

Manual

music
studio
generation 5

The present documentation is protected by law. All rights, especially the right of duplication, circulation and translation is reserved.

No part of this publication may be reproduced in form of copies, microfilms or other processes, or transmitted into a language used for machines, especially data processing machines, without the express written consent of the publisher.

All copyrights reserved.

MAGIX is a registered trademark of MAGIX Entertainment Corp. All other product names are trademarks of their respective owners.

Errors and changes to the contents as well as program modifications are reserved.

© 1994—2000 Copyright by MAGIX Entertainment Products GmbH

VST™ is a Registered Trademark of Steinberg® Soft- und Hardware GmbH.

All other trademarks are property of their respective owners. Technical specifications subject to change without notice. Correct as of July 2000.

Table of Contents

Preface 9

Contents of packaging 10

System Requirements 12

Installation 13

Our copy protection for your safety 15

Notes on the electronic manual 15

Introduction 16

What is MAGIX music studio generation 6? 16

Sound Cards 17

Testing the Sound Card 18

The MIDI Interface 18

Reading the Manual 19

Digital Audio Basics 19

CD Sound 20

Direct-to-disk Recording 20

Setting up Your Equipment 20

Setting up Your Audio Devices 21

PART 1 - MIDI STUDIO: TUTORIAL 25

Audio Cabling 26

Just Like a Multitrack 26

Mixing Desk without Sub Groups 26

Mixing Desk with Sub Groups 27

MIDI Installation 28

Interface Connection 28

MIDI Cable Connections 28

Tape Synchronization 30

Audio: Recording and Playback 31

Concept: Tracks, Audio Files, and Regions 31

Audio Recording 35

Sample Editor and Digital Factory 38

The Sample Editor Window 38

Digital Factory 39

The Waveplayer 40

The Waveplayer Window 40

Mixdown with MAGIX midi studio generation 6 44

The Mixer and HyperDraw 44

The Track Mixer 44

Audio Channel Strips 45

MIDI Channel Strips 46

Table of Contents

[Automated Mixing](#) 48

[Graphical Mixdown with HyperDraw](#) 49

[Audio Instruments](#) 51

[MIDI: Recording and Playback](#) 53

[Flow of MIDI Signals](#) 53

[Recording Notes and Playing Them Back with Sound Generators](#) 55

[... if there still is no sound ...](#) 56

[Recording, Playing Back, and Deleting Sequences](#) 57

[Fine or Rough Copying and Shifting of Sequences](#) 58

[Sequence Play-Back Parameters](#) 58

[The Autoload Song](#) 60

[Event Editor](#) 61

[The Event Float Window](#) 63

[Transport Functions](#) 64

[Score Editing and Printout](#) 67

[Interactive Score Editor](#) 67

[Editing Sequences in the Score Editor](#) 67

[Matrix Editor](#) 69

[Preparing files for CD burning](#) 71

[File Format](#) 71

[Mixdown by Track Bouncing](#) 71

[Post-Production](#) 72

[Troubleshooting](#) 74

[PCI Faults](#) 75

[SCSI and IDE Faults](#) 76

[Faulty Cables](#) 76

[Hardware Conflicts](#) 77

[Sound Cards](#) 78

[Viruses](#) 79

[Graphic Cards](#) 79

[Re-installing the Operating System](#) 79

[Updating the Operating System](#) 80

[Formatting the Hard Disk](#) 80

[PART 2 - MIDI STUDIO: REFERENCE](#) 81

[Using MAGIX midi studio generation 6](#) 82

[Conventions of this Manual](#) 82

[The Mouse](#) 82

[Window Functions](#) 86

[Selection Techniques](#) 93

[Edit Operations](#) 95

[General Functions of the Editors](#) 96

[Key Commands](#) 100

[Global Functions](#) 103

[Song Administration](#) 103

[Transport Functions](#) 106

[The Transport Window](#) 106

[Bar Ruler](#) 111

[Cycle Mode](#) 112

[Recording](#) 114

[Chase Events](#) 117

[Arrange Window](#) 119

[Overview](#) 119

[Tracks](#) 120

[The Patch Name Editor](#) 122

[The Track Parameters](#) 124

[Sequences](#) 126

[Sequence Playback Parameters](#) 131

[Quantization](#) 135

[Groove](#) 137

[Hyper Draw in the Arrange window](#) 137

[Altering the Display](#) 140

[Reset Functions](#) 141

[Using Audio in the Arrange Window](#) 142

[Regions in the Arrange Window](#) 142

[Audio Recording](#) 149

[Functions](#) 153

[Mixers and Audio Objects](#) 155

[The basics](#) 155

[The Track Mixer](#) 156

