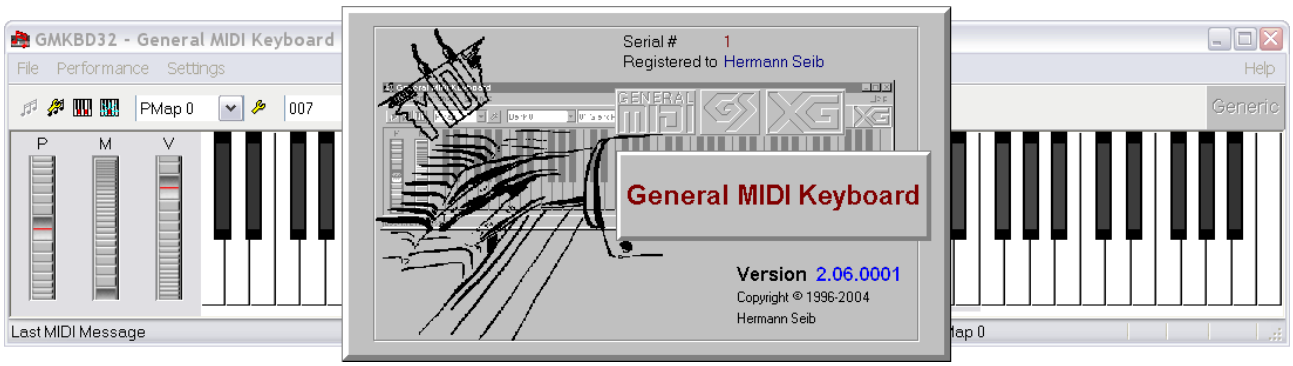
GMKbd

The General MIDI Keyboard

Version 2.06



User's Guide

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Preface

This document describes **GMKbd**, the General MIDI Keyboard. **GMKbd** is a feature-rich General MIDI-compatible keyboard simulator for MS-Windows V3.1, 3.11, 95, 98, or NT. It can be used as a stand-alone program to play music on attached MIDI devices, or, with appropriate MIDI drivers, it can be used to send MIDI messages to other applications, such as sequencers.

Acknowledgements

Special thanks go to the following persons/companies:

- ☺ Steve Dinnerman for providing a program called "MS Windows Piano V2.1" by Gregor Brecko; this was the starting point for my idea to develop the program
- ☺ ThierryT (unfortunately, I haven't got his full name; Compuserve ID is 100064,2213) for showing me how a good pitch wheel implementation can look like.
- ☺ Twelve Tone Systems for adding a Virtual Piano to their Cakewalk Professional for Windows V3.01 package; this product was quite helpful.

Contact the Author

For problem descriptions, suggestions, etc., I can be reached per eMail at office@hermannseib.com. I try to keep response times short, but expect 1 or 2 days to pass before I can answer your mail.

Installation

Requirements

To use **GMKbd**, you need Windows V3.1 or later. For the 32-bit version, Windows 95/98, or NT 4.0 – Windows 7 is required. MIDI drivers are not necessary to start the program, but without them, you can use only the PC speaker to produce some measly bleeps.

Installation

Copy the contents of the .ZIP file into the target directory. The .ZIP file should contain the following files:

GMKBD.EXE	the executable
GMKBD.HLP	the help file for the application
GMKBD.WRI	this documentation
GMKBDDRV.DRV	the MIDI driver for **GMKbd**; see below
OEMSETUP.INF	Control Panel installation information for the MIDI driver
HISTORY	detailed history of **GMKbd**
READ.ME	last minute changes

Then, add **GMKbd** to one of your Program Manager's groups.

GMKbd Driver Usage

GMKbd comes with its own MIDI In device driver. This driver can be very useful if you want to send output from **GMKbd** into another program, such as a MIDI sequencer.

Cakewalk Professional for Windows V3.01 or later comes with its own MIDI device driver for their **TTS Virtual Piano**; if you have already installed that, you can use it with **GMKbd**, too.

