WinJammer™ Help Index

WinJammer™ is a Windows program which is used to manipulate MIDI data.   WinJammer allows you to record and playback songs, send and receive MIDI data, and edit MIDI events.   All files are stored using the standard MIDI file format.   This allows WinJammer to share MIDI files with other MIDI software packages.

WinJammer is not a free program, but is being distributed under the **Shareware** concept.   This allows you to examine the program, and to determine whether it is of worth to you.   If you find the program useful, and are going to keep using it after the evaluation period, you are under a moral obligation to register it.   The evaluation period for WinJammer is 30 days. Please review the help topic Registration for more information.

This index contains a list of all Help topics available for WinJammer. For information on how to use Help, press **F1** or choose Using Help from the Help menu.

Quick Start	Quick start help for first time users.
Commands	Information on a particular command.
Procedures	Answers to "How do I..." questions.
Keys	List of various keys used in WinJammer.
Registration	How to Register WinJammer
Windows and MIDI	Information about Windows and MIDI
Glossary	Glossary of MIDI terms

Quick Start

Welcome to the **Quick Start** section.   Here we will try to get you up and running as fast as possible by describing how to play one of the sample songs that comes with Windows, CANYON.MID

Configuration

Before you can play a song, the Windows drivers for your hardware must be installed.   Refer to the Windows and MIDI section for detailed information on how to do this.

WinJammer must be also be told which devices you wish to use.   The MIDI Configure command is used to do this.

A dialog box will be displayed showing available MIDI output ports.   Select the device driver that is appropriate for your equipment by highlighting it and clicking on **Add** or by double clicking on the driver name in the output box.   WinJammer requires the selection of an output port.   If you aren't going to record then you do not need to select an input port.   Click on **Ok** to finish configuration.

Important Note: Sound   Blaster 1.0 and 1.5 owners.
> The Sound Blaster 1.0 and 1.5 do not support simultaneous MIDI input and output.   It is possible to use the internal FM synthesizer for output and the MIDI port for input.   Alternately, select the Sound Blaster MIDI port for output, and select <none> for the input device.

Playing a Song

Select the File Open command through the menu, or by pressing the **Ctrl+F12** key combination.   Using the dialog box displayed, select your Windows directory, usually C:\WINDOWS.   Select CANYON.MID, by highlighting it and clicking on **OK**, or by double clicking on the file name.   The song will be loaded into memory, and the main window will be updated to show a list of the tracks in the song.

2. Play the song.   This part is easy, simply click on the Play icon, or press the Spacebar, or press the **P** key on the keyboard.

Quick Overview of the Main Window

The sample songs that come with WinJammer, or with Windows, are voiced according to the General MIDI Specification.   This means they will play properly through the MIDI Mapper, assuming that you have set up a mapping for your equipment.   Those of you with a Sound Blaster, Adlib or compatible equipment, already are set up according to the General MIDI Specification.

Right now you should be looking at the main WinJammer window.   In the Title bar you will see WinJammer - CANYON.MID.   WinJammer will always display the filename of the song that is currently open.   Below that is the Menu bar with the selectable menu items.   Below the Menu bar is the Toolbar.

The WinJammer Toolbar has the familiar Record, Play, Rewind and Fast Forward Buttons.   The Stop button will take the place of the Play button when a song is playing.   To the right of the Fast Forward button is the Event List icon.   This displays a window showing the data for the currently selected track. The next button is the Piano Roll.   This is much like the piano rolls that go into a player piano.   To the right of the Piano Roll icon are the Beat and Tempo scroll bars.   The Beat scroll bar shows the current position in the song, and the Tempo scroll bar shows the current tempo.   Next to the scroll bar is the Time index.   The Time index shows how long the song has been playing.   To the right of the Time index is a

question mark, the help button.   Pressing the help button will display this help file.   Pressing **F1** at any time will display context sensitive help.

Below the Toolbar is the Main Track Window.   This window displays information about the currently loaded song, track by track.   Going from left to right the information displayed is Track Number, Track Name, Instrument Name, Channel, Patch Number, Number of Beats in the track, Number of Events in the track and the Port Number.

For CANYON.MID, there should be two tracks listed: 0 and 1.   Track 0 contains no track name, no instrument name, uses multiple channels, uses more than one patch on that track, has 344 beats, 4526 events and will be played on Port 1.   Select MIDI Configure to see which device is assigned as Port 1.

Adjusting the Song

Since we already have CANYON.MID open, we will perform some quick changes on it.

Let's break up the song into separate channels.   Select track 0 by highlighting 0 in the track number field. Select Track on the menu bar, select the Split menu item.   A dialog box will be displayed that will allow you to split a track various ways.   We want to split by channel, which should already be selected.   Click on OK.   You will get 13 tracks, numbered from 0 to 12.

If you are using a Sound Blaster, Adlib or compatible, perform the following procedure.   Double click on the event number for each track that is using a channel between 1 and 10.   You will see the event number change to Mute.   The reason this is done is that the CANYON song is coded using a low/high duplicate scheme.   Since the tracks using the higher channels are a near duplicate of the lower channels, we mute them to avoid playing more notes than the Sound   Blaster, Adlib and compatibles are capable of handling.

Click on the Play Button in the Toolbar.   You should see the beat slider start to count and the time index change and hear the CANYON song.

To change other information on the Main window, stop play then highlight the item and press enter or double click on the item.   You are then able to edit or enter new data.

Information on Patch numbers is available with the manual that comes with your device or instrument. Select General MIDI to display a patch map of the General MIDI specification.

Information on using the Microsoft Windows MIDI Mapper can be found in your Windows user guide.

This is the end of the Quick Start tutorial.   WinJammer is a very rich MIDI sequencer and has loads of features.   Don't be afraid to experiment!

Commands

This index contains a list of the Help available on the various WinJammer Commands.   For information on how to use Help, press **F1** or choose Using Help from the Help menu.

File Menu	Create, Load or Save files.
Edit Menu	Copy, Move or Delete tracks in the song.
Track Menu	Perform changes on whole tracks.
MIDI Menu	Control MIDI devices.
Song Menu	Edit Song Parameters
Window Menu	Control the windows.
Options Menu	Customize WinJammer.

Procedures

This index contains a list of the Help available on the various WinJammer Procedures.   For information on how to use Help, press **F1** or choose Using Help from the Help menu.

Copying a Track   How to copy the contents of a track.
Deleting a Track   How to delete a track.
Moving a Track   Moving a track in the song.
Exiting   Returning to Windows.
Recording   Recording a track.
Playing   How to play the song.
Selecting a Track   How to select a track.
Switching Windows   How to switch between active windows.
Opening Windows   Starting one of the windows.
Closing Windows   Destroying one of the windows.
Selecting Events   How to select an event to edit.
Using the Toolbar   Use of the Toolbar.
Saving Type 0 Files   Creating a MIDI Format 0 file.

Windows Keys

The following keys may be used as shortcuts for various commands in the main menu.   These keys are active in all windows, except when the song is playing or recording.

F1	Help
F2	Open or Close the Event List window
F3	Open or Close the Piano Roll window
F4	Open or Close the Audition Patches window
Ctrl+F12 or Ctrl+O	Open a new song
Shift+F12 or Ctrl+S	Save the current song
F12 or Ctrl+A	Save the song after asking for a file name
Ctrl+R	Send Reset sequence to all MIDI devices
F6	Switch to the next window
Shift+F6	Switch to the previous window

The following sets of keys are only supported on some windows.   They are grouped by window.

Main Window Only

Ctrl+Z or Alt+Bksp	Undo the previous track change
Ctrl+X or Shift+Del	Move track into the paste buffer
Ctrl+C or Ctrl+Ins	Copy the track into the paste buffer
Ctrl+V or Shift+Ins	Insert the contents of the paste buffer
Del	Delete the track from the song
Spacebar	Start or Stop Play
P	Start play
S	Stop play or record
R	Start recording
F	Move to the end of the song
W	Move to the start of the song
T	Adjust the current tempo
B	Adjust the starting position for playback
M	Mute the current track
O	Mute all tracks except current track

Event List & Piano Roll Windows

Enter	Edit the current event
Del	Delete the current event
Ins	Insert a new event
D	Change the note's duration
R	Insert a rest before current note
C	Make current note part of a chord
1	Turn current note into a whole note
2	Turn current note into a half note
3	Turn current note into a quarter note
4	Turn current note into a eighth note
5	Turn current note into a sixteenth note
6	Turn current note into a thirty-second note
7	Turn current note into a sixty-fourth note
Spacebar	Start or Stop Play

Piano Roll Window Only

PgUp	Move the current note up one octave
PgDn	Move the current note down one octave
Up	Move the current note up one semitone
Down	Move the current note down one semitone
Tab	Move to the next note in the track
Shift+Tab	Move to the previous note in the track

Registration

As discussed in the index, WinJammer™ is being distributed as **Shareware**.   This allows you to evaluate the program to see if it performs properly, before you are obligated to pay for it.   It does not allow you to "evaluate" the program forever - if you use it for more than 30 days, then you **must** register.

To register WinJammer send me a note and a cheque or money order for **$50 US**.   Please include in your note your name, mailing address, current version number and computer/MIDI setup.   The current version information is found in the Help About dialog box.   If you would like a copy mailed to you, **please add an additional $5**, and I will send you the most recent version available.   Please note that registration for WinJammer includes registration for WinJammer Player.

When I receive your cheque, I will send you a letter containing your personal registration code.   Use the File Register command to unlock the program.   If you have a CompuServe account, and include your CompuServe id, I will send the registration code immediately via CompuServe mail.   Otherwise I will have to send you an old fashioned letter.

I can be reached at:
        Dan McKee
        WinJammer Software Limited
        69 Rancliffe Road
        Oakville, Ontario
        Canada
        L6H 1B1
Please ensure that you use the correct postage.   It currently costs **40** cents to mail a letter from the US to Canada.   A number of people have had their letters returned because of insufficient postage.

CompuServe Registration

If you have a CompuServe account, you can also register online.   Type **GO SWREG** at any CompuServe ! prompt.   Select product number **119**.   The registration fee will automatically be added to your monthly CompuServe bill. You will receive mail from me on CompuServe, containing your registration information. You should have this within 24-48 hrs.   The most recent version of WinJammer can always be found in the MIDIFORUM on CompuServe, in library 7.

Software Excitement!

The good folks at Software Excitement! will also accept registrations for WinJammer.   They accept Visa/Mastercard, and will accept international orders.   If you want a copy of the program sent to you, they can also do this for a nominal charge.

