

Oracle® Fusion Middleware

Accessibility Guide



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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

ORACLE®

Oracle Fusion Middleware Accessibility Guide, 14.1.2.0.0

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Preface

This document describes accessibility and assistive technology features of Oracle Fusion Middleware.

Topics:

- [Audience](#)
- [Documentation Accessibility](#)
- [Diversity and Inclusion](#)
- [Conventions](#)

Audience

Review this document to understand how to configure and use accessibility features that Oracle has developed for Oracle Fusion Middleware products and services.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customer access to and use of Oracle support services will be pursuant to the terms and conditions specified in their Oracle order for the applicable services.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Accessibility Features and Tips for Fusion Middleware Control

This topic provides links to information about accessibility features and related information for Fusion Middleware Control. Many Oracle Fusion Middleware components use Fusion Middleware Control as their graphical user interface.

- For information about enabling Fusion Middleware Control accessibility mode, see:
Enabling Fusion Middleware Control Accessibility Mode in *Administering Oracle Fusion Middleware*
- For information about Fusion Middleware Control keyboard navigation, see:
Fusion Middleware Control Keyboard Navigation in *Administering Oracle Fusion Middleware*

2

Accessibility Features and Tips for Oracle Business Process Management

This topic provides links to information about accessibility features and related information for Oracle Business Process Management.

- For information about BPM Studio accessibility features, see Oracle BPM Studio Keyboard Navigation in *Developing Business Processes with Oracle Business Process Management Studio*.
- For information about BPM Process Workspace accessibility features, see Setting Accessibility Preferences in Process Workspace in *Managing and Monitoring Processes with Oracle Business Process Management*.
- For more information about accessibility features in Oracle BPM Worklist, see Setting Accessibility Options in Oracle SOA Composer and Oracle BPM Worklist in *Developing SOA Applications with Oracle SOA Suite*.

3

Accessibility Features and Tips for Oracle Data Integrator

This topic provides links to information about accessibility features and related information for Oracle Data Integrator.

For information about Java Access Bridge and tips for working with it in Oracle Data Integrator, see [Working with Java Access Bridge in Developing Integration Projects with Oracle Data Integrator](#) guide.

For information about Keyboard actions that allow you to navigate through Oracle Data Integrator Studio UI, see [Keyboard Navigation in ODI Studio in Developing Integration Projects with Oracle Data Integrator](#) guide.

For information about how to create mappings in Oracle Data Integrator using keyboard keys, see [Creating Mappings using Keyboard Keys in Developing Integration Projects with Oracle Data Integrator](#) guide.

4

Accessibility Features and Tips for Oracle Enterprise Scheduler

This topic provides links to information about accessibility features and related information for Oracle Enterprise Scheduler.

Oracle Enterprise Manager Fusion Middleware Control Console provides accessibility options for the pages on which you monitor and manage Oracle Enterprise Scheduler applications. Fusion Middleware Control supports screen readers and provides standard shortcut keys to support keyboard navigation. You can also view the console pages in high contrast or with large fonts for better readability.

- For information about enabling Fusion Middleware Control accessibility mode, see:
Enabling Fusion Middleware Control Accessibility Mode in Administering Oracle Fusion Middleware
- For information about Fusion Middleware Control keyboard navigation, see:
Fusion Middleware Control Keyboard Navigation in Administering Oracle Fusion Middleware

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Accessibility Features and Tips for Oracle Forms and Reports

This topic provides links to information about accessibility features and related information for Oracle Forms and Reports.

Topics:

- [Accessibility Features and Tips for Oracle Reports](#)
Accessible enterprise reports can be created using features and options available in Oracle Reports. You can also use specific techniques for designing reports to increase accessibility of report output.
- [Accessibility Features and Tips for Oracle Forms](#)
These topics describe accessibility features and information for Oracle Forms.

Accessibility Features and Tips for Oracle Reports

Accessible enterprise reports can be created using features and options available in Oracle Reports. You can also use specific techniques for designing reports to increase accessibility of report output.

Accessibility Features and Tips for Oracle Forms

These topics describe accessibility features and information for Oracle Forms.

Topics:

- [Running Forms with Accessibility Features](#)
This section provides information on how to configure and use the accessibility features while running Forms. It assumes that the user is operating screens that are running on the web which were developed using the latest version of Oracle Forms.
- [Building Forms that Support Accessibility Features](#)
Oracle Forms Builder supports a range of features that are designed to support accessibility. The Oracle Forms runtime is accessible if coded based on the information provided in this section.
- [Minimum Requirements for Assistive Technology for Oracle Forms](#)
Assistive technology must meet these requirements to run with Oracle Forms:

Running Forms with Accessibility Features

This section provides information on how to configure and use the accessibility features while running Forms. It assumes that the user is operating screens that are running on the web which were developed using the latest version of Oracle Forms.

- Run Forms with any color scheme set on the operating system by using the Generic Look and Feel or use one of several pre-defined schemes with the Oracle Look and Feel
- Turn off hard-coded colors

- Set operating system Font Size with DPI which affects the overall size of all items in a Form.
- Use a screen magnifier that supports Java such as ZoomText, MAGic or SuperNova.
- Run Forms with just the keyboard.
- Use access keys to activate menu items, push buttons, radio buttons, check boxes.
- Invoke the `List Tab Pages` function (typically mapped as F2) to switch tab pages.
- Change Forms keystroke mappings that are displayed in the `Keyboard Help`.
- Use operating system accessibility features such as Sticky Keys and Toggle Keys.
- Use a voice recognition program such as Dragon Naturally Speaking to give commands and enter data.
- Run Forms with a screen readers that supports Java such as JAWS or SuperNova.
- Use Oracle E-Business Suite features that display all items and push buttons in a window.
- Key-F9 function -- Prompt/Value List of Values (LOV) (typically mapped as Ctrl+Shift+F9).
- Key-F8 function -- Actions LOV (Typically mapped as Ctrl+Shift+F8).
- Use Oracle E-Business Suite feature called Forms Personalization to change speakable prompts.
- Turn on the operating system accessibility feature `SoundSentry` to generate a visual warning when the system makes a sound.

