Java Desktop System Release 3 Accessibility Guide

Adobe PostScript™

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Contents

Preface

The *Java Desktop System Release 3 Accessibility Guide* describes how to configure, customize, and use the accessibility features of the Java™ Desktop System Release 3. Most of the information in this guide is generic to all releases of the Java Desktop System Release 3, see "Supported Systems" on page 7. Where the information is not generic, the platform is indicated.

Supported Systems

This release of the Java Desktop System supports the following systems:

- Systems running Linux on Intel-compatible hardware, including most desktop and laptop systems from most vendors.
- Systems running the Solaris™ 10 Operating System on SPARC® platforms.
- Systems running the Solaris 10 Operating System on x86 platforms.

Table P–1 describes where you can find information about systems that are supported by the Solaris Operating System, relevant to this product release. In the Java Desktop System documentation, the term *x86* refers to the processor families shown in Table P–1.

TABLE P–1 Supported Solaris Systems

Architecture	Processor Families	Solaris Systems
SPARC	- SPARC64 - UltraSPARC	See the *Solaris 10 Hardware Compatibility List* at the following location: http://www.sun.com/bigadmin/hcl

TABLE P–1 Supported Solaris Systems   *(Continued)*

Architecture	Processor Families	Solaris Systems
x86	■ AMD64 ■ Pentium ■ Xeon	See the *Solaris 10 Hardware Compatibility List* at the following location: `http://www.sun.com/bigadmin/hcl`

Who Should Read This Guide

This guide is for users, system administrators, and anyone who is interested in how the Java Desktop System Release 3 supports people with disabilities and addresses the requirements of Section 508 of the U.S. Rehabilitation Act.

How This Guide Is Organized

This guide is structured in the following manner:

- Chapter 1 introduces you to accessibility in the Java Desktop System.
- Chapter 2 describes how to configure the mouse and keyboard to make these devices accessible to more users.
- Chapter 3 describes how to navigate the Java Desktop System from the keyboard.
- Chapter 4 describes the methods you can use to change the appearance of the Java Desktop System to enhance the accessibility of the desktop for users with visual impairments.
- Chapter 5 introduces you to the assistive technologies that are available from the Java Desktop System.
- Appendix A describes the system administrator tasks that you need to perform before you can use the assistive technologies for the Java Desktop System.

Related Documentation

The following manuals are related to this guide:

- *Java Desktop System Release 3 Accessibility Release Notes*
- *Java Desktop System Release 3 Administration Guide*

- *Java Desktop System Release 3 for the Solaris 10 Operating System Release Notes*
- *Java Desktop System Release 3 Installation Guide*
- *Java Desktop System Release 3 on Linux Release Notes*
- *Java Desktop System Release 3 Troubleshooting Guide*
- *Java Desktop System Release 3 User Guide*
- *Java System Update Service User Guide*

Associated Documentation

Java Desktop System Release 3 on Linux:

- *Java Desktop System Email and Calendar User Guide*
- *StarOffice 8 Administration Guide*
- *StarOffice 8 Getting Started Guide*
- *StarOffice 8 Programming Guide for BASIC*

Java Desktop System Release 3 for the Solaris 10 Operating System:

- *Java Desktop System Email and Calendar User Guide*
- *StarOffice 7 Office Suite Administration Guide*
- *StarOffice 7 Office Suite Basic Guide*
- *StarOffice 7 Office Suite Setup Guide*
- *StarOffice 7 Office Suite User's Guide*

Documentation CD

The accompanying Java Desktop System Release 3 Documentation CD contains files or links for those manuals directly-related, or closely associated with, the Java Desktop System Release 3 on Linux.

Accessing Sun Documentation Online

The docs.sun.com^{SM} Web site enables you to access Sun technical documentation online. You can browse the docs.sun.com archive or search for a specific book title or subject. The URL is `http://docs.sun.com`.

Ordering Sun Documentation

Sun Microsystems offers select product documentation in print. For a list of documents and how to order them, see "Buy printed documentation" at `http://docs.sun.com`.

Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P–2 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
AaBbCc123	What you type, contrasted with onscreen computer output	`machine_name%` **su** `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	The command to remove a file is `rm` *filename*.
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*. These are called *class* options. Do *not* save the file. (Emphasis sometimes appears in bold online.)

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–3 Shell Prompts

Shell	Prompt
C shell prompt	`machine_name%`
C shell superuser prompt	`machine_name#`
Bourne shell and Korn shell prompt	`$`
Bourne shell and Korn shell superuser prompt	`#`

Mouse Usage Conventions

The following table lists the conventions for mouse usage in documentation for the Java Desktop System.

Action	Definition
Click	Press and release the left mouse button, without moving the mouse.
Click-and-hold	Press and do not release the left mouse button.
Left-click	Same as *click*. Left-click clarifies the action when there might be confusion with *right-click*.
Middle-click	Press and release the middle mouse button, without moving the mouse.
Right-click	Press and release the right mouse button, without moving the mouse.
Double-click	Press and release the left mouse button twice in rapid succession without moving the mouse.
Drag	Click-and-hold a mouse button, then move an object. For example, you can drag a window or an icon. The left and middle mouse buttons can perform drag actions.
Drag-and-drop	Click-and-hold a mouse button, then move an object. For example, you can drag-and-drop a window or an icon. Release the mouse button to place the object in a new location.
Grab	Point to an item that you can move, and click-and-hold on the mouse button. For example, you can grab the titlebar of a window, then drag the window to a new location.

Introduction to Accessibility

This chapter introduces you to accessibility in the Java Desktop System.

1.1 Overview of Accessibility

All software products should incorporate accessibility features to enable people with disabilities to use the software easily and efficiently. Recent legislation such as Section 508 of the U.S. Rehabilitation Act heightens awareness of the need to provide accessible software.

The Java Desktop System is easy to use and incorporates many accessibility features. Every supported application and utility in the Java Desktop System is designed with accessibility and usability in mind. Users with physical disabilities such as low vision or impaired motor skills can use all of the functionality of the Java Desktop System thanks to the customization tools that are available. The customization tools enable you to customize the appearance and behavior of the desktop.

The ability to easily customize the Java Desktop System contributes greatly to the accessibility of the desktop. This guide describes the various customization options that you can use to tailor the desktop to suit your particular needs.

Configuring the Mouse and Keyboard

This chapter describes how to configure the mouse and keyboard to make these devices accessible to more users.

2.1 Configuring the Mouse

Use the **Mouse** preference tool to configure the mouse to suit your needs. To open the **Mouse** preference tool, click Launch, then choose Preferences → Desktop Preferences → Mouse. The **Mouse Preferences** dialog is displayed.

2.1.1 To Configure the Behavior of the Mouse

The following sections describe how to modify the behavior of the mouse to suit your needs.

2.1.1.1 To Configure the Mouse for Left-Handed Use

To configure the mouse for left-handed use, click on the **Buttons** tab in the **Mouse Preferences** dialog, then select the **Left-handed mouse** option. When you select this option, the system swaps the functions of the left mouse button and the right mouse button immediately.

2.1.1.2 To Configure the Double-Click Behavior

If you have difficulty double-clicking, you can increase the period of time that the system allows to elapse between the first click and the second click of a double-click. For example, if the double-click timeout setting is 0.4 seconds, you must perform the second click of a double-click within 0.4 seconds of the first click. If the second click occurs more than 0.4 seconds after the first click, the system interprets the two clicks as two single clicks.

To configure the double-click timeout setting, perform the following steps:

1. Click on the **Buttons** tab in the **Mouse Preferences** dialog.
2. Use the **Timeout** slider to specify the timeout in seconds that the system allows between the two clicks of a double-click.
3. Double-click on the light bulb to the right of the slider to test the setting. If you perform the two clicks of the double-click within the timeout specified, the light bulb lights up fully to display a yellow glow around the bulb. If you do not double-click within the timeout specified, the light bulb does not light fully. You should increase the timeout setting and try again. When the light bulb lights, the timeout setting is suitable for your needs.

2.1.1.3 To Change the Size of the Cursor and Pointer

To change the size of the cursor and pointer that is displayed on the desktop, perform the following steps:

1. Click on the **Cursors** tab in the **Mouse Preferences** dialog.
2. Select one of the following **Cursor Size** options:

   - Small
   - Medium
   - Large

3. To complete this change, you must log out of your session and log in again.

2.1.1.4 To Locate the Mouse Pointer

If you have difficulty locating the mouse pointer on the screen, you can enable an option to highlight the pointer when you press the Control key. To enable this option, click on the **Cursors** tab in the **Mouse Preferences** dialog, then select the **Highlight the pointer when you press Ctrl** option. When you press Control, the system displays an animation around the pointer to highlight the pointer.

Note – On some platforms, you must log out and log in again before this setting takes effect.

2.1.1.5 To Configure the Speed and Sensitivity of the Mouse

To configure the speed and sensitivity of the mouse, perform the following steps:

1. Click on the **Motion** tab in the **Mouse Preferences** dialog.

2. Configure the following options:

   Acceleration   Use the slider to specify the speed at which the mouse pointer moves around the screen when you move your mouse.

                                     If you select a low setting, the mouse pointer moves at a speed similar to the speed at which you are physically moving the mouse. This means that you need to physically move the mouse larger distances to cover the screen area. If you select a high setting, the mouse pointer moves at a faster speed than the speed at which you physically move the mouse. This means that you need to physically move the mouse small distances to cover the screen area.

   Sensitivity   Use the slider to specify how sensitive the mouse pointer is to movements of your mouse.

   Threshold   Use the slider to specify the distance that you must move an item before the system interprets the move action as a drag-and-drop action.

2.1.2 To Configure the Cursor

The following section describes how to modify the display characteristics of the cursor.

2.1.2.1 To Stop the Cursor Blinking

To stop the cursor blinking in text boxes and fields, perform the following steps:

1. Click Launch, then choose Preferences → Desktop Preferences → Keyboard → Behavior to start the Keyboard Behavior preference tool.

2. In the **Keyboard** tabbed section, deselect the **Cursor blinks in text boxes and fields** option.

2.1.3 To Use the Keyboard to Emulate the Mouse

If you have difficulty using a mouse, you can use the keyboard to emulate the mouse functions. See "2.2.2 To Enable the Keyboard to Emulate the Mouse" on page 19 of this guide for more information.

2.2 Configuring the Keyboard

Use the Keyboard Accessibility preference tool, also known as AccessX, to configure the keyboard accessibility options. To start AccessX, click Launch, then choose Preferences → Accessibility → Keyboard.

Note – Before you can use the Keyboard Accessibility preference tool on Solaris systems, you must follow the steps outlined in "A.3 Enabling XKB on Solaris Systems" on page 74 of this guide.

The **Keyboard Accessibility Preferences (AccessX)** dialog enables you to customize your keyboard in the following ways:

- To use the numeric keypad to emulate mouse actions. See "2.2.2 To Enable the Keyboard to Emulate the Mouse" on page 19.
- To specify the duration for which you must press-and-hold a key before the system accepts the keypress. See "2.2.3 To Enable the Slow Keys Feature" on page 21.
- To ignore rapid, repeated keypresses of the same key. See "2.2.4 To Enable the Bounce Keys Feature" on page 22.
- To accept key combinations in sequence rather than simultaneously. See "2.2.5 To Enable the Sticky Keys Feature" on page 22.
- To emit an audible notification when a user activates or deactivates a toggle key. See "2.2.6 To Enable Audible Notifications for Toggle Keys" on page 23.
- To ignore long keypresses of the same key and control the repeat rate of a keypress. See "2.2.7 To Enable the Repeat Keys Feature" on page 24.