Software Excitement! can be reached via normal mail, phone or fax at:
                Software Excitement! (Attn: Registrations)
                6475 Crater Lake Highway
                Central Point, OR 97502

Toll Free Phone: (800)444-5457
Fax Number: (503)826-8090
Non-Toll Free: (503)826-8082

MIDILIB.DLL

A substantial amount of the effort that went into WinJammer was actually spent developing MIDILIB.DLL - the code that work with the Windows MIDI drivers.   If you are trying to develop a Windows program that

uses a MIDI device, I may be able to help you out.

I am selling a developer's kit so that you can write your own Windows based MIDI programs.   This kit includes: printed documentation for the library, the needed include/library files, some example programs with source, a registered copy of WinJammer and limited distribution rights for MIDILIB.DLL.   The price for the kit is $100 US, and any registration fees already paid for WinJammer are deductible from this price.

You will be able to distribute your programs through Shareware channels as long as you make a registered copy of your program available to me.   I will advertise your product with all of the Shareware MIDI programs that I produce.   You will have to acknowledge me as the author of MIDILIB.DLL, and place certain information in your program's About box.

If you are interested in distributing MIDILIB.DLL in a commercial product, a separate negotiated license is required.   Please give me a call to discuss this.   If necessary, I will customize a DLL for you.

The*Drums

The first Shareware product using MIDILIB.DLL written by someone other than me has recently been released.   This is a great program called The*Drums, written by Fabio Marzocca.   Fabio's description of his program is:

> The*Drums V4.00 for Windows 3.1 or Windows 3.x with MME.   Universal drums editor/sequencer for all MIDI synths or sound cards.

Check it out!

Support (How to contact me)

There are a number of channels that you can use to contact me.   The preferred method is via CompuServe.

My CompuServe ID is **70742,2052**.   A message there will reach me if sent via mail or if left in the MIDIFORUM.   I can also be reached through Internet as 70742.2052@compuserve.com.

When I am able, I monitor the MIDI conferences on some of the major BBS Echonets.

I can also be reached by telephone at (416)842-3708.   Please try to call between the hours of **7 and 9 PM, Eastern Time**.   If all else fails, you can always write me at the address above.

Spacebar

The **Spacebar** can be used to start and stop playback from the Event List, Piano Roll or Main window.

If a song is currently playing, pressing the **Spacebar** will cause it to stop.   If nothing is playing, the **Spacebar** will cause play to start.   For more information, see the topic Playing.

Mute

The current track can be muted at any time by pressing the **M** key.   This is often very useful when recording, or while voicing a song.

The O key can be used to mute a number of tracks.

The current track can also be muted using the Main window.   Simply highlight the number of events cell for the track to mute, and double click or press enter.

Solo

All tracks except the current track can be muted by pressing the **O** key.   This is very useful when recording or editing a song.

The <u>M</u> key can be used to mute a single track.

File Menu

The File menu includes commands that enable you to load or save files, or create a new song.

For more information about a File Menu command, select one of the following topics.

New	Create a new song.
Open	Loads a song file.
Save	Saves the current song.
Save As	Saves the song under a new name.
Merge	Merges a song into current song.
Import	Import an Adlib ROL file.
Import SysEx	Import a System Exclusive file.
Exit	Exits WinJammer.
Register	Registers your copy of WinJammer.

Edit Menu

The Edit menu includes commands that enable you to copy, delete and move tracks within the song.

For more information about an Edit Menu command, select one of the following topics.

Undo   Restores the previous contents of a track.
Cut   Deletes track, and moves it to the paste buffer.
Copy   Copies track to the paste buffer.
Paste   Moves track from the paste buffer into the song.
Clear   Clears a track of all events.
Delete   Deletes a track.

Track Menu

The track menu includes a number of commands which perform global changes to an entire track.

For more information about a Track Menu command, select one of the following topics.

Change Channel	Change the MIDI channel of events in a track.
Clear Section	Delete events in a time range.
Filter Events	Delete selected MIDI event types.
Filter Channel	Delete MIDI events on some channels.
Information	Edit track parameters, display track information.
Merge	Merge events from two tracks into one.
Quantize	Adjust timing of events.
Replicate	Copy a section of a track.
Split	Split a track into multiple tracks.
Transpose	Transpose the notes in a track.
Transform	Perform transformation on event values.

MIDI Menu

The MIDI menu includes items that control the way WinJammer responds to various MIDI events.

For more information about a MIDI Menu command, select one of the following topics.

Thru   Determines whether MIDI events are echoed.
Record Filter   Settings for filtering recorded midi data.
Metronome   Configures the Metronome.
Reset   Sends MIDI reset sequence on all channels.
Auto Reset   Automatically send MIDI reset sequence on stop.
System Exclusive   Send and Receive MIDI System Exclusive data.
Sys Ex Customize   Customize System Exclusive request strings.
Advanced   Advanced MIDI Settings.
Configure   Configures the MIDI Device.

Song Menu

The Song menu is used to edit and set some options that effect the entire song.

For more information about a Song Menu command, select one of the following topics.

Timebase	Sets the time base for a new song.
Song Key	Sets the key signature for the song.
General MIDI	Marks current song as being General MIDI

Window Menu

The Window menu controls which windows are displayed.

WinJammer contains several pop-up windows in addition to the main window.   The main window is the only window active when WinJammer is started, and shows a list of the tracks in the song.

The Event List and Piano Roll windows are used to display or edit the events in a single track.   The Event List window displays the events in a text format, while the Piano Roll window displays MIDI Note events in a format similar to standard musical notation.

For more information about one of the WinJammer windows, select one of the following topics.

Event List   Display or Edit MIDI Events in list format.
Piano Roll   Display or Edit Note Events in Piano Roll format.
Audition Patches   Shows Audition Patches

The Windows Menu is used to open or close one of the three WinJammer windows.   If a check mark is shown beside the window's name, then selecting that window will cause it to be closed.   If no check mark is shown, the window will be opened.   Selecting **Next Window** or **Previous Window** allows you to cycle through each window that is open.

For further information about how to open and close the windows, select one of the following topics.

Switching Windows   How to switch between active windows.
Opening Windows   Starting one of the windows.
Closing Windows   Destroying one of the windows.

Options Menu

The Options Menu occurs in three windows: Event List, Piano Roll and the Main window.   In each window, the menu contains a different set of options.

Most of these options are stored when you exit WinJammer so that next time you use WinJammer you do not have to customize WinJammer again.

For more information about one of the Options Menu commands, select one of the following topics.

ROL Pitch Wheel	Enable MIDI Pitch Wheel events in ROL files.
ROL Save Patches	Save instrument mapping in ROL files.
Preferences	Set preferences for WinJammer.
Relative	Control the interpretation of time changes.
Velocity	Display or hide the velocity scale.
Dashed Lines	Display or hide dashed staff lines.
Clef Switches	Display selected clef staff lines.
Sound Event	Sound events as they are selected.

Copying a Track

In order to duplicate the contents of a track, the following steps must be performed.

1. Select the track you would like to copy by selecting it in the main window.   See Selecting a Track for more information.

2. Perform an Edit Copy command (key: **Ctrl+Ins**) to copy the track into the paste buffer.

3. Select the location to insert the new copy of the track.   This is done by selecting the track that the new track should be inserted before.

4. Perform an Edit Paste command (key: **Shift+Ins**) to insert the track into the song.

If another copy of the track is desired, repeat steps 3 and 4.

If you only want to copy a section of a track, see the Track Replicate command.

Deleting a Track

In order to delete a track perform the following steps.

1. Select the track you would like to delete.   See <u>Selecting a Track</u> for more information.

2. Perform an <u>Edit Delete</u> command (key: **Del**) to delete the track from the song.

Moving a Track

In order to move a track to another position in the song, perform the following steps.

1. Select the track you would like to move.   See <u>Selecting a Track</u> for more information.

2. Perform an <u>Edit Cut</u> command (key: **Shift+Del**) to delete the track and place it into the paste buffer.

3. Select the location to insert the track, remembering that the track will be inserted before the selected track.

4. Perform an <u>Edit Paste</u> command (key: **Shift+Ins**) to insert the track back into the song.

Exiting

To exit WinJammer and return to Windows, choose either Close from the main window's system menu or Exit from the File menu.   You can also close WinJammer by pressing the **Alt+F4** key combination.

If you have not saved your last set of changes, WinJammer will ask you if you want to save them before exiting.

Recording

The following steps are required to record a track.

1. Select the track in the song to record.   If the track chosen is not empty, the recorded track will replace it in the song.

2. Press the **Record** button to start recording.

3. Press the **Stop** button when recording is finished.

If you inadvertently record over a track which you did not want to lose, the Edit Undo command (key: **Alt+Bksp**) will restore the original track.   If you also want to keep your newly recorded track, use the Edit Copy (key: **Ctrl+Ins**) or Edit Cut command (**key: Shift+Del**) to copy the recorded track into the paste buffer before restoring the original track.

Advanced MIDI Options.

If you are recording from another MIDI Sequencer or computer, then the **Wait for MIDI Start** and **MIDI Clock** switches will prove to be useful.   The MIDI Clock switch specifies that the tempo is to be taken from the remote MIDI device, rather than using the internal clock.   The Wait for MIDI Start switch allows the remote device to start and stop the recording.   For more information, see the MIDI Advanced command.

Playing

A song is played using the toolbar on the main window.

Play is started by pressing the Play button, or pressing **P**.   Play can also be started by using the Spacebar in the Piano Roll, Event List or Main windows.

While the song is running, the Main window is updated to show the elapsed time in seconds and the current beat number.   As tempo changes or patch changes are encountered, these are also displayed.

The tempo of the song can be changed while it's playing using the tempo scroll bar.

Selecting a Track

The current track is used in the two edit windows, and all of the commands in the Track menu.   To change the current track, perform the following steps.

Using the Keyboard

1. Switch to the main window by pressing **F6** one or more times.

2. Use the cursor Up/Down keys to change the selected track.

Using the Mouse

1. Switch to the desired track by clicking on it in the main window.

See <u>Switching Windows</u> for more information on how to switch to the main window.

Switching Windows

With the multiple windows approach used by WinJammer, a method of rapidly switching between active windows is needed.

Using a Mouse

To switch to another window using the mouse, simply click somewhere on the window you wish to switch to.   If the window is not active, you can start it using the Window menu of the main window.

You can also switch windows by clicking on an icon on the Toolbar.   These icons open the window if it is closed, close the window if it is the active window and switch to the window if it is not the active window.

Using the Keyboard

Two keys have been provided which will cycle through the active windows.   The **F6** key switches to the next window, while the **Shift+F6** key will switch to the previous window.   The order of the windows is: Notes List, Piano Roll, Audition Patches and Main Window.

The window menu (or short cut key) may also be used to switch control.   These commands open the window if it is closed, close the window if it is the active window and switch to the window if it is not the active window.