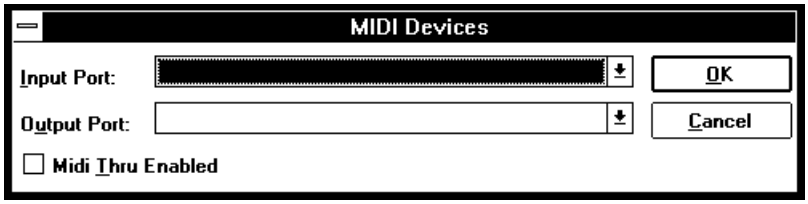
To install the **GMKbd** MIDI driver, open the Windows Control Panel. Select *Drivers* / *Add* / *Unlisted*, then enter the path where you installed **GMKbd**. The appearing driver list should now contain an entry called **GM Keyboard MIDI IN**. Press **OK**, restart Windows, and the driver is installed.

Attention: this driver is not designed for Windows NT and above, as it's a 16-bit only driver!

Invocation

Just double-click on the **GMKbd** icon to start it.

After having started **GMKbd** the first time, you see the following dialog:



This dialog appears upon program start if no devices have been configured, or if the devices can not be opened.

Here, you can select a MIDI input device and a MIDI output device.

Invocation Syntax :

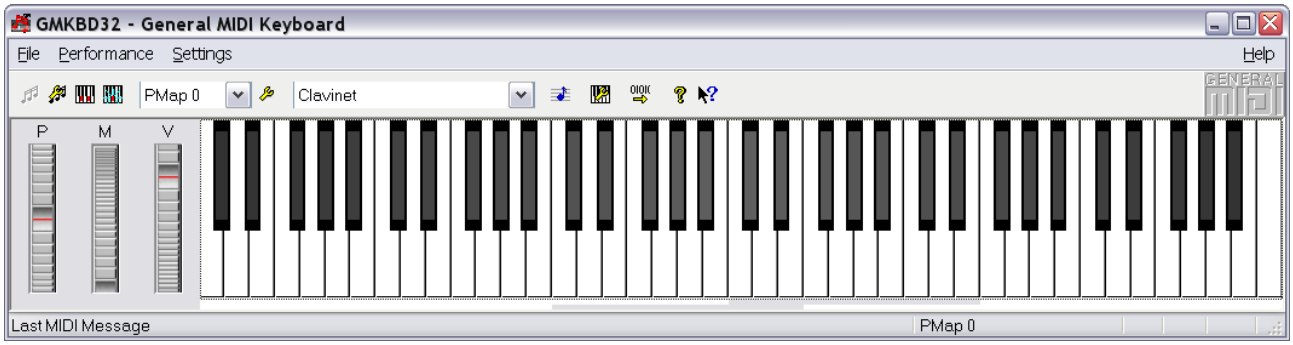
GMKBD [/N]

The /N parameter suppresses GMKbd's logo display upon program start.

Base Operations

Main Window

After having started **GMKbd**, you see the following window (parts may be invisible until you select them in the **Settings** menu, or due to poor screen resolution):



The **toolbar** is an optional item that provides a convenient access to the most commonly used functions of **GMKbd**. It can be activated with the **Toolbar** menu item in the **Settings** menu. For more information, see the "Toolbar" chapter.

The **status bar** contains the currently active performance map and the currently selected patch. Whenever a MIDI event occurs, it is displayed in the third field of the status bar.

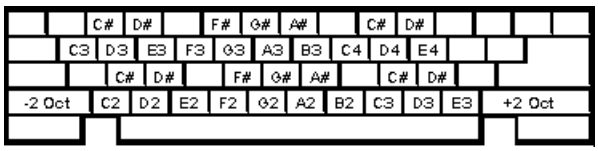
You can play on the **simulated MIDI keyboard** with the mouse, or with the PC keyboard's keys. Whenever the mouse cursor changes to a little hand, you can play on the keyboard.

The *left mouse button* acts like a finger; as long as you keep it pressed, the note is played.
The *right mouse button* acts as a "sticky finger"; if you press it over a note, this note keeps on playing until you release it by pressing one of the two mouse buttons on it again.

When played with the mouse, the keyboard is "dynamic"; the closer to the bottom you touch it with the mouse, the louder the note sounds.

The keyboard can have up to 3 wheels (see **Keyboard Configure** on how to activate them): a self-centering Pitch Wheel, a Modulation Wheel, and a Velocity Wheel, which is useful for temporarily changing the velocity of keys entered with the PC keyboard.

