

VR CARDINAL LE



GUIDE BOOK

User Guide

About VICTOR READER (VR) CARDINAL

APH is proud to introduce VR CARDINAL, the powerful digital GPS and talking book player. VR CARDINAL is designed as an innovative orientation aid and an advanced high performance DAISY, MP3, and NISO player for students, professionals, or on-the-go people who have extensive reading needs. It allows you to transfer content from your PC to its removable flash memory card and provides advanced navigation of multiple formats including DAISY, MP3, NISO and electronic text. The VR CARDINAL will be referred to as the Cardinal throughout this User guide to shorten the text.

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1 Overview of VR CARDINAL

1.1 Unpacking the Player

The package contains the following items:

- VR Cardinal device
- USB cable
- Power adaptor
- Belt clip and lanyard
- Small USB cable for support of thumb drives or cartridges
- Headphones
- Weather resistant carrying case
- Getting started sheet

1.2 Physical Description of VR CARDINAL

1.2.1 Front Face of the Player

The face of the player can be divided into upper and lower sections:

- In the upper section are 5 rows of 3 keys each. The top left key is the **Go To Page** key to allow you to go directly to a desired page or heading number, or selecting a landmark in orientation mode. Above the **Go To Page** key is a very small hole. This is the built-in mono microphone. To the right of the **Go To Page** key is the circular shaped **Online** button for turning on and off the Airplane Mode (Wi-Fi) and switching between the player's standard bookcase, online bookcase, and orientation mode. At the 2 o'clock position of this **Online** button is a LED which glows amber when the player's Wi-Fi feature is turned on. The LED blinks when actively trying to connect to a network. The LED is turned off when the airplane mode is turned on and when the Cardinal has no network configuration. To the right of the **Online** button is the **Bookmark** key for setting and returning to marked passages. The **Bookmark** key also allows you to toggle text input mode when typing, and is also used for recording new landmarks and routes in orientation mode. Rows 2 through 5 comprise a 12-key telephone-style numeric key pad with two raised dots on the number **5** key and arrows on the 2, 8, 4, and 6 keys. This numeric key pad is used to move through the structure of a book as well as enter bookmark, page, or heading numbers.
- Below the number pad is a raised horizontal line that separates the upper and lower sections. The lower section contains 4 keys. The **Play/Stop** key is located at the bottom of the player between the **Rewind** and **Fast Forward** keys. Above the **Play/Stop** key is the **Sleep** key. Press this **Sleep** key once to announce the time and date. Press it multiple times to activate different Sleep timers after which the player will automatically shut off.

1.2.2 Left Side of the Player

On the left side of the player, near the top corner, is the **Power/Toggle** button. Press and hold this button to power on and off the player. Below the Power button is a green LED indicator. This LED glows steady when the Cardinal is powered on. When the player is on, you press this same **Power** button to toggle the volume, speed and tone/pitch settings. Below the **green LED** are two triangular buttons. These are the **Up** and **Down** buttons used to increase or decrease the respective volume, speed or tone/pitch selected with the toggle button. These settings are saved between sessions. For your convenience, separate volume settings are saved for the built-in speaker and headphones. You can raise volume at higher levels when in orientation mode.

1.2.3 Right Side of the Player

On the right side of the player, near the top corner is the **Record** button which has a red circle painted on it with a raised dot in the middle.

1.2.4 Top Edge of the Player

The top edge consists of the SD memory card slot and just under it is the speaker outlet. To the right of the SD slot is the microphone and headphone connector, which can also be used to connect to external speakers. Note: Connecting only a microphone to your Cardinal will prevent all messages from being heard. It is recommended to use a headphone/microphone headset for recording to receive full feedback.

1.2.5 Bottom Edge of the Player

In the centre of the bottom edge is the micro USB port. It has a small raised dot below it. Use this port to access content on USB flash storage devices using the included short USB cable. You may also plug the included long USB cable to this port and the other end to a computer USB port in order to transfer content between the computer and the player. While connected to the computer the battery will also recharge. Charging from the computer USB may be slower or the player may not charge at all depending on the amount of power supplied by the computer. The most effective way to recharge is to use the long USB cable connected to the included power adapter to recharge the player from the power mains. Note: If you wish, you may safely use any other commercial USB charger without damaging your Cardinal. However, other chargers may take longer to charge the Cardinal. APH recommends a 1 amp USB charger.

1.2.6 Back side of the Player (Battery Compartment)

The battery compartment is located in the back of the player. To remove the battery, first power off the player and unplug it from AC power. Then, remove the silicone case from the player. Use your finger to push up the small latch pin located at the top of the battery door and then lift the battery off the player.

To replace the battery: The bottom edge of the battery has connector pins. Insert the bottom edge first, and press gently on the top edge to snap in place.

The battery is designed to fit in only the correct orientation. If you feel any resistance it is likely you have the battery upside down.

The fully charged battery will provide up to 15 hours playtime on headphones. However, battery playtime may be reduced in the following cases:

- If the battery is charged for less than 5 hours.
- When the player is used in online or orientation mode.
- Extensive use of book navigation commands.
- High volume level or High Speed playback.
- After about 400 recharge cycles the ability for the battery to hold a charge will start to diminish.

1.2.7 Recharging Battery

The battery will automatically recharge if needed whenever the player is plugged to AC power or a computer. When the player is powered Off and plugged in, you will feel a double vibration if the battery is recharging. The player can also be used while recharging. To obtain battery and recharge status, press and hold the **Confirm** key. You can also obtain the battery and recharge status when you press the **INFO** key (key **0**). A full recharge takes up to 5 hours on AC power. Computers supply different levels of power or perhaps no power at all on their USB ports depending on the computer and its configuration. Therefore, when recharging from a computer USB, the Cardinal will likely take longer to recharge, or possibly not recharge at all, depending on the USB power supplied by the computer.

You may safely use a micro USB AC adapter other than the supplied power adapter. APH recommends a 1 amp USB power adapter. Adapters with less power will likely require more than 5 hours to fully recharge the battery.

When the player is operating on battery and left in pause mode for more than 30 minutes, it will shut Off automatically to save the battery unless you are in Orientation mode and the device has moved within the last 30 minutes.

Important: It is normal for the battery to become warm during recharging. Therefore, it is recommended not to charge the battery with the player near a heat source or within the optional leather carrying case.

Note: The player's model and serial number can be found in the battery compartment. This same information can also be obtained by pressing **INFO** (key **0**).

1.2.8 NLS Book Cartridge (United States only)

Your Cardinal can play the special book cartridges supplied by the National Library Service for the Blind and Physically Handicapped (NLS) in the United States providing you are eligible to receive NLS books and your Cardinal has been authorized to play them. Please contact your local library for more information on NLS service eligibility. The book cartridge is a USB flash device and can be played on your Cardinal by connecting it to the micro USB port on the bottom edge of the player using the included short USB cable.

1.2.9 Copying Books from USB Devices or NLS cartridges

You may copy DAISY or MP3 books from a USB flash device to the Cardinal's SD card. You may also copy books from a book cartridge used by the NLS in the United States. Connect the USB flash device or NLS cartridge to the Cardinal using the short USB cable. To copy, press key **3** while the book is playing or stopped. The progress of the copy operation will be announced regularly until the copy is completed. This copying process can be cancelled at any time by pressing the **Star** key. If any special character (\, /, :, *, <, >, |, .) is in the book title, it will be replaced by "_". You can play or copy USB flash media only when the Cardinal is operating on battery power, because the USB port cannot be connected to a power outlet and the flash media at the same time, so be sure your battery has a good charge before copying the USB book.

1.3 Power Button

1.3.1 Turning the Player On and Off

To turn the player On, press and hold the **Power** key, which is located on the left side of the player, near the top corner. You will feel a vibration and hear a welcome message.

To turn the player Off, press and hold the **Power** key again. You will hear two beeps and feel 2 vibrations indicating the player is powering Off. You must wait about 30 seconds before you can again power on the Cardinal.

1.3.2 Player Reset Using Power Button

If the Cardinal does not respond to any key presses including power off, hold down the **Power** button for 7 seconds to force a player reset.

1.4 Inserting or Removing the SD Card

To insert and remove the SD card follow these steps:

- Hold the player facing you. The SD card slot is on the top edge of the player.
- One corner of the SD card is cut at a 45 degree angle.

This cut corner should be at the bottom left when you insert the card into the player slot. If the card is not oriented properly it will resist insertion. The card has a small write-lock tab on its right edge. This tab should be in the down position if you plan to write or erase information on the card such as recording or deleting books. If you only listen to books, the tab can be put in the up position to write protect the SD card.

- Gently push the card down into the slot until it clicks into place. Do not use excessive force. Only slight pressure is required to lock the SD card into place.
- To remove the card, push down on the top edge to release it. Then pull it out.

1.4.1 SD Card Voice Label

Attaching print or Braille labels to SD cards is not possible as it can damage the Cardinal. To help you identify SD cards, the Cardinal supports an optional voice label. The label is stored in a reserved text file named \$VRLabel.txt saved on the root of the SD card. You may use Windows Notepad to create the file. Whenever you insert the card or turn on the Cardinal, it will look for this label file. If found, Cardinal will announce its contents. The label cannot exceed 50 characters. Cardinal will ignore any characters after the first 50 in the label file. This label file is optional. If you do not require an auto-announcing label for your SD card there is no need to set it up. This label has nothing to do with the label that you see when viewing the SD card Properties in Windows.

1.5 Memory Card Detection

When playing the contents of an SD card and when it is removed from the player, the player will switch to the first book on the USB source (if any) or enter the key describer mode.

If the player is powered on with both an SD card and USB source present, the system will scan the SD card first and will select the last book played. If the last book read is not present, it will select the first available book present on the SD card. If no books are found on the SD card, then the system will scan for books on the USB source.

1.6 Bookshelf Structure

The Cardinal recognizes various book types which are saved in separate folder structures called Bookshelves. You select the Bookshelf you want to read from with multiple presses of the Bookshelf (1) key. You move backward and forward along each Bookshelf using the 4 and 6 keys. The Bookshelf list is circular. Except for the Notes bookshelf, only the non-empty bookshelves will be announced. On the SD or USB source each Bookshelf is stored within a reserved folder name beginning with "\$VR." Within each of these reserved folders (Bookshelves) there may be user defined subfolders containing separate books or categories of files. You may put other folders and files on the SD card but it is only the contents of the \$VR reserved folders that define the Cardinal bookshelves. When you insert a card that is not write-protected, Cardinal will automatically create the \$VR reserved folders.

The Bookshelf structure and usage are defined as follows:

Bookshelf: DAISY Talking Books (\$VRDTB folder).

Book types: DAISY 2.x, NISO Z39.86 (DAISY 3), NIMAS 1.1, unprotected EPUB

Usage: The files comprising each of your DTB books should be saved in separate subfolders under this folder. Single book files such as EPUB files may be saved in the root of this folder. Use the 2 / 8 keys to select folder or book navigation level and keys 4 / 6 to navigate at the chosen level. Press **PLAY** to select the book. In this bookshelf the current reading position and bookmarks are saved separately for each book.

Bookshelf: Other Books (\$VROtherBooks folder).

Book types: Non-DAISY, non-NISO recorded books composed of any of the Cardinal's supported audio file types.

Usage: The files comprising each book should be saved in separate subfolders under this folder. Folders may be nested. Optionally, single-file books may be directly placed in the root of this folder. Use the 2 / 8 keys to select folder or book navigation level and keys 4 / 6 to navigate at the chosen level. Press **PLAY** to select the book. In this bookshelf the current reading position and bookmarks are saved separately for each book. Playback stops at the end of the last file of each book.

Bookshelf: Audible books (\$VRAudible folder)

Book types: Enhanced Audio (.aax)

Usage: The files comprising each book should be saved in this reserved folder. Subfolders must not be used. Use the **4 / 6** keys to move between books, and press **PLAY** to select the book. In this bookshelf, the current reading position and bookmarks are saved separately for each book. Playback stops at the end of the last file of each book. The Audible bookshelf will only be created when you activate your Cardinal for Audible books.

Bookshelf: Music (\$VRMusic folder).

Book types: Playlists (M3U type only) and recorded files composed of any of the Cardinal's supported audio file types.

Usage: A music book is either a playlist or the entire music structure (referred to as All Music book). The current reading position and bookmarks are saved separately for each book. You navigate between music books using the **4** and **6** keys on the bookshelf. The All Music book consists of nested folders containing audio files. For example, the structure could be genre, artist, album, and tracks. Navigate the All Music book using **2 / 8** keys to choose folder or file navigation level and then move within that level using **4 / 6** keys. Playback continues from the last file of one folder to the first file of the next folder. Random Off, Random On, Loop Folder, and Loop Single modes (set by pressing **9**) apply only to the Music books.

Bookshelf: Saved Podcasts (\$VRPodcasts)

Book types: Any of the Cardinal's supported audio file types.

Usage: Each saved podcast file is defined as a separate book meaning you must move from file to file using the **4 / 6** keys while in the Bookshelf. Files may be in subfolders in which case you use keys **2 / 8** to select folder or book navigation level. Reading position and bookmarks are saved separately for each book (file). Playback stops at the end of each book (file).

Bookshelf: Text (\$VRText folder).

Book types: Text files (bra, brf, DOCX, fb2, html, rtf, SES3, txt, xml)

Usage: Each text file is defined as a separate book meaning you must move from file to file using the **4 / 6** keys while in the Bookshelf. Files may be in subfolders in which case you use keys **2 / 8** to select folder or book navigation level. Reading position and bookmarks are saved separately for each book (file). Playback stops at the end of each book (file). Note: If your braille file (.brf) is not playing correctly, check that you have selected the correct braille translation table in the configuration menu (Key **7**).

Bookshelf: Notes (\$VRNotes folder)

Book types: Recorded voice notes of MP3 or WAV file type

Usage: This is a single list of files recorded by the Cardinal where each file is given an incremental number for each separate recording. The list of notes is defined as a single book meaning there is only one current reading position and set of bookmarks for all the notes.

Bookshelf: Radio Recordings (\$VRInternetRadio)

Book types: Recorded Internet radio tracks in mp3 or wav format

Usage: Each saved radio recording is defined as a separate book, meaning you must move from file to file using the **4 / 6** keys while in the bookshelf. Press **Play/Stop** to play the selected recording.

Note: Folder names are shown in mixed case for readability but Cardinal does not require mixed case.

1.7 Other Reserved File Names

The Cardinal may create other file names beginning with "\$VR" on the SD card. Removing or altering these files could result in unpredictable behavior.

1.8 Transferring Files Between Your Computer and Cardinal

To connect Cardinal to your computer for transferring files, turn the Cardinal's power off, connect the small end of the long USB cable to the micro-USB port on the bottom edge of the Cardinal and the other end to your computer's USB port. Then, turn the Cardinal back On. Windows will recognize the Cardinal SD's card as a USB drive and you can then use Windows Explorer to transfer files back and forth. Cardinal will also recharge while connected although the recharge time could be longer than recharging from AC power because the power supplied by the computer USB port may be less than from AC power. If you have an SD card reader on your computer, you may find it easier to transfer files using the computer's SD card reader than using the USB cable with the Cardinal.

The Cardinal must remain powered on while connected to the computer. Before removing the SD card or disconnecting the Cardinal, be sure to use the Safely Remove Hardware function on the Windows System Tray.

1.9 Using Cardinal While Connected to the Computer

You may also connect the Cardinal to your computer to recharge the battery while continuing to use its player functions. To do this, first power on the Cardinal, then connect the small end of the long USB cable to the micro-USB port on the bottom edge of the Cardinal and the other end to your computer's USB port. Most computer USB ports will provide power to recharge the battery and you may continue to use the player. In this case, the computer will not recognize the Cardinal as a USB mass storage drive, so you will not be able to transfer files. You may disconnect the Cardinal at any time. The recharge will likely take longer than using the USB power adapter depending on how much power your computer provides.

2 Basic Functions

2.1 Changing Volume, Speed, Tone/Pitch

When the Cardinal is on, press the **Power** button on the top left side multiple times to toggle volume, speed, or tone/pitch settings. After 10 seconds of non-use, the toggle control will return to Volume. Use the **up / down** arrows on the left side just below the **Power** button to raise or lower the selected setting. There is a beep to mark the upper and lower range of each control. If the book is not playing, CARDINAL will announce the setting position. For tone/pitch and speed there is also a beep to mark the normal or 0 position. This indicates a flat tone setting, a normal pitch or normal speed setting.

If preferred, you can configure the Tone control so that it varies the audio pitch instead for playing audio that is not on the music bookshelf. Some people benefit more from a change in the pitch of recorded audio than a change in the tone. To vary the pitch instead of the tone, press key 7 to open the Playback and Navigation Menu. Then use the down arrow to find Audio Adjustment mode and use the right or left arrow to select Pitch. Press the **Confirm** key to the right of key 0 to confirm your selection and press the Star key to the left of key 0 to exit the Menu.

2.1.1 Different Speed settings for TTS and Audio playback

The Cardinal will remember separate Speed settings for each of text-to-speech and audio playback. You can change the speed of one without affecting the other. The same will apply to all books using Text-to-Speech. Music files are not affected by your speed setting, because their speed is always set to normal by default.

2.2 Changing Bass and Treble (Music Bookshelf)

For the Music bookshelf, the Tone setting is replaced with Bass and Treble controls. Press the **Power** button multiple times to toggle between Volume, Speed, Bass, and Treble. To alter the lower frequencies select the Bass control and either add bass by setting the control to a positive value or remove bass by selecting a setting below zero. Similarly, you can add or remove treble. Adding or removing bass will not alter the treble and vice versa. To hear the music unaltered, set the bass and treble controls to their 0 setting.

2.3 Play/Stop

To start playing a book, press the **Play/Stop** key.

To stop playing a book, press the **Play/Stop** key again.

NOTE: Instead of the **Confirm** key, you can also press **Play/Stop** to jump to an entered page or heading number. If you end your numeric entry with **Play/Stop** then playback will start at the specified page or heading number.

2.4 Rewind and Fast Forward

These keys allow you to go backward or forward quickly.

Press and hold the **Rewind** or **Fast Forward** key until you reach the desired position, the movement of the **Rewind** or **Fast Forward** keys will accelerate the longer you hold the key down. For each three seconds you hold the keys you will move forward or backward 1 minute, 2 minutes, 5 minutes, 10 minutes, 15 minutes and so on. The largest jump is 5 minutes. Between each three second jump, Cardinal will announce the time jump and play a normal speed clip. With certain book formats, time jumps will be represented in percentage.

If you simply press and release **Fast Forward** or **Rewind** instead of holding it down, playback will jump forward or backward by 5 seconds.

2.5 Sleep Mode and Time announcement

The **Sleep** button allows you to obtain time announcements and set the Sleep Timer.

Press once to hear the time and date. You can configure the way the time and date is announced by pressing and holding the **Sleep** key.

Press multiple times to set a Sleep timer of 15 minutes, 30 minutes, 45 minutes, 60 minutes, or custom, after which the Cardinal will automatically shut off. The Custom option lets you enter the desired number of minutes using the number pad. End your entry with **Confirm** or **Play**.

To deactivate the Sleep function, press **Sleep** repeatedly until you reach the OFF option.

One minute before the timer powers off the player, you will hear a message informing you that 1 minute of Sleep remains. When the timer expires, the player announces that it is powering off. If desired, you may turn off these warning messages in the Playback and Navigation section of the configuration Menu (key **7**).

2.6 Setting the Date and Time

To set the date and time, press and hold the **Sleep** key. Use the **2 (Up)** and **8 (Down)** keys to navigate the menu. Date and time menu items are as follows: Set Time, Set Date and Set Advanced Time Settings. When on the menu item of your choice, press **6**, or **Confirm** to enter that given menu. This menu will have various submenu items. Enter the correct value for each submenu using the numeric keys. Press **Confirm** to move to the next submenu item or press **Star** to return to the menu. If an invalid entry is made, you will be asked to enter a new value. When you reach the last submenu, press **Confirm** to confirm your settings and return to the date and time configuration menu.

You can exit the Date and Time menu system at any point by pressing the **Sleep** key.

List of menus and submenus

Set Time: Hour, AM/PM (if on 12h format), Minutes

Set Date: Year, Month, Day

Advanced Time Settings: Time Format (12h, 24h), Date Format (Day/Month/Year, Month/Day/Year, Year/Month/Day), Daylight Saving Time (Standard time, Daylight Saving time), Time and date announcements (Announce both Time and Date, No Time and Date announcement, Announce Time only), Automatic time adjustment (On, Off – Your Cardinal must be connected to a Wi-Fi network or GPS must be turned on for this option to work)

The advanced time settings are modified by using the up/down navigation arrows (keys **2** and **8**).

The daylight saving setting is a quick way to manually adjust your clock forward or back one hour. You can manually select Standard Time or Daylight Saving Time in the Advanced Time Setting submenu.

