

ittyMIDI Player User Manual

TABLE OF CONTENTS

I. INTRODUCTION

- A. What is ittyMIDI Player?
- B. About this Manual
 - 1. It's in the Software
 - 2. It's a book. It's a web page. It's a web book.
 - 3. It's better if you know Palm OS®
 - 4. Legal Stuff
 - 5. Version Information
- C. Support and Requirements

II. INSTALLATION

- A. Quick Start
- B. Registration
- C. Loading Songs Onto Your Handheld

III. FEATURES

- A. Getting Around
 - 1. Starting ittyMIDI Player
 - 2. Using the Menus
 - 3. Using the Buttons
 - 4. Entering Text
 - 5. Getting Help
- B. Playing Songs
 - 1. Introduction to the Play Screen
 - 2. Screen Elements
 - 3. Understanding the Play Mode Screen
- C. Creating Playlists
- D. Modifying the Songs in a Playlist
 - 1. Changing Tempo & Pitch
 - 2. Viewing and Changing Instruments
 - 3. Changing Volumes and Muting
- E. Beaming
 - 1. Beaming Playlists
 - 2. Beaming Books
- F. Tuning
- G. Channel Mapping
- H. Preferences
 - 1. MIDI Through
 - 2. Count In Measure
 - 3. Disable Alarms

4. Reset Volume to Max and Reset Drums to Default

IV. APPENDIX

A. What is MIDI?

B. ittyMIDI Player Technical Information

I. INTRODUCTION

A. What is ittyMIDI Player?

ittyMIDI Player converts your Palm OS® compatible handheld into a full featured MIDI player and will transform the way you practice or perform. ittyMIDI Player works on any device running Palm OS 3.0 or higher, including those made by Palm, Handspring, Sony, IBM, and a number of other manufacturers (for a complete list please see the index).

ittyMIDI Player is a Standard MIDI File (SMF) player. It has the capability to:


- ▶ Get MIDI (Type 0 and Type 1) files from your PC during HotSync
- ▶ Transfer MIDI files between handhelds via beaming
- ▶ Organize your MIDI files into Playlists for practice or performance
- ▶ Loop on particular segments of a song
- ▶ Loop on one or all songs
- ▶ Add text notes to individual songs for instructions or reminders
- ▶ Adjust the tempo and pitch of playback of any song.
- ▶ Set the volume of each of the sixteen MIDI channels.
- ▶ Display and change the instruments used in MIDI songs
- ▶ Tune your synthesizer

See our list of frequently asked technical questions for additional technical information.

B. About this Manual

1. It's in the Software

The first thing you should know about this manual is that a good deal of it is actually in ittyMIDI Player:

- ▶ In Screen Help
- ▶ Under the  for popup windows
- ▶ Under each unique item on the screen using our special Help Mode

So, why a manual at all? There is some more technical information here for advanced users as well as some additional help for beginners (like this section) that would have been too much to fit into the software. We also wanted to make a manual available on the web site so you could make an informed purchase.

2. It's a book. It's a web page. It's a web book.

Next, a bit about the organization of the manual.

On the one hand, the manual is designed to read straight through like a print manual. In fact, if you would like to print it, just start on the table of contents, print it, click on NEXT PAGE, print it, click on NEXT PAGE, etc.

On the other hand it is a Hypertext document which makes jumping to internal and web references easy. It also allows us to offer updated versions of the manual on the web page. It can be found at <http://www.ittymidi.com/support/manual/index.htm>

3. It's better if you know Palm OS®

If you already know how to use a Palm OS® device, you might want to skip right to the Quick Start and just explore the program yourself. All the help most users will need is already in the software.

If this is the first time you've used a Palm OS® device, we advise you take some time to get familiar with it. Read the manual that came with it. Learn how to write with Graffiti. You'll be glad you did. It is a powerful tool. Knowing Palm OS® will also give you a better understanding of this manual.

If you just can't wait to get started, we have a section for the non-Palm OS® user. See Section III.A: Getting Around.

4. Legal Stuff

PLEASE READ CAREFULLY

This license agreement is a legal agreement between you and MicroTools Inc. for the ittyMIDI Player (hereafter referred to as the "PRODUCT"), that includes all of the computer software and documentation. By installing, copying or using the PRODUCT, you agree to be bound by the terms of this license agreement. If you do not agree to the terms of this agreement, please do not install the PRODUCT. We entrust to you, our customer, the efforts of our labor, and expect you to respect it as you would your own. Product License Both Federal and international copyright laws as well as other intellectual property laws and treaties protect the PRODUCT. The PRODUCT is licensed and not sold.

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2. You may freely copy this PRODUCT to other Palm OS handhelds with the stipulation that you may not disclose the Registration code to any third party.
3. You may not reverse engineer, decompile, or disassemble the PRODUCT for any reason nor may you run the product on any form of emulator.
4. You may permanently transfer all of your rights under this agreement provided that you retain no copies of the PRODUCT and the recipient agrees to the terms of this agreement. Warranty MicroTools warrants that the PRODUCT will perform in accordance with the accompanying materials for a period of 1 year from the date of purchase. During this period, MicroTools will provide free technical support of the product. At the conclusion of this period, MicroTools will provide unlimited e-mail support for the product for as long as the product is sold by MicroTools.
5. This manual is also copyright protected. By purchasing ittyMIDI Player, you have a license to use this manual. However, you may not reproduce or distribute it in any way without the permission of MicroTools Inc.

Throughout this manual, "ittyMIDI Player" may sometimes be shortened to simply "the Player".

5. Version Information

This version of the manual corresponds to ittyMIDI Player
Version 2.1

C. Support and Requirements

ittyMIDI Player has to meet certain software and hardware requirements in order to run.

