

# **GNMIDFMT**

© 2015 GN MIDI Solutions

# Table of Contents

<b>Part I GNMIDFMT</b>	<b>3</b>
1 Purpose .....	3
2 Conditions .....	3
3 Suggestions / comments / bug reports / questions .....	3
<b>Part II MIDI File Format 0, 1, 2</b>	<b>3</b>
1 MIDI file format .....	3
2 MIDI format 0 .....	4
3 MIDI format 1 .....	5
4 MIDI format 2 .....	5
<b>Part III Conversions</b>	<b>6</b>
1 MIDI Format 1 to 0 .....	6
2 MIDI format 1 to 2 .....	6
3 MIDI format 0 to 2 .....	6
4 MIDI format 0 to 1 .....	6
5 MIDI format 2 to 0 .....	6
6 MIDI format 2 to 1 .....	6
<b>Part IV Installation</b>	<b>7</b>
1 Installation .....	7
2 Deinstallation .....	7
<b>Part V Usage</b>	<b>7</b>
1 Start application .....	7
2 Close application .....	8
3 Open a MIDI file .....	8
4 Browse a folder .....	8
5 Sort the MIDI list .....	8
6 Select entries in the MIDI list .....	8
7 Create list .....	9
8 Check MIDI files .....	9
9 MIDI compression .....	9
10 Convert to 0, 1, 2 .....	9



# 1 GNMIDFMT

## 1.1 Purpose

There are 3 MIDI different formats inside standard MIDI file format: 0, 1, 2  
In many cases the MIDI file format must be converted to use a MIDI file on certain devices or for certain software.

This program converts following formats:  
Standard MIDI file format 0,1,2 into MIDI format 0,1,2  
.rmi RIFF MIDI file into MIDI format 0,1,2  
It can check the validity of MIDI files.

The program allows to convert many files in a folder at once.

Demo version shows registration reminder sometimes and limits number of conversions to 2 in one operation.

## 1.2 Conditions

In order to be allowed to use this software the user must accept the end user license agreement. It will be displayed at start of GNMIDFMT and must be accepted by clicking Accept button once.

Read the end user license agreement in file:  
gnmidfnten\_eula.txt

## 1.3 Suggestions / comments / bug reports / questions

Homepage: <http://www.gnmidi.com>

EMAIL: [info@gnmidi.com](mailto:info@gnmidi.com)

Support is available only for registered users at [support@gnmidi.com](mailto:support@gnmidi.com), telephone support is not available.

Bug reports, comments, suggestions also from testers welcome.

Report abuses to [abuse@gnmidi.com](mailto:abuse@gnmidi.com)

# 2 MIDI File Format 0, 1, 2

## 2.1 MIDI file format

Standard MIDI file format (.mid) is available in 3 different formats:  
Format 0, Format 1, Format 2

The numbers 0-2 are from header of .mid files.

The MIDI format is also known as MIDI type, MIDI version.  
The 3 formats are not totally different encoded, only different organized and interpreted.

#### Generally for all formats

A midi file consists of a simple header and one or more tracks.  
Each track contains pauses and MIDI commands. Most MIDI commands (e.g. notes, controllers, ...) are identical to MIDI standard protocol, some commands were added special to MIDI file format (META Events, e.g. tempo, tact, text ...).

Within a track the commands are interpreted (e.g. played) in order of occurrence, the pauses between commands delay the interpretation for certain time. Many commands (e.g. notes) are assigned to a channel (1-16) which defines a sound setup at a time (e.g. channel 10 plays drums at certain volume with some effects).

The MIDI format (0,1,2) decide

- \* how many tracks are allowed
- \* what tracks should contain (channels, commands)
- \* how tracks are played together with others (parallel, serial)
- \* how tempo is controlled

## 2.2 MIDI format 0

- A format 0 MIDI file has only one track.
- This track contains all commands of all 16 channels and they are sorted by time depending on the pauses between commands.
- The only available track contains whole song.
- Tempo is applied when it occurs inside the format 0 track.

The MIDI format 0 is very popular, all MIDI players support this format. Many devices (keyboards, modules, players) support only this format, because it is easier to handle (commands are already sorted by time, player only needs to wait the pauses and then fire command after command to the synthesizer).