Note: This setting alone does not make the player automatically change the time at the predetermined date twice a year.

Example:

If you wish to modify the current month:

Press and hold **Sleep** key until you hear the menu prompt.

Press **8** once to reach the **Set Date** menu.

Press **Confirm** twice to reach the **Month** submenu.

Enter the month (i.e. 1 to 12) using numeric keys.

Press **Confirm** to move to the next submenu (day).

If you do not wish to modify the day, press **Confirm** again to reach the end of the Set Date menu, at which point any settings entered in the Set Date menu will be saved. Press the **Sleep** button once to exit the Time and Date settings menu.

2.7 Key Describer Mode

Press and hold the **Info (0)** key to access the *Key Describer Mode*. Press and hold the **Info** key again to exit the *Key Describer Mode*.

While in *Key Describer mode* you may press any key to hear its function.

3 Numeric Key Functions

3.1 Numeric Key pad List

- 1: Bookshelf if pressed, User Guide if pressed and held
- 2: Navigation element
- 3: Delete / Copy / Move or edit landmark or route in orientation mode
- 4: Back
- 5: Where am I
- 6: Forward
- 7: Menu, Text-to-Speech voice Toggle if pressed and held
- 8: Navigation Element
- 9: Text-to-Speech / Recorded audio modes toggle / Random and Loop modes toggle (Music), Backtrack in orientation mode
- Star: Cancel if pressed, Key pad Lock if pressed and held, explore mode when using GPS
- 0: Info if pressed, Key Descriptor Mode if pressed and held
- Pound: Confirm, battery level if press and held

3.2 Navigation Keys

Cardinal allows you to navigate by chapter, section, page, time jump, paragraph, or any other existing indexed element defined by the producer of the book.

Use the **2** and **8** keys to choose a navigation level. These differ from book to book but typically level 1 means chapter, level 2 means section, and level 3 means sub-section and so on. The page element may not be present on all books. The phrase level is usually the smallest navigation element but this is defined by the book producer. Cardinal limits phrase jumps to a maximum length of 1 minute. First, choose a navigation level (chapter, page, etc.), using the **2** and **8** keys. Then use the **4** and **6** keys to move backward and forward between elements at the selected level. The **2** and **8** keys will announce only the levels available for the book. The phrase level is always provided for DAISY books but its extent depends on the book producer. You can choose to save the last used navigation level for each book from the Navigation and Playback configuration menu.

3.2.1 Undo navigation

Pressing the **Star** key within 10 seconds of any single move backwards or forwards using keys **4** or **6** or single go to page move will undo the operation and return you to your previous position. The Undo function does not apply to the **Rewind** or **Fast Forward** buttons.

3.3 Time Jump Navigation Mode

Time Jump navigation can be selected using the **2** and **8** keys.

Press the key **4** to move backward or the key **6** to move forward by the jump interval.

You can choose to turn on or off any or all of the time intervals (30 seconds, 1, 5, 10 or 30 minutes) in the Navigation and Playback section of the configuration Menu (key **7**). Only the time jump intervals you turned on will appear in the up and down navigation menu.

3.4 Text-to-Speech Navigation Elements

When Cardinal is in Text-to-speech mode, there will be additional text navigation levels added to the **2 / 8 (up / down)** key rotation. These include the text elements: screen, paragraph, line, sentence, word, spell and character. If you do a search in a text then a Search level is added to allow search of the next or previous search term. Screen and line elements are defined arbitrarily as 25 lines per screen and a maximum of 80 characters per line. As with other navigation levels,

you move between elements of the selected level using the **4 / 6 (left / right)** keys. The Screen element will only be available when no pages are defined in the book.

3.5 Spell Mode for Text Content

Spell mode can be selected using the **2** and **8** keys. The Spell mode can be found between the Word and character navigation levels. Use keys **4** and **6** to move word by word. Cardinal will announce the word and spell it. Capital letters are indicated and that words will be spelled at normal speed, regardless of TTS speed setting.

3.6 Skippable elements

For DAISY 2.02 books, Cardinal supports the following skippable elements: Footnote, Page number, Production note and Sidebar. Such elements are only skippable if the book producer has marked them as skippable.

Skippable element can be set as Play, Skip or On Demand, see the Configuration Menu (key 7) for details. When a skippable element is encountered during playback, Cardinal behaves as follows:

Play: The element is always played.

Skip: The element is never played.

On Demand: The element is not played but added to the recall list and the element's name is announced. The On Demand option is not available for *page* and *line number elements*.

3.6.1 Recall skippable elements

On Demand skippable elements can be recalled with the **Confirm** key.

Cardinal remembers up to 5 skipped On Demand elements. The last added element will be the first to be recalled. Pressing the **Confirm** key multiple times will recall the prior element in the list. When an element is recalled, the name of the element is played and playback starts at the beginning of the element. When the end of the element is reached, the message "*Return to text*" is played and the book position will return to where it was when the **Confirm** key was pressed.

During the playback of a recalled element, the user may press the **Star** key to quit playing the recalled element and return to the main text of the book.

3.7 Bookshelf Navigation — Key 1

Press the **Bookshelf (1)** key multiple times to rotate through the circular list of Bookshelves. With the exception of Notes, empty bookshelves will not be announced. Bookshelves contain different types of books and files as defined in the section Bookshelf Structure. Move backward and forward along a Bookshelf using the **4** and **6** keys. Press the **Go To** key (above key **1**) to enter a relative book number. End the book number entry with the **Confirm** key to move to the entered book number and remain on the bookshelf. When you reach the desired book, press **Play** to have the Cardinal start to play from where you left off in the selected book.

3.7.1 Online Bookshelf Navigation

The Cardinal contains two bookcases, standard and online, each containing multiple bookshelves. Toggle between the standard bookcase, the online bookcases, and Orientation mode using the **Online** button above key **2**. The online bookshelves have the same structure as the standard bookshelves; use the **Bookshelf (1)** key multiple times to rotate through them, and the **4** and **6** keys to move backward and forward along them.

3.7.2 Multi-Level Bookshelf Navigation

Optionally, you can create a multi-level folder structure for the Talking books, Other Books, Saved Podcasts, and Text File bookshelves. Instead of only cycling through books one at a time with keys

4 and **6**, you can choose the level of navigation with the UP and DOWN keys **2** and **8**. Then, when pressing keys **4** or **6**, you will move from folder to folder at the chosen level in a circular fashion. When you arrive at the folder of interest, press keys **2** or **8** again to select the book level within that folder and proceed to select the desired book. Navigating at the book level will also move from folder to folder. The Cardinal will navigate up to 8 levels of folders under the \$VR folder. If you have more than 8 levels, the additional levels will be recognized by the Cardinal as level 8. If you also put files in the root of the \$VR folder, those files will only be listed at the Book level of the 2/8 rotation.

Note: Multi-level bookshelves are not mandatory. If you choose not to organize books at multiple subfolder levels, you can just browse the bookshelf with keys **4** and **6** to navigate at the Book level.

3.8 User Guide — Key 1 (Press and hold)

You can access the built-in user guide at any time by pressing and holding key **1**. Press and hold key **1** again to exit. The built-in user guide is in DAISY format, so it can easily be navigated by heading and section levels.

3.9 Manage Books — Key 3

When browsing bookshelves or from a book, you can manage your books by rotating between the following actions with key **3**: Delete, Copy, Copy All, or Move. The actions that are available for each book depend on the type and location of the book. There are exceptions, but the basic rules are:

- Books located on the SD card can be deleted.
- Books located on USB can be copied (single or multi).
- Books located on the Online Bookshelf can be moved or deleted.

While Browsing or playing the files in the All Music book, you can press key **3** to delete a single file. Press the **Confirm** key to confirm deletion or any other key to cancel. To delete a folder, navigate back to the folder's level. Press key **3** to delete the folder and the **Confirm** key to confirm deletion or any other key to cancel. You may not however delete a file from a playlist.

While browsing the Notes book you can press key **3** to delete a single Note file. Press the **Confirm** key to delete the selected item and the Cardinal will ask you to confirm. Press **Confirm** again to delete or any other key to cancel deletion. You can consolidate your notes by pressing key **3** twice. Consolidating your notes will number them from 1 to the number of notes you have. Press the **Confirm** key to consolidate your notes, and press the **Confirm** key again to confirm or any other key to cancel.

3.10 Playing and Copying Books from USB Flash Drives

You may create the \$VR bookshelf folders on an external USB flash drive and store books in the folders in which case they will be added to the Cardinal bookshelf list for playback. You may also copy DAISY and NISO as well as MP3 books from an external USB flash drive to the SD card. To do so, attach the USB flash drive to the Cardinal using the short USB cable provided with your Cardinal. Navigate to the USB book. Once the book is open, press key **3** to start the copying process. The percentage progress of the copy will be announced. The copying process can be cancelled at any time by pressing the **Star** key. You can play or copy USB flash media only when the Cardinal is operating on battery power because the USB port cannot be connected to a power outlet and the flash media at the same time so be sure your battery has a good charge before copying the USB book.

3.11 Where am I? — Key 5

The **Where am I** key will announce your reading position without interrupting the reading process. Depending on the book type, Cardinal will announce one or more of the page and heading numbers, section title, or file name. For Music, it will announce current folder and file names and the file times. For Talking books, Other Books, Audible, Saved Podcasts and Notes it will announce the percentage of the book or note played as well as individual file times. For text files, it will announce the percentage of the file played. Reading will resume once this information has been announced. For talking books, the time remaining in the section will also be announced. For most books, this translates as the time remaining in the current chapter. Note that time information is not always available.

3.11.1 Where am I tag information

For mp3 and mp4 files, if you press **Where am I** (key 5) twice, the Cardinal will announce ID3 tags data. While listening to an Internet Radio station, pressing **Where am I** (key 5) once will announce the song or Cardinal title if available. Pressing **Where am I** (key 5) twice will announce additional information about the station if available, such as its Name, Genre, URL, Publicity, Content type, and Bitrate. If you don't want to hear all the tags, press **Play** to interrupt and resume playback.

3.11.2 Where am I for Audible books

For Audible books, if you press **Where am I** (key 5) twice, the Cardinal will announce additional information about the book. If you don't want to hear the information press **Play** to interrupt announcement and return to playback.

3.11.3 Where am I for online books

While reviewing the list of results after doing an online book search press **Where am I** (key 5) to hear additional information about the book such as the book synopsis.

3.12 Multi-Voice Text to Speech (TTS)

The English versions of Cardinal have two text-to-speech voices and the non-English versions have an English and local language voice. You can toggle from one voice to another by pressing and holding key 7.

3.13 Audio, Text, and Random Music Playback Modes — Key 9

There are two types of Playback modes available: Recorded audio and Text-To-Speech (TTS). For DAISY or NISO books with full text/full audio, use the 9 key to switch back and forth between the recorded audio and the same position in the equivalent electronic text. The synchronization depends on the book producer but typically text and audio are synchronized to the paragraph or sentence element.

The last used playback mode is saved between reading sessions. Only the modes available for the selected book will be available for selection with the 9 key. If the book is only recorded or only text then the appropriate mode is automatically selected and the 9 key has no choices available.

When playing Music you can press key 9 to toggle between the following playback modes: Random Off, Random On, Loop Folder, and Loop Single. Random On will randomize your playlist elements, while Loop folder will automatically start playback from the beginning of the current folder when the end of the folder is reached. Loop Single will automatically start playback from the beginning of the current file when the end of the file is reached. Note that the Loop Folder and Loop Single modes have priority over the Loop settings in the configuration menu.

3.14 Confirm, Lock and Cancel — Pound and Star keys

The **Pound (Confirm)** key allows you to confirm an operation or end a numeric entry such as a page number or a text entry such as a text search item. Press and hold **Confirm** to announce battery and recharge status.

The **Star** key allows you to cancel an operation. If you press and hold the **Star** key it will also lock the key pad. To unlock, press keys **1**, **2**, and **3** in sequence. There is one exception to the keyboard locking and it is the hard reset. This will always be available so although holding down the **Power** key for 2 seconds will not power down the player, keeping the key held for the required hard reset time of 7 seconds will still perform a hard reset.

3.15 Info — Key 0

The **Info (0)** key announces book, player, and battery information. There are two ways to access the information.

Press the **Info (0)** key. All information items will be announced. Or press the **Info (0)** key and press key **4** or **6** to move backward or forward through the items. You can also press the **Info (0)** key repeatedly to move through each item.

To cancel the Info messages, press the **Star** or **Play** keys.

*You may also press and hold the **Info** key to enter and exit Key Describer Mode.*

While the information items are announced, the *Key Describer Mode* cannot be activated.

3.15.1 Available Information Items

Book title

Number of Notes (Notes bookshelf only)

Number of files and folders (Music Bookshelf only)

Number of pages and total time

Recording time remaining (Notes bookshelf only)

Total Headings in the book

Playtime elapsed and playtime remaining

Number of Bookmarks set in the book

Number of Books

SD space remaining

Internal memory space remaining

Battery status or, if the player is operating on AC power, the status of the battery recharge

Download Info

Wireless status

VR Cardinal model number, software version number, number of user authorization keys (if any), and player serial number.

Note: From the wireless configuration menu, the available information items are the playlist name, number of stations, current station name and number, song title (Internet radio), the book title, number of pages and headings, number of bookmarks set in the book, Number of books, SD space remaining, Internal memory space remaining, the Battery status, Download Info, the Wireless status, and the VR Cardinal model number, software version number, number of user authorization keys (if any), and player serial number.

4 Direct Navigation (Go To Key)

4.1 Go to Page

The *Go to Page* function allows you to go directly to a desired page.

Press the **Go to Page** key above key **1**. Enter a page number. Press **Confirm** to go to the selected Page, Cardinal will confirm the entered Page number. Or press the **Play/Stop** key to have Cardinal start playback from the chosen page.

To cancel, press the **Cancel (Star)** key.

4.2 Go to Heading

If you press the **Go to Page** key twice, it allows you to enter a heading number relative to the start of a DAISY or NISO book. This is useful for books that do not have page markers. For example, you could jump directly to a chapter by going to its heading number rather than advancing chapter by chapter.

End your heading number entry with **Confirm** to move to that heading or end with **Play** to move and start playback.

4.3 Go to Time

The Cardinal has a Go To Time feature for DAISY or NISO recorded books, Other Books, Saved Podcasts, and Audio Notes bookshelves. While in these bookshelves press the **Go To** key above key **1** until you hear, "Go To Time". Then enter a time in hours and minutes relative to the start of the book or audio note. The last 2 digits of the entry represent minutes and the other digits represent hours. The minutes can range from 00 to 99. For example:

- Enter 1 to position 1 minute from the start of the book or note
- Enter 12 to position 12 minutes from the start
- Enter 123 or 83 for 1 hour 23 minutes
- Enter 1200 for 12 hours and 0 minutes

4.4 Go To Percent

When reading files in the Text Bookshelf or audio files in the Other Books or Saved Podcast bookshelves, the **Go to Page** key will become a **Go To Percent** key for navigating to relative positions x% from the start of the file. Press **Go To Percent** and then enter a percentage from 0 to 100. Press **Confirm** to position to that relative position in the file or press **Play** to position and start playback at that relative position. For example, entering 0 will position to the start of the file, entering 50 will position to the middle of the file, and entering any number greater than 99 will position to the end of the file. For text files, Cardinal moves to the beginning of the paragraph that contains the position of the specified percentage.

4.5 Go to Beginning and End of Book

To quickly reach the beginning or end of a book you can press the Go to key above key **1** followed by **Rewind** or **Play** to go to the Beginning of the book, or press **the Go To key followed by Fast Forward** to jump to the end of the book.

4.6 Go to Book

If you are browsing the Bookshelf the **Go to Page** key becomes a **Go to Book** key allowing you to enter a relative book number on a given Bookshelf which is useful for Bookshelves that contain many books.

4.7 Functions for Online Services

Special functions are available on the **Go To** key when browsing the online bookshelves while connected to a wireless network. If the **Go To** key is pressed twice when browsing the NFB Newslines bookshelf it allows you to manually synchronize downloaded content with the NFB Newslines online service. When browsing the Bookshare or NLS BARD bookshelf pressing the **Go To** key twice will allow you to search for books using the online services. When browsing the Internet Radio bookshelf, pressing the **Go To** key will allow you to search for radio stations and go to playlist or go directly to a specific station while in a playlist in the same way as when moving between books. From the References bookshelf, the **Go To** key also allows you to search for Wikipedia and Wiktionary references from a book, or go directly to a specific file. From the Podcasts bookshelf, you can use the **Go To** key to add podcast feeds. For all online searches, the **Go To** key can be used to go directly to a specific search result by entering the search result number followed by **Confirm**.

5 Advanced Functions

5.1 Text Search

The Cardinal has a text search function for text books. Using the multi-tap text entry method on the number keys as you would to enter text on a telephone, you can type in your search item. If you have a multilingual Cardinal, the typing keypad will offer the characters of the currently selected text-to-speech language. Press and hold key **7** to switch from one text-to-speech language to the other.

The following describes how to perform a text search from a book in the Text Files bookshelf. This method can also be used to search DAISY or NISO books (e.g. Bookshare) found in the Talking Books or online bookshelves providing the book has text and the player is in text-to-speech mode (key **9**). DAISY or NISO books that are recorded only cannot be searched as they have no text.

Prior to searching in text for the first time, you should select your preferred method of typing on the Cardinal. There are two Multi-tap text entry methods: “Announce final character only” and “Announce character on each key press, then enter character after pause”. Select your desired method from the Multi-tap text entry method section of the configuration menu (key **7**).

Each button is listed with its letter or symbols in order of their appearance.

When entering your password, you may toggle between lowercase, uppercase, and numeric only with the **Bookmark** key.

1 Key: 1, period, comma, question mark, dash, forward slash, colon, semi colon, single quote, quotes, back slash, less than sign, greater than sign, opening bracket, closing bracket

2 Key: a, b, c, 2

3 Key: d, e, f, 3

4 Key: g, h, i, 4

5 Key: j, k, l, 5

6 Key: m, n, o, 6

7 Key: p, q, r, s, 7

8 Key: t, u, v, 8

9 Key: w, x, y, z, 9

0 Key: space, 0, exclamation mark, at sign, pound sign, dollar sign, percent sign, caret, ampersand, asterisk, opening parenthesis, closing parenthesis, underscore, plus sign, equal sign, Pound Sterling sign, euro, Yen sign

Follow these steps to use the search function:

- Open a text file from the Text Files bookshelf.
- Press the **Go To** key multiple times until you hear, “Search in text”.
- The Cardinal will announce the current word in the text. Press **Confirm** or **Play** to search for other occurrences of this word in the text.
- You can also add text to this word, delete single characters starting from the end of the word, or delete the whole word in one key press. Here’s how:
- To enter your text with both the “Announce character on each key press” and Announce final character only methods, press the number keys **0** to **9** to type the text. For example, key **2** is used for letters a, b, c, and 2. Key **3** has d, e, f, and 3. Key **6** has m, n, o, 6 and so on. The space character is on key **0**. Punctuation and special characters are on keys **0** and **1**. To enter a letter, press the number key associated to that letter the appropriate number of times.
- In the “Announce character on each key press, then enter character after pause” method, the Cardinal will announce the character as soon as the key is pressed, leaving enough

time to press again and select another character on the same key. After a short time, if no other key is pressed, the Cardinal will make a clicking noise, indicating that the character has been entered. You do not need to pause to type successive letters that are on different keys. Pressing another key enters the previous character automatically, and no clicking noise is made. This method allows you to find the letters on the numeric keypad more easily.

- When entering successive letters on the same key when using the “Announce final character only method,” you need to pause until Cardinal announces the letter. For example, to type the word, “cab”, you press key **2** three times, then pause until you hear, “c”, then press it once, pause until you hear, “a”, then press it twice to type the last letter, “b”. You do not need to pause to type successive letters that are on different keys. For example, to enter the word, “mama”, you can press 6 2 6 2 as quickly as you like.
- Both text entry methods allow you to use the **Bookmark** key to toggle between Text, upper case when applicable, and Numeric input types while entering your text to search.
- You may press the **Sleep** key to enter the Key Describer mode. Then press other keys to announce their function including announcing the characters for each number key. Press the **Sleep** key again to exit the Key Describer and return to Text Entry mode.
- To announce what you have typed, press the **Fast Forward** key.
- To erase the last character typed, press the **Rewind** key.
- To erase all the characters at once, press and hold the **Rewind** key until you hear a beep.
- When you finish typing, you can exit the text entry mode in 3 ways: Press **Cancel** to exit without searching, or press **Confirm** or **Play** to start the search. **Cancel** will not affect any previous search information.
- If you pressed the **Confirm** key, the Cardinal will position itself at the location of the found search item and announce the line. If you pressed the **Play** key, it will move to the found search item and start playing. The search is case insensitive. The search will find partial words in which case it will position at the start of the word containing the search text. Accented characters are not matched to non-accented characters or vice versa. A search always starts from the current position in a book.