If the MIDI keyboard has the input focus (i.e., surrounded by a dotted rectangle), you can also use the PC keyboard to generate MIDI notes. The following keys can be used:



Below the keyboard, **octave indicators** can be displayed. They mark the currently active lower and upper keyboard octaves (i.e., the octaves that can be played on the PC keyboard). To use other octaves, you can drag the octave indicators to a new position.

The following function keys have been built in:

Left shift, Right shift	transposes the PC keyboard's range two octaves down/up
Ins, Del	increment/decrement pitch wheel data
Home, End	increment/decrement modulation wheel
PgUp, PgDn	increment/decrement key velocity
Left, Right	decrement/increment upper keyboard octave
Down, Up	decrement/increment lower keyboard octave

The default velocity of MIDI notes generated by the PC keyboard can be adjusted with the **Velocity** knob on the **Keyboard Configure** dialog.

File Menu

This menu is used to play MIDI files and to terminate **GMKbd**.

Play MIDI File

The Play MIDI File menu item is used to play an existing MIDI file. You can select one from a list of all MIDI files. After having selected one, the MIDI file starts playing and the following dialog appears:

This dialog allows you to control MIDI playback in a way similar to a very simple tape recorder. **GMKbd** was not intended to be a complete sequencer package; the ability to play back MIDI files has been implemented as an add-on only.

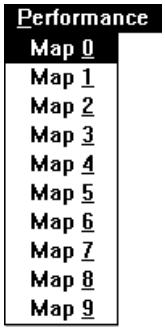
The leftmost button (**<<**) acts as a "rewind" button; it resets the MIDI sequence to the start. The **Stop** button stops playing the sequence and closes the dialog. This also happens when the sequence has been finished. The **Play** button (**>**) starts playing the sequence after a rewind or pause operation. The **Pause** button (**||**) stops the sequence, but allows it to continue if you press the **Pause** button once again or the **Play** button.

Note: to play back MIDI files, **GMKbd** uses the Windows MCI MIDI sequencer, not the selected MIDI output device. This prohibits the sending of the file's MIDI data to other programs, as they are not routed though **GMKbd**. If the MIDI Mapper is not configured to use the same output device as **GMKbd**, the MIDI file is played on a different device!

Exit

The **Exit** menu item is used to terminate **GMKbd**.
One of the wonders of the world.

Performance Menu

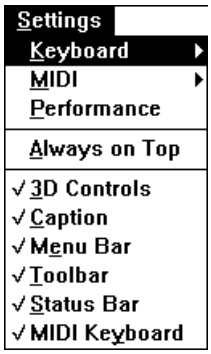


The **Performance** Menu is used to select one of the 10 possible performance maps.

See **Performance** in the **Settings** menu on the definition of a performance map.

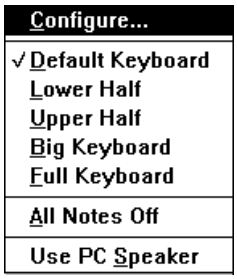
Settings Menu

The **Settings** menu contains all global settings.



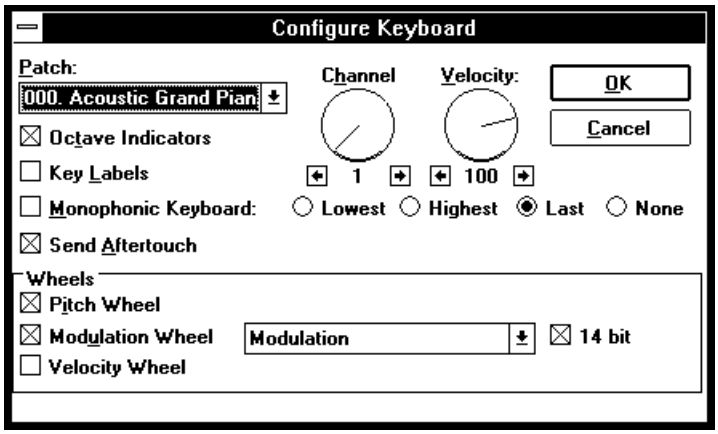
Keyboard Submenu

The **Keyboard** submenu is used to adjust the settings of the simulated MIDI keyboard.