## 2.3 MIDI format 1

- Format 1 MIDI file has at least one track. Number is not limited except by certain applications (usually to 256 tracks)
- First track is intended for conductor and contains only commands that are not channel depending (tempo, tact, text, key,...). Each other track should not contain tempo or tact, it should contain commands for certain channel (1-16). Some applications also allow using more channels in a track. It is allowed to use more tracks with a certain channel, the tracks share the setup of this channel if the commands refer to same output device (port).
- The tracks play together at same time (parallel). All tracks together are one song.
- Tempo and tact should be only used in conductor track (first track), the other tracks play to conductors timing.

The MIDI format 1 is very popular, most software players and editors (MIDI Sequencer) support this format. Human like it because it allows to organize own sequences logically (a track for conductor, for bass, for melody, for strings, for lyrics, ...). This format is also popular for printing, each track can be printed as a staff line in a score sheet. Karaoke files \*.kar are in this format.

For hardware players this format is more difficult to support because the commands from all tracks must be merged before playing or at realtime. Many (older) keyboards don't support loading format 1 to save costs.

## 2.4 MIDI format 2

- MIDI format 2 has at least one track, usually more tracks
- each track contains a whole song, all songs have same resolution (= units per quarternote)
- the tracks play one after one (serial), single tracks/songs can be referenced by an application to play certain song or song list in certain order.
- each song is itself organized like a format 0 song, all commands including tempo are within a track.

The MIDI format 2 is rarely used, most players and editors can't read this format. It is used by few applications to archive more songs to access songs by random or to organize depending songs in a package. It is not recommended to distribute songs in this format.

## 3 Conversions

### 3.1 MIDI Format 1 to 0

All tracks are merged to one track, commands must be sorted by time.  
The conversion loses information:  
track number where the command was originally  
(e.g. a track for piano left hand and one for right hand on  
same track, the tracks are merged and distinguish  
left/right hand is not available anymore).

### 3.2 MIDI format 1 to 2

First format 1 must be converted to format 0, then the format is  
close to format 2 and can be converted to format 2 (see format 0 to 2).

### 3.3 MIDI format 0 to 2

A single format 0 song is nearly format 2, only the format indicator must be set to 2.  
If more songs are included in the format 2 then  
must modify the midi resolution to a common factor and recalculate  
the pauses relative to the new resolution.  
The quantization to new resolution can generate small inexactness  
in pauses. Best new resolution is smallest common multiplier of all  
resolutions. The resolution value should not be too high, because some  
players don't support high precision resolution and refuse playing them.

### 3.4 MIDI format 0 to 1

The single track must be divided into more tracks.  
Usually this is done by separating the timing information (tact, tempo)  
into first track (conductor) and the individual channels into own tracks.  
It is also possible to create separate tracks for each program and  
for each drum instrument.  
(GNMIDI has operations to split programs and drums)  
The separation into tracks is not unique, applications can use different  
ways.

### 3.5 MIDI format 2 to 0

A MIDI format 2 can contain several songs, which are all nearly format 0  
formatted. Generate a new midi file format 0 for each of these files.  
The files have same resolution.

### 3.6 MIDI format 2 to 1

MIDI format 2 must first be converted to one or more format 0 files,  
then each one can be converted to format 1 (see format 0 to 1).

## 4 Installation

### 4.1 Installation

This program is developed for use with Microsoft Windows versions Windows 7 and Windows 8. It does not run under Windows 3.x and older. It is currently not tested with other Windows versions like Win98, NT, Vista or Windows 10.

Unzip the content of gnmidfnt.zip into a new folder (e.g. use Windows extraction assistant in Windows Explorer menu or use a Zip tool like InfoZip, WinZip ...).

Start gnmidfnt.exe with Windows Explorer by clicking on the gnmidfnt.exe.program item.

For future use you could add the program item gnmidfnt.exe to one of your desktop groups (or create a new one), use Windows Explorer to create a shortcut item on the desktop (right mouse opens a context menu).

After registering you will get more information how to install your personal license file. This will remove the registration reminder dialog and enabling full version instead of demo version.

### 4.2 Deinstallation

MSI installer: use deinstall program function of Windows to deinstall the program. Remove the file gnmidfnt.ini in your "My Documents" folder.

ZIP: Remove GNMIDFMT installation folder and gnmidfnt.ini in your "My documents" folder

## 5 Usage

### 5.1 Start application

#### Starting GNMIDFMT

Start the software by opening gnmidfnt.exe in your GNMIDFMT folder with Windows Explorer.

