ORACLE

Using Assistive Technology Products with Oracle HTML-based Products

Oracle Accessibility Program Office

Public

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Overview

This document describes accessibility features that may be available in Oracle products written in HTML (such as Fusion Applications, PeopleSoft, JD Edwards, E-Business Suite, and Siebel), that enhance the operation with Assistive Technology (AT). It also describes a level of user proficiency that is recommended in order to have a good experience with these highly interactive Oracle applications.

The primary audience for this document is application end-users; however, you may need to work with your local Helpdesk or IT department to make sure that the Oracle product is configured properly for you particularly regarding the modes described below. And if any customizations were made to the product in your particular deployment, it is the responsibility of those people making the customizations to address the level of accessibility.

Many Oracle products include special modes such as 'Accessibility' or 'Screen Reader Optimized', and many of the features described below are only available in those modes. Depending on the specific product, these modes may be exposed as settings that you can change at runtime, an Administrator can change on your behalf, or in some cases they affect the fundamental deployment of the product, such as the 'SI+' mode for older Siebel applications (the Siebel Open UI release no longer has an accessibility mode). Oracle products are striving to remove these modes in future releases as quickly as is practicable.

Oracle products are coded to meet the U.S. Revised Section 508 standards and the Web Content Accessibility Guidelines (WCAG), to the extent listed in their Voluntary Product Accessibility Templates (VPATs). Oracle posts VPATs at www.oracle.com/accessibility/vpats.html. These VPATs document the extent to which a product has been coded to meet each technical standard. Note that the VPATs may list significant exceptions to the standards, or may only cover a subset of components or functionality of the product.

You should consult the documentation that comes with each Oracle product, including the VPAT, for more information about accessibility, such as unique keystrokes or tips for using screen readers or magnifiers. Although many Oracle products use HTML as the common programming language, the user interfaces and interactions will vary, as will the specific accessibility features that each product includes. Product documentation may also list specific technologies that are relied upon, such as the WAI-ARIA coding standard for accessible rich internet applications; you should use such information to make appropriate decisions as to the best AT to utilize.

Accessibility Features of Oracle Products

The following are accessibility features that are typically available in an Oracle product as a result of coding to the U.S. Revised Section 508 standards and the Web Content Accessibility Guidelines:.

Skip Navigation Links

These links will appear at the start of the Tabbing sequence, and allow you to skip over repeated content on a page such as a main navigation bar. They will be labeled 'Skip to Main Content' or something similar. This feature primarily exists to make keyboard navigation more efficient; in addition to this, many Oracle products have added additional features for efficiency including automatically moving focus to the first interactive item on a page, and using complex controls so that they are only a single stop in the Tabbing sequence.

Header Markup

This feature identifies sections within a page, which a sighted user might typically see rendered in a different font, color or style. They enable a screen reader user to quickly move to these areas within the page.

Some Oracle products also include Landmarks, which afford a similar experience by allowing navigation to various regions of a page such as those for Navigation or Search.

Table Markup

Data tables, which contain information in rows and columns, are marked up so that you can identify the heading associated with each cell. This allows screen reader users to move the focus through the table and have it read these headings as you change cells. Also, data tables are identified with either a Summary or a Caption, which explains what content is within the table.

In contrast, layout tables may be used to position content on the screen but do not actually represent data in rows and columns; these are coded in a way so that they will not be confused as data tables. Also, layout tables will not have a Caption.

Accelerator Keys

Many products have accelerator or 'shortcut' keys that allow you to perform common actions such as saving or moving to the next set of records in a data table. These accelerators prevent you from having to actually move focus to the control that performs that function. For example, in the PeopleSoft applications, ALT+1 performs the Save action on a transaction page.

ALT Text on Images

Images that provide information or are links have alternative text that will be spoken by a screen reader. Images that are merely decorative are coded in a way so that they can be ignored.