1. Software Requirements

ittyMIDI Player requires Palm OS version 3.0 or higher. To find out what OS version you are running, go to the handheld's home screen by pressing the home icon and then the menu icon on your handheld. Under the App menu, select Info. Then click on the version button. At the top of the screen you will see a version number.

If your handheld doesn't have menus, doesn't have an Info menu, or appears to be made out of stone, then your version is too old to run ittyMIDI Player. However, most older Palms, even the original Pilot 1000, can be upgraded to a compatible OS version.

Palm OS 5 is supported, but some specific OS 5 models may not be supported. To be sure your handheld works with our software, please check the exhaustive [compatibility chart](#).

2. Hardware Support

A MIDI Player cannot generate sound by itself. It needs a synthesizer to turn the MIDI data into music. ittyMIDI Player supports both external and onboard sound generation methods. Once again, look at the [compatibility chart](#) to see exactly what your model supports.

- ◇ **Internal Synthesizer:** Some Sony models have an internal synthesizer with 16-note polyphony that supports MIDI. ittyMIDI Player fully supports this, turning these handhelds into completely standalone MIDI players.

- ◇ **Monophonic Internal Speaker:** Every Palm has a built-in internal speaker that can only play one note at a time. ittyMIDI Player supports this, but it is only suitable for a quick preview of a song.

ittyMIDI Player User Manual

- ◇ **Add-on Synthesizers:** There are several peripherals that add MIDI synthesizers to certain handheld models. ittyMIDI player supports the following devices:
- **BeatPlus Springboard Module:** The BeatPlus is an FM synthesizer with 16-note polyphony that fits in the Springboard expansion slot of Handspring Visor handhelds.
 - **Tsunamidi:** This synthesizer clips on to the back of Palm V series handhelds. It uses sampled sounds, is General MIDI compliant, and has in and out capabilities with the included cable.
 - **Swivel SG20:** Swivel Systems sells this General MIDI synthesizer for the Palm III and VII series. It also uses sampled sounds and includes MIDI in and out.
- ◇ **External Synthesizer:** Connecting your Palm OS handheld to an external synthesizer requires two things: a serial cradle or cable and a serial to MIDI adapter. Most manufacturers sell serial cradles or cables as accessories for their handheld models. The notable exception is Sony. Serial cables and cradles for Sony handhelds (as well as nearly every other brand) are available through [Expansys](#). There are several options available for serial to MIDI adapters:
- **Serial to MIDI Cable:** The [ittyMIDI Serial to MIDI Out Cable](#) is an inexpensive cable that provides MIDI out only for many handhelds. It is not compatible with Handspring and most newer Sony handhelds.
 - **Serial to MIDI Converter Box:** The [ittyMIDI Serial to MIDI Converter Box](#) handles both in and out, is fully MIDI compliant, and works with nearly all Palm OS handhelds.
 - **Mac Adapter:** If the synthesizer you wish to use has a Mac serial port, you can use a DB9 to Mac adapter to connect it to your Palm OS device.
 - **Handiclip:** [Handi Systems](#) makes MIDI adapters that attach directly to Palm III series devices, eliminating the need for a serial cable or cradle. Handi systems also makes a combined MIDI in and out cable for the Palm III.

- **Other Interfaces:** ittyMIDI Player is also compatible with other serial to MIDI interfaces made by [miniMusic](#), [Widget Australia](#), and Rubicon Systems. In addition, there are plans for do-it-yourself interfaces available on the web, such as those designed by Pete Moss and Geoff Smith.

II. INSTALLATION

A. Quick Start

There are four easy steps to get started with ittyMIDI Player.

1. Before you buy ittyMIDI Player, please make sure you have the right hardware configuration for your particular handheld. If you are not sure what configuration to use, go to the [Requirements](#) page.
2. Place the ittyMIDI Player CD in your CD player on your PC. Your PC should automatically install both the Windows software to load songs into your handheld and the software that resides on the handheld.
3. Next, attach your handheld device to its serial/USB cradle or cable, and press the HotSync button to install the software on the handheld.
4. Choose the ittyMIDI category on your handheld. Tap on the Player icon to start the software.

B. Registration

ittyMIDI Player is downloaded as crippleware. Crippleware is designed to let the user try the software before buying it. The software will run within certain limits until it is unlocked with a registration code. In the Player's case, it will run with all options except that it will run only 15 seconds of any MIDI song. The only way to unlock ittyMIDI Player is to enter a valid registration code.

You received a registration code in your confirmation e-mail when you purchased ittyMIDI Player. When you start ittyMIDI Player, a registration screen appears requesting your registration code. Enter that code in this screen to finish the registration process. The registration screen will appear every time you start the Player until you enter the registration code.

The makers of ittyMIDI would like to request and encourage legal use of ittyMIDI Player and the MIDI files it plays. We worked hard at making ittyMIDI Player and are sure that those who make MIDI songs work just as hard. Please respect their property and ours.

C. Loading Songs Onto Your Handheld

ittyMIDI SongLoader

Once you have started Song Loader, along the left side of the screen the All Folders window will display all of the folders in your computer. In the middle of the screen, the Available MIDI Files window will display any MIDI files in these folders. Double-click on a folder and all MIDI files contained in that folder will be displayed in the Available MIDI Files window. If the folder you selected contains subfolders, you must open each individual subfolder to view its MIDI files. Once you have opened a folder containing MIDI files you can begin creating Books of songs!

The Books contain all of the songs that will be available to the ittyMIDI Player once you install them onto the hand-held device. To add songs to the currently selected Book in Song Loader, choose the folder you would like to select MIDI files from, as described above. All MIDI files in this directory will then be displayed in the Available MIDI Files window. Select the song, or songs, you want to add to the Book and click Add.