2.2.1 To Activate the Keyboard Accessibility Options

To activate the keyboard accessibility options, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.

2. Select the **Enable keyboard accessibility features** option.

3. Click on the **Basic** tab.

4. Select the **Beep when features turned on or off from keyboard** option to receive an audible notification each time a user enables or disables a keyboard accessibility option using the following keyboard shortcuts:

   ■ Press-and-hold Shift for eight seconds to enable or disable the slow keys feature.

   ■ Press Shift five times to enable or disable the sticky keys feature.

5. To automatically disable the keyboard accessibility options if the options are not used for a specified number of seconds, select the **Disable if unused for X seconds** option. Use the slider to specify the number of seconds of keyboard idle time required before the system disables the keyboard accessibility options.

   This option is intended for computers that are shared by a number of different users, some of whom require the keyboard accessibility options.

6. If you are a Linux user, log out and log in again before the accessibility settings take effect.

2.2.2 To Enable the Keyboard to Emulate the Mouse

The mouse keys feature enables you to use the numeric keypad on the keyboard to emulate mouse actions. This feature benefits users who have difficulty using a mouse or other pointing device. To enable and configure the mouse keys feature, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.

2. Click on the **Mouse Keys** tab.

3. Select the **Enable Mouse Keys** option.

4. Configure the following options to determine the behavior of the mouse pointer when you control the pointer from the numeric keypad:

   Maximum pointer speed
   Use this spin box to specify the maximum speed, in pixels per second, at which the pointer moves around the screen.

Time to accelerate to maximum speed
Use this spin box to specify the duration, in milliseconds, before the pointer accelerates to the maximum pointer speed.

Delay between keypress and pointer movement
Use this spin box to specify the interval, in milliseconds, between a keypress and the time when the pointer starts to move.

When you enable mouse keys, the keys on the numeric keypad have the following functions:

TABLE 2–1 Numeric Keypad to Mouse Function Mapping on Solaris Systems

Numeric Keypad Keys	Function
1, 2, 3, 4, 6, 7, 8, 9	Move the mouse pointer around the screen
5	Mouse button click
0	Mouse button double-click
.	Mouse button press
/	Mouse button 1
*	Mouse button 2
−	Mouse button 3

TABLE 2–2 Numeric Keypad to Mouse Function Mapping on Linux Systems

Numeric Keypad Keys	Function
1, 2, 3, 4, 6, 7, 8, 9	Move the mouse pointer around the screen
5	Mouse button click
+	Mouse button double-click
0	Mouse button 3

Some Solaris systems also use the function keys to emulate the mouse buttons. The common function key to mouse button mappings are described in the following table.

TABLE 2–3 Function Key to Mouse Function Mapping on Solaris Systems

Function Key	Function
F2	Mouse button 1
F3	Mouse button 2
F4	Mouse button 3

2.2.3 To Enable the Slow Keys Feature

The slow keys feature enables you to customize how the keyboard handles user input in the following ways:

- Specify the duration for which you must press-and-hold a key before the system accepts the keypress. This aspect of the feature benefits users who frequently press keys that they do not intend to press.
- Enable audible indications of keyboard input and acceptance. This aspect of the feature benefits users who cannot see the result of a keypress.

To enable and configure the slow keys feature, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.
2. Click on the **Filters** tab.
3. Select the **Enable Slow Keys** option.

Tip – To select or deselect the slow keys feature from the keyboard, press-and-hold Shift for eight seconds. The Shift keyboard shortcut automatically selects all of the slow keys options. If you selected the **Beep when features turned on or off from the keyboard** option, after four seconds the system beeps three times to indicate that the system is about to select or deselect the feature. If you enable this feature from the keyboard, you must press-and-hold Shift for eight seconds again to disable the feature.

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4. Use the **Only accept keys held for** slider or spin box to specify the duration, in milliseconds, for which you must press-and-hold a key before the system accepts the keypress. Use the **Type to test settings** text box to test the slow keys setting and modify the setting as required.
5. To enable audible indications of keyboard input and acceptance, select the following options:

Beep when key is pressed	Select this option to hear a beep when you press a key.
Beep when key is accepted	Select this option to hear a beep when the system accepts a keypress.
Beep when key is rejected	Select this option to hear a beep when the system rejects a keypress. The system rejects a keypress if you do not press-and-hold the key for the duration that is specified in the **Only accept keys held for** spin box.

2.2.4 To Enable the Bounce Keys Feature

The bounce keys feature enables you to customize the keyboard to ignore rapid, repeated keypresses of the same key. For example, users with impaired motor skills might press the same key several times when they intend to press the key once. This feature enables you to customize the keyboard to ignore repeated keypresses.

To enable and configure the bounce keys feature, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.
2. Click on the **Filters** tab.
3. Select the **Enable Bounce Keys** option.
4. Use the **Ignore duplicate keypresses within** slider or spin box to specify the duration in milliseconds (ms) after the first keypress for which the system ignores repeated keypresses of the same key. For example, if you select a duration of 500 ms, the system ignores all repeated keypresses of the same key that occur within 500 ms of the first keypress.
5. Select the **Beep if key is rejected** option to hear an audible indication when the system ignores a key.

Note – If you want to enable the bounce keys feature, ensure that the **Enable Slow Keys** option is deselected. The slow keys feature requires you to press a key for a specified duration before the system accepts the keypress as a valid keypress. If you cannot press the key for the duration that is specified by the slow keys setting, deselect the **Enable Slow Keys** option to enable the system to accept your input.

2.2.5 To Enable the Sticky Keys Feature

The sticky keys feature enables you to press the keys in a key combination in sequence rather than simultaneously. This feature is designed for users who are unable to press two or more keys simultaneously.

To enable and configure the sticky keys feature, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.
2. Click on the **Basic** tab.
3. Select the **Enable Sticky Keys** option.

> **Tip –** To enable the sticky keys feature from the keyboard, press Shift five times. The Shift keyboard shortcut automatically selects all of the sticky keys options. If you selected the **Beep when features turned on or off from the keyboard** option, the system beeps to indicate that the system is about to select or deselect the feature. If you enable this feature from the keyboard, press Shift five times again to disable the feature.

4. Select the **Beep when modifier is pressed** option to receive an audible indication each time you press a modifier key such as Ctrl, Alt, or Shift. This option is useful to remind you whether a modifier key is active or inactive.

5. To automatically disable the sticky keys feature when you press two keys simultaneously, select the **Disable if two keys pressed together** option.

You can use the sticky keys feature in latch or lock mode. The following table describes how to choose a mode and the difference between the two modes.

TABLE 2–4 Sticky Keys Latch or Lock Mode

To use the sticky keys feature in...	Press the modifier key...	The modifier key remains active until...
Latch mode	Once.	You press a non-modifier key.
Lock mode	Twice in quick succession.	You press the modifier key again.

Example 1: If you want to press Alt + F1, do the following:

1. Press Alt to latch the modifier key. The Alt key remains active.

2. Press F1. The key combination is now complete. After you press F1, the Alt modifier key is no longer active.

Example 2: If you want to press Ctrl + Alt + Tab, do the following:

1. Press Ctrl twice to lock the modifier key. The Ctrl key remains active.
2. Press Alt.
3. Press Tab. The key combination is now complete.
4. To unlock the modifier key, press Ctrl again.

2.2.6 To Enable Audible Notifications for Toggle Keys

A toggle key is any key on the keyboard that can switch between two states. The Num Lock, Caps Lock, and Scroll Lock keys are toggle keys. Most toggle keys have an associated light emitting diode (LED) on the keyboard that lights when the toggle key

is active. To assist users with visual impairments, you can customize the keyboard to emit an audible notification when a user presses a toggle key. For example, when you press Num Lock, you can determine whether the key is toggled or not toggled by the sound that the keyboard emits.

To enable accessible toggle keys, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.
2. Click on the **Filters** tab.
3. Select the **Enable Toggle Keys** option.

When you activate the Num Lock, Caps Lock, or Scroll Lock keys, the system beeps once. When you deactivate a toggle key, the system beeps twice.

2.2.7 To Enable the Repeat Keys Feature

The repeat keys feature enables you to repeat a keystroke multiple times without pressing the key more than once. This feature is designed for users who cannot release keys quickly, for example users who operate a mouth stick. When you enable repeat keys, you can specify the duration for which you must press a key before the key starts to repeat.

To enable and configure the repeat keys feature, perform the following steps:

1. Click Launch, then choose Preferences → Accessibility → Keyboard.

2. Click on the **Basic** tab.

3. Select the **Enable Repeat Keys** option.

4. Use the **Delay** slider or spin box to specify the duration for which you must press a key before the keyboard interprets the action as a repeat key. If you have difficulty releasing keys, select a long time delay.

5. Use the **Speed** slider or spin box to specify the speed at which the keyboard repeats the keypress as input.

2.3 Using the Keyboard Accessibility Status Panel Application

The Keyboard Accessibility Status panel application shows you the status of the keyboard accessibility features. This panel application displays icons to indicate which keyboard accessibility features are enabled in the Keyboard Accessibility preference tool.

To add the Keyboard Accessibility Status panel application to a panel, right-click on the panel, then choose Add to Panel → Accessories → Keyboard Accessibility Status.

The following table describes the icons that the panel application displays and the status that each icon represents.

TABLE 2–5 Keyboard Accessibility Status Icons

Icon	Keyboard Accessibility Status
	Keyboard accessibility in general is enabled but none of the individual key features are enabled.
	The bounce keys feature is enabled.
	The mouse keys feature is enabled.
	The slow keys feature is enabled.
	The sticky keys feature is enabled and the Alt key is latched.
	The sticky keys feature is enabled and the Alt key is locked.
	The sticky keys feature is enabled and the Ctrl key is latched.
	The sticky keys feature is enabled and the Ctrl key is locked.
	The sticky keys feature is enabled and the Shift key is latched.

TABLE 2–5 Keyboard Accessibility Status Icons   *(Continued)*

Icon	Keyboard Accessibility Status
⬆	The sticky keys feature is enabled and the Shift key is locked.
☰	The sticky keys feature is enabled and the Super/Windows key is latched.
☰	The sticky keys feature is enabled and the Super/Windows key is locked.

Using the Keyboard to Navigate the Desktop

This chapter describes how to navigate the Java Desktop System from the keyboard only. Users who have difficulty using a mouse or other pointing device can navigate and use the desktop from the keyboard.

3.1 Introduction to Keyboard Navigation

This section describes the essential keyboard shortcuts to enable you to navigate the desktop from the keyboard.

You can customize some of the keyboard shortcuts that are described in this chapter. The text indicates the shortcuts that you can customize. See "3.10 Customizing Your Keyboard Shortcuts" on page 51 for information about how to customize keyboard shortcuts.

3.1.1 Essential Keyboard Shortcuts

The following table lists the essential keyboard shortcuts that you can use to navigate the desktop. The keyboard shortcuts that you use to navigate specific elements and controls are described in the appropriate sections of this chapter.

Keys	Function
Tab	Give focus to the next element or control.

Keys	Function
Shift + Tab	Reverse the navigation direction and give focus to the previous element or control. In general, the Shift key reverses the navigation direction.
Ctrl + Tab	Give focus to the next element or control, if the Tab key has a specific purpose in a control. For example, if you press Tab in a text box, the system inserts a tab space.
	To give focus to the previous element or control, press Shift + Ctrl + Tab.
arrow keys	Navigate within an element or control.
spacebar	Activate the element or control that has focus. For example, if the current control is a button, this action is the equivalent of clicking on the button with a mouse.
Esc	Close a window, menu, or drawer.
F7	Switch to caret navigation mode. Caret navigation mode enables you to use the keyboard to select text. For more information about caret navigation mode, see "3.8 Navigating Help Content in Caret Navigation Mode" on page 40.