[EQ's, Effects and Plug-Ins](#) 157

[Audio Instruments](#) 165

[The Synthesizers—Audio Instruments](#) 166

[Faders and Level Adjustment](#) 175

[Routing](#) 176

[Automation](#) 178

[The Audio Window](#) 180

[Layout](#) 182

[Display](#) 183

[Operation](#) 185

[File Administration](#) 189

[Other Functions](#) 195

[Audio Driver](#) 196

[EASI/ASIO](#) 196

[The Sample Edit Window](#) 197

[Layout](#) 198

[Display](#) 198

[The Sample Edit Window In Use](#) 201

Table of Contents

[Functions](#) 205

[The WavePlayer](#) 211

[The WavePlayer window](#) 211

[The Event List](#) 216

[Display](#) 217

[Operation](#) 217

[Event List Structure](#) 220

[Event Type Structure](#) 222

[Event Float Window](#) 225

[The Drum Editor](#) 227

[Event Definitions](#) 228

[Event Definition Parameter Box](#) 229

[Operation](#) 232

[The Matrix Editor](#) 236

[Display](#) 236

[Editing Notes](#) 237

[Functions](#) 240

[Score Edit Window](#) 241

[Opening the Score Editor](#) 241

[Layout and Printing](#) 244

[Tempo](#) 260

[Tempo List Editor](#) 260

[The Graphic Tempo Editor](#) 262

[Tempo Functions](#) 262

[Synchronization](#) 263

[Synchronization Window](#) 263

[Special Functions](#) 267

[Synchronizing Video Files](#) 269

[The Basics](#) 270

[Song Settings and Preferences](#) 278

[Song Settings](#) 278

[Preferences](#) 283

[Standard MIDI Files](#) 288

[Basics](#) 288

[Glossary](#) 290

PART 3 - AUDIO STUDIO: TUTORIAL 299

New features in the generation 6 version 300

Quickstart 301

The first recording 301

The first arrangement 304

Terminology 307

Overview 307

Clip 307

Handle 308

Marker 308

Objects 308

Range 309

Section 309

Virtual Projects (VIPs) 310

Wave projects 311

Virtual Editing Concepts 313

Working with Objects 313

Working with Ranges 316

Volume 319

Output modus 320

Tips & Tricks 321

Working in Projects 321

Mixer 323

Performance 323

Recording/Playback 324

The Effects 325

Effects in the VIP 325

Mixer-Effects 326

Effect Calculations and Signal Manipulations 326

Internet-Functions 328

Web Publishing (Upload) 328

FTP Download 329

Burning of CDs (deluxe version only) 330

RedBook 330

Data Transfer 330

Burning CDs in MAGIX Audio Studio 330

DSP Display 332

The Individual Mouse Modes 334

Universal Mode 334

Range Mode (Secure Mode) 335

Draw Volume Mode 335

Draw Panorama Mode 335

Curve Mode 336

Table of Contents

Context Help mode 336
Cut mode 336
Zoom mode 336
Object separator mode 337
Pitch-shift/Time stretch mode 337
Draw wave mode (only wave projects) 337

Shortcuts 338

General 338
Range 339
Function keys 339
Mouse 340

Button overview 341

Upper Toolkit bar 341
Lower toolbars 342
Range bar 343

Problems & Solutions 344

PART 4 - AUDIO STUDIO: REFERENCE 349

Menu File 350

Menu Edit 363

Menu View 371

Menu Object 378

Menu Effects 387

Menu Range 404

Menu CD (deLuxe-Version) 410

Menu Tools 416

Menu Playback 420

Menu Options 431

Menu Window 447

Menu Help 455

INDEX - MIDI STUDIO 457

INDEX - AUDIO STUDIO 479

Preface

Congratulations on your purchase of MAGIX music studio generation 6!

Creating your own music or video soundtracks in a home studio has become more and more popular. But the wide variety of available equipment and software often confuses beginner and professional musicians alike. MAGIX music studio generation 6 offers the perfect solution by allowing you to create high quality productions in a quick and easy manner.

MAGIX music studio generation 6 transforms your PC into a complete, virtual sound studio. It allows you to arrange and produce on the highest level—with any 16bit sound card. Of course, you can also integrate other studio equipment without any problems. This program ensures professional production results which can be integrated with existing and future musical studio equipment. The following pages will introduce you in detail to the various functions and possibilities of MAGIX music studio generation 6. Experience music like never before—turn your PC into your own home studio.

Enjoy!

Your MAGIX Entertainment Team



Contents of packaging

Please make sure that the objects indicated here are included in your packaging.

