

V4HELPyesyesyesyesyesyMaking Waves31yesyes09/09/02

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The above table of contents will be automatically completed and will also provide an excellent cross-reference for context strings and topic titles. You may leave it as your main table of contents for your help file, or you may create your own and cause it to be displayed instead by using the I button on the toolbar. This page will not be displayed as a topic. It is given a context string of ___, but this is not presented for jump selection.

HINT: If you do not wish some of your topics to appear in the table of contents as displayed to your users (you may want them ONLY as PopUps), move the lines with their titles and contexts to below this point. If you do this remember to move the whole line, not part. As an alternative, you may wish to set up your own table of contents, see Help under The Structure of a Help File.

Do not delete any codes in the area above the Table of Contents title, they are used internally by HELLLP!

Getting Started - Selecting Sounds

The File Browser window towards the bottom of the screen is used to select new sounds.

This will be opened automatically whenever you start a new song, or can be opened or closed at any time by clicking on the small disk icon at the bottom of the screen.

If you go to the EXAMPLES folder by double clicking on the folder name in the browser window, you should see a list of sample files appear.

If you click with the mouse on one of these files, you should hear the file played. If you don't hear anything at this point, you may need to configure the Audio Output device by selecting the option from the [Audio menu](#).

The initial playback level of the files can be set using the slider at the bottom right of the screen. If you are using a VGA display resolution, the slider will appear as a red bar at the far right of the screen.

You can view the next or previous pages of this help file at any time by clicking on the left or right browser buttons at the top of the help window.

Getting Started - Percussion Tracks

The numbers down the left-hand side of the main screen refer to individual tracks. Each track can be used to add sounds or effects to your song.

We're going to start by adding some percussion tracks to your song, so make sure the Percussion option is selected at the bottom of the screen and double click on kickdrum in the browser window.

If you've already started adding some sounds to the track window, you should select the New option from the File menu before following these instructions.

You should see the name of the file has appeared in track 1. Now double click on bongo in the Sound Files window and you should see the name of this file appear in track 3.

Try entering a sequence for the kickdrum by clicking on the white sequence boxes in track 1, then press the Play button at the top of screen to hear what it sounds like.

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Clicking on the red Loop button to the left of the Play button will swap between single and looped playback. Press the Stop button at any time to stop the song playing.

Leave the song in looped playback and try entering a sequence for the bongo. Any changes you make can be carried out while the song is playing allowing you to easily hear the results. You may need to wait for a short time while changes are mixed in with the song.

The default length for percussion sounds is 1/8 bar, which is why you can see 8 boxes in the sequence grid. Left click with the mouse on the length value for the bongo in track 3 and you should see the Play Length window appear.

Change the bongo length to 1/16th bar and you should find there are now 16 boxes available to create your percussion sequence.

The small check box to the right of the sequence pattern lets you switch sustain on or off. With sustain switched off, each sound will be played for the selected length. With sustain switched on, each sound will be played until the start of the next one.

To create a percussion sequence which is more than one bar long, right click on the sequence pattern and you'll see a window which will allow you to enter additional bars.

Getting Started - Note Tracks

We're now going to add a note track which will be played along with the two percussion tracks. Make sure Notes is selected at the bottom of the screen and double click on synth.

Click on the notes button which should have appeared in the Sequence column of track 5 and you'll see the Note Sequencer window. Each row represents a semitone, with the lowest pitch at the bottom. Each column represents 1/32nd of a bar, with highlighted columns every 1/8th of a bar.

Enter some notes on the grid and you should hear a note sequence playing along with your previous percussion tracks.

Close the window when you've finished by clicking on the close box, or right clicking anywhere on the title bar.

You can change note tracks to percussion tracks and vice versa, using the Play Mode button, just to the left of the length field. Try clicking on the play mode button for the bongo track and selecting Notes. You can now try entering some different pitches for the bongo using the Note Sequencer window.

Getting Started - Sample Loops

The main difference when using sample loops compared to the single hit files you've used so far is that they have a particular tempo, which you'll usually want to keep in time with the rest of your song.

Make sure Sample Loop is selected at the bottom of the screen and double click on drumloop in the EXAMPLES folder. You should see the length of the sample displayed as 1 bar, and the BPM column displaying the original beats per minute of the sample loop, which in this case is 100.

You should also see a '+' appear to the right of the bpm setting to indicate that Timestretching is active. This means that the tempo of the sample loop will be adjusted without affecting the pitch of the sound. Try switching off Timestretching by clicking on the '+' and you should hear the sample is now being pitch shifted to keep it at the correct tempo.

You can switch the bpm setting on or off at any time by clicking twice on the bpm value.

If you want to preview sample loops while a song is playing, make sure the sample loop button is selected to preview sample loops in time with the song.

Getting Started - Audio Effects

Click on the track type button for track 8. This is the small button located between the track number and on/off checkbox. You should see a list of the different track types available.

Select Audio Effect and the effect name (initially set to Compressor) should appear in track 8.

Click on the effect name to display a list of available effects and select Flanger.

If you now click on the bar grid for track 8, you should see a green level indicator appear in the bar. This can be moved up and down by dragging it with the mouse to change the level of the effect.

Any effects settings on the bar grid will apply until they are next changed or cancelled, so if you want to set an effect for the whole song, just set the value in the first bar. If you want to cancel an effect at a certain bar, click the right mouse button and you should see a stop sign appear. Right clicking on a bar with a value set will reset the value for that bar, and then right clicking again will cancel the effect.

Adding an effect above any audio tracks at the top of the Track Window lets you apply an effect to the whole song, rather than individual tracks.

You can switch on the Auto Fader for any effects track by clicking on the checkbox to the right of the sequence button. This will cause any changes in bar levels to be applied gradually and is useful for fading effects in and out. You'll see grey lines appearing on the bar grid for any intermediate levels.

Getting Started - Midi Tracks

If you're using the Studio version of Making Waves; you can create multiple midi instruments and configure each one to let you program additional features for your soundcard, and also use midi synths and other devices with Making Waves. See the section on the [Studio Version](#) for more information.

If you're using the audio or demo version of Making Waves, you should select the midi device you want to use by selecting the Midi Output option from the midi menu.

This will create some default Midi Sounds which are stored in a **midi/general midi** folder under your application directory. If you open this folder using the file browser window, you should see some folders containing midi note and drum sounds. Open one of the note folders and you should see some midi sound files appear.

Select a file and you should hear the sound being previewed. If you don't hear anything at this point, check you've selected the correct midi device using the [Midi menu](#) and check your windows mixer settings.

Simply double click on a midi sound file, and the midi sound will be automatically loaded into an empty track. After this, the sound can be used in pretty much the same way as an audio sample.

The midi channel used by each track is assigned automatically when you add a new track, although you can change this by clicking on the channel value. The default General Midi device uses midi channel 10 for drum sounds and the remaining channels for note sounds.

The default effects available for midi tracks are based on standard General Midi effects, and can be selected in the same way as audio effects.

Getting Started - Song Layout

Once you've got some basic sounds and effects together, you can start to create the layout of your song using the bar grid on the right of the screen. All you need to do is enter the required bars for each track. For example, you may want the kick drum sequence to play for 4 bars and then the bongo to start playing in bar 5. Dragging the cursor along consecutive bars will allow you to easily switch a group of bars on or off.

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The grey markers which appear every 8 bars on the grid will help you line up tracks when creating your song.

If you try clicking on the area between the bar numbers and the grid, you can drag the cursor to the right by holding the mouse button down and select a number of bars:

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The Edit menu or right mouse button can now be used to cut, copy or clear these bars. Selecting a single bar by clicking on this area will allow you to paste any previously cut or copied bars at the current position.

Selecting bars also allows you to play a certain section of the song, which can either be played once or looped depending on what the loop button at the top of the screen is set to.

The Playback Position Indicator (the white right facing arrowhead) is used to monitor the playback position when playing songs, or to select the required start position before playback begins. Selecting the Start Position is accomplished by clicking near the top edge of the bar grid, above the bar you wish to start playback from. The playback position indicator will automatically move to the selected location.

When using samples or sequences which are played for more than one bar, a horizontal line in a square indicates a continuation of a sample started in a previous bar. Clicking on a square before the end of the sample will cause it to restart at that bar. Right clicking on a square before the end of a sample will cause a stop sign to be displayed and the remainder of the sample or sequence will not be played.

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Note or percussion sequences may contain sounds or effects which continue into an additional bar. Using a stop sign by right clicking immediately after a sequence will stop any additional sounds being played.

Tracks can be selected for editing by clicking on the required track numbers. The selected tracks can then be cut, copied or cleared by using the edit menu or right mouse button. Tracks can be copied between different songs as well as within the same song.

Use the File menu or toolbar options at any time to save the song you are working on, and always remember to save your work on a regular basis. You can create a wav file of your song at any time using the **Copy to Sound File** option on the File menu.