Once you have compiled a Book, you can install that Book to a particular user's Palm data base on your PC by clicking on the Install Button. Most people only have one Palm user per PC but humor us by selecting your name when asked. The next time you HotSync, this Book will be added to your handheld. If you have added or deleted files from the Book, the Song Loader will warn you before exiting if you do not Install them to the data base on the PC.

For those handhelds with an expansion card slot (such as Sony Clies and higher-end Palms) ittyMIDI Player now allows books to be located in extended memory. If you have Palm OS 4.0, you can install databases directly into extended memory. First, create and install a Book as you normally would. Before you HotSync, use the install tool that comes with Palm Desktop to select the desired location of installation.

At the bottom right of the screen is the memory display, which tells you how big the Book is in kilobytes. You can measure this against how much available space you have on your handheld to determine whether or not the Book is too big.

Like most Windows programs, SongLoader does not like having data change underneath it. If you insert a new floppy disk in your floppy disk drive, press the <F5> to refresh the screen.

Most people like this program so much that they leave it open all the time. However, an Exit button is provided in case of emergency.

III. FEATURES

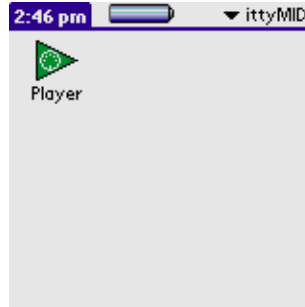
A. Getting Around

For the most part, this manual assumes a working knowledge of Palm OS®. In this section, we will explain just enough about Palm OS® and ittyMIDI Player's interface for the novice to

start the Player, get from screen to screen, enter text and get help within the Player.

If you are already an experienced Palm OS® user and plan to skip this section, you may want to read Section 3: Using the Buttons for some power user tips.

1. Starting ittyMIDI Player



Tap on the applications button with your stylus. The applications button is the icon of a home. It is one of the four permanent icons in the silk screen area. Of those, it's the one on the upper left.

ittyMIDI Player was installed into its own category called, "ittyMIDI". Other ittyMIDI products you may have installed will also appear here. Tap in the upper right-hand corner of your screen to pull down a list of application categories. Then Tap on "ittyMIDI" to show only products in that category.

Now you should see the Player icon. It's the black triangle with a MIDI connector in the middle. Tap on it to start the application.

If this is the first time you have started the Player you will be prompted with directions how to register. For more on registration, please see Section II.B. Registration.

2. Using the Menus



On every major screen (Play, Playlist, Tempo and Pitch, Volume and Channels) there is a menu bar with three menus: Display, Options and Help.

ittyMIDI Player User Manual

The Display menu allows you to get from the current screen to the other major screens. (Alternatively, you can use the up and down buttons to navigate between the major screens.) Note: the Playlists screen is not available when a song is playing.

The Options menu allows you to get to the global preferences and any functions or subscreens specific to the current screen.

The Help menu allows you to get information about the current screen, about the Player program in general and access any reference information that would help use the current screen. For more on help, please see Section 5: Getting Help.

So how do you access the menus? The standard way is to tap on the menu icon located in the lower left-hand corner of the silk screen area. In later versions of Palm OS®, you can also tap on the tab in the upper left-hand corner. Now, across the top of the screen you will see, "Display Options Help". These are the three menus. Tap on the name of menu you want and the menu will be displayed. Then tap on the menu item you want. Menu items followed by "..." bring you to a popup dialog. Go ahead and explore the menu commands. Menu items without a "..." act immediately.

3. Using the Buttons

The up and down scroll buttons on the bottom of your handheld allow you to scroll through the five major displays. Note: the Playlists screen is not available when a song is playing. Also, if you select something to edit on the play screen, these buttons will edit the selected value until you unselect it.

The four application buttons on the bottom of the handheld correspond to the buttons on the bottom of the Play Screen (shuttle buttons). From left to right: The Datebook button is the Previous Song button, the Address Book button is the Play/Pause Button, the To Do button is the Stop Button and the Memo pad button is the Next Song button.

These shuttle buttons are available on all the screens where songs can play (Play, Volume, Tempo/Pitch and Channels). They are also available on the Playlists screen, but the Play/Pause and Stop buttons behave a little differently there. Both Buttons will bring you to the Play screen. In addition, the Play/Pause button will start the current song. The song highlighted on the Playlists screen is the current song. You can use Next Song and Previous Song buttons to move the cursor down and up (respectively).


4. Entering Text

Of course, one of the advantages of the Palm OS® platform is the ability to write text with a stylus. We highly recommend that you refer to your handheld's manual and learn Graffiti for text entry. It is a good way to impress your friends. To start the built in Graffiti tutorial, go to the System category in the home screen and tap on "Graffiti".

However, ittyMIDI Player does not require that you know how to use Graffiti. At every prompt for text you can either enter text with Graffiti or you can bring up an on-screen keyboard and tap-type the letters in. To bring up the on-screen keyboard tap in the lower left-hand corner of the Graffiti writing area. You will see an "a" or an "abc" there depending on your model of handheld. To enter numbers or other symbols, tap in the lower right hand corner ("1" or "123").

5. Getting Help

ittyMIDI Player is full of help. You might even say it is helpful.

It provides two kinds of Help. Each screen has its own help information (accessed from the menus by tapping Help | Screen Help or for popup windows tapping on the  icon). This is called "context sensitive help"

In addition, you can find out what each item on a given screen is there for by entering Help Mode.



To enter Help Mode from any major screen, simply tap Help | Help Mode in the menu or enter the shortcut / H to turn help on. When Help Mode is on, any item on the screen can be touched, and a help bubble describing the item you selected will appear on the screen. To exit Help Mode, go to the help menu (it will now be the only menu visible) and select Exit Help or use the Graffiti shortcut /x.

B. Playing Songs

1. Introduction to the Play Screen

The Play screen allows you to play the songs in a Playlist. During play, you can also access the volume, tempo & pitch, and channels screens. Use the hardware scroll button to switch quickly between them. Note that switching screens or tapping anywhere on the screen can cause delays in play.