Configure

When selected, the following dialog is displayed:



Here, you can select the **patch** of the simulated MIDI keyboard.
The **Channel** knob lets you select the MIDI channel for the simulated MIDI keyboard.

Note: the above setting are overriden by performance map definitions.

The **Velocity** knob lets you select the velocity used whenever a key is pressed and the simulated MIDI keyboard has the input focus.

The **Monophonic Keyboard** check box can be used to switch between polyphonic and monophonic keyboard mode.

In monophonic keyboard mode, every pressed key terminates the previous note. The radio buttons govern what happens when the current note is released, and there are still other notes held.

When **Lowest** is selected, the lowest currently pressed key determines the current note.
When **Highest** is selected, the highest currently pressed key determines the current note.
When **Last** is selected, the last note pressed before the terminated note determines the current note.
When **None** is selected, eventually still pressed keys are ignored.

The **Octave Indicators** check box can be used to activate the octave indicators below the simulated MIDI keyboard (see Midi Keyboard on their usage).

The **Key Labels** check box can be used to display key labels on the white keys (cute for piano beginners).

The **Send Aftertouch** check box can be used to activate the sending of Key Aftertouch MIDI messages if you slide the mouse up and down a key while keeping one of the mouse buttons pressed.

The **Wheels** section allows to define the number and type of wheels that are added to the simulated MIDI keyboard. The following wheels can be defined:

Pitch Wheel

When selected, a self-centering pitch wheel is added to the simulated MIDI keyboard.

Modulation Wheel

When selected, a modulation wheel is added to the simulated MIDI keyboard. The combo box allows to define the type of controller that is sent when the modulation wheel is used. Normally, you will want to keep the default value of Modulation. The **14-bit** check box defines whether the controller sends 7-bit or 14-bit messages. Normally, 7-bit is enough.

Velocity Wheel

When selected, a wheel is added that can be used to override the PC keyboard velocity defined by the **Velocity** knob above.

All Notes Off

This menu entry turns off all notes currently playing.

Use PC Speaker

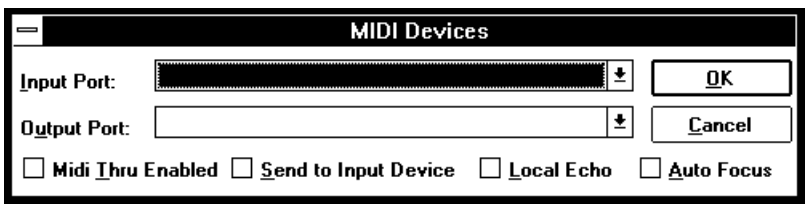
This menu entry toggles the use of the internal PC speaker for note output.

Note: this option should only be used if there is no sound card installed, as the PC speaker is a very limited output device; it can play only one note at a time with a fixed loudness. Also, this is only available in the 16-bit version of **GMKbd**.

MIDI Submenu

This menu allows you to select the input and output devices and to send arbitrary MIDI messages.

Devices



Here, you can select a MIDI input device and a MIDI output device.

When the **Midi Thru Enabled** check box is checked, all MIDI data coming in from the MIDI Input device are echoed to the MIDI output device.

GMKbd recognizes a number of special input devices with extended capabilities. When one of these devices is selected, the following special options appear:

Send To Input Device

When checked, this setting allows **GMKbd** to "poke" MIDI messages into the MIDI Input device so that other applications that connect to that device can receive them. This allows, for example, to use **GMKbd** as a sort of poor man's input device for a MIDI sequencer.

Local Echo

When checked, and **Send To Input Device** is checked, too, output goes to both the MIDI Input device and the MIDI Output device.