Opening and Closing Windows

The various windows are opened and closed in three ways.   You can use the Window menu of the main window, various short cut keys or the icons on the toolbar.

Using the Mouse

Use the mouse to execute the correct command from the Window menu of the main window.   If the window is closed, it will be opened.   If it's open and the active window, it will be closed.   If it's open and not the active window, it will be made the active window.

You can also click on the appropriate icon on the toolbar.   This performs the same way as is described above.   The various icons on the toolbar are listed below along with the short cut keys.

Using the Keyboard

Each window has been assigned a function key which is used to open, close or switch to the window. The short cut keys are listed below.

F2   Event List Window

F3   Piano Roll Window

F4   Audition Patches Window

Selecting an Event

To edit or delete an event from a track, you must first select it in either the Event List window or Piano Roll window.   This can be done with either the keyboard or the mouse.

Event List Window

This window behaves like a normal Windows list box.   Select an event by clicking on it with the mouse, or using the cursor keys to move your selection.   The event can then be edited by double clicking or using the **Enter** key.   The event can be deleted using the **Del** key.

Piano Roll Window

To select a note in this window with the mouse, simply click on the desired note.   With the keyboard, use the **Tab/Shift+Tab** keys to move to the next or previous note.   The note can be edited by double clicking or using the Enter key.   The event can be deleted using the **Del** key.

Using the Toolbar

If you have a mouse, the toolbar is a handy short cut to using the menus, just as short cut keys provide abbreviation for keyboard users.   In order to use the toolbar you must have a mouse.   The various controls on the toolbar are described below.

Record & Play

This icon is used to start recording on the current track.   This is equivalent to pressing the **R** key on the main window.   See the Recording topic for more information.

This icon starts playing the song.   This can also be done using the **P** key on the main window, or by pressing the Spacebar.   See the Playing topic for more information.

This icon replaces the play icon while playing or recording.   Pressing it will stop play, as will the Spacebar.

Rewind & Fast Forward

This icon rewinds the current song position back to the last position that playing started or back to the start of the song.   If pressed while playing or recording, this will stop play before rewinding.   This can also be done using the **W** key on the main window, or through the use of the **Beat** scroll bar on the toolbar.

This icon fast forwards the current song position to the last place that playing started or the end of the song.   This can also be done using the **F** key on the main window, or through the use of the **Beat** scroll bar on the toolbar.

During playback, the fast forward button can be used to double or quadruple the current tempo.   Each time it is pressed, it will cycle through double tempo, quadruple tempo and normal tempo.

Event List and Piano Roll

The next two icons start up, shut down and switch to any one of the three pop-up windows that are used for track editing and playing.

This icon is used to start up, switch to or close down the Event List window.   This window is used to edit a track's data in a list format.

The Piano Roll window is started, switched to or closed down with this icon.   It is used to edit a track's note data in a format similar to standard musical notation.

Beat

The current beat number is displayed while playing or recording.   Whenever play is started, it is started at the current beat number.   The scroll bar can be used to change the starting point as well.   The **B** key can be used to move the focus to the scroll bar, or the mouse can be used to move the scroll position.   The rewind and fast forward buttons are also used to control the starting position for playback.

Tempo

The current tempo is displayed as a number of beats per minute and on the scroll bar.   When playing, all tempo changes are reflected here.   The **T** key can be used to move to the tempo scroll bar.   The tempo can be changed while the song is playing using the scroll bar.

Help

This icon is used to start up the help system that you are using to view this file.   It is equivalent to the Help Index menu item or the **F1** key.

Saving Type 0 Files

In order for a song to be saved as a type 0 file, there must be only one track in the song.   If there is only one track in the song, WinJammer will save the file as a type zero file.

Follow the following steps to create a type 0 file.

1. Merge all of the tracks in the song into a single track in track number zero.   This can be easily done using the Track Merge command.

2. Delete all tracks other than track number zero.   This is done by pressing highlighting the track to delete and pressing the **Del** key.   See the Edit Delete command for more details.

3. Save the song using the File Save or File Save As command.

File New Command

The File New command is used to clear the current song from memory.   It deletes all tracks, and reinitializes the system to its start up state.

If you have not saved the last changes you made to the current file, WinJammer will ask you if you would like to save them before clearing the song.

After clearing the song from memory, before any recording is done, you should always set an initial tempo and time signature in track zero.   See Event List Window and Recording for details.

Short Cut Key: Ctrl+N

File Open Command

The File Open command is used to load a song from disk.   It replaces the current song in memory.

If you have not saved the last changes you made to the current file, WinJammer ask you if you would like to save your changes before loading the new song.

This command will load standard MIDI files from a number of sequencers as well as files saved from WinJammer.   For more details on the supported files, see MIDI File Format.

Short Cut Key: Ctrl+F12

File Save Command

The File Save command saves the current song using the current file name.   If there is no current file name, the File Save command is the same as the File Save As command.   If a song was previously named using the File Save As command or if the file was loaded using the File Open command, then the file on disk is overwritten by the song.

Files created by WinJammer can be loaded by many other MIDI software packages.   For information on the file format used, see MIDI File Format.

Files are saved as MIDI format 1 files unless only one track exists in the song.   When only one track is in the song, the file is saved as a format 0 file instead.   See Saving Type 0 Files for more details on how to create a type 0 file.

Short Cut Key: Shift+F12

File Save As Command

The File Save As command saves the current song, after prompting for a file name.   If the entered file name exists, WinJammer will prompt before overwriting the file.

Files created by WinJammer can be loaded by many other MIDI software packages.   For information on the file format used, see MIDI File Format

Files are saved as MIDI format 1 files unless only one track exists in the song.   When only one track is in the song, the file is saved as a format 0 file instead.   See Saving Type 0 Files for more details on how to create a type 0 file.

Short Cut Key: F12

File Merge Command

The File Merge command is used to load a song into memory without losing the contents of memory. This can be used to merge two songs together.

Each track from the merged file is added as a new track.   If the timebase of the merged song is different from the current song in memory, the merged song's timebase is adjusted to match.   This means that you should make sure that the current song's timebase is reasonable before performing the merge.   Use the Song Timebase command to do this.

Once the song has been merged into memory, you should edit and/or merge the tempo and time signature events into track zero using the Track Merge command.

The song key of the merged file is ignored.   The two songs are not adjusted to make sure they are in the same key signature.   You will have to do this yourself, using the Track Transpose command.

File Import Command

The File Import command is used to import an Adlib ROL file into memory.   A dialog box is displayed allowing you to select the file to load.   Once a file is selected, the ROL file is read into memory.

A second dialog box is displayed after the song has been loaded.   Using this dialog box, you can select appropriate MIDI patch numbers to match the instruments in the ROL file.   Once you assign patch numbers to all ROL instruments, all of the patch numbers will be added to the converted file.   If the ROL Save Patches switch is on, the patch assignments will be saved for the next time you wish to import a file.

After the import operation is complete, track zero will contain time signature and tempo change events only.   The track name of this track will be the same as the ROL file name.

Each track converted will be named after the first instrument found in the track.   The second instrument found will be used as the instrument name.   The output track is monophonic, and is assigned to channel one.   The only possible events that will be produced are note events, pitch wheel changes and patch changes.   The production of pitch wheel changes is controlled by the ROL Pitch Wheel switch on the options menu.   Since the track volume commands from the ROL file are translated into velocity, you may need to adjust the velocity scale of the tracks using the Track Transform command.   Finally, you should assign appropriate channels to the tracks using the Track Change Channel command.

File Import Sysex Command

The File Import Sysex command is used to load a file containing raw system exclusive events into a new track.   The loaded file is in the format used by the MIDI System Exclusive command.   Each system exclusive event is placed into the track, with a one tick time offset from the previous event.   Use the Track Transform command to increase the time between the events.

File Exit Command

The File Exit command will terminate WinJammer, and return to Windows.   If the last changes to the current file have not been saved, WinJammer will ask if you would like to save them before exiting.

Short Cut Key: Alt+F4

File Register Command

The File Register command is used to register your copy of WinJammer.   Once registered, the reminder dialog will no longer appear.   The track name field will also be able to be entered and saved, and the About box will display the registration information.

To register the program, you must carefully enter the registration information.   Please take care to enter the three fields exactly as I sent them to you, or the registration will be rejected.

For more information on registration, including the cost and how to do it, see the <u>Registration</u> topic.

Edit Undo Command

The Edit Undo command is used to undo the previous operation on a track.

All commands which cause a track to be changed will copy the original track into the undo buffer before making any changes.

The Edit Undo command will switch the contents of the undo buffer and the original track.   A second Edit Undo command will undo the previous undo.

Short Cut Key: Ctrl+Z

Edit Cut Command

The Edit Cut command copies the contents of the current track into the Windows Clipboard.   The previous contents of the clipboard are lost.   The track is then removed from the song.

This command can not be reversed using the Edit Undo command, however the Edit Paste command can be used to insert the track back into the song.

Short Cut Key: Ctrl+X

Edit Copy Command

The Edit Copy command copies the contents of the current track into the Windows Clipboard.   The previous contents of the clipboard are lost.

This command can not be reversed.

Short Cut Key: Ctrl+C

Edit Paste Command

The Edit Paste command inserts the contents of the Windows Clipboard into the song **before** the current track.   All tracks from the current track to the last track are shifted down to make room for the new track.

A track is placed into the clipboard using either the <u>Edit Copy</u> or <u>Edit Cut</u> commands.

Short Cut Key: Ctrl+V

Edit Clear Command

The Edit Clear command will clear the contents of the track.   It removes all events from the track.   The original track is not available for an <u>Edit Paste</u> operation, however it can be recovered using the <u>Edit Undo</u> command.

Edit Delete Command

The Edit Delete command will delete the contents of the track, without copying the track into the paste buffer.   The deleted track is not available for an <u>Edit Paste</u> operation, however it can be recovered using the <u>Edit Undo</u> command.

Short Cut Key: Del

Track Change Channel Command

The Change Channel command will change the channel number of selected events in a track.

A dialog box is displayed prompting for a channel range and the new channel number.   All MIDI events in the track which have a channel number in the entered range will have their channel number set to the new value.

For example, assume there were two events in the track:
```
1:000 Note On    3    C 5   64    0:059
2:000 Note On    4    E 6   64    0:119
```

If a change channel command were carried out, selecting a range of 4 to 16, with a new channel of 1, the following would result:
```
1:000 Note On    3    C 5   64    0:059
2:000 Note On    1    E 6   64    0:119
```

In the event that you make a mistake performing this command, the Edit Undo command can be used to restore the track.

