



DMP-100 Digital Media Player Users Guide

Version: V1.7
Date: 10 Oct 2006
Doc Number: DMP020

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Revision History

Version	Date	Description	By
V1.0	05-Jun-01	Initial Release	SB
V1.1	10-Jun-02	First production release	SB
V1.2	30-Jul-02	Added info on GPS triggering	SB
V1.3	11-Sep-02	-Clarified single-level restore of interrupted tracks. -Added persistent power up music track. -Added remote operations of PAUSE input.	SB
V1.4	14-Jan-03	Added "Jog Mode" to Triggers 6 and 7	SB
V1.5	14-Sep-03	- Added Triggers 1 and 2 for remote volume control in "Jog Mode". Changed timer to 5 sec. - Added volume display while changing volume. - Added setup option for elapsed time display during PLAY.	SB
V1.6	14-Feb-05	- Added "Disable Chime" option in Cardprep - Strengthened warning re other brands of CF	SB
V1.7	20-Oct-06	- Added CardPrep support for importing playlists - Updated all screen shots	SB

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Overview

The DMP-100 Digital Media Player is a self-contained unit which stores and replays pre-recorded audio tracks. The audio tracks are encoded in “Motion Picture Expert Group (MPEG) Level 3” format, commonly referred to as “MP3”. Audio files are stored in a removable CompactFlash™ memory card which is prepared and installed by the user.

Audio tracks are selected via a single rotary pushbutton on the front panel of the DMP-100. Optionally, the DMP-100 may be connected to a maximum of seven external discrete trigger inputs, each of which can be configured in software to select a particular audio track. In addition, the RS232 data from a panel-mount GPS may be connected to the DMP-100 to allow triggering of audio files based on geographic position.

The DMP-100 memory card must be prepared using CardPrep software, which is provided with the DMP-100 and may also be downloaded from the Avionics Innovations website at www.avionicsinnovations.com. CardPrep is a Windows application which assembles your desired MP3 files into the DMP-100 format, and allows you to specify attributes such as language or trigger information.

The DMP-100 memory card can contain up to 500 individual MP3 audio files. Speech files can be organized into as many as 16 languages, and music files can be organized into as many as 127 music lists. Total audio capacity is determined by the memory size of each card. In general, a DMP-100 memory card will hold approximately one minute of sound per megabyte of memory at CD-quality data rates.

CardPrep gives you control over many aspects of DMP-100 operation. You can:

- ◆ Display a custom two-line message on power up
- ◆ Automatically play a selected speech track on power up, which will then play once for each language enabled (also selectable)
- ◆ Automatically play a selected music track, an entire music list, or a continuous random mix of all music tracks on power up
- ◆ Attach a discrete or GPS trigger to any audio track, music list, or “continuous mix”
- ◆ Designate any music track to be played as a continuous loop
- ◆ Designate, for each track, whether or not it should resume playing after it is interrupted by a new play command
- ◆ Designate, for each track, whether it is played at the normal volume level or at a pre-determined “LOUD” setting. This allows background music to play at a quiet volume setting, while important safety messages are played at a higher level.
- ◆ Select whether or not a chime is sounded between each language of a speech track
- ◆ Select whether the DMP-100 sounds an external chime for speech tracks or whether it plays a specified MP3 file (two different MP3 recordings of chime sounds are provided).

All configuration data is contained on the memory card, and can be changed by simply inserting a different card. Each card also contains the latest version of DMP-100 firmware, which is automatically loaded by the unit if needed.

File Types

Each audio file contained in the DMP-100 memory card must be designated as either “speech” or “music”. While the actual audio content is irrelevant, this designation controls how each file is presented on the DMP-100 display.

Speech Files

Every “Speech” file has a title and a language, as well as trigger and display attributes. Speech files may be selected individually for playback either from the front panel, via an external trigger, or automatically at a particular GPS position.

When a speech file is selected, it will be played once in each language currently enabled on the DMP-100. Language selections may be changed from the front panel at any time by selecting CHOOSE LANGUAGES (this option is not available unless the card contains speech tracks in more than one language.) The selected languages are retained when the DMP-100 is powered down, unless default languages have been specified for the card in CardPrep.

Music Files

Every “Music” file has a title and is a member of a “music list.” Like Speech files, Music files also have trigger and display attributes when can be set in CardPrep. Music files may be selected individually for playback either from the front panel, via an external trigger, or automatically at a particular GPS position.

When a music file is selected, it will play to completion and stop, unless the track has been designated to “loop continuously” in CardPrep.

Music files are contained within Music Lists. A Music List could be the entire contents of a CD or playlist, or could be a collection of similar music such as “Light Jazz”. When a Music List is selected on the DMP-100, the first choice presented for playback is “Play Whole List”, followed by each individual music track.

Memory Cards

The DMP-100 is supplied with a CompactFlash™ memory card which will hold approximately one hour of CD-quality audio for every 64 MB of capacity. These cards are widely used in portable devices such as PDAs and digital cameras, and are available through most computer supply sources. At this writing, the largest card capacity available is 4GB (4000MB), which would provide about 64 hours of audio.

Note: ONLY SanDisk brand CompactFlash cards should be used in the DMP-100!

While other brands may appear to work, the DMP-100 may not reliably power up with these cards. Any error messages similar to “QV Comm Failure” usually indicate an incompatible CompactFlash card.

Display

Turning the knob CCW or CW will scroll left or right through the top-level menu. The top-level menu consists of (from left to right):

- ◆ “CHOOSE LANGUAGES” (click for language selection menu)
- ◆ (title of SPEECH FILE 1) (click to play)
- ◆ (title of SPEECH FILE 2) (click to play)
- ◆ (etc., for each speech file on the card)
- ◆ “CONTINUOUS MIX” (click to play random from all music tracks)
- ◆ (name of MUSIC LIST 1) (click to select music tracks)
- ◆ (name of MUSIC LIST 2) (click to select music tracks)
- ◆ (etc., for each music list on the card)

Pressing the knob when the name of a Music List is displayed will drop down into that list and display the name of each music file. The *first* and *last* entry in every Music List is the choice: “RETURN TO MENU”. Clicking either will return you to the top-level menu described above.

Pressing the knob when “CHOOSE LANGUAGES” is displayed will bring up the language selection menu. The language choices displayed in this menu will be whatever languages are contained in the Speech files on the card. Pressing the knob when each language is displayed will toggle between <ON> and <OFF>. As for music lists, the *first* and *last* entries are the choice: “RETURN TO MENU”.

Note that the default languages enabled can be set in CardPrep. If no default languages are selected in CardPrep, the language selection will be whatever was in effect when the unit was last turned off.

Front Panel Operations

The DMP-100 uses only a single rotary knob with a push-button action for all front panel functions.