The following special device names are recognized by **GMKbd**:

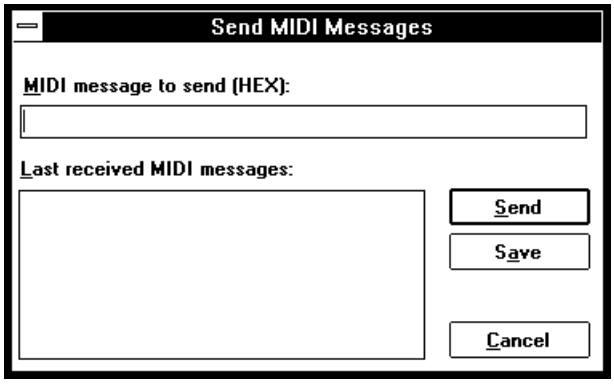
GM Keyboard MIDI IN	**GMKbd**'s own driver; specially crafted for this purpose
TTS Virtual Piano In	the driver for the TTS Virtual Piano coming with Cakewalk Professional V3.01 for Windows
Piano MIDI In Port	a driver for a "cardware" package called "MS Windows Piano V2.1", by Gregor Brecko (check for PIANO21.ZIP or so at your nearest musical BBS)
Multi-...	Drivers beginning with this code are assumed to be overlayed by MultiMID, a freeware Multisession Overlay driver for MIDI device drivers, by the author of **GMKbd**. Check for MULTIMID.ZIP or so at your nearest musical BBS. If you have Internet access, it is carried by **WinSite**™ (the former CICA Windows Archive) as MMID*ver*.ZIP in the **sounds** directory for Windows 3.1.

Auto Focus

When checked, this setting allows **GMKbd** to automatically gain the input focus whenever another application that uses the same input device starts MIDI input.

Note: if you got MIDI In devices with a name starting with Multi- that are NOT MultiMID devices, be ***SURE*** to uncheck the Send To Input Device check box!

Send



Here, you can send MIDI messages of any kind. In the **Send** entry field, you can enter any MIDI message in hex; as a simple example, you could enter **90 40 7F** to turn on a note. Spaces can be put between the hex values, but are not required. The letters **A..F** can be entered in upper or in lower case.

Press the **Send** key to send the completed MIDI message to the defined MIDI output device.
If **Send To Input Device** is configured, and the driver allows it (at the moment, only **GMKbd**'s driver and **MultiMID** allow transmission of SysEx data), the MIDI message is sent to allother programs connected to the same MIDI Input device.

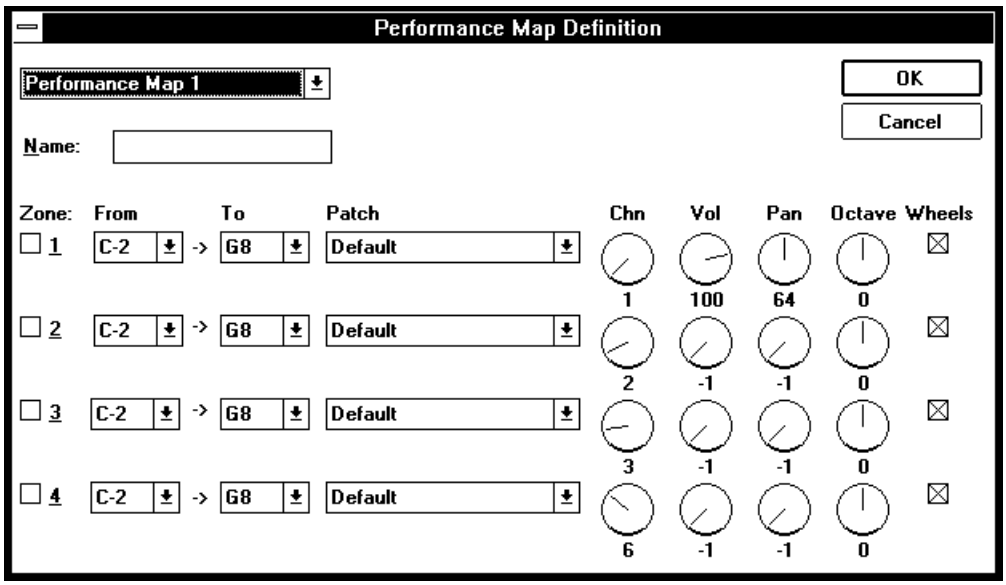
Any MIDI messages that are received from the defined MIDI input port are displayed in the **Last Received MIDI Messages** list box.

The **Save** button allows to save the current contents of the **Received MIDI Messages** list box to a file. The output file has the same format as the **.SYX** files saved by Cakewalk Professional for Windows.