Track Clear Section Command

The Clear Section command is used to delete all events in a range from a track.

A dialog box is displayed, allowing the entry of the start and ending times.   These times are inclusive, that is if a starting time of 1:000 is specified then an event with a time of 1:000 will be deleted.   This command will not effect any events outside of the specified time range.   Events starting after the end of the range will not have their starting times changed.

In the event that you make a mistake performing this command, the <u>Edit Undo</u> command can be used to restore the track.

Track Filter Events Command

The Filter Events command is used to delete certain MIDI events from a track.

A dialog box is displayed, which is used to select which event types are to be deleted from the track. Selecting an event causes an "x" to be displayed in the check box, which will cause any events of this type to be deleted from the track.

In the event that you make a mistake performing this command, the <u>Edit Undo</u> command can be used to restore the track.

Track Filter Channel Command

The Filter Channel command is used to delete all MIDI events in a channel range from a track.

A dialog box is displayed, which is used to select the range of channel numbers to delete.   All events with a channel number in the specified range will be deleted.

Non MIDI events such as tempo and time signature events will never be deleted.

In the event that you make a mistake performing this command, the <u>Edit Undo</u> command can be used to restore the track to its original value.

Track Information Command

The Track Information command is used to edit temporary information for a track, as well as display useful track information.

The following is a list of the fields that can be modified using this command.

Velocity Adjust by is a quantity to be added to the velocity of all MIDI Note On events.   This is often used to control the volume of the notes.   Negative adjustments are supported by simply entering a negative value.   Velocity adjustments are not saved, however the Track Transform command can be used to perform a permanent velocity adjustment.

Semitones to Transpose is used to transpose the track during playback.   Negative transpose amounts can also be used.   The transpose amount is not saved.   See the Track Transpose command for a permanent transpose command.

Information Displayed

If all events in the track occur on the same MIDI channel, that channel number is displayed.   If more than one channel is used, the message "MIDI Events on Multiple Channels" is displayed instead.   If there are no MIDI events in the track, the message "No MIDI Events" is displayed.

The total track time length is displayed, along with the number of events in the track and the number of bytes required to hold the track.

The maximum number of simultaneous notes that are on at any given time is displayed.   If only one note is on at a time, the message is "Monophonic Track".   If no note events are found in the track the message will be "No Notes in Track".

The range of note events is displayed.   This is often useful when converting drum tracks between different drum machines.   The note range is shown by both note name and decimal MIDI note number. The octave number displayed can be adjusted using the Options Preferences command.

If a MIDI Program Change event occurs in the track, the selected patch number will be displayed.   If multiple patches are used, a message will indicate this as well.   The patch base can be adjusted using the Options Preferences command.

Track Merge Command

The Track Merge command is used to combine the contents of two tracks into one.   All events from both tracks are placed into the destination track, in the appropriate order.

Since only the destination track is changed, the <u>Edit Undo</u> command will restore the previous contents of the destination track.

Track Quantize Command

The Track Quantize command is used to globally alter the timing of all events in a track.

The starting time for all events in the track will be adjusted so that they start on a time which is an even multiple of the entered time.

The note lengths can also be quantized if desired.   The three possible actions that can be performed on the note lengths are:

Unaffected   do not adjust any note lengths
Aligned   quantize note lengths
Equal   set all lengths to the quantization time

In the event that you make a mistake performing this command, the Edit Undo command can be used to restore the track to its original value.

For example, assume that the track contained the following:

```
0:118 Note On      3      C 5    64     0:073
1:112 Note On      3      E 6    65     1:010
2:049 Note On      3      F 5    40     0:080
```

Quantization with lengths **Unaffected** and a **Time Interval** of 60 (eighth note) will produce:

```
1:000 Note On      3      C 5    64     0:073
2:000 Note On      3      E 6    65     1:010
2:060 Note On      3      F 5    40     0:080
```

With lengths **Aligned**, result would be:

```
1:000 Note On      3      C 5    64     0:059
2:000 Note On      3      E 6    65     0:119
2:060 Note On      3      F 5    40     0:059
```

With lengths **Equal**, resulting track is:

```
0:118 Note On      3      C 5    64     0:059
1:112 Note On      3      E 6    65     0:059
2:049 Note On      3      F 5    40     0:059
```

Track Replicate Command

The Replicate command is used to make one or more copies of a section of a track.

A dialog box is displayed, which is used to select a range to copy from, a starting time for the first copy and the number of times to copy the section.

All events in the source range are copied.   The times specified are inclusive, that is if an event starts at one of the boundary times then it will be included in the copy.

The starting time entered is the time that the "from" time is mapped to.   When more than one copy of the section is made, the starting time for the new copy is the previous starting time plus the length of the source range.

For example, suppose the original track contained the following:
```
1:000 Note On      3     C 5    64     0:073
2:000 Note On      3     E 6    65     1:010
2:060 Note On      3     F 5    40     0:080
```

If a copy was made with source from 2:00 to 3:00, with a starting time of 4:00 and two copies are made, then the following track will result:
```
1:000 Note On      3     C 5    64     0:073
2:000 Note On      3     E 6    65     1:010
2:060 Note On      3     F 5    40     0:080
4:000 Note On      3     E 6    65     1:010
4:060 Note On      3     F 5    40     0:080
5:000 Note On      3     E 6    65     1:010
5:060 Note On      3     F 5    40     0:080
```

In the event that you make a mistake performing this command, the <u>Edit Undo</u> command can be used to restore the track.

Track Split Command

The Track Split command is used to split a track into one or more tracks.   There are four different ways that a track can be split.

Channel: specifies that each output track should only contain events on one MIDI channel.   If the source track also contains non-MIDI events such as a tempo change, an additional track will be created for these non-MIDI events.

Event: each different event type will be split into a separate track.   For instance a track containing note events and program changes would be split into two tracks.

Individual Note: each output track will only contain one note's events.   This would primarily be used when converting a song from one drum machine to another.   This will in general create a large number of tracks.

At: performs a split at a specified note.   The source track will be split into two tracks.

Since only the source track is changed, the Edit Undo command will only restore the previous contents of it.   The split tracks must then be manually deleted.

Track Transpose Command

The Track Transpose command is used to transpose all note events in the track.   There are two types of transpositions supported.

A Normal Transposition is performed by adding a number of semitones to each note.   This corresponds to a change in the key signature of the track.   To transpose up one octave, you must transpose 12 semitones.   To transpose down one octave, use -12 instead.

In Key transposition is a special type of transposition, where the track is moved up or down without changing the key of the track.   For example if a standard C scale is moved up one tone, you get a C scale from D to D.

When performing an **In Key** transposition, you must enter the current key of the song and the number of tones to transpose.   A transposition of 7 tones is equivalent to a normal transpose of one octave.

Suggestion: A song written in a major key can be converted into a minor key by performing an In Key transpose of -2 tones, followed by a normal transpose of 3 semitones.

The Track Information command can be used to temporarily transpose a track for playback.

In the event that you make a mistake performing this command, the Edit Undo command can be used to restore the track to its original value.

Track Transform Command

The Track Transform command is used to transform all events in a track according to the formula:

```
new = ( ( old + add ) * mult ) / div
```

In other words, the original data has an amount added to it (which may be negative).   The result is multiplied by a number, and this result is divided by another amount.   The resulting value is range checked to ensure it is valid, and this result becomes the new value.

The event data to be transformed can be any of the following: Note Velocity, Key Pressure, Control Change, Channel Pressure, Pitch Wheel, Song Tempo, Event Start Time or Note Length.

This command can do some very powerful things to your data, such as: adjusting the velocity of a track, evenly adjusting the tempo of a song, quantizing events etc.

Consider the following problem.   You have a track which has velocities between 0 and 127 which you want to adjust into the range 0 to 100.   You could adjust these by adding -27 (multiply by 1, divide by 1), which would probably make some notes too soft.   A better way would be to add zero, multiply by 100 and divide by 127.   This will evenly re-map the velocities.

A similar process can be used to adjust a song's tempo.   If there are a few tempo events, you might find it easier to edit them.   If there are a large number of tempo events, and you want to speed up the tempo by 5% as an example, then add zero, multiply by 105 and divide by 100.

MIDI Thru Switch

This switch determines whether MIDI events received are echoed.   If this switch is on (checked), all MIDI events received are echoed to the currently selected output device.   This effectively changes the MIDI Out ports into MIDI Thru ports.

System Exclusive messages are never echoed.

MIDI Record Filter Command

This command is used to determine which events are to be recorded, and which events are to be ignored. The dialog which appears allows you to select the event types which are to be recorded.   To record an event type, make sure a cross appears in the checkbox.

This command only has an effect while recording.   It does not effect which events are played, nor does it have any effect on the echoed events if the <u>MIDI Thru</u> switch is enabled.

MIDI Metronome Command

This command is used to customize the MIDI metronome for your equipment.

The dialog box displayed allows you to select two notes to be used for the metronome.   It also allows you to turn the metronome on or off.

In **Accented** mode two notes are used for the metronome.   The note labeled "First Note" is sent as the first beat in a measure, while the other note is sent for the remaining beats in the measure.

In **On** mode the single note in the "Other Beats" box is sent on each beat.

The Record Only switch is used to turn the metronome off during playback.   When this switch is on, the metronome will only be heard while recording.

The Metronome can also be controlled on the Audition Patches window.

MIDI Reset Command

This command causes a MIDI reset sequence to be transmitted on all channels.   The reset sequence is as follows:

```
Bx 7B 00          ;all notes all
Bx 01 00          ;modulation wheel to zero
Bx 07 7F          ;volume to max (127)
Bx 40 00          ;sustain pedal off
Ex 00 40          ;centre pitch wheel
```

The MIDI Auto Reset switch can be used to force a reset sequence to be sent whenever play or record is stopped.

Short Cut Key: Ctrl+R

MIDI Auto Reset Switch

This switch causes a MIDI reset sequence to be transmitted on all channels when playback is stopped. The reset sequence is as follows:

```
Bx 7B 00            ;all notes all
Bx 01 00            ;modulation wheel to zero
Bx 07 7F            ;volume to max (127)
Bx 40 00            ;sustain pedal off
Ex 00 40            ;centre pitch wheel
```

The MIDI Reset command can be used to output the reset sequence on demand.

MIDI System Exclusive Command

This command is used to send and receive bulk MIDI data.   Normally this would be MIDI System Exclusive messages.

The dialog box displayed will allow you to load and save files from disk, move data into and out of the clipboard and send or receive data from the MIDI device.   Each of these operations is described here.

Receiving data from a MIDI Device

The combo-box and Receive button are used to receive data from an attached MIDI device.   The request string currently shown in the combo-box is transmitted, and the program records everything it receives. The number of bytes received is displayed while recording.   To stop recording, press the Stop button. The request strings can be customized using the Sys Ex Customize command.