TO SELECT LANGUAGES:

- Rotate the knob fully CCW until “CHOOSE LANGUAGES” is displayed. If “RETURN TO MENU” is displayed at the most CCW position, push the knob and then rotate fully CCW.
- Push the knob to enter the language selection menu.
- Rotate the knob to scroll through the list of languages found in the memory card. Push the knob to toggle selection of the displayed language.
- When finished, rotate the knob fully CW or fully CCW until “END OF LIST – RETURN TO MENU” is displayed, and push the knob to return to the main menu.

TO PLAY A SPEECH FILE:

- Rotate the knob CW or CCW until the title of the desired file is displayed. If “RETURN TO MENU” is displayed at either position, push the knob and then rotate fully CW or CCW.
- Push the knob to begin playback. The file will be played once for each language enabled, if the file exists in those languages.
- The display indicates that playback is in progress. This display can either be elapsed playback time, or can be cycling user prompts. Please see the DMP-100 Installation Manual for more information.
- When playback is complete, the audio stops and the display points to the NEXT speech file, as if the knob had been turned CW once.

TO PLAY A MUSIC FILE:

- Rotate the knob CW or CCW until the name of the desired music list is displayed. If “RETURN TO MENU” is displayed at either end, push the knob and then rotate CW or CCW to select.
- Push the knob to select the music list. Then rotate the knob to select either “PLAY WHOLE LIST” or the desired music track. Push the knob to begin playback. The display can either be elapsed playback time, or can be cycling user prompts. Please see the DMP-100 Installation Manual for more information.
- Instead of explicitly choosing a music list and music track, you can select “CONTINUOUS MIX” at the top-level menu. This will play a continuous random selection of all music tracks on the card.

TO PAUSE PLAYBACK:

- Press the knob. This will put the playback into “PAUSED” mode.
- To resume playback, press the knob again.

TO CANCEL PLAYBACK :

- Press and hold the knob for at least three seconds.

TO CHANGE VOLUME LEVEL:

- Push and turn the knob in either direction. The volume can be adjusted even if no track is playing. When adjusting the volume, the display will temporarily display: “Volume: **XX**” where “XX” is a number between 1 (min volume) and 28 (max volume).

TO CHANGE SELECTIONS WHILE PLAYING:

- Simply make your new track selection and push the knob (note that if the knob is not turned for four seconds while you are selecting the new track, the display will revert to the “PLAYING” screen). The currently-playing audio will fade down and your new selection will begin. If so configured in CardPrep, the original track will resume when the new track has finished.

External Operations

In addition to the front panel controls, the DMP-100 provides several means of remotely controlling the audio selection and playback.

Track Selection by GPS Position

The DMP-100 can receive position data from a variety of panel-mount GPS receivers via an RS-232 or RS-422 serial data link. If a GPS is connected to the DMP-100, then either speech or music may be triggered automatically when the aircraft is within a specified distance of a certain latitude and longitude (lat/lon). The desired distance and lat/lon may be optionally attached to each speech file, music list or music track via the CardPrep software.

When a track has been triggered by GPS position, the front panel behaves exactly as if the track had been selected manually. The display shows the track currently playing, and playback may be paused or cancelled in the normal manner.

If a speech file has been triggered by GPS, it will play once for each language currently enabled.

Track Selection by External Trigger

The DMP-100 provides seven configurable discrete inputs for controlling audio playback via external switches or sensors. Refer to documentation specific to your installation for the exact function of each of the external triggers.

Typical applications for external triggering would be aircraft signals such as the “fasten seat belt” light, or dedicated pushbuttons for certain types of briefing announcements or music. In CardPrep, these seven triggers can each be assigned to a speech or music track, an entire music list, or the “CONTINUOUS MIX” selection.

CardPrep also allows the selection of “Jog Mode”. If this mode is enabled, trigger inputs 6 and 7 do not function as triggers, but are used instead to step forward or back through a speech or music list. See the complete description of Jog Mode on page 10.

Remote PAUSE/PLAY Button

The DMP-100 provides an input which can be used to parallel the pushbutton function of the front panel knob. An external pushbutton connected to this input will perform the same function as pushing the front panel knob.

If a track is playing, pushing the remote button will cause playback to pause. Pushing again will cause playback to resume.

The external pushbutton works in parallel with the front panel knob: playback may be paused with one and resumed with the other.

If no track is playing, you can turn the front panel knob until a desired track is displayed. Then, at some later point, you can push the external button to select the displayed track and to start playback.

The only difference between the external pushbutton and the front panel pushbutton is that holding the external button down will not cancel playback. Holding the external button has no effect.

Jog Mode: Track Select and Volume Control With External Switches

Track Select

“Jog Mode” causes the Trigger 6 and Trigger 7 inputs to be used instead to step forward or back through the DMP-100 menus and lists. When Jog Mode is enabled in CardPrep, it is active whenever the resulting memory card is used. Inserting a card which does not have Jog Mode enabled will cause Triggers 6 and 7 to function as normal remote trigger inputs.

Jog Mode simulates a knob turn, followed by a button press. Each activation of Trigger 6 causes a counterclockwise (left) turn of the knob, while each activation of Trigger 7 causes a clockwise (right) turn. If no more activations of either Trigger 6 or 7 occur within **five seconds**, an automatic “button press” then occurs. Note that the “knob turn” and “button press” occur in software – the physical knob does not actually move, and no operator action is required.

If a music track is playing, for example, external switches tied to Triggers 6 and 7 will cause the display to step backward and forward through the current list. When the desired track is displayed for one second with no further inputs from either switch, the current track will fade out and the newly-displayed track will start playing.

If the original track had been part of a “Play Whole List” selection, then the list will continue to play after the newly-jogged track is done. The Jog inputs can thus be used to skip forward and backward through a list and the list will continue to play from that point (if “Play Whole List” had originally been selected). Otherwise, the jog input will be treated just like a physical knob turn and button-press – the new track will be selected, and playback will stop upon its completion.

Note that no action is taken if the *currently-playing* track is displayed when the trigger inputs stop. This way, if you start stepping through the list and suddenly decide that you really don’t want to interrupt the current track with a new track, simply step the display to the current track (lower line says “ = =< PLAYING>= = “). After five seconds, the jog mode simply cancels itself and no action is taken.

One final note: to prevent confusion, the “Choose Languages” menu will not be selected if that position is reached by using Jog Mode.

Volume Control

When Jog Mode is enabled on a card, Triggers 1 and 2 are also redefined to control the volume on the DMP-100. Each activation of Trigger 1 simulates a push-and-turn counterclockwise, i.e. a decrement of volume. In a similar way, each activation of Trigger 2 simulates an increment of volume. Volume may also be controlled normally via the front panel knob.