The following topics are included:

- [Using Screen Reader and Java Access Bridge with Oracle Forms](#)
Oracle Forms supports the Java Access Bridge, which allows integration with screen reader assistive technologies that also support Java.
- [Forms Runtime Options that Support Accessibility](#)
Provides information about using Accessibility Features when running Forms.
- [Configuring Forms to Integrate with Screen Magnifier and Voice Recognition](#)
Forms can be configured to integrate with a screen magnifier and voice recognition.
- [Keyboard Navigation for Forms](#)
All items used within Oracle Forms follow the standard operating system conventions for keyboard use.

Using Screen Reader and Java Access Bridge with Oracle Forms

Oracle Forms supports the Java Access Bridge, which allows integration with screen reader assistive technologies that also support Java.

By default, the Java Access Bridge is not enabled. For information how to enable the Java Access Bridge, please see the Java Accessibility Guide. The Java Access Bridge must be enabled so that Oracle Forms, the Java Runtime Environment (JRE) and the Java enabled screen reader may interact.

For keyboard-only usage techniques see:

[Keyboard Access](#)

Oracle E-Business Suite features

Actions and Values LOVs

Oracle E-Business Suite incorporates a feature that allows any user to see the current screen in a compressed, text-only popup window format called LOV (List of Values). Fields which cannot take focus because they are non-navigable will not allow a screen reader to read their value and prompt. To account for this, Oracle E-Business Suite has special code that presents all fields in the current window, as well non-navigable fields in the window in special LOVs. Included in the LOVs are the values of display items, which otherwise would not be easily discernible with a screen reader because they are not keyboard navigable. These special text-only popup windows allow a screen reader user to quickly identify all widgets in the current window (but just the current row for multi-row blocks).

The Actions LOV is invoked through the KEY-F8 function and is a list of all push buttons in the current window. The Values LOV is invoked through the KEY-F9 function and is a list of all other widgets in the current window like text items, radio buttons, checkboxes and poplists. Each row in the LOV will be spoken by a screen reader. The LOVs are in alphabetical order. Both LOVs also show access keys for radio buttons, checkboxes and push buttons. Choosing a value from either the Actions or Values LOV will not cause focus to move to those fields or buttons.

The access keys displayed in the LOVs are within braces for translation purposes. For example, access key `c` is displayed as `{C}` and a screen reader will speak the text as `brace C brace`. Check with the screen reader manufacturer if there is a way to change it to speak `Alt C` instead of `brace C brace`.

Note that the KEY-Fn function is not necessarily the Fn button on the keyboard. The current key mapping for the function can be shown in the `Keyboard Help` window. Typically the KEY-Fn function is mapped to `Ctrl+Shift+Fn` via the Oracle Terminal resource file.

The Oracle Forms generic code for Actions and Values LOV that can be used by non-Oracle E-Business Suite developers to code similar functionality is available upon request.

Forms Personalization

Oracle E-Business Suite users can take advantage of a powerful feature called Forms Personalization if you do not want to use speakable prompts. The Form Personalization feature allows you to declaratively alter the behavior of Forms-based screens, including changing properties, executing builtins, displaying messages, and adding menu entries.

Forms Runtime Options that Support Accessibility

Provides information about using Accessibility Features when running Forms.

Look and Feel Color Scheme

Oracle Forms can be run with either the Oracle Look and Feel or the Generic Look and Feel. The Oracle Look and Feel consists of a new look and feel for each item, and a pre-defined set of color schemes. The Generic Look and Feel adheres to the native interface and color scheme of the current operating system. The choice of look and feel has an impact on accessibility features; in general, the Oracle Look and Feel is the more accessible of the modes. Only users with low vision should find it necessary to use the Generic Look and Feel to control the overall colors of the application, either to increase or decrease contrast.

Users may set the desired colors using the operating system's provided schemes, then specify `lookAndFeel=generic` in the URL so that Oracle Forms will use these colors.

- To specify the look and feel, set the following parameter when launching a form:
`lookAndFeel=` either `generic` or `oracle`
- If the Oracle Look and Feel is used, the color scheme can be specified as follows:

colorScheme= one of teal, titanium, red, khaki, blue, olive, or purple.

The colorScheme parameter has no effect if lookAndFeel is set to generic.

Read Only Fields

Oracle Forms supports a feature where fields that cannot be entered (read-only fields) are automatically rendered dark gray. To turn this feature off, specify readOnlyBackground=false in the URL.

Font Size

Operating system settings such as Font Size, will affect the overall size of all items in a form. Often this is the only technique to adjust font sizes within a form, as they typically are hard-coded.

Microsoft Windows operating system instructions for changing the font size:

1. Go to Windows Control Panel > Fonts > Change font size > Set custom text size (DPI) = 200%.
2. Restart the computer.
3. Launch Forms and larger font will be displayed.

Oracle E-Business Suite features

Profiles: Java Look and Feel and Java Color Scheme

With Oracle E-Business Suite, Oracle Forms screens may be invoked by actions taken on the Oracle E-Business Suite Professional User Interface or other self-service screens. In order to run these screens, a URL is constructed using information in profiles Java Look and Feel and Java Color Scheme.

- To specify the look and feel, set profile Java Look and Feel to either generic or oracle.
- If the Oracle Look and Feel is used, the profile Java Color Scheme can be specified as follows: teal, titanium, red, khaki, blue, olive, or purple.
- The Java Color Scheme profile has no effect if Java Look and Feel is set to generic.

Profile: FND: Indicator Colors

Oracle E-Business Suite by default renders:

- Required fields in yellow
- Queryable fields in a different color while in enter-query mode
- Fields that cannot be entered (read-only fields) in gray

To turn off these features when running Oracle Forms through the Oracle E-Business Suite Professional User Interface, set profile FND: Indicator Colors to No.

Configuring Forms to Integrate with Screen Magnifier and Voice Recognition

Forms can be configured to integrate with a screen magnifier and voice recognition.

Screen Magnifier

Oracle Forms supports the Java Access Bridge, which allows integration with screen magnifier technologies that also support Java, such as ZoomText from AiSquared. See: [Ai Squared Resource Center](#)

Voice Recognition

Dragon Naturally Speaking supports Java and nothing special needs to be done to configure the software.