If searching a large file, you may hear “Please Wait” while the search is in progress. If you press the **Cancel** key while searching, the search function is stopped, the current position remains at the original starting position.

5.1.1 Search Next or Previous

- Upon finding the search item, Cardinal will add a Search item to the navigation levels of keys **2** and **8** and select that level automatically. So, upon finding the first occurrence of your text, you can simply press keys **4** or **6** to find the previous or next occurrence. The previous or next Search function will remain on the **2/8** key rotation until you close the book. You can press key **4** or **6** to search for the previous or next item while in play or stop mode.
- If a search forward is performed and the end of the book is reached, the message “End of book” will be announced and the search then continues from the beginning of the book down to the original starting position of the search.
- If a search backward is performed and the beginning of the book is reached, the message “Beginning of book” will be announced and the search then continues from the end of the book up to the original starting position of the search.
- If no match is found, Cardinal will announce the search item was not found and return you to the original starting position.
- When you open a new book, the previous search item is cleared.

5.1.2 Other types of text search

Here’s a list of all search functions that use the multi-tap text entry method as described above.

- Text search in a text book.
- Search on Wikipedia and Wiktionary from either a text book or directly from the References bookshelf.

- Search for music files in the All Music and Music Playlists books.
- Search online services such as Internet Radio, Podcasts, NLS BARD and Bookshare.

5.2 Recording Audio Notes

You can use Cardinal for voice recordings which are called audio notes. These notes will be saved on the SD memory card in the \$VRNotes folder. Each recording is assigned an incremental numeric filename. You can record using either the built-in microphone or an external headset plugged into the audio connector located just above the record button. The built-in microphone is omni directional which is useful for recording meetings or lectures. The maximum length of a single Audio note is 8 hours or a file size of 2 GB. The number of Audio notes you can record is only limited by the space left on your SD memory card.

There are 2 recording volume adjustment modes which can be selected in the recording configuration menu: Fixed and Manual. See section 6.5.5 (Record Volume Adjustment) for more information on how to select and use the different recording volume adjustment modes.

There are two ways of recording notes. You can either use the quick-record feature or use the standard procedure.

To quick-record a note at any point, press and hold the **Record** button located on the right side of the player. A message and beep will be heard. Talk into the player's integrated microphone (located just above the Go To key) or into an external microphone. To end quick recording, release the **Record** button.

To record a long message, press the **Record** button located on the right side of the player to start the recording. To pause and restart recording, press the **Play/Stop** button. Press the **Bookmark** key during the recording to insert a bookmark. To end the recording, press the **Record** button again. While in recording mode, you may press the **Star** key to cancel the recording, and then press the Star key again to confirm that you really want to cancel the recording.

To listen to your audio notes use the Bookshelf (key **1**) to find the Notes bookshelf. Press **Confirm** to enter the Notes bookshelf. Then, use the **4** and **6** keys to move from note to note. There is only one level of notes so nested folder navigation is not possible. You may choose to record in MP3 or WAV file types using the configuration Menu key **7**. Press key **7** multiple times to reach the Recording menu and use the **2/8** keys to find the recording file type. Then use keys **4/6** to choose your desired file type.

Choosing the right recording file type, external source, and recording mode depends on the type of recording you want to do. MP3 files allow you to record more audio than WAV files because of their smaller size, but WAV files offer a higher recording quality. Microphone recording is generally used for voice notes and memos.

Some SD cards are too slow to allow continuous recording in wav format since the volume of data to write is much larger for this audio format. If, after a few seconds of recording in wav, you get a recording error message, there is a good chance your SD card is too slow for wav recording. Try using another SD card or change the recording format to MP3.

5.3 Bookmarks

Bookmarks allow you to return to a place quickly and easily. You can place a virtually unlimited number of bookmarks in the same book. The **Bookmark** key lets you insert and return to bookmarks, hear them listed or remove them.

5.3.1 Go to Bookmark

Press the **Bookmark** key (above key **3**) until you hear 'go to bookmark'. Enter the number of the bookmark you wish to go to. Press **Confirm**. Cardinal will go to the bookmark and announce its

number. Or, press the **Play/Stop** key. Cardinal will go to the requested bookmark and begin playback.

5.3.2 Insert Bookmark

Press the **Bookmark** key twice or until you hear 'insert bookmark'. You can also access this function by holding the **Bookmark** key down instead of pressing it twice. Enter the number from 1 to 99998 that you wish to assign to the Bookmark. Press **Confirm** to confirm, or the **Play/Stop** key to confirm and start playback. The bookmark will be stored in memory.

NOTE: If you confirm without entering a number, Cardinal will assign the first available bookmark number.

NOTE: If you enter 99999 as the bookmark number, an invalid entry message will be announced and the action will be cancelled, since this number is reserved to remove all bookmarks. See Remove Bookmark.

You may even insert a simple bookmark while recording a long audio note. This would be useful to mark an important comment made during a lecture or meeting that you are recording. To set a bookmark while recording, simply press the **Bookmark** key once. You cannot insert a bookmark during a quick recording (while holding down the **Record** key).

5.3.3 Insert audio Bookmark

To record an audio bookmark, do the following:

- a) Press the **Bookmark** key twice or until you hear 'insert bookmark'.
- b) Enter the number you wish to assign to the Bookmark. You may skip this step and a number will be assigned automatically.
- c) Invoke the quick recording mode by pressing and holding the **Record** key and recite a short message. Then release the **Record** key. Instead of the quick recording method, you may also use the standard recording method by pressing and releasing the Record key, say your message, then press the Record key again to end the recording. Whichever method you use; audio bookmark recordings are limited to 1 minute in length. If the one-minute limit is reached the recording is stopped and the bookmark is saved. To play back your audio bookmark, simply go to or browse to that bookmark. You will hear your recording and then playback will continue at the bookmarked position. Unlike audio notes, you cannot fast forward or rewind within your audio bookmark recording.
- d) To cancel, press the **Star** key. Cancel is not available while using Quick recording mode.

Audio bookmarks may be recorded during the playback of books or audio notes. The bookmark will be stored in memory and the associated recording will be stored on the SD card in a reserved folder named \$VRAudioBkm. You should not modify any files within this folder. The recorded files are linked to the simple bookmarks in internal memory. The recorded file name format is x_y_z.MP3 or x_y_z.wav where x is the first 13 characters of the book title text, y is an 8-character computer generated unique book identifier, and z is a 6 digit bookmark number. For bookmarks placed in MP3 files or audio notes there is no book title. In these cases, x will be "Other _____", "music _____", or "AudioNote _____", respectively. While playing an audio bookmark you can press the **Rewind** key once to replay the recorded voice note or press **Fast Forward** to skip it and start playing the book at the bookmarked position. You cannot Fast Forward or Rewind within the audio bookmark.

5.3.4 Highlight Bookmark

Highlight Bookmarks are used to define the Start and the End positions of a passage for later playback. Setting highlight bookmarks is a great way to study important passages in text books.

5.3.4.1 Start Highlight Bookmark

Press the **Bookmark** key, 3 times or until you hear “*Start highlight bookmark*”.

Enter a bookmark number followed by **Confirm**.

NOTE: You can omit entering the bookmark number in which case Cardinal *will assign the first available bookmark number*.

5.3.4.2 End Highlight Bookmark

After setting the starting position, navigate to the point where you wish to mark the end of the highlight.

Press the **Bookmark** once. You will hear “*End highlight bookmark*”. Press **Confirm** or the **Play/Stop** key to confirm. The current position is set as the ending position. If the end position is placed before the start position, they will be switched. The message “*Highlight bookmark "X" inserted*” is then played. The user can also cancel the highlight bookmark by pressing the **Cancel** key. In both cases, the state reverts to Start.

NOTE: *When a highlight bookmark starting position is set but not the ending position, its highlight bookmark number becomes unavailable. Cardinal will announce “Bookmark "X" already exists” if the user enters a regular bookmark with this number.*

NOTE: *If you remove the book or power off the Cardinal before closing the highlight, highlight will be auto-completed. If this occurs, the current location will be used as the end highlight position.*

5.3.4.3 Go to Highlight Bookmark

When going to a *highlight bookmark*, if you end the bookmark number entry with the **Play/Stop** key, playback will start from this current position and stop at the *highlight bookmark ending position*. If the **Confirm** key was used, Cardinal will position at the bookmark but not play. While playing the highlighted passage you can jump to the beginning by tapping the **Rewind** key. At the end of the highlight you can play it again by tapping **Rewind**.

5.3.4.4 Highlight Bookmark List

When a *highlight bookmark* is reached with the *bookmark list*, playback will stop at the *highlight bookmark ending position*. A highlight that was started but hasn't been closed yet will not be listed.

5.3.4.5 Remove Highlight Bookmark

When deleting a highlight bookmark, the “*Highlight bookmark "X" removed*” message will be announced. It is possible to delete a *highlight bookmark* that was started but not closed. This action reverts the *highlight bookmark* state to Start.

5.3.5 Bookmark List

Press the **Bookmark** key four times or until you hear ‘bookmark list’.

Press the key **4** or key **6** to go from one bookmark to the next. Each time you press the key, you will hear the number of the next bookmark and playback will begin. Press **Confirm** to confirm the current position and continue play.

Press the **Star** key to exit the Bookmark list.

NOTE: *The bookmark list always contains one bookmark for the beginning and end of book. Bookmarks are sorted by their position in the book not by the bookmark number.*

5.3.6 Remove Bookmark

Press the **Bookmark** key five times or until you hear ‘remove bookmark’. Enter the number of the Bookmark you wish to remove. Press **Confirm**.

To remove all the Bookmarks in a book, first press the **Bookmark** key five times or until you hear 'remove bookmark', then press the key **9** five times (enter number 99999). Then press **Confirm**.

5.3.7 Bookmark alert

While playing a book, you can have the Cardinal alert you when you pass over a previously set bookmark. If you created an audio bookmark, it will also automatically play the recorded message attached to the bookmark. Bookmark alerts are turned off by default.

Bookmark alerts can be turned on or off. Read the **Configuration menu** section for more information.

6 Configuration Menu – Key 7

The Cardinal can be customized using the Configuration menu.

To open the Menu, press the **Menu (7)** key. Pressing the **Menu** key again will switch to the next Menu. Browse *Menu Items* with the **Up/Down (2, 8)** keys. Use the **Left/Right (4, 6)** keys to select an *Item's value* and press **Confirm**. Press **Cancel (Star key)** or any other key to exit the **Menu**.

Press and hold the **Online** button to turn off the Airplane Mode. This will turn on the Cardinal's wireless (Wi-Fi and Bluetooth) features. Press the **Menu (7)** key to access the wireless configuration menu. Press the **Online** button to toggle between the standard bookcase, the online bookcase, and orientation mode (GPS). The wireless configuration menus are only available from the online bookcase.

6.1 Menus and Menu Items List

The available menus, menu items and values are listed in their respective order below. The values marked with a star (*) in the list are the factory default settings.

Menu: Navigation & Playback.

Item: Loop.

Values: On or Off*.

Item: Time jump 30 seconds

Values: On, Off*

Item: Time jump 1 minute

Values: On*, Off

Item: Time jump 5 minutes

Values: On, Off*

Item: Time jump 10 minutes

Values: On, Off*

Item: Time jump 30 minutes

Values: On, Off*

Item: Save last used navigation level for each book

Values: On, Off*

Item: Key beeps

Values: On*, Off

Item: Sleep messages

Values: On*, Off

Item: Bookmark Alert

Values: On, Off*

Item: Audio Adjustment Mode.

Values: Tone* or Pitch.

Menu: Skip.

Item: All.

Values: Play*, Skip, On Demand, Custom.

Item: Footnote.

Values: Play*, Skip, On Demand.

Item: Page number.
Values: Play*, Skip.

Item: Producer note.
Values: Play*, Skip, On Demand.

Item: Sidebar.
Values: Play*, Skip, On Demand.

Menu: Language
Item: Text-to-Speech Voice
Values: The installed Text-to-Speech voices

Item: Braille translation table
Values: The installed braille translation tables for the selected Text-to-Speech voice

Menu: Recording
All items pertain to both recorded notes and audio bookmarks.
Item: Built-in microphone file type
Values: MP3 64kbps, 96kbps*, wav 16 bit PCM
The built-in microphone operates only in mono Recording mode.

Item: External recording file type
Values: MP3 128kbps, MP3 192kbps*, Wav 16 bit PCM

Item: Recording Volume Adjustment
Values: Fixed*, Manual

Menu: Format SD card
Menu: Multi-tap Entry Method
Values: "Announce character on each key press, then enter character after pause"*, "Announce final character only"

Note: The following menus are only available from the online bookcase.
Menu: Wireless

Item: Import a network configuration from file

Item: Scan for available connections
Values: List of Wi-Fi routers in range of the player that you may wish to configure.

Item: Launch a connection
Values: List of router connections that have been configured

Item: Create a new connection
Values: SSID, password, nickname (optional)

Item: Delete a connection
Values: List of router connections that have been configured

Item: Validate a connection
Value: Text message that confirms if the player is connected to the Internet.

Item: Wireless

Values: On*, Off

Item: Airplane mode

Values: On*, Off

Menu Bluetooth

Toggle Bluetooth

Values: On, Off*

Item: Airplane mode

Connect to Bluetooth device

Values: List of Bluetooth devices in range of the player that you may wish to connect to

Disconnect from Bluetooth device

Values: List of your connected Bluetooth devices

Forget Bluetooth device

Values: List of your connected Bluetooth devices

Bluetooth Device Assistance

Values: Enabled, Disabled*

Menu: General

Item: Cancel all current downloads

Item: Notification Mode

Values: Beep and Message*, No notifications, Beep only

Menu: Internet Radio

Item: HumanWare playlist

Values: List of regions (Default value according to Cardinal language)

Item: Import Internet Radio playlist from file

Item: Export all playlists to S D card

Menu: Podcasts

Item: Downloaded Podcast episodes to keep

Values: 1, 2, 3*, 4, 5, 6, 7, 8, 9, 10, Manual Only.

Item: Import Podcast feeds from file

Item: Export subscribed podcast feeds to S D card

Item: HumanWare suggested Podcasts

Values: List of regions (Default value according to Cardinal language)

Menu: NLS BARD (United States only)

Item: Add NLS BARD service

Item: Import NLS BARD configuration from file

Item: Remove NLS BARD service and delete all associated books

Item: NLS BARD book type to search

Values: Audio books only*, Audio and Braille, Braille books only

Item: Modify NLS BARD login information

Menu: Bookshare

Item: Add Bookshare service

Item: Remove Bookshare service and delete all associated books

Item: Import a Bookshare configuration from file

Item: Modify Bookshare login information

Menu: NFB Newsline

Item: Add NFB Newsline service

Item: Remove NFB Newsline service and delete all associated books

Item: Get latest editions

Values: Once daily, Always*

Item: Modify NFB Newsline login information

Menu: Daisy Online

Item: Add a Daisy Online Service

Item: Remove a Daisy Online Service

Item: Import a Daisy Online configuration from file

Item: Modify Daisy Online login information

Item: Download Method to use

Values: Automatic download, Manual download*, Semi-automatic download

Menu: Map Selection

Item: Map package (select map package installed on your Cardinal)

Item: Country (select country maps installed on your Cardinal)

Item: Region (select region maps installed on your Cardinal)

Menu: Software Updates

Item: Automatic check for updates

Values: On*, Off

Item: Check for updates now

Value: When selected, this option will immediately check for available updates

6.2 Playback and Navigation

6.2.1 Loop

If you select the Loop mode, Playback will play repeatedly. It will automatically restart again at the beginning when reaching the end of a book.

6.2.2 Time Jumps

You can choose to turn on or off any or all of the following time intervals: 30 seconds, 1 minute, 5 minutes, 10 minutes, or 30 minutes. Only the time jump intervals you turn on will appear in the up and down (keys 2/8) navigation menu when playing books.

6.2.3 Key beeps

You can turn on or off the beeps heard when pressing keys. Turning off this option will also suppress the second beep heard when starting playback as well as the "locked" message indicating that the keypad has been locked. The Locked message cannot be turned off for the **Power** key. The **up / down** keys on the left side of the player will only beep at their minimum, normal, and maximum positions regardless of this menu setting.

6.2.4 Sleep messages

The Sleep timer's 1 minute warning and Sleep off messages can be turned on or off.

6.2.5 Bookmark Alert

While playing a book, you can have the Cardinal alert you when it passes over a previously marked position.

6.2.6 Audio Adjustment Mode

You can alter the Tone control so that it varies the audio pitch instead. Some people benefit more from a change in the pitch of audio than a change in the tone.

6.3 Skip

The *Skip Menu* contains the configuration options for the skippable elements. *Play* is the default value. The Skip feature is relevant only to DAISY 2.02 books produced with skippable elements. Most DAISY libraries do not utilize skippable elements in their books. Here is a list of menu items and their respective values:

All.

Values: Play, Skip, On Demand, Custom.

Note: You cannot select Custom. It is set automatically when you modify any of the skippable elements.

Footnote.

Values: Play, Skip, On Demand.

Page Number.

Values: Play, Skip.

Production Note.

Values: Play, Skip, On Demand.

Sidebar.

Values: Play, Skip, On Demand.

6.4 Language menu

6.4.1 Text-to-Speech voice

Press and hold key **7** to select an alternate Text-to-Speech voice from those installed in your Cardinal. Alternatively, you can press key **7** repeatedly to access the language menu. Use keys **4** and **6** to cycle through available choices. Press **Confirm** to accept choice, or press **Play** to accept choice and resume playback.

6.4.2 Braille translation tables

Different braille translation tables are made available to you depending on the Text-to-Speech language selected. To change the braille translation table, press **menu** key **7** repeatedly to access

the language menu. Use keys **2** or **8** to access the braille translation table item followed by keys **4** or **6** to select the braille translation table value of your choice. Press **Confirm** to accept choice, or press **Play** to accept choice and resume playback. The first table in the list is the current default. Whichever table you select will become the new default table for the corresponding text-to-speech voice.

6.5 Recording

When considering your recording configurations note that the built-in microphone operates only in mono mode. The choice of recording file type will affect both the quality of the recording and the size of the recorded file. If you increase the quality of the recording, it will produce a larger recorded file.

6.5.1 Built-in Microphone File Type

For the built-in microphone (which records only in mono mode) use keys 4 or 6 to choose to record in one of:

- MP3 64 kilo bits per second (kbps) medium quality
- MP3 96kbps good quality
- Wav 16 bit 44.1K PCM high quality

Upon choosing a recording file type, the Cardinal will give you an estimated recording time remaining. This time is based on the free space on your SD card and the size of the files generated by the selected recording type.

6.5.2 External Recording File Type

For the external microphone use keys **4** or **6** to choose your recording file type.

- MP3 64kbps medium quality
- MP3 96kbps good quality
- Wav 16 bit 44.1K PCM high quality

Upon choosing a recording file type, the Cardinal will give you an estimated recording time remaining. This time is based on the free space on your SD card and the size of the files generated by the selected recording type.

6.5.3 Recording Volume Adjustment

There are two recording volume adjustment modes which can be selected in the recording configuration menu using keys **4** or **6**: Fixed and Manual. The selected mode will apply to both the internal microphone and the external microphone.

6.5.3.1 Fixed Mode

In the Fixed mode, the Cardinal's recording volume is fixed at a pre-set level.

6.5.3.2 Manual Mode

In the Manual mode, you can select the recording volume from a range of 12 volume levels. There are two different ways of adjusting the recording volume level manually: from the Notes bookshelf when a recording is not in progress, and directly during a recording. The recording volume settings for the internal microphone and for the external microphone are adjusted separately and the Cardinal will remember them both.

To adjust the recording volume from the Notes bookshelf:

- Select the Notes bookshelf with key **1** and press **Confirm**.
- Access the recording volume adjustment by repeatedly pressing the **Power** key until you hear "Internal microphone recording volume" or "External microphone recording volume".
- Then, use the **Up** and **Down** buttons to adjust the recording volume just as you would the normal volume. The Cardinal will announce the setting position as you change it.

Note: The Cardinal will adjust the recording volume of the active microphone (the internal microphone if no external microphone is connected, or the external microphone if one is connected).

To adjust the recording volume during a recording:

- Connect your headphones to your Cardinal. They are required to adjust the recording volume.
- The normal output volume of the Cardinal affects the volume of everything you hear from the Cardinal, so adjust it to a comfortable level before adjusting the recording volume.
- During a recording (no matter what bookshelf you are in), use key **2** to increase the volume, key **8** to lower the volume, or key **5** to return directly to the default volume level of 6. Note that using the **Up** and **Down** buttons during a recording will adjust the normal output volume of the Cardinal and not the recording volume.
- The volume level is not announced when changing the recording volume during a recording, but you will hear the difference in volume through your headphones.
- You can pause a recording with the **Play/Stop** key and still adjust the recording volume with keys **2** and **8**. When the volume you hear is to your liking, simply resume the recording with the **Play/Stop** key.

