

GNOME Desktop Accessibility Guide

Vincent Alexander
GNOME Documentation Project

Don Scorgie
GNOME Documentation Project

Brent Smith
GNOME Documentation Project

Sun Java Desktop System Documentation Team
Sun Microsystems, Inc.

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by Vincent Alexander, Don Scorgie, Brent Smith, and Sun Java Desktop System Documentation Team

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The GNOME Accessibility Guide is for users, system administrators, and anyone else who is interested in how the GNOME Desktop supports people with disabilities. This guide also addresses the requirements of Section 508 of the U.S. Rehabilitation Act.

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Chapter 1. Introduction to Accessibility

This chapter introduces you to accessibility in the GNOME Desktop.

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 GNOME Desktop is easy to use and incorporates many accessibility features. Every supported application and utility in the GNOME Desktop 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 GNOME Desktop thanks to the customization tools that are available. These customization tools enable you to fine-tune the appearance and behavior of the desktop.

The ability to easily customize the GNOME Desktop contributes greatly to the accessibility of the desktop. This guide describes the various options available to meet your particular needs.

1.1. Quick Reference

To jump to a specific topic, follow these quick reference links:

To hear screen elements spoken to you, see the Orca section.

If you need large print, read about Choosing Themes and Customizing Fonts.

To have some or all of the screen magnified, see the Magnifier section.

If you prefer a pointing device over the keyboard, you can configure an on-screen keyboard for point-and-click typing; see the GNOME Onscreen Keyboard (gok) section.

If you can only press one key at a time, see the Sticky Keys portion of the Configuring an Accessible Keyboard section.

If you tend to press keys for too long a time (normally causing inadvertant extra keys), see the Slow Keys portion of the Configuring an Accessible Keyboard section.

If you tend to press keys multiple times (normally causing inadvertant extra keys), see the Bounce Keys portion of the Configuring an Accessible Keyboard section.

For further mouse- or pointer-based accessibility support, see the [MouseTweaks](#) and [Configuring an Accessible Keyboard](#) sections. These tools supply several accessibility aids for pointer devices and keyboards.

Chapter 2. General Accessibility Tips

A number of technologies can be of assistance to people with different types of disabilities. These are covered in this section. In particular:

- *Essential Keyboard Commands* - covers some basic keyboard commands.
- *Keyboard Desktop Navigation* - allows users to navigate the desktop without using a mouse or pointer device.
- *Accessible Login* - users can configure the login screen to be more accessible.

2.1. Essential Keyboard Commands

Before moving forward, be sure you are familiar with these essential GNOME commands:

Alt-F1 [Debian] - display and activate the GNOME Desktop menu bar. This grants access to the Applications, Places and System menu bar items.

Note: For Solaris and Windows systems, this key is **Ctrl-Esc**.

Alt-F2 or **Meta-R** - summons the Run dialog, where you can issue terminal commands with or without parameters. If a file needs to be passed as one of these parameters, use the Run With File button to easily locate the file needed. This dialog also presents an alternate list of known applications which may be easier to navigate than the Debian system desktop menu (**Alt-F1**) approach.

Note: For Solaris systems, this key is **Meta-R** (as with Microsoft Windows). A meta- or super-key is an OS-logo shift key.

Tab and **Shift-Tab** - move focus within an application between controls; use **Tab** to cycle forward through controls and **Shift-Tab** to cycle backwards. Controls are any user-interactive element that you can manipulate, such as buttons, drop-down lists, text fields, etc. **Ctrl-Tab** and **Shift-Ctrl-Tab** are used instead where **Tab** and **Shift-Tab** are reserved for use by the focused control.

Alt-Tab and **Shift-Alt-Tab** - switches between currently running applications. If you have multiple programs running, use **Alt-Tab** to cycle forward through the applications and **Shift-Alt-Tab** to cycle backwards. **Alt-Esc** and **Shift-Alt-Esc** also cycle between applications, but without an application preview window.

2.2. Accessible Login

The GNOME Desktop includes an Accessible Login feature, enabling 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, using a high-contrast theme for better visibility.

Note: Accessible login features are presently 100% functioning for Solaris only.

2.2.1. Enabling Accessible Login

In order to use the accessibility support for GNOME, the accessibility infrastructure must be enabled. To enable GNOME accessibility features from the command line, type the following command and then log out:

```
gconftool-2 --set "/desktop/gnome/interface/accessibility" --type boolean
"True"
```

To enable GNOME accessibility features from a GUI, run the System→Preferences→Assistive Technology command from the top level menu. Select the "Enable assistive technologies" checkbox and then press the "Close and Log Out" button.

The next time you log in, assistive technology support will be enabled for the desktop.

To configure GDM by using the GUI (the preferred method), perform the following steps:

1. Log in as the `root` user.
2. Run `gdmsetup` from a terminal; you may be advised to reboot after exiting the application.

To configure GDM if you cannot access the GUI environment, you will need to navigate the file system and modify files:

1. Log in as the `root` user.
2. Open the file `/etc/X11/gdm/custom.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:dwelldmouselistener:keymouselistener
```

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

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

Note: The above lines must be displayed as single lines in the `custom.conf` file without line breaks. The formatting of this guide may display the lines as being longer than 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 `dwelldmouselistener`.
- 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/custom.conf` file.

Note: If you make any changes to the `/etc/X11/gdm/custom.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.

Xserver is required for all distributions; for Linux and OpenSolaris, it should be Xorg. You can find them in both `/etc/X11` and `/usr/bin`. Generally for Linux there will be a symbol link in `/etc/X11/X` and it is always linked to the binary `Xorg` in `/usr/bin/Xorg`. For OpenSolaris, you can find this process with the command `ps -ef | grep X`.

To enable or disable Xorg extensions, you can edit the file `/etc/X11/xorg.conf` and add the following parameters to enable different extensions:

```
Section "Extensions"
    Option "Composite"          "Enable"
    Option "other extensions"   "Enable/Disable"
EndSection
```

2.2.2. Starting 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 across multiple lines.

2.2.2.1. Starting the Screen Reader Using a Keyboard Shortcut

Edit the `AccessKeyMouseEvents` file to associate keyboard shortcuts with assistive technologies. For example, the following lines enable you to press and hold **Ctrl-S** or **Ctrl-M** for one second to either start speech or magnification:

```
<Control>s 1 1000 10000 /usr/bin/orca -n -d main-window
```

```
<Control>m 1 1000 10000 /usr/bin/orca -n -d main-window -e magnifier
```

2.2.2.2. Starting 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:

```
<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:

```
<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.

2.2.2.3. Starting 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 on-screen pointer moves.

For example, the following line starts On-Screen Keyboard in dwell mode when the user moves the on-screen 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:

```
TTLBBRR 0 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`.

2.2.3. 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.

Note: You should not configure an alternative input device to control the primary on-screen 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, remove any occurrences of the attributes `SendCore` or `AlwaysCore` from any of the `InputDevice` lines in the X Server configuration file.

2.3. Keyboard Desktop Navigation

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

2.3.1. 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 Section 2.3.10 for information about how to customize keyboard shortcuts.

2.3.1.1. 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.
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. In computing, caret navigation is a kind of keyboard navigation where a caret (also known as "text cursor", "text insertion cursor", or "text selection cursor") is used to navigate and select text within a document. For more information about caret navigation mode, see Section 2.3.8.

2.3.1.2. Global Keyboard Shortcuts

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

Keys	Function
------	----------

Keys	Function
Alt-F1	<p>Open the Main Applications Menu. You can customize this keyboard shortcut.</p> <p>Note: For Solaris systems, this key is Ctrl-Esc (as with Microsoft Windows).</p>
Alt-F2	<p>Open the Run Application dialog. You can customize this keyboard shortcut.</p> <p>Note: For Solaris systems, this key is Meta-R (as with Microsoft Windows). A meta- or super-key is an OS-logo shift key.</p>
Print Screen	<p>Start the screenshot application and take a screenshot of the entire screen. You can customize this keyboard shortcut.</p>
Alt- Print Screen	<p>Start the screenshot application and take a screenshot of the window that currently has focus. You can customize this keyboard shortcut.</p>
F1	<p>If the focused element is an application window or dialog, this keyboard shortcut opens the Help for the application.</p>
Ctrl-F1	<p>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.</p>
Shift-F10	<p>Open a popup menu for the element that has focus (if a popup menu exists for that element).</p>

2.3.2. Navigating the Desktop Background

The desktop background is the part of the GNOME Desktop 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
------	----------

Keys	Function
Ctrl-Alt -D	<p>Temporarily hide all windows and give focus to the desktop background.</p> <p>To restore the windows, press Ctrl-Alt-D again.</p> <p>You can customize this keyboard shortcut.</p> <p>Note: For Solaris systems, this key is Meta-D (as with Microsoft Windows). A meta- or super-key is an OS-logo shift key.</p>
Ctrl-Alt -Tab	<p>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.</p> <p>You can customize this keyboard shortcut.</p>
arrow keys	<p>Give focus to a neighboring desktop background object (if the desktop has focus).</p>
A sequence of characters that matches the first <i>n</i> characters of a desktop background object name.	<p>If the desktop background has focus, give focus to the desktop background object whose name starts with the specified sequence of characters.</p>
F2	<p>Rename the desktop background object that has focus.</p>
Shift- F10	<p>Open the popup menu for the desktop background object that has focus.</p>
Ctrl-F10	<p>Open the Desktop Background menu.</p>

2.3.3. 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	<p>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. If you're especially dexterous, you can add Shift to go in reverse.</p> <p>You can customize this keyboard shortcut.</p>
Tab	<p>Give focus to the next object on the panel.</p>

Keys	Function
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. This key behavior may alter slightly depending on context and specific user setup.
spacebar	Activate a panel object; for example, open a menu or start a launcher (icon shortcut).
Shift-F10	Open the panel object popup menu.
Ctrl-F10	Open the panel popup menu.

2.3.3.1. Moving Panel Objects

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/right on a horizontal panel, or up/down on a vertical panel.
Shift + arrow keys	Move the object with focus, swapping positions with any other objects encountered.
Ctrl + arrow keys	Move the object, swapping positions with any other 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
Portion of a panel with three objects displayed in the following order from left to right: Geyes icon, Volume Control icon, and Help icon.	Show a panel with three panel objects before a move operation takes place.
Portion of a panel with three objects displayed in the following order from left to right: Geyes icon, Volume Control icon, and Help icon.	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.