The control buttons are modeled after those on CD and tape players: previous song,

ittyMIDI Player User Manual

play/pause, stop, and next song. The hardware application buttons duplicate the functions of these buttons, and can be used on each of the four screens where play is allowed.

Use the volume slider to adjust the overall volume of playback. This is a global value, not saved with each song.

The behavior of this screen depends on the Play Mode and whether or not a song is playing. With exception of the Loop Modes, when the current song ends, the song displayed in the next song field becomes the current song. When playing, the next and previous buttons affect the next song. When stopped, they affect the current song.

To change to a different Playlist, use the pull-down menu on the top right of the screen. The Book master lists are always available.

To quickly select the measure to start playing at, tap on the field that displays the measure number. It will now be highlighted. Use the page up and page down hardware buttons to set the measure. If a measure past the end of the song is selected, it will be automatically reset to 1. Similarly, selecting the tempo or volume allows you to use the page up and page down buttons to edit these values.

2. Screen Elements

This section describes the items on the Play Screen as they appear from left to right and top to bottom.



a. Play Screen Tab

This is simply the name of this screen. In later versions of Palm OS®, you can tap here to access the menus. In earlier versions you must use the menu icon at the bottom left of the silk screen area.

b. Play Mode Icon

This is the Play Mode icon. You can change the mode and get more information about play modes on the Play Mode screen via the Options menu.

See also [Section 3: Understanding the Play Mode Screen](#) below.

ittyMIDI Player User Manual

c. **Battery Icon**

This icon shows the battery charge remaining.

d. **Playlist Pull down**

This pull-down allows you to switch Playlists.

e. **Time Signature**

This is the current song's time signature. Defaults to the 4/4 if the signature is not specified before the first note (or first note of the current loop). Changes as new time signatures are encountered.

f. **Measure**

This is the current measure. To change the song's start measure, tap on it to select it, then use the page up and page down buttons.

g. **Beat**

This is the current beat in the measure.

h. **Tempo**

This is the tempo, the speed at which the song is played. To edit the tempo, tap on it to select it, then use the page up and page down buttons.

i. **Current Song**

This is the title of the current song. Changes made apply to this song.

j. **Next Song**

This is the title of the song that will play next. *End of List* is displayed at the end of the Playlist. When a song completes, the song specified here becomes the current song.

k. **Annotation**

This field displays a text note about the current song. Tap to edit it. When a song is in a Playlist multiple times, the note defaults to a number, to help distinguish between instances of the song.

l. **Next and Previous Buttons**

These are the next and previous buttons. They scroll through the current Playlist. If playing, they select the next song. The Calendar and Memo buttons do this on any valid screen when not playing.

m. **Play/Pause Button**

This is the play/pause button. It starts or resumes the current song. During play, it pauses the song. To start play on any valid screen, use the Address Book button.

n. **Stop Button**

This is the stop button. It halts the current song. If no song is playing, it sends an All Notes Off message. Use the ToDo List button to do this on any valid screen.

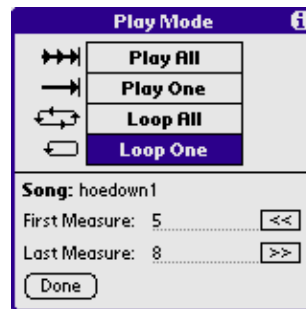
o. Palm OS Writing Area and Icons

Please refer to your handheld's manual for more information on this area.

p. Volume

This allows you to increase or decrease the overall volume of playback.

3. Understanding the Play Mode Dialog



This screen controls the play mode. Play All plays an entire Playlist and then stops. Play One plays a single song and then stops. Loop All plays an entire Playlist and then repeats from the beginning; Loop One repeats the same song endlessly. The play mode button on the play screen can also be used to select a mode.

The First and Last Measure fields allow you to play only part of a song. Changing this affects the current song in the Playlist only. The << and >> buttons reset the fields to their default values of measure 1 and the end of the song, respectively. To advance through the songs while on this screen, use the calendar and memo pad buttons. Changes to the current song will be saved before switching to another song.

C. Creating Playlists

1. Introduction to the Playlist Screen

In previous versions of ittyMIDI Player, there was a single database of MIDI songs and a corresponding Playlist called "All Songs". Starting in version 2.0, ittyMIDI Player allows multiple databases, referred to as Books, each with its own corresponding Book Playlist. If you upgraded from version 1, your old songs will still be present in "All Songs". You can create your own Playlists as before. Playlists can combine songs from several different books.

ittyMIDI Player User Manual

You can create a Playlist for your next performance or for this week's lesson. Each Playlist can have the same song many times. Each copy of the song can be tailored for your particular needs. For example, a teacher may have the same song in the list 5 times – increasing in speed each time. Even if you only have one song, you can still make an impressively large playlist, simply by adding that song several hundred times.

On the left side of the screen is a list of the songs in the current book. Use the drop-down list in the upper left to select a book from all those that are currently on your handheld.

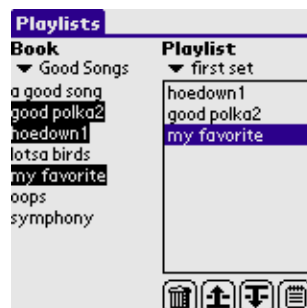
On the right is the current Playlist. Select a Playlist by using the drop-down in the upper right of the screen. Songs in the current Playlist are highlighted in the book list on the left. All book playlists are listed first in the Playlist drop-down. You may neither add songs to nor remove songs from these lists. A ! next to a Playlist name means the Playlist is empty. If the current Playlist is not a Book Playlist, tap on a song to add it to the Playlist. Any song in a Playlist with a * next to it is invalid, probably meaning the Book containing that MIDI file is missing.