Keyboard Navigation for Forms

All items used within Oracle Forms follow the standard operating system conventions for keyboard use.

Common Default Forms Keystrokes on Microsoft Windows

On Microsoft Windows operating systems use Alt+<letter> to activate items with access keys, Alt+down to open a poplist, and Alt to move focus to the menu. Oracle Forms should inherit operating system accessibility functions such as Sticky Keys. Tabs can be switched by invoking the List Tab Pages function (typically F2), in addition to using access keys on each tab label.

The `Keyboard Help` window displays the keystrokes to achieve normal Forms operations, such as Next Block and Clear Record. This window can be viewed at any time by pressing Ctrl+K. The keyboard mappings can be customized as follows:

- The System Administrator must locate the Oracle Forms resource file on the middle tier, typically called `fmrweb.res`
- Make a copy of the file, naming it whatever you want, and locate it in the same directory as the original.
- Open the new file in any text editor and make the desired keystroke mapping changes. Comments at the top of the file clearly explain how the mappings are performed.
- To run this new mapping file, include `term=file` in the URL, where file specifies the complete path in addition to the filename.

A user running a screen reader will most likely need a modified keyboard mapping file, or will have to change the Assistive Technology keystrokes, as some of the default function mappings may conflict.

Action	Keystrokes
List of Forms Keys	Ctrl+K
Next Field	Tab
Previous Field	Shift+Tab
Next Block	Shift+PageDown
Previous Block	Shift+PageUp
Actions LOV	Ctrl+Shift+F8
Values LOV	Ctrl+Shift+F9
Activate default push button in a window if one exists	Enter Pressing the Enter key with the focus on a button will activate that button. If the focus is not on a button (or menu item), then Enter should activate the default button if one exists.
Save Record (Commit)	Ctrl+S
Clear Record	F6

Action	Keystrokes
Create Record	Standard keystroke may be consumed by screen reader, need to run with different terminal resource file to map Ctrl+Down to something else or just use the pulldown menu.
Close Window	Ctrl+F4
List of Tab Pages	F2
Activate Menu	Alt and then navigate with up/down and left/right arrow keys
Activate push buttons, radio buttons, checkboxes and topmost menu items	Alt+access key
Toggle between open/close poplist	Alt+Up/Down arrow keys
Activate current push button, Toggle checkbox yes/no	Spacebar
Cycle through and select a radio button within a radio group	Left/Right arrow keys and then Spacebar
Move to beginning of line	Home
Move to end of line	End
Select to end of line (there is no keystroke for	Shift+End / Shift+Insert+End

Hints for Voice Activation

You may be using the Dragon Naturally Speaking (DNS) Tab Key command and find yourself 'stuck' in a region of a form. If this happens, try using DNS mouse commands, for example mouse grid or move mouse + (direction), to move to another region in the form. If the form has frames, you can use the DNS commands Next Frame or Previous Frame.

Sometimes using the DNS Press Key command doesn't work, for example Press Alt + C or Press Ctrl + O. If this happens try using the DNS mouse commands to move the cursor over the button or drop down list and then using the mouse click or press enter command to activate the button. The DNS command Press Ctrl L almost always works for drop down boxes (often designated by a box containing ellipsis).

There is no alt-text on the buttons. This is not HTML. They are labels. If there is an access key for the button, you can use command Press Alt <letter>. If there is no access key then you can say Tab multiple times until focus is on the button and then use command Press Enter.

If DNS stops taking voice commands, try using DNS mouse commands for example Move Up and Move Down and also Press Enter to expand a tree branch. Command tab works too.

The DNS mouse commands Move Mouse Up, Down, Left, Right, Drag Mouse Up, etc., are useful. The scroll bar can be controlled in a form using these commands.

Oracle E-Business Suite features

Profile: Forms Keyboard Mapping File

Oracle E-Business Suite provides profile Forms Keyboard Mapping File. To run a new mapping file, specify the complete path in addition to the filename for the profile. When running Oracle Forms through the Oracle E-Business Suite Professional User Interface, the new mapping file will be used.

List of Values

Oracle E-Business Suite includes a feature that renders an iconic button next to each field that has an LOV. The LOV can also be invoked from the keyboard by pressing the List of Values function (typically Ctrl+L).

Tab Pages

Tabs in Oracle E-Business Suite can only be changed from the keyboard using the List Tab Pages function. Individual tab labels do not have access keys due to translation issues.

Runtime Forms Parameters

There are many runtime parameters that can be set. See:

Managing Parameters

Building Forms that Support Accessibility Features

Oracle Forms Builder supports a range of features that are designed to support accessibility. The Oracle Forms runtime is accessible if coded based on the information provided in this section.

To support accessibility goals, Forms should have the following capabilities:

- A screen reader should have access to the value and prompt for each item, so that a screen reader user can hear it. It is referred here as speakable prompt.
- All functionality should be accessible from the keyboard only, so that a user does not have to manipulate a mouse or other pointer device.
- All color usage should be under the control of the user, so that a user with low vision can see all of the content.
- There should be no reliance on timed functions, so that a user does not need to respond in a set amount of time.
- Flashing or animations should be avoided, or if present allow a mode that disables them.
- Oracle Forms provides sufficient attributes to meet these accessibility requirements, namely:
- When an item takes focus, Oracle Forms passes the current value, the speakable prompt and other attributes of the item to a screen reader.
- Every item is operable from the keyboard, either by allowing navigation to it or allowing invocation via access keys.
- Every item can specify automatic as the color at design time, so that at runtime, the right color is chosen from the user's control panel settings.

For issues of timed responses and animations, it is advised that they should simply be excluded from any screen design.

Using the bell built-in as an only indicator of an error is allowed. The operating system typically has some kind of accessibility option for sound such as SoundSentry that generates visual warnings when the system makes a sound.

For any BeanAreas that are coded within a form, the general principles outlined above need to be extended as appropriate to the Java code.

The following topics are included:

- [Screen Reader Readability](#)

In Oracle Forms every item should have a Hint Text, Prompt, Label or Tooltip Text in order for a screen reader to have a speakable prompt. Uniqueness of speakable prompts is

important to the screen reader user since other clues such as physical location on the screen are lost.