The **Solo** button can be used to play back selected tracks, just click on the button and then the track numbers of the tracks you want to hear. You can also use the Solo button for editing bars of selected tracks. Try selecting some bars and tracks with the solo button highlighted, then right clicking on the bar selection to view the additional menu options available.

You can **Copy** or **Move** samples to the same folder as the current song by selecting the track or tracks, then right clicking to view the additional menu options.

You can add **Bookmarks** to your song by right clicking in the area used by the playback position indicator. You can remove a bookmark by clearing the text for the bookmark entry.

To view all the existing bookmarks for the song, you can select the 'bookmarks' option from the [zoom window](#).

Getting Started - Using a Keyboard

An on-screen keyboard can be used for previewing sounds at different pitches. This can be opened at any time by clicking on the keyboard symbol at the bottom of the screen.

You can also preview sounds using your computer or midi keyboard. Press the '1' key at the top left of your computer keyboard and you should hear the currently selected sound played. You can preview sounds at different pitches using the top 2 rows of your computer keyboard. The notes for each key on the computer keyboard will initially default to semitones. You can change this by selecting the 'PC Keyboard' option from the settings menu.

If you're using a midi keyboard, you should select the correct Input Device from the midi menu. The Midi Input Monitor on the Utilities menu will let you check that your keyboard is connected correctly. You can change the centre note of your keyboard by using the option on the midi menu. This is the note that will play back sounds at the original pitch.

If you open the on-screen keyboard with a sound selected in the file browser window, you should see a record button and transpose option.

Once you chosen a sound to record, simply click on the record button and start playing along to your song. The '+' button is used to add the sounds you've played to an active track so you can hear the results immediately. The '-' button is used to add a muted track for later use. The 'x' button is used to clear any existing notes that you've played.

The metronome can be switched on or off as required. The sound used for the metronome can be changed by selecting the 'Metronome Sound' option from the settings menu.

Because previewed sample files are loaded as you play them, you may notice a slight delay when first playing a particular note. The easiest way to avoid delays when recording using long samples is to preview all the required notes first, before starting recording. Preview Playback/Recording is also limited to single notes when using sample files. If you want more precise recording and chord playback, then you should use the note sequencer recording option.

To get the best results when recording or previewing samples, you should select the Latency Test option from the audio menu and follow the on-screen instructions.

Getting Started – Single Bar Sequence Editing

Usually when you create a note or percussion sequence, you'll want to play the whole sequence in order and clicking on the bar grid will add each bar of the sequence automatically.

There may be times when you want to play individual bars of the sequence in a different order, or use the same track to play different bars a sequence at different points in the song.

To try this out, click on the play mode button for an existing note or percussion sequence and enable the 'single bar edit' option.

You should now see any existing sequence bars in the song grid change to individual bar numbers. Left click on a bar to increment the bar number, or right click to clear a bar.

This option can be useful for adding variations of a sequence to your song, without using a different track for each variation. You could also store a number of drum patterns in a single sequence, and then save this as a sequence file using the percussion sequencer, allowing you to reload the sequence at any time and select the required bar for the pattern you want to use.

The easiest way to add repeated groups of bars, without needing reselect each bar, is to use the [Track Mixer](#).

Getting Started – Changing Tempo

Any songs you create will initially default to a fixed tempo, which can be set by clicking on the bpm value displayed at the top of the screen.

To use different tempos within a song, you should switch off the 'fixed song tempo' option in the settings menu. Any changes you make to the song tempo will now be applied to the bar at the current playback position.

Try loading a song, then switching off the fixed tempo option. If you click above one of the bars to move the playback position, then adjust the bpm value at the top of the screen, you should see a blue marker appearing above the selected bar to indicate a tempo change.

To view the value of an existing tempo change, simply hold the mouse cursor over the tempo marker.

You can remove a tempo change at any time by entering a tempo of 0 for the selected bar.

To view all the existing tempo changes for the song, you can select the 'tempo map' option from the zoom window, which can be accessed by clicking on the magnifying glass in the mixer panel at the bottom of the screen.

Note Sequencer - Editing Note Sequences

The Note Sequencer lets you enter notes over a range of up to 6 octaves. You can choose to view 1, 2 or 6 octaves in the window by selecting the octave buttons near the centre of the screen.

The horizontal scroll bar can be used to move through the first 16 bars, otherwise you can click on any of the 16 boxes at the bottom of the window to move directly to that bar. The yellow box at the bottom of the screen shows the current position of the main grid. The vertical scroll bar can be used to move up and down over the 6 octave range.

To create a sequence which is longer than 16 bars, click on the arrow buttons to the left and right of the 16 bar display.

If you click the mouse just above the 1st bar at the bottom of the window, you should see a selection bar appear. This can be dragged to select more than one bar. The edit menu or a right mouse click will now allow you to copy the selected notes. After copying the first bar, click above the second bar then select paste and you should see a copy of the 1st bar appear.

Selecting groups of notes which are not whole bars can be done by clicking and dragging in the area just above the main grid. Notes of certain pitches can be selected for editing by clicking just to the left of the grid. This will allow you to edit notes for just the selected pitch range after selecting the required number of bars.

You can **Save**, **Load** or **Reset** note sequences at any time by using the file buttons at the centre left of the window. *Any sequences you create will automatically be saved as part of your song, the load and save options are used for creating sequences which can then be loaded into different songs. If you regularly use certain drum patterns or basslines, these can be saved as sequences and reloaded whenever you want to use them.*

If you're using any note settings, you can choose to save only the settings in a file when using the save sequence option. These settings can then be loaded back into different sequences, allowing you to easily add various styles to your tracks. To do this, change the 'save as type' to Note Settings in the Save Sequence window.

Studio Version users can also use the save sequence option to save individual tracks from an imported midi file, which can then be loaded into your sequence tracks as you want to use them.

The **Play** button lets you preview or solo the current sequence, and the next two buttons are used to edit the Envelope Settings and Note Settings.

The **Transpose** buttons, located towards the centre right of the window can be used to change the pitch or position of the whole sequence or selected notes. Simply click on the up and down arrows to move the pitch up and down, or the left and right arrows to change the position of the sequence.

Note Sequencer - Recording from a Keyboard

As well as clicking on the grid to enter notes into a sequence, you can also record them using your PC or midi keyboard.

If your soundcard supports DirectX, you should try using this for recording, as it will usually give better response times when playing notes from the keyboard. This can be done by enabling the 'Use DirectX when note recording' option from the output device option in the [Audio menu](#). If you're not using DirectX, you should select the 'Latency Test' option from the audio menu to get the best results when recording

The current view in the note sequencer window will affect the note range when recording. If you're using a 2 octave midi keyboard, you can select a 2 octave view and move up and down using the vertical scroll bar to record different note ranges.

Because of the need to maintain playback response times when recording, the displayed sample range and all the song bars being played are loaded into memory. This memory requirement can be reduced by recording note sequences at the smallest pitch range for the sequence you want to record (i.e. using a 1 octave view will use a lot less memory than a 6 octave view), and also by using the shortest possible play length (i.e. 1/16th notes will use a lot less memory than 1 bar notes).

There are two basic types of recording, step and real-time. The four recording buttons in the sequencer window have the following functions.

The **Pause Button** will let you try out the currently selected sound without adding any notes to the sequence. This is mainly useful for testing your keyboard with the currently selected sound.

To use **Step Recording**, press the red square button. After a short delay while the required notes are loaded, you should see the usual button bar replaced with the step recording options.

Before starting step recording, select the step size you want to use. This will initially default to 1/8 bar.

Each note you play will be added to the current position and advance the position by the specified step size. You can enter chords by pressing the individual notes one at a time while holding down a single note. You should see the notes appearing in the sequencer window as you play them.

Use the space bar on your computer keyboard to leave gaps between notes, or any note outside the selected pitch range if you're using a midi keyboard. If you open the on-screen keyboard while recording, you can use the right mouse button on the keyboard to leave gaps between notes.

Press the red square button again to finish recording. The note sequence will now be updated and you can hear the results by playing the song. If you don't hear anything, you may need to add the new track to the bar grid at the current playback position.

Any recording you do will be added to any existing notes, rather than overwriting them. This means you can record a single sequence in as many stages as you want. Use the sequence Reset button before recording if you want to clear any existing notes.

Real-time recording lets you record in time with the song that's playing. This can be used for recording complete sequences or for adding additional notes to an existing sequence.

You can select up to 16 bars of the song to play along to. Try selecting a single bar of the song for now, and press the red circle in the Note Sequencer window to select the Loop Recording option.

Now you can play along to the song and press the '+' button when you've played something you like. This will then be added to the note sequence and you can continue playing along and adding further notes. Any notes which you've played and haven't yet added to the sequence will be displayed in red.