Labels on Controls

Input controls, such as text fields, checkboxes and dropdown lists, have a label associated with them. The label will be spoken by a screen reader when the control takes focus, or you can speak the label to voice recognition software in order to move focus to that control.

In addition to the label (also called the 'name'), information about the 'role' and 'value' of a control is available to AT. Applications that have followed the WAI-ARIA specification will encode this so that AT can read and set it (where applicable.) For example, a control that looks and feels like a 'menu' may be explicitly encoded with the WAI-ARIA 'menu' role. Attributes such as whether a control is required, disabled, or expanded may also be encoded.

Page and Frame Titles

Each page has a title that identifies it, and each frame has a title (except where the frame is not intended to be part of the User Interface.) These titles will be spoken by a screen reader, and frames can also be directly navigated to using the keyboard.

Automatic Page Updating

Some pages may have content that updates automatically at a regular interval; for example, a dashboard page may show the current status of a system, and refreshes every minute so that the data is accurate. These pages provide a way for you to control the frequency of the update so that it does not interfere with AT. Solutions may include allowing you to control the time interval between updates, or allowing you to disable the automatic updating completely. Note that some pages may have essential updates, where the timing of the update is critical to the functionality of the product; these cases may not allow you to control the update interval because it would interfere with the functionality.

Timeouts

Some applications may have features that must be completed within a specific amount of time; these will provide a way to turn off, adjust, or extend the timeout, unless the timeout is essential to the task. A common issue is a 'session timeout' which is usually perceived as a security or performance feature, so Administrators may try to set it to a very short period. That may negatively impact your ability to complete a task with AT, so do not hesitate to contact your local Helpdesk to see if a longer value can be set.

Language

Pages are encoded with a Language tag, so that screen readers know what language to speak. Parts of a page that present content in different languages may also include this encoding, where possible.

Automatic submits

In some case, a dropdown box may immediately submit the page in response to selection of a new value. When using the keyboard only, if you simply use the up and down arrow keys, each key press may immediately select the value, triggering the submit as well. To avoid this, you must first pop open the dropdown box using ALT + <down arrow>, then use the <up arrow> or <down arrow> keys to move to the desired value, then press the <enter> key to select the new value. Note that this is the standard behavior of the dropdown box, as controlled by your operating system. ADF applications may use different drop down components with different behaviors and you should consult Application specific accessibility documentation.

Recommended Configuration

You should consult the documentation for your AT for information on system requirements for your computer, including recommended versions of the operating system, and minimum CPU speed and RAM. Insufficient memory is a very common issue so you should consider having at least 4GB of RAM for most AT.

Screen Access Software (Screen Readers)

Oracle applications are highly interactive, enterprise-class applications. We expect people using screen readers with Oracle products to have a good understanding of the applicable accessibility features of the browser and operating system, and some knowledge of basic HTML concepts. A thorough grasp of the various modes and cursors of the screen reader itself is essential for a satisfactory experience.

Oracle does not provide training on screen readers, but many third parties do. A good training program would provide information on all of the concepts discussed below.

General Concepts

Basic Application Navigation

You should know how to navigate structures of a conventional desktop based application, including how to move through windows, window panes, menu bars, tool bars, dropdown lists, radio buttons, and other controls. This knowledge is critical before you can move onto web based applications. This knowledge will also be important when using WAI-ARIA application controls in a web based application.

General HTML Knowledge

While it is not necessary for you to be able to write a web page in order to understand how to interact with it, it is recommended that you understand some general principles of web based applications. For example, you should understand the concept of links, what they do, how to interact with them, and the differences between links that connect to a new page or move you to a spot on the current page. As another example, you should know what HTML headings are, how they are used, and why they are beneficial.

Tables

You may encounter two kinds of tables in an HTML environment. Those intended to present data in a tabular manner (such as a timesheet or expense report), and those for which the sole purpose is to provide a desired visual layout. Users of screen access technology must understand how the behavior of these two types of tables differs and how they should react to them. For example, once you have determined that a table is not used to present tabular data you should know to interact with that table without using table navigation commands. In contrast, when you determine

that a table is being used to present structured data, you should know how to interact with that table to read the data efficiently.