- [Keyboard Access](#)
This section provides information to build Forms that support keyboard access to menu, toolbar functionality, and components.
- [Flexibility in Color Choices](#)
For users who are visually challenged, Oracle Forms offers options for color coding of fields and components.
- [Testing Forms using Features that Support Accessibility](#)
Specific features that support accessibility are available for testing forms.

Screen Reader Readability

In Oracle Forms every item should have a Hint Text, Prompt, Label or Tooltip Text in order for a screen reader to have a speakable prompt. Uniqueness of speakable prompts is important to the screen reader user since other clues such as physical location on the screen are lost.

A screen reader user also require all of the features describes in:

[Keyboard Access](#)

Prompts

Oracle Forms identifies speakable prompts in the following order of precedence:

1. Hint Text
2. Prompt
3. Label
4. Tooltip Text

Starting with Hint Text, the first attribute that is not null (after stripping any leading and trailing spaces) is interpreted as the speakable prompt and sent to the screen reader. Not every one of these attributes is available on each item, in which case that attribute is simply skipped.

Note:

The property Display Hint Automatically should be set to No if relying on Hint Text, otherwise any Hint Text added will appear on the message line when any user operates the product, and it will be spoken again by the screen reader.

Display Items

Display items are not keyboard navigable but Oracle E-Business Suite uses them because the prompts and values can be displayed in a popup window in a text-only format.

Attributes Available for Each Item Type

The following table lists the attributes available for each item (Available), the preferred attribute(s) to use for each item (Preferred), and non-applicable attributes (N/A).

Item	Hint Text	Prompts	Label	Tooltip text
Text item	Available	Preferred	N/A	Available

Item	Hint Text	Prompts	Label	Tooltip text
Checkbox	Available	Preferred	Preferred	Available
Poplist	Available	Preferred	N/A	Available
Display item	N/A	Preferred	N/A	Available
Radio Group	Preferred	N/A	N/A	Available
Radio Button	N/A	Preferred	Preferred	N/A
Button (textual)	Available	Available	Preferred	Available
Button (iconic)	Available	Available	Available	Preferred
Tree	Available	Preferred	N/A	Available

Special-case Prompts

Obvious Prompts

There are some fields that have no displayed Prompt because the field's purpose is obvious, typically because of its physical location on the screen.

Non-unique Prompts

Some fields have a prompt that is not unique or meaningful by itself, such as: Associative object names.

These fields should all use the Prompt attribute for the on-screen prompt, and also have Hint Text for the speakable prompt.

Matrix Layouts

Another common construct is 'matrix' style fields. In this case, Boilerplate (Graphics text) and Prompts should be used to label the fields on-screen. Each field should have Hint Text that combines the row and column prompts. If this is a multi-row block then the Hint Text needs to be changed dynamically in the WHEN-NEW-ITEM-INSTANCE trigger to reflect the prompt of the current record.

Using Display Items to mimic Prompts

Avoid techniques that employ a display item to mimic dynamic prompts except when absolutely necessary, such as:

- Prompts that need to be shown with special characteristics, such as a bevel (the real Prompt attribute has no such property).
- Desirable *clipping* behavior of display items, that is, the text can never render beyond the width of the display item (the real Prompt attribute has no *width* property).
- The prompt must be multi-line (although the Prompt attribute does support multi-line text, it requires the developer to place the carriage return character in the appropriate spot, which may not remain intact after translation. In contrast, boilerplate or a display item can automatically wrap the text).

If a display item must be used for an on-screen dynamic prompt, add Hint Text to the associated field so that the screen reader will still have access to a speakable prompt.

Note that if display items are used for this purpose, there must be code in the KEY-CLFRM trigger to repopulate the fields otherwise their value will disappear if the user does a Clear Form.

Graphics Text

Graphics text, also called boilerplate text, should be avoided. On-screen graphics text should be done with the Prompt and Label attributes wherever possible. If graphics text must be used, then an associated item must have Hint Text with similar text that can be communicated through a screen reader when that item takes focus.

Additional Attributes

Oracle Forms thought it would be useful to have a screen reader speak additional attributes about certain items by appending the attribute after the speakable prompt.

Item	Attribute	Text Appended to Prompt
Text item	Required	Required
Text item	List of Values	List of Values
Text item	Required and List of Values	Required, List of values
Multiline item	Multiline	Multiline
Radio button	number of radio buttons in a group	n of n
Menu item	mnemonic key assigned	mnemonic x
Tab page	Tab page	Tab page

Keyboard Access

This section provides information to build Forms that support keyboard access to menu, toolbar functionality, and components.

To support keyboard access:

- Radio buttons, check boxes and push buttons should have access keys (mnemonics) defined.
- The keyboard tabbing sequence should follow a logical order, typically left-to-right, top-to-bottom.
- The keyboard tabbing sequence should cycle through most if not all items in a window.
- The user should be able to navigate between all of the blocks and windows of an application with only the keyboard.
- Scrollbars should not be the only way to move between records or to scroll canvasses.
- List Tab Pages function (typically mapped as F2) to switch tab pages should move focus to the first navigable item on that tab page.

Access Keys

Access keys allow operators to select or execute an item by pressing a key combination, even when that item is not the currently focused item. For example, a button labeled Open with an access key of O can be activated at any time by pressing Alt+O. Access keys are applicable to menu items, push buttons, checkboxes, radio buttons and tab pages. All access keys within a window should be unique, including keys used in the top level of the pull-down menu (typically F for File, E for Edit, etc.).

Accelerators

Accelerators are keyboard shortcuts for actions that are frequently performed, for example, Ctrl+P for Print. Keyboard shortcuts allow users to bypass opening the menu by using a specific combination of keystrokes that perform the same function as a corresponding menu item. Instead of pressing Alt+F, then S, to activate menu item File-Save, a user can just press Ctrl+S to execute the same function. Accelerator keys are desirable but not mandatory and are listed in Keyboard Help at runtime.