Sending data to a MIDI Device

The Send button causes the current contents of the buffer to be transmitted.   A delay is inserted between MIDI System Exclusive messages, which can be adjusted using the Sys Ex Customize command.

Loading and Saving Data

The Load button is used to load a file into the buffer.   The Save button is used to save the current contents of the buffer in a file.   These files are in a standard format, normally known as MIDIEX.   This type of file contains raw MIDI data, without any headers or other information.   This format is widely used, which allows files to be readily shared.

Filtering the Buffer

The Filter button causes the current contents of the buffer to be examined and all data other than MIDI System Exclusive data to be deleted.   This would normally be done after recording a bulk dump.

Clipboard Support

The Copy and Paste buttons are used to exchange data with other programs through the Windows clipboard.   The Copy button causes the current contents of the buffer to be converted into readable ASCII, and placed into the clipboard as a text file.   This can then be edited by a program such as Notepad.   The Paste button performs the reverse, the contents of the clipboard are converted back into raw data, and placed into the clipboard.

The input accepted by Paste may contain comments and blank lines as required to make the file more understandable by humans.   The format used is compatible with the old format accepted by the old MIDI Send Hex command from the previous versions.   The following is an example of a valid file.

```
;
;      The following will set the master volume of a MT32 to 100
;      Comments are from a semicolon to the end of the line
;


;      Blanks, Tabs and New Lines are ignored
;      UPPER and lower case are allowed in hex numbers

F0 41 10 16 12 10 00 16 64 76 F7
```

```
;      the following repeats the previous command

f0 4110161210 0 166476 f7
```

MIDI Sys Ex Customize Command

This command is used customize the settings used in the <u>System Exclusive</u> command.   This includes the various dump request commands, the default MIDIEX file extension and the delay between system exclusive commands when transmitting.

Although the request strings were intended to be used to request dumps from MIDI devices, any string that you wish to send can be entered here.   For example, you may wish to include a reset command which you occasionally need to send.

Whenever this command is executed and there are no request strings stored, the strings will be reloaded from the executable file.

Help!

I would like to expand the default request strings beyond the current MT-32 strings, but I need your help to do this.   If you have some request strings which you would like to see included in a future release of WinJammer I would be happy to add them.   Just send them to me and you'll see them next time around.

MIDI Advanced Command

This dialog contains a number of "advanced" switches used to control WinJammer's behaviour. Under normal circumstances, these switches do not need to be used.

Selecting Ports

This section of the dialog allows you to select the port number to be used for MIDI Thru and **Real Time** events. Refer to the MIDI Configure dialog to determine the port number for each device.

MIDI Messages

The three switches in this section control how WinJammer deals with MIDI Real Time messages.

The **Wait for MIDI Start** switch determines whether WinJammer responds to or ignores the MIDI real time messages: Start (0xFA), Stop (0xFC) and Continue (0xFB). If the switch is on, a MIDI Stop will cause playing or recording to stop. If the switch is on, a MIDI Start or MIDI Continue will cause recording or playback to start. Otherwise a Start or Continue message is ignored. WinJammer makes no distinction between Start and Continue.

If this switch is on, starting play or record will set WinJammer up for the operation, but not actually start it. The Toolbar will show "Waiting..." instead of a beat number. When the MIDI Start or Continue is received, this will change to the normal beat counter. If a MIDI Stop is then received, play or record will stop.

In order to use this switch, you must have a MIDI input device.

The **Send MIDI Clocks** switch determines whether WinJammer will send MIDI Clock messages (0xF8) during playback or recording. MIDI Clocks are used to synchronize with external devices during playback.

The **Send MIDI Start/Stop** switch determines whether WinJammer sends MIDI Start/Continue or Stop messages. If this switch is on, a MIDI Start or MIDI Continue message will be sent when playback or recording is started, and a MIDI Stop message is send when stopping. A Start message is sent if playback starts at the beginning of the song, otherwise a Continue message is used.

Clock Source

The **Internal** switch is used to have WinJammer generate it's own timing source. This is the normal choice. This means that the song's tempo is determined by the tempo commands contained in the song.

The **MIDI** switch is used when an external MIDI device is to be used as the "master". This external master device must send MIDI clock events 24 times per beat. This is used to control the tempo of all recordings and playbacks. When MIDI Clocking is used, any tempo events in the song are ignored. The tempo bar in the Toolbar window is also ignored.

Timer Resolution

This value defines the highest frequency that the computer's clock is to be run. Under normal circumstances, this should be left at the default of 1 msec (1000 times per second). This provides for the most accurate clock possible.

A higher value will cause the clock to occur less often, causing a lower overhead and better overall performance in Windows. On slower machines, it may be better to use a value of 5 msec.

Reset to Defaults

This button will some switches to their default values.   This will cause the **Wait for MIDI Start** switch to be turned off, the **Send MIDI Clocks** and **Send MIDI Start/Stop** switches to be set, and the **Internal** clock to be selected.

MIDI Configure Command

This command is used to configure WinJammer for the hardware on your particular machine.   You must do this before you can play or record.

The dialog box displayed is used to select the devices to be used.   The list of available devices will depend on the drivers you have installed.   Simply select the desired input and output devices, then press Ok.   It is possible to reconfigure WinJammer whenever you choose.

Control Panel

The Windows Control Panel application is used to configure Windows for your equipment.   There are two steps required to set up MIDI devices.

1. Install the drivers: The first step is to install drivers for your hardware.   This is done through the Drivers icon in the Control Panel.   When first started, you will be presented with a list of the installed drivers.   Press the Add button to add more drivers to the list.   Depending on the driver, you may be asked for the hardware configuration information.   Once all of the drivers are added, you will have to restart Windows to make the new drivers available.

2. Configure the MIDI Mapper: The MIDI Mapper is a special MIDI output device that is used to remap songs from the General MIDI Specification to whatever equipment you have.   You can start the MIDI Mapper by clicking on the icon in the Control Panel.   The dialog shown will allow you to select your setup from one of the defaults.   If you get a message saying that the current setup references a device that you don't have installed, then you'll have to either edit the configuration or choose a different one.   See your Windows manual for more details.

WinJammer MIDI Configuration

Now that the proper devices are installed, you can use the MIDI Configure command in WinJammer to select the appropriate input and output device.   Note that the MIDI Mapper is sometimes slow - you'll notice this in particular when editing a track with the Sound Event switch turned on.

If you are simply playing songs, there is no need to specify an input device.   Some operations require an input device however.

Song Timebase Command

This command sets the number of "ticks per beat" used in a song.   This effects the resolution of a song's timing.   In standard time (4/4), the number of ticks per beat is the number assigned to a quarter note.

The song's timebase can be set or changed at any time.   When the timebase is changed, all events are adjusted to conform to the new timebase.   A note that was a quarter note before will start at the same time, and still be a quarter note.

When a ROL file is imported, or when you load a file from another sequencer, you may get an error message when you try to play the song saying that the timebase is invalid.   If this occurs, simply adjust the timebase to one of the values listed in the Song Timebase dialog box.   If in doubt as to what to choose, try 120.

Song Key Command

The Song Key command is used to specify the current song's key signature.   Currently only a single key signature can be used for a song, although it can be changed anytime.

The key signature is used to determine the name of each note in the Event List window.   It is also used to determine the colour and placement of the note on the staff in the Piano Roll window.

For example, if the key signature was G (one sharp), then the names of any accidentals would be changed to reflect a sharp rather than a flat (C# instead of Db).   In the Piano Roll window, an F# would now be displayed as a normal note in gray rather than a note in gray.

This command has no effect on anything other than how the notes are displayed.   Changing the key signature will not cause and tracks to be automatically transposed.

Song General MIDI Switch

This switch is used to mark the current song as a General MIDI song.   This causes a special meta event to be added to the song when it is played.   The Microsoft Media Player program will issue a warning before playing any song that does not have this special marker.   The only purpose of this switch is to suppress this warning.

Event List Window

This window is used to edit the contents of the current track.   The track events are displayed in a list format, so all events in the track can be edited and viewed in this window.

Events are selected in the Event List window by moving the select bar to the desired event.   The list can be scrolled using the scroll bar or normal Windows scrolling keys.

There are various commands available when using the Event List window.   These are fully explained in the following topics.

Event Menu   Used to insert/delete/edit single MIDI events
Options Menu   Customize WinJammer.

The following topics will help to describe how to perform various tasks in the Event List window.

Switching Windows   How to switch between active windows.
Opening Windows   Starting one of the windows.
Closing Windows   Destroying one of the windows.
Selecting Events   How to select an event to edit.

Event List Abbreviations

In the Event List screen different abbreviations are used to depict the various event types.   The following is a list of the abbreviations used and where appropriate, their MIDI status byte.

Tempo   set a new Tempo for song
TimeSig   change in Time Signature

Text   General Purpose Text
©   Copyright Notice
Lyric   Lyric to be sung
Marker   Name of a point in the sequence
Cue Pt   Cue Point

Note On   MIDI Note On event: 0x9n
KeyPres   MIDI Key Pressure (Key After Touch): 0xAn
CtrlChg   MIDI Control Change: 0xBn
Pgm Chg   MIDI Program (patch) Change: 0xCn
CnlPres   MIDI Channel Pressure (After Touch): 0xDn
PtchWhl   MIDI Pitch Wheel (Bender): 0xEn
Sys Ex   MIDI System Exclusive Message: 0xF0

Piano Roll Window

This window is used to display and edit the contents of the current track.   The track's note events are displayed in a graphical format, similar to both standard musical notation and "piano roll" notation.

Each note event is shown in a standard musical staff as a rectangle.   The vertical position of the rectangle is the correct location on the staff, depending on the Song Key.   The note's starting time determines the start of the rectangle, and the width of the rectangle is determined by the length of the note.   Accidentals (sharps and flats) are shown in a second colour.

The screen can be scrolled horizontally using either the scroll bar or the cursor keys.   If some notes are not being displayed because the window is too small, the window can be resized so that they may be seen.

There are various commands available when using the Event List window.   These are fully explained in the following topics.

Event Menu   Used to insert/delete/edit single MIDI events
Options Menu   Customize WinJammer.

The following topics will help to describe how to perform various tasks in the Event List window.

Switching Windows   How to switch between active windows.
Opening Windows   Starting one of the windows.
Closing Windows   Destroying one of the windows.
Selecting Events   How to select an event to edit.

Audition Patches Window

The Audition Patches Window is used to control a song while it is playing.   It consists of two groups of controls, each of which is used to control different aspects of the playback.