Creating MP3 Files

CardPrep allows you to prepare existing MP3 audio files, but it does not provide facilities to create them. There are literally hundreds of applications available which allow you to convert audio CDs, tapes, or even phonograph records into MP3 files. Many also record from your computer's microphone directly into MP3, allowing you to generate your own speech files. Most of these applications are either free or are very reasonably priced. Some of the more popular MP3 packages are:

- ◆ MusicMatch Jukebox www.musicmatch.com
- ◆ Real Jukebox www.real.com
- ◆ WinAmp www.winamp.com
- ◆ iTunes www.itunes.com

These are full-featured applications which are mainly geared to managing a collection of MP3 files on your computer.

Most MP3 applications also allow you to create "playlists", or lists of MP3 files from your collection. CardPrep can import these playlists directly.

A rather overwhelming list of available CD-to-MP3 software can be found at www.dailymp3.com/cdrippers.html.

Please observe and respect all copyright restrictions on pre-recorded materials such as commercial audio CDs.

Preparing a Memory Card with CardPrep

Installing DMP100 CardPrep

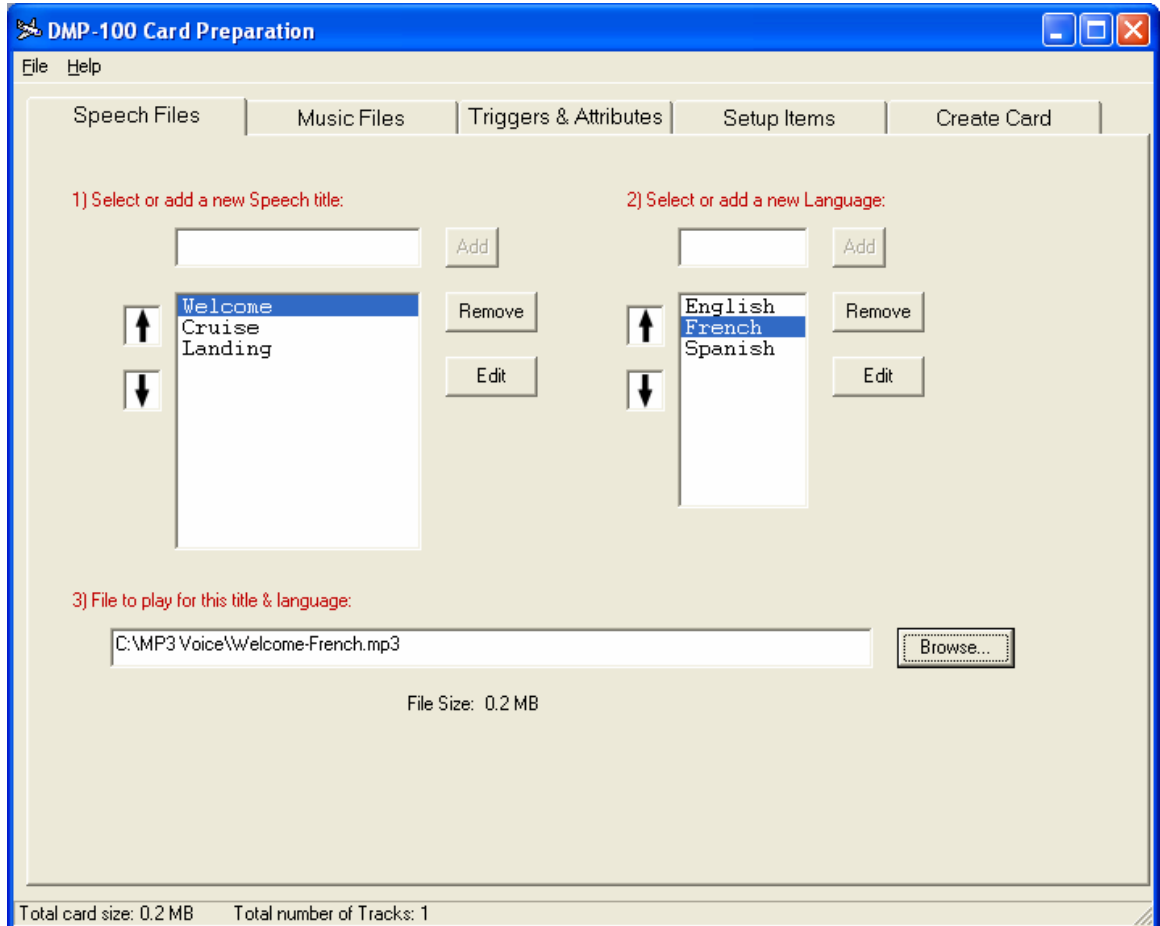
The DMP100 CardPrep software may be distributed on either the CompactFlash™ card included with the DMP-100, on a CD-ROM or downloaded from the Avionics Innovations website at www.avionicsinnovations.com.

To install the software, simply run SETUP.EXE and follow the prompts.

Running CardPrep

CardPrep displays a simple menu bar across the top, and five different selection tabs. Click on each tab to bring up the associated section.

To add Speech Files:



1. Click on the small box under (1), type the display title of the speech file, and press **Add**. Repeat for all remaining speech files.
2. Click on the small box under (2), type the first language to be displayed, and press **Add**. Repeat for all remaining languages.