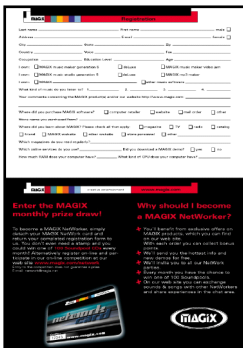
Program-CD

This CD contains the MAGIX Music World with the installation program of MAGIX music studio generation 6.



Manual

For a quick intro with MAGIX music studio generation 6 or to learn in-depth about the program, we recommend that you take a look at the manual.



Registration card

Please send us your registration card today! MAGIX provides e-mail and phone support to its registered users. We will also keep you up-dated on new products, up-upgrades, etc.

MAGIX music network

Become a MAGIX networker! Your advantages:

- the Mega-NetWork items on offer on the MAGIX Homepage
- The latest info and demos will be sent to you free of charge.
- There is a Sound and Song Exchange for all NetWorkers on the MAGIX Homepage. Here you can swap sounds, songs and experiences and chat with other NetWorkers.

- You can participate in MAGIX soundpool raffles. Simply fill in the enclosed Winnings Card and send it back to us as quickly as possible! Or join in online:

<http://www.magix.com/network/>

- Charts to join in on: MAGIX music studio generation 6 is not only multimedia software, but also the key to participating in the MAGIX music network charts on the Internet. Send in your masterpieces! You can upload them directly from the program via the new web publishing wizard!



Support

If you are unable to correct your problem with MAGIX midi studio generation 6 contact MAGIX support:

	U.S.A.	Europe
Info	info-usa@magix.net	info@magix.net
Webpage	http://www.magix.com/	
Fax	(310) 656-0234	++49 - (0)89-7691041
Telephone	—	0181 968 1554

Please supply the following information:

- Configuration of your system (Processor, RAM, hard disk, etc.)
- Sound card configuration (Type, Driver)
- Information on whether other audio components are operating properly

Legal Notice

Most chart hits and whole CDs can be downloaded from the Internet as MP3 files. However, many of these downloads are illegal. Works protected by copyright may not be downloaded or presented on your own homepage without the express knowledge and consent of the copyright owner. Free transfer and trade with such music files is punishable by law.

There are, however, many sites offering free MP3 for downloading. A selection of them can be accessed directly via the MAGIX homepage (<http://www.magix.com/>).

Your own compositions can be presented as you wish on homepages and in the network.

System Requirements

To run MAGIX music studio generation 6 you require the following:

- Pentium PC running at a minimum speed of 200 MHz, preferably faster. A Pentium II or III is strongly recommended. General rule of thumb: The faster the machine, the more number of Audio tracks and virtual instruments are obtainable.
- Windows 95/98/2000, 64 MB of RAM (recommended 128 MB RAM).
- 16 bit sound card
- A minimum of 100 MB of hard disk space for the program plus additional hard disk space to store digital audio files. CD-quality stereo sound (16 Bit, 44.1 kHz) uses ≈10MB of hard disk space per stereo minute's worth of recording.
- A Super-VGA resolution monitor or better with a minimum resolution of 800 × 600 pixel and 16 Bit High Color.
- A CD-ROM drive and a MS-compatible mouse.
- A MIDI interface or PC sound card with a MIDI interface. If you want to use MAGIX music studio generation 6's digital audio playback facilities, you will also need a sound card which supports digital audio. See the sound card section for more information.

Installation

1

Put the Installation CD in your CD-ROM drive.

Put the Installation CD in your CD ROM drive



2

With Windows 95/98/2000 the installation manager starts automatically. If it doesn't, open the Explorer and click on the letter corresponding to your CD ROM drive and double click on Mworld.exe.

Autostart of the installation or **Activation** of the CD-ROM and **double click** on Mworld.exe

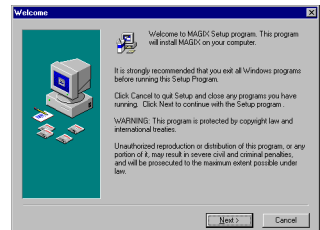
3

To start the installation process, click on Install MAGIX music studio generation 6.



4

The Installation Wizard appears. Simply follow the instructions and click on "NEXT" to continue. When all files are copied on the hard disk, a program group will be established and the installation is completed. Confirm with "Finish". The program automatically starts with a Demo Project. Later you can start the program with the icon in the Windows start menu.



Installation

The MAGIX Music World is the starting point for everything that you'll find on the Installation CD such as information about other MAGIX products and our website. You will always find the latest & greatest about MAGIX music studio generation 6.