Notes displayed in red will be cleared whenever you play a note during a later loop of the song. If the song playback loops and you don't play any more notes, then the previous ones can be added at any time. For example if you're looping one bar of the song, then the add button will add the last one bar sequence you played, even if you wait a

number of bars before deciding to add it.

By default when real-time recording, any notes you play are added to the grid at the nearest 1/32nd bar of the sequence. If you only want to record to the nearest 1/16th, for example, you can use the Quantise option to set a lower note resolution. Switching off the Quantise option will store the notes exactly as you play them using an offset for each note.

The final recording button (the right facing arrow) is also used for real-time recording, but lets you record longer sequences rather than looping in time with the song. The sequence position will initially loop in time with the song playback as before, but once you start playing notes will be added to the following bars in the sequence.

Note Sequencer - Using the Chord Sequencer

The Chord Sequencer lets you select various combinations of patterns and pitches and can be opened at any time by selecting some note bars and then clicking on the keyboard button at the bottom of the screen.

At the top left of the keyboard window, you'll see the chord selection boxes. These will display the key and type of any chords which have been entered by selecting individual pitches. They can also be used to select the pitches for a particular key and chord. Try selecting C Major 3rd and you should see the selected pitches change to C, E, and G. Try change the E to Eb on the keyboard and you should see the chord display updated to C minor 3rd.

Once you've decided on the note pitches you want to use, the remaining boxes allow you to select the pattern and type of the chord sequence.

Click on the **Update** button at any time to try out the current settings. If you're using a keyboard to enter notes, the changes will be applied automatically as you play them. The **Merge** button lets you add notes to an existing sequence.

Note Sequencer - Envelope Settings

Click on the envelope symbol near the centre of the window and you should see the envelope window appear.

Changing the slider levels lets you adjust the Attack, Decay, Sustain and Release for the sound. You'll see the shape of the sound updated in the lower part of the window as you change the slider settings.

You can use the Attack setting to fade in the start of the sound. The Release setting is useful when used with the sustain button to fade out sustained notes.

You can adjust the envelope settings for any audio track by selecting the envelope option from the file editor window.

Note Sequencer - Note Settings

You can access the note settings by clicking on the Note Settings button, or right clicking on an existing note. You should see the active note turn red, and a window appear with the current settings for that note. Left clicking on the active note again will close the settings window; left or right clicking on a different note will display the settings for that note.

The available note settings are as follows:

Offset	Adjusts the start position of each note by +/- 1/64th bar
Length	Adjusts the length of each note
Velocity	Adjusts the level of each note
Stereo	Adjusts the stereo position of each note
Attack	Fades in the start of notes
Detune	Adjusts the pitch of each note by +/- 1/4 tone
Slide	Slides pitch from previous note

You can adjust the note settings for a whole track at once by using a Note Settings effects track. If you add a Note Settings effect, and also add settings for individual notes, the effects track will only change the notes which use that setting.

To try this out, add a note settings effect, then select Slide as the effect type. Adjusting the effect level on the bar grid should now adjust the slide for all the notes in the sequence. Now try setting the slide for an individual note in the sequence, and the effect level will adjust the slide for that note only.

Note Sequencer - Timesplice Mode

As well as playing notes at different pitches, the note sequencer can also be used to play different parts of a sound for each pitch. The most common use of this feature is to separate a sample loop into individual sounds and create your own sequences from the sounds.

To try out the Timesplicing option, load a sample loop into a new track and change the Play Mode to Timesplice.

Open the Note Sequence window for the track, and you should see the various pitches down the left of the screen have been replaced by a bar and beat display. The number of notes available will depend on the length of the original sample, and you may need to move to the lowest note pitches depending on the length of the sample loop.

You can change the interval between each note using the selection box at the left of the window.

You can sequence the bars of the sample loop in a different order by using whole bar notes, or change any part of the sequence by adding in combinations of beats. Alternatively, you can create your own sequences by selecting individual sounds from the loop.

The Chord Sequencer can be used to produce a variety of sounds when using Timesplicing. The 'Arpeggio Up' option will sequence adjacent sounds in the correct order, and other options can be used to break up your loops in many different ways.

Using Effects – Effects Parameter Tracks

Changing the effects levels on the bar grid will adjust the mix level for most of the effects you use in Making Waves. Some effects (e.g. modulator, filters and flanger) will change a different parameter when using the bar grid, and these allow you to specify the mix level in the level column of the track window.

You can use additional effects parameter tracks to vary the mix level for these effects during a song. Try adding a modulator effect to your song then clicking on the track type button for the track immediately below the modulator effect.

You should now see an option to add a mix level track. Select this and you can vary the mix level of the effect during a song, as well as the modulation frequency.

Studio Version users can adjust individual XG effects parameters during a song by adding XG parameter tracks to an existing XG effect.

Audio Pro and Studio Version users can adjust any of the parameters made available by VST plugins for automation by adding additional VST parameter tracks.

Using Effects - Effects Patterns and Sequences

Effects Patterns let you switch the effect on or off for selected parts of a bar. This is useful for varying sounds at different points in the song or for creating rhythmic effects patterns.

A green box will cause the effect to be applied at the current level. A white box will switch off the effect or use the default setting.

Effects sequences let you set the level for any effect to the nearest 1/24th, 1/32nd or 1/96th of a bar.

Click on the Sequence button after selecting sequence as the play mode for an effects track, and you'll see the effects sequence window appear.

The maximum sequence length is 16 bars when using a resolution of 1/24th or 1/32nd bar, and 4 bars when using a resolution of 1/96th. The main window will display one bar when using 1/24th or 1/32nd resolution, or 1 beat when using 1/96th resolution.

The editing facilities work in the same way as for bar levels. Clicking with the right button will display a stop sign. This will disable the effect until the next level change in the sequence.

Once you have defined an effects sequence, setting bar levels in the main bar grid will control the level of the sequence rather than the level of each individual bar. The entries on the bar grid are displayed in red to indicate this.

Setting the bar level to maximum will play the sequence as it is displayed in the window. Reducing the bar level on the main grid will gradually reduce the levels in the sequence.

If you're applying an effect to a single note or percussion sequence, you can enable the **Note Filter** button at the bottom left of the sequence window to set the levels only at the start of each note. This is useful when you want to vary the effect between different notes, but use a fixed level during each note.

The **Wave Modulator** button lets you load the sound levels from a sample file into the effects sequence. Try adding an effect to a sample loop and then loading in the levels for the same loop using this option. You should be able to hear the effect changing in time with the loop. Checking the Sample Loop option in the Wave Modulator window will adjust the levels to a whole number of bars.

If you have an effects sequence of say 4 bars, then by default the position of the sequence will be restarted every 4 bars. This will be displayed as **Continuous Loop** in the sequence window.

If this isn't what you want, then the Retriggering method can be set using the button at the bottom left of the window.

Restart on Level Change will cause the sequence to be restarted whenever the level is set on the main bar grid. This will work even if the level stays the same, so setting the grid value to the maximum in bar 1 and bar 3 would cause the sequence to restart in bar 3.

Restart with Note Sequence will cause the sequence to be restarted whenever a note or percussion sequence is started for the track. This would be used if you wanted to keep the sequence synchronised with the sounds that were playing and should normally be used when adding Note Settings effects.

Restart for each Note will restart the sequence each time a note is triggered.

If the end of the sequence is reached without it being retriggered by one of the above methods, the effect will continue at the last level used in the sequence.

Using Effects - Effects Toolbox

To make it easy to enter and try out different effects sequences, various predefined patterns can be applied to a selected range of an effects sequence.

Enabling the Use toolbox option will cause the effects toolbox to appear whenever you make a selection. You can now select a type of pattern to add to the sequence or apply various changes to the existing levels.

The button at the top left of the window will open and close the **Pattern Sequencer**, which allows you add or merge various waveform patterns to the selected levels.

If you want to generate a rhythmic effect, select a short wave length. Selecting a square wave set to the minimum cycle length will alternate the values between the selected maximum and minimum. If you want a more sweeping sound, try a sine wave over a number of bars.

You should set the bar level for the track to the maximum before trying out some patterns. Try using the Modulator effect on a track to hear the differences easily as you change the effects sequence.

Additional buttons on the toolbox allow you to increase, decrease, flip, mirror or clear the current selection.

The Line button will join up the start and end of the selected area. Select the area you want change and make sure the first and last values of the selected area are set to the required start and end levels.

You can also adjust the minimum and maximum values used for the pattern, flip and clear options by clicking at either end of the window and adjusting the bars which appear. Click near the top of the window to adjust the maximum level or the bottom to adjust the minimum level.

Adjusting the maximum and minimum levels at the left of the screen will also update the end levels, making it easy to keep these matched. If you want the end levels to be different, then change these after setting the start.

Right clicking on either level indicator will reset the levels to the default maximum and minimum values.

Using Effects - Cutoff Sequences

Cutoff sequences let you switch off the volume or remove notes for selected parts of a bar. This can be useful for varying note sequences or other sounds at different points in your songs.