Illustration	Description
Portion of a panel with three objects displayed in the following order from left to right: Geyes icon, Volume Control icon, and Help icon.	Shows the effect of using 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.
Portion of a panel with three objects displayed in the following order from left to right: Volume Control icon, Help icon, and Geyes icon.	Shows the effect of using Ctrl + arrow keys to move the Geyes panel application on the panel. You can use the Ctrl + arrow keys to swap positions with the Volume Control and Help panel objects as you meet the objects.

Note: Panel applications that are Locked cannot be moved. To unlock a panel application, use the panel object menu and deselect the Lock to Panel option.

2.3.3.2. Navigating 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 Section 2.3.3 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.

2.3.3.3. Navigating Panel Menus

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.

2.3.3.4. Navigating 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 Section 2.3.9.1 for information about how to navigate menus.

2.3.4. Navigating 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.
Ctrl-Shift-Alt + arrow keys	Move the window that has focus to the next or previous workspace. You can customize this keyboard shortcut.

2.3.5. 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 Section 2.3.4 for more information.

2.3.5.1. Giving Focus to Windows

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 you want to have focus.
Alt-Esc	Raise each window in turn until you reach the window you want.
Alt-F6	Cycle between windows belonging to the current application (eg, a multiple document interface application like Text Editor).

2.3.5.2. Controlling Windows

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.
<i>Solaris:</i> Open <i>Linux:</i> Alt-F9	Minimize the window.
Alt-F10	Maximize the window.
Alt-F5	Restore a maximized window to its original size.

2.3.5.3. Moving Windows

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 arrow keys	Start the move operation. The mouse pointer changes to a cross. Move the window 10 pixels at a time in the direction of the arrow key.

Keys	Function
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 and align it with the edge of the nearest window, panel or screen edge.
spacebar	Complete the move operation, leaving the window in the current position.
Esc	Cancel the move operation, restoring the window to its original position.

2.3.5.4. Resizing Windows

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.
arrow keys	Resize the window in the direction of the arrow key.
spacebar	Complete the resize operation, leaving the window at the current size.
Esc	Cancel the resize operation, restoring the window to its original size.

2.3.5.5. Navigating Paned Windows

A paned window is a window that is split into two or more panes. Help Browser is an example of an application that uses paned windows.

The following table describes the keyboard shortcuts that you can use to navigate paned/split windows:

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	Contract the pane to the minimum size allowed. For vertical panes, reduces the size of the pane to the left of the resize handle to the minimum size allowed. For horizontal panes, reduces the size of the pane above the resize handle to the minimum size allowed.
End	Expand the pane to the maximum size allowed. For vertical panes, increases the size of the pane to the left of the resize handle to the maximum size allowed. For horizontal panes, increases the size of the pane above the resize handle to the maximum size allowed.
spacebar	Set the position of the resize handle and return focus to the last control that had focus.
Esc	Reset the position of the resize handle to the original position and return focus to the last control that had focus.

2.3.6. Navigating Applications

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

Windows

A window is a rectangular frame on your screen that displays an application. See Section 2.3.5 for information about how to navigate windows.

Dialogs

A dialog is a popup window which displays information or accepts input from the user. See Section 2.3.6.2 for information about how to navigate dialogs.

Controls

A control is any user-interactive screen element. Examples of controls include buttons, check boxes, menus, and text boxes. See Section 2.3.9 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 in applications and dialogs.

2.3.6.1. Essential Keyboard Shortcuts for Navigating Applications

Since there are so many applications that you can use in the GNOME Desktop, this manual does not describe all the custom keyboard shortcuts that you can use with each individual application. However, the basic keyboard shortcuts are common to many applications.

Access keys are another way to quickly navigate applications with 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 menu 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, enabling you to type the name of a file that you want to open or save.
Ctrl-P	Open a Print dialog, if available.
Ctrl-C	Copy highlighted text to the global, application-spanning clipboard.
Ctrl-X	Cut highlighted text to the global, application-spanning clipboard.
Ctrl-V	Paste text from the global, application-spanning clipboard to the current cursor position.

2.3.6.2. 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	Move to the next page/tabbed section of the dialog.
Ctrl-Page Down	Move to the previous page/tabbed section of the dialog.

Keys	Function
Esc	Cancel/dismiss the dialog. Some application-specific dialogs may retain dialog settings, but this practice is discouraged. These dialogs usually have a single Close button, with no Ok/Accept buttons.
Return	Perform the default action for the dialog. The default action will usually apply any changes and close the dialog. A default button will have a bold outline and a selected button will have a slightly bolder outline than the default button.

2.3.7. Navigating the File Manager

By default, the file manager operates in **Spatial** mode. This mode uses separate windows for each folder. Conversely, **Browser** mode will reuse the same window for each folder.

Note: For more information about different modes for the file manager, see the user guide (<ghelp:user-guide?nautilus-presentation>).

2.3.7.1. Navigating Folders

The following table describes the keyboard shortcuts that enable you to navigate folders in the file manager:

Keys	Function
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. This allows multiple, non-contiguous blocks of files to be selected.
spacebar	Open the focused file or folder.
Ctrl + spacebar	Select the item that currently has focus.
A sequence of characters that matches the first n characters of a filename.	Select the first file or folder that starts with the specified sequence of characters.
Home	Select the first file or folder within the current folder.
End	Select the last file or folder within the current folder.
backspace	Open the current folder's parent folder.
Shift-F10	Open a file or folder popup menu.
Ctrl-F10	Open the enclosing folder's popup menu (equivalent to right-clicking on the view pane background).

2.3.7.2. Navigating Browser Window Components

When operating in **Browser** mode, the file manager window contains several components, with keyboard shortcuts defined to navigate each component:

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

2.3.8. Caret Navigation Mode

The following table describes how to use caret navigation mode (eg, in supporting applications like Yelp, Evolution, Epiphany, or Firefox). In computing, caret navigation is a kind of keyboard navigation where a caret (also known as "text cursor", "text insertion cursor", or "text selection cursor") is used to navigate and select text within a document.

Keys	Function
F7	Switch to caret navigation mode [Yelp-only].
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 line.
End	Move to the end of the current line.
Shift + arrow keys	Move from the current position to the destination position, selecting 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, link or other control.

2.3.9. Navigating Standard Elements and Controls

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

2.3.9.1. Navigating Menus

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

Keys	Function
up arrow and down arrow right arrow	Give focus to the next or previous menu item on a menu. 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 access key	Select the focused menu item and close the open menus. Select the menu item that is associated with the access key and close the menu.
spacebar	Select the focused menu item and close the menu except when the menu item is a check box or radio button.
Esc	Close the menu.

2.3.9.2. Navigating Buttons

A button is a control that you use to start an action. Most buttons are rectangular and contain a text label.

Figure 2-1. Sample Button

Close 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.

2.3.9.3. Navigating Radio Buttons

A radio button is a control that you use to select one of several mutually-exclusive options.

Figure 2-2. Sample Radio Button

Two sample radio buttons.

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.

2.3.9.4. Navigating Check Boxes

A check box is a control that you use to select or deselect an option.

Figure 2-3. Sample Check Box

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.

2.3.9.5. Navigating Text Boxes

Text boxes are controls in which you type text.

Figure 2-4. Sample Single Line Text Box

Sample text box with one input line.

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.

Keys	Function
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	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.

Keys	Function
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.

2.3.9.6. Navigating 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 2-5. Sample Spin Box

Sample spin box. Contains a text box and up and down arrows.

The keyboard shortcuts that you use to navigate the text box area of a spin box are listed in Section 2.3.9.5. 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.

2.3.9.7. Navigating 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 2-6. Sample Drop-Down List

Sample drop-down list.

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

Keys	Function
-------------	-----------------

Keys	Function
spacebar	This key performs one of the following functions: <ul style="list-style-type: none"> • 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.
up arrow	Select the previous list item.
down arrow	Select the next list item.
Esc	Close the list without changing the selection.

2.3.9.8. Navigating Drop-Down Combination Boxes

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

Figure 2-7. Sample Drop-Down Combination Box

Sample drop-down combination box. Contains a text box and an arrow button that you click to display the drop-down list.

When the text box has focus, use the keyboard shortcuts that are listed in Section 2.3.9.5 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	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 in the list.
End	Select the last item in the list.
Page Up	Select the item at the top of the current list view.
Page Down	Select the item at the bottom of the current list view.

Keys	Function
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.

2.3.9.9. Navigating Sliders

A slider is a control that you use to set a value in a continuous range of values.

Figure 2-8. Sample Slider

Sample slider. Displays a slider control that you can move left or right.

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 by a large amount.
Page Down	Move the slider right or down by a large amount.
Home	Move the slider to the maximum value.
End	Move the slider to the minimum value.

2.3.9.10. Navigating Tabbed Sections

Figure 2-9. Sample Dialog with Tabbed Sections

Editing profile dialog from the GNOME Terminal application; contains six 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 overall control is referred to as a notebook or tabbed panel. The divisions are called panels, pages, or tabs, and are sometimes collectively referred to as a tabstrip or notebook header. Each individual tab is identified by 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 tabstrip has focus:

Keys	Function
left arrow	Give focus to the previous tabbed section.
right arrow	Give focus to the next tabbed section.

Keys	Function
Tab or Ctrl-down arrow	Give focus to the first control in the active section.

The following table lists the keyboard shortcuts that you can use to navigate a window or dialog when a control within a section has focus:

Keys	Function
Ctrl-Alt-Page Up	Give focus to the previous section.
Ctrl-Alt -Page Down	Give focus to the next section.
Ctrl-Tab	Give focus to the next control outside the sections.

2.3.9.11. Navigating 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 list area 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 currently 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 currently 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.
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.

Keys	Function
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 without extending the selection. Further items can be selected by pressing spacebar .
Ctrl-Page Up	Give focus to the top row in the view without extending the selection.
Ctrl-Page Down	Give focus to the bottom row in the view without extending the selection.
Ctrl-Home	Give focus to the first row in the list without extending the selection.
Ctrl-End	Give focus to the last row in the list without extending the selection.
Return	Activate the item(s).
Ctrl-A	Select all rows (for lists that support multi-line selections).
Shift-Tab	Give focus to the column header, if applicable.