6.6 Multi-tap text entry method

There are two multi-tap text entry methods: “Announce character on each key press and enter character after pause” (default method) and “Announce final character only”. Use keys **4** or **6** to select a method, followed by **Confirm**. See section 5.1 (Text Search) to learn how to use each method.

6.7 Format SD card

If your SD card is not recognized by Microsoft Windows when it is inserted in your computer card reader or when the Cardinal is connected to the computer, it may be possible that the card needs to be formatted. Also, if for any reason data becomes corrupt, you may notice that some files/books will not play properly on your Cardinal. This is also an indicator that reformatting is needed.

To format your SD card, insert it into the Cardinal and press the Menu key **7** repeatedly until you hear the Format SD card option. Then press **Confirm** to confirm the format. You will receive a warning that formatting will erase all the files on the SD card. Press **Confirm** again to proceed with the format or press the **Star** key to cancel the format. The utility will format your card and label it as VRTrek. A progress beep will indicate activity. Formatting may take from a few seconds to 1 or 2 minutes depending on the size of the SD card. The label will be visible beside the drive letter when you view the card in Windows. Once formatted, only the \$VR folders will exist on the card. You will need to recopy all your books and files from the computer.

To prevent possible corruption of data on the SD card, always be sure to use the Windows Safely Remove option after copying files to the card. Also, never remove the SD card while you are recording, copying a book or deleting a book.

6.8 Wireless

The wireless configuration menu is only available from the Online bookcase.

Here are a few points to note before describing the wireless configuration menu:

- The *Airplane Mode* is used to turn off all wireless communication for situations where you are not allowed to use a wireless device such as in a commercial airline flight or in some hospitals. If the Airplane Mode is turned on, then the wireless communication is turned *Off*. You can also turn on the Airplane Mode in situations where you know you don't need wireless communication to save battery power. If the Airplane Mode is turned on,

pressing the Online button will remind you by announcing the message “Airplane Mode, On”.

- The *SSID* is the name of a network router. It is announced when you perform a *Scan for Available Connections*. It is possible that a router has been configured to hide its SSID. In that case, it will not appear in the list of connections when performing a scan. To connect to such a network, you need to use the Create a New Connection option and manually enter the SSID.
- The *Password* is the authentication key used with your network router. It is case sensitive so when entered with the Cardinal’s multi-tap feature, you may toggle between lowercase, uppercase, and numeric only with the **Bookmark** key.
- The *Nickname* is a friendly name to be used by the Cardinal to identify a network. This optional name will not be spelled as is the case with the SSID so you should enter an easily pronounceable name for the built-in text-to-speech. The maximum length of the nickname is 50 characters long.

6.8.1 Airplane Mode

Use this item to turn on or off the wireless (Wi-Fi and Bluetooth) features of the Cardinal. By default, the airplane mode is on. When the airplane mode is on, the wireless features are turned off. When you turn off airplane mode, the wireless features are turned on. You may also turn Airplane Mode on and off by pressing and holding the **Online** button which is located above key 2 on the front face of the player. A LED adjacent to this **Online** button glows amber when the Cardinal is connected to a Wi-Fi network. The LED blinks when actively trying to connect to a network. The LED is turned off when the airplane mode is on and when the Cardinal has no network configuration. Note that GPS still works when in airplane mode.

6.8.2 Import a Network Configuration

Use this item to process a network configuration file. Press **Confirm** to process a network configuration from a file on the SD card.

6.8.3 Scan for Available Connections

Use this item to scan for Wi-Fi routers within range of your Cardinal. Use the up/down keys to browse the available router SSIDs that were found. Press **Confirm** to confirm the router you wish to access. You will then be prompted to enter the password for the chosen router. Enter the password using the multi-tap text entry on the numeric keypad. Passwords are usually case sensitive. You may toggle between uppercase, lowercase, and numeric only by pressing the Bookmark key. Press the **Sleep** key to access the key describer mode and have each letter and symbol announced when the key is pressed on the text entry keypad. End your entry with the **Confirm** key. If successful, the router SSID and password will be added to your list of configured connections (routers) and the new connection will be launched as your active router. You will then be asked to enter an optional nickname for the new connection.

6.8.4 Launch a Connection

By default, the Cardinal will automatically connect to the best available Wi-Fi router in range. Optionally, you may use the up and down arrows to select from a list of Wi-Fi routers that you have previously configured. Press **Confirm** to confirm your selection. The selected router will then be used for subsequent wireless data transfer. You only need to use this item when you have configured multiple routers and want to launch an alternate router as your active connection for data transfer.

6.8.5 Create a New Connection

Use this menu item instead of scanning if you know the specific router SSID you wish to configure or if your router does not broadcast its SSID. You will be prompted to enter the SSID. Use the multi-tap text entry on the number pad to enter the SSID and press **Confirm**. You will then be asked to enter the router password. Enter it and end with the **Confirm** key. Use the Bookmark key to toggle between uppercase, lowercase, and numeric only. Press the **Sleep** key to access the key describer mode and have each letter and symbol announced when the key is pressed on the text entry keypad. If successful, the router SSID and password will be added to your list of configured

connections (routers) and the new connection will be launched as your active router. You will then be asked to enter an optional nickname for the new connection.

Note: Cardinal does not support WEP connections. Attempting to connect to a WEP network will result in a warning message.

6.8.6 Delete a Connection

Use the up and down arrows to select from a list of Wi-Fi routers that you have previously configured. Press **Confirm** to confirm your selection. The selected router will then be deleted from your list of configured Wi-Fi routers.

6.8.7 Validate a Connection

Use this item to validate your current connection to the Internet. The Cardinal will access a special page on the HumanWare website. If successful, the Cardinal will download a short message from that page that informs you of a successful connection. You can replay the message by pressing the **Play** key.

Note: If you require the MAC address of your Cardinal in order to configure the MAC filtering of your router, you can find it by pressing the **Info** (key **0**) on your Cardinal while in the online bookcase. The Cardinal will announce it in the Wireless section of the Info.

6.8.8 Wireless

Use this item to toggle Wi-Fi on or off. Turn it off to preserve your battery if you don't intend to use Wi-Fi.

6.9 Bluetooth

Use this menu to configure your Bluetooth settings. You have the option to connect to, disconnect from or forget Bluetooth devices.

6.9.1 Bluetooth

Use this item to toggle Bluetooth on or off. Turn it off to preserve your battery if you don't intend to use Bluetooth.

6.9.2 Connect to Bluetooth device

First make sure your Bluetooth device is turned on. Upon selecting this sub-menu, Cardinal will start scanning for available Bluetooth devices nearby. Scroll to your devices using the up/down keys then press **Confirm** to connect to it. You will receive confirmation once you are connected. Press 5 to refresh the list of devices.

Once you connect to a device, Bluetooth will automatically connect to it each time you turn on the device.

6.9.3 Disconnect from Bluetooth device

In this sub-menu, Cardinal will list the name of the devices you are currently connected to. Scroll to the name of the device you wish to disconnect from using the up/down keys then press **Confirm** to disconnect from it. You will receive confirmation once you are disconnected.

6.9.4 Forget Bluetooth device

In this sub-menu, Cardinal will list the name of the devices your player has detected. Scroll to the name of the device you wish to forget using the up/down keys then press **#**. You will receive confirmation once the device is forgotten.

6.9.5 Bluetooth Device Assistance

Only enable this if your Bluetooth device's audio seems to be cutting off at the beginning or end of audio playback.

6.10 General

The General configuration menu contains two items: "Cancel all current downloads" and "Notification Mode". To cancel all current downloads, use the item "Cancel all current downloads", followed by **Confirm**. Use the "Notification Mode" item to configure the way the Cardinal notifies

you of a completed download by choosing between Beep and Message (default), No notifications, and Beep Only.

6.11 Internet Radio

Use this menu to manage the Internet Radio online service. To turn on this service, simply connect your Cardinal to a wireless network. An Internet Radio bookshelf will be added to the online bookcase. Use the "HumanWare playlist" item to change the region of the playlist that will be offered to you. The default playlist depends on your country or region of purchase (ex: North America). Select a playlist with key **4** or **6**, and press **Confirm**. You can also use the "Import internet radio playlist from file" function to add your own playlists. With the item "Export all playlists to S D card", you can export all Internet Radio playlists to your S D card.

6.12 Podcasts

Use this menu to manage the Podcasts online service. To turn on this service, simply connect your Cardinal to a wireless network. Use the "Downloaded podcast episodes to keep" item to choose how many podcast episodes should be kept on your Cardinal (between 1 and 10, default value 3) or whether you want to keep the episodes manually only. Automatically downloaded episodes will be deleted automatically from internal memory, whereas manually downloaded episodes will have to be deleted manually with key **3**. Use the "Import podcast feeds from file" option to import a podcast feed to your Cardinal from your S D card. You can use the item "Export subscribed podcast feeds to S D card" to export your subscribed podcast feeds to your S D card. Use the "HumanWare suggested podcasts" item to change the region of the podcasts that will be offered to you. The default podcasts depend on your country or region of purchase (ex: North America).

6.13 NLS BARD (United States only)

Use this menu to manage the NLS BARD online service. To turn on this service, connect your Cardinal to a wireless network and select the "Add NLS BARD service" option followed by **Confirm**. You will be prompted to enter your registered username and password using the multi-tap text entry method. Passwords are usually case sensitive. You may toggle between uppercase, lowercase, and numeric only by pressing the Bookmark key. End your entry with the **Confirm** key. You can also use the item "Import NLS BARD configuration from file" to import your account information with a file on your S D card. Once you have successfully entered your account information, a NLS BARD bookshelf will be added to the online bookcase. To remove this service, use "Remove NLS BARD service and delete all associated files". Use the "NLS BARD book type search" item to search for Audio books only (default), Audio and Braille, or Braille books only. Use the item "Modify NLS BARD login information" to modify your account information.

6.14 Bookshare

Use the Bookshare menu to manage the online service. The service can be turned on by selecting the "Add Bookshare service" item followed by the **Confirm** key. You will be prompted to enter your registered email address and password using the multi-tap text entry method. Passwords are usually case sensitive. You may toggle between uppercase, lowercase, and numeric only by pressing the Bookmark key. End your entry with the **Confirm** key. With the "Import a Bookshare configuration from file" item, you can also import your Bookshare account information with a file on your S D card. Once you have successfully entered your account information, a Bookshare bookshelf will be added to the online bookcase. The "Remove Bookshare service and delete all associated books" item can be used to remove the Bookshare online service.. Use the item "Modify Bookshare login information" to modify your account information.

6.15 NFB Newsline

Use the NFB Newsline menu to manage the online service. The service can be turned on by selecting the “Add NFB Newsline service” item followed by the **Confirm** key. You will then be prompted to enter your NFB Newsline member ID and PIN each followed by the **Confirm** key. After you have successfully entered your account information an NFB Newsline online bookshelf will be added to the online bookcase. If you select the item “Remove NFB Newsline service and delete all associate books”, the service is removed and you will be prompted to confirm your choice. All synchronized content will be deleted and the NFB Newsline bookshelf will be removed from the online bookcase. Use the item “Get latest editions” to configure how often the Cardinal will download new content by choosing between “Once daily” or “Always” (default). Use the item “Modify NFB Newsline login information” to modify your account information.

6.16 Daisy Online

Use this menu to manage the Daisy Online service. Select the item “Add a Daisy Online service” to choose a service to add, followed by your user name and password. Use the item “Import a Daisy Online configuration from file” to import a custom Daisy Online configuration to your Cardinal. Use the item “Modify Daisy Online login information” to modify your account information. Select the item “Download Method to use” to choose the way in which the Cardinal will download books from a Daisy Online library. You can choose between Automatic download, Manual download (default), and Semi-automatic download. With the Automatic download method, your chosen books or those suggested by the library will automatically be downloaded on your Cardinal. With the Manual download method, you will be able to use the option “Download more books” in the Daisy Online bookshelf and manually select which books you want to download, and return other books directly without downloading them. The Semi-automatic download method will allow you to download newspapers and magazines automatically, and manually select other content to download. Use the item “Remove a Daisy Online service” to remove a Daisy Online account and delete all associated books from the Cardinal.

6.17 Installing & Updating maps

When you have the right maps installed on your device, you make it possible for the GPS to locate your live position on those maps. There are multiple country packages that you can chose from. If your Cardinal software version is 2.1 and above you will have the possibility to install the maps you need in a much faster way using your computer and SD card via the USB port or the SD card reader. If the version is 2.0 and below, please upgrade to 2.1 and above to make use of this feature; please note that Cardinal maps are very large and detailed, a direct download on the device can take up to a few hours. Downloading maps directly from the device can be done on Cardinal 2.1 and all previous versions. Also, you can use the map selection menu to select and de-select specific maps that you need which will help you manage the memory space on your device.

6.17.1 Downloading maps to computer first

Available on Cardinal 2.1, downloading your maps to a computer first is often a more efficient and rapid way of installing maps on your device. A direct download can be very long and varies depending on the quality of Wi-Fi signal. Downloading the relevant packages to a computer and transferring the maps to your device can reduce the time of installation from hours to minutes. Keeping in mind that the download rate to your computer will still be dependent on your internet speed.

1. If you are already on V2.1 and don't have the V2.1 Here Maps, go to support.humanware.com/ to the VR trek section and click on “Install new map packages – HERE maps”.
2. Once your device is up to date and you have the web link to the maps you need, click on the map package link and it will download the map on your computer. Save it to a handy location on your computer.

3. After download is complete you have two options to transfer to your device:
 - a. Via SD card reader: place your Cardinal's SD card into your computer's SD card slot and transfer the downloaded package file to the card's root. Safely remove the card from your computer by using the eject SD card. Place the card in the Cardinal and go to Step 5.
 - b. Via USB: If you do not have an SD card reader, power off your Cardinal and connect it to the USB port of your computer. After it vibrates once, press the power ON button and wait until you hear "Device Connected". Your computer will now be reading the Cardinal's SD card and you can transfer the downloaded package file to the card. Use the computer to eject the drive then unplug the Cardinal from the USB port. Move on to Step 5.
4. With your device powered ON and the Online Bookshelf setting "automatic check for updates" is ON, go to Orientation mode then the system will announce "Maps were found on the SD Card" and you will be prompted to install them. Press confirm to begin installation.
5. You will be asked if you wish to keep the maps on the SD card after installation. This can be useful if you eventually need to change regions, for example if you need to switch from North America to Europe for a trip at a later date. Deleting a map from the SD card means that you will have to use your computer again whenever you need to use this map package.
6. The new maps will be installed, and the system will shut down.
7. The next time you power on the device you will have access to the new map package.

Note that keeping the installed maps on the SD card will prompt a message every time you enter the Orientation mode as long as the SD card is in the device: "examining map on the SD card – The maps are not an update and will not be installed". This is the system checking if the maps that are still on the SD card are already installed on the device or not, you can proceed normally after that message.

6.17.2 Selecting maps from an installed package

Here you can choose to add or remove map packages from your Cardinal's internal memory. If you have a package already installed this package will be listed as "selected". If you select a package that is not in your Cardinal's memory the device will download it over Wi-Fi. This can take several hours, and it is highly recommended to install map packages from your computer instead.

Maps are divided in levels: Continent and Map Package, Map packages can have multiple countries or regions in a country. Use the arrow keys to select the different items of a map level. Use buttons 2 and 8 to jump to a different map level.

Level 1 (Continents): Continents is the most general map level (North America, Europe, Africa, Oceania)

Level 2 (Map Package): You will have a map package already installed by default depending on where you purchased your Cardinal. Use the arrow keys to scroll through the available Map Packages, then press the Bookmark key to select or deselect a Map Package. To obtain additional map packages and benefit from the fast installation feature using a computer and an SD card, please go to support.humanware.com/ to the VR trek section and click on "Install new map packages – HERE maps".

Level 3 (Countries or regions in a package): Countries or regions included in the selected Map Package will be listed after the package name. Regions often cover provinces or states within a country if the country has multiple map packages, otherwise all regions in that country will be included without the need of being explicitly listed.

When you are done selecting your packages, press the Confirm key to accept your changes or the Cancel key to discard them and leave the menu. After pressing the Confirm key, your newly selected maps packages will be installed, whereas deselected map packages will be deleted, freeing some internal disk space.

Note that your Cardinal will close after updating maps.

6.18 Software Updates

The Software Updates menu contains two items: “Automatic check for updates” and “Check for updates now”. By default, the Cardinal will automatically check for any available update the first time the Online bookcase is accessed. If you select the item “Check for updates now”, the Cardinal will immediately check for any available updates. This item can be used multiple times even if the “Automatic check for updates” item has already been used once. If the “Automatic check for updates” is set to Off, it is necessary to use the “Check for updates now” item to check for updates as the Cardinal will not do so automatically.

When Check for Updates is on, Cardinal will also check to see if there are map updates available for your installed maps.

7 Bookshelf Structure and Characteristics

For files on all bookshelves, the maximum file name length, including the file path, is 512 characters (includes media/book path). When scanning the memory card at insertion, any folder or file with a full path name greater than 512 will be ignored.

The following sections provide general rules and information for listening to the non-Talking Books bookshelves.

7.1 Other Books

7.1.1 Other Books Structure

The following list provides an example of how book files may be grouped in folders. Folders are numbered in the order in which they are found starting with the root, assuming it contains files. There can be up to 8 levels of folders.

Folder: \\${VROtherBooks}.

Rules: Each file in the root is defined as a book with its own reading position and bookmarks. The single book files in the root can be deleted using key **3** while browsing the bookshelf.

Folder: \\${VROtherBooks}\Drama.

Rules: This is an optional folder to categorize the type of book.

Folder: \\${VROtherBooks}\Drama\BookA.

Rules: This is the folder containing the book files. The entire folder is defined as the book with one reading position and bookmark set. While browsing the bookshelf you may use key **3** to delete the book which means the entire book folder will be deleted.

Folder: \\${VROtherBooks}\Drama\BookB.

Rules: Same as Book A.

Folder: \\${VROtherBooks}\Mystery.

Rules: This is an optional folder for categorizing type of book.

Folder: \\${VROtherBooks}\Mystery\BookC.

Rules: Same as Book A.

7.1.2 Other Books Characteristics

Bookshelf Browse: Move between folder levels with keys **2** and **8**. The lowest folder level is also the book level since a book is defined as a collection of files in the lowest level folder. Higher level folders are optional for categorizing types of books as in Drama folder above. There can be up to 8 levels of folders. Use Go To Book to jump to a specific book number. Use key **3** to delete a book. Press key **3** twice to delete a folder. To confirm deletion, press the **Confirm** key or any other key to cancel.

Reading: Playback loops between the files within a folder (book). Navigate between files in a folder using keys **4** or **6**. File and Time Jump navigation levels are available. Go To File and Go To Time are available.

Info (key **0**): Reports information for the current book (folder).

Where Am I (key **5**): Reports the percentage within the entire book, the current file number, and name as well as the time (total, elapsed and remaining) for the current file.

7.2 Audible Books

Your Cardinal can play Audible books in the Enhanced Audio books format (.aax). To be able to play Audible books, you will need to activate your Cardinal with Audible using a software app called Audible Sync. You will need to download the Audible Sync from the Audible website: Navigate to the Audible web site and type “Audible Sync” in the search field, then select the option for the Audible Sync app from the results and download and install the app.

7.2.1 Activating your Cardinal with Audible

After installing the Audible Sync app, choose to sign in then connect your Cardinal to your computer using the long USB cable making sure your Cardinal is OFF when you plug it in. Once it is plugged in, turn your Cardinal ON and wait a few moments for your computer to detect your device as a removable drive. Head to the devices area in the Audible Sync app and choose the “Activate Device” option.

Sign in again, and then you can choose to head to your library to download a book. Once it is downloaded, you’ll choose the “Copy to Device” option. Once the copy is complete, you will find the book on the Audible bookshelf of the Cardinal.

When Audible Sync activates the Cardinal, it will create a new reserved folder named \$VRAudible in the root of the Cardinal SD card. It will place a hidden system (.SYS) activation file in that \$VRAudible folder which must not be deleted. If you want to save Audible books on multiple SD cards you, will need to activate each SD card separately. All Audible books must also be saved in this \$VRAudible folder.

7.2.2 Book Transfer

To transfer Audible books you may either use the Audible Sync with the Cardinal connected or use Windows Explorer to transfer the .aax Audible book file from the Audible downloads folder on your computer directly to the \$VRAudible folder on the SD card. If you use Windows Explorer for the file transfer, you can take advantage of the faster transfer speed of your computer card reader. If you choose to transfer books with Audible Sync you must always connect the Cardinal to the computer.

7.2.3 Audible Structure

Simply place your Audible books in the \$VRAudible folder. They must not be placed in subfolders.