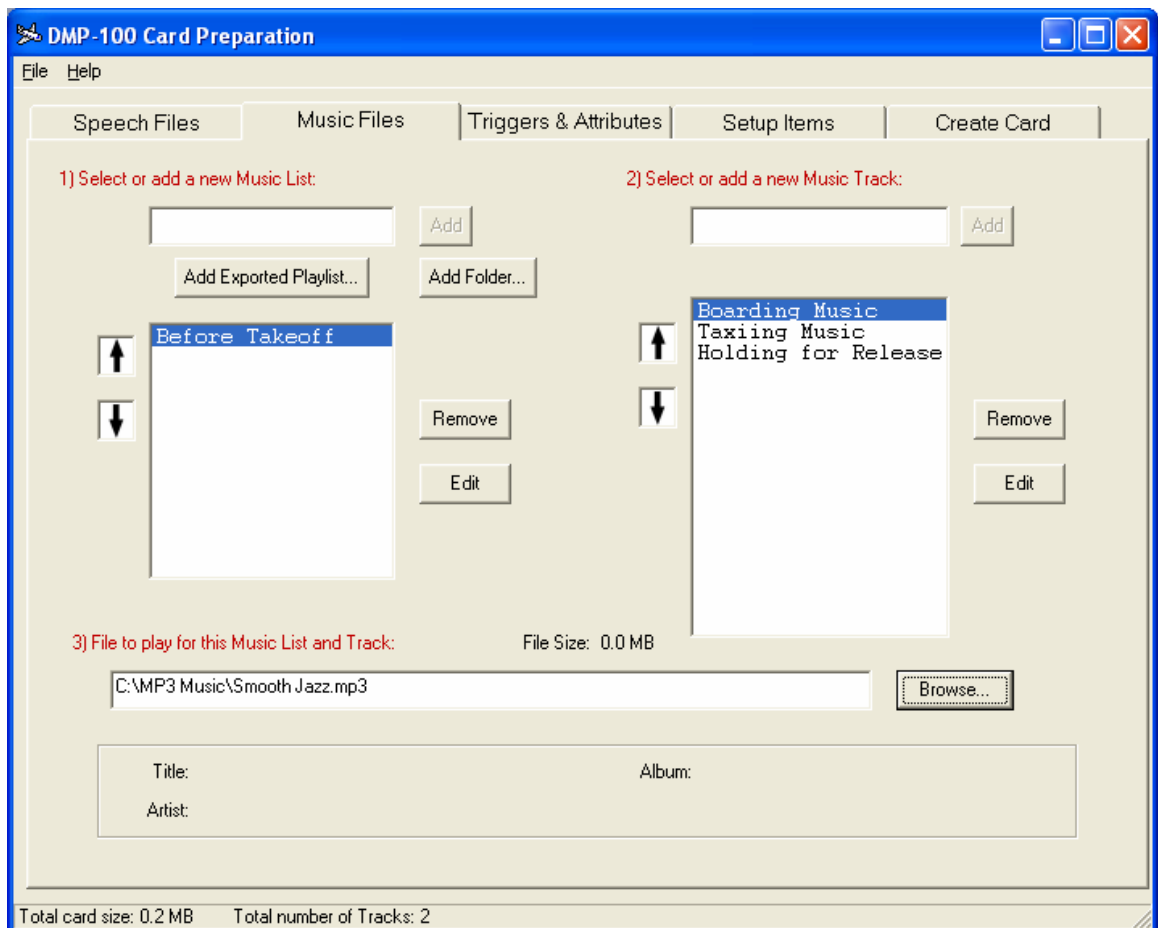
3. Click on a title in the large box under (1), then click on a language in the large box under (2). Next, click on the box under (3) and either type in the path or click **Browse** to identify the MP3 file which corresponds to the selected title and language. Repeat this procedure for every title and language combination for which a track is to be added.
4. Click on the **up** and **down** arrows next to each box to move a highlighted selection within the box. This allows you to control the order in which speech tracks or languages are displayed on the DMP-100.

To add Music Files:

Music files may be added either individually, like speech files, or in groups. You can add all the MP3 files in a particular folder, or you can add MP3 files contained in a playlist. Playlists are created using an MP3 manager such as *iTunes*, *WinAmp* or *MusicMatch*. Cardprep can read playlists that have been saved (exported) as either “.txt” or as “.m3u” files.

Adding Music Files Individually

If you are adding a small number of files, or if the files are scattered in different locations, follow these steps to add each file individually:



1. Click on the empty box under (1), type the name of the desired Music List, and press **Add**. Repeat for all remaining Music Lists.
2. Click on the empty box under (2), type the first music track to be displayed, and press **Add**. Repeat for all remaining music tracks.
3. Click on a Music List in the large box under (1), then click on a Music Track in the large box under (2). Next, click on the empty box under (3) and either type in the path or click **Browse** to identify the MP3 file which corresponds to the selected Music Title and Music List. Repeat this procedure for every title and list combination for which a track is to be added.
4. Click on the **up** and **down** arrows next to each box to move a highlighted selection within the box. This allows you to control the order in which music tracks or music lists are displayed on the DMP100.

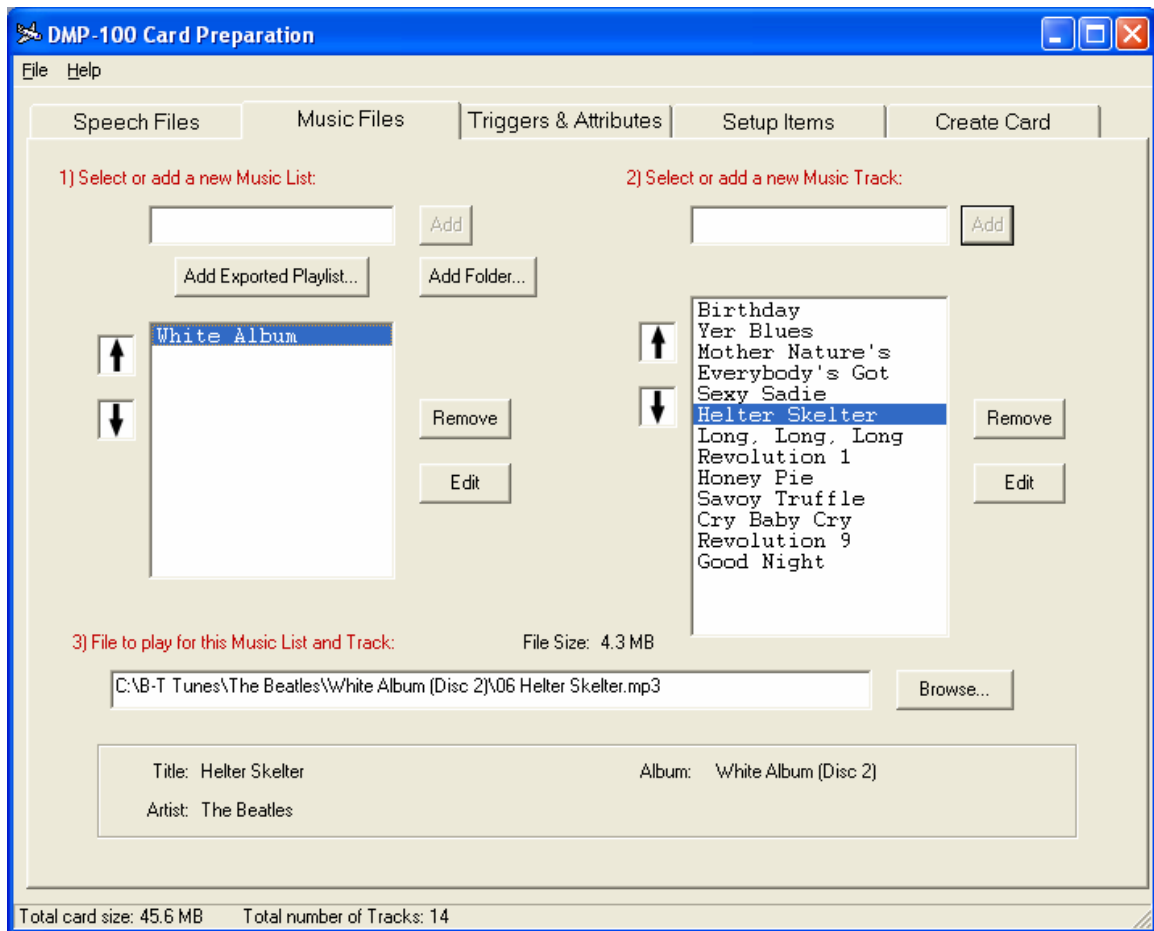
Note 1: Use the **Edit** button to change the text for a selected music list or music track.

