (Asynchronous Javascript And XML) or dynamic HTML (DHTML) are accessible.

- ISO Technical Committee 159/SC 4 Ergonomics of human-system interaction[7].

- The Linux Foundation IAccessible2[8]—a new accessibility API which complements Microsoft's earlier work on Microsoft Active Accessibility (MSAA)[9]. This API fills critical accessibility API gaps in the MSAA offering.

- The Information Technology Industry Council (ITI)[10] in the US.

- The European industry body EICTA[11]

Other standards organizations and government bodies are investigating accessibility and there is a danger that these different standards and guidelines will, to some degree, conflict with each other. Any conflicts will make it more difficult to support all the standards with a single set of products. If multiple products or variants of products are required this will increase the cost and reduce the level of accessibility provided to people with disabilities. Oracle is using its influence to ensure that there is a compatible set of standards that all vendors and ICT users can support and use.

Legislation

Government bodies around the world are legislating, or have legislated, to support people with disabilities. The US has been a leader with section 508 of the Rehabilitation Act.

As it impacts Oracle, Section 508 enumerates multiple provisions for 'web content', 'software', and documentation. To report product conformance with the technical provisions of Section 508, Oracle produces Voluntary Product Accessibility Templates (VPAT)[12] and posts them on its website.

Oracle is active in supporting and promoting the legislation and lobbying for extensions and improvements, and harmonization with international standards.

Internal processes

Accessibility is an integral part of the product development processes from initial design to pre-release testing. The processes enable products to comply with provisions defined in Section 508 of the Rehabilitation Act and, in many cases, WCAG 1.0 level 'AA'. The processes lead to the testing and self-certification of new products and releases, including acquired products. The final step involves publishing a Voluntary Product Accessibility Template (VPAT).

Documentation

Oracle provides product documentation in HTML format that includes markup that facilitates access with assistive technologies.

Education

Oracle provides education on its products to clients and staff through its Oracle University (OU). Courses are delivered at many locations around the world and also in on-line distance learning formats. It is committed to the delivery of high quality products. Oracle reviews and considers all accessibility and special needs requests and can provide disabled students with specialist assistance such as screen readers and sign language interpreters.

OU curriculum includes courses such as 'Accessibility Issues in User Interface Design' and modules within other courses that discuss accessibility support within specific products.

Besides formal education Oracle also runs Accessibility Summits at locations around the globe. At these summits Oracle demonstrates a variety of assistive technologies working in harmony with Oracle solutions. The Summits are designed to raise awareness of accessibility issues with the local communities and show how they can be implemented with Oracle products.

Internal Awareness Program

The Program Office runs an awareness program for members of staff including sales, marketing, technical support, consultancy and development. The program describes the issues, their importance, and Oracle's solutions. The aim of the program is to ensure that the corporate commitment to accessibility percolates down to all relevant members of staff.

Usability Laboratories

Oracle has usability laboratories in North America, Europe and India. The laboratories provide facilities for observing users and how they interact with the user interface. These tests can include users with disabilities and users who use assistive technology.

The laboratories include staff members who specialize in accessibility.

Figure 1 shows the laboratory set up for a test; the mirrors in the background are one-way and enable the user to be observed whilst working. Besides direct observation the laboratory can:

- Create audio and video recordings of the session.

- Record all the keystrokes and mouse movements

- Keep track of the eye movements of the user

All of this information helps to improve the design of the screen layouts, navigation structure and documentation and hence the accessibility of the solution.

Figure 1: User testing laboratory

Consultancy and Support

Oracle's consultancy division has over 120 User Experience Professionals supporting Applications. The consultants can advise clients on accessible user interface design and how to implement such designs using Oracle products.

The various possible combinations of assistive technologies, operating systems, browsers, hardware, and user expectations make this a complex area to implement correctly. In recognition of the complexity and importance of this area Oracle Global Customer Support (GCS) has set up an Assistive Technology Subject Matter Expert (SME) team that has the knowledge and experience to resolve any issues relating to AT working with Oracle products.

In conjunction with Lighthouse Central Florida, GCS is developing a comprehensive hands-on training program to help the AT SME team fulfill its charter. Lighthouse is a not-for-profit organization working in vision rehabilitation services, education, research, prevention, and advocacy.

Requirements Gathering

Accessibility of ICT systems can always be improved and new technology, such as AJAX, raise new accessibility requirements. To be able to support these new requirements Oracle is working closely with several of its major clients to better understand their accessibility requirements. The requirements are gathered via interviews, surveys and observation of users in live environments. The requirements gathered are incorporated in to the relevant product plans.