7.2.4 Audible Characteristics

Bookshelf Browse: Use keys **4** and **6** to move between each Audible book file or Go To Book to jump to a specified book number. Use key **3** to Delete the Book. To confirm deletion, press the **Confirm** key or any other key to cancel.

Reading: Use keys **2** and **8** to navigate by the heading marks provided in the Audible book or by selected Time Jumps. Go to Heading and Go To Time are available.

INFO Key 0: Reports info for the current Audible file.

Where Am I: Reports current reading position in the Audible file. Press twice within 10 seconds to report additional information about the Audible book.

7.3 Music Bookshelf

The music bookshelf is in the reserved folder \$VRMusic. It contains a folder structure of audio files and this entire structure is defined as the All Music book. Unless you create playlists, this will be the only Music book. If you add playlist (M3U) files to the root of \$VRMusic then each playlist will be an additional music book. In the Music bookshelf the Delete Book key **3** is not functional. However, you can delete individual files or entire folders from the All Music book once it has been opened.

7.3.1 Music Structure

You can navigate up to 8 levels of folders in music. Use the **2** and **8** keys to select the folder or file navigation level. Then you can move backward or forward at the chosen level with the **4** and **6** keys. If you have more than 8 folder levels, those additional levels will be added to the level 8 list of folders.

If you select the 'File' navigation level, you will hear the name of the current file. If you select any folder Level navigation, you will hear the name of the current folder at that level. At any point in your structure you can always select the deepest navigation level. If the current folder is at a higher level than your deepest level then the folder name is not announced. For example, let's say you have a music structure that contains \$VRMusic\Classic\Mozart and \$VRMusic\Classic\Beethoven\Ninth_symphony. If you are currently located in Classic\Mozart while playback is inactive, changing the navigation from File to Level 1 will announce 'Classic'. Changing from Level 1 to Level 2 will announce 'Mozart'. Changing from Level 2 to Level 3 will announce nothing since there is no folder name for a level 3 folder in Classic\Mozart. If located in Classic\Beethoven while playback is inactive, changing from Level 2 to Level 3 will announce 'Ninth_symphony'.

If you place any files in the root of \$VRMusic then they will be listed only at the file navigation level.

7.3.2 Music Characteristics

Bookshelf Browse: Use keys **4** and **6** to move between each Music book or Go To Book to jump to a specified book number. Only 1 music book (All Music) will be on the music bookshelf unless you create additional playlist books. You cannot use key **3** to Delete a Book.

Reading: If the player is set to Loop Folder, playback loops within the files of a music folder. Playback will automatically start from the beginning of the current folder when the end of the folder is reached. If the player is set to Loop Single, playback will automatically start from the beginning of the current file when the end of the file is reached. You can use keys **2** or **8** to select folder or file navigation. Go To Folder and Go To File functions are also available. If the player is set to Random On then the files in the current music book will be shuffled. For example, if the All Music book is being played all of your music files will be shuffled. If a Playlist book is being played then only the files in that playlist will be shuffled. When the end of a shuffled music book is reached, playback will start at the beginning of the shuffled music book.

Deleting music files: Use key **3** to delete music files when navigating at the file level. You will be asked to confirm file deletion. To delete a folder, navigate back to the folder's level. Press key **3** to delete the folder and the **Confirm** key to confirm deletion or any other key to cancel.

INFO (key **0**): Reports information for the current music book such as total folders and files and total times for the book.

Where Am I (key **5**): Reports current position and information for the current file. Pressing Key **5** twice within 10 seconds will announce tag information data. If you don't want to hear all the tags, press **Play** to interrupt and resume playback.

Speed: Cardinal will reset the variable speed control to normal speed and return to the previous speed setting when you exit the Music Bookshelf. Note: It is only possible to listen to stereo music at normal speed. If you speed up or slow down the music it will play in mono.

Bass and Treble: The Tone control is replaced with separate bass and treble controls.

7.3.3 Music Search

You can search your music by pressing the **Go To** key until you hear "Search". Then using the multi-tap keypad as described in the Text Search section, enter the word or words to search for and press the **Confirm** key. Use the **Bookmark** key to toggle between Text and Numeric input types while entering your text to search. Cardinal will find the first folder name or file name containing the search term. Playback will start from the beginning of the file or the first file in the folder. Then you can press key **4** or **6** to find the previous or next occurrence of the search term.

7.3.4 Playlists

The Music Bookshelf may contain playlists. A playlist is a text file containing a list of supported audio files to play. It must have the "m3u" file extension. A playlist cannot link to other playlists. Although you may delete files in the temporary playlist, you cannot use key **3** to delete files in a permanent M3U playlist.

7.3.5 Temporary Playlist

You can create a temporary playlist for a subset of folders found in the \$VRMusic folder. You cannot create a temporary playlist from the files found at the root level of the \$VRMusic folder.

- Press key **1** multiple times until you reach the Music bookshelf. Then press the **Go To** key multiple times until you hear "Create Temporary Playlist".
- Now use keys **2/8** and **4/6** to navigate to the first folder you want in your playlist. Then press the **Confirm** or **Play** keys. The folder you selected and all the subfolders below it will now form your temporary playlist. If you pressed the **Play** key, the playlist will start to play. Note: Selecting a folder for the creation of a temporary playlist works slightly differently than the folder navigation described in the above sections. Immediately after hearing the message "Create temporary playlist" you will hear the name of the first folder at the top level in your music book. Use keys **4** and **6** to cycle through all the folders at that top level. Once you have reached the top level folder of interest, you can use key **8** to go down a level and then, with keys **4** and **6**, you will cycle through the folders at the second level inside that top folder. You can go to lower levels in the same fashion. In order to go to a different folder at a higher level, you will have to first use key **2** to go up to that level before using again keys **4** and **6** to navigate to it.
- Navigate within the playlist using keys **2/8** and **4/6**, **Go To Folder**, and **Go To File** keys.
- Press key **0** to find the total number of folders and files and length of your playlist.
- Press key **9** to randomize the playlist and press key **9** again to turn off random play.
- The playlist is cleared as soon as you press key **1** to return to the bookshelf but it remains between sessions if you power off without pressing key **1**.

For example, let's say you have organized your \$VRMusic files into 3 levels of folders. You could have the music genre at level 1, artists at level 2 and albums at level 3. You can now easily play only music of a particular genre, or all the albums of a particular artist, or listen to a single album. Suppose your level 1 genre folders included Classical, Country, Folk, and Rock. Now, suppose, within Classical, you have level 2 folders for the artists, Beethoven, Mozart, and Strauss. You decide you want to play all your Mozart music. Go to the Music bookshelf. Press the **Go To** Key until you hear, "Create Temporary Playlist". Press key **6** until you hear, "Classical". Now press key **8** to move down to your level 2 folders and press key **6** to reach the Mozart folder. Press the **Play** key. All your Mozart albums will now be used to create your temporary playlist and it will begin playing. If you press key **9**, the tracks found in those albums will play in random order. Pressing Key **0** will announce the total number of Mozart albums, total files, and their total play time.

7.3.6 Folder and File Name Announcement

When browsing the Music bookshelf, you may or may not want to hear file and folder name announcements. The Cardinal will provide this information if the player is in Stop mode but will omit the announcements if the player is in Play mode. In either case, it will repeat the announcements if you press the key **5** (**Where Am I**). Thus, if you wish to use key **4** or **6** to navigate back and forth between music files and do not want to hear the folder/file announcements simply press the **Play** key first to put the player in play mode.

7.4 Saved Podcasts

The Saved Podcasts bookshelf contains a folder structure of audio files where each folder represents a podcast feed and each file an episode of that feed. Each file (episode) is defined as a separate podcast book. This is where you will find the podcasts you have saved on your S D card from the Podcasts bookshelf in your online bookcase.

7.4.1 Saved Podcast Structure

The following list provides an example of how podcast files may be grouped in folders. There can be up to 8 levels of folders.

Folder: \$VRPodcasts

May contain files: Yes

Rules: Any files found in the \$VRPodcasts root will be announced as individual books.

Folder: \ \$VRPodcasts\Feedname.

May contain audio files: Yes.

Rules: This is the folder for grouping the podcast episode files under their feed name.

7.4.2 Saved Podcasts Characteristics

Bookshelf Browse: Move between folder levels of the Podcast structure using keys **2** and **8**. The lowest level is the book (file) level. Files in the root of \$VRPodcasts will only be announced at the book level. Use keys **4** and **6** to move between each Podcast book file (episode) or Go To Book to jump to a specified book number. Use key **3** to Delete a Book file. Press key **3** twice to delete a folder. To confirm deletion, press the **Confirm** key or any other key to cancel.

Reading: Playback stops at the end of each file. Only Time Jump navigation level is available on keys **2** or **8**. Go To Time is also available.

INFO (key **0**): Reports information for the current Podcast book (file).

Where Am I (key **5**): also Reports current position and information for the current file. Pressing Key **5** twice will announce tag information data. If you don't want to hear all the tags, press **Play** to interrupt and resume playback.

7.5 Text Bookshelf

The Cardinal can also store text files grouped in folders under the \$VRText reserved folder. They are played with the Cardinal text-to-speech. Each text file within the \$VRText folder is considered a book. Supported formats include: bra, brf, DOCX, fb2, html, rtf, SES3, txt, and xml. When present, image description tags will be announced in html and xml documents.

7.5.1 Text File Structure

The text files can be either in the root of \$VRText or organized into sub-folder categories. There can be up to 8 levels of folders.

7.5.2 Text File Characteristics

Bookshelf Browse: Move between folder levels of the Text Files structure using keys **2** and **8**. The lowest level is the book (file) level. Files in the root of \$VRText will only be announced at the book level. Use keys **4** and **6** to move between each text file or Go To Book to jump to a specified file number. Use key **3** to Delete a text file. Press key **3** twice to delete a folder. To confirm deletion, press the **Confirm** key or any other key to cancel.

Reading: Playback stops at the end of each file. The navigation levels on keys **2** or **8** include: page (if page markers are in the file), screen (if no page markers), paragraph, line, sentence, word, spell, and character. If you do a search in text then a Search level is added as the last navigation level to allow you to find the next or previous search item. Go To Page is available if the file has page markers. Go To Percent (see above) is also available.

INFO (key **0**): Reports information for the current text file such as its size.

Where Am I (key **5**): Reports current position as a percentage from the start of the file.

7.5.3 Navigating HTML/XML/DOCX Headings

For html/xml files that have heading tags (<H1> to <H6>), or DOCX files with stylized headings, these will correspond to equivalent navigation levels on the **2/8** menu. Be aware that some html/xml files do not use these heading tags consistently. For example, the file may have an H1 and H3 heading with no H2 heading. In this case the Cardinal will present only level 1 and level 3 on the

2/8 menu. Also, an html/xml file could have a single H1 heading for a title with no other H1 tags in the file. In this case, Cardinal would jump to the end of the file if you pressed right arrow (key **6**) after choosing level 1 navigation.

8 Daisy Online

8.1 Menu Items

Note: The following menu and menu items are only available from the online bookcase.

Menu: Daisy Online

Item: Add a Daisy Online Service

Item: Import a Daisy Online configuration from file

Item: Modify Daisy Online login information

Item: Download Method to use

Values: Automatic download, Manual download, Semi-automatic download

Item: Remove a Daisy Online Service

8.2 Daisy Online configuration menu

From the online configuration menu, use this menu to manage the Daisy Online service. Select the item “Add a Daisy Online service” to choose a service to add, followed by your user name and password. Use the item “Import a Daisy Online configuration from file” to import a custom Daisy Online configuration to your Cardinal. Use the item “Modify Daisy Online login information” to modify your account information. Select the item “Download Method to use” to choose the way in which the Cardinal will download books from a Daisy Online library. You can choose between Automatic download, Manual download (default), and Semi-automatic download. With the Automatic download method, your chosen books or those suggested by the library will automatically be downloaded on your Cardinal. With the Manual download method, you will be able to use the option “Download more books” in the Daisy Online bookshelf and manually select which books you want to download, and return other books directly without downloading them. The Semi-automatic download method will allow you to download newspapers and magazines automatically, and manually select other content to download. Use the item “Remove a Daisy Online service” to remove a Daisy Online account and delete all associated books from the Cardinal.

8.3 Daisy Online Service

When the Cardinal is connected to a wireless network, you will be able to access Daisy Online, an online service used to access and download books from compatible Daisy Online libraries.

To activate the Daisy Online service:

- Press the **Online** button to navigate to the online bookcase.
- Press menu key **7** multiple times to access the Daisy Online menu.
- Select the item “Add a Daisy Online service” using keys **2** and **8** followed by **Confirm**.
- Using keys **2** and **8**, select a service to add followed by **Confirm**.
- Enter your Daisy Online username and password.
- Once you have configured a Daisy Online account and added it from the online configuration menu, a Daisy Online bookshelf with the DOD service name will be added to your online bookcase. Subsequently and for each configured account, a new Daisy Online bookshelf will be added to your online bookcase. If there is more than one configured account for the same DOD server, the account username will be appended to the service name when announcing the bookshelf to help you differentiate your accounts.
- In your Daisy Online bookshelves, you will be able to find the books downloaded from your account. When a book’s expiration date is known, it will be announced after the

book title. When a book is expired and needs to be returned, it will be announced before its title. Pressing the **Where Am I?** key will give you a book description when available, whether a book is downloaded or not. From a book, you can also press the **Where Am I?** key to know its expiration date.

Navigating in your Daisy Online bookshelves:

- Each Daisy Online service offers a menu that may differ from one service to another. The menus are therefore dynamic. For example, some services allow the ability to copy books using key **3**, while others do not. Different download methods can be set as default, while different return policies may apply for expired books.
- Dynamic menus can also affect the way you search for content and browse your catalogues, wish lists, reserved lists, and new titles added.
- Two search types are possible: Single input and Multiple inputs. Generally, Daisy Online Service supports either one of these search types. Most services use the Single input search type, while only a few use the Multiple inputs search type.
- With the Single input search type, you will be prompted to enter your text using the multi-tap text entry method. Use the **Bookmark** key to toggle between Text and Numeric input types while entering your text to search. You can edit a previous search by entering new search terms which will be added after your previous search criteria. Press **Confirm** to start the search and display search results list, or press the **Star** key to cancel the search. You will return to your dynamic menu if your search was made from there, otherwise; you will return to your DOD bookshelf.
- With the Multiple inputs search type, you can enter multiple criteria to search, such as the title, author, etc. Each available criteria will have a distinct input field, and you can enter multiple criteria to search for at the same time. Press the **Left/Right (4/6)** keys to start multi-tap entry for the selected criteria. The first criteria name will be announced, followed by the last search term entered for that criteria. You can change the current criteria using the **Up/Down** arrows. Use the **Bookmark** key to toggle between Text and Numeric input types while entering your text to search. Press **Confirm** to start the search and display search results list, or press the **Star** key to cancel the search. You will return to your dynamic menu if your search was made from there, otherwise; you will return to your DOD bookshelf.
- Different services may also have different service announcements. You can press the **Info** key to hear these announcements again; and after you have heard them once, you can interrupt these announcements with any other key.
- In addition, depending on the Daisy Online service you are using, various functions will be available to you from key **3**. The option “Deleting current book from internal memory” is always available, while the options “Move current book from internal memory to SD card” and “Redownload” depend on what the Daisy Online service offers.
- Although each dynamic menu differs, some general rules apply. For example, in general, you will be able to change your selected choice using the **Left/Right (4/6)** or **Up/Down (2/8)** arrows and confirm your choice with the **Confirm** key.
- The **Where Am I?** key will announce the book description when available.
- The **Go To** key will allow you to jump to the book index.
- While downloading a Daisy Online book, an “Added to download queue” message will be heard. Press and hold the **Confirm** key to hear a download status report.
- In addition to canceling searches, the **Star** key allows you to go back up in the menu and leave the dynamic menu of a Daisy Online bookshelf.

Download Methods:

If you selected Manual download method in the Daisy Online menu, you will have an option on the bookshelf named “Download more books”. Use this option to browse all the books issued to

your account that are available for download. You can choose to download these books with the **Confirm** key, or return them directly without downloading them using the “return” option on key **3**. You can also return a book while offline; the return will be completed once you are connected to a wireless network.

If you selected Automatic download method in the Daisy Online menu, the Cardinal will periodically download new books issued to your account on your Daisy Online bookshelf. However, if you want the Cardinal to immediately download any available books, you can use the option on the bookshelf named “Check for New Content”. Once the player’s memory is full, new ones will be downloaded as books are returned.

If you selected Semi-automatic download method in the Daisy Online menu, you will be able to download Newspapers and Magazines automatically, and manually select other content to download, such as Books, and Other.

9 GPS – Orientation Mode

9.1 General description

The Cardinal was designed as an orientation aid to help you find your way. Cardinal locates your position through the *Global Positioning System* (GPS) and relates it to digital maps of your area. You can record your routes while walking them. The system then provides step by step instructions on how to navigate them. With Cardinal, you can explore your surroundings and let the system announce street information as they are encountered. If you wish to return to your point of origin, Cardinal is there to provide turn instructions to retrace your steps. The system also allows you to record your landmarks and reference points along a route. They will be announced automatically as you pass by.

After you charge up your Cardinal and first power it on, it is highly recommended you connect to your home WIFI network if one is available. Connecting to WIFI ensures you are running the latest version of the Cardinal software, and in addition allows the Cardinal software to download the updated GPS satellite information prior to you going outdoors to navigate. Having that latest GPS satellite info downloaded ahead of time will greatly speed up the GPS acquisition time when you go outdoors.

Upon first booting the device it is not unusual for it to take the Cardinal up to 5 minutes to acquire GPS satellite coverage. This is due to the device downloading the satellite data and learning where you are on the globe. Once you receive the connection to the satellites, your position is remembered for three additional days. This ensures that if you use your Cardinal regularly you will consistently acquire satellite reception within 5 to 30 seconds on a regular basis.

It is recommended to frequently connect to WIFI to ensure the latest satellite data is updated.

Caution: *The Cardinal system is designed as an orientation aid only and must not, at any time, be used as the only aid while traveling. When using Cardinal, users should always be vigilant, stay alert and pay attention to the immediate surrounding area. A conventional mobility aid like a cane or a guide dog should also be used. Cardinal is not a mobility device. It is the user's responsibility to use this device with caution. Do not use headphones while walking on the street.*

9.1.1 What is GPS?

GPS, or Global Positioning System, is a navigation system that is made up of satellites orbiting the Earth. Satellites send signals to the GPS receiver on your device. These signals are used to measure your position. Cardinal uses this information and matches it to the maps installed on the Cardinal internal memory.

The accuracy of GPS location information for commercial products such as Cardinal is currently more or less 10 meters (30 feet). However, this can vary depending on a number of factors including:

- How clear a view of the sky does the GPS receiver have?
- Are there obstructions blocking signals such as tall buildings or overhangs?
- The position of the satellites being tracked: overhead, on the horizon or somewhere in between.
- How many satellites are being tracked?
- Is there a presence of cloud cover or overhead power lines?
- How fast is the user moving?

GPS travel is based on a line of travel, rather than knowing if you are on one side of the road or the other. It is useful to think of yourself as traveling in the middle of the road, even though you are not.

Note: *The GPS is maintained and managed by the Government of the United States of America, who is entirely responsible for its precision and maintenance. The system may, at any time, be modified and therefore affect Cardinal's performance. The GPS signal is not precise or may not be accessible at all times, especially when traveling in an area surrounded by tall buildings.*

9.1.2 Maps installed in your device

The GPS system uses electronic maps to provide detailed and handy information about all street names and ranges of addresses for urban areas, as well as points of interest such as banks, restaurants, pharmacies. The maps of your area are already installed on your GPS device's internal memory.

It is also possible to update or install new maps on your device. Please refer to the [Installing and updating maps section](#) of this user guide.

9.1.3 Landmarks

Landmarks are particular locations along your travel paths that merit to be marked as reference points (the mail box at the corner of the street where you have to turn), places to avoid (potted plant on the sidewalk) or a location you go to (grocery store). You may create vocal recording for any number of landmarks. A landmark will be announced as the user passes near it, whether on foot or by vehicle.

Places that you consider as possible destinations in your usual travel, such as your home, a friend's place, your pharmacy or preferred restaurant, can be set as landmarks. Upon doing so, you can ask Cardinal to provide guidance instructions from your current position to the selected landmark.

9.1.4 Points of Interest

Points of Interest are commercially available information such as restaurants, hospitals, banks, train stations included with the Maps. This information is handled jointly with the Maps already included in your system. The automatic announcement of this information is not available by default, but it can be activated through the settings. Note that Points of interest are not automatically announced during motorized travels. Only landmarks are reported.

9.2 GPS Button Description

The **Where am I** button (5 key)

It provides information on the user's current position.

Press and hold **Where Am I**: Lists what is around (landmarks or points of interest) in the street segment where you are located.