3.1.2 Global Keyboard Shortcuts

The following table lists the keyboard shortcuts that you can use from any part of the Java Desktop System.

Keys	Function
Ctrl + Esc	Open the Main Menu.
	You can customize this keyboard shortcut.
Windows logo /Diamond + R	Open the **Run Application** dialog.
	You can customize this keyboard shortcut.
Print Screen	Start the screenshot application and take a screenshot of the entire screen.
	You can customize this keyboard shortcut.

Keys	Function
Alt + Print Screen	Start the screenshot application and take a screenshot of the window that currently has focus. You can customize this keyboard shortcut.
F1	If the focused element is an application window or dialog, this keyboard shortcut opens the Help for the application.
Ctrl + F1	If the focused element is a panel or application window, this keyboard shortcut switches the display of tooltips for the window or panel objects on and off.
Shift + F10	Open a popup menu for the element that has focus, if a popup menu exists.

3.2 Navigating the Desktop Background

The desktop background is the part of the Java Desktop System where there are no interface items or applications, such as panels and windows. The following table lists the keyboard shortcuts that you can use to navigate the desktop background and the desktop background objects. A desktop background object is an icon on the desktop background that you can use to open files, folders, or applications.

Keys	Function
Ctrl+Alt+D	Temporarily hide all windows and give focus to the desktop background. To restore the windows, press Ctrl+Alt+D again. You can customize this keyboard shortcut.
Ctrl+ Alt+Tab	Display a popup window with icons that represent the desktop background and the panels. Press-and-hold Ctrl+Alt and continue to press Tab to switch the focus between the desktop background and the panels. You can customize this keyboard shortcut.
Tab	When the desktop background or a desktop background object has focus, give focus to the next desktop background object in alphabetical order.

Keys	Function
arrow keys	When the desktop background or a desktop background object has focus, give focus to a neighboring desktop background object.
A sequence of characters that matches the first n characters of a desktop background object name.	When the desktop background has focus, give focus to the desktop background object whose name starts with the specified sequence of characters.
F2	Rename the desktop background object that has focus.
Shift+F10	Open the popup menu for the desktop background object that has focus.
Ctrl+F10	Open the Desktop Background menu.

3.3 Navigating Panels

A panel is an area from which you can run special programs, applications, and panel applications. The most common panel is the panel that stretches the full width of the bottom edge of the desktop. The following table lists the keyboard shortcuts that you can use to navigate panels and panel objects.

Keys	Function
Ctrl + Alt + Tab	Give focus to a panel. This keyboard shortcut displays a popup window with icons that represent the desktop background, panels, and drawers. Press-and-hold Ctrl + Alt and continue to press Tab to switch the focus between the desktop background, panels, and drawers. You can customize this keyboard shortcut.
Tab	Give focus to the next object on the panel.
F10	Open the Applications menu when the Menu Panel has focus. Continue to press F10 to switch focus between the Applications menu and the window list.
spacebar	Activate a panel object, for example, open a menu or start a launcher.
Shift + F10	Open the panel object popup menu.
Ctrl + F10	Open the panel popup menu.

3.3.1 To Move a Panel Object

You can move a focused panel object to a different location on a panel or drawer, or you can move the object to the next panel. To move a panel object, perform the following steps:

1. Press Tab to give focus to the object.
2. Press Shift+F10 to open the panel object popup menu.
3. Use the arrow keys to select the Move menu item.
4. Use the keyboard shortcuts that are listed in the following table to perform the move operation.

Keys	Function
arrow keys	Move the object left and right on a horizontal panel or up and down on a vertical panel.
Shift + arrow keys	Move the object and push any objects that you encounter in front of the object.
Ctrl + arrow keys	Move the object and swap position with any objects that you encounter in the move.
Tab	Move the object to the next panel.
spacebar	Complete the move operation.

The following examples demonstrate the effect of different move operations on the objects in a panel.
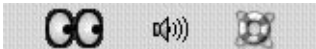
Illustration	Description
	Shows a panel with three panel objects before a move operation takes place.
	Shows the effect of using the arrow keys to move the Geyes panel application on the panel. You can use the arrow keys to move the panel application left or right until you meet the next panel object.
	Shows the effect of using the Shift + arrow keys to move the Geyes panel application on the panel. You can use the Shift+ arrow keys to push the Volume Control and Help panel objects ahead of the object that you are moving.

Illustration	Description
	Shows the effect of using the Ctrl + arrow keys to move the Geyes panel application on the panel. You can use the Ctrl + arrow keys to swap position with the Volume Control and Help panel objects as you meet the objects.

3.3.2 To Navigate Drawers

A drawer is a collapsible extension of a panel. The following table lists the keyboard shortcuts that you can use to navigate into and out of drawers. When you open a drawer, you can navigate the contents of the drawer in the same way as you navigate a panel. See "3.3 Navigating Panels" on page 30 for information about how to navigate a panel.

Keys	Function
spacebar	Open or close the drawer that has focus.
arrow keys	Navigate into the drawer that has focus.
Esc	Close the drawer and give focus to the drawer object on the panel.
Shift + Esc	Give focus to the drawer object on the panel and leave the drawer open.

3.3.3 To Navigate Menus on Panels

The following table lists the keyboard shortcuts that you can use to navigate menus on panels.

Keys	Function
spacebar	Open the menu that has focus.
arrow keys	Navigate the menu.
spacebar	Select a menu item.
Shift + F10	Open the popup menu associated with a menu item, if one exists.
Esc	Close a menu.

3.3.4 To Navigate Panel Applications

A panel application is a small application that resides on a panel. You can navigate to all panel applications and open the panel application popup menu from the keyboard. However, if the panel application does not contain controls that you can give focus to, you cannot navigate the controls in the panel application. The following table lists the keyboard shortcuts that you can use to navigate panel applications.

Keys	Function
spacebar	Activate the panel application control that has focus, if applicable. Not all panel applications contain controls that you can activate. If the panel application does not contain a control that you can activate, the spacebar does nothing.
arrow keys	Navigate the controls on the panel application.
Shift + F10	Open the panel application popup menu. To navigate the menu, use the standard keyboard shortcuts for navigating menus. See "3.9.1 To Navigate Menus" on page 41 for information about how to navigate menus.

3.4 Navigating Your Workspaces

A workspace is a discrete area in which you can work. You can have many workspaces on your desktop and you can switch from one workspace to another. Each workspace can contain different windows and processes. The following table lists the keyboard shortcuts that you can use to navigate workspaces.

Keys	Function
Ctrl + Alt + arrow keys	Give focus to the next or previous workspace. This keyboard shortcut displays a popup window with icons that represent the workspaces. Press and hold Ctrl+Alt and continue to press the arrow keys to switch the focus between the workspaces. You can customize this keyboard shortcut.
Shift + Alt + arrow keys	Move the window that has focus to the next or previous workspace. You can customize this keyboard shortcut.

3.5 Navigating Windows

The following sections describe the keyboard shortcuts that you can use to navigate windows. A window is a rectangular frame on your screen that displays an application.

Note – You can customize all of the keyboard shortcuts that are associated with navigating windows. See "3.4 Navigating Your Workspaces" on page 33 for more information.

3.5.1 To Give Focus to a Window

Before you can use or modify a window, you must give focus to the window. The following table lists the keyboard shortcuts that you can use to give focus to a window.

Keys	Function
Alt + Tab	Display a popup window with icons that represent each window. Press-and-hold Alt and continue to press Tab to move through the windows until you reach the window to which you want to give focus.
Alt + Esc	Raise each window in turn until you reach the window to which you want to give focus.

3.5.2 To Control a Window

When a window has focus, you can perform various actions on the window. The following table lists the keyboard shortcuts that you can use to control the window that has focus.

Keys	Function
Alt + spacebar	Open the Window Menu.
Alt + F4	Close the window.

Keys	Function
Solaris: Open *Linux:*Alt + F9	Minimize the window.
Alt + F10	Maximize the window.
Alt + F5	Restore a maximized window to the original size of the window.

3.5.3 To Move a Window

When a window has focus, you can move the window around the screen. The following table lists the keyboard shortcuts that you can use to move a window.

Keys	Function
Alt + F7	Start the move operation. The mouse pointer changes to a cross.
arrow keys	Move the window 10 pixels at a time in the direction of the arrow key.
Ctrl + arrow keys	Move the window one pixel at a time in the direction of the arrow key.
Shift + arrow keys	Move the window in the direction of the arrow key to align it with the edge of the nearest window, panel, or screen edge.
spacebar	Complete the move operation and leave the window in the current position.
Esc	Cancel the move operation and restore the window to the original position.

3.5.4 To Resize a Window

When a window has focus, you can increase or decrease the size of the window. The following table lists the keyboard shortcuts that you can use to resize the window that has focus.

Keys	Function
Alt + F8	Start the resize operation.

Keys	Function
arrow keys	Resize the window in the direction of the arrow keys.
spacebar	Complete the resize operation and leave the window at the current size.
Esc	Cancel the resize operation and restore the window to the original size.

3.5.5 To Navigate Paned Windows

A paned window is a window that is split into two or more panes. The Help browser and the file manager are examples of applications that use paned windows.

The following table describes the keyboard shortcuts that you can use to navigate windows with panes.

Keys	Function
F6	Give focus to the next pane. The system gives focus to the control that last had focus in the pane.
F8	Give focus to the first resize handle in the window. The resize handle is displayed between the panes and enables you to resize the panes. Press F8 again to give focus to the next resize handle.

When the resize handle has focus, you can use the keyboard shortcuts that are listed in the following table to modify the paned window.

Keys	Function
arrow keys	Move the resize handle by a small amount.
Ctrl + arrow keys	Move the resize handle by a large amount.
Home	Reduce the size of the pane to the left of the resize handle for vertical panes, or above the resize handle for horizontal panes, to the minimum size allowed.
End	Increase the size of the pane to the left of the resize handle for vertical panes, or above the resize handle for horizontal panes, to the maximum size allowed.
spacebar	Set the position of the resize handle and return the focus to the last control that had focus.

Keys	Function
Esc	Reset the position of the resize handle to the original position and return the focus to the last control that had focus.

3.6 Navigating Applications

An application is any program, utility, or other software package that you run on your desktop. Applications comprise the following standard user interface components:

Windows   A window is a rectangular frame on your screen that displays an application. See "3.5 Navigating Windows" on page 34 for information about how to navigate windows.

Dialogs   A dialog is a popup window in which you enter information or commands. See "3.6.2 Essential Keyboard Shortcuts for Navigating Dialogs" on page 38 for information about how to navigate dialogs.

Controls   A control is an instrument that you use to operate or guide the user interface. For example, buttons, check boxes, menus, and text boxes are controls. See "3.9 Navigating Standard Elements and Controls" on page 40 for detailed information about how to navigate the different types of controls that are available.

This section of the manual describes the essential keyboard shortcuts that you can use to start using applications and dialogs.

3.6.1 Essential Keyboard Shortcuts for Navigating Applications

Since there are many applications that you can use in the Java Desktop System, this manual does not describe the keyboard shortcuts that you can use to navigate all of the different applications. However, the basic keyboard shortcuts are common to all applications. Access keys also provide an efficient way to navigate an application from the keyboard. An access key is identified by an underlined letter on a menu or control. In some cases, you must press Alt in combination with the access key to perform an action.