Exceptions for Not Having Access Keys

Push Buttons, Check boxes, Tabs, Menu Items and Radio Buttons should have an access key unless:

- They are keyboard navigable (an access key is still desirable in this case).
- There is an excessive number of them such that deriving a unique letter would be difficult (in which case the ones with no access key must be Navigable).
- They are not absolutely critical to the functionality of the product.
- For Checkboxes and Radio Buttons: if they are part of a multi-row block and use the Prompt, not the Label attribute, they cannot render any access key.

Labels

Not every item with a Label property must have an access key. If the item can be navigated to (that is, it is part of the keyboard tabbing sequence), then it does not need an access key, although adding one is highly desirable as it benefits all users. Note that the Microsoft Windows User Interface Guidelines state that OK and Cancel buttons should not have access keys.

Menu Items

Menu items should have access keys for the top-level entries at the very least, though they are not required. The menu can always be invoked from the keyboard by pressing and releasing Alt. This will move the focus to the menu, and the arrow keys can be used to navigate through it.

Iconic Buttons

Iconic buttons (Push Buttons with the Iconic property set to Yes) cannot have an access key, therefore the functionality they invoke should be replicated elsewhere in a manner that is accessible, such as the pull-down menu.

Checkboxes and Radio Buttons

- In a single-row block, the speakable prompt of a checkbox is almost always its Label attribute. In a multi-row block, where only a single instance of the prompt is typical, the Prompt attribute should serve as both the on-screen and speakable prompt for the item, and the Label should be null.
- For radio buttons, use the Hint Text of the radio group to hold the speakable prompt. In a single-row block, the Label attribute of each button acts as its *value*; in a multi-row block where only a single instance of the prompt is typical, the Prompt attribute should serve as both the on-screen prompt and 'value' for the item, and the Label should be null.
- If the Label can be utilized, then it is very desirable to provide an access key, though not required as long as the widget is navigable. If the widget is not navigable, then using the mouse would be the only activation means, thus the access key is required.

Oracle E-Business Business Suite Features

- Radio groups, radio buttons, push buttons and check boxes need to be subclassed with the appropriate FND property class. These classes specify a Pluggable Java Component (PJC) to guarantee uniqueness of access keys. At runtime, if the letter specified is already in use within the window, including the pull-down menu, a different letter will automatically be selected. This feature is most useful for applications which will be translated, where the translators may have a difficult time establishing unique access keys because they may not be operating in an environment where they can see the effect of their changes at runtime.
- Tabs, pop-up menu items, and dynamically labeled pull-down menu items should not have access keys because they cannot be guaranteed to be unique after translation. The PJC mechanism used on other items is not possible on these.
- An access key should be specified within the label, such as &Print. The separate Access Key property should not be used.
- One default button per window should be provided, where that function is the most likely for the user to perform. Always provide a default button in a modal window (typically OK). All push buttons should have an access key except OK and Cancel within dialog windows. OK must have an access key if it is not the default button, and Cancel must have an access key if it does not perform the same function as Close Window.

Blocks

Every block must be navigable with the keyboard. Typically the navigation between blocks is controlled with the Next Navigation Block and Previous Navigation Block properties, and/or the KEY-NEXT-BLOCK and KEY-PREVIOUS-BLOCK triggers.

Tab Pages

The WHEN-TAB-PAGE-CHANGED trigger needs to be coded properly so that focus moves to the first navigable item when the user presses List Tab Pages function (typically mapped as F2) to switch tab pages. The cursor does not automatically move to a different item. To move the cursor, there must be code to include a GO_ITEM statement in the WHEN-TAB-PAGE-CHANGED trigger. This is intended functionality to allow users to view other tab pages without navigating the cursor and therefore causing item navigation and validation.

```

DECLARE
    tp_name VARCHAR2(30);
    tp_label VARCHAR2(30);

BEGIN
    tp_name := :SYSTEM.TAB_NEW_PAGE;
    tp_label := GET_TAB_PAGE_PROPERTY(tp_nm, label);

    IF tp_lbl = 'NAME' THEN
        GO_ITEM('FIRST_NAME'); -- or GO_BLOCK(...)
    ELSIF tp_lbl = 'ADDRESS' THEN
        GO_ITEM('ADDRESS_LINE_1');
    END IF;
END;
```

Menus

Include the Window menu entry when building a custom menu; by default the Window menu entry is not included. This entry allows a user to switch between currently open windows within the application from the keyboard.

Flexibility in Color Choices

For users who are visually challenged, Oracle Forms offers options for color coding of fields and components.

Color-coding should never be the only means of conveying information or indicating an action and should not be hard-coded. If fields need to be color-coded, either allow the user to turn the feature off or allow them to select from a range of colors.

Automatic color

Oracle Forms provides a special color named `automatic`, which is essentially a do-the-right-thing attribute. For example, when applied to the text and background colors of a Text Item, the text will be black and the background color will be white, when running with the Oracle Look and Feel. That same item, running in the Generic Look and Feel, may have different colors depending on how the system colors are currently set up. This flexibility allows each user to control colors so they can account for visual impairments they may have.

Note that the Oracle Forms Layout Editor does not fully recognize the `automatic` color; it may render items with unexpected colors at design time. Only the runtime Java engine is able to completely interpret and apply this color.

Oracle E-Business Suite features

Oracle E-Business Suite follows all of the guidelines mentioned in this chapter, but has additional requirements and features. These arise from the need to translate to multiple languages, and additional accessibility support built into the Oracle Application Object Library (FND) product. If you are coding extensions to Oracle E-Business Suite, it is recommended to follow these rules in addition to the prior material. See:

[Controlling Window, Block, and Region Behavior](#)

Testing Forms using Features that Support Accessibility

Specific features that support accessibility are available for testing forms.

To aid with testing, Oracle E-Business Suite includes a `screen reader simulation mode`. By setting environment variable `ACCESS_READER_MODE` to the value `ERROR_REPORTING` before starting the web listener, the system will automatically raise an error message when focus moves to an item that does not have a speakable prompt. This mode allows validation of each form without actually having to run with a real screen reader installed, although it is not intended to be a complete substitute for such testing. This feature relies on the form-level `WHEN-NEW-ITEM-INSTANCE` trigger firing on each field.