2.3.9.12. Navigating 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 2-10. Sample Tree Structure

Categories tree from the gedit preferences dialog; contains three subcategories.

To navigate trees, you can use the same keyboard shortcuts that are listed in Section 2.3.9.11. In addition, the following table lists the keyboard shortcuts you can use for the tree items:

Keys	Function
+ (plus) or shift-right	Expand the focused item.
- (minus) or shift-left	Collapse the focused item.
backspace	Select the parent item.
Ctrl-F	Display a search dialog, allowing you to type the name of the tree item that you want to find. Not all trees support searching.

2.3.10. Customizing Your Keyboard Shortcuts

Use the Keyboard Shortcuts preference tool to display the default keyboard shortcuts that you use to navigate the GNOME Desktop. You can customize the default keyboard shortcuts to meet your requirements. You can also create hot keys (keyboard shortcuts which start applications).

To start the Keyboard Shortcuts preference tool, choose **System** → **Preferences** → **Keyboard Shortcuts**. The **Desktop shortcuts** table lists the keyboard shortcuts that are associated with each action.

2.3.10.1. Assigning and Clearing Keyboard Shortcuts

To assign a keyboard shortcut, 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 the **backspace**. The keyboard shortcut is disabled.

Chapter 3. Low Vision or Blindness

From low vision to blindness, the range of visual limitations is broad. Symptoms of low vision include dimness, haziness, extreme far-/near-sightedness, color blindness, and tunnel vision, among others. People with these disabilities are concerned with being able to see text or images on a computer screen and being able to perform tasks that require eye-hand coordination, such as moving a computer mouse. Text size and color can make a big difference in legibility for people with low vision.

The technologies that can assist those with low vision or blindness are:

- *Desktop Appearance Enhancement* - users can configure the desktop to be easy to read; for example, by increasing text size and using high-contrast themes.
- *Screen Magnifier* - this is like a magnifying glass. People using them are able to control what area of the computer screen they want enlarged, and can move the magnifier to view different areas of the screen. They are also known as screen enlargers or large print programs.
- *Screen Reader* - this makes on-screen information available as synthesized speech and/or a refreshable braille display. They generally only translate text-based information. Graphics and other non-textual objects can be translated if there is alternative text describing the item. They are also known as blind access utilities or screen reviewers.

3.1. Desktop Appearance Enhancement

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

3.1.1. Customization Options

There are several ways to customize the appearance of the GNOME Desktop to suit your specific needs:

Themes

Themes are the most effective way to change the appearance of the desktop in a consistent manner. See Section 3.1.2 for more information about themes and how to use them to achieve the type of desktop environment that you require.

Desktop and Application-Specific Configuration Settings

You can customize different components of the desktop 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 themes. See Section 3.1.3 for more information.

The following table summarizes the changes that you can make to the GNOME Desktop 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 User Guide (ghelp:user-guide?prefs).

Table 3-1. Quick Reference to Customizing the Appearance of the Desktop

To change the...	Use...
Overall appearance of the desktop using high-contrast colors, low-contrast colors, or large print.	The Theme section of the Appearance preference tool.
Appearance of the desktop background only.	The Desktop Background section of the Appearance preference tool; also the file manager Backgrounds and Emblems menu item.
Appearance of the mouse pointer.	The Theme section of the Appearance preference tool; use the Pointers tab of the Customize option.

To change the...	Use...
Font displayed on the desktop background and in all desktop applications.	The Font section of the Appearance preference tool.
Default font settings of the Text Editor, Terminal or Help application.	Normally these applications use the default application font that is specified in the Font section of the Appearance preference tool, but these font settings can also be overridden in the Preferences dialog for the application.

3.1.2. Using Themes to Customize the Desktop

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

3.1.2.1. 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. Some themes have suggested font settings that may optionally be auto-set; in addition, most colors within a theme can be customized.

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

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 control options that are available in the desktop are designed for special accessibility needs.

Window Border

The window frame setting determines the appearance of the border around windows only.

Icon

The icon setting determines the appearance of icons on panels and on the desktop background.

3.1.2.2. Choosing Themes

To choose a theme, perform the following steps:

1. Choose **System** → **Preferences** → **Appearance** . The themes are listed under the **Theme** tab.
2. Click on a theme in the list box to choose a new theme. The system automatically applies the theme to the desktop, and may also prompt whether to apply a suggested font for the theme.

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

Table 3-2. Themes Designed for Accessibility Requirements

Theme Name	Description
High Contrast	Provides dark text on a light background using high-contrast colors.
High Contrast Inverse	Provides light text on a dark background using high-contrast colors.

Theme Name	Description
Large Print	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.
High Contrast Large Print	This theme suggests an increased font size of 18pt using dark text on a light background. To apply the suggested font, click on the Apply Font button.
High Contrast Large Print Inverse	This theme suggests an increased font size of 18pt using light text on a dark background. To apply the suggested font, click on the Apply Font button.

In some GNOME distributions there are also prebuilt low-contrast/low-contrast-large-print themes to complement the high-contrast theme set.

To view the controls, window frame, and icon settings that are associated with a theme, select a theme in the **Appearance** preference tool, then click on the **Theme** tab. The **Customize** option 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.

3.1.2.3. Modifying the Controls Setting for a Theme

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

1. Within the **Theme** tab, select the theme that you want to modify.
2. Click on the **Customize** button. The **Customize Theme** 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 3-3. 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.

Control Option	Description
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.

3.1.2.4. Modifying the Window Border Setting for a Theme

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

1. In the Appearance preference tool, choose the **Theme** tab and the theme you want to modify.
2. Click on the **Customize** button. The **Customize Theme** 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 designed for accessibility.

3.1.2.5. Modifying the Icon Setting for a Theme

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

1. In the Appearance preference tool, choose the **Theme** tab and select the theme that you want to modify.
2. Click on the **Customize** button. The **Customize Theme** 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 3-4. Icon Options Designed for Accessibility Requirements

Icon Option	Description
HighContrast	Provides dark-on-light icons using high-contrast colors.

Icon Option	Description
HighContrastInverse	Provides light-on-dark icons using high-contrast colors.

3.1.2.6. Creating Your Own Themes

For information about how to create your own themes, see the System Administration Guide (<ghelp:system-admin-guide?themes-0>).

3.1.3. Customizing Specific Components of the Desktop

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

3.1.3.1. Customizing the Desktop Background

The themes do not affect the desktop background. To set the desktop background, choose **System** → **Preferences** → **Appearance** and select a background from the **Background** tab. If no background is chosen, the first entry listed here may be used.

3.1.3.2. Customizing 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. From the File Manager window, choose the **Edit** → **Preferences** menu item.
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.

3.1.3.3. Customizing 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
- Help
- Web Browser

3.1.3.3.1. Customizing Desktop Fonts

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

To start the Appearance preference tool, choose **System** → **Preferences** → **Appearance**. The **Fonts** tab 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 a predefined theme and you click on the Apply Font button, the font that is associated with the theme overrides the font from the Appearance preference tool.

Document Font

Click on this button to select a font to use for displaying documents.

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 the titlebar area of windows.

Fixed Width Font

Click on this button to select a font to use for editing documents.

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 some applications, such as the file manager and Help browser.

For more information about the Appearance preference tool and fonts, see the [User Guide](#) ([ghelp:user-guide?prefs-font](#)).

3.1.3.3.2. Customizing Application Fonts

By default, GNOME applications use the default font specified in the Appearance preference tool. Some applications allow this default font to be customized. These applications are:

- Help Browser ([ghelp:user-guide#yelp](#))
- Text Editor ([ghelp:gedit? gedit-prefs-fontsandcolors](#))
- Terminal ([ghelp:gnome-terminal# gnome-terminal-prefs-general](#))
- Web Browser ([ghelp:epiphany# ephy-customize](#))

3.1.4. 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.

3.1.4.1. Achieving a High- or Low-Contrast Desktop

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

1. Use the Appearance preference tool to select the high-contrast or low-contrast desktop theme that you require from the **Theme** tab.
2. Use the **Background** tab 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 (Text Editor) application, ensure that the Use default theme colors option is selected in the Fonts & Colors tabbed section of the Preferences dialog.

3.1.4.2. Achieving a Large Print Desktop

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

1. Use the Appearance 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 tab 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 (Text Editor) 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 the gedit manual (<ghelp:gedit?gedit-prefs-fontsandcolors>) for more information.
6. If you use applications that use panes, such as the file manager and 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.

3.2. Orca: Screen Reader and Magnifier

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

- Screen Reader

The screen reader enables non-visual access to standard applications in the GNOME Desktop by using speech and braille output.

- Magnifier

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

The following sections provide information about Orca and how to use it.

3.2.1. Introduction to Orca

3.2.1.1. What is Orca?

Orca is a flexible, extensible, and powerful assistive technology for people with visual impairments. Using various combinations of speech synthesis, braille and magnification, Orca helps provide access to applications and toolkits that support the AT-SPI (e.g., the GNOME Desktop). Orca is also free open source software.

3.2.1.2. Why the name Orca?

One of the first DOS screen readers was Flipper, made by Omnichron Corporation in Berkeley, CA. It was named Flipper in part because the blind wife of the programmer envisioned computers as being programmed by flipping switches (an accurate image of a bygone era). Then came another DOS screen reader, this one from Henter-Joyce in Florida - "Jobs Access With Speech" (or JAWS). And so on....

Although no obvious connection exists between blindness and creatures from the sea, there is certainly a naming tradition for screen-reader software. Hence Orca, which is a lot tougher-sounding than Nemo, Ariel, Willy, or Mr. Limpet.

3.2.1.3. What's the schedule?

Orca is part of the GNOME platform and Orca's releases are coupled with the releases of the GNOME platform.

3.2.1.4. How do I request a new feature?

Bugs (<http://bugzilla.gnome.org/buglist.cgi?query=product:orca+>) and feature/enhancement requests (RFEs) should be reported to the GNOME Bug Tracking System (<http://bugzilla.gnome.org>). Patches are always welcome, and instructions for creating patches can be found in the GNOME Introduction to Subversion (SVN) (<http://developer.gnome.org/tools/svn.html>).