Metronome

The controls contained in the Metronome box are used to control the metronome and the count-in at the start of the playback.   The buttons are used to turn the metronome off, on or on with accents at the start of each measure.   The number of beats of initial delay is entered as the count in amount.

The metronome is only active while playing or recording.   If the **Record Only** switch is checked, the metronome will only be heard when recording.

The <u>MIDI Metronome</u> command is used to customize the notes used to sound the metronome.

Patches

The patches section is used to display the last patch (MIDI program change) sent on each MIDI channel. Every time a patch is sent on a channel, the screen is updated.   If you have more than one output port, you can select which port's patches are seen.

If you would like to experiment with different patches while the song is being played, you can edit the patch number for any MIDI channel.   Simply input the new patch number, and it will be sent out the correct channel.

You can also change the patch number for any channel when the song is not playing, because any patch number entered is immediately sent.

The Lock Patches switch controls whether the patches contained in the song are to be sent.   If this switch is on, then the patches in the song are filtered from the tracks as the song is played.   This allows you to easily fiddle with the patches for the song without having to edit the individual tracks.

Event Menu

The Event Menu on the Event List and Piano Roll windows is used to edit, insert and delete events in a track.   It contains the following commands.

Edit	Edit the currently selected event.
Insert	Insert a new event into the track.
Delete	Delete the currently selected event.
Duration	Change the length of the note and adjust next note.
Rest	Add rest before current event.
Chord	Create a chord with two events.
Search	Search for an event type.
Next	Search for the next event of the selected type.
Previous	Search for the previous event of the selected type.
Dotted	Make dotted notes.
Triplet	Make triplets.
1	Turn current note into a whole note.
2	Turn current note into a half note.
3	Turn current note into a quarter note.
4	Turn current note into a eighth note.
5	Turn current note into a sixteenth note.
6	Turn current note into a thirty-second note.
7	Turn current note into a sixty-fourth note.

Event Edit Command

This command is used to edit the currently selected event.

A dialog box will be displayed containing the current event.   Any changes can then be made to the event. Whenever a change is made, it is validated, and if the entered value is illegal then a valid value is substituted.

When entering a note name, use either the **+** or **#** keys for a sharp, and either **-** or **b** for a flat.

The middle C octave number and patch base can be set using the <u>Options Preferences</u> command.   The current setting of the <u>Options Relative</u> switch will also effect the way a change in time is handled.

Short Cut Key: Enter or Double Click

Event Insert Command

This command is used to insert a new event into a track.

A dialog box is displayed asking what type of event you want to insert.   Once you have selected an event type, a second dialog box is displayed to allow entry of the event.   This second dialog box will be filled in with as much information as is possible from the currently selected event.

There is no requirement to insert events in sequence in the track as WinJammer will automatically find the appropriate location in the track for your new event.

When entering a note name, use either the **+** or **#** keys for a sharp, and either **-** or **b** for a flat.

The middle C octave number and patch base can be set using the <u>Options Preferences</u> command.

Short Cut Key: Ins

Event Delete Command

This command is used to delete the currently selected event from the track.

While is it not possible to undo an event that was deleted by accident, you can undo all of your changes to the track by closing the Event List or Piano Roll window, then selecting <u>Edit Undo</u> from the main menu.

Short Cut Key: Del

Event Duration Command

This command is used to adjust the length of the current note, and the start time of all subsequent events.

A dialog box is displayed asking for the duration of the current note.   Enter the note's desired length in ticks, depending on the current <u>Timebase</u>, which is displayed for you.   The length of the note will be set to one tick less than the entered time, and the start time of all events following it in the track will be adjusted to the entered time.

For example, assume that the current timebase was 120, and the track contained the following:

```
0:118 Note On     3    C 5    64     0:073
1:112 Note On     3    E 6    65     1:010
2:049 Note On     3    F 5    40     0:080
```

If a duration command was performed on the first event, setting the duration to 1:000 (one beat), the result would be:

```
0:118 Note On     3    C 5    64     0:119
1:118 Note On     3    E 6    65     1:010
2:055 Note On     3    F 5    40     0:080
```

Short Cut Key: D

There are also short cut keys for some of the common duration commands.   These are:

<u>Dotted</u>	Make dotted notes
<u>Triplet</u>	Make triplets
<u>1</u>	Turn current note into a whole note
<u>2</u>	Turn current note into a half note
<u>3</u>	Turn current note into a quarter note
<u>4</u>	Turn current note into a eighth note
<u>5</u>	Turn current note into a sixteenth note
<u>6</u>	Turn current note into a thirty-second note
<u>7</u>	Turn current note into a sixty-fourth note

Event Rest Command

This command is used to add time to the current start time of the current event.

A dialog box is displayed asking for the length of the rest.   Enter the desired rest length in ticks, depending on the current <u>Timebase</u>, which is displayed for you.   The amount entered will be added to the start time of the current event, and all subsequent events in the track.

For example, assume that the current timebase was 120, and the track contained the following:

```
0:118 Note On      3      C 5    64      0:119
1:118 Note On      3      E 6    65      1:010
2:055 Note On      3      F 5    40      0:080
```

If a rest command was performed on the first event, entering a value of 0:2, the result would be:

```
1:000 Note On      3      C 5    64      0:119
2:000 Note On      3      E 6    65      1:010
2:057 Note On      3      F 5    40      0:080
```

Short Cut Key: R

Event Chord Command

This command is used to adjust the start time of the current event to be the same as the start time of the previous event, thus creating a chord.

If this command is executed on the first event in a track, the start time of the event is set to zero.

For example, assume that the current timebase was 120, and the track contained the following:

```
1:000 Note On      3      C 5    64     0:119
2:000 Note On      3      E 6    65     1:010
2:057 Note On      3      F 5    40     0:080
```

If a rest command was performed on the first event the result would be:

```
0:000 Note On      3      C 5    64     0:119
1:000 Note On      3      E 6    65     1:010
1:057 Note On      3      F 5    40     0:080
```

Short Cut Key: C

Event Search Command

This command is used to search for an event type in the current track.   When the command is used, a dialog box is displayed asking for the event type to search for.   The track will then be searched for the next event of the selected type.

The <u>Next</u> and <u>Previous</u> commands can be used to quickly search for the next or previous occurrence of the event.

Short Cut Key: S

Event Next Command

This command is used to search for the **next** occurrence of an event in the current track.   The event type to search for is selected through the Search command.   This command will search forward in the current track looking for an event of the correct type.   If one is found, then the track is positioned at the event.

Short Cut Key: N

Event Previous Command

This command is used to search for the **previous** occurrence of an event in the current track.   The event type to search for is selected through the Search command.   This command will search backward in the current track looking for an event of the correct type.   If one is found, then the track is positioned at the event.

Short Cut Key: P

Event Dotted Switch

This switch modifies the current quick duration commands so that the durations that they specify are increased by half.   If this switch is on, a quick duration of a <u>Half Note</u> is equal to three beats instead of two.

If this switch is on and the <u>Triplet</u> switch is also on, then the quick duration commands are normal.   This is because the Triplet switch decreases the duration by 2/3 and the Dotted switch increases the duration by 1 1/2.

Short Cut Key: .

Event Triplet Switch

This switch modifies the quick duration commands so that the durations that they specify are decreased. If this switch is on, three notes will fit in the time that two notes would have fit in before.

If this switch is on and the <u>Dotted</u> switch is also on, then the quick duration commands are normal. This is because the Triplet switch decreases the duration by 2/3 and the Dotted switch increases the duration by 1 1/2.

Short Cut Key: T

Event Whole Note Command

This command is a quick way of specifying a <u>Duration</u> of 4 times the current <u>Timebase</u> for the currently selected note.   In 4/4 time, this would equal one whole note.

Short Cut Key: 1

Event Half Note Command

This command is a quick way of specifying a <u>Duration</u> of two times the current <u>Timebase</u> for the currently selected note.   In 4/4 time, this would equal one half note.

Short Cut Key: 2

Event Quarter Note Command

This command is a quick way of specifying a <u>Duration</u> equal to the current <u>Timebase</u> for the currently selected note.   In 4/4 time, this would equal one quarter note.

Short Cut Key: 3

Event Eighth Note Command

This command is a quick way of specifying a <u>Duration</u> of half the current <u>Timebase</u> for the currently selected note.   In 4/4 time, this would equal one eighth note.

Short Cut Key: 4

Event Sixteenth Note Command

This command is a quick way of specifying a <u>Duration</u> of one quarter of the current <u>Timebase</u> for the currently selected note.   This is normally equal to one sixteenth note.

Short Cut Key: 5

Event Thirty-second Note Command

This command is a quick way of specifying a <u>Duration</u> of one eighth of the current <u>Timebase</u> for the currently selected note.   This is normally a one thirty-second note.

Short Cut Key: 6

Event Sixty-fourth Note Command

This command is a quick way of specifying a <u>Duration</u> of one sixteenth of the current <u>Timebase</u> for the currently selected note.   This is normally a one sixty-fourth note.

Short Cut Key: 7

Options ROL Pitch Wheel Switch

The Options ROL Pitch Wheel switch is used to determine whether MIDI Pitch Wheel events are to be generated when importing a ROL file.

If this switch is on (checked), then Pitch Wheel events will be generated when a ROL file is imported with the File Import command.   All ROL files contain pitch wheel events, which if translated often cause the resulting MIDI file to sound "off".   Under normal circumstances, it is probably best to turn this switch off. If you wish to remove pitch wheel events after the file has been imported, the Track Filter Events command can do this.

Options ROL Save Patches Switch

The Options ROL Save Patches switch controls whether the patch re-mapping specified when importing a file will be saved in the INI file.

When a ROL file is imported with the File Import command, a dialog box is displayed which allows you to specify MIDI patch numbers for each of the instruments in the original ROL file.   If this switch is on (checked), then when Ok is pressed to apply this re-mapping, then the assignments you have made will be kept for next time.   Over time, this will make importing ROL files easier, since the proper assignment of patches is already known.

Options Preferences Command

The Options Preferences Command is used to customized WinJammer to your machine and preferences. The following changes can be made.

Patch Base controls the first patch number used by your MIDI instrument.   This only effects the way patch numbers are displayed and entered.   Some companies such as Roland and Yamaha number their patches from 1 through 128, while other manufactures number patches from 0 through 127.   Default is 1.

Middle C Octave controls the octave number assigned to middle C.   Again different manufactures have chosen to use different notation, so WinJammer allows you to choose which ever octave is better for you. For example Yamaha uses C3 for middle C, while Roland uses C4.   Default is C5.

Note Width controls the number of beats that can be fitted onto one maximized Piano Roll window.   A higher number will show more beats on the screen, although each note will be narrower.   Default is 16.