In some cases such as Siebel, you may find Grid controls that while seeming to be a table, will act differently and probably work best by using just your cursor arrow keys. This might take some experimentation to see what works best, depending upon the screen reader and how it reacts with Jquery grid controls. This is also true for any other grids such as a JET Data Grid. You should look for any documented keystrokes that make these grids easier to use.

Forms and Types of Form Controls

You should have knowledge of what a 'form' is, and what different types of form controls are and their typical uses. You should understand the difference between a radio button and a checkbox, a combo box and a list box, and edit boxes and text areas.

Form Controls, Form Navigation, and Form Verbosity

You should understand how to interact with form controls, the different methods of moving through a form (such as using the arrow keys or the tab key) and the different behaviors expected with each.

Go To Points

You should know if your screen access product includes the capability to define a specific "go to point" on a web page or across a set of pages. This feature allows you to define a specific spot that you need to frequently reach and quickly move to. These are commonly referred to as "place markers," (check your Assistive Technology product manual to see if your Screen Reader allows for this.) However, because Oracle applications are dynamic by design, using access points may not always be reliable depending on how the screen access software keeps track of them. Specifically, if these points are stored by pixel location, they are less likely to work between subsequent visits to the page if content on that page is dynamically changing.

Element lists

You should know if your screen access product includes lists of elements on a page. For example, a list of all links, a list of all headings, or a list of all form controls. Using these lists enables you to be dramatically more efficient on a complex page, particularly if you use that page on a regular basis and perform repetitive tasks.

Virtual Buffers

You should understand how your screen access product interprets what is presented to it by the web based application. For example in JAWS from Freedom Scientific, the program does not move a cursor around the web page the way it does in Microsoft Word; instead, it builds a Virtual Buffer containing the elements on the screen. A virtual cursor is then moved around the buffer and interacts with the web page or application. Additionally, when dynamic HTML and JavaScript are used, you should understand how to force a refresh of the Virtual Buffer if what you are hearing does not match what you expect to be hearing.

Virtual vs. Mouse Cursor

You should also understand the difference between using the Virtual Buffer cursor and manipulating the mouse cursor directly. You should know how to manipulate the mouse cursor because in some circumstances, it is necessary to activate certain features of some web applications.

How to Get Help

You should know how to use the screen access product's built in help system, as well as the help system of the application. You should have an idea of how to locate information on topics and how to use the context sensitive help or the electronic user manual to find the answer.

Partial Page Refresh

Many Oracle products use advanced technology called Partial Page Refresh (PPR) or AJAX to update portions of a screen without re-loading the entire page. This has the benefit of making the applications perform much faster, and prevents you from having to constantly start at the top of new pages as you perform a task. Oracle tries to limit these updates to content that is 'downstream' from the current focus location; that is, content that appears between the start of the page and your current location typically will not change. Product documentation, WAI-ARIA Live Regions, or in-page help, may describe situations where this behavior is not readily apparent, or when updates may occur that are not 'downstream'.

Advanced Features

Screen readers can contain many advanced features, such as scripting and dictionary managers. Oracle HTML products are generally usable without these features; however, they may allow you to optimize each product for the exact tasks that you perform, and should be considered as additional tools available to you to work most efficiently.

Abbreviations

Oracle products try to use the most clear and precise text for each application, which may include jargon or terminology unique to a specific product domain. Documentation will typically describe special terminology used in each product. Screen reader users may choose to use pronunciation features of the reader to improve the pronunciation of certain terms that are not automatically recognized.

JAWS Scripts

In general, Oracle tries to code HTML products using industry-standard HTML, so that JAWS scripts are not needed. If an Oracle product requires JAWS scripts it will be noted in the product documentation.