The following table lists the essential keyboard shortcuts that you can use to navigate applications.

Keys	Function
F10	Open the first menu on the application menubar.
Alt + access key	Open the menu that is associated with the access key.
access keys	Select the menu item that is associated with the access key.
left arrow and right arrow	Switch focus between the menus on the menubar.
up arrow and down arrow	Move focus into a menu.
Esc	Close the open menus and give focus to the control that had focus before the menubar.
Ctrl + O	Open the file selector dialog.
Ctrl + S	Open the Save dialog.
Ctrl + L	Open a Location dialog to enable you to type the name of the file that you want to open or save.

3.6.2 Essential Keyboard Shortcuts for Navigating Dialogs

The following table lists the essential keyboard shortcuts that you can use to navigate dialogs.

Keys	Function
Alt + access key	Activate or select a control.
Tab	Give focus to the next control.
Ctrl + Page Up	If a tab name has focus, move to the next tabbed section of the dialog.
Ctrl + Page Down	When a tab name has focus, move to the previous tabbed section of the dialog.
Esc	Close the dialog.
Return	Perform the default action for the dialog. The default action is usually to apply the changes and close the dialog.

3.7 Navigating the File Manager

The file manager window contains several components and there are different keyboard shortcuts defined to navigate each component.

3.7.1 To Navigate the View Pane

The following table describes the keyboard shortcuts that enable you to navigate the list and icon views in the view pane. The view pane is displayed in the right side of the file manager window.

Keys	Function
F6	Switch focus between the side pane and the view pane.
arrow keys	Select the next or previous file or folder in the direction of the arrow key.
Ctrl + arrow keys	Give focus to the next or previous file or folder but do not select the item.
spacebar	Open the focused file or folder.
A sequence of characters that matches the first n characters of a filename.	In an icon view, select the first file or folder that starts with the specified sequence of characters.

3.7.2 To Navigate the Side Pane

The following table describes the keyboard shortcuts that enable you to navigate the file manager side pane in general. The side pane is displayed on the left side of the file manager window.

Keys	Function
F6	Switch focus between the side pane and the view pane.
Shift + F10	Open the side pane popup menu.

3.8 Navigating Help Content in Caret Navigation Mode

The following table describes how to navigate HTML-based help content in caret navigation mode in the Yelp help browser. Caret navigation is a mode of operation in an application which enables you to use the keyboard to select text.

Keys	Function
F7	Switch to caret navigation mode.
left arrow	Move one character to the left.
right arrow	Move one character to the right.
up arrow	Move up one line.
down arrow	Move down one line.
Ctrl + left arrow	Move to the beginning of the previous word.
Ctrl + right arrow	Move to the end of the next word.
Page Up	Scroll up one page of content.
Page Down	Scroll down one page of content.
Home	Move to the beginning of the current frame.
End	Move to the end of the current frame.
Shift + any of the keys listed above	Move from the current position to the destination position and select all text between the two positions.
Tab	Move focus to the next focusable control.
Shift + Tab	Move focus to the previous focusable control.
Enter	Activate a button or submit a form.

3.9 Navigating Standard Elements and Controls

The following sections describe how to navigate and use standard user interface elements and controls from the keyboard.

3.9.1 To Navigate Menus

The following table lists the keyboard shortcuts that you can use to navigate menus.

Keys	Function
up arrow and down arrow	Give focus to the next or previous menu item on a menu.
right arrow	If the menu item that has focus is a submenu, open the submenu and give focus to the first menu item on the submenu.
	If the menu item that has focus is not a submenu, open the next menu on the menubar.
left arrow	If the menu item that has focus is a submenu item, switch the focus back to the submenu.
	If the menu item that has focus is not a submenu item, open the previous menu on the menubar.
Return	Select the focused menu item and close the open menus.
access key	Select the menu item that is associated with the access key and close the open menus.
spacebar	Select the focused menu item and close the open menus except when the menu item is a check box or radio button. If the menu item is a check box or radio button, the menu does not close.
Esc	Close the open menus.

3.9.2 To Navigate Buttons

A button is a control that you use to start an action. Most buttons are rectangular and contain a text label.
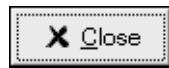
FIGURE 3–1 Sample Button

The following table lists the keyboard shortcuts that you can use to navigate buttons.

Keys	Function
spacebar	Activate the button that has focus. This is the equivalent of clicking on the button.
Return	Activate the button that has focus or, if no button has focus, perform the default action for the dialog.

3.9.3 To Navigate Radio Buttons

A radio button is a control that you use to select one of several mutually-exclusive options.
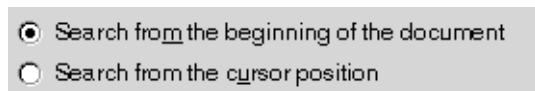
FIGURE 3–2 Sample Radio Button

The following table lists the keyboard shortcuts that you can use to navigate a set of radio buttons.

Keys	Function
arrow keys	Select the next or previous radio button and deselect the other radio buttons in the group.

3.9.4 To Navigate Check Boxes

A check box is a control that you use to select or deselect an option.
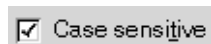
FIGURE 3–3 Sample Check Box

The following table lists the keyboard shortcuts that you can use to navigate a check box.

Keys	Function
spacebar	Select or deselect the check box.

3.9.5 To Navigate Text Boxes

Text boxes are controls in which you type text.

Title: [   ]

FIGURE 3–4 Sample Single Line Text Box

The following table lists the keyboard shortcuts that you can use to navigate a single line text box.

Keys	Function
left arrow	Position the cursor one character to the left.
right arrow	Position the cursor one character to the right.
Ctrl + left arrow	Position the cursor at the start of the current word. Press-and-hold Ctrl and continue to press left arrow to position the cursor at the start of the previous word.
Ctrl + right arrow	Position the cursor at the end of the current word. Press-and-hold Ctrl and continue to press right arrow to position the cursor at the end of the next word.
Home	Position the cursor at the start of the line.
End	Position the cursor at the end of the line.
Shift + left arrow or right arrow	Select one character at a time to the left or right of the cursor.
Shift + Ctrl + left arrow or right arrow	Select one word at a time to the left or right of the cursor.
Shift + Home	Select all text to the left of the cursor.
Shift + End	Select all text to the right of the cursor.
Ctrl + A (Solaris only)	Select all text in the text box.

In addition to the keyboard shortcuts listed in the previous table, use the keyboard shortcuts in the following table to navigate multi-line text boxes.

Keys	Function
Page Up	Position the cursor at the top of the current view. Press Page Up again to position the cursor at the top of the previous view.
Page Down	Position the cursor at the end of the current view. Press Page Down again to position the cursor at the end of the previous view.
Ctrl + up arrow	Position the cursor at the start of the current paragraph. Press-and-hold Ctrl and continue to press the up arrow key to position the cursor at the start of the previous paragraph.
Ctrl + down arrow	Position the cursor at the end of the current paragraph. Press-and-hold Ctrl and continue to press the down arrow key to position the cursor at the end of the next paragraph.
Ctrl + Page Up	Position the cursor one view width to the left.
Ctrl + Page Down	Position the cursor one view width to the right.
Ctrl + Home	Position the cursor at the start of the text box.
Ctrl + End	Position the cursor at the end of the text box.
Ctrl + Tab	Give focus to the next control on the dialog.
Shift + Page Up	Select the text to the start of the current view. Press-and-hold Shift and continue to press Page Up to extend the selection to the start of the previous view.
Shift + Page Down	Select the text to the end of the current view. Press-and-hold Shift and continue to press Page Down to extend the selection to the end of the next view.
Shift + Home	Select the text to the start of the line.
Shift + End	Select the text to the end of the line.
Shift + Ctrl + up arrow	Select the text to the start of the paragraph, then to the start of the previous paragraph.
Shift + Ctrl + down arrow	Select the text to the end of the paragraph, then to the end of the next paragraph.
Shift + Ctrl + Home	Select the text to the start of the text box.
Shift + Ctrl + End	Select the text to the end of the text box.

3.9.6 To Navigate Spin Boxes

A spin box is a control that allows you to type a numeric value or select a value from a list of all possible values.

FIGURE 3–5 Sample Spin Box

The keyboard shortcuts that you use to navigate the text box area of a spin box are listed in "3.9.5 To Navigate Text Boxes" on page 43. The following table lists the keyboard shortcuts that you can use to navigate the up and down arrows in the spin box.

Keys	Function
up arrow or down arrow	Increase or decrease the value of the spin box by a small amount.
Page Up or Page Down	Increase or decrease the value of the spin box by a large amount.

3.9.7 To Navigate Drop-Down Lists

A drop-down list is a control that you use to select one of several available items. The drop-down list contains a button that you use to display the available items.
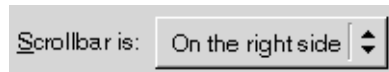
FIGURE 3–6 Sample Drop-Down List

The following table lists the keyboard shortcuts that you can use to navigate a drop-down list.

Keys	Function
spacebar	This key performs one of the following functions: ■ If the drop-down list is not open, this key opens the drop-down list. ■ If the drop-down list is open, this key accepts the current selection and closes the list.

Keys	Function
up arrow	Select the previous list item.
down arrow	Select the next list item.
Esc	Close the list without changing the selection.

3.9.8 To Navigate Drop-Down Combination Boxes

A drop-down combination box is a text box with a drop-down list attached.

FIGURE 3–7 Sample Drop-Down Combination Box

When the text box has focus, use the keyboard shortcuts that are listed in "3.9.5 To Navigate Text Boxes" on page 43 to navigate the text box area. When the text box has focus, you can also use the keyboard shortcuts in the following table to navigate the drop-down list area.

Keys	Function
up arrow	Select the previous item from the drop-down list without displaying the list.
down arrow	Select the next item from the drop-down list without displaying the list.
Ctrl + down arrow (Solaris only)	Open the drop-down list.

When the drop-down list has focus, you can use the keyboard shortcuts that are listed in the following table to navigate the drop-down list.

Keys	Function
up arrow	Select the previous list item.
down arrow	Select the next list item.
Home	Select the first item on the list.
End	Select the last item on the list.
Page Up	Select the item at the top of the current list view.

Keys	Function
Page Down	Select the item at the bottom of the current list view.
spacebar	Accept the current selection and close the drop-down list.
Ctrl + Page Up	Scroll to the left of the list, if required.
Ctrl + Page Down	Scroll to the right of the list, if required.

3.9.9 To Navigate Sliders

A slider is a control that you use to set a value in a continuous range of values.
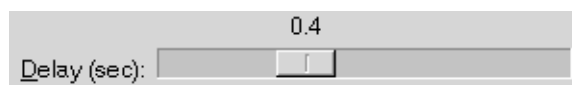
FIGURE 3–8 Sample Slider

The following table describes the keyboard shortcuts that you can use to navigate a slider.

Keys	Function
left arrow or up arrow	Move the slider left or up by a small amount.
right arrow or down arrow	Move the slider right or down by a small amount.
Page Up	Move the slider left or up a large amount.
Page Down	Move the slider right or down a small amount.
Home	Move the slider to the maximum value.
End	Move the slider to the minimum value.