3.2.1.5. Where is the discussion list?

You can get in touch with developers and other users by sending an e-mail (<mailto:orca-list@gnome.org>) to the Orca mailing list (<http://mail.gnome.org/mailman/listinfo/orca-list>) (Archives (<http://mail.gnome.org/archives/orca-list>)).

3.2.1.6. Is braille supported?

Yes! Braille is supported via BrITTY and it is tightly integrated with Orca. BrITTY offers support for nearly every refreshable braille display known to man.

3.2.1.7. Is contracted braille supported?

Yes, Orca fully supports contracted braille output.

3.2.1.8. What voices are available?

Orca provides interfaces to both **gnome-speech** and **emacspeak** speech services. As such, the available voices for Orca are only restricted by the speech engines supported by the available speech services. For free speech engines, you typically have a choice of the eSpeak, Festival, and FreeTTS speech engines. For commercial engines, you have a choice of additional engines such as Fonix DECtalk, Loquendo, Eloquence, Cepstral and IBMTTS, with others on the way. Periodically check the **gnome-speech** package for more progress in this area.

3.2.1.9. What languages are supported?

The GNOME translation teams (<http://110n.gnome.org/teams>) are composed of many passionate volunteers from around the world. These teams do a great job and keep an up-to-date status report. See the Orca translation status page (<http://110n.gnome.org/module/orca>) for the large number of languages into which Orca has been translated.

Note: support for a language also depends on the speech synthesis engine also supporting the same language.

3.2.1.10. How well does magnification work?

Orca currently uses the **gnome-mag** magnification service. **gnome-mag** has incorporated support for smoother full-screen magnification, which relies upon newer extensions in the X Window System server. These extensions do not always function well on all platforms, so smooth full-screen magnification may not always work.

3.2.2. Enabling Orca

For a text-only guided setup, open a Run dialog with **Alt-F2** or **Meta-R** and use the command `orca --text-setup` **Enter**.

The first time Orca is launched you will be asked a few questions:

First you will be presented with a list of languages to choose from; there are currently about 45 languages supported. Most of this list will scroll off the screen, so you may have to use the terminal's scrollbar to view earlier parts of the list. Type in the number of your language choice (e.g., 7 for American English) and press **Enter**. You do not need to wait for the entire list to be spoken, and Orca attempts to make your default language the first choice (choice 1).

You are next asked to set **Echo By Word**. This option instructs Orca to speak words as you finish typing them. Type **y** or **n** and press **Enter**.

The next item is **Key Echo**. This option will speak all keys as they are pressed. Type **y** or **n** and press **Enter**.

Now select your desired keyboard layout; generally, you will want to choose the layout that matches your keyboard type - 1 for Desktop or 2 for Laptop. This choice will determine what key will act as the Orca modifier key. The Desktop layout uses **Insert** while the Laptop layout uses **Caps Lock**. A system, host, shift or modifier key is one which is used in conjunction with other keys, enabling keyboard access to most program functions.

Next, specify if you require braille output. This functionality assumes a BrlTTY-compatible device is available. Type **y** or **n** and press **Enter**. Note that you can usually just enter **y** here; Orca will recover gracefully and function even if it cannot find BrlTTY.

Lastly, indicate whether you want an on-screen braille output monitor. This is mostly for developers who need to verify BrlTTY output, but may also be useful in other situations, such as visually diagnosing or verifying braille output. Type **y** or **n** and press **Enter**.

That's it! Orca is now ready for use. If accessibility was not yet enabled, Orca does so now and asks you to logout and back in for the services to start. Type **y** and press **Enter** to restart your login session.

After completing the first-time Orca settings, use **Alt-F2** or **Meta-R** to bring up the Run dialog, type in `orca` and press **Enter**. Accessibility functions should now be active. Orca's Configuration GUI (Section 3.2.4) also has an option to let you indicate that Orca should be started automatically when you log in.

If you plan to use the Magnifier portion of Orca in full screen mode, nonfirm the Xserver "Composite" extension is enabled: use **Alt-F2** or **Meta-R** to bring up the Run dialog, type in `xdpynfo` and press

Enter. Look for the string "Composite" in the output.

3.2.3. Using Orca

3.2.3.1. Initial Setup

When you run Orca for the first time, it will automatically enter setup mode. If you want to run setup at some later point, you can pass the `--setup` option to Orca the next time you run it. Furthermore, while Orca is running, you can press **Insert-Space** to bring up Orca's Configuration GUI (Section 3.2.4). Finally, Orca provides a text setup utility that you can start by passing the `--text-setup` option to Orca. All of these options will create a `~/.orca/user-settings.py` file that holds your preferences and will also enable the accessibility infrastructure. You need to log out and log back in for the new settings to take effect.

3.2.3.2. How do I run Orca?

Run Orca by typing `orca` in a terminal session window. You can do so from a virtual console window if you do not yet have access to the GUI. With the GUI installed you can also press **Alt-F2** or **Meta-R** to bring up the Run dialog and then type `orca` as the command (followed by any optional parameters). Then, press **Enter**. Orca will automatically enter text setup mode if you run it from a virtual console window or your GUI environment is not yet set up for accessibility.

3.2.3.3. Quitting Orca

To quit Orca, press **Insert-Q** (or **CapsLock-Q** in laptop layout mode). A confirmation dialog will appear. Select **Yes** to quit. If the system seems unresponsive, you can try a few things:

- Run `orca --quit` from a terminal window, such as a virtual console; press **Ctrl-Alt-F1** (on most Linux platforms) to get to a virtual console, enter your commands, and then use **Alt-F7** to get back to the desktop. This will kill the Orca process and reclaim system resources. You can then rerun Orca using the previously outlined methods.
- Press **Ctrl-Alt-Backspace** to end your login session and get back to the graphical login prompt (not implemented in all Linux distributions).

3.2.4. Orca Configuration GUI

The Orca Configuration GUI allows you to customize the behavior and features of Orca, such as speech, braille, and magnification. For example, you can select which speech synthesis engine you want to use, whether braille is enabled or not, and which magnification preferences you want. You can select which general keyboard layout you want (desktop or laptop) and you can also examine and modify the existing

keyboard layout with fine-grained control. To bring up the Orca Configuration GUI, press **Orca_Modifier-Space**, where **Orca_Modifier** is **Insert** when you use the Desktop Keyboard Layout (Section 3.2.5.1) and **CapsLock** when you use the Laptop Keyboard Layout (Section 3.2.5.2). If you want to change settings for a single application, press **Ctrl-Orca_Modifier-Space** while the application has focus.

The Orca Configuration GUI is a dialog containing several tabbed pages, each of which is described in the following sections.

3.2.4.1. General Page

Orca GUI Configuration - General Page

The **General** page allows you to customize general aspects of Orca. These include the following:

3.2.4.1.1. Keyboard Layout

The keyboard layout section allows you to specify if you will be working on a laptop (small) or desktop (large, with a numeric keypad) keyboard. You select which layout you want by selecting one of the following options:

Desktop - if selected, the Desktop Keyboard Layout (Section 3.2.5.1) will be used.

Laptop - if selected, the Laptop Keyboard Layout (Section 3.2.5.2) will be used.

3.2.4.1.2. Show Orca main window

Orca GUI Configuration - Main window

The Orca main window provides you with a graphical way to display the Orca Configuration GUI (also accessible with **Orca_Modifier-Space**, where **Orca_Modifier** is **Insert** when you use the Desktop Keyboard Layout (Section 3.2.5.1) and **Caps_Lock** when you use the Laptop Keyboard Layout (Section 3.2.5.2)). The main window also provides a **Quit** option, also available with **Orca_Modifier-Q**). Many users do not like the Orca main window because it shows up in the window manager's tab order when you press **Alt-Tab** to switch windows. By deselecting the "Show Orca main window" button, you can tell Orca to not show the Orca main window.

3.2.4.1.3. Quit Orca without Confirmation

Normally, when you press **Orca_Modifier-Q** to quit Orca or press the **Quit** button in the Orca main window, Orca will pop up a confirmation dialog asking you if you want to quit. Unchecking this option prevents the confirmation window from appearing.

3.2.4.1.4. Disable gksu keyboard grab

When running commands from the launch menu, many distributions use an application known as gksu to authorize the user to run these commands; gksu is the GUI that asks you for your password. When it runs, gksu enables what is known as a "keyboard grab," which is a feature to prevent keyboard actions from going to any other application on the desktop, including Orca. The result of a keyboard grab is that Orca will not receive any keyboard events, preventing Orca from functioning normally.

By selecting the "Disable gksu keyboard grab" button, you will turn off the keyboard grab behavior, allowing Orca to function normally with system administration applications.

Note: The keyboard grab is a security attempt by gksu to prevent nefarious applications from "sniffing" the keyboard and grabbing secret information. Please be advised that disabling the gksu keyboard grab feature can expose you to such nefarious behavior. If you do not feel comfortable with this, you can always use the root account for system administration purposes. To do so, you need to enable the root account for login, and then logout and log back in as root whenever you want to perform a system administration command.

3.2.4.1.5. Present tooltips

When checked, this option will tell Orca to present information about tooltips when they appear as the result of mouse hovering. Specific actions to force tooltips to appear, such as pressing **Ctrl-F1** when an object has focus, will always result in tooltips being presented, regardless of this setting.

3.2.4.1.6. Speak object under mouse

When checked, this option will tell Orca to present information about the object under the mouse when you move it around the screen. Note that this can cause Firefox and Thunderbird versions 2.x and earlier to crash; this is not a problem with Firefox and Thunderbird versions 3.x and later.

3.2.4.1.7. Start Orca when you login

When checked, this option will tell the system to automatically launch Orca when you log in.

3.2.4.2. Speech Page

Orca GUI Configuration - Speech Page

The speech page allows you to customize how Orca uses speech synthesis.

3.2.4.2.1. Enable speech

The first control of note on the speech page is the "enable speech" check box. This check box toggles whether or not Orca will make use of a speech synthesizer. This option, along with the ability to enable braille and enable magnifier support, allow Orca to be tailored to meet the needs of a wide variety of users.

3.2.4.2.2. Speech System and Speech Synthesizer

The next two controls deal with selecting the speech system and synthesizer. Orca provides support for a growing number of speech systems. At the time of this writing, these include GNOME-speech, Emacspeak, and an experimental backend for Speech Dispatcher. Depending upon how your machine is configured, you may have all or none of these options. Typically, you will have just GNOME-speech.