INSTALL

Click here to install MAGIX music studio generation 6

DEMOS

Get demo versions and information about other MAGIX programs.

BROWSE CD

Browse through the file structure of the CD ROM.



WWW

Visit our website at www.magix.net to get updated information about MAGIX and to order additional products and sound or videopools on-line.

playR jukebox

To install the MAGIX playR jukebox, click on this button.

EXIT

Click here to exit the MAGIX Music World.

Our copy protection for your safety

MAGIX music studio generation 6 is copy protected in order to stop software piracy. For your convenience, the copy protection is very simple to use: just make sure that the original program CD is in its drive while booting MAGIX music studio generation 6 for the very first time that's all. Please remember that you will have to insert the original CD as described above whenever you launch the program for the first time after a reinstall.

Notes on the electronic manual

The manual in the packaging only contains an introduction into the elementary functions of MAGIX music studio generation 6. If you wish to learn more about the program, please refer to the complete user manual in the form of an electronic document. Please make sure that the objects indicated here are included in your packaging!

Before you can start using the electronic manual you must first install Adobes ACROBAT READER. To do so, simply click on the "Install Manual" icon in the MAGIX music studio generation 6 program group. If ACROBAT READER is installed on your system already, then you dont need to install it again, of course.

The ACROBAT READER installation program requires you to Restart Windows! We therefore recommend you close all Windows applications before you install ACROBAT READER. After installation, you launch ACROBAT READER by simply clicking on its program icon.

The complete electronic manual file is stored in the MAGIX music studio generation 6 program root directory! In the folder that contains the MAGIX music studio generation 6 programs, you'll find the electronic manual file with the ending .PDF. Open this file in Acrobat Reader and you'll have access to the complete manual.

Introduction

What is MAGIX music studio generation 6?

MAGIX music studio generation 6 uses your PC as a complete, virtual sound studio. Your hard drive becomes a highly sensitive recording tool. The sound chip of your sound card, a microphone, your instruments or the soundtrack of your video become the sound sources. You have access to two highly optimized programs that are compatible with each other: MAGIX music studio generation 6 combines a hard disk recording program with a MIDI Sequencer.

Harddisk-Recording means digital recording of audio signals directly to the hard drive. Through the analog/digital transformer, analog audio signals are transformed into digital information that are saved to the hard drive as WAV files.

MIDI means “Musical Instruments Digital Interface” and controls the sound sources such as synthesizers or sound cards. A MIDI file only contains information which note is played when and how whereas WAV files are digital representation of real audio signals. That’s why MIDI files are much smaller than WAV files.

MAGIX audio studio generation 6 allows the perfect recording and editing of sounds in WAV format. On 24 audio tracks (48 with MAGIX audio studio generation 6 deluxe), you can work with professional effects and editing tools—even for real-time editing of video sound tracks. Per FTP connection you can use the internet as a boundless image and sample pool and load the multimedia building blocks from the World Wide Web directly into your arrangement. The MAGIX web publishing area is there for the publishing of your work—one mouse click takes you into the charts. Every surfer is entitled to vote, the best songs and videos will receive attractive prices...

MAGIX midi studio generation 6 controls the synthesizer-chip on your sound card (or of external MIDI instruments). In addition you get a polyphonic Waveplayer with filter and envelope capabilities, allowing you to play your WAV files as if you were using them in an external sampler. Furthermore the MAGIX midi studio generation 6 features 256 MIDI tracks (1.000 with MAGIX midi studio generation 6 deLuxe) on which you can simultaneously record and playback. And finally you get 4 (6 with MAGIX midi studio generation 6 deLuxe) audio instrument tracks, on which you can play and record the built-in two (three with MAGIX midi studio generation 6 deLuxe) syn-

thesizers. As an alternative to the MAGIX synthesizers, you can also use VST™ 2.0-instruments.

You can record WAV files both in MAGIX audio studio generation 6 and MAGIX midi studio generation 6, and soon you'll appreciate both possibilities. You can, for instance, draft a song in MAGIX midi studio generation 6, play it back and simultaneously record sounds with a microphone. You can transform the MIDI files into WAV files by using the recording function.

Both studios are only a mouse click apart! Take your audio tracks from MAGIX midi studio generation 6 to MAGIX audio studio generation 6 and vice versa. MAGIX music studio generation 6 lets you do all this and more with a very user-friendly interface. Right after the first steps, you'll be able to use the programs intuitively.

Sound Cards

There are dozens different PC sound cards on the market. MAGIX music studio generation 6 works with all Windows compatible sound cards, i. e. with all that have a driver for Windows 32 Bit Operating Systems. These drivers are listed in "Multimedia" of the Windows Control Panel. It's safe to assume that all modern sound cards are Windows compatible.