The **Left arrow** (4 key or Rewind button) and **Right arrow** (6 and Fast forward) are used to browse through items in a list.

The **Information** button (0 key)

It provides information on the state of the system. Use the arrow keys to access the 3 levels of information.

Press and hold (0 key): This activates the Key Describer feature. When activated, press any button to hear a general description of its function.

Press the **Settings menu button** (7 key): This activates System settings. Use arrows to move through hierarchical menu, then use Confirm to enter into the selected option.

The **Repeat** button (Play button)

It is used to repeat the last message. It can also be used to interrupt a playing message.

Press and hold button **1** to enter the built-in user guide.

Button **3** is used to quickly access landmarks and routes settings in a list.

Press and hold the **Right arrow** (6 key or Fastforward button) to lock you into open area and prevent Cardinal from automatically placing you on a nearby street. Press and hold the **Right arrow** again to leave open area lock. Now the Cardinal will automatically recognize whether you are in an open area or on a street. When browsing a route, press and hold the Right arrow to go to Indoor preview mode.

The **Confirm button** (# key), located in the bottom right corner of the keypad, is used to launch actions and confirm the current selection.

The **Record** or **Bookmark** button Press to record a 4 second vocal description of a landmark.

Press and hold Record or Bookmark button: Used to launch Route creation where users can record a 4 second description of the route.

The **Explore** button * (star)

It is used to deactivate a route, letting you explore your environment without being guided.

9 key: Press and hold the 9 key to launch the Backtrack function, allowing you to retrace your steps.

The **Go To** button.

Used to activate guidance to a landmark. It provides access to the list of landmarks that are set as possible destinations.

Press and hold Go To:

It is used to activate a pre-recorded route.

All buttons are interruptible

The current action is always that of the last button pressed. Pressing a button will launch its assigned function, no matter what was the previous button pressed.

Return to basic navigation

No matter what actions have been undertaken, you can always return to basic exploration of your surroundings by pressing the Explore button *(star).

Exiting lists

Whenever you are asked to make a selection, you must Confirm your selection. If the Confirm button is not pressed, the system will return to the previous action after 30 seconds. The system will announce the current state.

9.3 Using the GPS

Press the Online button until you reach the Orientation mode. A tone will be heard while the system attempts to connect to GPS satellites. When connection is established, the system will announce your current position and attempt to find street names and landmarks. Your Cardinal is ready to use. If a connection cannot be established or if it is lost along the way, move to a different location with an unobstructed view of the sky. Note that this step can take a few minutes the first time you use your Cardinal's Orientation mode. If GPS is already on in the settings menu, the connection will be established in background before switching to Orientation mode.

9.4 Carrying the Cardinal

You should not use headphones when walking on the street.

In areas with heavy traffic or where the ambient noise makes it difficult to hear the internal speaker.

9.5 Explore

With the GPS device, you can explore your outdoor environment. Whether you are walking on a street or in an open area (such as a park or a parking lot) or even traveling by vehicle, the GPS tool will provide real-time information regarding your position and the direction in which you are heading.

Explore, step by step:

Power on Cardinal and select orientation using the online key.

The system will search for the satellites.

When ready, it will automatically provide information as you pass by.

When executing another function such as being guided through a route, you can always come back to Explore by pressing the Explore button.

Information provided while exploring around:

Whether you are walking or traveling by vehicle, Cardinal will provide real-time information. Switching from pedestrian to motorized travel is done automatically by evaluating the speed of travel. As the speed of motorized travel does not allow the extent of spoken detail possible when walking, Cardinal will adjust verbosity and mapping frequency to your mode of travel.

Address and Street: you will be informed of the street or area name where you are. When traveling in open areas, you will also be provided with the name of the nearest street in front of you, if it is not too far away.

When no name is provided for a specific street in the map database, the system will announce "Junction".

Next intersection: The user will be informed when approaching an intersection. By default, when on foot, the system informs you of the name of the crossing street and provides details on all ways included. Cardinal announces first the type of intersection (2, 3, 4-way intersection or more), and the current street name followed by the cross-street name. The intersection is broken down and each segment composing the intersection is named in a clockwise manner. For example, while walking on Main Street, you encounter a 3-way intersection where Fleet Street intersects with Main on your left side only. Cardinal will announce the following message: "3-way intersection. Main street crossing Fleet street on your left." When traveling in a vehicle, Cardinal will only announce the first crossing street, starting from right to left. For both pedestrian and in-vehicle travels, Cardinal will emit a beep to indicate when the intersection is detected.

If desired, the system can provide crossing street only.

Please consult the **Settings section** to obtain information on how to change the intersection verbosity

Landmarks: The user will be informed when approaching within 10 meters of a landmark or point of interest (if activated). It will be identified by name.

9.6 Information by request

9.6.1 Where am I?

To obtain your current position, press the **Where am I** button.

Depending on your configurations, the Where am I function will provide information regarding:

Route Status: **On Route** or **Off Route**. This information is only available if you are actually being guided on a route.

Current heading: The compass direction in which you are heading (North, South, East, West, South West etc...)

Current location: current estimated street address number and street name or name of area.

Next intersection: description of next intersection located in front of you and distance.

Next instruction (if a route is activated) provides information on what to do next to follow the route.

By default, Cardinal provides Route status, Heading, Street and civic number, Next instruction if guided and Next intersection if you are not guided. When traveling by vehicle, the Cardinal will also provide the city name. Please consult the Where am I Verbosity Settings section for additional information.

Note: If you are less than 10 meters (30 feet) away from any intersection, you are considered to be in a transitory zone. In this zone, the system does not provide a description of the next intersection because the user is not already engaged on the upcoming street.

9.6.2 What's around?

Press and hold the **Where am I** button to activate the **What's around** function. When traveling in streets, points of interest and landmarks found on your current street segment will be announced. Cardinal will also inform you whether points of interest are located to the left or right of your current position. When traveling in open spaces, landmarks found within the default range of (100 meters) will be announced. Use the **arrows** to browse the list to get an idea of the landmarks found in the vicinity. Press **Confirm** on any landmark to receive instructions on how to get there.

Extended Search

When using the arrows to browse the list of landmarks and points of interest you will find at the end an item called **Extended search**. Press **Confirm** to select it. Then, use the left or right arrow keys to search either by category of points of interest or by name by entering your own text.

Search by Category

If you selected Search by Category, you will be able to refine your search of points of interest by selecting a category from the list. Once again, use the **arrows** to browse the list of points of interest found, and press **Confirm** to select a destination. You will also need to confirm whether this is a pedestrian or automotive route.

The list of categories is as follows:

"Landmarks"
"Transportation"
"Food"
"Banking"
"Health"
"Shopping"
"Lodging"
"Education"
"Public Administration"
"Automotive"
"All"

Note that if you do not press **Confirm** on a given landmark / point of interest or Category within 30 seconds, the system will exit the **What's around** feature and will return to **Explore mode**.

Search by Name

If you selected Search by Name, simply type in a name of your destination using the numeric keypad, then press **Confirm**. You don't have to type the complete name to begin the search. For more information on how to type using the numeric keypad, please refer to [section 5.1](#) of the User guide.

Once you are done typing, press Confirm. The Cardinal will then provide you with a list of up to 50 points of interest found within a range of 5 miles (8 km) that contains the partial name entered. Use the **arrows** to select the point of interest of your choice, and **Confirm** to select a destination. You will also need to confirm whether this is a pedestrian or motorized route to begin instructions.

9.6.3 Next instruction or Next Intersection

When on an active route, you can preview the next instruction by pressing the **Right arrow**. Cardinal will announce the distance to the next instruction followed by the action to be taken. Each time you press the **Right arrow** the Cardinal will announce the following instruction. Use the **Left arrow** to navigate previous instructions. To return to guidance, press **Confirm** at any moment. When in Explore mode, pressing the **Right arrow** will announce the next intersection you will encounter if you continue in the same direction.

9.6.4 Pedometer

Pedometer data provides the following information: Walking distance after Cardinal was activated, Walking time (does not include time where no movement is detected) and Average walking speed.

To access Pedometer data, press the **Information** button, then press **Right arrow** twice.

To Reset Pedometer data, go to the Settings menu.

9.6.5 Repeat last message

If you wish to hear the last message or instruction again, press the Play button.

9.6.6 General Information

You can obtain information regarding various aspects of the route and the system by pressing the **Information** button (0)

Press the **Information** button to obtain contextual information on the current Cardinal activity. You will be given the following information: ON or OFF route, route name, Distance remaining, Distance traveled, and Route length.

Press **Right arrow** to obtain information on the Quality of the GPS signal, battery status and speed information.

Press **Right arrow** again to obtain city name, pedometer data and altitude information.

9.7 Record Landmarks

Users can create landmarks any time along their outdoor environment. These act as reference points or markers and will be detected when the user comes across them. It is highly recommended to mark any meaningful point in your surrounding that can act as a guiding element, an obstacle along the way or a possible destination.

To record a landmark:

1. Press the **Record** or the Bookmark button.
2. After the beep, provide a 4 second description of the landmark. A double beep will indicate the end of the landmark creation. The description and location of the landmark will be saved by the system.

Note that it is possible to cancel the recording of a landmark by pressing the * (**star**) key.

The recorded landmarks are kept in the list of possible destinations.

Important: Before recording landmarks, press the **Where am I** button to make sure that the Cardinal has properly located your position. If the landmark is meant to be situated at an address, make sure the Cardinal recognizes the location as a position on that Street (and not an open area). Similarly, if the intended Landmark is meant to be in an open area, make sure Cardinal does not recognize the location as being linked to streets.

9.8 Routes

The system provides the user with an opportunity to record a route while walking it a first time. This way it is possible to select the most secure or preferred path. The created route can be named and retraced to be used at a later moment. Please note that recorded routes are not available when traveling by vehicle. The Online button is also temporarily disabled when following a route.

9.8.1 Recording a Route

To create a route:

1. Press and hold the Bookmark or **Record** button and press **Confirm** to start creating a route. The system will ask you to dictate a route name.
2. After the beep, you will have 4 seconds to describe the route. You may find helpful to name the route by its origin and destination. For example, Home to pharmacy.
3. When the system has confirmed that you are creating a route, navigate the entire course of the route. Cardinal will emit a beep every 60 seconds to indicate the recording of the route. If GPS coverage is lost along the way, a message will inform you and beeping will stop. When GPS coverage is found again, beeping resumes.
4. Note that you can create landmarks along the way. To do so, press the **Record** button. After the beep, you will have 4 seconds to provide a vocal description of the landmark. A double beep will indicate the end of the landmark creation, at which point you can continue your route.
5. When you have reached your destination, press and hold the **Record** button until you hear the beep, to inform the system that the destination has been reached. The beeping stops and a message informs you that Route recording has ended.

Note: On occasion when creating a route, the system will announce the wrong intersection. This occurs when parallel streets are close to each other. If you know that the current intersection announced is wrong, press the **Confirm** button. You will be asked if you wish to delete this intersection from your route. Press **Confirm** again to delete the intersection. The system will fill in the gap to complete the route.

Important: You cannot record routes when in a vehicle. If you enter a vehicle during the route creation, please note that that your route may not be valid. Please preview before using this route. If you create a route while in a vehicle, the Cardinal will return to pedestrian mode and will announce "Warning, this route will be created for pedestrian travel."

9.8.2 Indoor Preview of a route

Cardinal allows you to preview a route before navigating it. This gives you a chance to learn the route instructions ahead of time. Indoor preview will provide you with detailed intersection information and turn instructions.

To preview a route indoors without being interrupted by GPS information:

1. Activate the route. To do so, press and hold the **Go To** button and use the **left** and **right arrows** to browse among available routes. When the route you are looking for is announced, press **Confirm** to load the route in the system.
2. You will be asked if you wish to preview the route in Forward direction or in Reverse. Press **Confirm** for Forward, or Press and Hold **Confirm** for Reverse.
3. Press and hold the **Left** or **Right arrow**. Cardinal will announce you are in the Indoor Preview mode followed by the first instruction.
4. You will be able to navigate through all instructions using the **Left** and **Right arrows** without being interrupted by incoming GPS information.
5. To exit Indoor Preview, press and hold the **Left** or **Right arrow** or press **Confirm**.

9.8.3 Activate a Recorded Route

You can use Cardinal to guide you along a previously recorded route.

To select a route:

1. Press and hold the **Go To** button located at the top left corner of the front panel.
2. Use the **left** and **right navigation arrows** to browse among available routes.
3. When the route you are looking for is announced, press **Confirm** to select it.
4. Press **Confirm** to be guided in forward direction. You will be given instructions on the direction to take to begin your route. If you wish to travel the route in Reverse, press and hold the **Confirm** button.

Along the way, you will be instructed on which direction to take when you come across intersections. Instructions on street network are given according to hand-side (left/right/go straight). For example, Cardinal could tell you to "turn left on Fleet Street."

When you enter an open area, a message will inform you. In this case, clockwise orientation is used to instruct the user on directions to take. For example, Cardinal could announce the following message: "Turn at 10 o'clock. Next instructions in 25 meters."

Upon reaching your destination, a message will be heard and the route will be automatically deactivated.

For landmarks created by entering an address and for commercial points of interest on maps, Cardinal will announce the side of the street of your destination.

Similarly to the Indoor Preview of a Route, at any moment during a guidance session, you can have the system announce the next or previous instruction by pressing the **Right** or **Left Arrow**. You will be given an instruction indicating a distance and action to be taken.

The **Information** button will provide route information: On or off route, name of the route, GPS status, Battery level, City, Pedometer data, Speed and Altitude.

Note: The Online button is temporarily disabled when following a route.

9.8.4 Deviating from Route

If you were supposed to take a turn but continued on the same street for a distance greater than 50 meters, the system will ask you to turn back so that you can return to the intersection. However, if you find yourself on a street that is not connected to a street on your route, the system will inform you that you are **Off route** and will ask you if you want to be rerouted to your destination. If you press **Confirm**, the system will provide instructions to guide you to your destination.

If you deviate from your route in an open area, the system will provide instructions on how to return to your route. Guidance instructions will be given in clockwise manner.

For example, if the system notices that you are heading away from the route, you might get a message such as:

"Off-route: Turn at 3 o'clock to come back to the route".

The Cardinal will provide these instructions until you return to your route, at which point it will announce "Back on Route".

In both situations, you will always be able to use the **right arrow** to get information on upcoming instructions to return to your route. For example: "In 50 meters, go straight".

9.8.5 Cancelling a route

After activating a route, you may cancel navigation at any point by pressing the **Go To** button again. Alternatively, you can select another operation such as the **Explore** button. You will be asked to confirm. If the **Confirm** button is pressed within 30 seconds, guidance will end and the system will return to exploring the environment. If the **Confirm** button is not pressed, the route will remain activated.

Note that if you attempt to load a new route while one is already active, you will be asked to press **Confirm** to cancel the current route, after which you will be able to select a new route to follow.

9.9 Backtrack (retrace steps)

Backtrack is a feature that allows you to retrace your steps and return to your point of origin. There are two Backtrack options possible.

The first option is Backtrack Current Session: This option allows you to backtrack your current session, meaning that you can be guided from your current location back to your starting point (after getting a GPS connection). This option is useful when you wish to return immediately upon reaching your destination. For example, when you leave home, you start your Cardinal. You reach your destination. Because you don't intend to stay very long, you leave the Cardinal on. In this case, if you wish to be guided back home, you will use the Backtrack Current Session option.

To Backtrack your current session (without turning the Cardinal off and back on):

1. Press and hold the 9 key.
2. You will be asked if you want to backtrack your current session or your previous session. Press **Confirm** to backtrack current session. The system will provide you with instructions to guide you back to your point of origin. A message will inform you when you have reached your destination.

The second option is called Backtrack Previous Session. This option allows you to backtrack your previous session. The Cardinal automatically records your pedestrian travels during the last power on/off session. This option is useful when you wish to return to your point of origin, but have shut the Cardinal after reaching your destination. For example, when you leave home, you start your Cardinal. You reach your destination. Because you wish to stay there for a while, you shut off your Cardinal. When you decide to leave and return home, you power the Cardinal back on. In this case, if you wish to be guided back home, you will use the Backtrack Previous Session option.

To Backtrack previous session (after a Power off):

1. Press and hold the 9 key.
2. You will be asked if you want to backtrack your current session or your previous session. Press and hold **Confirm** to backtrack your previous session. The system will provide you with instructions to guide you back to your point of origin. A message will inform you when you have reached your destination.

It is important that you keep in mind that the "previous session" track used to return to your point of origin will not be kept indefinitely. Only the track created up to the last Power off will be kept in memory. It will be replaced by a new one the next time the unit is powered on.

To Cancel Backtrack

Press and hold the 9 key. You will be asked to confirm. If the **Confirm** button is pressed within 15 seconds, the **Backtrack** feature will be deactivated.

Note: On a full battery, the system will be able to Backtrack a route traveled while the device is turned on, representing a period of several hours.

Note that the Backtrack feature is not available when traveling by vehicle. Only the last pedestrian portion of the distance traveled after an in-vehicle session will be kept to retrace your steps.

9.10 Getting Guidance to a Landmark

Cardinal can provide guidance instructions from the current user location to a selected landmark chosen as a destination. Guidance instructions are similar to those provided by Cardinal when following a pre-established route. However, instructions to reach the destination landmark are not recorded as routes.

Turn instructions are adjusted to pedestrian or in-vehicle navigation. Turn instructions for in-vehicle navigation are calculated according to the "quickest route" criteria. Routes calculated for in-vehicle use favor highways and other streets that may not be suitable for pedestrian travel. Turn instructions for Pedestrian navigations are intended to provide the shortest route possible.

To have Cardinal guide you to a landmark:

1. Press the **Go To** button. This will take you to the list of landmarks you can use as possible destination.
2. Use the **Left** and **Right arrows** to select the landmark of your choice. A vocal description of each landmark is heard.
3. Press the **Confirm** button to start receiving pedestrian instructions on the direction to take to begin your route. Press and hold the **Confirm** button for in-vehicle navigation instructions.

Upon selecting Motorized instructions, Cardinal automatically switches to motorized navigation.

If you are in an open area and heading towards a landmark that is also in an open area, the Cardinal will guide you in a straight line towards it. It will give you an indication of its relative

distance and heading. The Cardinal will inform you when you reach your landmark, but you will need to deactivate the route manually by pressing Explore. If Cardinal detects that you are deviating from your path, instructions will be automatically provided to direct you towards your selected landmark.

IMPORTANT: Effective guidance relies on the quality of the positioning (point of origin and landmarks). Always make sure that street positions are not mapped in open areas, and that open areas are not mapped on the street network.

You may cancel guidance instruction at any point by pressing and holding the **Go To** button or pressing the **Explore** button **(star)*. You will be asked to confirm. If the **Confirm** button is not pressed, the route will remain activated.

9.11 Getting Guidance to an Address

When browsing the list of possible landmarks towards which you can be guided, (see [Getting guidance to a landmark section](#)) you will come across an option allowing you to enter an address. Please refer to [section 5.1](#) to learn how to enter text with your Cardinal.

9.11.1 Creating a Landmark for an address

If you select Enter an address when browsing your landmark list, you will have the opportunity to type in the address of your choice using the Cardinal's buttons.

To have Cardinal guide you to an address:

1. Press the **Go To** button. This will take you to the list of landmarks you can use as possible destination.
2. Use the **Left** and **Right arrows** through the list of landmarks and select Enter an address. Press **Confirm** to select this option.
3. The Cardinal will ask you to select the country, state/province in which you will be travelling. The available choices depend on the maps you have installed. Use the **Left** and **Right arrows** to make your selection, followed by **Confirm**. Note that if a GPS connection is established, the system will automatically suggest the state/province where you are located. Press **Confirm** to select it.
4. You must now enter the name of the city. The previous city name entered will be announced. If you wish to select this city, or if none have been previously entered, you will need to enter the city name using the Cardinal's buttons. Enter the city name and press Confirm.
5. Select a name from the list of possible choices and press **Confirm**.

Note: You don't need to enter a complete city name or street name. You can enter a partial name, followed by **Confirm** and the Cardinal will search for names that include the characters entered. Use arrows to browse the list of names and press **Confirm** to make your selection.

6. After entering the city name, you must enter the street name. Proceed using same method as for entering city name. You can press the Explore button to return to the previous level.
7. Once a street name is entered, you will be asked for a civic number. If you know the exact civic number, again, use the Cardinal buttons to enter characters, followed by **Confirm**.

If you do not know the exact civic number of your destination, when asked to enter a civic number, simply press **Confirm**. At this point, the system will provide a list of address ranges for that given street, followed by a list of intersections where address ranges are not available. Use the **Arrows** to browse the list, and press **Confirm** to make your selection.

At this point, a new landmark will have been created for this address. To begin guidance towards this address, when asked, press **Confirm** again to create a pedestrian route, or press and hold **Confirm** to begin a Motorized route.