3.9.10 To Navigate Tabbed Sections
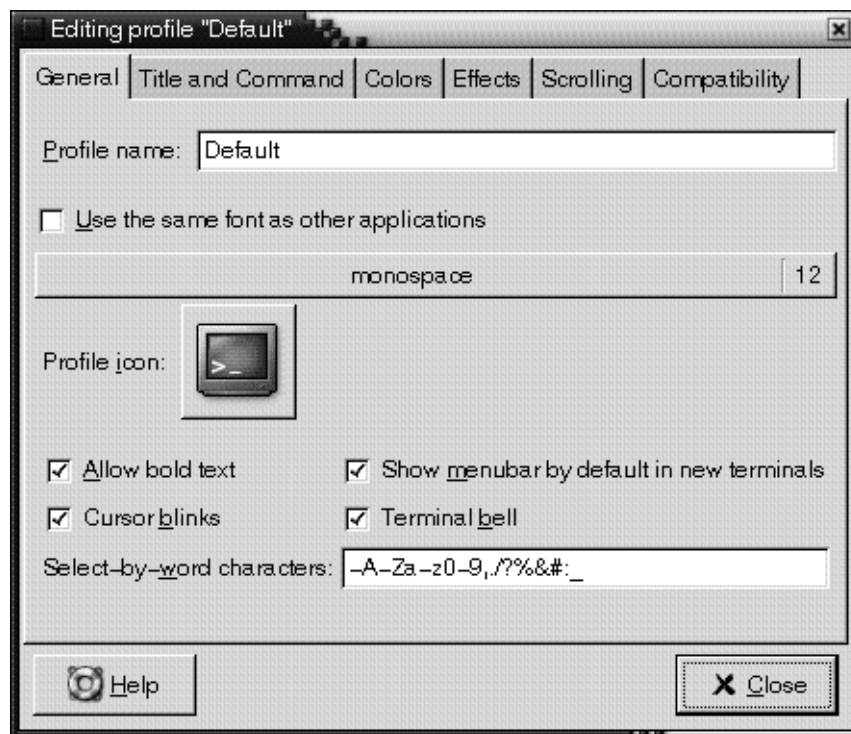
FIGURE 3–9 Sample Dialog with Tabbed Sections

Windows and dialogs are sometimes divided into logical sections that are displayed one section at a time on the window or dialog. The divisions are called tabbed sections that are identified by a tab with a text label.

The following table lists the keyboard shortcuts that you can use to navigate the tabbed sections of a window or dialog when a tab name has focus.

Keys	Function
left arrow	Give focus to the previous tabbed section.
right arrow	Give focus to the next tabbed section.
Tab or Ctrl + down arrow	Give focus to the first control on the active tabbed section.

The following table lists the keyboard shortcuts that you can use to navigate the tabbed sections of a window or dialog when a control on a tabbed section has focus.

Keys	Function
Ctrl + Page Up or Ctrl + Alt + Page Up	Give focus to the previous tabbed section.
	This keyboard shortcut does not work if the focused control uses Ctrl+ Page Up for another purpose.
Ctrl + Page Down or Ctrl + Alt + Page Down	Give focus to the next tabbed section.
	This keyboard shortcut does not work if the focused control uses Ctrl+ Page Down for another purpose.
Ctrl + Tab	Give focus to the next control outside the tabbed sections.

3.9.11 To Navigate Lists

The following table lists the keyboard shortcuts that you can use to navigate multi-column lists when a column header has focus.

Keys	Function
left arrow or right arrow	Give focus to the previous or next column header.
spacebar	Activate the header. This action usually sorts the list by the column header.
Tab	Give focus to the list contents.

The following table lists the keyboard shortcuts that you can use to navigate lists when the contents of the list has focus.

Keys	Function
arrow keys	Select the next or previous row or column.
Page Up	Select the top row of the list contents that are in view. Press Page Up again to select the top row of the previous view.
Page Down	Select the bottom row of the list contents that are in view. Press Page Down again to select the bottom row of the next view.
Home	Select the first row in the list.
End	Select the last row in the list.

Keys	Function
Shift + arrow keys	For lists that support multi-line selections, add the next or previous row or column to the current selection.
	For lists that only allow single line selections, select the next or previous row or column.
Shift + Page Up	Select all the rows between the current selection and the top row of the view.
Shift + Page Down	Select all the rows between the current selection and the bottom row of the view.
Shift + Home	Select all the rows between the current selection and the first row in the list.
Shift + End	Select all the rows between the current selection and the last row in the list.
Ctrl + arrow keys	Give focus to the next row or column but do not extend the selection.
Ctrl + Page Up	Give focus to the top row in the view but do not extend the selection.
Ctrl + Page Down	Give focus to the bottom row in the view but do not extend the selection.
Ctrl + Home	Give focus to the first row in the list but do not extend the selection.
Ctrl + End	Give focus to the last row in the list but do not extend the selection.
Return	Activate the item.
Ctrl + A	For lists that support multiline selections, select all rows in the list.
Shift + Tab	Give focus to the column header, if applicable.

3.9.12 To Navigate Trees

A tree is a user interface control that contains sections that you can expand and collapse. A tree usually represents a hierarchical structure.
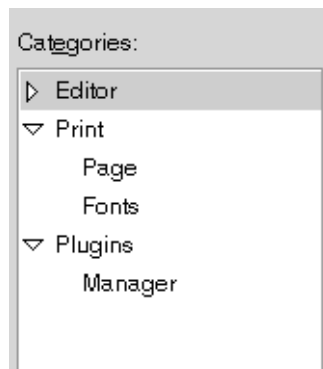
FIGURE 3–10 Sample Tree Structure

To navigate trees, you can use the same keyboard shortcuts that are listed in "3.9.11 To Navigate Lists" on page 49. In addition, the following table lists the keyboard shortcuts you can use for the tree items.

Keys	Function
+ (plus)	Expand the focused item.
- (minus)	Collapse the focused item.
Back Space	Select the parent item.
Ctrl + F	Display a search dialog. You can type the name of the tree item that you want to find.

3.10 Customizing Your Keyboard Shortcuts

Use the Keyboard Shortcuts preference tool to display the default keyboard shortcuts that you use to navigate the Java Desktop System. You can customize the default keyboard shortcuts to meet your requirements. You can also create hot keys. Hot keys are keyboard shortcuts that start applications.

To start the Keyboard Shortcuts preference tool, click Launch, then choose Preferences → Desktop Preferences → Keyboard → Shortcuts. The **Desktop shortcuts** table lists the keyboard shortcut that is associated with each action.

3.10.1 To Customize Keyboard Shortcuts on Solaris Systems

To customize a keyboard shortcut on a Solaris system, perform the following steps:

1. Click on the action for which you want to customize the keyboard shortcut. The row is highlighted.
2. Click on the keyboard shortcut in the **Shortcut** column. The text "Type a new accelerator, or press Backspace to clear" is displayed in the Shortcut column.
3. Press the keys that you want to associate with the action. The new keyboard shortcut is displayed in the **Shortcut** column.

To disable a keyboard shortcut, perform the following steps:

1. Click on the action for which you want to disable the keyboard shortcut. The row is highlighted.
2. Click on the keyboard shortcut in the **Shortcut** column. The text "Type a new accelerator, or press Backspace to clear" is displayed in the Shortcut column.
3. Press Back Space. The keyboard shortcut is disabled.

3.10.2 To Customize Keyboard Shortcuts on Linux Systems

To customize a keyboard shortcut on a Linux system, perform the following steps:

1. Click on the action for which you want to customize the keyboard shortcut. The row is highlighted and the text "Type a new accelerator, or press Backspace to clear" is displayed in the Shortcut column.
2. Press the keys that you want to associate with the action. The new keyboard shortcut is displayed in the **Shortcut** column.

To disable a keyboard shortcut, perform the following steps:

1. Click on the action for which you want to disable the keyboard shortcut. The row is highlighted and the text "Type a new accelerator, or press Backspace to clear" is displayed in the Shortcut column.
2. Press Back Space. The keyboard shortcut is disabled.

Customizing the Appearance of the Desktop

This chapter describes the methods you can use to change the appearance of the Java Desktop System to enhance the accessibility of the desktop for users with visual impairments.

4.1 Customization Options

There are a number of methods to enable you to customize the appearance of the Java Desktop System to suit your specific needs, as follows:

Themes
  Themes are the most effective way to change the appearance of the desktop in a consistent manner. See "4.2 Using Themes to Customize the Desktop" on page 54 for more information about themes and how to use themes to achieve the type of desktop environment that you require.

Desktop and application-specific configuration settings
  You can customize different components of the desktop individually to achieve the display settings that you require. You can configure the desktop and applications in addition to using themes or as an alternative to using themes. See "4.3 Customizing Specific Components of the Desktop" on page 58 for more information.

The following table summarizes the changes that you can make to the Java Desktop System and where you can make the changes. This guide does not provide detailed instructions about how to customize the desktop. For detailed instructions about how to use the customization tools that the desktop provides, refer to the Help for each tool or to the *Java Desktop System Release 3 User Guide*.

TABLE 4–1 Quick Reference to Customizing the Appearance of the Desktop

To change the...	Use...
Overall appearance of the desktop to use high contrast colors, low contrast colors, or large print.	The Theme preference tool.
Appearance of the desktop background only.	The Desktop Background preference tool and the file manager **Backgrounds and Emblems** menu item.
Font displayed on the desktop background and in all desktop applications.	The Font preference tool.
Default font settings of the Text Editor or Terminal application. By default, these applications use the default application font that is specified in the Font preference tool.	The **Preferences** dialog for the application.

4.2 Using Themes to Customize the Desktop

This section describes how to use themes to customize the appearance of the Java Desktop System.

4.2.1 Introduction to Themes

A theme is a group of coordinated settings that specifies how a desktop component or a group of desktop components appears. You can use themes to modify and control the appearance of the desktop in a consistent manner. When you apply a theme, the system modifies many desktop components simultaneously to achieve the desired effect. For example, if you apply a theme that increases the font size across the desktop, the theme also modifies the size of panels and icons on the desktop for optimum compatibility with the font size.

A theme contains settings that affect different parts of the desktop as follows:

Controls   The controls setting for a theme determines the visual appearance of all windows, applications, panels, and panel applications. The controls setting also determines the visual appearance of the GNOME-compliant interface items that appear on windows, applications, panels, and panel applications, such as menus, icons, and buttons. Some of the controls options that are available in the desktop are designed for special accessibility needs.

Window frame	The window frame setting determines the appearance of the frames around windows only.
Icon	The icon setting determines the appearance of icons on panels and on the desktop background.

4.2.2 To Choose a Theme

To choose a theme, perform the following steps:

1. Click Launch, then choose Preferences → Desktop Preferences → Display → Theme. The themes are listed on the left side of the **Theme Preferences** dialog.

2. Click on a theme in the list box to choose a new theme. The system automatically applies the theme to the desktop.

    There are several themes available that suit different accessibility needs, as described in the following table:

    TABLE 4–2 Themes Designed for Accessibility Requirements

Theme Name	Description
HighContrast	Provides dark text on a light background using high contrast colors.
HighContrastInverse	Provides light text on a dark background using high contrast colors.
LargePrint	This theme suggests an increased font size of 18pt. The background and foreground colors are the same as those specified by the **Default** desktop theme. To apply the suggested font, click on the Apply Font button.

To view the controls, window frame, and icon settings that are associated with a theme, select a theme in the **Theme Preferences** dialog, then click on the Theme Details button. The **Theme Details** dialog contains a tabbed section for each setting category. Each tabbed section lists the options that are available and the current setting for the theme is highlighted.

4.2.3 To Modify the Controls Setting for a Theme

To modify the controls setting that is associated with a theme, perform the following steps:

1. In the **Theme Preferences** dialog, select the theme that you want to modify.

2. Click on the Theme Details button. The **Theme Details** dialog is displayed.

3. Click on the **Controls** tab to display the controls options that are available.

4. Select the controls option that you want to associate with the current theme from the list box, then click Close. The following table lists the controls options that are suitable for accessibility needs.