Screen Magnifiers

You should know how to adjust the screen magnification, magnification window types and video display controls of your screen access product and what can be expected of each setting change. Intermediate to advanced knowledge of this subsystem of a screen access product is recommended.

ZoomText from Ai Squared

ZoomText operates transparently for most HTML based web content. It does not require much knowledge of HTML when navigating through the various pages. However, some HTML knowledge will provide a better user experience when using ZoomText. ZoomText does provide a Web Tool to locate links and forms with in a web page if required.

It is important that the ZoomText focus, text cursor and mouse tracking are set correctly to follow the cursor while interacting with forms and menu items.

In addition, since ZoomText magnifier is designed to enhance the viewing screen for visually impaired users, it may be necessary for you to understand how to set the various video color, contrast and other settings to adequately suit your needs.

ZoomText Settings for Screen Magnification

Oracle recommends the following settings for ZoomText. These settings are only for the ZoomText Magnifier. Many of these are the default setting of ZoomText when it is first installed.

To access the settings, Click on the desired Magnifier Icon (Type, Color, Pointer, Cursor, Focus, Desktop, Web and Text), select Settings… in the drop down. Not all setting options are listed below.

Recommended Settings For ZoomText

OPTION	RECOMMENDED SETTING
Magnifier -> Type -> Settings -> Magnification	
Enable wheel zooming	Enabled (checked) – Allows the mouse wheel to be used to control zoom magnification
Modifier Key	Ctrl (radio box checked) – The control key in combination of the mouse wheel activates zooming in and out. Hold down the control key and then rotate the mouse wheel to zoom in or out.
Type -> Window	
Window Type	Set window type to the desired type: Full, Overlay, Lens, Line or one of the 4 docked window types.
Set Line Window height to cursor height	Enabled (checked)
Pointer -> Settings -> Pointer	
Pointer Enhancements	Set the mouse pointer to the desired pointer type. This enlarges the mouse pointer making it easier to see. Select Normal, Scheme (select a preset scheme) or Custom.
Cursor -> Settings -> Cursor	
Cursor Enhancements	Set the cursor type to the desired cursor type. This enlarges the cursor making it easier to see. Select Normal, Scheme (select a preset scheme) or Custom.
Cursor -> Settings -> Font	
Font Enhancements	Enable (checked) xFont (default) makes text viewed on the screen more easier to read.
xFont Options	You can select Bold.
Settings -> Tracking	
Track on these items	Select (check) items: Mouse, Text Cursor, Menus, Controls, and Windows. These will be checked by default. It is not recommended to check Tool Tips as this may cause additional focus shift when tool tips appear.
Settings -> Mouse	

OPTION	RECOMMENDED SETTING
Pointer positioning	Route point into view when it moves (checked)

Table 1. Recommended Settings for ZoomText

Advanced ZoomText Features

ZoomText contains many advanced features, such as scripting and window freeze, and Web page managers. Oracle HTML products are generally usable without these features; however, they may allow you to optimize each product for the exact tasks that you perform, and should be considered as additional tools available to you to work most efficiently.

Voice Recognition Software

Voice recognition is the ability to talk to your device instead of typing input. When using Siri on your iPhone or talking to your Amazon Echo, you are using speech recognition.

Dragon Naturally Speaking

Dragon Naturally Speaking is desktop software has three primary areas of functionality: voice recognition in dictation with speech transcribed as written text, recognition of spoken commands, and text-to-speech: speaking text content of a document. With Dragon Naturally Speaking (DNS) it is recommended you use the Professional version with the browser add-on. See the DNS documentation for how to use the 'click' command especially when controls do not have visible labels.

Summary

Oracle products can be used with AT but the key is to knowing how to use both the Oracle product and the AT. Always using the latest versions of all software, especially AT, will provide for a better interaction. Be sure to read the product documentation to learn if the product uses an accessibility mode that must be activated to optimize your experience.

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