Most sound cards have a synthesizer-chip for the playback of MIDI. Additionally, most sound cards support the playback of digital audio data. If you work with MAGIX music studio generation 6, your sound card must have separate drivers for MIDI and Audio playback (which most modern sound cards do).

MAGIX music studio generation 6 supports all sound cards that can be addressed via an ASIO or EASI driver. The available options depend on the specific ASIO or EASI driver you will be using. Please refer to the instructions that came with your driver. MME and DirectSound drivers are supported via so-called MME-to-EASI respectively DirectSound-to-EASI wrapper.

Please note: If you want to use the Waveplayer, you must use a DirectSound driver. And only DirectSound drivers allow the simultaneous use of the Waveplayer and digital audio tracks.

MAGIX music studio generation 6 supports sound cards with a stereo output. Digital interfaces such as S/PDIF or AES-EBU are also supported. MAGIX music studio generation 6 deluxe supports sound cards with up to four audio outputs.

But please note: Some older sound cards cannot play back digital audio data. As long as you have Windows drivers, you can use such sound cards with MAGIX music studio generation 6; however not for playing back audio data. Some other older sound cards use only one driver for both Audio and MIDI. In that case, you can use MAGIX music studio generation 6 only for MIDI or Audio but not for MIDI and Audio simultaneously.

Testing the Sound Card

Make sure your sound card is installed correctly and the drivers are set up properly before using MAGIX midi studio generation 6. The software which comes with the sound card should include routines to test the card. You must make sure it is running correctly under Windows, not just DOS. An easy way to test the card is with the Media Player which you will find in Windows' Accessories Program Group. Look in the Device menu and you should see MIDI Sequencer... and, if your card supports digital audio, Sound...

Try playing the CANYON.MID file which Windows installs automatically in the Windows directory. Then try playing a .WAV file. Again, there should be some in the Windows directory. If either of these items is missing from the Device menu it means the drivers have not been loaded. Go back to the Drivers Control Panel and install the correct drivers. Refer to your sound card's manual and the Windows Users' Guide for more information.

The MIDI Interface

Many sound cards have a built-in MIDI interface which is accessed from a joystick connector on the back of the card. To use it you need a MIDI adapter. One end plugs into the joystick socket and the other terminates in MIDI plugs or sockets which you connect to your MIDI equipment. Some sound card packs include the adapter but many of the cheaper ones do not. There are also several dedicated MIDI interfaces available. Many are on plug-in cards which are fitted and installed into the PC just like a sound card. There are also external MIDI interfaces which connect to the PC's printer port or serial port. You can install them without opening up your PC and they are ideal for use on portable PCs. You still have to install driver software for them. Some have a Thru socket which enables you to plug in your printer and use it without removing the interface. Others don't.

Reading the Manual

Few people like reading manuals. Many software users prefer to point and click their way around a program to discover what it does and how it works. MAGIX midi studio generation 6 has an intuitive interface so if you know a little about sequencers you will probably be able to learn how most of the program works by this approach. You can dip into the manual to look up any features you require more information about. If you are a newcomer to sequencing we strongly recommend working through the Tutorial. It uses a practical, hands-on approach to explain all of MAGIX midi studio generation 6's main functions and by the end you should be well on the way to becoming a sequencing expert. We recommended even the more experienced user read the Tutorial in order to become familiar with how the various parts of the program work. Finally, do at least flip through the Reference section. It not only contains detailed information about every menu, window and function in MAGIX midi studio generation 6 but it also includes examples of how many functions can be used in a practical way.

Digital Audio Basics

If you're familiar with the principles of digital audio you can skip this section. This is a brief introduction to the subject to help you get the most out of MAGIX midi studio generation 6's digital audio playback facilities. Digital audio recording is the process of converting audio data—sound—into digital data which can be stored on a computer. The device which does this is built into most sound cards and is known, quite helpfully, as an Audio-to-Digital converter. This is often abbreviated as A-to-D, ATD or just AD.

To convert the digital data back into sound, the card uses a DA (Digital to Audio) converter. To capture sound, the AD converter takes a sample of a sound source a specific number of times per second. This is known as the sample rate and is measured in kHz or so-many thousand samples per second. The higher the rate, the more samples the AD converter takes and the more accurate the digital representation of the sound will be. The sampling resolution is the accuracy or fineness of the measuring scale used to store the numbers and is measured in bits. Currently there are two resolutions commonly in use: 8 bits and 16 bits. To give you an idea of the relevance of the sampling resolution, imagine two people are building a house. One is using a measuring stick marked to the nearest foot. The

other has a stick marked to the nearest inch. Although the house built with the stick measuring to the nearest foot may not fall down, the one using the finer scale will build a more accurate house.