Note: During the character entry process, you can use the **Left arrow** at any time to delete a character. If you wish to return to the previous entry level, press **Explore**. To have your current entry spelled to you, press Fast forward.

9.12 Getting Guidance to a Postal Code (UK users only)

When browsing the list of possible landmarks towards which you can be guided, (see [Getting guidance to a landmark section](#)) you will come across an option allowing you to enter a postal code. This section will provide information on how to use the Cardinal's buttons to enter postal code details, similarly to entering an address (See [Getting Guidance to an address section](#)).

If you select Enter a postal code when browsing your landmark list, you will have the opportunity to type in the postal code of your choice using the Cardinal's buttons.

To have Cardinal guide you to a postal code:

1. Press the **Go To** button . This will take you to the list of landmarks you can use as possible destination.
2. Use the **Left** and **Right arrows** through the list of landmarks and select Enter a postal code. Press **Confirm** to select this option.
3. The Cardinal will ask you to start entering the postal code towards which you will be travelling. You need to enter all characters, either letters or digits, of the postal code, with or without spaces. When it is complete, press **Confirm**. The Cardinal will repeat the entered postal code.
4. You must now enter the civic number of the street you want to be guided to. If you don't know the exact civic number of your destination, skip this step by pressing **Confirm**. If you know it, proceed using same method as for postal code and press **Confirm**.

Note: Entering a civic number after the postal code gives a more accurate location for the destination since in some cases, for instance in rural areas, a single postal code may cover a large geographical area.

At this point, a new landmark will have been created for this postal code. To begin guidance towards this address, when asked, press **Confirm** again to create a pedestrian route, or press and hold **Confirm** to begin a Motorized route.

Note: During the character entry process, you can use the **Left arrow** at any time to delete a character. To have your current entry spelled to you, press Fast Forward.

9.13 Map Browsing Mode

Map Browsing mode allows you to virtually navigate a map installed on your device. This allows you to get to know and explore an area whether you are on the road or sitting at home. Map Browsing Mode can be accessed from your current location, from a saved landmark, or from an address.

9.13.1 Launch Map Browsing mode from your current location

You can launch Map Browsing mode at any time from your current location. Ensure GPS is connected and has a lock on your position. From this point you can press 2. The system will announce "Do you want to enter map browsing mode?". Press the confirm button to confirm and start freely browsing the area around you.

9.13.2 Launch Map Browsing Mode from a specific landmark or address

You can also launch Map Browsing Mode from a saved landmark or specific address in any map installed on your device. You do not need a GPS lock or internet connection. From the Orientation, and before launching map browsing, press the GoTo button on your system, then the 4 or 6 arrows to browse saved Landmarks or to enter an address (see [Section 9.11](#), Getting Guidance to a Landmark for more details). When you have selected a Landmark or entered an address the System will prompt you with 3 options: begin guidance to that location, begin a motorized guidance to that location, or enter Map Browsing Mode. Press 2 to enter Map Browsing mode from that Landmark or address.

9.13.3 Using Map Browsing Mode

Once you enter Map Browsing mode, the system will automatically orient you facing the North or East, depending on the direction of the road. The System will tell you your current Street name and heading. You can navigate the map by:

Pressing 2 to move you forward to the next street segment. If you reach an intersection, its type (i.e. 3-way, 4-way, 5-way, etc.) and the cross-street or streets will be announced.

A press and hold of 2 will move you forward to the next street segment and announce any Points of Interest on that segment. You can check all points of interests by pressing the 6 and 4 keys. If there were items as points of interests, you will need to press the star (*) or cancel key to get back to the map and continue browsing.

Press 8 to turn around and face the opposite direction of your current heading. If you wish to proceed in this opposite direction, press 2 and continue navigating as described above.

At an intersection, you can press 4 and 6 to scan across the intersection. For example, when you reach an intersection and press 4, you will be oriented towards the first segment on the left, and pressing 6 will rotate you clockwise until you reach the last segment, at which point the system will emit a beep. You can always press 4 to rotate counter-clockwise. When you hear the segment, you wish to continue exploring, press 2 to move forward, or press and hold 2 to move forward and have points of interest announced. If you wish to turn back around, press 8 as described above.

Press Where am I to get current heading, nearest location, and nearest intersection.

Press and hold Where am I to hear any nearby Points of Interest.

Press the bookmark button or the record button to create a new landmark at your current map browsing location.

To exit Map Browsing mode, press cancel. You will then be prompted asking if you wish to exit this mode. Press Confirm to exit, or any other key to remain in Map Browsing. Upon exiting, the system will return you to Explore mode.

9.14 Haptic Feedback

Haptic feedback on the Cardinal is a system that helps you navigate through vibration signals. When turned on and following a route, Cardinal will give you vibratory indications in addition to the standard vocal instructions.

The vibration signals have the following meaning:

- 3 short vibrations: Turn right
- 2 long vibrations: Turn left
- 1 long vibration: Go straight ahead
- 2 short vibrations and 2 long vibrations: Off route

When in Explore mode, you will feel one long vibration when receiving information about an upcoming intersection.

9.15 Locking/Unlocking Open Area

If you are walking in a park, university campus, or doing outdoor hiking, Cardinal can ensure you remain in open area without automatically placing you on a nearby street. To do so, simply press and hold the **Right arrow**. You will hear a beep sound and Cardinal will announce "Entering open area locked". If a route is activated, deactivate it first by pressing the **Explore** button before locking open area.

In open area locked mode, you can be guided as the crow flies towards any personal point of interest or landmark, whether your destination has been created on the road network or in an open area.

To leave open area locked, press and hold the **Right arrow** again. Cardinal will announce "Leaving open area locked" and will automatically recognize whether you are in an open area or on a street.

9.16 Settings

To configure the system, press the **7** button.

Use the arrows to select the option you wish to modify. The list of 12 options is as follows:

- GPS
- Landmarks
- Routes
- Import and export
- Verbosity
- Distance unit
- Haptic Feedback while navigating
- Voice Auto-switch
- About
- Reset Pedometer
- Reset GPS position
- Update GPS satellite positions

Press **Confirm** to select an option.

Press **Explore Star** or press **7** at any moment to exit the Settings menu.

9.16.1 Turning GPS on

Use the arrows to turn the GPS on or off. Confirm your selection by pressing the **Confirm** button. Note that turning the GPS off when you are not using it can preserve your battery life.

9.16.2 Configuring Landmarks

Use the arrows to select the landmark you wish to configure.
Press **Confirm** to load the selected landmark

Use the arrows to select the operation you wish to perform on the landmark. Operations include: Rename, Set/Unset as destination and delete.

Press **Confirm** to trigger the selected operation.

Note regarding Landmark configuration: You can directly access Landmark Settings. To do so, press and hold the **Go To** button, then select a landmark and press 3. The following options are made available:

- Rename landmark
- Unset landmark as a possible destination
- Delete landmark

9.16.2.1 Rename Landmark:

Upon selecting this option, a beep will prompt you to dictate the new name for the landmark in question. After 4 seconds, recording ends with a beep and message. The system exits configuration mode and announces the current state.

9.16.2.2 Set or Unset Landmark as possible destination:

Upon triggering this option, the system will ask you to set or unset the current landmark as a possible destination. Press **Confirm** to set or unset the landmark as a destination. Upon doing so, the system exits configuration mode and announces the current state.

This operation can also be achieved while you are recording your landmark.

When recording the landmark. Press **Confirm** within 30 seconds after its creation. Cardinal will confirm that the landmark has been unset as a possible destination.

9.16.2.3 Delete Landmark:

Upon selecting this option, the system prompts you to delete the current landmark selected. Press **Confirm** to Delete. Upon doing so, the system exits configuration mode and announces the current state.

9.16.3 Configuring Routes

Use the arrows to select the route you wish to modify.

Press **Confirm** to load the selected route. Use the arrows to select the operation you wish to perform on the route. Operations include: Rename and delete.

Press **Confirm** to trigger the selected operation.

Note regarding Route configuration: You can directly access Route Settings. To do so, press the **Go To** button, select the desired route, then, press 3. The following options are made available:

- Rename Route
- Delete Route

9.16.3.1 Renaming Route:

Upon selecting this option, a beep will prompt you to dictate the new name for the route in question. After 4 seconds, recording ends with a beep and message. The system exits configuration mode and announces the current state.

9.16.3.2 Deleting Route:

Upon selecting this option, the system prompts you to delete the selected route. Press **Confirm** to Delete. Upon doing so, the system exits configuration mode and announces the current state.

9.16.4 Import and export

Upon selecting this option, the system will ask you to select either a Landmark or Route.

9.16.4.1 Landmarks

Export landmarks to SD card

Selecting this item will export all your saved landmarks to the \$TREKLandmarks folder of your SD card.

Import landmarks

Selecting this item will import all landmarks found in both the root and the \$TREKLandmarks folder of your SD card.

Delete all landmarks

Selecting this item will delete all landmarks saved on your device. If you are sure you wish to delete all landmarks, confirm by pressing the **Confirm key**.

9.16.4.2 Route

Export routes to SD card

Selecting this item will export all your saved routes to the \$TREKRoutes folder of your SD card.

Import routes

Selecting this item will import all routes found in both the root and the \$TREKRoutes folder of your SD card.

Delete all routes

Selecting this item will delete all routes saved on your device. If you are sure you wish to delete all routes, confirm by pressing the **# key**.

9.16.5 Configuring Verbosity

Use the arrows to select which verbosity option you wish to modify. There are five verbosity options: Point of interest verbosity, Route information Verbosity, Where am I verbosity, Intersection verbosity, and Reset verbosity defaults. Press **Confirm** to select the verbosity option of your choice.

9.16.5.1 Point of interest Verbosity settings:

Upon entering the Point of interest Verbosity settings menu, use the arrows to cycle through the options and press **Confirm** to make your selection. The Point of interest Verbosity settings are as follows:

Not announced (default value). Points of interests are not announced and no beep is heard when encountered.

Tone. Points of interest are only announced by a beep when encountered.

Name and direction. Point of interest are announced with beep and message.

9.16.5.2 Route instructions Verbosity settings:

Upon entering the Route instructions Verbosity settings menu, use the arrows to cycle through the options and press **Confirm** to make your selection. The Route Verbosity settings are as follows:

Turns only (default value). The next instruction announces only intersection where user has to turn.

All instructions. The next instruction announces all intersections even if user does not need to turn.

9.16.5.3 Where am I verbosity settings:

Upon entering the Where am I Verbosity settings menu, use the arrows to cycle through the options and press **Confirm** to make your selection. The Where am I Verbosity settings are as follows:

Route status and location. Announces Route Status (if a route is activated) and Current location.

Route status, heading, location, intersection or next instruction (default value) (if a route is activated).

Route status, heading, location, intersection and next instruction (if a route is activated).

9.16.5.4 Intersection verbosity settings:

Upon entering the Intersection Verbosity settings menu, use the arrows to cycle through the options and press **Confirm** to make your selection. The Intersection Verbosity settings are as follows:

Crossing streets only. Announces Crossing street.

Detailed. Announces intersection description.

9.16.5.5 Reset verbosity defaults:

Upon entering the Reset verbosity defaults settings menu, you will be asked confirm that you want to restore default settings by pressing **Confirm**.

9.16.6 Distance Units

Use the arrows to cycle through the 2 options and press **Confirm** to make your selection. The Distance settings are as follows:

Kilometers and meters

Miles and feet (default value)

Miles and yards

9.16.7 Haptic Feedback

Haptic feedback on the Cardinal is a system through which vibrations are used to guide you to your destination.

Use the arrows to turn the Haptic Feedback on or off. Confirm your selection by pressing the **Confirm** button.

9.16.8 Voice Auto-Switch

Voice auto-switch is a useful setting for bilingual users living in countries that have more than one official language. It will determine the navigation voice when GPS data or instructions received by your Cardinal are in another language. Change your current language by pressing and holding the 7 key and select one of the three following options to determine your Cardinal's behaviour when this situation occurs.

Streets, cities and points of interest; Instructions, streets, cities and points of interest;

Current voice

Use the arrow keys to select your preference. Confirm your selection by pressing **Confirm**.

9.16.9 About

Use the Arrows to browse through the following information:

Device name and version

Map coverage name and version

Device serial number

Press **Confirm** to exit the information. The system will announce current state.

9.16.10 Resetting GPS Position

Occasionally, the Cardinal will not be able to properly situate the user. For example, this may happen in an environment surrounded by high buildings or dense trees. In situations such as these, it can be useful to reset your position by selecting this option.

9.16.11 Update GPS satellite positions

Although the Cardinal automatically and regularly updates satellite positions for up to three days, this option lets you update the satellites' ephemeris information manually for an optimal GPS accuracy for up to two weeks. You may have to wait up to 2 minutes for the GPS positions to be updated on your Cardinal.

10 Cardinal Wireless Features

When you press the **Online** button located in the centre of the top key row, the Cardinal will switch between the standard bookcase, online bookcase, and Orientation mode. The airplane mode turns off all wireless communication from the Cardinal and should be activated when you travel by airplane. Turning off the airplane mode will therefore allow wireless communication. Press and hold the **Online** button to turn the airplane mode on or off. Note that GPS still works while in airplane mode. If you are not using the online bookcase, it is best to leave the airplane mode turned on as it will reduce battery consumption. Press the **Online** button to toggle between the online bookcase, the standard bookcase, and Orientation mode.

10.1 Online Check for Updates

When the Cardinal is connected to a wireless network and has Internet access, it will access the HumanWare website from the online bookcase. The Cardinal will check for any available software updates and will prompt you to download and install them automatically. This automatic check for updates can be disabled from the Software Updates configuration menu. You can also choose to check for updates manually from the same menu, and the Cardinal will immediately check for any available updates. See chapter 9 (Updating Cardinal Software) to learn how to update your Cardinal wirelessly.

10.2 Online Services

10.2.1 NFB Newslines

In the United States, the National Federation of the Blind (NFB) provides a service that allows you to receive accessible newspapers and magazines in DAISY format that is called NFB Newslines.

For more information, visit:

<http://www.nfbnewslinesonline.org>

To begin receiving NFB Newslines publications on your Cardinal, you will need to set up your FAVORITES list for the content that you want to have delivered to your device. If you have not yet set up a Favorites list, you will need to login to NFB NEWSLINES ONLINE at

<http://www.nfbnewslinesonline.org>

and select the link to MANAGE ALL YOUR FAVORITES. Select MANAGE YOUR FAVORITE IN YOUR POCKET PUBLICATIONS and add your desired newspapers and magazines. There is no limit as to the number of IN YOUR POCKET publications you may have.

To activate the NFB Newslines service:

Make sure your Cardinal is connected to a known wireless network. Press the **Online** button to access the online bookcase. Press the **Menu (7)** key several times to access the NFB Newslines menu. To add the NFB Newslines service, select the item "Add NFB Newslines service" and press **Confirm**. You will then be prompted to enter your NFB Newslines member ID and PIN each followed by the **Confirm** key. After you have successfully entered your account information an NFB Newslines online bookshelf will be added to the online bookcase.

Whenever an active Wi-Fi connection is available, the Cardinal will now automatically synchronize the latest editions of your selected favorite publications and will automatically remove older editions. The NFB Newslines service determines which editions of each publication are available for synchronization. It is possible to check for any updated content on demand at any time by selecting the "Synchronize NFB Newslines Content" item which can be found after the last publication on the NFB Newslines bookshelf when navigating with keys **4** and **6**, or by pressing the **Go To** key twice. From your NFB Newslines bookshelf, you can add a new NFB Newslines publication by pressing the **Go To** key and selecting the item "Add NFB Newslines Publications". Navigate through the list of publications with keys **2** and **8**, and press the **Confirm** key to subscribe to the new publication.

If you wish to save a copy of a publication it is possible to use the copy function of key **3** when reading the publication to copy it to the Talking Books bookshelf of the SD card. It is not possible to delete publications from the NFB Newsline online bookshelf as the automatic synchronization will remove old editions and add new ones as they become available. You can choose to make a NFB book persistent by using the “Prevent auto-deletion of an NFB Newsline issue” option on key **3**. To unsubscribe from a publication, use the “Unsubscribe from an NFB publication” option on key **3**. A confirmation prompt will ask you to confirm before unsubscribing from your publication, press the **Confirm** key to confirm or any other key to cancel. Note that this will remove all books for this publication from internal memory, including books that were marked as persistent.

From the NFB Newsline configuration menu, you have the option of choosing how often the Cardinal downloads new content with the item “Get latest editions”. You can choose to have new content downloaded “Always” (default), which can be up to several times a day, or “Once daily”.

10.2.2 Bookshare

Bookshare is an online library of copyrighted content for people with qualifying print disabilities. More information about Bookshare is available from <http://www.bookshare.org>. You are able to wirelessly search for books and download them to the Cardinal. Books are downloaded in DAISY text format and appear on the Bookshare online bookshelf. Newspapers and magazines are currently not available in the online search.

To activate the Bookshare online service:

- Press the **Online** button to navigate to the online bookcase.
- Press menu key **7** several times to access the Bookshare configuration menu.
- Select the item “Add Bookshare service” using keys **2** and **8** followed by the **Confirm** key.
- Enter your Bookshare account email address and password. Passwords are usually case sensitive. You may toggle between uppercase, lowercase, numeric only by pressing the Bookmark key. End your entry with the **Confirm** key.

After you have successfully entered your account information, a Bookshare bookshelf will be added to the online bookcase.

To search for and download books:

- When on the Bookshare online bookshelf the search can be done either by pressing the **Go To** key twice located above bookshelf key **1** or by using the option that is found after the last book on the Bookshare bookshelf when navigating with keys **4** and **6**. You can search books by title, author, full text search, and category. You can also search for the most recent or popular books.
- The **Go To** key can also be used to go directly to a specific result. Press **Go To**, enter the desired search result number, followed by **Confirm**.
- Use keys **2** and **8** to choose the search criteria followed by the **Confirm** key. The search text can then be entered using the multi-tap text entry method. Use the **Bookmark** key to toggle between Text and Numeric input types while entering your text to search. After entering the search text press the **Confirm** key to begin the online search. If you have done a previous search then your search text will be retained for convenience in case you wish to refine your search.
- Use keys **4** and **6** to review the search results. The book synopsis is available when reviewing the list of search results by pressing the “Where am I” key **5**. Only the books available to your account will show up in the search results.
- To download a book select it from the list of search results and press the **Confirm** key. The book will be downloaded and added to the Bookshare online bookshelf and you will be returned to the list of search results making it easy to download additional books.

- To exit the search press the **Cancel** key to go back one step or key **1** to return to the Bookshare online bookshelf.

Downloaded books can be deleted by pressing key **3** while browsing the Bookshare online bookshelf with keys **4** and **6** or while reading a book.

While reading a downloaded Bookshare book, key **3** can also be used to move a book from the Bookshare online bookshelf to the talking books bookshelf on the SD card. This will add the book to your SD card and remove it from internal memory, freeing up some space for future book downloads.

10.2.3 Internet Radio

When the Cardinal is connected to a wireless network, you will be able to access a collection of playlists containing Internet Radio stations. The Favorites playlist, where all your bookmarked stations are saved, appears on the Internet Radio bookshelf once you save a station. The HumanWare playlist always appears on the Internet Radio bookshelf and offers a sample list of stations. The selected HumanWare playlist is based on your country or region of purchase and can be changed in the online configuration menu. The Internet Radio Recordings playlist contains all your radio recordings. This playlist is only available when there are radio recordings on your device.

The Internet Radio bookshelf also allows you to search for radio stations by name or genre. The Cardinal supports ooTunes, an Internet Radio service allowing you to search for radio stations and add them to your Favorites playlist.

To search for Internet Radio stations:

- From the Internet Radio online bookshelf, the search can be done either by pressing the **Go To** key multiple times or by using the option that is found after the last playlist on the Internet Radio bookshelf when navigating with keys **4** and **6**. You can search on ooTunes by browsing by genre or searching by name.
- Use keys **2** and **8** to select the search method (Name or Genre) followed by the **Confirm** key. The name search is done by entering the text to search. Use the Multi-tap text entry method to enter the text, and press **Confirm** to initiate the search.
- To search by genre, you can browse the different genres with keys **2** or **8**.

To navigate through and listen to Internet Radio stations:

- From the Internet Radio bookshelf, use the keys **4** and **6** to navigate by playlist. Once you select a playlist with **Confirm**, you can search and navigate through the radio stations using keys **4** or **6**. The number of the current station will be announced, followed by its name.
- The **Go To** key can be used to go directly to a specific station. Press **Go To**, enter the desired station number, followed by **Confirm**.
- Press **Play/Stop** or **Confirm** to start listening to the station.
- Press **Play/Stop** again to stop listening to the station.
- If you use the **4** or **6** keys while playing a radio station, the next or previous station will start playing immediately.
- You may press the **Where Am I** key **5** to announce additional information about the station.
- The **Bookmark** key will allow you to save the current station to your Favorites after pressing **Confirm**.
- You can remove the current station from the playlist by pressing key **3**. Press **Confirm** to remove it or press the **Star** key to cancel deletion.
- To export a playlist to your S D card, use key **3** option "Export playlist to S D card" from a selected playlist.
- You can also choose to export all your playlists to your S D card from the Internet Radio configuration menu using the item "Export all playlists to S D card".