First, determine which speech system you would like to use - GNOME-speech works best at this time. After making your selection, tab to the speech synthesizer combo box and choose from the list of available synthesizers.

3.2.4.2.3. Voice Settings

If your synthesizer supports it, Orca can utilize multiple voices in order to identify special cases within an application, such as hyperlinks or upper case text. The voice settings and person combo boxes can be adjusted to customize these settings to your liking. For example, assume you were using Fonix DECTalk and wanted the Betty voice to denote upper case. To accomplish this, you could do the following:

1. Tab to the voice settings combo box, and down arrow until the upper case voice is selected.
2. Tab to the person combo box, and down arrow to choose the Betty voice.

The next three sliders in the tab order allow adjustment of the synthesizer's rate, pitch and volume, respectively.

3.2.4.2.4. Punctuation Level

The punctuation level radio button group is used to adjust the amount of punctuation spoken by the synthesizer. The available levels are None, Some, Most and All.

3.2.4.2.5. Verbosity

The verbosity setting determines the amount of information that will be spoken in certain situations. For example, if it is set to verbose, the synthesizer will speak shortcut keys for items in pull down menus. When it is set to brief, these shortcut keys are not announced.

3.2.4.2.6. Table Row Speech

The table row speech option determines the way in which Orca will read items within tables. The available settings are "speak current row" or "speak current cell". The ability to adjust this behavior can be useful in many situations. For example, consider the process of browsing email messages in Evolution. In this instance it may be preferable to set table speech to "speak current row" so that while arrowing through the list of messages all relevant info, such as the sender, subject, and whether the message has attachments, is read automatically. While the current row setting is active, it is still possible to read individual cells by using the left and right arrows.

Note: You can quickly toggle this behavior by pressing **Orca_Modifier-F11**.

3.2.4.2.7. Speak Progress Bar Updates

If this setting is enabled, Orca will periodically announce the status of progress bars. How often the announcement is made is determined by the value chosen in the Update Interval spin button. Note that this spin button is only available if the "Speak progress bar updates" checkbox has been checked.

3.2.4.2.8. Speak Indentation and Justification

When working with code or editing other documents it is often desirable to be aware of justification and indentation. Selecting the "Speak indentation and justification" check box will cause Orca to provide this information.

3.2.4.2.9. Speak Blank Lines

Some users desire to hear "blank" when navigating to a blank line in a document. Other users do not. If the "speak blank lines" check box is selected, Orca will speak blank lines.

3.2.4.2.10. Speak tutorial messages

When moving from component to component in an interface, this option will provide spoken tutorial messages for how to work with the component.

3.2.4.2.11. Say All By

This combo box allows you to specify whether the "say all" functionality of Orca speaks by sentence or line. See the Desktop Keyboard Layout (Section 3.2.5.1) and Laptop Keyboard Layout (Section 3.2.5.2) for how to invoke the "say all" functionality).

3.2.4.3. Braille Page

Orca GUI Configuration - Braille Page

The braille page allows you to customize various aspects about the use of braille.

Note: Orca does not automatically start BrITTY for you; typically you need to do this yourself, usually at boot time.

3.2.4.3.1. Enable Braille Support

The first control on the braille page is the "Enable braille support" check box. This check box toggles whether or not Orca will make use of a braille display. This option, along with the ability to enable braille and enable magnifier support, allow Orca to be tailored to meet the needs of a wide variety of users. By default, this check box is enabled. If BrITTY is not running, Orca will recover gracefully and will not communicate with the braille display. If you configure BrITTY later on, you need to restart Orca in order for it to use braille.

3.2.4.3.2. Enable Braille Monitor

Orca's braille monitor provides an on-screen representation of what takes place on the braille display. This feature is mostly for demonstration purposes, but is also useful for Orca developers who do not have access to a braille display.

3.2.4.3.3. Abbreviated Role Names

The "Abbreviated role names" check box determines the manner in which role names are displayed and can be used to help conserve real estate on the braille display. The "Abbreviated role names" option can be better understood if we consider the following example. Let us assume that a slider had focus, and that the abbreviated role names box was not checked. In this case, the word "slider" would be shown on the display, to reflect the fact that the current control was indeed a slider. If the abbreviated role names box were checked, the word "slider" would be abbreviated to "sldr".

3.2.4.3.4. Disable end of line symbol

When checked, this feature tells Orca to not present the "\$!" string at the end of a line.

3.2.4.3.5. Contracted Braille

Orca supports contracted braille via the liblouis project. Refer to the Orca WIKI (<http://live.gnome.org/Orca/Braille#Braille>), where you can find additional information about setting up liblouis with Orca.

3.2.4.3.6. Verbosity

The verbosity radio button group determines the amount of information that will be brailled in certain situations. For example, if it is set to verbose, keyboard shortcut and role name information is displayed. This information is not displayed in brief mode.

3.2.4.3.7. Selection Indicator

When you select text, Orca will "underline" that text on your braille display with Dots 7 and 8. If you would prefer, you can change the indicator to only be Dot 7, only be Dot 8, or not be present at all.

3.2.4.3.8. Hyperlink Indicator

When you encounter a hyperlink, Orca will "underline" that text on your braille display with Dots 7 and 8. If you would prefer, you can change the indicator to only be Dot 7, only be Dot 8, or not be present at all.

3.2.4.4. Key Echo Page

Orca GUI Configuration - Key Echo Page

The key echo page allows you to specify the behavior of Orca when pressing keys on the page and whether words are spoken as you complete them.

3.2.4.4.1. Enable Key Echo

The first control on the key echo page is the "Enable key echo" check box. When this box is selected, six additional check boxes become available. These are: "Enable alphanumeric and punctuation keys", "Enable modifier keys", "Enable locking keys", "Enable function keys", "Enable action keys", and "Enable navigation keys".

The alphanumeric and function key groups are relatively self explanatory.

Modifier keys are those such as **Shift**, **Ctrl**, and **Alt**.

Locking keys include **Caps Lock**, **Scroll Lock** and **Num Lock**.

The action keys group consists of keys that perform some logical action, such as **Backspace**, **Return** and **Tab**.

The navigation keys group include the four arrow keys as well as any key combination in which the Orca Modifier key is being held down. The latter is designed to prevent Orca from echoing flat review commands.

3.2.4.4.2. Enable Echo by Word

The next toggle on the key echo page is the "Enable echo by word" check box, used to echo the word you just typed. The "Echo by word" control is always available, regardless of whether any of the key echo options are checked.

3.2.4.4.3. Enable Echo by Sentence

The last toggle on the key echo page is the "Enable echo by sentence" check box, used to echo the sentence you just typed. The echo by sentence control is always available, regardless of whether any of the key echo options are checked.

In summary, the key echo scheme can offer a great deal of flexibility. For example, one user might choose to enable all key echo options, while another might prefer to use word echo, but only have locking keys announced.

3.2.4.5. Magnifier Page

Orca GUI Configuration - Magnifier Page

The magnifier page allows you to enable/disable magnification and specify how magnification is performed.

3.2.4.5.1. Enable Magnifier

The first control on the magnifier page is the "Enable magnifier" check box. This check box toggles whether or not Orca will provide magnification. This option, along with the ability to enable speech and enable braille support, allow Orca to be tailored to meet the needs of a wide variety of users.

3.2.4.5.2. Zoomer Settings

Two zoomer GUI controls determine magnification characteristics:

- "Scale factor", which sets magnification power from 1.0x to 16.0x (fractional values are supported).
- "Position", which sets the location and size of the magnifier window: "Full Screen", "Left Half", "Right Half", "Top Half", "Bottom Half", and "Custom". The default position is "Full Screen". Choosing "Custom" causes four spin buttons to become available: "Top", "Left", "Right", and "Bottom". These spin buttons allow you to define the location of each edge of the zoom window. Units are in pixels.

3.2.4.5.3. Border Settings

Note: These options are not available in "Full Screen" mode.

3.2.4.5.3.1. Enable border

This option determines if a window border is visible for the magnifier.

3.2.4.5.3.2. Border size

This value determines the size of the border in pixels.

3.2.4.5.4. Cursor Settings

These controls can be used to customize the size and color of the magnifier's cursor.

3.2.4.5.4.1. Enable cursor

If this check box is enabled then a cursor is visible and the size and color options become available.

3.2.4.5.4.2. Custom size

Enable this check box if you would like to make the mouse pointer larger than it normally is. The cursor size can be changed from the default value of 32 pixels.

3.2.4.5.4.3. Custom color

If the cursor is enabled, a custom color can also be applied.

3.2.4.5.5. Cross-hair Settings

This set of controls can be used to customize the magnifier's optional area-targeting cursor.

3.2.4.5.5.1. Enable cross-hair

If checked, you can additionally configure the clipping behavior, size and color of the cross-hair.

3.2.4.5.5.2. Enable cross-hair clip

If enabled, the cross-hair will be "clipped" (removed) in the area immediately surrounding the mouse pointer.

3.2.4.5.5.3. Cross-hair size

This control sets the thickness of the cross-hair in pixels.

3.2.4.5.5.4. Cross-hair color

This control allows a custom color to be used for the cross-hair.

3.2.4.5.6. Color Settings

This allows you to do some rough color adjustments of the magnified region.

3.2.4.5.6.1. Invert colors

Creates a reverse or negative-image effect.

3.2.4.5.6.2. Brightness

Ranges from -1 to 1 (-1 is black/no brightness; 1 is white/total brightness; 0 is "normal"/unchanged).

3.2.4.5.6.3. Contrast

Ranges from -1 to 1 (-1 is grey/no contrast; 1 is maximum contrast; 0 is "normal"/unchanged).

3.2.4.5.7. Tracking and Alignment Settings

These options control the tracking of the mouse cursor.

3.2.4.5.7.1. Mouse pointer

Choose from the following options:

3.2.4.5.7.1.1. Centered

Keeps the mouse pointer at the center of the screen whenever possible. This is the default.

3.2.4.5.7.1.2. Proportional

Positions the mouse pointer in the zoom window relative to its actual, unmagnified position. For instance, if the mouse pointer is 25% away from the left edge of the desktop, Orca positions the magnified mouse pointer 25% from the left edge of the zoom window.