NEW AUDIO ENGINE: MAGIX music studio generation 6 now works with a new, significantly improved audio engine. It offers shorter latency times, faster fader response, improved VST™ support and overall better performance. Monitoring, that is, listening to the input signal at the audio output, is now available. You will find these new driver settings on the pages “Audio Drivers” and “Audio Drivers 2” in the Audio menu.

CD Sound

CD quality audio is recorded at a sample rate of 44.1 kHz with 16 bit resolution. Many Multimedia programs use a lower rate such as 22.05 kHz or 11.025 kHz, and many use 8 bits. This is often quite adequate if the sound is played through inexpensive PC speakers but you would certainly be able to tell the difference if it played through a good hi-fi system.

Direct-to-disk Recording

One minute of CD-quality sound requires 10 MB of storage space. Clearly it's impractical to store this in RAM. It is more practical to store your samples on disk. During playback this data has to be read on the fly so you need a reasonably fast hard disk if the data is to be played back accurately. Most modern disks are capable of this but some older ones may have problems, especially if they are running in a slow PC. With MAGIX midi studio generation 6 you can playback digital audio which has previously been saved to disk.

Setting up Your Equipment

Make sure the MIDI interface or sound card and MAGIX midi studio generation 6 are correctly installed. If you are using an external MIDI keyboard connect its MIDI Out to the interface's MIDI In. If you are also using the sounds on the keyboard, connect its MIDI In to the interface's MIDI Out. If you are using the sounds on a sound card this is not necessary. If you want to use a keyboard for recording but a MIDI sound module for playback, connect the module's MIDI In to the interface's MIDI Out. If you want to use MAGIX midi studio generation 6's digital au-

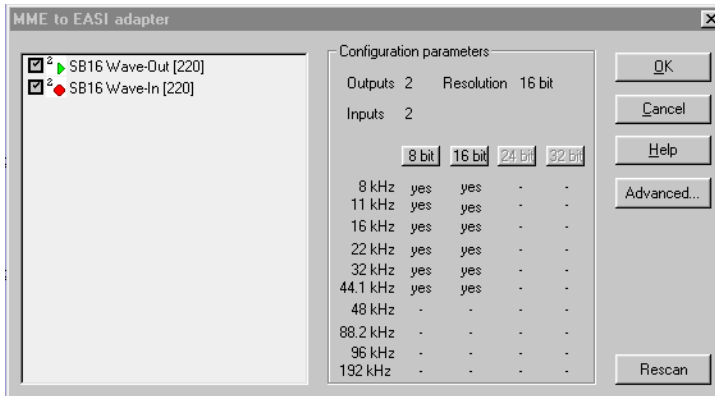
dio playback facility, make sure the sound card's audio output is connected to a pair of speakers.

Setting up Your Audio Devices

MAGIX midi studio generation 6 handles two different hardware type categories: PC AV and ASIO.

The PC AV driver communicates with the audio hardware using the EASI protocol (Emagic Audio Streaming Interface). There are two dedicated EASI drivers called EASI MME and EASI DS. These so-called wrappers (MME to EASI respectively DS to EASI) are accessible in the Driver parameter field in the PC AV area of the Audio > Audio Hardware & Drivers > Audio Driver menu page.

Sound cards that only have an MME driver can be used utilizing the EASI MME driver. In order to use the desired configuration, select the EASI MME driver under PC AV in the Audio > Audio Hardware & Drivers > Audio Drivers. In order to configure it, press the switch "Control Panel" or start the file EASIMME.exe in the Magix folder. More information about this is supplied by the EASI MME HELP file.



If you want to use a DirectSound driver for your sound card, please select the driver EASI DirectSound under PC AV in the Audio > Audio Hardware & Drivers > Audio Drivers. In order to configure it, please press the switch "Control Panel" and create a virtual device containing the appropriate DirectSound driver. More information about this is supplied by the Help file.

ASIO drivers are a separate category, accessible on the Audio > Audio Hardware & Drivers > Audio Driver 2 menu page.

Please select the option that suits the drivers supplied with your audio card. Now on to the audio engine parameters

as displayed in the Audio Driver/Audio Driver 2 menu pages.

Monitoring

This option allows you to switch monitoring (i.e. listening to the actual input signal) on or off. Please note that monitoring is processed only via software—a certain delay is inevitable. If you are listening to the recorded signal through your mixing desk, you should switch this option off.