Note Height controls the height of a note in the Piano Roll window.   This is actually the number of pixels used to draw the note's rectangle on the screen, and must be an odd number.   Default is 5.   A value of 5 is suggested for a VGA screen.

Velocity Scale is an amount used to divide a note's velocity by to determine the height of the line to display.   A scale amount of 1 will cause the velocity area of the Piano Roll screen to be larger than it would be with a scale of 4.   Default is 4.

Options Relative Switch

This switch controls the interpretation of a change in an event's starting time when the <u>Edit Event</u> command is used.

If the switch is off, a change in the start time of an event will cause the event to be moved to a new location in the track.

If the switch is on, WinJammer moves this event to the new starting time, and shifts all events following it in the track as well.   If the new time entered is before the start time of the previous event in the track, the time is considered to be invalid, and no change is made.

With the switch on, it's very easy to insert a rest into a track, or perform a bit of manual quantizing.

Options Velocity Switch

This switch determines whether the velocity of each note is shown in the Piano Roll window.

If the switch is on, each note will cause a vertical line to be displayed showing a graphic representation of the note's velocity.   The longer the line, the higher the velocity.   For reference purposes, a horizontal line is drawn representing the height of a velocity of 64.

Options Dashed Lines Switch

This switch determines whether or not dashed lines are drawn in the Piano Roll Screen.

If on, dashed lines are drawn wherever a line would normally go.   For example, if the Alto Clef is not displayed and dashed lines are on, Middle C would have a dashed line drawn through it.

Dashed lines are intended to help locate a note that is off the normal staff lines.

Options Clef Switches

WinJammer will display three different types of clefs in the Piano Roll screen.

Most piano music uses a "grand" clef, which includes a treble and bass clef.   Guitar music, "fakebooks" etc often only contain a treble clef.   Some orchestral instruments such as a Viola use the Alto clef, which has Middle C as its middle line.

You can select which clefs you would like to see in the <u>Piano Roll</u> screen.   Regardless of the clef chosen, middle C is always located in the centre of the screen.   If an Alto clef is chosen, neither a Treble or Bass clef can be shown as they would overlap.

Options Sound Event

This switch is used to determine whether WinJammer should play each note as it is selected in either the Event List or Piano Roll windows.

If this switch is on, as each event is selected in the Event List or Piano Roll windows, the event is sent as well.   If the event is a note event, the length of the note will be about half a second.   If you move rapidly between notes, the last note will be cut off to avoid slowing your movement down.

MIDI File Format

WinJammer will read and write standard MIDI format song files.   This is a common format supported by most of the music programs on the market today.

WinJammer will read MIDI files, any format.   Reading a format other than 0 or 1 will cause a warning to be displayed, because these are the only formats WinJammer understands.   The only other currently defined format is type 2, which consists of multiple tracks which play one at a time.   It should be possible to edit a format 2 file into a valid song using WinJammer.

WinJammer can save files as either format 1 or 0.   The maximum number of tracks in the file is 64.   To create a format 0 file, merge all tracks into track zero and save the file.   If there are more than one track in the file, WinJammer will save it as in format 1.

All MIDI channel events are supported (status bytes from 0x80 through 0xEF).   None of the MIDI non-channel events (status bytes from 0xF0 through 0xFF) are supported in a track, except for a system exclusive message (0xF0).

WinJammer supports only a subset of the possible meta events which can occur in a file.   WinJammer is capable of reading files containing any meta event, and supports most meta events.   Any meta event that it doesn't recognize is ignored.   The supported meta events are:

0x01	Text Event
0x02	Copyright Notice
0x03	Track Name
0x04	Instrument Name (patch name)
0x05	Lyric
0x06	Marker
0x07	Cue Point
0x21	Port Number
0x2F	End of Track
0x51	Tempo
0x58	Time Signature
0x59	Key Signature

All tracks containing MIDI Note Off messages (status byte 0x80 through 0x8F) will have these events mapped into Note On commands with a velocity of zero.   This will normally result in a smaller track because a new status byte does not always have to be output (MIDI running status).   Files can be further compressed by using a different track for each MIDI channel, and possibly using separate tracks for continuous events (pitch wheel, channel after touch, note pressure).

MIDI Format type 0 files contain only one track, which has all of the meta events as well as the data streams for each MIDI channel.   Whenever a type 0 file is loaded, it's suggested that the track should be split in order to form a valid type 1 file.   This will also assist in editing/voicing the song.

MIDI Format type 1 files are supposed to contain only non-note events in track 0 (tempo changes, time signature changes etc).   All other tracks are only supposed to contain MIDI events.   While WinJammer does not require this to be true, it is a good way to organize your song's tracks.   You should certainly follow this rule if you expect to use the saved file with any other sequences.

Windows and MIDI

In this topic, the steps required to install the MIDI drivers is explained.   A more complete discussion can be found in the Windows manuals.

Installing a Device Driver

When Windows is installed, it does not setup any drivers for your MIDI devices.   This must be done separately.

The Windows Control Panel application is used to install the MIDI drivers.   Start the Control Panel by double clicking on its icon in the Main group.

Double click on the Drivers icon inside the Control Panel.   A list of the currently installed drivers will appear.   If you haven't installed any drivers yet, the list should contain the MIDI Mapper, the Timer, [MCI] MIDI Sequencer and the [MCI] Sound driver.

To add a new driver, press the Add button.   A list of the available drivers will be displayed.   Highlight the driver for your device and press the Ok button.   Windows will ask you to insert a diskette containing the selected driver.   Do this for as many devices as you have.

If the driver you need is not listed, check any diskettes that came with your device.   Most likely the driver is there.   Select the **Unlisted or updated driver** entry and Windows will prompt you to insert the diskette so it can read it.

Some drivers will require information such as port number or an interrupt number.   The default location for a Sound Blaster card is 220, interrupt 7.   The default for a MPU-401 type of MIDI interface (including the Roland LAPC and SCC-1 cards) is 330, interrupt 2/9.

After this is done, Windows will ask you if you'd like to restart Windows.   This is necessary because Windows installs the MIDI drivers when it first loads.   Select **Restart Now** and Windows will restart.

Configuring WinJammer

After Windows been restarted, double click on the WinJammer icon.   Refer to the MIDI Configure command for information on configuring WinJammer.

The MIDI Mapper

One of the possible output devices is the Microsoft MIDI Mapper.   It is best to avoid the MIDI Mapper unless you have to use it.   It adds extra overhead, and can cause problems.

Important Note: Sound   Blaster 1.0 and 1.5 owners.
  The Sound Blaster 1.0 and 1.5 do not support simultaneous MIDI input and output.   It is possible to use the internal FM synthesizer for output and the MIDI port for input.   Alternately, select the Sound Blaster MIDI port for output, and select <none> for the input device.

Windows MIDI Mapper

The Windows MIDI Mapper is a program which adjusts the MIDI events sent by a program such as WinJammer, before the actual device driver receives the event to output.   There are three things which the MIDI Mapper will adjust: patch numbers, channel numbers and note numbers.

The MIDI Mapper assumes that the output from these programs is in accordance with the General MIDI specification.   The MIDI Mapper then remaps the output events as required for your device.   Normally this will only affect songs played to MIDI keyboards which do not support the General MIDI specification themselves.

To setup a map for your device open the control panel.   Double click on the MIDI Mapper Icon. If another program is using the MIDI Mapper you will be unable to change the MIDI Mapper settings.   Close the other program and open the MIDI Mapper again.   A dialog box will appear with three main settings. These are Setup, Patch Maps and Key Maps.   Below this will be a combo-box with a preselected setup. Click on the down arrow.   A list of the setups currently known to Windows will appear.   Select the setup that matches your device.   If your device is not present check the instructions that came with your device. For many devices, you will have to create a new setup.

Press the Edit button to edit the currently selected setup.   A table will appear that shows Source and Destination channels.   By editing this table it is possible to redirect MIDI events to other channels and devices.   For example channel 10 is used for drums by the General MIDI specification, and some devices such as those made by Yamaha use channel 16 for drums.   Using the setup you can reroute channel 10 to 16 if you have a Yamaha keyboard.   Next to this is the Port Name.   If you have more than one output device, you can alter the setup so that some channels are routed to one device and some to another.   Do not do this if you have configured WinJammer to use these devices directly.   The MIDI Mapper will not share the ports listed with other programs.   For keyboards, you can set the port to a MIDI output device, like an MPU-401, and then select a patch map.   Adlib, Sound Blaster and most compatibles will not have to do this.   Refer to your manufacturers instructions on how to setup using Windows.

If you have defined, or need to define, a patch map, click on the Patch Maps button and then click on the down arrow.   A list of the currently available patch maps will be displayed.   If yours is not displayed, create a new one.   Pressing **Edit** or **New** will display a Patch Map table.   This table lists the General MIDI specification patches and patch names on the left.   The next column is the Destination patch number.   You can edit this number to match the patches defined for your device.   Check the manufacturers manual for details.   When you are done click on **Ok** and then Click on **Close**.   This will save your new setup and patch maps.

The MIDI Mapper will make use of the setup and patch maps to transform the data being sent from programs like WinJammer so that the data is understandable by your output device.   This requires that any songs played using the MIDI Mapper be created according to the General MIDI specification.

General MIDI Specification

The following table lists the names of each of the General MIDI patch numbers.   This mapping is assumed for all events on all channels other than channel 10.   Channel 10 is reserved for the drum track. Note that similar instruments are grouped together.