Click on the pattern to add red boxes in the positions where you want the cutoff to be used within each bar.

The Level Cutoff can be used on any type of sound track, the notes cutoff should be used with percussion or note sequences. When you're using a notes cutoff, the sustain button can be used to decide whether to fill in the gaps created by removing notes.

Longer Cutoff sequences can be created by right clicking on the pattern grid.

You can also select different play modes for cutoff sequences. Selecting 'notes' mode lets you specify individual pitches to be cutoff. Selecting 'Whole Bars' will apply the cutoff over a number of bars.

You can use [single bar sequence editing](#) to add different cutoffs at different points in your song, without needing to use a number of different cutoff tracks.

Using Effects - Section Tracks

Sections can be used in your songs to group different tracks together. You can change the level of a group of tracks simultaneously, and also add effects tracks to the section as a whole.

This can be particularly useful for adding plugin effects to a number of different tracks, as some plugins can take a long time to mix for individual tracks separately.

To create a new section, click on the Track Type button for an empty track above the sounds you want to include and select **Section Track**

Now add a section track just below the sounds you want included in the section.

Adding an effects track directly below the start of the new section will now apply the effect to all the tracks within the section.

You can add or change a name for the section at any time by clicking on the horizontal grey bar in the track window. You can change the colour of a section track at any time by clicking on the track type button.

If you choose not to add a name for a section, you can still add effects to the section, but won't be able to adjust the level and stereo settings for the section.

File Editor - Changing the Play Length

The File Editor lets you change the way sample files are loaded into a Making Waves track. You can select a certain part of the sound to be played, repeat or sustain a sound by looping part of it, or adjust the sound levels using the Gain Control.

The File Editor window also provides access to other file related functions, allowing you to save sounds in different file formats or copy selected parts of a sound to different files.

To open the file editor, click on the track button to the left of the filename for an existing sample track. You should now see a graphical representation of the file, with the number of samples in the file displayed near the top of the editor window.

If you click and drag near the start of the file display, you should see the start offset and length of the selection being displayed in samples. The current selection can also be updated using the keyboard by editing the offset and length values displayed in the boxes.

Clicking and dragging near the end of the file display will adjust the end position of the file.

Click on the box displaying 'Samples' and you can also view and edit the current selection in seconds, bars, or 1/16th bars.

The bar based options are most useful when working with sample loops. You can increase the start of the selection in 1/16ths for example, to try out the individual sounds in a sample loop, or select individual bars from a multiple bar loop.

The remaining buttons at the top left of the editor window are the **Zoom** buttons. These let you make more precise changes to the selected points by zooming in the display. The selected area will fill the middle of the screen allowing you to easily adjust the end points. Click on the zoom button again to return to a full view.

The **Reset** button lets you cancel any existing selection.

The **Zero End Points** button will scan from each end of the current selection to try and locate a zero level in the file. This is used to avoid clicks at the start or end of the selected sound.

The **'Whole Bars' button** lets you adjust any current selection to a whole number of bars by changing the bpm setting for the track. This is useful for creating sample loops as you can adjust the start and end of a loop using the file editor then use this button to hear the selected range as a loop.

Whenever you've selected to play only part of a file, the bar value for the track on the main window will be displayed in red.

File Editor - Changing the Loop Points

As well as selecting which parts of a sound to play using the Play Length, you can also repeat part of a sound. This can be used to extend a sound by sustaining it, or to repeat the main section of a sample loop with an intro section.

To change the loop selection, click on the Play Length button and you should see the button text change to **Loop Points**. If you have selected part of the file in the Play Length window, you will only see the selected part of the file when viewing loop points.

You should see a plus sign appear next to the bar length for the track on the main window whenever loop points are being used. *The looped part of the sample will only play if the play length in bars for the track is set to more than the length in bars of the sound.*

File Editor - Saving Files

While it's easy to make changes to sounds in real-time using the File Editor, there may be situations when you want to save sounds into new files.

Simply click on the **Copy to File** option and you will be prompted to save the current selection to a new sample file. The various options available are similar to the Copy to Sound File menu option.

The initial values displayed will default to the settings for the current file.

File Editor - Using a Wave Editor

You may find it useful to use a separate Wave Editor with Making Waves, for applying any non real-time audio processing which your wave editor supports.

To specify the editor you want to use, just select it from the Wave Editor option on the audio menu. Once you've selected the editor you want to use, simply click on the Editor button to load the current file into your editor.

If you've been playing a song in Making Waves, some of the sample files may still be open and this may cause problems when saving files with an editor. To make sure all the files in Making Waves are closed, click on the Stop button twice.

Mixer Panel - Using the Mixer Panel

The Mixer Panel provides access to a number of useful functions which can be used while creating your songs:

The **Level Mixer** and **Stereo Mixer** let you easily adjust the levels and stereo position of the tracks in your song.

The **Effects Mixer** and **Track Mixer** let you add or remove sounds or effects for a selected number of bars.

Track Details can be switched on or off using the track detail button. This lets you choose whether to see more track information or song bars and is most useful when using a low screen resolution. You can also click on the centre separator bar to change this setting. Many of the track details can also be accessed by clicking the track type button for an existing track, allowing you to leave the track details switched off. *Don't forget you can increase the number of tracks and bars you can see on the screen at once and also the default colours by changing the Windows desktop settings.*

The **Zoom** window gives you an overview of your current song and allows you to easily navigate to any position by clicking on the display. You can also view bookmarks or tempo changes for the current song, and move between sections in your song using the navigation buttons at the bottom right of the window.

Mixer Panel - Effects Mixer

The Effects Mixer lets you add new effects and adjust existing effects levels for a selected range of bars.

When you first open the window, you'll see a list of all the effects used in your song, with the initial level for any current bar selection displayed. If there are no bars selected in the song, the levels at the current play position will be shown.

Changing the effects levels without any song bars selected will let you update values in real-time while your song is playing.

Changing the effects levels with some song bars selected will update the whole of the selected bar range, clearing any later changes within the selected range.

You can also switch effects on or off at the current position by clicking on the checkbox next to each effect.

If you're using the Studio version of Making Waves, you can record effects using external [midi controllers](#) by enabling the Mixer Controls option on the [Midi menu](#).

Mixer Panel - Track Mixer

The Track Mixer lets you switch individual tracks or sections on or off for a selected range of bars by automatically updating the values on the main bar grid.

For each track displayed in the window, a checkbox will indicate whether the track is active in the selected bar range. Switching the checkbox off will cause all the currently selected bars for that track on the main grid to be cleared, switching it on will set the bars.

If you've entered any previous bars for a track, the same pattern of bars will be used when you add new bars.

The **Left and Right arrow buttons** at the top of the window allow you to move backwards and forwards through your song by the selected number of bars. This can be useful if you create your song in 8 bar sections for example, allowing you to easily move between sections.

The **Insert Bars** button will insert a copy of the current selection and move forward to the new selection. This allows you to add multiple bars to your song on a step by step basis.

The **Record Mix** button is used to record additional bars by adding bars to the song as you make changes to a selected recording loop. Try selecting some bars from a song and pressing the Record button. Each time the playback position gets to the end of the recording loop you should see the currently selected bars added to your song.

You can now change the bar grid for the selected bars and you'll see these changes added at the end of the song sequence you're recording whenever the playback position loops. You can change values directly on the bar grid, or use the Track and Effects Mixers to mix your song in real-time.

Because the song is only updated at the end of each loop, the number of bars you select will affect the way the song is recorded. If you select a longer loop, such as 4 or 8 bars, you'll have more time to update the settings during each loop but the recorded section will change less often. Using a short loop, such as 1 bar, will add more real-time changes but give you less time to adjust settings before they're added to the song.

To finish recording, press the Record button again or the Stop button on the main control panel. When you finish recording, the loop you've been recording into will remain selected for editing and can be cut using the edit menu or toolbar if you no longer want to keep it.

Bookmarks will appear when recording to mark the start and end of the newly recorded section.

Mixer Panel - Audio Recording

Audio Recording lets you record new sample files from the input to your soundcard. This can be used to record any type of sound; either single hit notes or sounds which can be used in note sequences, or longer sounds, which could be vocal tracks recorded from a microphone or tracks from an audio CD.

After opening the Audio Recording window, try playing a sound that you wish to record and you should see the level meters change after a few seconds. You may need to adjust the recording levels if the meters don't show an input signal. Refer to the [Troubleshooting](#) section towards the end of the manual if this is the case.

Before starting recording, you can select a file to record into by clicking on the button, otherwise a default filename will be used. You can include a number at the end of the filename to specify the name of additional files to record, so if the original file is loop01, the next file will be loop02 etc. If the filename doesn't include a number, additional filenames will be recorded as filename(001),(002) etc.