The Oracle Forms generic code for Actions and Values LOV and screen reader simulation mode is also available.

Minimum Requirements for Assistive Technology for Oracle Forms

Assistive technology must meet these requirements to run with Oracle Forms:

- Operating System: Microsoft Windows
- Oracle Forms Developer
- Microsoft Internet Explorer 5.5 or later
- Run Forms with `separateFrame=true`
- Java Runtime Environment (JRE) Native Plug-in
- Java Access Bridge 2.0.2 or later

 **Note:**

- Dolphin Oceanic's Supernova Professional 8.03 or above.
- Oracle E-Business Suite only supports `separateframe=true` where the Forms applet UI is displayed in its own window. The Forms product does support embedding the applet UI in an html page using the standard applet tags to size the window but it will not work with screen readers.
- Oracle is working closely with assistive technology vendors to resolve accessibility issues identified to date. For information, see [Oracle Support](#).

6

Accessibility Features and Tips for Oracle Identity Management

Use these tips to improve your experience with accessibility features for Oracle Identity Management.

Topics

- [Accessibility Features and Tips for Oracle Access Management](#)
Oracle Access Management Console has been designed to enable and use accessibility options with screen readers, high-contrast colors, and large fonts.
- [Accessibility Features and Tips for Directory Services](#)
Learn about the accessibility options in directory services products and enabling the features.
- [Accessibility Features and Tips for Oracle Identity Governance](#)
Learn about the accessibility options in Oracle Identity Self Service and Oracle Identity System Administration interfaces.

Accessibility Features and Tips for Oracle Access Management

Oracle Access Management Console has been designed to enable and use accessibility options with screen readers, high-contrast colors, and large fonts.

Enabling Accessibility Mode for OAM Console

To enable accessibility mode, perform the following steps:

1. Click **weblogic** and then click **Accessibility** on the top corner of the OAM Console.
2. Choose the options from drop-down list:
 - **I use a screen reader:** Select this option to enable screen reader mode.
 - **I use high contrast colors:** Select this option to enable high-contrast features in browsers that are compatible with OAM Console.
 - **I use large fonts:** Select this option to enhance the font size. By default, fonts have fixed length and size to have a better look and feel of the user interface.
3. Click **OK** and continue to work on OAM Console.

Accessibility Features and Tips for Directory Services

Learn about the accessibility options in directory services products and enabling the features.

Topics

- [Accessibility Tips and Features for Oracle Unified Directory](#)
- [Accessibility Tips and Features for Oracle Internet Directory](#)

- [Accessibility Features and Tips for Oracle Unified Directory](#)
Oracle Unified Directory Services Manager has been designed to use accessibility options in the application user interface with screen readers, to enable support of high-contrast colors, and to enable support for large fonts.
- [Accessibility Features and Tips for Oracle Internet Directory](#)
Oracle Directory Services Manager has been designed to use accessibility option to use the ODSM interface for the use with screen readers.
- [Accessibility Tips and Features for Oracle Directory Integration Platform](#)

Accessibility Features and Tips for Oracle Unified Directory

Oracle Unified Directory Services Manager has been designed to use accessibility options in the application user interface with screen readers, to enable support of high-contrast colors, and to enable support for large fonts.

Enabling Accessibility Mode for OUD-OUDSM

Before you enable screen reader support, ensure that you have enabled Java Access Bridge.

To enable accessibility mode, perform the following steps:

1. Click **Accessibility** on the top corner of the OUDSM interface login page.
2. Choose the options from drop-down list:
 - **I use a screen reader:** Select this option to enable screen reader mode.
 - **I use high contrast colors:** Select this option to enable high-contrast features in the browsers which are compatible with OUDSM user interface.
 - **I use large fonts:** Select this option to enhance the font size. By default, fonts have fixed length and size to have a better look and feel of the user interface.
3. Continue to work on OUDSM interface.

Enabling Accessibility Mode for OUD CLI Utilities

To enable accessibility mode for CLI utilities such as `oud-setup`, `oud-proxy-setup` and `oud-replication-gateway-setup`, run the following command:

```
%JRE_HOME%\bin\jabswitch -enable
```

This allows Java Access Bridge to enable Java Applications and applets that are required to implement the Java Accessibility API.

Accessibility Features and Tips for Oracle Internet Directory

Oracle Directory Services Manager has been designed to use accessibility option to use the ODSM interface for the use with screen readers.

Enabling Accessibility Mode for OID-ODSM

Before you enable screen reader mode, ensure that you have installed the screen reader software.

To enable accessibility mode, on the upper right corner of the ODSM login page, perform the following steps:

1. Click **Accessibility Mode** on the upper right corner of the product user interface login page.

2. Select **Screen Reader** option.

This enables you to read out the options in ODSM page.

Accessibility Tips and Features for Oracle Directory Integration Platform

You can graphically administer many Oracle Directory Integration Platform features from the Oracle Enterprise Manager Fusion Middleware Control.

- For information about enabling Fusion Middleware Control accessibility mode, see:
Enabling Fusion Middleware Control Accessibility Mode in Administering Oracle Fusion Middleware
- For information about Fusion Middleware Control keyboard navigation, see:
Fusion Middleware Control Keyboard Navigation in Administering Oracle Fusion Middleware

Accessibility Features and Tips for Oracle Identity Governance

Learn about the accessibility options in Oracle Identity Self Service and Oracle Identity System Administration interfaces.

Topics

- [Enabling Accessibility Mode in Oracle Identity Self Service](#)
- [Enabling Accessibility Mode in Oracle Identity System Administration](#)
- [Enabling Accessibility Mode in Oracle Identity Self Service](#)
Oracle Identity Self Service is designed to use accessibility options in the application user interface with screen readers, to enable support of high-contrast colors, and to enable support for large fonts.
- [Enabling Accessibility Mode in Oracle Identity System Administration](#)
Oracle Identity System Administration is designed to use accessibility options in the application user interface with screen readers, to enable support of high-contrast colors, and to enable support for large fonts.

Enabling Accessibility Mode in Oracle Identity Self Service

Oracle Identity Self Service is designed to use accessibility options in the application user interface with screen readers, to enable support of high-contrast colors, and to enable support for large fonts.