Note 2: CardPrep will not allow two Music Lists with the same name, or two Music Tracks with the same name in the same Music List. In these cases, CardPrep will automatically insert two digits before the name to avoid duplicates.

Adding a Folder of Music Files

If all your desired music files are organized by folder, it may be much more convenient to import an entire folder per music list. Click on **Add Folder...** and CardPrep will use the folder name as the name of the newly created Music List, and will add the contents of the folder as Music Tracks. Use the **Edit** buttons to fix up the List or Track names as needed.

If you have imported CDs into an MP3 manager such as *iTunes* or *WinAmp*, you may find **Add Folder** to be a convenient way to include an entire CD onto the DMP100 memory card. Simply **Browse** to the root folder of your music library (C:\My Documents\My Music\iTunes\iTunes Music, for example) and navigate to the folder containing the entire CD.

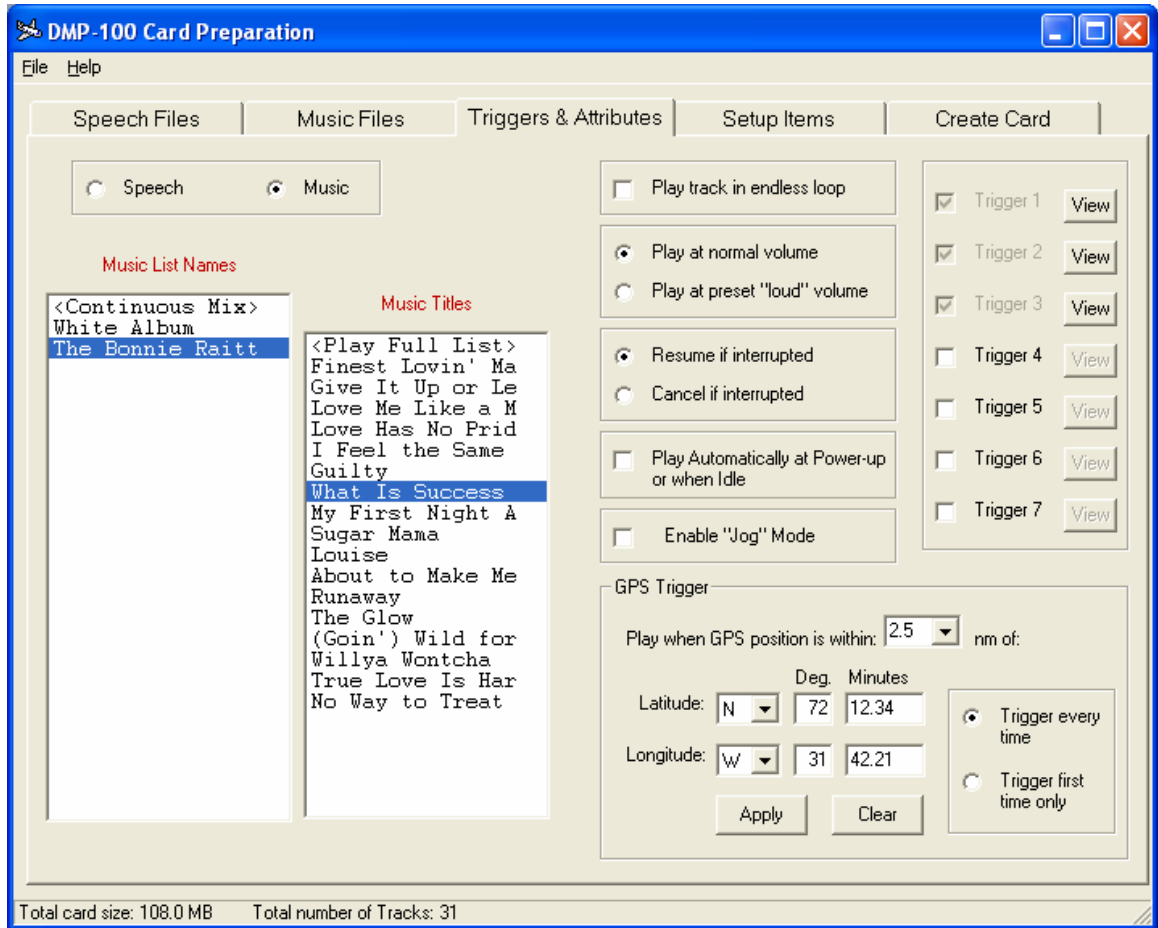


Adding an Exported Playlist of Music Files

Most MP3 manager applications allow you to create and manage *Playlists*. A Playlist is simply a list of MP3 tracks that you would like to group together. You could create a separate playlist for each CD in your collection (“*White Album*”, for example), or you can create a playlist with tracks from many different sources (“*Night-Flying Music*”, for example).

MP3 managers such as *WinAmp* and *MusicMatch* save their playlists in either “.txt” or “.m3u” format, both of which can be read directly by CardPrep. *iTunes* playlists are embedded in the iTunes library and cannot be read directly by CardPrep. *iTunes* users must first export their playlists to “.txt” so the playlists can be read by CardPrep. (In *iTunes*, right-click the playlist, select “Export Song List...”, and change the “Save as type:” box to “Text files”.)

To Select Triggers or Attributes:



The “Triggers and Attributes” tab allows you to select either Speech or Music tracks, and then to specify the following information:

- ◆ Discrete Triggers

Click on the check box next to any available discrete trigger to associate that track with the corresponding trigger. More than one trigger may be assigned to a single track. Clicking on “View” will display the track which has been associated with that trigger. If the corresponding audio track is later deleted, the trigger will also be deleted.

- ◆ GPS Triggers

Enter the latitude and longitude and desired distance from that lat/lon for which to trigger the selected track. You may also select “<Continuous Mix>” or “<Play Full List>” to be triggered.

Select “*Trigger First Time Only*” to prevent the track from playing each time the GPS trigger is active (until the next power-up), otherwise select “*Trigger Every Time*”.

For example, an aerial tour may desire speech tracks to be played at each point of interest on the outbound flight, but not on the return flight. These waypoints would be

selected as “*Trigger First Time Only*”. On the other hand, the same tour may desire that a “falling water” soundtrack be played whenever the flight approaches a waterfall, so this waypoint would be selected as “*Trigger Every Time*”.

See “Notes on GPS Triggering” on page 22 for detailed information.

Be sure to click on “Apply” when entering or changing any GPS trigger data.

- ◆ Endless Looping

This attribute is only available for music tracks. When set, the selected music track will repeat endlessly when it is played either via a trigger or by an explicit selection from the front panel. The track will **not** loop if it has been selected via either “CONTINUOUS MIX” or via “PLAY WHOLE LIST”.