TABLE 4–3 Controls Options Designed for Accessibility Requirements

Control Option	Description
HighContrast	Provides dark text on a light background using high contrast colors.
HighContrastInverse	Provides light text on a dark background using high contrast colors.
LowContrast	Uses low contrast colors for the background and foreground text.
LargePrint	Increases the size of controls to accommodate larger fonts. To increase the font size, you must use the Font preference tool. The background and foreground colors are the same as those specified by the **Default** desktop theme.
HighContrastLargePrint	Provides dark text on a light background using high contrast colors. Increases the size of controls to accommodate larger fonts. To increase the font size, you must use the Font preference tool.
HighContrastLargePrintInverse	Provides light text on a dark background using high contrast colors. Increases the size of controls to accommodate larger fonts. To increase the font size, you must use the Font preference tool.
LowContrastLargePrint	Uses low contrast colors for the background and foreground text. Increases the size of controls to accommodate larger fonts. To increase the font size, you must use the Font preference tool.

4.2.4 To Modify the Window Frame Setting for a Theme

To modify the window frame setting that is associated with a theme, perform the following steps:

1. In the **Theme Preferences** dialog, select the theme that you want to modify.

2. Click on the Theme Details button. The **Theme Details** dialog is displayed.

3. Click on the **Window Border** tab to display the window frame options that are available.

4. Select the window frame option that you want to associate with the current theme from the list box, then click Close. The **Atlanta** option is an accessible option.

4.2.5 To Modify the Icon Setting for a Theme

To modify the icon setting that is associated with a theme, perform the following steps:

1. In the **Theme Preferences** dialog, select the theme that you want to modify.

2. Click on the Theme Details button. The **Theme Details** dialog is displayed.

3. Click on the **Icons** tab to display the icon options that are available.

4. Select the icon option that you want to associate with the theme from the list box, then click Close. The following table lists the icon options that are suitable for accessibility needs.

TABLE 4–4 Icon Options Designed for Accessibility Requirements

Icon Option	Description
HighContrast	Provides dark on light icons using high contrast colors.
HighContrastInverse	Provides light on dark icons using high contrast colors.
LowContrast	Uses low contrast colors for the background and foreground text.
LargePrint	The background and foreground colors are the same as those specified by the **Default** desktop theme. To increase the font size, you must use the Font preference tool.
HighContrastLargePrint	Provides dark text on a light background using high contrast colors. To increase the font size, you must use the Font preference tool.
HighContrastLargePrintInverse	Provides light text on a dark background using high contrast colors. To increase the font size, you must use the Font preference tool.
LowContrastLargePrint	Uses low contrast colors for the background and foreground text. To increase the font size, you must use the Font preference tool.

4.2.6 To Create Your Own Themes

For information about how to create your own themes, see the *Java Desktop System Release 3 Administration Guide*.

—

4.3 Customizing Specific Components of the Desktop

This section describes how to customize specific components of the desktop individually.

4.3.1 To Customize the Desktop Background

The themes do not affect the desktop background. Therefore to modify the desktop background to complement your desktop, you must customize the desktop background separately using the Desktop Background preference tool. To start the Desktop Background preference tool, click Launch, then choose Preferences → Desktop Preferences → Display → Desktop Background.

4.3.2 To Customize Desktop Background Objects

The size of the icons that are displayed on the desktop background is controlled by the File Management preference tool. To change the size of the icons, perform the following steps:

1. Click Launch, then choose Preferences → Desktop Preferences → Folders.

2. Select the **Views** tabbed section.

3. In the **Icon View Defaults** group, select the zoom level that you require in the **Default zoom level** drop-down list.

4.3.3 To Customize Fonts

This section describes how to customize the font settings for the desktop and frequently-used applications.

If you have difficulty with the default font type and font size that is used on the desktop and desktop background, you can customize the font settings to suit your needs.

You can specify individual font settings for the following desktop components and applications:

- Entire desktop excluding the desktop background
- Desktop background only
- Terminal
- Text editor
- File manager

4.3.3.1 To Customize the Desktop Fonts

The Font preference tool allows you to specify the default fonts for the desktop.

To start the Font preference tool, click Launch, then choose Preferences → Desktop Preferences → Display → Fonts. The **Font Preferences** dialog contains the following options:

Application font	Click on this button to select a default font to use for the text that is displayed on the desktop, including the text displayed on the windows and dialogs associated with GNOME-compliant applications and panel applications.

> **Note –** If you use the Theme preference tool to select a theme and you click on the Apply Font button, the font that is associated with the theme overrides the font that you select using the Font preference tool.

Desktop font	Click on this button to select a font to use for the text that is displayed on the desktop background only.
Window title font	Click on this button to select a font to use for the text that is displayed in titlebars of your windows.
Terminal font	Click on this button to select a font to use in the Terminal application.
Font rendering	To specify how to render fonts on the desktop, select one of the following options:

- **Monochrome**
- **Best shapes**
- **Best contrast**
- **Subpixel smoothing**

Note – If you use large fonts, you may need to change the size of panes in applications that use panes such as, the file manager and the Help browser.

For more information about the Font preference tool, see the *Java Desktop System Release 3 User Guide*.

4.3.3.2 To Customize the Text Editor Font

By default, the gedit text editor application uses the default font settings that are specified in the Font preference tool to display the text in the gedit window components such as the menubar, toolbar, and application dialogs. However, you can customize the font that gedit uses to display the text editor window contents. To customize the font settings for the gedit window contents, perform the following steps:

1. In the gedit application, choose Edit → Preferences.

2. In the **Preferences** dialog, select the **Fonts & Colors** category.

3. Perform one of the following steps:

    ■ To use the default application font that is specified in the Font preference tool, select the **Use default theme font** option.

    ■ To specify a font, deselect the **Use default theme font** option, then click on the Font used by the editor button to display the font selector dialog.

4.3.3.3 To Customize the File Manager Font

By default, the file manager uses the default font settings that are specified in the Font preference tool to display the text in the file manager window. However, you can further customize the font that is used in the file manager view pane. To customize the font that is used in the view pane, click on the View menu in the file manager, then select one of the following menu items:

■ To enlarge the text, select Zoom In.
■ To reduce the text, select Zoom Out.
■ To reset the text to the default font setting, select Normal Size.

4.4 Meeting Specific Accessibility Needs

The following sections summarize the steps you need to take to improve the accessibility of the desktop in a particular area.

4.4.1 To Achieve a High or Low Contrast Desktop

To achieve a high or low contrast desktop, perform the following steps:

1. Use the Theme preference tool to select the high contrast or low contrast desktop theme that you require.

2. Use the Desktop Background preference tool to customize your desktop background as follows:

   - Set the **Desktop Wallpaper** to **No Wallpaper**.
   - Set the **Desktop Colors** to **Solid Color**.
   - Select a background color that suits your needs.

3. In the Terminal application, ensure that the **Use colors from system theme** option is selected in the **Colors** tabbed section of the **Editing Profile** dialog.

4. In the gedit application, ensure that the **Use default theme colors** option is selected in the **Fonts & Colors** tabbed section of the **Preferences** dialog.

4.4.2 To Achieve a Large Print Desktop

To achieve a large print desktop, perform the following steps:

1. Use the Theme preference tool to select the **Large Print** theme.

2. Click on the Apply Font button to increase the size of the font that is used on the desktop and on window frames.

3. Use the **Desktop font** option in the Font preference tool to increase the font that is displayed on desktop background objects.

4. Increase the font size that is used to display the contents of the Terminal application window.

5. If the **Use default theme font** option is selected in the gedit **Preferences** dialog, gedit uses the font size that is specified in the large print theme that you selected. However, if the **Use default theme font** option is not selected, increase the font size that is used to display the contents of the gedit text editor window. See "4.3.3.2 To Customize the Text Editor Font" on page 60 for more information.

6. If you use applications that use panes, such as the file manager and the Help browser, you may need to change the size of panes to accommodate the large print. See the online help for the appropriate application for more information.

Using the Assistive Technologies

The Java Desktop System contains the following applications to enable users with a physical disability to use the desktop:

- On-Screen Keyboard
- Screen Reader and Magnifier

The desktop applications and utilities in the Java Desktop System are also designed with accessibility and usability in mind. However, there are some exceptions where the default applications are not suitable for users with special needs. In these situations, you must change the default application to an application that is suitable for all users, as described in the following sections:

- "5.4 Displaying Online Help" on page 65
- "5.5 Displaying PDF Documents" on page 65

Note – Before you can use the On-Screen Keyboard and Screen Reader and Magnifier on Solaris systems, you must follow the steps outlined in "A.3 Enabling XKB on Solaris Systems" on page 74 of this guide.

5.1 On-Screen Keyboard

The On-Screen Keyboard application displays virtual keyboards on your desktop. You can use the standard mouse pointer or alternative pointing device to operate the virtual keyboards. On-Screen Keyboard displays the following types of keyboards:

- Compose keyboards that enable you to compose text. To type alphanumeric characters, you select the characters on the compose keyboard.
- Dynamic keyboards that On-Screen Keyboard generates to reflect the applications that are currently running on the desktop. For example, On-Screen Keyboard generates keyboards that contain keys to represent the applications that are

running on your desktop or the menus that are contained in an application.

To start On-Screen Keyboard, click Launch, then choose Applications → Accessibility → On-Screen Keyboard. For more information about the On-Screen Keyboard application, see the online Help for On-Screen Keyboard.

5.1.1 Maximizing Application Windows for On-Screen Keyboard Users

If you are an On-Screen Keyboard user, you cannot use any application in Full Screen mode because the application window obscures the On-Screen Keyboard display.

To resize the window for use with the On-Screen Keyboard application, perform the following steps:

1. Do not enable the Full Screen mode in the application.
2. Give focus to the application window.
3. Press F10 to maximize the application.

5.2 Screen Reader and Magnifier

The Screen Reader and Magnifier application enables users with limited vision, or no vision, to use the Java Desktop System and associated applications. Screen Reader and Magnifier provides the following functionality:

- Screen reader

  The screen reader enables non-visual access to standard applications in the Java Desktop System, using speech and Braille output.

- Magnifier

  The magnifier provides automated focus tracking and fullscreen magnification to aid low-vision users.

To start Screen Reader and Magnifier, click Launch, then choose Applications → Accessibility → Screen Reader and Magnifier. For more information about the application, see the online Help for Screen Reader and Magnifier.

5.3 Disabling the Screensaver

Before you use On-Screen Keyboard or Screen Reader and Magnifier, you must disable the screensaver. To disable the screensaver, perform the following steps:

1. Click Launch, then choose Preferences → Desktop Preferences → Display → Screensaver.
2. In the **Display Modes** tabbed section, deselect the **Lock Screen After** check box.
3. In the **Mode** drop-down list, select **Disable Screen Saver**.
4. Choose File → Restart Daemon.
5. Choose File → Quit to close the **Screensaver Preferences** dialog.

5.4 Displaying Online Help

The default online Help application for the Java Desktop System might not be suitable for some accessibility users. To change the default Help application for the Java Desktop System to an alternative Help application, perform the following steps:

1. Click Launch, then choose Preferences → Desktop Preferences → File Associations.
2. Click on the arrow next to **Internet Services**.
3. Select the **Gnome documentation** entry.
4. Click Edit.
5. Replace the contents of the **Program** field with the following command:

   ```
   gnome-help "%s"
   ```
6. Click OK.
7. Click Close.