To enable accessibility mode in Oracle Identity Self Service:

1. In Identity Self Service, click **Accessibility** on the top right corner of the page. You can also click this link from any other page after signing in.
The Accessibility dialog box is displayed.
2. Select one or more of the following options:
 - **I use a screen reader:** Select this option to enable the screen reader mode.
 - **I use high contrast colors:** Select this option to enable high-contrast features in the browsers which are compatible with Identity Self Service user interface.
 - **I use large fonts:** Select this option to enhance the font size. By default, fonts have fixed length and size to have a better look and feel of the user interface.

3. Continue to work on the Identity Self Service interface.

Enabling Accessibility Mode in Oracle Identity System Administration

Oracle Identity System Administration is designed to use accessibility options in the application user interface with screen readers, to enable support of high-contrast colors, and to enable support for large fonts.

To enable accessibility mode in Oracle Identity System Administration:

1. In Identity System Administration, click **Accessibility** on the top right corner of the page.
The Accessibility dialog box is displayed.
2. Select any of the following options:
 - **I use a screen reader:** Select this option to enable the screen reader mode.
 - **I use high contrast colors:** Select this option to enable high-contrast features in the browsers which are compatible with Identity System Administration user interface.
 - **I use large fonts:** Select this option to enhance the font size. By default, fonts have fixed length and size to have a better look and feel of the user interface.
3. Continue to work on the Identity System Administration interface.

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Accessibility Features and Tips for Oracle JDeveloper and Oracle ADF

This topic provides links to information about accessibility features and related information for Oracle JDeveloper and Oracle Application Development Framework (ADF).

Oracle JDeveloper

- For information about installing and configuring assistive technologies for use with the JDeveloper IDE, see:
[Understanding Oracle JDeveloper Accessibility Information in *Installing Oracle JDeveloper*](#)
- For information about using assistive technologies with the JDeveloper IDE, see:
[Oracle JDeveloper Accessibility Information in *Developing Applications with Oracle JDeveloper*](#)

Oracle ADF

- For information about developing accessible web pages using ADF Faces components in ADF applications, see:
[Developing Accessible ADF Faces Pages in *Developing Web User Interfaces with Oracle ADF Faces*](#)
- For information about keyboard navigation support provided by ADF Faces components in ADF applications, see:
[Keyboard Shortcuts in *Developing Web User Interfaces with Oracle ADF Faces*](#)

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Accessibility Features and Tips for Oracle Managed File Transfer

This topic provides links to information about accessibility features and related information for Oracle Managed File Transfer.

- For information about setting accessibility preferences, see [Setting Language, Time Zone, and Accessibility Preferences](#) in *Using Oracle Managed File Transfer*.

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Accessibility Features and Tips for Oracle Real-Time Integration Business Insight

This topic provides links to information about accessibility features and related information for Oracle Real-Time Integration Business Insight.

Oracle Real-Time Integration Business Insight integrates with existing Oracle products such as Oracle SOA Suite and Oracle Service Bus. Enable accessibility features in these applications first.

- For information about accessibility options in Service Bus Console, see [How to Set Accessibility Options in the Oracle Service Bus Console](#) in *Developing Services with Oracle Service Bus*
- For information about the screen reader mode, see [Notes on Screen Reader Mode](#) in *Developing Services with Oracle Service Bus*
- For information about enabling Fusion Middleware Control accessibility mode, see: [Enabling Fusion Middleware Control Accessibility Mode](#) in *Administering Oracle Fusion Middleware*
- For information about Fusion Middleware Control keyboard navigation, see: [Fusion Middleware Control Keyboard Navigation](#) in *Administering Oracle Fusion Middleware*

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Accessibility Features and Tips for Oracle Service Bus

This topic provides links to information about accessibility features and related information for Oracle Service Bus.

- For information about accessibility options in Service Bus Console, see [How to Set Accessibility Options in the Oracle Service Bus Console](#) in *Developing Services with Oracle Service Bus*.
- For information about the screen reader mode, see [Notes on Screen Reader Mode](#) in *Developing Services with Oracle Service Bus*.

Accessibility Features and Tips for Oracle SOA Suite and Its Components

This topic provides links to information about accessibility features and related information for Oracle SOA Suite.

Topics:

- [Accessibility Features and Tips for Oracle SOA Suite](#)
This topic provides links to information about accessibility features and related information for Oracle SOA Suite.
- [Accessibility Features and Tips for BPEL Process Manager, Business Rules, Human Workflow and Mediator](#)
This topic provides links to information about accessibility features and related information for BPEL Process Manager, Business Rules, Human Workflow, and Mediator.
- [Accessibility Features and Tips for Business Activity Monitoring](#)
This topic provides links to information about accessibility features and related information for Oracle Business Activity Monitoring.
- [Accessibility Features and Tips for Oracle B2B](#)
This topic provides links to information about accessibility features and related information for Oracle B2B.
- [Accessibility Features and Tips for Oracle SOA for Healthcare](#)
This topic provides links to information about accessibility features and related information for Oracle SOA for Healthcare.

Accessibility Features and Tips for Oracle SOA Suite

This topic provides links to information about accessibility features and related information for Oracle SOA Suite.

- For more information about accessibility options in SOA Composer, see [Setting Accessibility Options in Oracle SOA Composer and Oracle BPM Worklist in *Developing SOA Applications with Oracle SOA Suite*](#).

Accessibility Features and Tips for BPEL Process Manager, Business Rules, Human Workflow and Mediator

This topic provides links to information about accessibility features and related information for BPEL Process Manager, Business Rules, Human Workflow, and Mediator.

- For more information about accessibility options in BPEL Process Manager, see [Setting Accessibility Options in *Developing SOA Applications with Oracle SOA Suite*](#).

Accessibility Features and Tips for Business Activity Monitoring

This topic provides links to information about accessibility features and related information for Oracle Business Activity Monitoring.

- For information about setting accessibility preferences in Business Activity Monitoring, see Setting Language, Time Zone, and Accessibility Preferences in *Monitoring Business Activity with Oracle BAM*.