Add a quick note about a song by tapping on the note pad button on the lower right. The other three buttons allow you to edit the current song. Use the trash button to remove it from the Playlist. The arrow buttons move it up and down.

It is now possible to copy settings from one song to another. When a song in the current playlist is selected, select "Copy Settings" in the Edit menu. Now, select another song in any playlist and paste these settings to it by using the "Paste Settings" menu command. The "Default Settings" command in the Edit menu will restore all settings to their defaults.

To move from screen to screen, use the display menu or the hardware scroll button.

To beam Playlists or a Book, select the appropriate item in the options menu. Beaming of an individual Playlist is now allowed. However, the Playlist's songs will only be valid if the receiving handheld has the required songs, located in books with the same names. When beaming a book of songs, make sure to close Player on the receiving handheld. You may receive a Playlist while Player is open, provided the receiving handheld is on the Playlist screen.



2. Screen Elements

This section describes the items on the Playlists Screen as they appear from left to right and top to bottom.

a. **Book Drop-down**

Tap on this drop-down to switch between books or delete the current book.

b. **Playlist Drop-down**

Tap on this drop-down to switch between Playlists; or create or edit them. A ! signifies an empty Playlist.

c. **Songs Box**

These are the MIDI songs in the current Book. Tap on one to add it to the current Playlist. (Unless a Book List is selected.)

d. **Playlist Box**

These are the songs in the current Playlist. If a song has a * next to it, it is an invalid file.

e. **Trash Can**

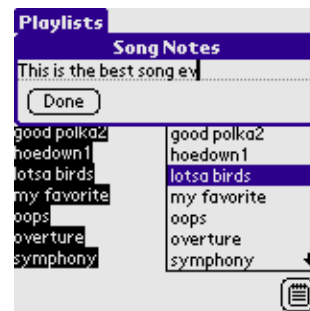
This button deletes the highlighted song from the current Playlist.

f. **Move Song Up or Down**

These buttons move the highlighted song up and down within the current Playlist.

g. **Edit Annotation**

Tap on this button to view and edit a song's note. Use this to store extra information about a song.



h. **Play/Pause and Stop Buttons**

This button takes you to the play screen.

3. Edit List Names

To create a new Playlist, go to the Playlist drop-down and select the last entry, "Edit List Names". This screen allows you to create, delete, and rename Playlists. Tap "new" to create a new Playlist. You will be asked to enter a name. Playlist names must be unique and can have up to 11 characters. To rename or delete a Playlist, select it, and

press the appropriate button. You cannot modify Book Playlists, with one exception. If a Book's database no longer exists, you may delete its Playlist.

4. Delete Current Book

The last entry in the book drop-down is "Delete Current Book", which will permanently delete the book's database from your handheld. When the delete dialog appears, a checkbox allows you to choose whether or not to remove the current book's songs from all playlists. If you choose not to delete the playlist entries, they will be marked as invalid, and will not be playable. If a book's database is located on a Handspring memory card or a write-protected extended memory card, Player will not be able to delete it. To delete the book, use the appropriate utility or unlock the card, respectively.

Note: Deleting a book only deletes it from the handheld. You must separately delete it from SongLoader if you want to remove it from your PC as well.

D. Modifying the Songs in a Playlist

1. The Effect of Changes

Any adjustments made to a song will be saved with the current song in the current Playlist. Other copies of the same song in the current Playlist or other Playlists will not be affected. However, changes to the master playlist of a Book become permanent. They will stay with the song the next time it is added to another Playlist. (Although songs added to a Playlist *before* the Book's Playlist was changed will not be affected.)

None of the changes actually alter the song itself. Instead, they affect the playback of the song. ittyMIDI Player does not perform any editing of songs on the handheld.

2. What can be Changed?

Even though most MIDI files sound so good that is impossible to improve upon them (**NOT!**), ittyMIDI Player allows the user to alter many aspects of the song.

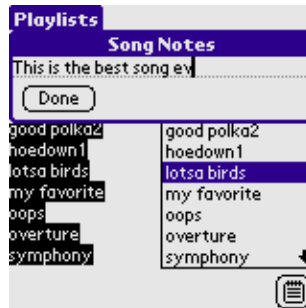
On the Volume screen, you will find a mixer to change the volume of each track, as well as buttons to mute each track. The Tempo/Pitch screen allows you to speed up or slow down a song and change its key.

Under the Options menu, Program Mapping allows for changes to the instrumentation of the song. Also in Options, Play Mode lets you select only the specific measures of the song you want to play.

The pitch for each channel can also be changed.

In addition, a 32 character text note can be added to each song in a Playlist.

Note: The volume slider on the Play screen is a global value. It is not saved with the current song.



E. The Tempo/Pitch Screen

1. Tempo

The tempo is the speed at which music is played.

Since songs can contain multiple tempos, tempo is adjusted by percentage. Tap the arrows to change the percentage, 0 being the original tempo of the song. The maximum is +100% and the minimum is -50%.

The effective tempo is displayed on the top right. If the tempo is not specified before the first note in the song (or loop) the default of 120 is used.

2. Pitch

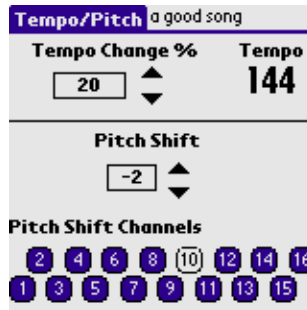
The pitch has nothing to do with baseball, so strike that thought from your mind.

Pitch is how high or low an instrument sounds.

Pitch is adjusted by half steps. Use the arrows to adjust the pitch. The maximum is +24, and the minimum is -24.

If you would like to change the pitch of some channels and not others, tap on the channels you do not want to be affected by the changes. Channels highlighted in white are not affected. Channel 10, which is usually drums, is not affected by default.