The **Overwrite** check box to the left of the filename lets you decide whether to record over the current file or create the next file in sequence. This will be automatically switched on when you select a new file, and switched off after you've recorded a file, ready to record the next file.

If you want to use sequential files without having to enter an initial number, simply enter the required filename, then switch off the Overwrite option before recording. This will skip the initial filename you entered and record the first file as filename(001).

The **Song Sync** button lets you decide whether to accompany a song while recording. If this is enabled, the current song will be played while you record, and any files you record will be adjusted to whole bars to match the song playback.

Enabling the **AutoCue** button will record multiple files automatically by monitoring the audio input level. When you press the button to start recording, you'll see a 'Detecting Level' message displayed and this will detect the background level with no input. After this you should see the message 'Waiting to record'. The file will now start recording as soon as an input level is recognised. When the input stops, the file will be saved and the system will wait to record the next file. Press Stop Recording at any time to finish.

When using the AutoCue option, you should make sure there is no audio input while the 'Detecting Level' message is displayed for this option to function correctly.

If Song Sync is enabled when using AutoCue, a gap of at least one bar will be needed to signal the end of each file. Without Song Sync enabled, any gap in the sound will cause the file to end.

The two buttons to the right of the filename let you add recorded files as tracks in your song, without needing to use the browser window. The '+' button is used to add the file you've recorded to an active track so you can hear the results immediately. The '-' button is used to add a muted track for later use. This option will not be available if the Overwrite checkbox is enabled.

Once you've added a new track, you can use the [file editor](#) to adjust or resave the file. Right clicking on the track number will let you copy or move recorded files to the current song folder.

Mixer Panel - MultiSample Editor

MultiSample sets are files containing different samples which can be used in a single track. These can be used in a single note sequence, rather than using a separate track for each sound.

You can create your own multisample sets using the MultiSample Editor which is available from the Mixer Panel.

The contents of the editor when first loaded will depend on whether there are any percussion sets selected in your song. If you're using a percussion set in the Note Sequencer, or have one selected in the file browser window, it will automatically be loaded into the editor, otherwise you will start with a new file.

The individual notes on the keyboard let you select a sound file for each available pitch in the Note Sequencer. At the bottom of the main screen, the Sound Files window lets you select the sample files you want to use.

There are various ways of adding files from the File Browser window. The easiest is to double click on a filename and this will add it to the next available space in the editor.

Alternatively you can select a note and then click on the required file, or vice versa. Files can be changed at any time by clicking on the filename and selecting a different file from the Sound Files window. You can reset a note at any time by selecting the note and clicking on the Clear button at the top right of the editor window.

You can use your PC or midi keyboard to preview and select any of the notes in the editor. This is an easy way to match certain notes on your keyboard with certain sounds, e.g. using the black notes for different hi hats and cymbals. Simply play the required note to select it, click on the required file and play the next note you want to add, or play the same note again to deselect it.

Once you've added a sound to a note, setting the pitch for the note to 'off' will play the sound only for the one note and any remaining notes at higher pitches will be blank. This is the default option and is normally used for individual drum sounds.

Setting the note pitch to a numeric value will also play the sound at different pitches, up to the next sound file which is used in the set.

A few examples should make things clearer:

You can split the keyboard into three, two octave parts by adding a sound to C0 at a pitch of -12, adding a sound at C2 at a pitch of -12, and a sound at C4 at a pitch of -12. This will play each of the three notes over the same 2 octave range.

You can use a 6 octave range with different sounds by adding a sound to C0 at -36, a sound to C1 at -24, a sound to C2 at -12 etc.

You can use 'multisample' samples (i.e. different samples of the same sound at different pitches) by adding each sound at the correct position with a 0 pitch.

Clicking on the timestretch button will automatically adjust the original loop to a whole number of bars. This means you can select sounds from a loop, or even whole loops at different tempos, and have them all adjusted to the correct playback speed.

You can save a multisample set at any time by selecting the disk icon or closing the editor window. Enabling the **Copy Samples** option in the save window will copy all the samples used by the multisample set into the same folder as that used to save the multisample set.

Audio Pro/Studio Version - Using Multiple Audio Devices

The main difference when using the Pro Audio version of Making Waves is that you can use more than one audio device for playback and recording.

Many soundcards now support multiple inputs and outputs; Making Waves lets you use up to 4 stereo outputs for playback and 4 stereo or 8 mono inputs for recording.

The multiple output devices on your soundcard may be routed to a single physical output; this is often used for supporting onboard mixing facilities. If your soundcard supports multiple physical outputs, you could use an external effects unit on one of the outputs, or connect all the outputs to an external mixer.

Audio Pro/Studio Version - Audio Playback

The first thing you need to do is decide which output devices you want to use. Select the Audio Output option from the Audio menu and you can select up to 4 stereo output devices.

You should select only the number of devices you're going to use, so as to avoid using unnecessary CPU time. The first device you choose will be used as the default output.

If your soundcard supports a playback resolution higher than 16 bits, you can select 24 or 32 bit output. You shouldn't select this unless you know your soundcard supports a higher than 16 bit resolution.

Close the window when you're ready, and you should see the number of meters at the top of the main screen has been updated to match the devices you selected.

You can route tracks to separate audio outputs by adding the sounds to different sections. If you add a section track to your song while using multiple audio outputs, you'll be able to click on the bar grid for the section track to select the output device for each bar of the song.

If you add an audio effect to the whole song, you should see a device number appear next to the effect name. Simply click on the device number to select the audio device for each effect. A '+' symbol means the effect is being applied to all the outputs.

Audio Pro/Studio Version - Audio Recording

The first thing you need to do is decide which input devices you want to use. Select the Audio Recording option from the [Audio menu](#) and you can select up to 4 stereo input devices.

If your soundcard uses mono inputs, you should check the **Mono Inputs** option at the bottom of the window then select the stereo devices you want to use. If your soundcard uses 4 mono inputs for example, these should appear as 2 stereo inputs in Device 1 and Device 2 of the selection screen.

If your soundcard supports a recording resolution higher than 16 bits, you can select 24 or 32 bit recording. You shouldn't select this unless you know your soundcard supports a higher than 16 bit resolution.

Close the window when you're ready and click on the Audio Recording button at the bottom of the screen to open the Recording window.

Most of the buttons and options function in a similar way to single device [Audio Recording](#).

If you've selected more than one device or mono inputs, you should see a separate row in the window for each input device. You can now select a filename for each track you want to record. The stereo/mono dropdown list now also contains an option to switch off individual inputs.

Click on the Start Recording button to start recording on all the active inputs.

The **Memory** option lets you store up to 30 seconds of input data using the memory on your PC. This means you can start recording at any time and automatically store the previous data. This is useful if you're playing live and want to record something you've just played. Alternatively if you're recording from a CD or video, you can listen to the CD or video and press the record button when you've just heard something you want to save.

Audio Pro/Studio Version - VST Support

The Audio Pro and Studio versions of Making Waves support both VST effects and instrument (VSTi) plugins.

If you've already installed your VST plugin files for use with another application, then you should set the 'install folder' option on the Audio Menu to point to the folder containing your plugin files.

If you haven't already installed your plugin files, then you should create a new folder and install all the plugins into here before setting the 'install folder' option. If you create a new folder, you can install your individual plugins into different folders under this and point the install folder to the main folder.

Once you've done this, select the 'vst instruments' option from the audio menu, and you should see all your VST instruments appearing in the selection list.

Close the window, and you should see a message displaying the folder containing your vst instrument files.

Now locate the specified folder using the browser window, and you should see entries for your vst instruments.

Click on the VST Effects menu option to configure your VST effects, and these will be added to the list of available audio effects.

You can use effects parameter tracks to change any of the parameters for the VST plugin during your song.

If you notice a clicking at the end of each bar when using VST instruments, simply switch on the audio streaming option by clicking the checkbox next to the track 'settings' option.

Studio Version - Midi Instruments

Each piece of midi equipment you use with Making Waves is referred to as an Instrument. This could be a soundcard on your PC, an external midi synth or drum machine, or even an effects unit.

Each instrument uses its own sounds folder on your hard disk to store midi sounds, and the available effects can be configured for each instrument using the set-up options. If you're familiar with midi terminology, the midi sounds are played using midi program and bank numbers and the effects use midi controller messages.

Making Waves automatically creates a default General Midi instrument which is suitable for use with most soundcards. *(If you've already changed the instrument settings in the software, you can return to the default general midi settings at any time by deleting all the instruments and closing the instrument window)*

To see how midi instruments are configured, you should select the Instrument Settings option from the Midi menu. (If you are running the audio version of Making Waves, you can enable the Pro Demo option on the Help menu).

Studio Version – Getting Connected

You should see the default general midi instrument listed at the left of the Instrument window. You can create additional instruments at any time by selecting the <new instrument> option from the list.

The right hand side of the window contains the settings pages which let you configure each instrument. The first of these pages lets you set up the way your instrument is connected to the system, in other words the midi device and channels the instrument will use.