Volume Smoothing [ms]

This parameter defines the length of the fade between two consecutive volume values for an audio track. When setting this value to 0 you might hear zipper noise when moving a volume fader during playback. Higher values soften the volume changes and eliminate the zipper noise.

Max. Number of Audiotracks

The Audio Engine requires free system memory. The amount of memory needed depends on the maximum number of tracks to be played, and on the number of I/O channels supplied by the driver. This setting allows you to reduce the amount of memory used by the driver, by reducing the number of tracks. This may be sensible when you want to run other applications or audio hardware types simultaneously.

Larger Disk Buffer

This option influences the amount of audio data that is read from the disk in advance. This option is switched off by default, matching the demands of fast hard drives and powerful computers. If you get frequent error messages while running your MAGIX midi studio generation 6 in this mode, you should switch this setting on, so that you can play back more tracks, achieving higher reliability. However, more RAM is needed in this case.

Larger Process Buffer

This parameter determines the size of the native buffer used to compute mixers and effects. Do not activate this option if you own a fast computer. This shortens response times to operations such as volume changes or Solo. Experiment to find the setting that coaxes the best performance from your system.

Only available for ASIO are the following parameters.

Clock Source

This lets you choose between the internal synchronization via MAGIX midi studio generation 6's internal clock and external synchronization received via the digital input of the sound card.

ASIO Buffer Delay

Some drivers do not communicate their input/output delay settings correctly to MAGIX midi studio generation 6. If you experience irregularities, try correcting them with these settings. Refer to the manual of your ASIO audio card.

Max. I/O streams

Here you set the number of input signal streams coming from your ASIO-compliant card and the number of output streams going to your ASIO-compliant card. These are limited to 2 input streams and 2 output streams (MAGIX midi studio generation 6) respectively 4 output streams (MAGIX midi studio generation 6 deLuxe).

Part 1

Tutorial

**midi
studio**

Audio Cabling

Just Like a Multitrack

The audio cabling between the various components in your system depends largely on your setup. Generally, the audio hardware is connected just like a conventional multitrack machine. This applies even though the audio hardware usually has fewer inputs than outputs and has its own internal virtual mixing desks. Hardware that has only two analog inputs, is connected the same way you would connect a multi-track's track 1 and 2 inputs, that is, to the mixing desk sub group outputs 1 & 2. These two inputs are not exclusively assigned to MAGIX midi studio generation 6's track 1 and 2. For example, to record on track 8, you might use input 1, while recording tracks 7 and 8 would use both inputs 1 and 2.

The playback outputs will in turn be wired to your mixer's tape or line inputs. You should try to avoid the use of auxiliary inputs (Effect Returns, Aux Returns) as these would limit your effects, tone control, and routing options.

Two wiring examples for different mixing desks will illustrate this further. The MAGIX midi studio generation 6's inputs and outputs refer to the in/outputs of the audio hardware as well as the audio in/outputs of the sound card. This chapter deals only with *analog* connections to mixing desks.

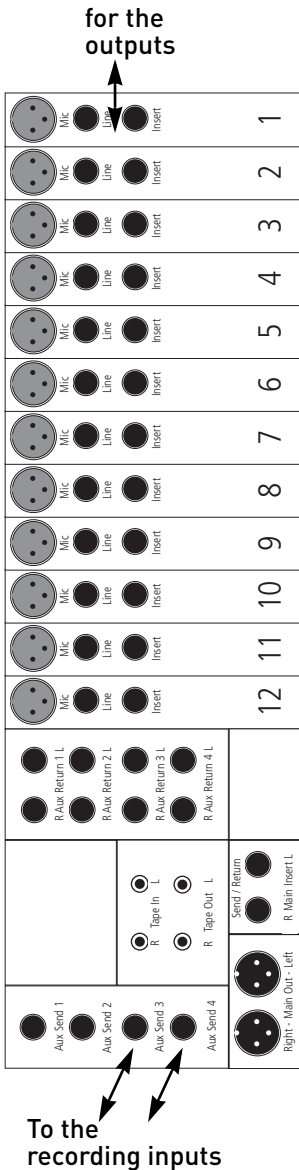
Mixing Desk without Sub Groups

If your analog mixing desk does not offer sub groups, proceed as follows:

Connect the audio hardware outputs to the first of your desk channels' Line or Tape inputs. Use as many channels as your audio hardware will output. Use the remaining channels for your other sound sources, effect processors, and microphones.

If you find yourself short on channels, you can wire MAGIX midi studio generation 6's outputs to your desk's Aux Returns (or "Effect Returns"). This really cannot be avoided with smaller mixers, but it is no big deal, since MAGIX midi studio generation 6 offers extensive EQ and processing power, anyway.