To record internet radio stations:

- While listening to a radio station, press the **Record** button to start recording the radio station.
- While recording, press **Play/Stop** to pause your recording. Press **Play/Stop** again to resume recording.
- Press **Record** again to stop recording the radio station.

Note: You can add bookmarks and save your position while recording a radio station simply by pressing the **Bookmark** button while recording.

Note: Internet radio recording parameters are the same as the External Recording parameters. External recording parameters can be accessed in the Configuration menu, but only when the standard bookcase is active.

To access, delete, and transfer internet radio recordings:

- From the Internet Radio bookshelf, press the **4** and **6** keys until you reach the Internet Radio Recordings playlist.
- Press **Confirm** to enter the Internet Radio Recordings playlist.
- Press the **4** and **6** keys to scroll through your radio recordings. Alternatively, you can select a specific recording by pressing the **Go To** key followed by the number of the recording, then confirm by pressing the **Confirm** key.
- Press **Play/Stop** to start listening to your selected recording.
- During playback, you can use the bookmark function in the same way as you would with any audio track (refer to Chapter 5.3 for detailed instructions on using bookmarks).
- You can delete your selected recording by pressing the **3** key once, followed by the **Confirm** key. Press the **Confirm** key again to confirm deletion.
- To move an internet radio recording to an S D card, select the recording you wish to transfer, then press the **3** key twice.
- Press the **Confirm** key to move your selected recording to your S D card, then press the **Confirm** key again to confirm the transfer.

To delete all Internet radio recordings:

- From the Internet Radio bookshelf, press the **4** and **6** keys until you reach the Internet Radio Recordings playlist.
- Press **3** once, then press **Confirm** to delete all your Internet Radio recordings.

To move all Internet radio recordings to S D:

- From the Internet Radio bookshelf, press the **4** and **6** keys until you reach the Internet Radio Recordings playlist.
- Press **3** twice, then press **Confirm** to move all Internet radio recordings to your S D card.

Notes: Because the Cardinal supports specific formats, the ooTunes search results may be different than with other devices (ex: iPhone). In addition, certain radio stations may not be accessible while travelling in a region that does not support them, although they are displayed in the search results. Note that you will be able to access these radio stations once you return to the region that supports them.

10.2.4 References (Wikipedia and Wiktionary)

When the Cardinal is connected to a wireless network, you will be able to search for references on Wikipedia and Wiktionary. A References bookshelf will automatically be added to your online bookcase.

To search for and add references:

- From the References bookshelf, the search can be done either by pressing the **Go To** key multiple times or by using the option that is found after the last book on the References bookshelf when navigating with keys **4** and **6**.

- From a book, you can also search for references on Wikipedia or Wiktionary by pressing the **Go To** key multiple times on a selected word until you hear “Search on Wikipedia” or “Search on Wiktionary”. For text books, the last word that was read will be entered in the search. You can also enter a word to search using the Multi-tap text entry method.
- If Wikipedia or Wiktionary articles contain the word you searched for, you will hear the number of definitions that were found as well as a short synopsis of the first definition found. You can scroll through the different definitions by pressing the **4** and **6** keys. You will then be asked if you want to read the complete article. Press **Play/Stop** to access the complete article or **Cancel** to return to your book.
- While reading Wikipedia or Wiktionary articles, press **Cancel** to return to your book.
- While reading a complete article, you can save it by pressing the **Manage Books** key (key **3**), followed by **Confirm**.
- Saved articles will be prefixed by “wiki” and Wiktionary articles by “wikti”, and grouped together by service (Wikipedia or Wiktionary) then by language (EN for English, FR for French, and so on). Use the **4** and **6** keys to navigate in your saved articles. You can also use keys **2** and **8** to navigate by level (service at level 1 and language at level 2).
- To go directly to a specific file, use the “Go to File” option on the **Go To** key.
- To delete an article from the References bookshelf, use the Delete function of the **Manage Books** key (key **3**), followed by **Confirm**.
- From the References bookshelf, you can also move a Wikipedia or Wiktionary article on your SD card with the Move function of the **Manage Books** key (key **3**), followed by **Confirm**.

Note: The TTS language will determine the language of the Wikipedia database that will be used for the search (ex: en.wikipedia.com, fr.wikipedia.com, etc.).

10.2.5 Podcasts

When the Cardinal is connected to a wireless network, you will be able to access the Podcasts service, used to download and listen to audio content from podcast feeds. The Cardinal will automatically download the most recent episodes from every subscribed podcast feed. The first time you connect your Cardinal to a wireless network, it will automatically download the HumanWare podcast, which shares general information about the Cardinal and HumanWare. The podcast episodes that have been downloaded will be available even when the Cardinal is not connected to a wireless network.

To search for, download and listen to online podcasts:

- A Podcasts bookshelf will automatically be added to your online bookcase.
- From your Podcasts bookshelf, you can add podcast feeds either by pressing the **Go To** key multiple times or by using the option that is found after the last podcast feed when navigating with keys **4** and **6**. You can also search for feeds by title using the Multi-tap Text Entry method. Use the **Bookmark** key to toggle between Text and Numeric input types while entering your text to search. You can also browse by category using the predefined category searches. Use keys **4** and **6** to browse the search results, followed by **Confirm** to add a feed to your Podcasts bookshelf.
- Use key **5** to read the feed descriptions and the individual episode descriptions if available.
- You can also browse the HumanWare suggested podcasts to search for podcasts.
- In addition, you can use the “Get more episodes” option at the end of the list of downloaded episodes or on the **Go To** key rotation to download older episodes on demand.
- The **Go To** key can also be used to go directly to a specific result. Press **Go To**, enter the desired search result number, followed by **Confirm**.

- To listen to a podcast, open a feed and select an episode you want to listen to with keys **4** or **6**, followed by **Confirm**. The Cardinal will inform you if a podcast feed contains any new episodes. If you only want to browse the podcast feeds that contain new episodes, use keys **2** and **8**.
- To copy an episode to your Saved Podcasts folder on the S D card, press key **3** twice from your list of episodes or when playing an episode.
- To export your subscribed podcast feeds to the S D card, use the item “Export subscribed podcast feeds to S D card” from the Podcasts configuration menu. A file ending with .OPML will be created on your S D card containing all of your subscribed podcast feeds. This file can be used as a backup or for importing the list of podcast feeds in another podcast client.

Once subscribed to a feed, the Cardinal will automatically start downloading the most recent episodes in the background. The Cardinal will tag these episodes as “new” as they have never been played before. From the configuration menu, you can use the “Downloaded podcast episodes to keep” item to choose how many podcast episodes should be kept on your Cardinal (between 1 and 10, the default value being 3 episodes) or whether you want to keep the episodes manually only.

Note: Please note that if you have some new episodes and if you set your downloaded podcast episodes to manual only, they will be deleted from your Cardinal as they have not yet been saved, and no new episodes will be automatically downloaded.

When a podcast episode is downloaded, it is saved in the Cardinal's internal memory. If the episode was downloaded automatically, it will also be erased automatically when enough new episodes become available, depending on the number of downloaded podcast episodes to keep you have set in the configuration menu. You can choose to make an automatically downloaded episode persistent using the “Prevent auto-delete of episode” option on key **3**. If an episode was downloaded manually, it will have to be erased manually using the key **3** “Delete” function. When select many podcasts for download, they will be placed in a download queue in the background, allowing you to continue using your Cardinal. A notification will be sounded when a podcast download is completed. You can configure these notifications in the General configuration menu and choose between Beep and Message (default), No notifications, and Beep Only. To unsubscribe from a podcast feed, use the option “Unsubscribe from podcast feed” on key **3**.

To delete all episodes from a podcast feed:

- From the podcast bookshelf, press on the **4** and **6** keys to select the feed whose episodes you wish to delete.
- Press the **3** key until you receive the option to delete all podcasts from the podcast feed.
- Press the **Confirm** key to select the option.
- Press the **Confirm** key again to delete all episodes.

To move all episodes of a podcast feed to an S D card:

- From the podcast bookshelf, press on the **4** and **6** keys to select the feed whose episodes you wish to move to an S D card.
- Once the podcast feed is selected, press on the **3** key until you receive the option to move all podcasts from the podcast feed to the S D card.
- Press the **Confirm** key to select the option.
- Press the **Confirm** key again to move all podcasts.

Note: You can only delete or move all episodes of a podcast feed when you have podcast episodes on your device.

10.2.6 NLS BARD (United States only)

National Library Service for the Blind and Physically Handicapped (NLS BARD) is a free library program of audio materials (for eligible United States citizens only). More information about NLS BARD can be found on <http://www.loc.gov/nls/bardnls/>.

You are able to wirelessly search for books and download them to the Cardinal. They will appear on the NLS BARD online bookshelf.

To activate the NLS BARD online service:

- Press the **Online** button to navigate to the online bookcase.
- Press menu key **7** multiple times to access the NLS BARD menu.
- Select the item “Add NLS BARD service” using keys **2** and **8** followed by the **Confirm** key.
- Enter your NLS BARD account email address and password. Passwords are usually case sensitive. You may toggle between uppercase, lowercase, and numeric only by pressing the Bookmark key. End your entry with the **Confirm** key.

After you have successfully entered your account information, an NLS BARD bookshelf will be added to the online bookshelves.

To search for and download books:

- When on the NLS BARD online bookshelf, the search can be done either by pressing the **Go To** key multiple times or by using the option that is found after the last book on the NLS BARD bookshelf when navigating with keys **4** and **6**. You can search books as on the NLS BARD website using the “Search the collection” function, which allows you to enter the author’s name, book title, key words, etc. You can also browse by category and search for the most recent or popular books, as well as the most recent magazines. You can also use the option “Browse My Wish list”, a preselected list of books and magazines that you can manage from the NLS BARD website and from your Cardinal. To add an item to the wish list, press the **Bookmark** key on any NLS BARD search result. To delete an item, use key **3** (Delete option) followed by **Confirm**.
- Use keys **2** and **8** to choose the search criteria followed by the **Confirm** key. The search text can then be entered using the multi-tap text entry method. After entering the search text press the **Confirm** key to begin the online search. If you have done a previous search then your search text will be retained for convenience in case you wish to refine your search.
- Use keys **4** and **6** to review the search results. Only the books available to your account will show up in the search results.
- Use key **5** to read the book synopsis if available.
- To download a book select it from the list of search results and press the **Confirm** key. The book will be downloaded and added to the NLS BARD online bookshelf and you will be returned to the list of search results making it easy to download additional books.
- The **Go To** key can be used to go directly to a specific result. Press **Go To**, enter the desired search result number, followed by **Confirm**.
- To exit the search press the **Cancel** key to go back one step or key **1** to return to the NLS BARD online bookshelf.

Downloaded books can be deleted by pressing key **3** while browsing the NLS BARD online bookshelf or while reading a book. While reading a book, key **3** can also be used to move a book from the NLS BARD online bookshelf to the talking books bookshelf on the S D card. This will add the book to your S D card and remove it from internal memory, freeing up some space for future book downloads.

When multiple items are selected for download, they will be placed in a download queue, allowing you to continue using your Cardinal. A notification will be sounded when a download is completed. These notifications can be configured in the General configuration menu.

10.3 NLS Online Authorization

When the Cardinal is connected to a wireless network and has Internet access, it will access the HumanWare website from the online bookcase. The Cardinal will check for any available NLS authorization keys (for eligible United States citizens only). If a key is found for your Cardinal, it will be downloaded and installed automatically.

11 Technical Specifications

VR Cardinal Specifications:

- Size: 114 x 62 x 24mm (4.5 x 2.4 x 0.9 inches)
- Weight with battery: 140g (5.0 ounces)
- 3.5mm stereo Headset jack
- Built-in mono omni-directional microphone
- Built-in 500 mW speaker
- Battery: Lithium-Ion, 3.7V nominal
- Battery recharge time: Up to 4 hours with AC adapter. May be longer with other chargers or PC recharge.
- Power Supply: Switching type AC/DC. Input 100V – 240V, 50Hz – 60Hz. Output: Type A USB socket, 5VDC, 1A
- Operating temperature range: +5 to + 40 degrees Celsius
- Battery charging temperature range : +5 to + 35 degrees Celsius
- Storage and transportation temperature: -20 to + 45 degrees Celsius
- Operating humidity: 5% to 90% (non-condensing)
- Storage and transportation humidity: 5% to 95% (non-condensing)
- Micro USB OTG compliant interface
- SD (Secure Digital) card slot supports up to 32gb SDHC cards.
- Talking Book formats: DAISY 2, 2.02 , NISO Z39.86 2002,/2005, NIMAS 1.1, unprotected EPUB 2, LGK
- Audio Codecs: AMR-WB+, mp3, MPEG2, mp4, m4a, m4v, OGG Vorbis, Wav P.C.M, Speex
- File types: 3gp, bra, brf, docx, fb2, html, m4a, m4v, mp2, mp3, mp4, mpg, OGG, rtf, SES3, txt, wav, xml, LKF
- Text-to-Speech: Acapela
- Recording: MP3 16-bit samples at a sampling rate of 44,100Hz with a bit rate of 64, 96, 128, 192 kbps, PCM 16-bit samples at a sampling rate of 44.100Hz
- DRM: 2002 PDTB1 (so-called I.P.P.) and 2006 PDTB2
- Wi-Fi: IEEE 802.11b/g/n operating in the 2.4GHz band (WEP not supported)
- Maximum SAR Value: 0.90 W/kg

Care and maintenance

To keep your Cardinal clean, we recommend that you wipe the surface of the unit periodically using a soft damp cloth. Squeeze cloth to remove excess moisture. Only use warm water. Do not use any cleaning agents. The product is not intended to be disinfected.

Storage and transportation

The product should not be folded or dismantled in storage or transportation.

The product can be carried as any electronic device in a car or plane. It does not have any specific restrictions.

Additional information

After long exposition to the sun, the surface temperature might increase.

The product has performed immersion and electromagnetic immunity tests and should not cause any interference, or be influenced by any other product.

The product material has a V-0 level rating to ignition.

The product is designed to have a lifetime exceeding 5 years. The Battery is designed to have a lifetime of 3 years.

Measured sound Power Level

Headphone sound power output is limited to levels of EN50332
The speaker maximum power level is 92dBA at 1 meter.

Service Information

No maintenance, calibration or preventive inspection is needed on the player.
If the user finds the battery autonomy has decreased, a replacement battery may be purchased and replaced by the user.
Contact APH for any repair or malfunction questions.
Service shall only be done by HumanWare or its authorized distributor.

Susceptibility to Interference

There may be temporary degradation of the sound when the Cardinal is subjected to a strong radio-frequency field, electro-static discharge or transient electrical noise.

FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada statements

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

Antenna Information:

Model: 001-0014 LSR 2.4 GHz FlexPIFA
Antenna w/U.FL cable, 100mm
Type: PIFA
Connector: U.FL

Peak Gain (dBi): 2.0

CAN ICES-3 (B)/NMB-3(B)

Audio Warning

To prevent possible hearing damage, do not listen at high volume levels for long periods. Exercise caution when holding your device near your ear while the loudspeaker is in use.



12 Battery Safety Precautions

- Do not use or leave the battery near heat source and fire. Do not store in high temperatures
- Only use USB-compliant power supplies to charge the battery
- Do not disassemble or modify the battery
- Do not short circuit the terminals
- Do not immerse the battery in water, do not allow it to get wet
- Do not strike or throw the battery
- Do not pierce or strike the battery with sharp objects or a hammer
- Do not solder the battery
- Do not reverse the positive and negative terminals
- Do not use the battery for purposes other than those intended by manufacturer
- Do not use the battery with primary battery or batteries of different capacities or brands
- If the battery leaks and liquid gets into the eyes, do not rub eyes. Instead, rinse the eyes with clean running water and seek immediate medical attention to prevent injury
- If the battery leaks and comes into contact with skin, immediately rinse area with clean running water to prevent injury

13 APH Contact Information



1839 Frankfort Avenue, Louisville, Kentucky 40206
502-895-2405 • 800-223-1839
aph.org • info@aph.org

14 End User License Agreement

By using this product (VR Cardinal) you agree to the following minimum terms.

1. License Grant. APH grants to End User a non-exclusive, non-transferable right and license to use the Software on this product.
2. Ownership of Software. End User acknowledges that APH retain all right, title and interest in and to the original, and any copies, of software which is incorporated into this product. End User agrees not to: modify, port, translate, decompile, disassemble, reverse engineer, or make public in any way the software of this Product.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)

15 Appendix 1 - Cardinal Error Messages

SYSTEM error 1: CDROM, Does not apply.
SYSTEM error 2: MEMORY, Memory allocation problem.
SYSTEM error 3: BATTERY, Error with battery detection.
SYSTEM error 4: INT_STOR_FAIL, Error detecting internal storage.
SYSTEM error 5: INT_STOR_CORRUPT, Corrupted internal storage.
SYSTEM error 6: TTS, Failure to initiate the TTS.

MEDIA error 1: READ, Error reading sector on disc.
MEDIA error 2: FORMAT, Unsupported File system.
MEDIA error 3: MOUNT, Error while mounting device.
MEDIA error 4: AUDIO, Does not apply.
MEDIA error 5: FILE, Error accessing the audio file.
MEDIA error 6: WAV, Error creating new wav structure.
MEDIA error 7: MPEG, Error handling an mpeg file.
MEDIA error 8: VORBIS, Error handling a vorbis file.
MEDIA error 9: NO AUDIO, No audio output available.
MEDIA error 10: AMR-WB+, Error handling a AMR-WB+ file.
MEDIA error 11: MP4-AAC, Error handling a MP4-AAC file.
MEDIA error 12: WRITE, Unable to open file for writing.
MEDIA error 13: SDLOST, card removed during write operation.
MEDIA error 14: USBLOST, USB device removed during write operation.

BOOK error 1: GENERIC, Unspecified.
BOOK error 2: MP3, Error with the mp3 decoder.
BOOK error 3: VORBIS, Error with the ogg vorbis decoder.
BOOK error 4: WAV, Error with the wav decoder.
BOOK error 5: NO FILE NAME, No file name available.
BOOK error 6: NO CUR POS, No current position is set.
BOOK error 7: FILE NOT FOUND, File not found on MCART.
BOOK error 8: AMR-WB+, Error with the AMR-WB+ decoder.
BOOK error 10: VRTEXT, Error parsing text file.
BOOK error 11: TEXT SIZE, Text file is too big.
BOOK error 12: Braille translation error.
BOOK error 13: MP4-AAC, Error with the MP4-AAC decoder.
BOOK error 14: Re-parse text, Error re-parsing text file.
BOOK error 15: STRUCT_SIZE, Text book structure too big.
BOOK error 16: DRM, Error trying to play DRM content.

WIRELESS error 1: GENERIC, Unspecified.
WIRELESS error 2: CREDENTIALS, Invalid wireless credentials (SSID, password, nickname).
WIRELESS error 3: MANAGER, Error with wireless manager.
WIRELESS error 4: MODULEUP, Error loading kernel module for wireless device.
WIRELESS error 5: MODULEDOWN, Error unloading kernel module for wireless device.
WIRELESS error 6: CONNECTIONUP, Error establishing connection.
WIRELESS error 7: CONNECTIONDOWN, Error disabling connection.
WIRELESS error 8: DEVICEUP, Error enabling hardware for wireless.
WIRELESS error 9: DEVICEDOWN, Error disabling hardware for wireless.
WIRELESS error 10: IPUP, Error retrieving address using DHCP.
WIRELESS error 11: IPDOWN, Error freeing IP address.
WIRELESS error 12: ENCRYPTYPE, Unsupported EncrypType.
WIRELESS error 13: SCAN, Error scanning for networks.
WIRELESS error 14: AUTOCONNECT, All known networks failed to auto-connect.

WIRELESS error 15: DOWNLOAD, Error downloading file.

16 Appendix 2 - Manufacturer Warranty

This device is a high quality product, built and packaged with care. All units and components are guaranteed against any operational defects as follows:

US and Canada: One (1) year
Continental Europe and UK: Two (2) years
Australia and New Zealand: One (1) year
Other countries: One (1) year

Warranty covers all parts (except battery) and labor. If any defect should occur, please contact your local distributor or the manufacturer technical assistance line.

Note: Warranty terms may periodically change, please consult our website for the latest information.

Conditions and Limitations:

No replacement or repair covered by the warranty will be carried out unless the unit is accompanied by a copy of the original bill of purchase. Please retain your original. If the unit has to be returned, please use the original packaging. This warranty applies to all cases where the damage is not a result of improper use, mistreatment, negligence or acts of God.