At the top of the window, you should select the midi device you want the instrument to use.

If your soundcard uses multiple midi devices to support more than 16 midi channels, you can access these additional channels from a single instrument in making waves. Simply select the first available midi device in the instrument settings option, then select 'x2' or 'x3' to specify the number of additional midi devices your soundcard supports.

Further down the window, you'll see a list of check boxes for note and drum channels. These specify which midi channels for the selected device are available for the instrument to use when you load a note or drum sound. Usually a soundcard would use all 16 channels, an external synth may only use a single midi channel. *Different synths or other external midi equipment can share the same midi device, as long as they don't use the same midi channels.*

The **Connection Type** lets you decide whether to initialise the instrument each time you start a song playing, or to only initialise the instrument when it's being used in the song you're playing.

Finally, the **Midi Clock** and **Midi Time Code** options let you send a midi sync signal to the selected device. This is normally used to synchronise external drum machines and effects units. Check the midi implementation for your equipment to see if the midi system clock or MTC are supported. You should set the connection type to 'Active' to ensure the sync signal will be transmitted even when you're not using any midi tracks for the selected device in the current song.

Studio Version - Configuring Effects

Click on the effects tab, and you should see a list of effects for the default general midi instrument. You can add effects at any time by selecting the <new effect> option from the list.

You should see the Modulation effect is currently highlighted. At the right of the screen you should see the effect name followed by the controller type and number.

The **Controller Number** refers to the midi controller that the software will use to activate the effect. A list of controller numbers which your midi equipment supports is usually included in the midi implementation chart for your equipment.

The **Controller Type** can be set to Variable, On/Off or Variable + On/Off:

Variable means the level can be adjusted to any level between 0 and 127 and the effect will change gradually over this range. This is normally referred to as (0-127) in the Midi Implementation chart for your equipment and is the usual setting for most controllers.

Variable + On/Off uses a separate controller to switch an effect on or off, rather than using a default value to reset the effect. This should be described in the controller section of your midi implementation if this is supported by your equipment.

Initialise Only lets you send a specified controller value whenever playback begins. The controller will not be available as an entry in the effects list.

If you're using a variable controller, the **Default Level** setting is important in deciding how the effect works.

If the default level is set to 0 (or any other numeric value), the controller will be set to the specified level whenever you play a song, even if you're not using the effect. It will also be reset to this level if you remove an effect from your song. This means that the level will always default to a predetermined value so your songs will sound the same each time you play them.

If you leave the default value blank, the controller will only be updated when you're using an effect and won't be changed if you cancel an effect. This is mainly useful if you're using a synth which initialises controller levels itself depending on what sound you're playing. You can also improve midi performance by changing the default level to blank for effects that you don't normally use.

Finally, the **Effects Hardware Support** options lets you select additional features which have been included for your midi hardware. The initial options available are for XG users and are described in the section on [XG Support](#).

Studio Version - Sound Files

Click on the sound files tab, and you should see details of the midi note and drum sounds for the default instrument.

The drum kit is updated automatically whenever you use the sound editor, and saves drum sounds from individual folders into midi drum kits. These can be used in the same way as a multisample set to record or sequence different drums in a single track.

Enabling the **Default GM Instrument** option lets you select the current instrument as the one that will be used when loading midi files or songs by other users which are likely to use different instruments. This should normally be enabled for your default soundcard.

The **Enable Browser** option can be set for any general midi compatible instrument. This will cause the sounds for the instrument to be included when using the General Midi Browser.

The **System Exclusive** buttons let you receive or transmit system exclusive data using the selected instrument. These files are stored in text format, so you can create your own files using an editor.

Click on the **Edit Sounds** button to open the sound editor which lets you edit or create new midi sounds.

Try clicking on an existing sound file and you should see the existing program number, bank and note number for the sound. To create a sound for an additional sound bank, simply type in the new bank numbers and a new name, then the apply button. Any new sounds you create should be saved within the midi folder for the instrument.

You can also use the standard windows editing functions to copy, paste, rename or delete sounds. You can rename a sound by simply clicking on the name in the file window. Right clicking on the file will let you access the additional editing functions provided by windows. This can also be done from the file browser window if you want to change the sounds for an existing instrument.

If you're creating additional drum kits, you can create a new folder or copy the Standard Kit folder to a new name. This will automatically create a drum kit for the new folder when you exit from the sound editor.

Studio Version - Importing/Exporting Instruments

When you're adding new instruments to your system, you can use the **Import** option to load a predefined instrument file, rather than creating the instrument yourself.

The **Export** option lets you export an existing instrument to a file. This can be useful if you want to use any external midi equipment on someone else's copy of Making Waves. Simply export the instrument to a floppy disk, import it into your friend's copy and you should be ready to go.

Exporting can also be useful for backup purposes, or for storing occasionally used instruments offline then importing them when you want to use them.

Studio Version - General Midi Browser

The general midi browser lets you select similar sounds for different instruments, using the midi program number to match the sounds.

Whenever there's a midi sound selected in the sound files window, you should see a browse button appear to the left of the filename. Click on the button and you'll see a list of all the available sounds on your system which use the same midi program number as the currently selected sound. *This option will only be available if you've enabled the browser option on the instrument settings screen.*

When you're selecting drum kits, you'll see a list of all available midi drum kits, rather than just ones which use the same midi program number.

Studio Version - General Midi Sample CDs

If you've tried out the [general midi browser](#) to select sounds for different instruments, it may have occurred to you that it would be useful to be able to do the same thing with your audio samples.

It isn't usually possible to do this as audio samples don't include any information about midi program numbers. General midi sample CDs store information about the CD samples in a file which Making Waves uses to find out which audio sounds are equivalent to which midi program numbers.

If you received a copy of the XG Waves sample CD with your copy of Making Waves, simply select the XG Waves (.gms) file from the root directory on the CD. If you're installing the samples onto your hard drive, you should copy all the files from the CD and then select the gms file from the copied folder. If you now select an audio sample from the CD folder, you should see the midi browser icon appear, allowing to you try out the different audio and midi sounds.

For further information about gm sample CDs, check out our website. If you're interested in creating your own gm sample CDs, contact support@spacehead.co.uk for details of file formats.

Studio Version - Midi Controllers

If you're using external midi equipment which can generate midi controller messages, you can use these to adjust effects levels in Making Waves.

If you enable the Mixer controls option on the Midi menu and open the effects mixer, you should see an additional button next to each of the effects. To assign an external midi controller to a particular effect, click on the button next to the effect and you should see the button turn green.

If the controller number of the effect you're setting is the same as the external midi controller number, you can simply click on the button again to select the default controller. Otherwise, move the controller you want to assign and you should see the button turn red to indicate the levels are being recorded and the controller number will appear next to the effect name.

Some midi devices may transmit certain controller messages continuously; in this case you may need to move the required controller knob between the minimum and maximum levels a few times for it to be activated.

Studio Version - Loading and Saving Midi Files

As well as loading and saving midi sequences as part of a Making Waves song; you can also load and save standard midi files (*.mid).

To load a midi file, use the file browser window to locate the folder containing the midi file. You can select the file to preview it, or double click to load it into your song.

When you load midi files into making waves, or a making waves midi song created by someone using different instruments, the software needs to decide which of your midi instruments to use to play these. The **Default GM instrument** option in the instrument settings window lets you decide which instrument to use.

To save a midi file, select the copy to sound file option as you would when creating a wav file, and change the file type at the bottom of the window to midi. This will save the midi tracks in your song to a standard midi file.

Studio Version - XG Midi Support

If you're using an XG Midi soundcard, you can import the 'xgmidi' instrument file which is preconfigured to access all the standard XG sounds.

There is also support for the built in XG system effects, and if you own an SW1000XG, you'll be able to apply midi effects to the audio input or output using the AD mixing features.

If you look on the effects page of the instrument settings window, you'll see a effects hardware option which lets you select to use XG midi and/or audio effects.

Selecting **XG System Effects** will let you access the XG Reverb, Chorus, Variation and Insertion effects when using midi effects for the XG device. These will appear in the effects list, and after selecting one you can click on the effects type to change the parameters for the current effect. If you add the same effect to more than one track, the second effect type will initially be set to <default>, and will use the same type as the existing track.

Selecting **XG System + AD Effects** will also allow you to apply the XG Reverb, Chorus and Variation effects to any of the audio outputs or the recording input on your soundcard.

If you're using the AD audio effects mixing; you should configure the audio output devices you want to use in the correct order from 1 - 4. If you now try adding an audio effect to the whole song or one of the audio outputs, you should see the XG options appearing at the bottom of the available effects list. Clicking on the audio output device for an effects track will display "In" as one of the available device options and this lets you apply the effect to the recording input.

You can use effects parameter tracks to change any of the XG effects parameters during your song.