Product Acquisition

Oracle regularly acquires new technology and applications. Not all of these products were developed with the strict processes previously described. As soon as an acquisition is complete the product's accessibility is assessed and plans are then put in place to improve the accessibility in future releases, if necessary.
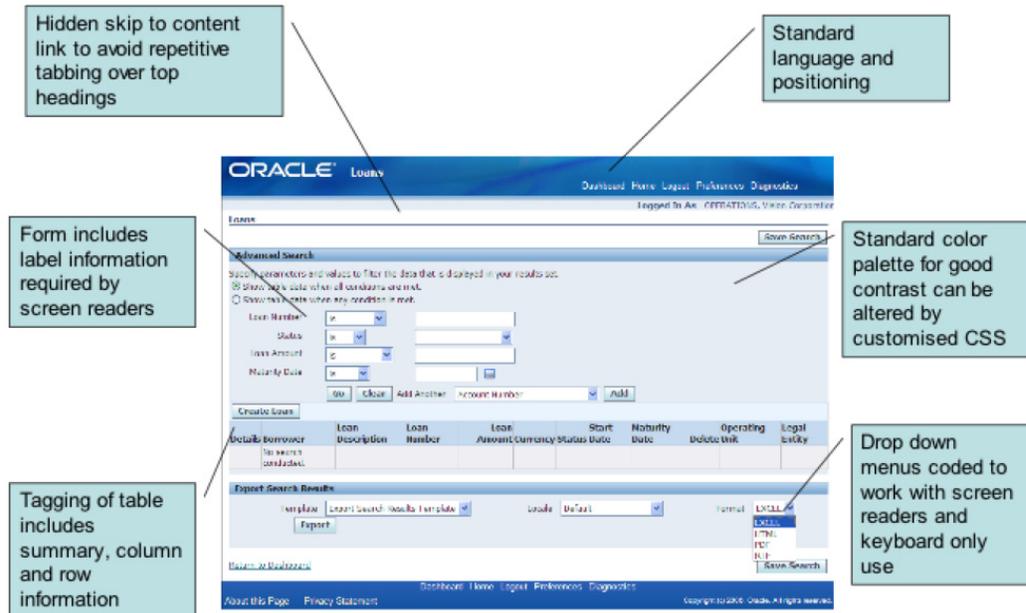
Figure 2: Screenshot highlighting guidelines

Oracle supplies application suites, databases, middleware, development tools, and industry solutions. Across this range there are three different types of users who require accessible solutions:

- End-users: are a big group, with the widest skill levels. They interact with user interfaces that are delivered with Oracle products but also interact with interfaces developed using Oracle development tools.

- Administrators: are a smaller and, in general, more highly skilled user group. The interfaces are generally delivered with the product. Administrators demand a highly usable and productive interface, which must be provided without compromising accessibility.

- Developers: the user interface to the development tools must be accessible; but crucially the tools must enable and assist the developer in creating accessible solutions for the end user.

Details of product accessibility can be found in the individual Voluntary Product Accessibility Templates (VPAT).

End User and Administrator Accessibility

Oracle's commitment to accessibility for end-users and administrators can be demonstrated by looking at the support in the E-Business Suite. The user interface is all browser based and the HTML is coded to conform to internal and external standards. Examples of specific UI design and content that helps make the products accessible are:

- Text is sizable.

- Color is not used as the only indicator of a value.

- A specific color palette is employed, with rules governing foreground and background use to ensure sufficient contrast. This can be overwritten by customized CSS to support special requirements such as high contrast or preferred background and foreground color combinations.

- Language and abbreviation guidelines are used to ensure consistent terminology

- Screens are built using fundamental usability principles that promote consistency and clarity of context, page navigation, page organization, and page orientation.

- All non-text content, such as images, has associated text

- Data tables have summary tags specified, and include markup to associate the proper header and column to each cell

- A 'Skip to Content' link is added so that a keyboard-only user can skip repetitive content at the top of each page

- No animation or flashing is used (except where animation indicates progress)

- Javascript, when used to alter page content, is restricted to making UI changes 'downstream' from the current cursor location.

Figure 2 shows the look and feel of typical pages and highlights the implementation of relevant guidelines.

Included in the E-Business Suite is a profile 'Self Service Accessibility Features', which has three possible values:

Standard Accessibility - Renders the pages accessible for users using assistive technology, but ensures that pages are formatted correctly for sighted users.

Screen Reader Optimized - Optimizes the pages for screen readers. This may degrade the output for sighted users.