Press the **Cancel** button to terminate the dialog.

Performance

Here, you can define up to 10 performance maps.



Every performance map consists of

- a name
- up to 4 keyboard zone definitions

The following settings can be adjusted for each keyboard zone:

Zone
This check box determines whether the zone is in use.

From, To
These combo boxes determine the keyboard range of the zone. If the key used as **From** value is higher than the key used as **To** value, the range is inverted (i.e., all keys *except* those between **To** and **From** belong to the zone).

Patch
Here, a patch can be selected. If any patch except **Default** is selected, this patch gets activated when the performance map is selected.

Chn
This knob determines the MIDI channel used for this keyboard zone.

Vol
Here, a total volume for the keyboard zone can be selected. **-1** disables the volume selection.
To select the total volume, **GMKbd** sends a CC#7 message.
Note: If **GMKbd** is used to control a MIDI device that does not implement CC#7 as "Master Volume", set **Vol** to **-1**.

Pan
Here, the panorama position for the keyboard zone can be selected. **-1** disables the panorama selection.
To select the panorama position, **GMKbd** sends a CC#10 message.
Note: If **GMKbd** is used to control a MIDI device that does not implement CC#10 as "Panorama", set **Pan** to **-1**.

Octave
This knob can be used to add/subtract up to 3 octaves to the notes played in this keyboard zone.

Wheels

This check box determines whether wheel information (pitch or modulation wheel) is sent for this zone.

Note: If no keyboard zone is activated, the settings defined in the **Keyboard Configuration** determine the keyboard output when this performance map is used.

Always On Top

This menu item allows **GMKbd** to float on top of all other windows.

3D Controls

This menu item toggles usage of the 3D controls provided by CTL3D.DLL. 3D controls provide a more "modern" look to the dialogs. **GMKbd** remembers the setting of this item.

Note: For this option to have any effect, you must have a version of CTL3D.DLL installed in your Windows system directory. Normally, you will; many programs rely on that DLL. **GMKbd** first looks for the newer version, CTL3DV2.DLL; if it can't find that, it tries the older version, CTL3D.DLL.

… and don't try to change this option in the 32-bit version; it's only available in the 16-bit version.

Caption

This menu item toggles the caption on and off (ever wanted to see a window without a title bar? Well, now you can!).

Menu Bar

This menu item toggles the menu bar on and off. Whenever the menu bar is invisible, a **Menu** item is available in the system menu to toggle it back on. As an alternative, the right mouse button can be pressed on the GM Logo of the toolbar or over any non-client window area to show a popup menu.

Toolbar

This menu item toggles the toolbar on and off. The purpose of the toolbar is to speed up mouse-oriented access to often used functions.

The leftmost part allows to select one of the 10 possible performance maps or configure them.
The combo box lets you select a new patch. This patch change is sent on the channel defined in **Keyboard Configure**.
The next button starts the **Play MIDI File** dialog.
The next part allows to select one of the possible keyboard sizes: default, lower half, upper half, big, and full keyboard.
The next button starts the **Keyboard Configure** dialog.
The next button starts the **Send MIDI Messages** dialog.
The rightmost-but-one button shows up the Help Contents for the application. This button is visible if the help file is installed only.
The rightmost button allows to select any item on the window, then displays the help for that window item. This button is visible if the help file is installed only.

Note: on screens with a horizontal resolution of less than 1024 pixels, only a subset of the buttons is displayed.

Status Bar

The status bar is divided into three regions.

The first region displays the currently selected performance map.
The second region displays the currently selected patch.
The third region displays the last incoming MIDI message. This region is not displayed until a MIDI message has arrived.

MIDI Keyboard

This menu item toggles the usage of the simulated MIDI keyboard. Normally, the keyboard is displayed; if, however, you want to use **GMKbd** as a MIDI-THRU program that only sends received MIDI messages to the output port and don't need the keyboard as it slows down operations, you can disable it here.

License / Warranty Disclaimer

While I invested quite some time into the development of **GMKbd**, I think the market is too small to make it a full-fledged program with manual, registration and the like. Therefore, I put it in the public domain. If you like it, or have suggestions for further enhancements, send me a letter or a message to one of my e-mail addresses (see top page).

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