The recommended pitch shift to simulate a helium-filled room is 19.



3. Screen Elements

This section describes the items on the Channels Screen as they appear from left to right and top to bottom.

Percentage Change Box

Percent change in tempo. Applied to all tempos encountered in the song. Min -50%. Max +100%.

Tempo Arrows

These arrows change the tempo.

Effective Tempo

This is the effective tempo. Defaults to 120.

Pitch Shift Box

This displays the pitch shift. Pitch adjustments are made in half steps. Min -24. Max +24.

Pitch Arrows

These arrows change the pitch.

Pitch Shift Channel Buttons

Tap a channel number to exempt it from changes in pitch. A white button signifies that it will be excluded from changes.

F. Viewing and Changing Instruments

1. The Channels Screen

This screen allows you to view the instruments that are used on each channel.

Tap the Names box to view General MIDI names or the Numbers box to view instrument numbers. 1–128 are used, as opposed to 0–127. 0 means unknown. Only the instruments in the current song are displayed.

Before a song begins, only those instruments known before the first note are displayed. In Practice Loop mode, the instruments known before the first note of the specified measure will be displayed.

The instruments will change during play as specified by the song. When the song changes, the channels will change to display the instruments played in the new song. Unknown instruments in new songs are cleared.

An activity bar will appear next to the channels in use. Channels that are enabled have their numbers highlighted in black. To mute a channel, tap on its number.

You can edit the sounds a song uses by selecting "program mapping" in the options menu.

A Chart of the complete list of General MIDI instrument names and corresponding numbers is available in the help menu.

Channels		footstomper	
1	string ens 1	9	clarinet
2	string ens 1	10	orch perc
3	string ens 1	11	harp
4	french horn	12	glockenspiel
5	tuba	13	ac gtr steel
6	string ens 1	14	gunshot
7	flute	15	orch hit
8	oboe	16	rev cymbal
		Names Numbers	

2. Screen Elements

This section describes the items on the Channels Screen as they appear from left to right and top to bottom.

a. Song Title

This shows the current song's title and a portion of the note, if any. Click here to edit the song's note.

b. Mute Buttons

Tap these to mute channels. Channels with white buttons are muted.

c. Instruments

These are the instruments used on each channel. '0' and '-' signify unknown.

d. Names

This button causes General MIDI program names to be displayed.

e. Numbers

This button causes program numbers to be displayed. Instrument numbers range from 1–128.

3. Changing Instruments

To change a song's programs, select "Program Mapping" in the options menu. Program mapping can be used to change the sounds a song uses. The Player allows you to remap up to 5 sounds per song.

First, select one of the five maps: A,B,C,D, or E. Make sure the Enabled box is checked. To change sounds, select the current program in the From field. Then select the desired program in the To field. For example, if From is piano and To is bird tweet, all piano sounds will become bird tweets. Like other settings, this is saved with the song in the current Playlist.

If a program is selected in From, and the To field is set to OFF, that patch will not be sent. This can be useful if you want to manually set it from a synthesizer. If From is set to ALL, the To setting will apply to all patches.

The maps are processed in order from A to E. The first map that matches a program will be used. For example, if A was set "From trumpet To bagpipes", and B was "From all To music box", both settings would take effect. But something mapped on

C, D, or E, would have no effect.

Normally, these changes do not apply to channel 10 (the drum channel), even if ALL is selected. To have a map apply to drums only, check its "Use this map for drums" checkbox.

It is now possible to switch songs on this screen by using the calendar and memo pad buttons, but be forewarned: before you switch to another song, any settings you enabled will be applied to the current song, even if you mapped every sound to accordian.



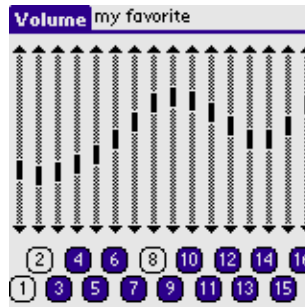
G. Changing Volumes and Muting

1. An Introduction to the Volume Screen

This screen allows you to control the volume of each channel in the current song.

Tap the arrows for fine adjustment, or drag the scroll bars for coarse adjustment.

To mute a channel, tap the channel number. Channels highlighted in white are muted. (This muting function is duplicated on the Channels screen.)



2. Screen Elements

This section describes the items on the Volume Screen as they appear from left to right and top to bottom.

a. Scroll Bars and Arrows

Drag the scroll bars to adjust the volume of each channel. For more precise control, use the arrows at the ends of each scroll bar.

b. **Mute Buttons**

Tap these to mute channels. Channels with white buttons are muted.

E. Beaming

Beaming is a way of transferring files from one handheld to another without any cables. It is exactly the same as beaming in Star Trek, except it only has a range of about 2 feet, it doesn't work on people, and it is real. If you have an older handheld, you may not have this capability.

You can beam the Player to someone else for trial purposes. From the launcher screen (the home screen of the handheld), select Beam under the App menu. Select Player and tap on beam to transfer the program. The application will not be registered on the receiving device. You must pay for a separate registration code for each handheld the Player is installed on.

From inside the Player application, you can beam Playlists and Books.



1. Beaming Playlists

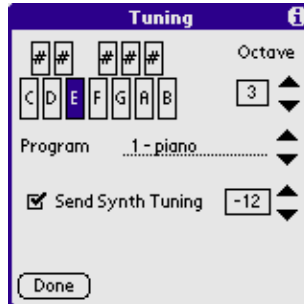
Beaming is located in the options menu, on the Playlists screen only. To beam a Playlist, make sure the receiving handheld is in the Playlists screen or does not have Player open. Then select Beam Current Playlist in the options menu. This will add the Playlist to the receiving device. Due to the nature of infrared communications, beaming is somewhat unreliable. You may have to try more than once to successfully beam data. It might help to loudly say "Beam me up, Scotty!" before beginning the transfer.