- ◆ Jog Mode

If enabled, Triggers 6 and 7 are used to simulate a knob turn followed by a button press. This allows stepping forward and backward through the track lists. Also, Triggers 1 and 2 are used to control the volume level. See page 10 for details.

- ◆ Normal vs. LOUD Volume

Any track can be played at either the currently-set volume level or at a pre-determined “LOUD” setting. This allows background music to play at a quiet volume setting, while important safety messages are played at a higher level. The actual volume level of the LOUD setting is selected in Setup Mode. Please refer to the “*DMP-100 Installation Guide*”, AI document number DMP010, for information on entering Setup Mode and changing this setting. Note that the *internal* chime sound is always played at the LOUD volume level.

- ◆ Resume or Cancel if Interrupted

This setting determines the behavior of a currently playing track which is interrupted by another track which then finishes. If set to “Resume”, the original track will rewind approximately 3 seconds and then resume playback. If set to “Cancel”, the original track is simply cancelled when the new track begins. By default, Speech tracks are set to “Resume” while Music tracks are set to “Cancel”.

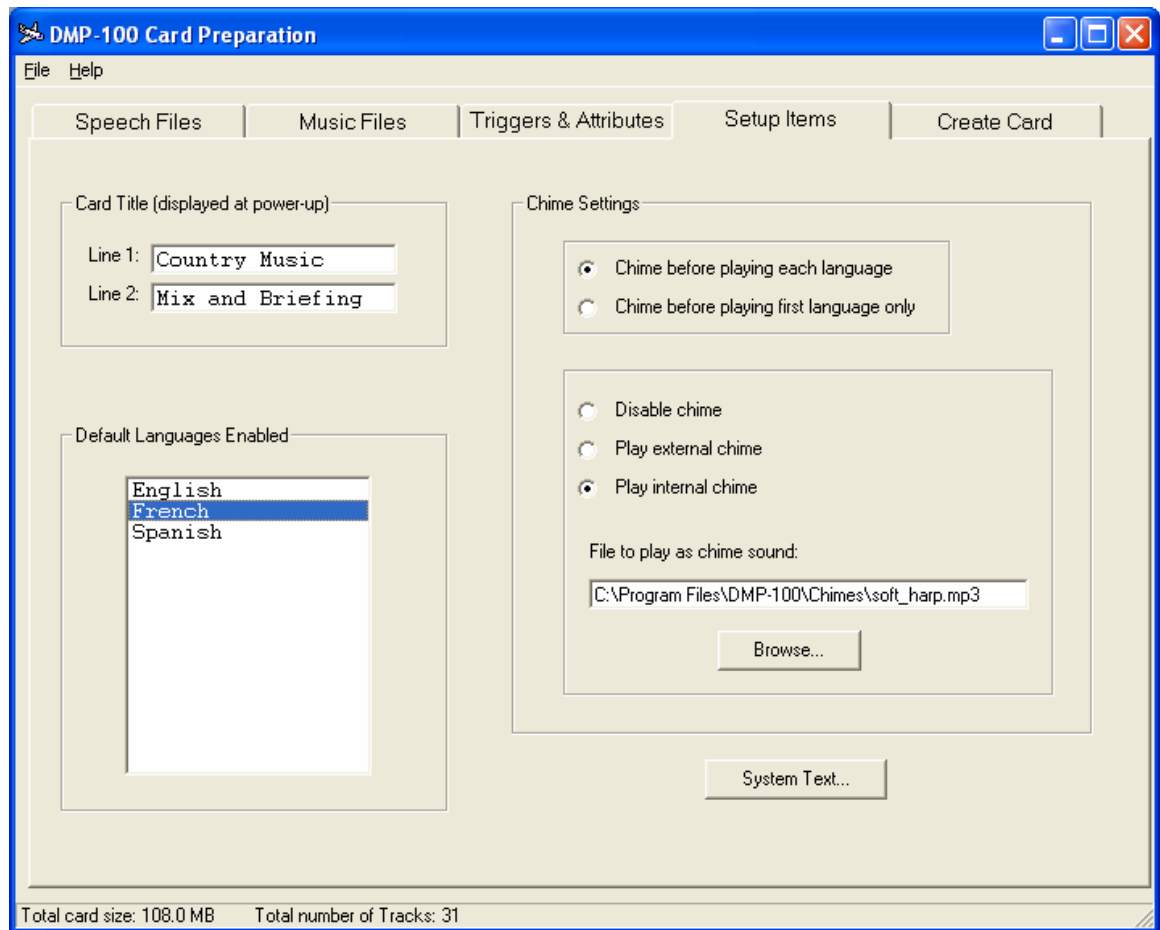
- ◆ Play Automatically at Power-up or When Idle

This attribute can be attached to either a speech or music track, an entire music list, or the “CONTINUOUS MIX” selection. Only one selection may be given this attribute.

The selection will begin to play on power-up immediately after the opening screen and any custom titles are displayed. In addition, the selection will play any time the DMP-100 is idle after having played any audio tracks. Note that if more than one interrupt has occurred, the power-up track will be **re-selected**, and will not resume from where it was interrupted but instead will restart at the beginning.

For a full explanation of how tracks are interrupted and restored, see “Notes on Interrupting and Restoring Audio Tracks” on page 22.

To Select Setup Items:



- ◆ Default Languages Enabled

Select and highlight one or more languages to be enabled on power up. Note that this screen is potentially confusing: the desired language(s) **must** be highlighted to be selected. If none are highlighted, the list simply displays the languages on the card.

- ◆ Custom Card Titles

Up to two lines of 16 characters each can be displayed on the DMP-100 after the initial screen on power up. This can be used to identify the card, to greet the operator, to provide special instructions, etc.

- ◆ Chiming Between Speech Tracks

If a chime (either internal or external) is enabled, this setting controls whether the chime sounds between the playing of each language of a speech track, or just once (before the first language).

- ◆ **Selecting Internal or External Chime**

The DMP-100 may be interfaced to an external cabin chime or tone generator. A chime will be sounded whenever a speech track is selected or triggered (selecting or triggering a music track will not sound a chime.) When sounding an external chime, the DMP-100 will pause for several seconds before starting to play the track, to allow the chime to finish. The exact length of this pause can be configured in Setup Mode. Please refer to the “*DMP-100 Installation Guide*”, AI document number DMP010, for information on entering Setup Mode and changing this setting.