#### Demo reminder

In demo a registration reminder will appear. Wait till it shows the OK button and read the information. If you accept the usage terms then press ok to enter the software, else use cancel to abort and delete the software from your computer.

#### Full version

In registered version the software shows the registration name at bottom line. If the displayed name does not match your name then you are not allowed to use the software, close it and delete the software from your computer immediately.

#### Language

If the Windows system language is German then application text will be German, else the application language will be English.



## 5.2 Close application

Use operation Exit from file menu to exit the program.

## 5.3 Open a MIDI file

Use "Open" in file menu or toolbar (Ctrl-O) and choose a MIDI file (.mid).  
Choose file extension filter \*.\* in open dialog if your MIDI file has other file extension than .mid (e.g. .kar, .rmi)

### If loading fails

Files that do not contain MIDI format will not be loaded. Try GNMIDI that offers many features to inspect the file content and has also an operation to repair corrupt MIDI files.

### Loading successful

After successful loading the MIDI file a Windows will be displayed that contains a list with the midi file and its MIDI format (0 or 1 or 2) as only entry..

## 5.4 Browse a folder

Choose a folder that contains at least one MIDI file and choose any MIDI file in the folder.  
A new window will be displayed that displays all files in a list that contain MIDI data. For each entry the MIDI format will be displayed in second column.

Other files in this folder are ignored. Subfolders are not loaded.  
If the folder contains a huge number of files loading the list may take some time.

Try GNMIDI application that has a MIDI format conversion operation that does convert MIDI format of all MIDI songs in sub folders.

## 5.5 Sort the MIDI list

The list has two columns file name and format.  
Click on one of the column headers to sort the list content by this column. Click again to sort the list content by this column in reverse order.

## 5.6 Select entries in the MIDI list

First click into the window title that the wanted Window with a loaded folder content becomes active.

Use the scrollbar to find more pages if there are many entries in the list.

### Select a single entry

Click into a row with left mouse button

### Select all entries

Use menu format/select all or shortcut Ctrl+A to select all rows

### Select a range of entries

Use the left mouse button to click on first row, hold the mouse button while moving the mouse pointer to last row and then leave hold of the mouse button .

**Extend selection with more entries**

Hold the Ctrl button while clicking with left mouse button on entries. This will select or unselect the clicked entries. Extending also works for selecting a range of entries.

## 5.7 Create list

This operation creates a text file with the list of files and their MIDI format. The text information will be written into a temporary text file and will be opened with standard text editor (e.g. Notepad).

e.g.

```
0 Y:\uti\DEMO0001.MID
0 Y:\uti\INIT630.STY
0 Y:\uti\INIT640.STY
0 Y:\uti\INIT8K.STY
0 Y:\uti\INIT9K.STY
1 Y:\uti\LIEBESSP.MID
```

## 5.8 Check MIDI files

this option in menu format is enabled by default. When the option is enabled the files will be checked after loading. Corrupt MIDI files will be marked by error in the format column.

Converting a file that contains MIDI errors might probably fail during conversion operation.

*Hint:* GNMIDI has operations to inspect MIDI file content and has even operation to repair corrupt MIDI files.

## 5.9 MIDI compression

this option in menu format is enabled by default.

MIDI file format allows to store data in different ways without changing the meaning of the content. It supports to reduce data amount by omitting unnecessary status data repetitions which are clear by context (called running status).

We call this more efficient data storing MIDI compression.

It is a method that most MIDI files use and it is recommended by the MIDI standard.

When the option is enabled the converted file results will use the MIDI compression optimization.

When the option is disabled the converted file results will not use the MIDI compression optimization and the data files might become bigger (about 30%).

*Hint:* only disable the option if you use a MIDI keyboard or a MIDI application that is not able to handle running status.

## 5.10 Convert to 0, 1, 2

The convert operations are disabled if there is no selected entry in the loaded list.

Load a file or a folder that contains MIDI files and then select one or more entries to enable the conversion operation.

Click on the 0 or 1 or 2 button or the operation in menu Format to start the conversion for all selected entries.

The files will be overwritten with the results.  
Backup files will be written into the same folder (.bak) after every change.

e.g.

PLAYTEST.MID  
PLAYTEST.bak  
PLAYTEST1.bak  
PLAYTEST2.bak