2. Beaming Books

Beaming Books is similar to Beaming Playlists. Close Player on the receiving side before beaming. Then, select Beam Current Book in the Options menu. This beams the entire Book of songs to the receiving side.

Note: because of the way the Palm OS handles beaming, you need about as much free memory as the size of the database on the sending handheld and double the size of the database free on the receiving unit.

F. Tuning



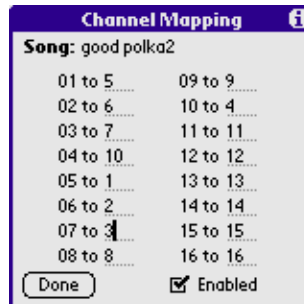
This screen can adjust the tuning of any MIDI synth to match another instrument. It can also create a tuning note to assist in the tuning of another instrument, such as a guitar. Tap on one of the piano key buttons to play a note. The octave can be adjusted using the arrows to the upper right. To use a different program (sound), change the program field. It is best to use a sound with as little vibrato as possible.

To tune the synthesizer, use the arrow buttons at the lower right of the screen. The pitch is measured in cents (100 cents = 1 half step). This parameter is only in effect when "Send Synth Tuning" is checked.

When you exit the program or enter the Playlist screen, ittyMIDI Player sends a tuning message to your synthesizer restoring a setting of A=440 Hz.

G. Channel Mapping

Use Channel Mapping to change the channels that different programs play on. If you are using a General MIDI synth, you probably don't need to mess with this setting.



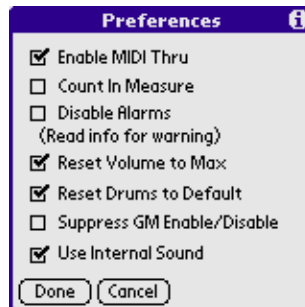
ittyMIDI Player User Manual

To remap the channels, enter a new channel number to the right of the old channel number. Check the "Enabled" checkbox to enable your settings. Channel mapping applies to the current song in the current Playlist.

You can redirect multiple channels into a single channel, but it has adverse effects. Program, controller, and effect information will all be combined together in the new channel. This is probably not what you want to do.

Also, if you map channel 10 (drums) to another channel, it will no longer sound as drums, unless you configure your synth appropriately. Likewise, other channels that are mapped to channel 10 will sound as drums.

H. Preferences



All of the preferences described here can be accessed via the "Preferences..." menu item of the Options menu on any of the major screens. These items affect the behavior of the Player globally and are not specific to a particular song or Playlist.

1. MIDI Thru

If MIDI Thru is enabled, MIDI data can pass through the handheld from the in port to the out port. This is generally used by experienced MIDIanites and can be safely disabled if you don't know what it means.

2. Count In Measure

Count In Measure causes a one-measure metronome count in before the song starts. The metronome continues counting through blank space at the beginning of the song, until the first note is encountered.

If you press pause during the count in, count in will start over rather than resume from where you paused it. In effect, pause is the same as stop during count in.

3. Disable Alarms

Disabling alarms prevents them from interrupting play. It is only active on playable screens. The low battery message is not disabled. **WARNING:** some applications use alarms to silently schedule internal events. Disabling them may prevent these programs from functioning properly.

In version 2.0, ittyMIDI Player even disables the low battery alarm. If the battery gets low, little exclamation points appear next to the battery meter on the Play screen. However, this feature does not stop your handheld from going dead! So, you should always follow the Boy Scout motto: "Put fresh batteries in your handheld computer before using it to play MIDI in front of a live audience."

4. Reset Volume to Max and Reset Drums to Default

Some songs don't reset certain parameters to their defaults at the beginning of the file. This can cause settings from previous songs to affect the current song, usually with undesirable results. The following options help alleviate the problem:

Reset Volume to Max sends a MIDI message to reset the synth's volume after each song. The value it sends is the Volume you have set on the Play screen.

Reset Drums to Default sends a

message resetting the drum kit to the default program (0 – Standard Set) after every song.

5. Suppress GM Enable/Disable

Some songs automatically send a message that puts your synthesizer in General MIDI mode. This could be annoying if you want to set up your synth to play MIDI files with non-GM programs. If this option is selected, no GM System messages will be sent, and your synthesizer will stay in the mode you set it to.

6. Use Internal Sound

Select this option to enable the internal synthesizer on certain Sony models and the monophonic internal speaker on all other models. MIDI data will still be sent out the serial port.

IV. APPENDIX

APPENDIX A: What is MIDI?

MIDI (Musical Instrument Digital Interface) was established in 1983 by the MIDI Manufacturers Association to allow musicians to connect synthesizers together. MIDI allowed musicians to experiment with music in a new capacity. They could play more than one instrument all from the comfort of one keyboard.

Today, MIDI enjoys ubiquitous use in the computer industry. MIDI enhances the audio output in games and other multimedia software. MIDI, however, is not a software program, nor is it a music recorder. MIDI is divided into three different components: MIDI protocol, standard MIDI file, and the MIDI connector/cables.

PROTOCOL

The MIDI protocol is the language in which the MIDI files are written. The language does not contain the actual note but rather has the instructions on which note to play and how long to play it. The MIDI protocol basically is the conductor of the synthesizer.

CONNECTOR

MIDI files are shared through MIDI cables which carry data needed by each device in order to play the right music. The proper way to connect MIDI devices to each other and transmit the MIDI protocol is through the five pin connector (shown below). Every device has both IN and OUT connectors usually located at the back of the device (shown below). These cables allow the MIDI information to flow from device to device.



STANDARD MIDI FILES

Standard MIDI files are files that carry or hold the MIDI protocol information. Just like other types of files like a text document they can be shared and copied and modified. Unlike other music files such as .wav files, MIDI files take up much less memory. Another comparative benefit is that MIDI files are editable while other types of files are not.