5.5 Displaying PDF Documents

The default Portable Document Format (PDF) viewer application for the Java Desktop System might not be suitable for some accessibility users. To change the default PDF viewer application for the Java Desktop System to another PDF viewer application, which might provide a slight improvement for accessibility users, perform the following steps:

1. Click Launch, then choose Preferences → Desktop Preferences → File Associations.
2. Click on the arrow next to **Documents**.
3. Click on the arrow next to **Published Materials**.
4. Select the **PDF document** entry.
5. Click Edit.
6. Enter the following command in the **Program to run** field:

   ```
   /usr/bin/gpdf
   ```
7. Click OK.
8. Click Close.

System Administration

This appendix describes the tasks that a system administrator needs to perform to enable accessible login and to facilitate the use of the assistive technologies that are available in the Java Desktop System.

A.1 Configuring the Desktop for Accessible Login

The Java Desktop System includes an Accessible Login feature. The Accessible Login feature enables users to:

- Log in to the desktop even if the user cannot easily use the screen, mouse, or keyboard in the usual way.
- Launch assistive technologies at login time by associating a user action with an assistive technology application. The user can perform the user action from the standard keyboard, or from a keyboard, pointing device, or switch device that is attached to the USB or PS/2 mouse port. These user actions are called gestures.
- Change the visual appearance of the login dialog before the user logs in, for example, to use a high contrast theme for better visibility.

A.1.1 To Enable Accessible Login

To enable the Accessible Login feature for the Java Desktop System, you must configure the desktop to use the GNOME Display Manager (GDM) as the login manager. GDM is the default login manager on Linux systems but not on Solaris systems, therefore the instructions to enable Accessible Login differ depending on the platform you are using.

A.1.1.1 To Enable and Configure GDM on Solaris Systems

To enable and configure GDM as the login manager on Solaris systems, perform the following steps:

1. Log in as the `root` user.

2. Open the file `/etc/X11/gdm/gdm.conf`.

3. Search the file for the following line:

   `#Greeter=/usr/bin/gdmgreeter`

   and replace the line with the following line:

   `Greeter=/usr/bin/gdmlogin`

   This step enables a standard login greeting rather than a graphical login greeting.

4. Search the file for the following line:

   `#AddGtkModules=false`

   and replace the line with the following:

   `AddGtkModules=true`

   This step enables the GtkModules.

5. Search the file for the following line:

   `#GtkModulesList=gail:atk-bridge:dwellmouselistener:keymouselistener`

   and delete the # from the start of the line so that the line reads:

   `GtkModulesList=gail:atk-bridge:dwellmouselistener:keymouselistener`

   Note – The above lines must be displayed as single lines in the `gdm.conf` file without line breaks. The formatting of this guide may display the lines over two lines.

   This step loads all of the GtkModules to enable assistive technologies such as On-Screen Keyboard and Screen Reader and Magnifier. You can edit the line above further to load only the GtkModules that you require to support the user base. For example:

   - If you need to use the Screen Reader and Magnifier, include `gail` and `atk-bridge`.

   - If you need to use a pointing device without buttons or switches, include `gail`, `atk-bridge`, and `dwellmouselistener`.

   - If you use pointing devices with switches, alternative physical keyboards, or switch and button devices, include `keymouselistener`.

   - On-Screen Keyboard can operate without `gail` and `atk-bridge` but with a reduced feature set.

   For optimum accessibility, include `gail` and `atk-bridge`.

6. Save the /etc/X11/gdm/gdm.conf file.

7. Enter the following command to stop the dtlogin manager:

   /usr/dt/bin/dtconfig -d

8. Enter the following commands to configure GDM as the login manager:

   svccfg import /var/svc/manifest/application/gdm2-login.xml

   svcadm enable application/gdm2-login

   Note – If you make any changes to the /etc/X11/gdm/gdm.conf file after you
   enable GDM, you can execute the following command to restart GDM and activate
   the changes:

   gdm-restart

   ---

9. Edit the file /etc/passwd to append the following to the end of the gdm line:

   :/etc/X11/gdm/home

10. Create the /etc/X11/gdm/home directory and assign ownership of the directory
    to the gdm user.

11. Restart your system.

A.1.1.2 To Configure GDM on Linux Systems

To configure GDM on Linux systems, perform the following steps:

1. Log in as the root user.

2. Open the file /etc/X11/gdm/gdm.conf.

3. Search the file for the following line:

   #AddGtkModules=false

   and replace the line with the following:

   AddGtkModules=true

   This step enables the GtkModules.

4. Search the file for the following line:

   #GtkModulesList=gail:atk-bridge:dwellmouselistener:keymouselistener

   and delete the # from the start of the line so that the line reads:

   GtkModulesList=gail:atk-bridge:dwellmouselistener:keymouselistener

---

Note – The above lines must be displayed as single lines in the `gdm.conf` file without line breaks. The formatting of this guide may display the lines over two lines.

This step loads all of the GtkModules to enable assistive technologies such as On-Screen Keyboard and Screen Reader and Magnifier. You can edit the line above further to load only the GtkModules that you require to support the user base. For example:

- If you need to use the Screen Reader and Magnifier, include `gail` and `atk-bridge`.
- If you need to use a pointing device without buttons or switches, include `gail`, `atk-bridge`, and `dwellmouselistener`.
- If you use pointing devices with switches, alternative physical keyboards, or switch and button devices, include `keymouselistener`.
- On-Screen Keyboard can operate without `gail` and `atk-bridge` but with a reduced feature set.

For optimum accessibility, include `gail` and `atk-bridge`.

5. Save the `/etc/X11/gdm/gdm.conf` file.

Note – If you make any changes to the `/etc/X11/gdm/gdm.conf` file after you enable GDM, you can execute the following command to restart GDM and activate the changes:

`gdm-restart`

---

6. Edit the file `/etc/group` and append the following to the `audio` line:

   `,gdm`

   This step ensures that speech works with GDM.

7. Restart your system.

A.1.2 To Start Assistive Technologies at Login

If you load the `keymouselistener` and `dwellmouselistener` GtkModules in the GDM configuration file, you can assign user actions to launch specific assistive technologies at login time. These user actions are called gestures. The gesture associations are contained in the following GDM configuration files:

- `/etc/X11/gdm/modules/AccessKeyMouseEvents`

- `/etc/X11/gdm/modules/AccessDwellMouseEvents`

Note – If you modify these files, you must restart your system before the changes take effect.

The following sections contain examples of the gestures that you can add to the GDM configuration files.

Note – The gestures must be contained in a single line in the `AccessKeyMouseEvents` file without line breaks. The formatting of this guide might display the examples in the following sections over two lines.

A.1.2.1 To Start Screen Reader Using a Keyboard Shortcut

Edit the `AccessKeyMouseEvents` file to associate keyboard shortcuts with assistive technologies. For example, the following line enables you to press-and-hold Ctrl + S for one second to start Screen Reader and Magnifier in speech and Braille mode:

Solaris:

```
<Control>s 1 1000 10000 /usr/sfw/bin/srcore --login
--disable-magnifier --enable-speech --enable-braille
```

Linux:

```
<Control>s 1 1000 10000 srcore --login --disable-magnifier
--enable-speech --enable-braille
```

A.1.2.2 To Start Magnifier Using a Keyboard Shortcut

Edit the `AccessKeyMouseEvents` file to associate keyboard shortcuts with assistive technologies. For example, the following line enables you to press-and-hold Ctrl + M for one second to start Screen Reader and Magnifier in magnifier mode:

Solaris:

```
<Control>m 1 1000 10000 /usr/sfw/bin/srcore --login
--enable-magnifier --disable-speech
```

Linux:

```
<Control>m 1 1000 10000 srcore --login --enable-magnifier
--disable-speech
```

A.1.2.3 To Start On-Screen Keyboard Using a Switch or Button Gesture

Edit the `AccessKeyMouseEvents` file to associate switch, key, or button gestures with assistive technologies. Since the primary input device for many On-Screen Keyboard users is a switch or button, this is a good way to enable users to start On-Screen Keyboard at login time.

If there is a tendency for a user to start an application unintentionally, you can associate the gestures with multiple switch presses or minimum durations. For example, the following line starts On-Screen Keyboard in inverse scanning mode when the user presses the switch that is defined as Switch 2 three times within two seconds, for a minimum of 100 milliseconds for each press:

Solaris:

```
<Switch2>3 100 2000 /usr/sfw/bin/gok --login
--accessmethod=inversescanning --scan-action=switch1
--select-action=switch2
```

Linux:

```
<Switch2>3 100 2000 gok --login --accessmethod=inversescanning
--scan-action=switch1 --select-action=switch2
```

Users who use single switches may prefer to start On-Screen Keyboard in automatic scanning mode. The following line starts On-Screen Keyboard in automatic scanning mode when the user presses the switch on an alternative access device for more than four seconds:

Solaris:

```
<Switch>1 4000 5000 /usr/sfw/bin/gok --login
--accessmethod=automaticscanning --scan-action=switch1
--select-action=switch1
```

Linux:

```
<Switch>1 4000 5000 gok --login --accessmethod=automaticscanning
--scan-action=switch1 --select-action=switch1
```

For information about the On-Screen Keyboard operating modes, see the online Help for On-Screen Keyboard.

A.1.2.4 To Start On-Screen Keyboard Using a Motion-only Gesture

You can define gestures that involve only the motion of a pointing device such as a mouse, or an alternative pointing device, such as a head pointer or trackball. The syntax of the gesture does not change depending on whether you are using a mouse or an alternative pointing device. Edit the `AccessKeyMouseEvents` file to associate motion gestures with assistive technologies.

If the `dwellmouselistener` GtkModule is loaded, alternative pointing devices are temporarily latched to the core pointer. This means that if the user moves the alternative pointing device, the onscreen pointer moves.

For example, the following line starts On-Screen Keyboard in dwell mode when the user moves the onscreen pointer from inside the login dialog through the top edge, back into the dialog through the top edge, out of the dialog through the left edge, back into the dialog through the left edge, and similarly through the bottom and right edges of the dialog in a cross pattern:

Solaris:

```
TTLLBBRR O 10000 /usr/sfw/bin/gok --login
--access-method=dwellselection --input-device=MOUSE[3]
```

Linux:

```
TTLLBBRR O 10000 gok --login --access-method=dwellselection
--input-device=MOUSE[3]
```

Note that the `--input-device` parameter specified in the gesture must match the name of the extended user input device, such as a head pointer or trackball, as specified in `/etc/X11/XF86Config`.

A.1.3 Additional Requirements for Accessible Login

To enable the Accessible Login feature to use alternative pointing devices and switch devices such as sip-and-puff switches, wheelchair-mounted switches, or trackballs, you might need to modify your X server system configuration to recognize these devices. You can use most devices that emulate mouse buttons with the Accessible Login feature and On-Screen Keyboard, including USB single switches and mouse-like pointing devices.

In the Java Desktop System Release 3 for Solaris, the `gdm` user has a readable home directory. If this setting is removed on Solaris systems for security reasons, Screen Reader and Magnifier will not function properly during Accessible Login.

Note – You should not configure an alternative input device to control the primary onscreen pointer. This might result in undesirable behavior or cause situations from which the user of the alternate input device cannot recover without using the primary keyboard or mouse. To prevent this problem, please remove any occurrences of the attributes `SendCore` or `AlwaysCore` from any of `InputDevice` lines in the X Server configuration file.