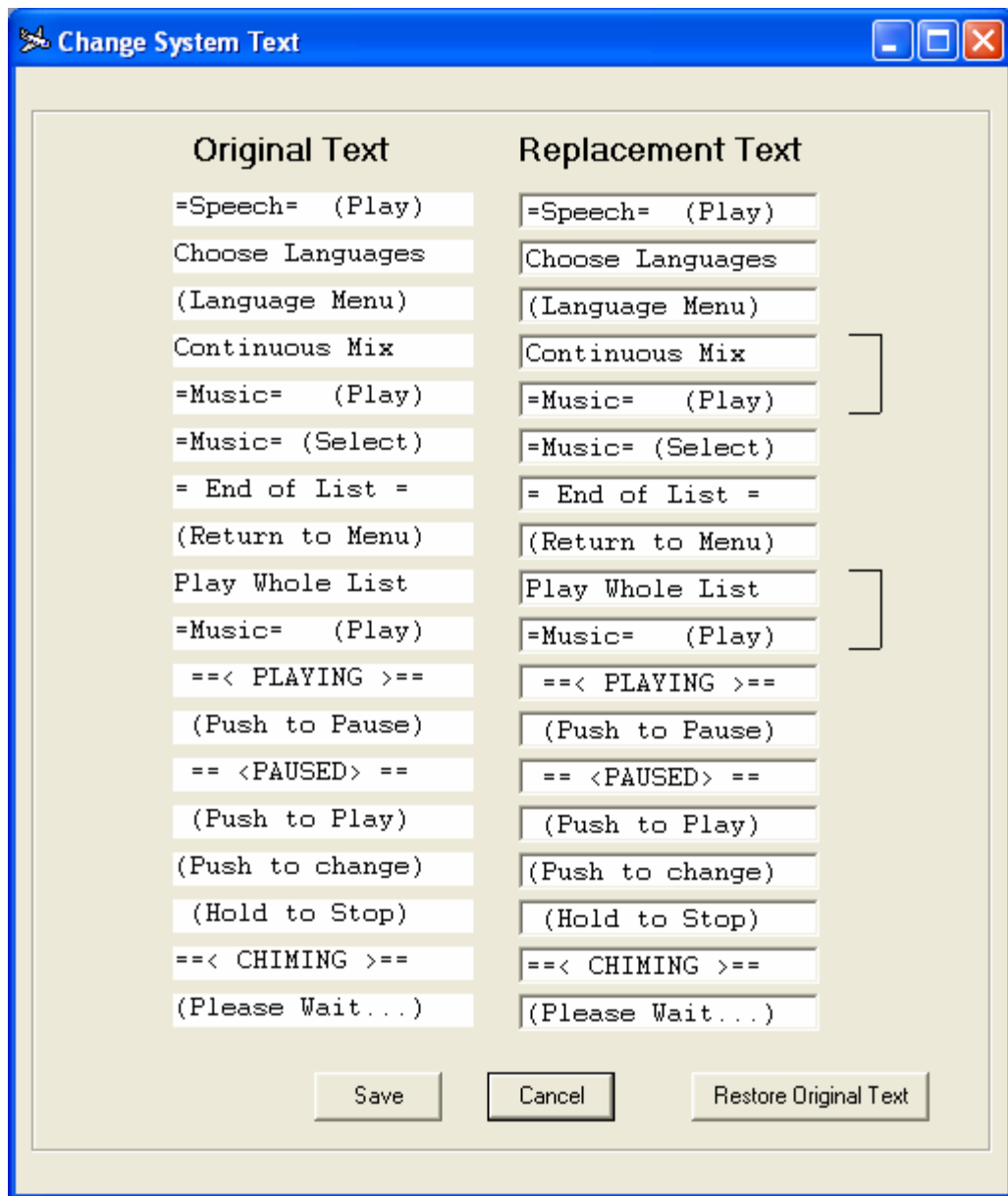
You can also choose an MP3 file to be played as the chime sound. Select **Internal Chime** and then click **Browse** to select the MP3 file to be played. Several chime sounds are provided in the /Chimes directory under the main CardPrep directory.

Note that when internal chime is selected, the DMP-100 does not activate the external chime signal. This allows you to switch between cards using internal or external chimes without having to physically disable the external chime.

To defeat chiming completely, select **Disable chime**. There will be no delay when playing a speech track and the external chime signal will not be activated.

- ◆ **Changing System Prompts**

Most of the text displayed by the DMP-100 in normal operation is actually stored on the memory card and can be changed via CardPrep. This was intended to allow for translation of the system prompts into languages other than English. Clicking on the “System Text...” button brings up the following screen:

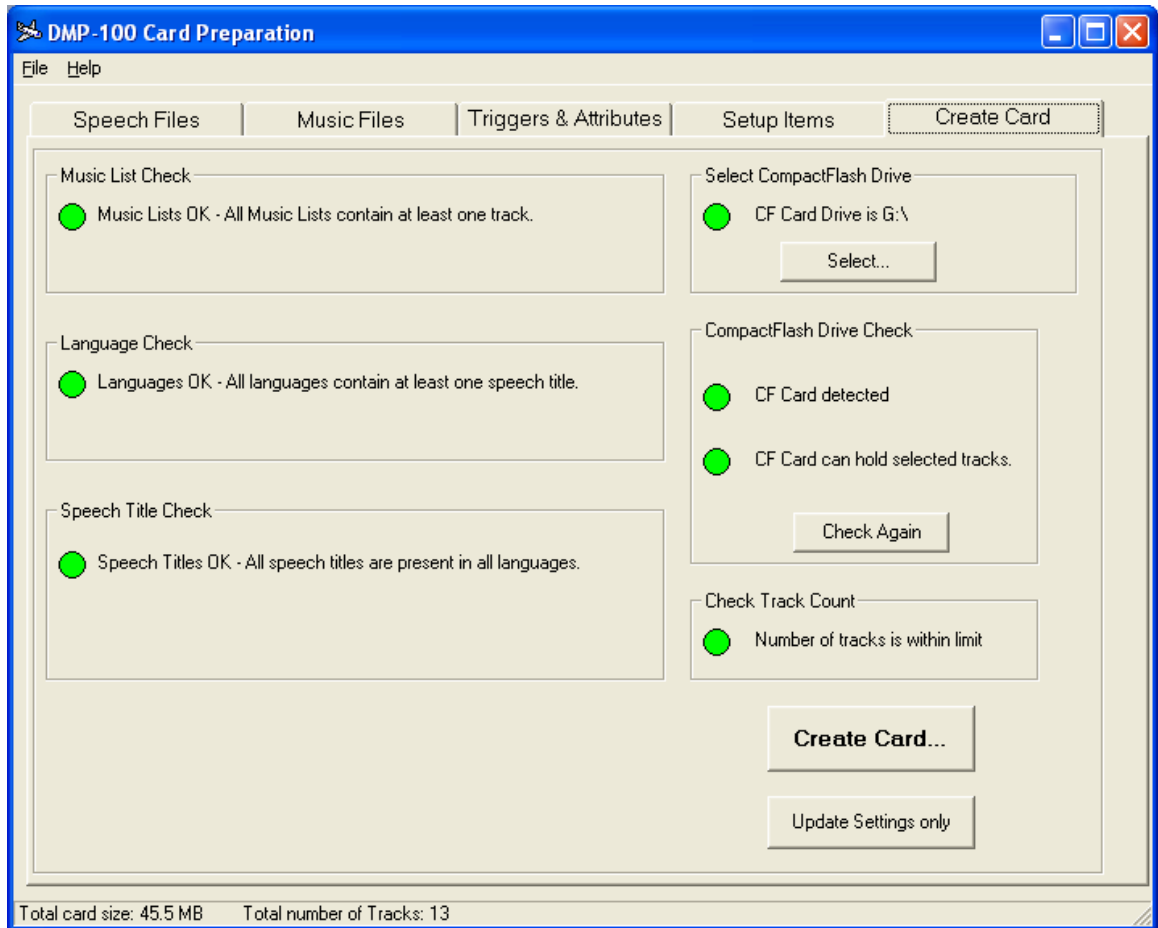


To make changes to the text, simply click in a box on the right side, type in your new text and click "Save". Use caution (and common sense) when making changes! Always refer to the original text in the left column to be sure you are not changing the intent of the text.