How does MIDI Work?

MIDI data, taken from a MIDI file, is transferred between devices through MIDI cables. The cable is divided into sixteen channels. The MIDI protocol does two things here. First it assigns the data to a certain channel and then it tells the MIDI receiving device what channel the data is on. The receiving device then tunes into that particular channel and receives the instructions for that channel such as what note to play and for how long.

One analogy that illustrates how MIDI works is that of a player piano. The punched roll represents the notes that need to be played on the piano. The reader on the piano player converts the roll punches into commands or pressure that actually presses the key down. The MIDI files are like the punched rolls. The reader is like a MIDI player and the piano is the synthesizer.

Appendix B: ittyMIDI Player Technical Information

A. Files

1. File Types

ittyMIDI Player plays only type 0 files. Type 1 files are converted to type 0 in SongLoader. Type 2 files are not supported. (The vast majority of MIDI files are type 1 or type 0).

2. Database Format

MIDI files are stored as records in Palm SMF databases. ittyMIDI Player only opens databases with names of 10 characters or less, created by SongLoader. The files are stored in the standard SMF format for Palm, provided they are under 60k.

3. Extended Memory

Player version 2.0 now supports extended memory. This allows SMF databases to be located on cards for extra storage space. Devices with this feature include: Sony Clies (Memory Stick), Most newer Palms (SD cards) and Handera (SD and CF).

(Handspring memory modules are also supported, but this section does not apply to them, as they operate as traditional memory).

A few considerations need to be made when using extended memory:

- a. Player only reads databases from the default directory for PDB's on the extended memory card (For example, /Palm/Launcher on Palm devices). This will not present a problem if you use the Palm desktop to install databases, but if you use another installation method, such as the Memory Stick slot on a Sony laptop, you must make sure it is in the correct directory. To find out the correct directory, use the file utility on the handheld to copy any program to the expansion card. The directory it is placed in should be the default directory for PDB's.
- b. Because ittyMIDI Player must load a song into main memory before playing it, you will not be able to play songs that are larger than the amount of free memory you have on the handheld. For example, if your largest song is 200k, you need slightly more than 200k free to play that song.
- c. Finally, there may be noticeable load times at startup when using extended memory. When starting the application for the first time after loading a new book or editing playlists, you may have to wait for several seconds. Subsequent startup times will be much faster.

4. Large File Handling

The Palm database format only supports files of up to 64k. When a file is 60k or larger, it is split into 60k chunks.

- a. The first chunk is stored in the SMF database. It is playable as a standalone file, although the track length will be incorrect.
- b. Additional chunks are stored in proprietary databases. The naming scheme for these databases is: the name of the SMF database padded to 10 characters with spaces, with the word "data" appended. Underscores may be used instead of spaces on extended memory, depending on the card type and how the database was loaded.

- c. Each chunk begins with a sequencer specific meta event (Event number 01). See section VI for details of MicroTools, Inc. events.
- d. Each chunk ends with the hexadecimal bytes FF 2F 00, the MIDI end-of-file message, even though it may not be the true end of the file. This is to make the first chunk be playable by other programs that do not know this message format.
- e. SysEx messages are limited to 60K in size.

B. Timing

1. Accuracy

ittyMIDI Player is accurate to within 10ms, the timing resolution available on Palm OS.

- a. Timing errors are not cumulative. The time will always be within 10ms.
- b. The default MIDI timing resolution is 96 PPQ—about 5ms for a song at a tempo of 120.
- c. ittyMIDI Player normally operates at 10ms resolution, meaning that every 10 milliseconds, all outstanding messages are sent. However, when no song is playing, ittyMIDI Player reduces this rate to 30ms. This was done to preserve the battery in the handheld. This only effects thru data

C. Rate

1. Data Send Rate

Player can handle as much data as MIDI allows.

D. All Notes Off

1. During Play

When stopped during play, Player individually turns off each note that was on.

2. Otherwise

When stop is pressed and no song is playing, Player sends an All Notes Off message on each channel.

E. Automation

1. Automation Support

Player does not support sequencer automation features at this time.

F. MicroTools, Inc. proprietary events.

1. Meta Events

Each sequencer specific meta-event starts with the following bytes. All values are in hexadecimal.

FF 7F	This is the code for a sequencer specific event.
xx	This is the length of the remainder of the message, in bytes. (This may be more than one byte. See the MIDI Spec.)
00 01 3E	This is the manufacturer ID for MicroTools, Inc.

2. MicroTools, Inc. Meta Events

The next byte tells which MicroTools message it is.

a. Big File Message

Type byte: 01. A message telling the location of file chunks for files > 60k.

```
xx xx xx  The rest of the message is made up
           of 3-byte values. The first is the
           unique record ID of the first
           chunk, in "Midi Song Files". Each
           subsequent value is the unique
           record ID AND record name of a
           chunk in "Midi Song Data".
```

b. Break Message

Type Byte: 02. This is a break message. When a song with this message is encountered, Player advances to the next song and stops, no matter what the play mode is set to. This only appears in a MIDI file with no other data. There are no other bytes in this message.

c. Chain Message

Type byte: 03. This is a chain message. It is the same as a break message in every aspect, except play continues rather than stops, once again regardless of the play mode. This is not currently supported but is reserved for future use.

G. Miscellaneous Information

1. Time Signature

If a time signature message is encountered in the MIDI file, the measure will immediately advance and the beat will be reset to 1.

2. Reset Controllers

We reset all controllers at the beginning of every song. This restores the controllers to a known value so that one song will not affect how the next song sounds.

3. Volume Slider

The Volume Slider on the play screen proportionally adjusts the volume on each channel. It does not use the master volume controller. Many synthesizers do not implement master volume support.