3.2.4.5.7.1.3. Push

Moves the zoomer window the least amount necessary to keep the mouse pointer on the screen.

3.2.4.5.7.1.4. None

Moving the mouse pointer has no impact on what the zoomer window displays.

3.2.4.5.7.2. Pointer follows zoomer

This option is enabled by default. If the mouse pointer is not on the screen when you initially move the mouse, it will be moved into the zoomer so that you can continue to see what you were working on. If your preferred mouse tracking mode is centered, the pointer will be moved to the center; otherwise it will be moved to the item with focus.

3.2.4.5.7.3. Control and menu item

These options control additional behavior of the magnifier.

3.2.4.5.7.3.1. Centered

When navigating via keyboard, keep the focused dialog box control or menu item at the center of the screen whenever possible.

3.2.4.5.7.3.2. Push

When navigating via keyboard, move the zoomer window the least amount necessary to display the focused dialog box control or menu item. This is the default.

3.2.4.5.7.3.3. None

Using the keyboard to navigate among dialog box controls and menu items will have no impact on what the zoomer window displays.

3.2.4.5.7.3.4. Pointer follows focus

If this option is enabled, the mouse pointer will follow you as you arrow through menu items and move among controls in dialog boxes. This option is disabled by default.

3.2.4.5.7.4. Text cursor

These options control how the text cursor behaves.

3.2.4.5.7.4.1. Centered

As the text cursor moves, keep it at the center of the screen whenever possible.

3.2.4.5.7.4.2. Push

As the text cursor moves, move the zoomer window the least amount necessary to display it. This is the default.

3.2.4.5.7.4.3. None

Moving the text cursor will have no impact on what the zoomer window displays.

3.2.4.5.7.4.4. Edge margin

The edge margin is how close the caret should be allowed to get to the edge of the screen before it's time to "push" the zoomer window. The margin can range from 0 to 50%, with 50% being the equivalent of choosing centering. The default value is 0.

Note: This option is only available if "Push" is your text cursor tracking mode.

3.2.4.5.8. Advanced Settings

If you press the Advanced Settings button located near the bottom of the Magnifier page, the following dialog will appear:

Orca GUI Configuration - Magnifier - Advanced Settings

3.2.4.5.8.1. Smoothing

Bilinear or none.

3.2.4.5.8.2. Brightness

Red, Green, Blue: Individual controls for choosing customized brightness levels. Choosing different brightness levels for each color allows you to create the color scheme that works best for you.

3.2.4.5.8.3. Contrast

Red, Green, Blue: Individual controls for choosing customized contrast levels. While not as significant as changes to brightness, choosing different contrast levels for each color helps you to create the color scheme that works best for you.

3.2.4.5.8.4. Color Filtering

Allows you to pick one of the colorblind filters available through libcolorblind.

Note: In order to take advantage of this feature you will need to install libcolorblind and then rebuild gnome-mag.

3.2.4.5.8.5. Multi-Monitor Settings - Source Display

X Window System DISPLAY of what should be magnified. Written in the form ":0.x" where x is the number of the screen whose contents should be magnified.

3.2.4.5.8.6. Multi-Monitor Settings - Target Display

X Window System DISPLAY of where to put the zoomer window. Written in the form ":0.y" where y is the number of the screen where the zoomer window should appear.

3.2.4.6. Key Bindings Page

Orca GUI Configuration - Key Bindings Page

The key bindings page allows you to examine and modify the key bindings for Orca.

3.2.4.6.1. Orca Modifier Key(s)

The first control on the key bindings page allows you to examine which key (or keys) acts as the "Orca modifier." The Orca modifier is the key that you press and hold in conjunction with other keys to give commands to Orca. For desktop keyboards, the Orca modifier defaults to **Insert**. For laptop keyboards, the Orca modifier defaults to the **Caps Lock** key. See the Desktop Keyboard Layout (Section 3.2.5.1) and Laptop Keyboard Layout (Section 3.2.5.2) sections for the default values.

Note: You cannot modify the Orca modifier key(s) using the Configuration GUI at this time.

3.2.4.6.2. Key Bindings Table

The key bindings table provides a list of Orca operations and the keys that are bound to them.

The "Function" column header is a description of the Orca operation to be performed.

The "Key Binding" header is the primary way to invoke the function from the keyboard. Note that the function description may include the word "Orca". This indicates that the Orca modifier key should be held down along with the other keys.

The "Alternate" header provides an alternate mechanism for invoking the function from the keyboard.

To modify either the "Key Binding" or the "Alternate" bindings, arrow to the cell and press **Return**. Then, press a key combination and press **Return** to confirm the new combination. When you do so, the new keystroke will be saved and the check box in the last column (the "Modified" column) will indicate that the key binding has been modified.

To undo a modified keybinding, merely arrow to the modified column, uncheck the checkbox, and press the "Apply" button **Alt-A**.

Beneath the list of Orca keybindings, you will find a group of "unbound" commands:

Orca GUI Configuration - Key Bindings Page showing the 'unbound' group of commands

These are commands which we feel will be very useful for some users, but not needed by most users. Rather than "use up" a keystroke for such commands, we have left them unassigned. You can assign a keystroke to any of these unbound commands by following the procedure outlined above. In addition, you can unbind any bound command in a similar fashion: press **Return** to edit the keybinding, and when prompted for the new keybinding, press **Delete** or **Backspace**. You will be told that the key binding has been removed. Press **Return** to confirm.

3.2.4.7. Pronunciation Page

Orca GUI Configuration - Pronunciation Page

Sometimes your speech synthesizer just doesn't say the right thing for a given string. You might prefer to hear "laughing out loud" rather than "LOL." Or there may be a name or a technical term which the synthesizer mispronounces. The pronunciation page is where you can add, edit, and delete Orca's pronunciation dictionary entries. Because the pronunciation page is also part of the application-specific settings dialog that's started when you give a particular application focus and type **Orca_Modifier-Ctrl-Space**, you can customize your entries on an as-needed basis for each application you use.

3.2.4.7.1. Add a new dictionary entry

1. Press the **New Entry** button (**Alt-N**).
2. Type the text of the new entry and press **Return** to finish editing the actual string.
3. Move to the Replacement String column and press **Return** to begin editing.

4. Type the text that you would like to have spoken instead and press **Return** to finish editing the replacement string.

3.2.4.7.2. Edit an existing dictionary entry

1. Move to the cell you wish to edit and press **Return** to begin editing.
2. Make your changes and then press **Return** to finish editing.

3.2.4.7.3. Delete an existing dictionary entry

1. Move to the entry you wish to delete.
2. Press the Delete button or **Alt-D**.

3.2.4.8. Text Attributes Page

Orca GUI Configuration - Text Attributes Page

Orca will speak known text attribute information about an object when you press **Insert-F** (desktop layout) or **Caps_Lock-F** (laptop layout). Because the number of text attributes is large, and not everyone cares about every attribute, the "Text Attributes" tab of the configuration GUI allows you to customize which text attributes Orca will present.

On this tab is a text attribute list, where each row consists of four columns:

- The name of the text attribute.
- A checkbox which the user can set to indicate whether this text attribute should be spoken or not.
- A checkbox which the user can set to indicate whether this text attribute should be "underlined" on the braille display.
- An editable "Present unless" string value. By default, not all text attributes will have this set. If present, what it means (assuming the user wants this text attribute presented) is that the value of the attribute will only be presented if it is *not* this value.

For example, by default the "underline" text attribute has a value of "none." If the user has this attribute checked and the user types **Orca_Modifier-F** and the text in question is not underlined, then this attribute is not spoken. If you always want this attribute to be spoken irrespective of whether the text is underlined, then the attribute should be checked and the "Present unless" value cleared.

- There is also a **Reset** button (**Alt-R**) which will set the list values back to their initial state when the dialog was first displayed.

When you initially display the text attribute pane, all your checked attributes are put at the top of the list. They are given in the order that they will be spoken and brailled.

If you decide to check others or adjust the order, there are four buttons to help you do this:

- Move to top (**Alt-T**) - moves the selected attribute to the top of the list.
- Move up one (**Alt-U**) - moves the selected attribute up one row.
- Move down one (**Alt-D**) - moves the selected attribute down one row.
- Move to bottom (**Alt-B**) - moves the selected attribute to the bottom of the list.

Beneath these push buttons is the Braille Indicator group of radio buttons. Here you can select the cell or cells to be used to indicate text which has at least one of the specified attributes. Your choices are:

- None (the default)
- Dot 7
- Dot 8
- Dots 7 and 8

Text attributes can also be set on an individual application basis. The text attribute pane is also part of the application-specific settings dialog that's started when you give a particular application focus and type **Orca_Modifier-Ctrl-Space**.

3.2.5. Orca Keyboard Commands

You can get a complete list of available keyboard commands by visiting the **Key Bindings** page of the Orca Configuration GUI (Section 3.2.4.6). To bring up the Orca Configuration GUI, press **Orca_Modifier-Space**, where **Orca_Modifier** is the **Insert** key for the desktop layout and the **Caps_Lock** key for the laptop layout. Note that you can also enter Orca's "learn mode" while running Orca by pressing **Orca_Modifier-H**. When in learn mode, Orca will intercept all keyboard and braille input events and tell you what the effect would be. To exit learn mode, press the **Escape** key.

Note: Orca provides additional commands for some applications, such as Firefox. To get the list of additional commands for an application, press **Ctrl-Orca_Modifier-Space** when that application has focus. This will bring up the Orca Configuration GUI in the "application-specific" state, and the additional commands will appear in the **Key Bindings** page.

The GNOME Desktop itself also has built in keyboard commands (<http://library.gnome.org/users/user-guide/stable/shortcuts-global.html.en>) to control the desktop and its applications.

WARNING: the MouseKeys functionality of AccessX can interfere with the Orca modifier key (see bug 548169 (http://bugzilla.gnome.org/show_bug.cgi?id=548169)), resulting in odd behavior. In particular, MouseKeys uses the **KP_Insert** key to emulate a mouse button press. When enabled, MouseKeys can conflict with **KP_Insert** as the Orca modifier, resulting in what appears to be a stuck

Orca modifier key. As an alternative, you can use the laptop key bindings, which avoids the keypad for Orca commands. If you accidentally enabled MouseKeys, you can disable it via the `gnome-keyboard-properties` application.