Studio Version - Where to go from here

Now you've seen what's going on behind the scenes when you use midi with Making Waves, you might find it useful to look at the various sounds for the default instrument again, and try loading in some note and drum tracks to see how midi channels are selected.

You can choose whether to continue using the default instrument, or you might prefer to delete this and create or import a new instrument.

If you're setting up a non-gm synth, you can choose whether to start with a general midi set-up and adapt it, or click on the Create button to start from scratch and create the individual sounds and effects.

There are also two predefined instruments included in your install folder which include program numbers for midi sounds and note numbers for drums. These can be imported to easily try out non-gm midi equipment. After importing, simply delete any program numbers and drum notes that your synth doesn't use.

File Menu

The **New** option opens a new untitled song and sets all song parameters to their default settings.

The **Open** option allows you to locate and open previously saved song files. You can preview songs in the Open window by enabling the **Preview Songs** check box and highlighting the names of the songs you want to listen to.

Save lets you save the currently open song. For an untitled song this will have the same effect as selecting Save As. For a previously saved Song File, the song will be saved to the file of that name, without any prompts.

Save As allows you to select the drive, folder and filename where the current song will be saved.

When you save songs that you've created with Making Waves the trk file does not contain all the individual sounds, only a reference to the location of the sample files. This means that you can use large sample files in different songs without taking up additional space on your hard drive. The **Copy Samples** check box will copy all the sample files used by a song into the same folder as the song itself. This can be used to move all the files to a single folder for transferring between systems, or for making backup copies of the files and song.

You can copy or move individual samples at any time by selecting the required tracks, then right clicking on a selected track to bring up the edit menu. The Copy/Move Samples option will only appear if there are only sample tracks selected, and if the song has already been saved to a folder.

The **Copy to Sound file** option is used to create new sample (.wav) or midi (.mid) files from your songs. Using this option when you have one or more bars selected will copy the selected bars, otherwise the whole song will be copied.

If you're saving sample loops, enable the **Whole Bars** option to make sure the file is saved as a whole number of bars, otherwise any blank space at the end of the file will be removed. When creating sample loops, any delay effects would normally not be heard at the start of the loop.

Enable the **Save Mix** option to save a Mix File with the sample. Mix Files can be reloaded by selecting Mix Files as the file type from the File Open window.

The **Exit** option closes down Making Waves. You will be prompted to save any currently open, modified song.

Edit Menu

The Edit menu provides access to various editing functions. The options available will depend on whether you have any tracks, bars, notes, effects or percussion sequences currently selected.

Cut stores a copy of the selection, and removes it from the editing screen.

Copy stores a copy but does not remove the selection.

Paste inserts previously cut or copied information into the currently selected position. The paste option will only be available if you have selected a single track or bar to indicate the required position.

Clear clears the current selection without storing the data.

Insert will insert empty values at the current selection.

Undo will allow you to undo the last action.

Editing can also be done using the right mouse button. Right clicking on a selected area will display a popup edit menu.

Audio Menu

The **Audio Output** option lets you specify the device used for the main audio playback. This will default to the standard Windows device, but can be changed if your system supports more than one audio output device.

The **Latency Test** option lets you configure your soundcard to get the best results when recording or previewing audio samples.

DirectX Plugins lets you choose whether to use any plugins on your system with Making Waves. Any that you enable will be added to the list of available audio effects. Enabling the **Audio Stream** option will cause the software to continuously remix each bar whenever the plugin is active. This is normally used with reverb effects to fix problems with the sound not being sustained, otherwise leave this option disabled to save CPU time.

The **VST Plugins** options are available to Audio Pro and Studio version users. These let you set up your VST Plugins for use with Making Waves.

The **Audio Recording Device** specifies the device used for Audio Recording by Making Waves. This will default to the standard Windows device, but can be changed if your system supports more than one audio input device.

The **Select Wave Editor** option allows you to specify a separate wave editor to use with Making Waves. This can then be accessed from the File Editor.

Midi Menu

The **Midi Output** option lets you specify the device used for midi playback. If you're using the Studio version of Making Waves, you'll also be able to configure the [midi instrument settings](#)

Midi Input Device lets you select the required input device if you're using an external midi keyboard or controller.

The **Keyboard Centre Note** option lets you set the centre or 0 pitch note for your midi keyboard.

Settings Menu

The **Remix Speed** setting lets you decide how much remixing time to allow when editing your songs in real-time. Choosing a fast setting will update changes more quickly but may result in gaps during playback. Choosing a slower setting will take longer to remix changes, but will reduce the chance of gaps in playback. You can enable the Auto Select option to change this setting automatically as you're using Making Waves.

The **Fixed Song Tempo** option can be switched off to enable tempo changes during the current song.

The **Continuous Mix** option affects what happens when you reselect bars during playback. Normally the playback position will immediately move to the new selection. If you prefer a more continuous sound while you're mixing a song, enabling this option will cause the current bar to finish playing before moving to the new position. This will be enabled automatically whenever you use Performance Mode.

Performance Mode is designed to make mixing more predictable by only remixing at the end of each playback loop. The easiest way to try out this option is to loop around 8 bars of a song and try using the level mixer to update the track levels. If you enable Performance Mode by clicking on the button at the top of the screen, you should hear the levels being updated simultaneously at the end of each loop.

Try clicking on the main forward or rewind buttons and you should see the playback wait to the end of the current selection before continuing. This means you can mix adjacent sets of bars independently and move between the two at fixed intervals.

The **PC Keyboard** options let you change which note pitches are played when you use your PC keyboard for previewing or recording sounds. This defaults to semitones but can be changed to use a major, minor or blues based scale for easier playback.

The **Metronome Sound** option lets you select the audio sample to use for the metronome sound when recording.

If you're recording songs to an external device, the **Cue on Song Start** option can be used to pause playback after mixing the start of the song. This can be useful to avoid any delays between pressing the Play Button and song playback starting.

Appearance Menu

The **Colour Scheme** option lets you change many of the default colours used by Making Waves, and also specify a bitmap file for window backgrounds. The Default Colours in the top row will affect all of the windows in each column which are listed as <Default>. After choosing your default colours, you can then change the colours or bitmaps for any of the individual windows. Colour Schemes can be reset, saved or loaded at any time by clicking on the buttons at the top of the screen.

The default colours used will initially be set to the same as the windows desktop settings. If you change the desktop settings the default colours used by making waves will be updated automatically. Once you've saved a colour scheme, the same colours will be used when you reload it, even if you've changed the windows desktop. This means you can try out the various windows desktop colour schemes and save any that you like. These can then be reloaded into making waves without needing to change your windows desktop settings.

The **Edit Keypad** option lets you decide whether to use the keypad for editing, or use standard text entry.

The **Show ToolTips** option lets you switch off the help prompts which appear when you hold the mouse cursor over a toolbar button.

New Track Spacing affects the way new tracks are added to making waves when you double click on the browser window or add tracks from the recording windows. This will default to every 2 tracks (i.e. 1 space between each track that you add).

The **Grid Size** will be set automatically to use a large grid at 1024x768 resolution or higher and a small grid at lower resolutions. You can override the default behaviour by selecting the Small or Large option.

The **Play Position** is displayed in the main title bar and defaults to a display of the current bar and beat. This can be changed to display minutes and seconds, or switched off. Right clicking on the main title bar is an easy way to cycle through the various settings.

The **Key Type** specifies how notes are displayed in the note sequence window.

Utilities Menu

As you copy and paste bars in your songs, you may find there are a number of duplicate and unnecessary effects bar levels, and various tracks which you've switched off and no longer want to use. The **Tidy Up** option will remove any unnecessary effects levels, and give you the option to remove any unused tracks from your song. You can also choose whether to automatically remove any spaces between tracks.

Whenever you are copying bars to a sample file or recording a song to tape or disk, it is useful to have the main output level set to the maximum possible without clipping the sound in order to achieve the best sound quality. Select the **Level Detect** option from the Utilities menu after selecting the required bars and the main output level will be updated automatically.

The **Show Bar Times** options displays all the common bar fractions in milliseconds. If you're changing tempo during your song, the values shown will depend on the current playback position.

Help Menu

Contents and Index takes you to the main contents screen of the Help File.

On-line Registration lets you register or upgrade the software using on-line ordering.

Registration Codes lets you enter a registration code to enable various features in Making Waves.

What's New in Version 4 ?

The following options are new in version 4:

Real-time Preview Playback and Recording

Tempo Changes

Effects Parameter Tracks

VST Plugin Support

Single Bar Sequence Editing

Improved Note Sequence Recording

Colour Settings Configuration

There are also a number of changes to existing features and some new menu options. You can press the F1 key from most of the windows in Making Waves to view the latest help information, and use the Help Contents to find out about the new menu options.

Frequently Asked Questions

What's the easiest way to fade out the end of my song?