Accessibility Features and Tips for Oracle B2B

This topic provides links to information about accessibility features and related information for Oracle B2B.

- For information about enabling screen reader mode in Oracle B2B, see Enabling Accessibility Features in Oracle B2B in *User's Guide for Oracle B2B*.

Accessibility Features and Tips for Oracle SOA for Healthcare

This topic provides links to information about accessibility features and related information for Oracle SOA for Healthcare.

- For information about accessibility features in SOA for Healthcare, see Accessibility Options in *Healthcare Integration User's Guide for Oracle SOA Suite*.

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Accessibility Features and Tips for Oracle WebCenter Content

This topic provides links to information about accessibility features and related information for Oracle WebCenter Content.

- For information about personalizing accessibility preferences in the Oracle WebCenter Content user interface, see:

Personalizing WebCenter Content Preferences in *Using Oracle WebCenter Content*.

- For information on navigating in the Oracle WebCenter Content user interface using keyboard shortcuts, see:

Keyboard Shortcuts in *Developing Web User Interfaces with Oracle ADF Faces*.

- For information on performing specific actions in the Oracle WebCenter Content user interface using keyboard shortcuts, see:

How do I create annotations using the keyboard? and How do I modify annotations using the keyboard? in *Using Oracle WebCenter Content*.

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Accessibility Features and Tips for Oracle WebCenter Content: Imaging

This topic provides links to information about accessibility features and related information for Oracle WebCenter Content: Imaging.

- For information about Imaging user interface accessibility features, see:
Imaging Accessibility Features in *Using Oracle WebCenter Content: Imaging*.

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Accessibility Features and Tips for Oracle WebCenter Enterprise Capture

This topic provides links to information about accessibility features and related information for Oracle WebCenter Enterprise Capture.

- For information about Capture workspace console accessibility features, see:
Capture Workspace Console Accessibility Features in Managing Oracle WebCenter Enterprise Capture
- For information about Capture client accessibility features, see:
Client Accessibility Features in Using Oracle WebCenter Enterprise Capture

Accessibility Features and Tips for Oracle WebCenter Portal

This topic provides links to information about accessibility features and related information for Oracle WebCenter Portal.

Topics

- [Keyboard Shortcuts for Oracle WebCenter Portal](#)
To select and move server objects in Oracle WebCenter Portal, use the keystroke shortcuts described in this topic.
- [Keyboard Workarounds for Oracle WebCenter Portal](#)
The Feedback Posts and Favorites features have workarounds for keyboard shortcut issues.

Keyboard Shortcuts for Oracle WebCenter Portal

To select and move server objects in Oracle WebCenter Portal, use the keystroke shortcuts described in this topic.

Keyboard Shortcut for Editing a Portal

Task	Keyboard Shortcut
Edit a portal from portal viewer	Ctrl+Shift+E

Keyboard Shortcut for Editing Site Studio Files In-Context

Task	Keyboard Shortcut
Enter and exit contribution mode to edit a Site Studio file in-context	Ctrl+Shift+C

Keyboard Shortcut for Editing in Rich Text Editor

Task	Keyboard Shortcut
Move to the toolbar.	Alt+F10
In the toolbar, move to the next button group.	Tab
In a dialog, move to the next element.	
In the toolbar, move to the previous button group.	Shift+Tab
In a dialog, move to the previous element.	
In the toolbar, move between buttons within a button group.	Left Arrow/Right Arrow
In a dialog, move within a field.	

Task	Keyboard Shortcut
In the toolbar, select the current button or menu item, or expand a drop-down list or menu.	Enter
In a dialog, confirm entry at current cursor location.	
Move between selections in a drop-down list.	Down Arrow/ Up Arrow
Close a menu without executing any command.	Esc
When inside a submenu, close the submenu and return focus to the parent context menu. Press Esc again to close it. In a dialog, cancel entries and close dialog (equivalent to clicking Cancel or Close).	
<i>In the editing area:</i>	
Open the context menu of the current element (use down arrow and up arrow to move between selections in the menu, and Enter to select an action).	Shift+F10
Move to the tab selection in a dialog (use left and right arrow keys to move between tabs, and Enter to move to the fields on a tab).	Alt+F10
Select the entire content in the editing area.	Ctrl+A
Change the formatting of the selected text to bold or remove the bold formatting of the selected text.	Ctrl+B
Copy highlighted selections to the clipboard.	Ctrl+C
Change the formatting of the selected text to italics or remove the italics from the selected text.	Ctrl+I
Underline the selected text or remove the underline formatting of the selected text.	Ctrl+U
Paste the content on the clipboard at the current cursor location.	Ctrl+V or Shift+Insert
Cut highlighted selections to the clipboard.	Ctrl+X or Shift+Delete
Perform redo operation.	Ctrl+Y
Perform undo operation.	Ctrl+Z

Keyboard Workarounds for Oracle WebCenter Portal

The Feedback Posts and Favorites features have workarounds for keyboard shortcut issues.

Working with Feedback Posts

When working with feedback posts, you cannot use the keyboard to select a date from the calendar that pops up when you click the **Select Date** icon. Instead, manually enter the date into the field.

Working with Favorites

When working with favorites, you cannot move a favorite into an existing folder using only the keyboard. To work around this issue, create a duplicate favorite within the target folder, and then delete the original favorite.

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Accessibility Features and Tips for Oracle WebCenter Sites

This topic provides links to information about accessibility features and related information for Oracle WebCenter Sites.

- For information about keyboard shortcuts for navigating and working with the different features in the Contributor interface of Oracle WebCenter Sites, see:

Keyboard Shortcuts for the Contributor Interface in *Using Oracle WebCenter Sites*.

- For information about customizing keyboard shortcuts for the Contributor interface of Oracle WebCenter Sites, see:

Customizing Keyboard Shortcuts for the Contributor Interface in *Administering Oracle WebCenter Sites*.

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Accessibility Features and Tips for Oracle WebLogic Server

This topic provides links to information about accessibility features and related information for Oracle WebLogic Server.

- For information about enabling Oracle WebLogic Server accessibility mode, see:
[WebLogic Remote Console Accessibility](#)