General MIDI Patch Map

#	Piano	#	Chromatic Percussion
1	Acoustic Grand Piano	9	Celesta
2	Bright Acoustic Piano	10	Glockenspiel
3	Electric Grand Piano	11	Music Box
4	Honky-Tonk Piano	12	Vibraphone
5	Rhodes Piano	13	Marimba
6	Chorused Piano	14	Xylophone
7	Harpsichord	15	Tubular Bells
8	Clavinet	16	Dulcimer

#	Organ	#	Guitar
17	Hammond Organ	25	Acoustic Guitar (nylon)
18	Percussive Organ	26	Acoustic Guitar (steel)
19	Rock Organ	27	Electric Guitar (jazz)
20	Church Organ	28	Electric Guitar (clean)
21	Reed Organ	29	Electric Guitar (muted)
22	Accordion	30	Overdriven Guitar
23	Harmonica	31	Distortion Guitar
24	Tango Accordion	32	Guitar Harmonics

#	Bass	#	Strings
33	Acoustic Bass	41	Violin
34	Electric Bass (finger)	42	Viola
35	Electric Bass (pick)	43	Cello
36	Fretless Bass	44	Contrabass
37	Slap Bass 1	45	Tremolo Strings
38	Slap Bass 2	46	Pizzicato Strings
39	Synth Bass 1	47	Orchestral Harp
40	Synth Bass 2	48	Timpani

#	Ensemble	#	Brass
49	String Ensemble 1	57	Trumpet
50	String Ensemble 2	58	Trombone
51	SynthStrings 1	59	Tuba
52	SynthStrings 2	60	Muted Trumpet
53	Choir Aahs	61	French Horn
54	Voice Oohs	62	Brass Section
55	Synth Voice	63	Synth Brass 1
56	Orchestra Hit	64	Synth Brass 2

#	Reed	#	Pipe
65	Soprano Sax	73	Piccolo
66	Alto Sax	74	Flute
67	Tenor Sax	75	Recorder
68	Baritone Sax	76	Pan Flute
69	Oboe	77	Blown Bottle
70	English Horn	78	Skakuhachi

#		#	
71	Bassoon	79	Whistle
72	Clarinet	80	Ocarina

#	**Synth Lead**	#	**Synth Pad**
81	Lead 1 (square)	89	Pad 1 (new age)
82	Lead 2 (sawtooth)	90	Pad 2 (warm)
83	Lead 3 (calliope lead)	91	Pad 3 (polysynth)
84	Lead 4 (chiff lead)	92	Pad 4 (choir)
85	Lead 5 (charang)	93	Pad 5 (bowed)
86	Lead 6 (voice)	94	Pad 6 (metallic)
87	Lead 7 (fifths)	95	Pad 7 (halo)
88	Lead 8 (brass + lead)	96	Pad 8 (sweep)

#	**Synth Effects**	#	**Ethnic**
97	FX 1 (rain)	105	Sitar
98	FX 2 (soundtrack)	106	Banjo
99	FX 3 (crystal)	107	Shamisen
100	FX 4 (atmosphere)	108	Koto
101	FX 5 (brightness)	109	Kalimba
102	FX 6 (goblins)	110	Bagpipe
103	FX 7 (echoes)	111	Fiddle
104	FX 8 (sci-fi)	112	Shanai

#	**Percussive**	#	**Sound Effects**
113	Tinkle Bell	121	Guitar Fret Noise
114	Agogo	122	Breath Noise
115	Steel Drums	123	Seashore
116	Woodblock	124	Bird Tweet
117	Taiko Drum	125	Telephone Ring
118	Melodic Tom	126	Helicopter
119	Synth Drum	127	Applause
120	Reverse Cymbal	128	Gunshot

General MIDI Percussion Key Map

The following table shows the sound assigned to each MIDI note on channel 10.

#	**Drum Sound**	#	**Drum Sound**
35	Acoustic Bass Drum	59	Ride Cymbal 2
36	Bass Drum 1	60	Hi Bongo
37	Side Stick	61	Low Bongo
38	Acoustic Snare	62	Mute Hi Conga
39	Hand Clap	63	Open Hi Conga
40	Electric Snare	64	Low Conga
41	Low Floor Tom	65	High Timbale
42	Closed Hi-Hat	66	Low Timbale
43	High Floor Tom	67	High Agogo
44	Pedal Hi-Hat	68	Low Agogo
45	Low Tom	69	Cabasa
46	Open Hi-Hat	70	Maracas
47	Low-Mid Tom	71	Short Whistle
48	Hi-Mid Tom	72	Long Whistle
49	Crash Cymbal 1	73	Short Guiro
50	High Tom	74	Long Guiro
51	Ride Cymbal 1	75	Claves
52	Chinese Cymbal	76	Hi Wood Block

53	Ride Bell	77	Low Wood Block
54	Tambourine	78	Mute Cuica
55	Splash Cymbal	79	Open Cuica
56	Cowbell	80	Mute Triangle
57	Crash Cymbal 2	81	Open Triangle
58	Vibraslap		

MIDI Glossary

Aftertouch: The change in pressure on a key after the initial key press.   Normally used to control vibrato or other characteristics.

Bar: A synonym for a measure.   A musical time, a grouping of beats.

Beat: Literally, a single stroke or pulsation.

Buffer: A temporary storage area in memory.

Bulk Dump: Denotes a series of MIDI System Exclusive messages. Sometimes, this involves transferring a mass of data, like several choruses of a song that have been stored in memory from the keyboard to the sequencer or vice versa.

Channel: In MIDI, channels are used to separate different sections of a song that are going to play simultaneously.   Each channel is assigned to a single instrument in any particular instant of time.   One channel is usually reserved for a percussion voice.

Clef: That symbol at the beginning of a staff, the one that determines the pitch.

Clock: A clock is used to synchronize two devices.   In MIDI, the term clock is used to denote a single time source, which everything plays along with.   MIDI clocks are actually special messages that are sent 24 times (normally) per beat, and are used to synchronize two sequencers, or a sequencer and a drum machine. Normally, the sequencer's clock is the important one.   Other clock sources are rarely used.

Controller: In sequencing, refers to a setting, a parameter, such as controller 7 (volume).   In this sense, a controller is a MIDI event.

Controller Change: This event will be displayed in the Event List window.   It refers to a change in a synthesizer setting.   There are 128 possible MIDI controllers.

Count In: A command in a sequencer that plays a metronome for several measures until you are ready to record.

Cut-And-Paste: In word-processing, this function means moving text from one place in a document to another.   In MIDI, one can copy a section of a musical passage and paste it elsewhere.

Data Bytes: These are the bytes which follow the status byte in a MIDI message, e.g., what note has been struck, how hard.

Filter: The noun and the verb, in MIDI, are used primarily in connection with events (note on, program change, tempo change...) and with channel changes.   Each event is either filtered (deleted), transformed, or passed through.

General Midi Mode: A convention specifying how a sequence (a song) should be constructed, so that it will play on a variety of hardware.

Import: To bring data from one program into another.

Instrumentation: The selection of instruments in a MIDI arrangement.

Key Signature: Musical notation shows this in terms of sharps and flats after the clef.   Software sequencers usually show a song key as "F Major/D Minor," and indicate the number of sharps or flats.

B-flat Major/G Minor has two flats, for example.

Messages: The net effect of MIDI-computing is sound: melodies, harmonies, rhythms...   But the MIDI message (the MIDI event) itself is not a sound.   Transmitted are digital commands--about 1,000 events per second.

Metronome: A device to mark time by producing a repeated tick.   The older type--a triangular box with a vibrating arm--was succeeded by an electrical unit.   In MIDI, the ticks are computer-generated.

MIDI.   An acronym for Musical Instrument Digital Interface.   This is a standard protocol for communication between musical devices.

MIDIEX File: MIDIEX is a de-facto standard file format, containing raw MIDI data without a header.

MIDI Mapper: Microsoft's utility program, which can help in remapping patch, channel, etc. during playback.

MIDI Thru: One of the three defined MIDI port types.   A MIDI In port receives information from other equipment.   A MIDI Out port sends information to other equipment.   A MIDI Thru port outputs the information received through a MIDI In port, sending it to other equipment.   This allows for MIDI events to be echoed to other synthesizers.

MPU-401 Compatible: The original Roland MPU-401 was the most popular MIDI interface for IBM PCs, and is still the most widely supported.   Many manufacturers (including Roland) make compatible MIDI interfaces.

Multi-Timbral: In MIDI, a multi-timbral sound module can play several timbres (sounds) on different channels simultaneously.   A multi-timbral device is one that is prepared to sound like more than one instrument at a time.

Mute: A sequencer command to disable the playback of specified tracks.

Patch: In some early keyboard synthesizers, one selected "instruments" to play (e.g., vibraphone, clarinet...)   Later, the term "voice" emerged, in part, because some of the sounds were beyond instruments (police whistles, human voices, etc.).   In contemporary MIDI-computing, the word "patch" is prominent--one reason being that a single keyboard setting, like 99, may encompass a large range of percussive sounds.   In any event, to a sequencer, the patch setting will determine the nature of the sounds.

Piano Roll Editor: A common notation used for editing by many sequencers.   The notes of each track are shown as horizontal bars: the vertical position representing pitch; the horizontal length representing duration of the note (or chord).

Pitch Bend Wheel: A wheel on a keyboard that allows notes to be bent up or down.   "Pitch bend" is also a MIDI message.

Polyphony: From the Greek, meaning variety of tones.   In MIDI, the question is: "How many notes can be played simultaneously?"   Maximum polyphony cannot be exceeded.

PPQN: Pulses per quarter-note.   A measurement of time resolution.   Similar to the term Timebase.

Program Change: A MIDI event used to select a new program or patch.

Quantization: To quantize is to force all notes played to fall on the nearest time interval specified.   It shifts events to an exact rhythmic position.

Record: In the world of sound, to register something reproducible on a disk, like a phonograph record, or on magnetic tape.   Traditional recording captures the amplitude (height) and frequency (number) of wave forms.   MIDI-computing does not really "record."   It encodes messages, digitally, by means of numbers.   Because of established usage, however, the words "record" and "recording" often appear in MIDI-computing, along with "play," "rewind," "fast forward," etc.   In MIDI-computing, these words are really metaphors.   A typical sequencer will "record" all of the MIDI events received, along with the time they were received.

Standard Midi File: Often identified by its extension (.MID, .MFF or .SMF), this is a file that can store MIDI messages, such as songs.   The data in a MIDI file can be played, manipulated, edited...   A MIDI file comprises actions performed on an instrument (keys pressed, how hard...)   There is a standard MIDI file format.   A principal advantage of a MIDI file is that it uses comparatively little disk space, but, more importantly, it is a standard across platforms and sequencers.

Status Byte: In a MIDI message, this announces what kind of message is being sent, e.g., "note-on."

Synthesizer: (Often shortened to synth.)   A device which is capable of producing synthetic sounds.   Originally, a synthesizer was so called because it synthesized acoustic instruments.   Nowadays, the term refers to the sound-generating circuitry of any MIDI gear.   Another term is sound module.

Tempo: In music, the rate of speed (like allegretto).

Time Base: The number of ticks per beat.

Time Signature: In traditional musical notation, this is expressed as a fractional sign, like 3/4.   The denominator indicates the unit for the beat; the numerator shows the number of notes per measure.

Track: In MIDI, the term "track" designates a location where one records or plays back a musical message, usually a portion of the total arrangement.   To illustrate, one might record an oboe melody line on Track Two, then record a bowed bass line on Track Three.   When played, the sounds can be simultaneous.   Most MIDI software now accommodates 64 tracks of music, enough for a rich orchestral sound.   Tracks are purely for convenience; channels are required.

Transpose: To perform a musical composition in a different key.   Both synthesizers and sequencers can carry out this function.

Velocity: Velocity is the MIDI way of determining how hard a note is pressed on the keyboard controller.