You can add a Volume effect to the whole song, by inserting an empty track at the top of the track window and adding a 0-100% Volume effect.

Make sure the auto fader option box is checked and then click on the bar grid and drag the bar at the start of the fade to the maximum level and the bar at the end of the fade to zero.

You can reverse this process for fading in, or fade individual tracks in and out by adding the Volume effect to a single track or section.

How can I make an audio CD from my making waves songs?

If you're not using any midi tracks, then you simply select the 'Copy Song to Sound File' option from the File menu. You can then copy your song directly to a wav file.

If you're using midi sounds, you need to record the output from your midi device to a wav file and then mix it with the audio tracks, or record all the output including the audio directly to a new wav file.

If your midi device is a soundcard, you can often mix midi and audio by using the Windows Mixer Recording Settings. If you don't see a midi or synth option on the mixer, or if you're using an external midi device, you'll need to connect the line out from your midi device to the line in on your soundcard.

How do I adjust the midi volume and note velocity settings for a track?

The track level displayed for each midi sound represents the default velocity for each note, and not the channel volume. This lets you adjust the velocity of different drum sounds using the track mixer.

To adjust the default midi volume for a track, use a midi Volume effect to change the volume setting. The easiest way is to include all the drum sounds in a section and add a Volume effect to the top of the section.

When you play a midi track, any level settings for individual notes are combined with the track level to produce the final note velocity. This lets you use notes with different velocities in a sequence but still be able to adjust the level for the track as a whole.

Can I use a velocity sensitive keyboard with Making Waves?

Making Waves will automatically detect if you play notes of different velocities on a keyboard and allow you to play and record midi using velocity sensitivity.

This will only work when using midi sounds.

You can vary the keyboard sensitivity of a sequence by adjusting the main track level. A level of 64 will play all notes at their original velocities, a level of 127 will play all notes at the maximum velocity.

What can I do if the midi and audio tracks in my song sound out of sync with each other?

Depending on the audio and midi devices you're using, you may need to adjust the midi timing offset. See the Troubleshooting section for more details.

When I've been scrolling the bar grid, it no longer keeps up with the current playback position.

Simply press the Play button while the song's playing and the bar grid will continue following the current playback position.

Is there any way to unload the sample files being used by Making Waves, before switching to a different application?

Press the Stop button when the song's already stopped, and all the current samples will be unloaded from memory.

What's the easiest way to use Making Waves with multiple sample CDs?

If you have enough disk space, then you can copy the whole sample CD across to your hard drive and access the samples from there.

If you don't have enough space to copy all your sample CDs, you can automatically copy samples from each CD as you add samples to your song.

Create a new folder to save your song into, and then simply save your song as you finish with each CD, making sure that the copy samples option is checked in the save window. This will copy the new files across from each CD as you use them

You can also Copy samples for individual tracks at any time by right clicking on the track number and selecting the Copy Samples option from the popup menu.

Why do my loops sound out of time when I transpose a delay effect?

You can set Timestretching on or off for each delay effect. You should switch this on by clicking on the timestretch button for the delay effect.

What's the most efficient way to use plugins to minimise CPU time?

Each effects track that appears in your song is processed separately, so the best way to use plugins is to try and organise your song to make the best use of the minimum number of plugin tracks.

Usually this can be done by adding a section to your song, then including a plugin effect at the top of the section and add the sound tracks to the rest of the section.

Does it matter in what order I add effects to my song?

The effects are usually processed in the track order that they appear in your song. This lets you control the order that effects are applied to vary the final output.

You can also multilayer individual effects by adding more than one effect track of the same type to your song.

Should I always use Timestretching with my sample loops?

Timestretching will always result in a slight loss of sound quality due to the changes being made to the sample. The benefit of Timestretching is that it keeps everything in time without adjusting the pitch.

If you're not worried about a track being slightly pitch shifted then you should switch off time stretching for a better quality sound.

This normally works best with drum loops which have a tempo that's fairly close to the song tempo.

I've noticed some notes making a clicking noise when I'm using Timesplice mode, What should I do?

Depending on which part of the sound is being played, it's likely that the start of some notes is at a non zero audio level. If you click on the envelope button and adjust the attack setting, this should solve the problem.

Troubleshooting

No sound is heard during playback

This is usually caused by the incorrect Audio or Midi output device being selected. Check the device settings on the [Audio](#) or [Midi](#) menu to ensure these are set correctly.

Double click on the small speaker at the bottom right of the screen to load the Windows mixer and make sure the output levels are set correctly for the device that you're using.

Check the cables connecting the sound card to the amplifier/speaker, and if an external amplifier is present, that it is switched on and the volume turned up.

Sound during playback is very quiet

Double click on the small speaker at the bottom right of the screen to load the Windows mixer and make sure the output levels are set correctly.

Midi and Audio playback are not synchronised

Depending on your system configuration, you may find the midi and audio playback are slightly out of sync with each other. This can be fixed by setting a midi timing offset.

First you should load a midi and audio track into a new song, then click on the 'Delay' button at the top of the screen so 'Offset' is displayed. Now adjust the offset for the midi track until it sounds in time with the audio.

Now select the midi track number and right click to bring up the edit menu. Select **Update midi timing offset** and your midi tracks should now sound in time. You can repeat this process with no track offset to view the current setting.

The Message 'Specified Device ID is out of range' is displayed when you press Play

If this message is displayed, it is most likely that the audio output or recording device is not configured correctly to work with Windows. Check the settings on the [Audio menu](#) if your system supports more than one device.

Sound is distorted or clicking is heard

This is probably a sign that the output signal is too loud, and is being clipped. This can be rectified by reducing the output level and should not occur if the AGC option is enabled.

You can change the Automatic Gain Control by clicking on the AGC button:

Using the **Green** setting will automatically reduce the main volume during playback to the maximum level that can be used without clipping the output.

Using the **Yellow** setting will cut off the peak signals to avoid clipping the sound, without lowering the main volume. You can view the maximum available volume without clipping (similar to using the green setting) at any time using the Level Detect option on the utilities menu.

The **Red** setting will switch off the AGC option. This setting should only be used if you are experiencing any performance problems.

If you hear a clicking at the start of some notes, this is likely to be caused by the sample waveform not starting at a zero level. Set the attack value for the track to a small value to eliminate this or use the File Editor to zero the start level of the sample.

Audio output pauses during playback

This is a sign that the CPU cannot keep up with the amount of processing required to play the song and is usually indicated by the CPU meter being at its maximum setting.

The first thing you should try is to change the CPU Setting on the Settings menu to Slow.

If this doesn't work then you can reduce the CPU's workload by lowering the playback frequency, however this will reduce the sound quality. If you're copying songs to wav files, the frequency can be increased whenever you're copying files. Another way of reducing the CPU's workload during playback, without degrading quality, is to combine a number of tracks into a single sample file.

Switching off the Automatic Gain Control will increase performance.

One particular source of intensive processing, is when a large number of different notes are played in a bar. Another possible cause is reading samples from a slow device (such as CD ROM drive). You should copy samples to your hard disk, and access them from there.

Using a large number of effects tracks can require a significant amount of processing. The CPU track setting can be used to monitor effects CPU time.

This field shows the amount of processor and disk access time used by each sample track. Some of the audio effects require significantly more processing than others, so if you experience any performance difficulties this will let you know which tracks may be causing problems.

The time in ms used by each track is displayed in red. The about box on the Help menu will display the current total usage while this column is displayed.

No input to Level Meter during Audio Recording

Before doing any audio recording, you may need to adjust the recording levels and inputs for your system. These should be adjusted using the Windows Mixer. Once you've selected the input device you want to use from the Audio menu, double click on the small speaker which should be displayed at the bottom right of the screen.

This should load the Windows Mixer and you should see Volume Control displayed as the window title. Now Select Properties from the Options menu and click on Adjust Volume for Recording. If your system supports multiple audio devices you may also need to select the correct Mixer device.

You should now see a list of recording controls at the bottom of the screen. Make sure these are all checked and press the Ok button.

The window title should now be displaying Recording Controls and allow you to select which devices to use and the level for each.

The level meter in the Making Waves recording window should now be displaying any input levels, allowing you to adjust them. The meter will display the maximum input level for the last couple of seconds, rather than being a real-time display. This is useful for fine tuning recording levels and you should adjust the levels to be as near the maximum level as possible.

Once you're happy with the level settings close the Mixer Window. This process can be repeated whenever you need to change the recording levels.

Sound quality of samples you have recorded yourself is poor

If you are recording with a microphone, check that it is suitable for use with the sound card. The sound card documentation should specify the recommended type and impedance of microphone to use.

Most sound cards can record sound signals from a number of input sources (e.g. microphone, line in), and have an input mixer to combine these signals. If you are not using an input, make sure that you set the record level of that input to zero. Failure to do this could result in noise signals being picked up from unused inputs. Refer to the section on Audio Recording for more details.

Acknowledgements

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