3.2.5.1. Desktop Layout

Following is a list of common Orca keyboard commands for desktop keyboards arranged by category:

3.2.5.1.1. Flat review commands

- **Numpad-7** - move the flat review cursor to the previous line and read it.
- **Numpad-8** - read the current line.
- **Numpad-9** - move the flat review cursor to the next line and read it.
- **Numpad-4** - move the flat review cursor to the previous word and read it.
- **Numpad-5** - read the current word.
- **Numpad-6** - move the flat review cursor to the next word and read it.
- **Numpad-1** - move the flat review cursor to the previous character and read it.
- **Numpad-2** - read the current character.
- **Numpad-3** - move the flat review cursor to the next character and read it.
- **Numpad-slash** - perform a left mouse click at the location of the flat review cursor.
- **Numpad-star** - perform a right mouse click at the location of the flat review cursor.
- **Numpad-minus** - toggle between flat review and focus tracking mode.

Note: The above commands apply when working with objects as well as when working with text. For example, if the flat review cursor were positioned on a menu bar, pressing the "read current line" command would speak the names of all visible menus. Similarly, pressing the "read next word" command would speak the object to the right of the flat review cursor on the same line, or move flat review to the next line if no more objects were found.

3.2.5.1.2. Bookmark commands

- **Alt-Insert-[1-6]** - assign a bookmark to a numbered slot. If a bookmark already exists in the slot it will be replaced with the new one.
- **Insert-[1-6]** - go to the position pointed to by the bookmark bound to this numbered slot.
- **Alt-Shift-[1-6]** - "Where am I" information for this bookmark relative to the current pointer location.
- **Insert-B** and **Insert-Shift-B** - move between the given bookmarks for the given application or page.
- **Alt-Insert-B** - save the defined bookmarks for the current application or page.

3.2.5.1.3. Miscellaneous functions

- **Numpad-Plus** - "say all" command; reads from the current position of the caret to the end of the document.
- **Numpad-Enter** - "Where am I" command; speaks information such as the title of the current application window, as well as the name of the control that currently has focus.
- **Insert-H** - enter into Orca's "learn mode"; press **Escape** to exit.
- **Insert-F** - speak font and attribute information for the current character.
- **Insert-Space** - Launch the Orca Configuration dialog.
- **Insert-Ctrl-Space** - reload user settings and reinitialize services as necessary. Also launches the Orca Configuration dialog for the current application.
- **Insert-S** - toggle speech on and off.
- **Insert-F11** - toggle the reading of tables, either by single cell or whole row.
- **Insert-Q** - quit Orca.

3.2.5.1.4. Commands for debugging

- **Ctrl-Alt-Insert-Home** - report information on the currently active script.

Note: In order for the next three commands to be of use, Orca needs to be started from a virtual console or via `gnome-terminal`. Output is sent to the console only (i.e., it is not sent to speech or braille).

- **Ctrl-Alt-Insert-End** - print a debug listing of all known applications to the console where Orca is running.
- **Ctrl-Alt-Insert-Page_Up** - print debug information about the ancestry of the object with focus.
- **Ctrl-Alt-Insert-Page_Down** - print debug information about the hierarchy of the application with focus.

3.2.5.2. Laptop Layout

Following is a list of common Orca keyboard commands for laptop keyboards arranged by category:

3.2.5.2.1. Flat review commands

- **Caps_Lock-U** - move the flat review cursor to the previous line and read it. Double-click to move flat review to the top of the current window.

- **Caps_Lock-I** - read the current line. Double-click to read the current line along with formatting and capitalization details.
- **Caps_Lock-O** - move the flat review cursor to the next line and read it. Double-click to move flat review to the bottom of the current window.
- **Caps_Lock-J** - move the flat review cursor to the previous word and read it. Double-click to move flat review to the word above the current word.
- **Caps_Lock-K** - read the current word. Double-click to spell the word. Triple-click to hear the word spelled phonetically.
- **Caps_Lock-L** - move the flat review cursor to the next word and read it. Double-click to move flat review to the word below the current word.
- **Caps_Lock-M** - move the flat review cursor to the previous character and read it. Double-click to move flat review to the end of the current line.
- **Caps_Lock-Comma** - read the current character. Double-click to pronounce the character phonetically if it is a letter.
- **Caps_Lock-Period** - move the flat review cursor to the next character and read it.
- **Caps_Lock-7** - perform a left mouse click at the location of the flat review cursor.
- **Caps_Lock-8** - perform a right mouse click at the location of the flat review cursor.
- **Caps_Lock-8** - perform a right mouse click at the location of the flat review cursor.
- **Caps_Lock-p** - toggle between flat review and focus tracking mode.

Note: The above commands apply when working with objects as well as when working with text. For example, if the flat review cursor were positioned on a menu bar, pressing the "read current line" command would speak the names of all visible menus. Similarly, pressing the "read next word" command would speak the object to the right of the flat review cursor on the same line, or move flat review to the next line if no more objects were found.

3.2.5.2.2. Bookmark commands

- **Alt-Caps_Lock-[1-6]** - add a bookmark to the numbered slot. If a bookmark already exists for the slot it will be replaced with the new one.
- **Caps_Lock-[1-6]** - go to the position pointed to by the bookmark bound to this numbered slot.
- **Alt-Shift-[1-6]** - "Where am I" information for this bookmark relative to the current pointer location.
- **Caps_Lock-Band Caps_Lock-Shift-B** - move between the given bookmarks for the given application or page.
- **Alt-Caps_Lock-B** - save the defined bookmarks for the current application or page.

3.2.5.2.3. Miscellaneous functions

- **Caps_Lock-Semicolon** - "Say all" command; reads from the current position of the caret to the end of the document.
- **Caps_Lock-Enter** - "Where am I" command; speaks information such as the title of the current application window, as well as the name of the control that currently has focus.
- **Caps_Lock-H** - enter learn mode (press **Escape** to exit).
- **Caps_Lock-F** - speak font and attribute information for the current character.
- **Caps_Lock-Space** - launch the Orca Configuration dialog.
- **Caps_Lock-Ctrl-Space** - reload user settings and reinitialize services as necessary; also launches the Orca Configuration dialog for the current application.
- **Caps_Lock-S** - toggle speech on and off.
- **Caps_Lock-F11** - toggle the reading of tables, either by single cell or whole row.
- **Caps_Lock-Q** - quit Orca.

3.2.5.2.4. Commands for debugging

- **Caps_Lock-Alt-Ctrl-Home** - report information on the currently active script.

Note: In order for the next three commands to be of use, Orca needs to be started from a virtual console or via `gnome-terminal`. Output is sent to the console only (i.e., it is not sent to speech or braille).

- **Caps_Lock-Alt-Ctrl-End** - prints a debug listing of all known applications to the console where Orca is running.
- **Caps_Lock-Alt-Ctrl-Page_Up** - prints debug information about the ancestry of the object with focus.
- **Caps_Lock-Alt-Ctrl-Page_Down** - prints debug information about the object hierarchy of the application with focus.

3.2.6. Application-Specific Information

3.2.6.1. Accessible Applications

Orca is designed to work with applications and toolkits that support the Assistive Technology Service Provider Interface (AT-SPI). This includes the GNOME Desktop and its bundled applications: OpenOffice, Firefox, and the Java platform. Some applications work better than others, however, and the Orca community continually works to provide superior access to more and more applications.

3.2.6.2. Making Application-Specific Settings

To customize the settings for a particular application, you will first need to run that application. Make sure the application has focus, then press **Orca_Modifier-Ctrl-Space** (by default, this will be **Insert-Ctrl-Space** for the Desktop keyboard layout).

This brings up a tabbed dialog window very similar to the Orca configuration dialog, but with the following differences:

1. There is no initial General pane.
2. The Speech System and Speech Synthesizer combo boxes on the Speech pane will be grayed out (made inactive).
3. Any existing application-specific key bindings will appear at the top of the list on the Key Bindings pane.
4. There may be a new application-specific settings pane at the end of the set of tabbed panes. Note that pressing the End key from the tab list will get you directly to the right-most tab.

Adjust your application-specific settings in the same way you set your general Orca preferences. For example, you may have Key Echo disabled generally in Orca but would like to specifically have it enabled for the gcalctool (GNOME Calculator) application. Here's where you could easily set that.

When you have your application settings customized the way you want, press the OK button. These settings will be written to your `~/.orca/app-settings` directory in a file called `<APPNAME>.py`, where `<APPNAME>` is the name of the application.

These files are automatically written by Orca. The contents of the file will be overwritten each time you change your application settings for that application.

If you want to have some extra application-specific settings or code that you don't want to lose, then you should put it in a file called `~/.orca/app-settings/<APPNAME>-customizations.py`. This file will be automatically read when the settings for the `<APPNAME>` application are loaded.

Note that this is an advanced feature that we don't expect many people to use. It's just there if you really want it.

There is currently one known bug (some people would call it a feature) that we are trying to track down and fix:

Note: If you adjust one or more application-specific key bindings, the new values will not take effect until you've pressed the OK button. The work-around is to either restart Orca, or Alt-Tab away to some other application and then Alt-Tab back to the one that you've just changed the key bindings for.

3.2.7. Braille

Orca uses BrlTTY (<http://mielke.cc/brlty/>) for braille support. On Linux systems, BrlTTY is used to access the text mode console content. On a typical braille-enabled installation of Linux, BrlTTY is already running and providing access to the text consoles. When Orca starts, it connects to BrlTTY. If you switch from a text console to your X Windows session, your braille display will automatically follow and display the content that Orca is presenting to you.

Orca attempts to work with various releases of BrlTTY. It works well with BrlTTY v3.7.2, and we've also been working with the BrlTTY team to get it going for BrlTTY v3.8. The remainder of this document provides information related to using Orca with BrlTTY 3.8.

Below are descriptions of the necessary tasks to install/setup BrlTTY in Ubuntu and Solaris. For both, you need to first obtain `brlty-3.8.tar.gz` (<http://mielke.cc/brlty/releases/brlty-3.8.tar.gz>) from the BrlTTY site.