A.2 Configuring the Java Environment for Accessibility on Solaris Systems

To configure the Java environment on Solaris systems for accessibility, perform the following steps:

1. Log in as the `root` user to the base directory of the Java SDK installation.

2. Enter the following command:

   `cd jre/lib`

3. Enter the following command:

   `ln -s /usr/share/jar/accessibility.properties`

4. Enter the following command:

   `cd ext`

5. Enter the following command:

   `ln -s /usr/share/jar/gnome-java-bridge.jar`

A.3 Enabling XKB on Solaris Systems

If you are using the desktop for the Solaris operating system on a SPARC platform, you must enable XKB on your system before you can use the AccessX preference tool, Screen Reader and Magnifier, or On-Screen Keyboard.

Note – XKB is not currently supported on Sun Ray™ systems.

To enable XKB on a non-Sun Ray Solaris system, perform the following steps:

1. Log in as the `root` user.

2. Check if the path and file `/etc/dt/config/Xservers` exists on your system.

3. If the `/etc/dt/config` directory does not exist, enter the following command:

   ```
   mkdir -p /etc/dt/config
   ```

4. If the `Xservers` file is not present, enter the following command:

   ```
   cp /usr/dt/config/Xservers /etc/dt/config/Xservers
   ```

5. Open the `Xservers` file in a text editor and scroll to the end of the file.

6. Append the following to the command line at the end of the file:

   +kb

7. Save and close the `Xservers` file.

8. Enter the following command at a command line:

   ```
   pkill -HUP dtlogin
   ```

9. Open the `/etc/X11/gdm/gdm.conf` file in a text editor.

10. Scroll towards the end of the file until you see the line `[server - standard]`.

11. Edit the `command` line in this section to append the following to the end of the line:

    ```
    +accessx +kb
    ```

12. Save and close the `gdm.conf` file.

13. Log out of your session and log in again.

14. To verify if XKB is running, execute the following command:

    ```
    xdpyinfo
    ```

    then search for XKEYBOARD in the extensions list.

A.4 Enabling Full Screen Magnification

The following sections describe the methods to enable full screen magnification.

A.4.1 To Enable Full Screen Magnification Using Two Video Cards

To enable full screen magnification in Screen Reader and Magnifier using two physical video cards, perform the following steps:

1. Configure two video cards as :0.0 and :0.1.

Note – It is not essential that both video cards have the same resolution and bit depth. However, if the resolutions and bit depths of both cards differ greatly, the apparent magnification factor may differ slightly from the nominal magnification factor.

---

2. Click Launch, then choose Applications → Accessibility → Screen Reader and Magnifier.

3. Click on **Preferences** in the **Gnopernicus** menu window.

4. Click on **Magnifier** to open the **Magnifier Preferences** dialog.

5. Click on the Add/Modify button to display the **Zoomer Options** dialog.

6. In the **Display Screen** section, type `:0.0` in the **Source** text box.

7. In the **Display Screen** section, type `:0.1` in the **Target** text box.

8. Set the Zoomer Placement values to be `[0,0,1023,767]`.

Note – These instructions assume a video resolution of 1024x768.

---

9. Click Apply and Close to close the **Zoomer Options** dialog.

   The magnified view is displayed on the second display 0.1.

A.4.2 To Enable Full Screen Magnification Using One Video Card on Linux Systems

To enable full screen magnification on Linux systems using one physical video card and one virtual video card, perform the following steps:

1. Open the file `/etc/X11/XF86Config`.

2. Create a new section at the end of the file as follows:

   ```
   Section "Device"
       Boardname "dummy"
       Driver "dummy"
       Identifier "dummy"
       VendorName "dummy"
   EndSection
   ```

3. Copy the `Monitor` section and paste it at the end of the file.

4. In the new `Monitor` section, edit the `Identifier` line as follows:

   ```
   Identifier "MonitorD"
   ```

5. Copy the `Screen` section and paste it at the end of the file.

6. In the new `Screen` section, edit the `Device`, `Identifier`, and `Monitor` lines as follows:

   Device "dummy"
   Identifier "ScreenD"
   Monitor "MonitorD"

7. Edit the `ServerLayout` section to change the `Screen` line as follows:

   Screen "Screen[0]" 0 0

8. Insert the following line in the `ServerLayout` section:

   Screen "Screen[D]" RightOf "Screen[0]"

9. Save the `/etc/X11/XF86Config` file.

10. Restart the X Server.

11. Start the Screen Reader and Magnifier application.

12. Click on **Startup Mode** in the **Gnopernicus** menu window.

13. Select the **Magnifier** option in the **Startup Mode** dialog.

14. Click on **Preferences** in the **Gnopernicus** menu window.

15. Click on **Magnifier** to open the **Magnifier Preferences** dialog.

16. Click on the Add/Modify button to display the **Zoomer Options** dialog.

17. In the **Display Screen** section, type `:0.1` in the **Source** text box.

18. In the **Zoomer Placement** section, set the value of the **Left** spin box to `0`.

19. Click Apply.

    The Screen Reader and Magnifier user interface is no longer visible.

20. Log out of your session.

21. Log in to a new session.

22. Enter the following command to start Screen Reader and Magnifier in full screen magnification mode:

    gnopernicus -display :0.1

23. When you log out of your session, select the **Save current setup** option.

A.5 Enabling Braille

To enable your system to support Braille output, you must configure the access rights to the serial port to which the Braille device is connected. The following sections describe the steps that you need to perform depending on your operating system.

A.5.1 To Enable Braille on Solaris Systems

To configure the serial port to which the Braille device is connected on Solaris systems, perform the following steps:

1. Log in as the `root` user.
2. Enter the following command:

   `chmod 777 /dev/cua/a`
3. Enter the following command:

   `chmod 777 /dev/cua/b`
4. Change the permissions to `777` on the devices to which the symbolic links `/dev/cua/a` and `/dev/cua/b` point.

Note – If your system uses `/dev/cua/a` for system log messages, Braille will not work on that serial port. Use `/dev/cua/b` instead.

A.5.2 To Enable Braille on Linux Systems

To configure the serial port to which the Braille device is connected on Linux systems, perform the following steps:

1. Log in as the `root` user.
2. Enter the following command:

   `chmod 777 /dev/ttyS0`
3. Enter the following command:

   `chmod 777 /dev/ttyS1`

A.6 Configuring Alternative Pointer Devices

The following sections describe how to configure your system to use a standard physical mouse and another pointer device such as a single switch device or head tracker device, and how to configure On-Screen Keyboard to use the second pointer device.

A.6.1 To Configure Alternative Pointer Devices on Solaris Systems

To configure an alternative pointer device on a Solaris system, perform the following steps:

Note – This procedure does not work on all Solaris platforms.

---

1. Before you connect the alternative pointer device to your system, enter the following command to list the existing devices:

   `ls -l /dev/usb/hid*`

2. Connect the alternative pointer device to your system.

3. Enter the following command again to list the new device:

   `ls -l /dev/usb/hid*`

4. Open the file `/usr/openwin/server/etc/OWconfig`.

5. Add the following lines to the `OWconfig` file:

   ```
   # Sun Mouse module
     class="XINPUT" name="IMOUSE2"
     dev="/dev/usb/hid2" strmod="usbms"
     ddxHandler="ddxSUNWmouse.so.1"
     ddxInitFunc="ddxSUNWmouseProc";
   ```

   where:

   - the `name` option starts with the string `IMOUSE` but is extended to form a unique string, such as `IMOUSE2` or `IMOUSE3`, depending on the number of existing devices.

   - the `dev` option specifies the device name that you identified in Step 3.

6. Remove the following lines from the `OWconfig` file:

   ```
   # Null Mouse module
     class="XINPUT" name="NMOUSE"
     ddxHandler="ddxSUNWmouse.so.1"
     ddxInitFunc="ddxnullmouseProc";
   ```

7. Save the `/usr/openwin/server/etc/OWconfig` file.

8. Restart the X Server.

A.6.2 To Configure Alternative Pointer Devices on Linux Systems

To configure an alternative pointer device on a Linux system, perform the following steps:

1. Before you connect the alternative pointer device to your system, enter the following command to list the existing devices:

   `ls -l /dev/usb/hid*`

2. Connect the alternative pointer device to your system.

3. Enter the following command again to list the new device:

   `ls -l /dev/usb/hid*`

4. Open the file `/etc/X11/XF86Config`.

5. Edit the `InputDevice` section where the `Driver` value is set to `mouse` as follows:

   - Change the `Option Device` line to the following:

     Option   "Device" "/dev/input/mouse0"

   - Comment out the `Option Protocol` line as follows:

     #Option   "Protocol" "explorerps/2"

   Note – If you are not using USB connections for your primary mouse device and other pointer device, you do not need to carry out this step.

   ---

6. Create a new `InputDevice` section as follows:

   ```
   Section "InputDevice"
       Driver     "mouse"
       Identifier "Mouse[3]"
       Option     "Device" "/dev/input/mouse1"
       Option     "Name" "Autodetection"
       Option     "Vendor" "Sysp"
     EndSection
   ```

   Note – If you are not using USB connections for your primary mouse device and other pointer device, you do not need to carry out this step.

   ---

7. Edit the `ServerLayout` section as follows:

   - Change the `InputDevice "Mouse[1]"` line to the following:

     InputDevice "Mouse[1]" "CorePointer"

   - Create a new `InputDevice` line as follows:

     InputDevice "Mouse[3]"

   - Remove any occurrences of the attributes `SendCore` or `AlwaysCore` from any of `InputDevice` lines.

> **Note –** Ensure that only the device that you are using as the primary mouse device has the `"CorePointer"` attribute and ensure that the alternate input devices do not have the `SendCore` or `AlwaysCore` attributes.

8. Save the `/etc/X11/XF86Config` file.

9. Restart the X Server.

A.6.3 To Configure On-Screen Keyboard to Use an Alternative Pointer Device

To configure the On-Screen Keyboard application to use an alternative pointer device, perform the following steps.

1. Start the On-Screen Keyboard application.

2. Click on **GOK** in the **GOK - main** window.

3. Click on **Preferences** to open the **Preferences** dialog.

4. Click on the **Actions** tab.

5. In the **Event Source** options, select the **Other input device** option. On-Screen Reader displays the name of the input device that you configured in the text box next to the **Other input device** option.

6. Click OK to close the **GOK Preferences** dialog.

A.7 Configuring Two USB Mouse Devices on Solaris x86 Systems

To configure two mouse devices on a Solaris x86 system, perform the following steps:

1. Before you connect the second mouse to your system, enter the following command to list the existing devices:

   `ls -l /dev/usb/hid*`

2. Connect the second mouse to your system.

3. Enter the following command again to list the new device:

   `ls -l /dev/usb/hid*`

4. Open the file `/etc/X11/xorg.conf`.

5. Edit the `ServerLayout` section as follows:

```
Section "ServerLayout"
      Identifier    "X.org Configured"
      Screen     0 "Screen0" 0 0
      InputDevice    "Mouse0" "CorePointer"
      InputDevice    "Mouse1"
      InputDevice    "Keyboard0" "CoreKeyboard"
EndSection
```

6. Edit the `InputDevice` section as follows:

```
Section "InputDevice"
      Identifier  "Mouse0"
      Driver      "mouse"
      Option      "Protocol" "VUID"
      Option      "Device" "/dev/mouse"
EndSection
```

7. Insert a second `InputDevice` section as follows:

```
Section "InputDevice"
      Identifier  "Mouse1"
      Driver      "mouse"
      Option      "Protocol" "VUID"
      Option      "StreamsModule" "usbms"
      Option      "Device" "/dev/usb/hidx"
EndSection
```

where:

`/dev/usb/hidx` is the device name that you identified in Step 3.

8. Save the `/etc/X11/xorg.conf` file.

9. Restart the X Server.

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