As with all the other configuration settings in this section, any changes made here will only apply to this card. Inserting a different card will cause the unit to reload the configuration and clear the changes.

To Copy all Files and Settings to the Card:

When you are ready to generate the actual memory card, click on the “Create Card” tab:



CardPrep will run through your configuration settings and check for inconsistencies, such as languages with no associated speech tracks or empty music lists. Any inconsistencies will be displayed and described. The **Create Card** button will be disabled as long as any inconsistencies are flagged.

Once the configuration settings are verified, CardPrep verifies that the CompactFlash card is present and has sufficient capacity to hold all the selected tracks.

When everything is verified, click **Create Card** to erase the current CompactFlash card and copy all the new tracks and configuration settings to it. Be patient! It may take several minutes to create the card, especially when many music tracks are involved.

If you have already prepared a card and simply want to change attributes or settings, click on **Update Settings Only**. This will bypass the lengthy copying of audio files and will simply generate a new configuration. *DO NOT USE THIS* if you have added or deleted any audio tracks – the resulting card will cause unpredictable behavior.

To Save or Open a Card File

Your entire “workspace” can be saved to a card file (*.CRD) so that you can easily maintain multiple cards. Click on **File** in the menu bar at the top of the window, and then either **Open**, **Save**, or **Save As** as is typically used in most Windows applications.

Notes on GPS Triggering

GPS triggering is one of the most powerful and unique features of the DMP-100. The following details will help you get the most from this feature.

A GPS trigger will only occur when the trigger condition goes from “not valid” to “valid”. This means, for instance, that if your card contains a GPS trigger for the LAX airport and you first power up on the ground at LAX, the trigger *will not occur*. You must first fly away from LAX, causing the trigger condition to become “not valid”, and then the trigger will occur as you cross the specified trigger distance inbound.

This was done specifically to allow you to have an audio track that is played as you return to base (at the end of a tour, for example), but which will NOT play when you first power up at the start of the flight.

A GPS trigger condition is considered “valid” as soon as the specified distance is crossed. However, it will not become “invalid” until the distance increases to 20% more than the specified distance. This is to prevent undesired repeat triggering, or “chattering”, if you are flying very close to the specified distance.

For example, assume your card contains a trigger for 1 nm from LAX airport and is configured to “Trigger Always”. As you approach LAX from any direction, the track will start playing as soon as your distance is less than 1 nm. The track will not trigger again until you have flown at least 1.2 nm away from LAX (1nm plus 20%) and then return to within less than 1 nm.

Avoid overlapping trigger areas. If several GPS triggers become valid at once, only the last trigger in the list will actually play.

The distance at which a GPS trigger activates may vary slightly from the distance you specified in CardPrep. Especially at higher aircraft speeds, there may be an error of almost 1 nm. In general, you should avoid using the very small distances available in CardPrep (1nm or less).

Notes on Interrupting and Restoring Audio Tracks

If a new audio track is selected (either manually or via any trigger) while another track is playing, the DMP-100 can resume playing the interrupted track after the new one finishes. This will **only** occur, however, for the most recently interrupted track. Any previously interrupted tracks will not resume, and must be manually restarted if desired.

An interrupted audio track will resume if the attribute “Resume or Cancel” is set accordingly. See page 17 for a description of this attribute.

For example, consider the following:

- 1) “Song #5” is selected manually, and starts playing.
- 2) Halfway through “Song #5”, an external trigger selects “Speech #1”.

- 3) "Song #5" will fade down, "Speech #1" will play to completion, and "Song #5" will fade back up, restarting at the point where it was interrupted.

Now consider the same scenario, except that "Speech #1" is itself interrupted by a GPS trigger for "Speech #2". Here is what will happen:

- 1) "Song #5" is selected manually, and starts playing.
- 2) Halfway through "Song #5", an external trigger selects "Speech #1".
- 3) "Song #5" will fade down, and "Speech #1" will start to play.
- 4) Now, halfway through "Speech #1", a GPS trigger selects "Speech #2". "Speech #1" fades down and "Speech #2" will start to play.
- 5) After "Speech #2" completes, "Speech #1" will resume where it left off (assuming it was set to "Resume When Interrupted" in CardPrep).
- 6) After "Speech #1" completes, *the DMP-100 will be idle*. "Song #5" will **not** resume, because only the most recently interrupted track can be restored.

In most cases, this behavior is desirable in that it prevents previously-selected tracks from "mysteriously" restarting. The one notable exception, however, is background music.

If a music track or music list is selected with the intention of providing continuous background music, it will appear to "fail" if two consecutive interrupts occur. As described above, after the second interrupting track finishes the first interrupting track will be restored. When that track finishes, however, the DMP-100 goes silent!

To avoid this situation, consider using the attribute called "Play Automatically at Power-up or When Idle". If this attribute is assigned to a Music Track, a Music List, or "Continuous Mix", the selection will be made **whenever the DMP-100 is idle**.

For example, assume that "Continuous Mix" has been set to "Play Automatically at Power-up or When Idle". Here is what will happen:

- 1) At power-up, a music track is randomly selected. Let's say "Song #8" begins to play.
- 2) A discrete trigger selects "Speech #14". The music fades down, "Speech #14" plays to completion, and "Song #8" resumes where it left off (this is because "Song #8" is the most recently interrupted track).
- 3) Some time later, a GPS trigger selects "Speech #2". Halfway through playback of "Speech #2", another trigger interrupts it with "Speech #29".
- 4) After completion of "Speech #29", playback of "Speech #2" will resume where it left off.
- 5) After "Speech #2" completes, "Song #8" will **not** resume. Instead, the DMP-100 becomes idle, which causes the "Continuous Mix" to be selected. Continuous Mix will then choose a random music track, which will start at its beginning.

The final situation is that after all triggered audio tracks are completed; the DMP-100 will always be playing some kind of music. In many applications, this is exactly the desired effect.