3.2.7.1. BrlTTY 3.8 on Ubuntu

First, configure your build environment to build BrlTTY. Much of this setup is done for you automatically in the Ubuntu distribution with products such as G++ already present. In addition, *you must* also install `tcl`, `Pyrex`, and the Python developer environment. To do this, execute the following commands as `root`:

```
apt-get build-dep brlty
apt-get install tcl8.4 python-pyrex python-dev
```

Then, when you build BrlTTY, avoid configuring the package with `--prefix=/usr`. Use the standard procedure instead, executing the following commands as `root`:

```
gunzip -c brlty-3.8.tar.gz | tar xvf -
cd brlty-3.8
./autogen
./configure
make
make install
```

Run BrlTTY as `root`:

```
/bin/brlty -bauto -d/dev/ttyUSB0
```

If you want, you can remove the existing `/sbin/brltty` and replace it with the `/bin/brltty`, either by copying the `/bin/brltty` to `/sbin/brltty` or just by making a symbolic link. Do so at your own risk.

3.2.8. Troubleshooting

3.2.8.1. My desktop has stopped responding. What do I do?

Press **Alt-F2** or **Meta-R** to open the Run dialog and restart Orca by running a new instance: type `orca` and press **Enter**. This will force any existing Orca processes to exit and will then restart Orca. This sometimes has the effect of unhanging the desktop (which is usually due to an ill-behaved application).

If you cannot get to a terminal window, try pressing **Ctrl-Alt-Backspace**: shut down the X Window System server. This should return you to the login screen.

Chapter 4. Mobility Impairments

Mobility impairments can be caused by arthritis, stroke, cerebral palsy, Parkinson's disease, multiple sclerosis, and loss of limbs or digits, among others. Poor muscle control or weakness can make using standard keyboards and mouse devices difficult. For instance, some people are unable to type two keys simultaneously, while others tend to hit multiple keys or to bounce keys when pressing or releasing them. People who are able to use only one hand likewise have difficulties with some keyboard and mouse tasks.

The technologies which can assist those with mobility impairments are:

- *On-Screen Keyboard* - lets users select keys using a pointing method such as pointing devices, switches, or Morse-code input systems.
- *Mouse and Keyboard Enhancements* - helpful for users who have trouble typing and controlling a mouse or a keyboard.

4.1. GNOME On-Screen Keyboard (gok)

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:

- Composer Keyboards enable you to compose text. To type alphanumeric characters, you select the characters on the composer keyboard.
- Dynamic Keyboards reflect the applications that are currently running on the desktop. For example, On-Screen Keyboard generates dynamic keyboards that contain keys to represent the applications that are running on your desktop or the menus that are contained in an application.

You must enable the assistive technology services before you are able to use many of the accessibility tools available.

1. Choose System—>Preferences—>Assistive Technologies.
2. Select Enable assistive technologies and then press Close and Log Out.
3. Log back in. The assistive technology services will be started automatically.

4.2. 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.

4.3. Mouse and Keyboard Enhancements

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

4.3.1. Configuring the Mouse

Use the Mouse preference tool to configure the mouse to suit your needs. To open the Mouse preference tool, choose System→Preferences→Mouse . The Mouse Preferences dialog is displayed.

4.3.1.1. Configuring Mouse Behavior

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

4.3.1.1.1. *Configuring 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.

4.3.1.1.2. *Configuring 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. Moving the slider to the right will increase the timeout interval in 0.1

second intervals. In the same manner, moving the slider to the left will decrease the timeout in 0.1 second intervals.

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.

4.3.1.1.3. Changing Mouse Pointer Size

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

1. Click on the **Pointers** tab in the **Mouse Preferences** dialog.
2. This will display a list of pointer themes and sizes available.
3. By default, GNOME does not include mouse pointer themes. Information about installing and using pointer themes can be found in the User Guide (<ghelp:user-guide?goscustdesk-54>).

Note: On some platforms you must log out and log in again for this setting to take effect.

4.3.1.1.4. Locating 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 **Pointers** 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.

4.3.1.1.5. Configuring Mouse Speed and Sensitivity

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 the 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 responsive the mouse pointer is to movements of the mouse. Moving the slider to the right will increase the sensitivity and moving it to the left will decrease the sensitivity.

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.

4.3.1.2. Configuring the Cursor

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

4.3.1.2.1. Stopping the Cursor from Blinking

To stop the cursor from blinking in text boxes and other areas, perform the following steps:

1. Choose **System** → **Preferences** → **Keyboard** to start the Keyboard preference tool.
2. In the **Keyboard** tabbed section, deselect the **Cursor blinks in text boxes and fields** option.

4.3.1.3. Keyboard Mouse Emulation

If you have difficulty using a mouse, you can use the keyboard to emulate the mouse functions. See Section 4.3.2 of this guide for more information.

4.3.2. Configuring an Accessible Keyboard

Use the Keyboard preference tool to configure the keyboard accessibility options. To open the Keyboard preference tool, choose **System** → **Preferences** → **Keyboard**. Accessibility options can be enabled by selecting the **Accessibility** tab.

The **Accessibility** tabbed section allows the following options:

"Allow to turn accessibility features on and off from the keyboard" (Alt-A) - this determines if keyboard accessibility functions can be turned on or off with a key command.

Simulate simultaneous keypresses (Alt-S) - allows multiple shift (or other) keys to be entered individually but processed as a single combination keystroke. This keyboard accessibility technique is known as "sticky keys."

Disable sticky keys if two keys are pressed together (Alt-B) - automatically exit the sticky keys mode if any key combination is entered normally (eq. at the same time instead of entered individually).

Only accept long keypresses (Alt-O) - in this mode, keys must be pressed for a given length of time before they are accepted as input. This accessibility technique is also known as "slow keys." This portion of the **Accessibility** tabbed section also supplies a Delay slider (Alt-D) to indicate the press-down delay before the key is accepted as input.

Ignore fast duplicate keypresses (Alt-I) - in this mode, successive entry of the same key will only have a single instance of that key accepted as input. This accessibility technique is also known as "bounce keys." This portion of the **Accessibility** tabbed section also supplies a Delay slider (Alt-E) to indicate the press-down delay before successive keys are ignored.

4.3.3. Configuring a Keyboard-Based Mouse

Use the Keyboard preference tool to configure the keyboard to simulate a mouse. To open the Keyboard preference tool, choose **System** → **Preferences** → **Keyboard**. The Mouse Keys options can be enabled by selecting the Mouse Keys tab.

"Allow to control the pointer using the keyboard" (Alt-A) - this determines if the keyboard can be used to control the mouse pointer.

Acceleration (Alt-C) - determines how quickly mouse motion will accelerate when keyboard directional keys are pressed.

Speed (Alt-S) - determines how quickly the mouse pointer will move when keyboard directional keys are pressed.

Delay (Alt-D) - determines how much (or if) keypresses may be dampened or ignored when keyboard directional keys are pressed.

4.3.4. MouseTweaks

MouseTweaks is a collection of accessibility enhancements for pointing devices. The `mousetweaks` package provides the functions offered by the **Accessibility** tab of the **Mouse** preference tool. It also contains two panel applets related to the mouse accessibility. More particularly:

- It allows users to perform a secondary click by doing a click-and-hold of the primary mouse button.
- It offers a way to perform the various clicks without using any hardware button. In this context, the Dwell Click panel applet can be used to choose what click type to perform.
- It provides the Pointer Capture panel applet. This applet creates an area on the panel into which the pointer can be captured until the user releases it with a predefined button and modifier combination.

Most mouse-related accessibility options can be found by using **System**—→**Preferences**—→**Mouse** and selecting the **Accessibility** tab. Two additional panel applets can optionally be added to the GNOME menu bar / system panel as well; see the sections below. The full manual can be viewed by selecting the **Help** item from the contextual menu of the Dwell Click applet.

4.3.4.1. Simulated Secondary Click

A secondary or right-click can be issued by using the primary button and keeping it held down for a specified delay.

4.3.4.2. Dwell Click

A click can be issued by having the mouse pointer dwell in a given spot for a specified delay. In this mode, the click-type is determined by the **ClickType** window, Dwell Click applet, or by the direction in which the user moves the mouse after the dwell time has elapsed. The click-type can be single, double, drag or right.

The Dwell Click panel applet can be installed by right-clicking the GNOME Desktop menu bar / system panel, selecting **Add to Panel**, choosing Dwell Click and clicking the **Add** button.

4.3.4.3. Pointer Capture

The mouse pointer can be locked into an area of the screen so the pointing device is free for other tasks. For example, this capability allows a powerchair user to control both the powerchair and the mouse pointer with a single powerchair joystick.

The Pointer Capture panel applet creates such an area on the panel, into which the user can lock the pointer until released in a determined way.

The Pointer Capture panel applet can be installed by right-clicking the GNOME Desktop menu bar / system panel, selecting **Add to Panel**, choosing **Pointer Capture** and clicking the **Add** button.

Preferences may be set by choosing **Preferences** in the context menu of the Pointer Capture applet:

In the **Capture Pointer** section, the user can specify under what circumstances the pointer gets captured when it moves into the capture area. For example, if the **Ctrl** modifier key is checked, the pointer gets captured when it is over the capture area and the user presses the **Ctrl** modifier key. If no modifier is checked and the mouse button is set to 0, the pointer only has to move into the capture area to get locked. It is also possible to specify a combination of modifiers and mouse button.

In the **Release Pointer** section, the user can specify what modifier or mouse button releases the pointer. It is also possible to specify a combination of modifiers and mouse button.

In the **Size of Capture Area** section, the user can specify the width of the capture area on the GNOME panel.

4.3.5. Dasher

Dasher is an information-efficient text-entry interface, driven by natural continuous pointing gestures. Dasher is a competitive text-entry system wherever a full-size keyboard cannot be used - for example on a palmtop or wearable computer, or when operating any computer one-handed (by joystick, touchscreen or mouse) or zero-handed (eg, by head-mouse or eye-tracker).

1. Choose **Applications**→**Accessories**→**Terminal**.
2. Enter: `sudo apt-get install dasher`
3. Enter: `dasher`

Dasher may also be installed from the **Applications**→**Add/Remove** dialog. In either case, it may later be launched in these ways:

- Press **Alt-F2** or **Meta-R** for the *Run* dialog, type `dasher` and press **Enter**.
- Choose **Applications**→**Accessories**→**Terminal** and execute `dasher`.
- Press **Alt-F1** and select **Applications**→**Universal Access**→**Dasher**.