None - This mode removes markup that is only needed by assistive technology users, such as table summary information, to make the page smaller and faster. The resultant pages may include behaviors that are not accessible.

This means that different users, with different assistive technology requirements, can access the same systems, running the same applications but have a user interface tailored to their requirements.

Development Accessibility

Oracle JDeveloper assists the E-Business Suite developer to make the product accessible:

It exposes various properties, such as 'Prompt', 'Text' and 'Additional Text' that are migrated to appropriate HTML markup at runtime.

In Oracle's development environment, it is tightly integrated with an audit tool that analyzes the HTML as the product is run.

It automatically handles all aspects of marking up data tables, including complicated spanning headers.

Detailed information about the properties of each component is included in the JDeveloper documentation.

Conclusion

Bloor Research believes that Oracle's commitment to accessibility is evident from the support of the highest levels of management and the activities of the Oracle Accessibility Program Office.

The commitment has resulted in:

- Active participation in external accessibility initiatives.

- On-going research aimed at further improving accessibility.

- Development and documentation of products that are accessible and enable the development of accessible business solutions.

- Education of internal staff, clients and third parties to raise awareness of accessibility issues and benefits.

Oracle recognizes that accessibility is a continuing journey and it will continue to invest to ensure a high level of support in its current and future products.

1   Section 508 of the Rehabilitation Act
     http://www.section508.gov/index.cfm?&FuseAction=Content&ID=12

2   Web Content Accessibility Guidelines 1.0
     http://www.w3.org/TR/WAI-WEBCONTENT/

3   Web Content Accessibility Guidelines 2.0
     http://www.w3.org/TR/WCAG20/

4   Authoring Tool Accessibility Guidelines 1.0
     http://www.w3.org/TR/ATAG10/

5   Authoring Tool Accessibility Guidelines 2.0
     http://www.w3.org/TR/ATAG20/

6   Roadmap for Accessible Rich Internet Applications
     http://www.w3.org/TR/aria-roadmap/

7   ISO Technical Committee 159/SC 4
     http://www.iso.org/iso/standards_development/technical_committees/list_of_iso_technical_committees/iso_technical_
     committee.htm?commid=53372

8   The Linux Foundation IAccessible2
     http://www.linux-foundation.org/en/Accessibility/IAccessible2

9   Microsoft Active Accessibility
     http://msdn.microsoft.com/library/default.asp?url=/library/en-us/msaa/msaastart_9w2t.asp

10   Information Technology Industry Council (ITI)
     http://www.itic.org/about.php

11   EICTA European ICT industry association
     http://www.eicta.org/

12   Oracle product VPATs
     http://www.oracle.com/accessibility/index.html

Bloor Research has spent the last decade developing what is recognised as Europe's leading independent IT research organisation. With its core research activities underpinning a range of services, from research and consulting to events and publishing, Bloor Research is committed to turning knowledge into client value across all of its products and engagements. Our objectives are:

- Save clients' time by providing comparison and analysis that is clear and succinct.

- Update clients' expertise, enabling them to have a clear understanding of IT issues and facts and validate existing technology strategies.

- Bring an independent perspective, minimising the inherent risks of product selection and decision-making.

- Communicate our visionary perspective of the future of IT.

Founded in 1989, Bloor Research is one of the world's leading IT research, analysis and consultancy organisations—distributing research and analysis to IT user and vendor organisations throughout the world via online subscriptions, tailored research services and consultancy projects.

Peter Abrahams
Practice Leader—Accessibility & Usability

Peter started in IT as a sandwich student in 1966 with IBM; he continued to work for them until 2003. In a company known especially for its hardware Peter saw the importance of software and especially transactional processing. He installed the first IMS on-line system in the UK and early versions of DB2.

His role as both pre and post sales technical support involved him in the design, implementation and integration of complex systems in many of the major banks, retailers and manufacturers in the UK, Israel and Europe.

He spent three years representing IBM software to the analyst community which is when he first met Robin Bloor.

His final role in IBM was as a Consultant Architect in IBM's Financial Markets Practice. His speciality was STP, which enables financial institutions to connect diverse systems within their own organisation and in their partner's to process complex transactions without human intervention. This experience reinforced his belief in the need for continuous evolutionary change of application systems and therefore the necessity of an intelligent infrastructure to bind them together in a robust but flexible way.

He joined Bloor in 2003 and built on his knowledge, gained as a consultant, to research the integration market place. In 2004 his experience with some disabled friends and a report by the Disabilities Rights Commission prompted him to start research into IT accessibility for the disabled. Recognising the growing importance of this area he set up Bloor's Usability and Accessibility practice and now devotes most of his research to this area.