Your mixing desk will most likely offer at least two Aux Sends (not to be confused with Aux Returns)—they are usually "pre-fader", or can be switched to such, with a dedicated button. "Pre-fader" means that the signal is taken *before* it enters the channel fader (volume slider). This means that the pre-fader Aux Send will output that chan-



nel's signal, even if its fader is all the way down. This kind of output is usually referred to as a monitor output, and may actually be labelled as such. So, each channel has two knobs that are used to create a mix which is sent to the desk's corresponding auxiliary (or monitor) output. Connect these two outputs to the audio hardware's two inputs. For example, if the two pre-fader Aux Sends are labelled "Aux 3" and "Aux 4", you would connect a cable from the desk's "Aux 3 Output" to the first audio hardware input and another from Aux4 to the second.

You can now control MAGIX midi studio generation 6's inputs with the Aux Send controls (and their master sends).

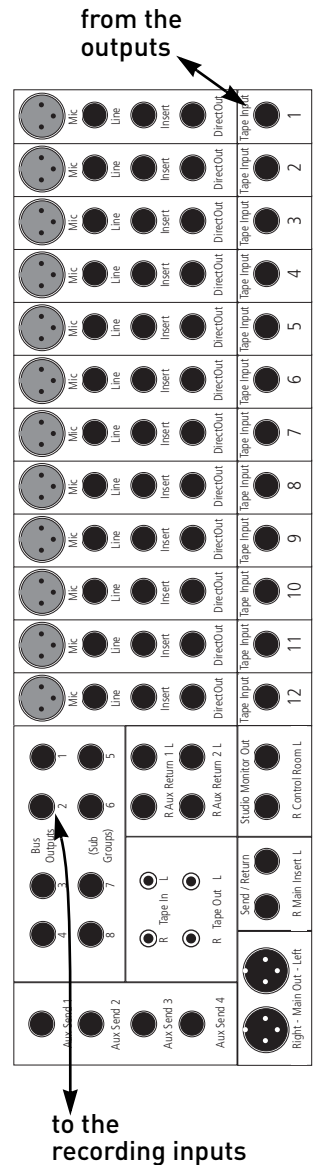
Mixing Desk with Sub Groups

If your mixing desks has sub groups, use them for recording. Connect the first sub group output to MAGIX midi studio generation 6 input 1, and the second to MAGIX midi studio generation 6 input 2. The recording level is now controlled with the sub group faders.

Connect the outputs to the first few channels' Line or Tape inputs. Connect the rest of your sound sources (effect processors, microphones etc.) to the remaining channel inputs.

During recording, route the channels that are to be recorded, or the sub groups to your desk's stereo (master) outputs. If your audio hardware supports more audio inputs, connect more sub group outputs to them as needed. Avoid connecting the MAGIX midi studio generation 6 recording inputs to your desk's main output (Main Out)—these, as well as the Control Room output that usually carries the same signal, are meant for your monitoring equipment and your stereo or two track tape machine. This output includes a mix of MAGIX midi studio generation 6's output signal, which you do not want to re-record.

A DAT mastering machine is not required, as MAGIX midi studio generation 6 can master CD-Rs, in conjunction with a CD burner. If you choose to use a conventional mastering machine, a DAT or MiniDisc recorder or an analog tape deck, connect it directly to the mixing desk's main output.



MIDI Installation

Interface Connection

Please consult your sound card or MIDI interface manual for the correct connection of a MIDI interface. The most common ways to add MIDI functionality to computers are:

- Multiport MIDI interfaces, including separate devices like Emagic’s Unitor8 MkII.
- Sound card with MIDI interface
- via a General MIDI module or keyboards’ integrated interface, usually labeled “To Host” interface.

Connecting Emagic Unitor8 MkII

These short instructions may suffice for the Unitor8 MkII multiport interface: connect the Unitor8 MkII supplied cable from your PC’s COM2 port to the RS-232 connector on the Unitor8 MkII. Then install the driver under Windows.

If you wish to use a modem or other device on the COM2 port however, you will need to use an RS-232 switch box, which can be purchased from most computer shops.

Any MIDI interface that supports the Windows MME standard will work with MAGIX midi studio generation 6. See the manufacturer’s instructions for information on the proper installation of any needed drivers.

MIDI Cable Connections

MIDI Local Off

If your keyboard has an internal sound source, it is important that you stop the keyboard from generating sounds directly from its own keyboard. If you buy a new keyboard that is to be used without a sequencer, and connect it straight to an amplifier, you would expect the device to make a sound when you press its keys—in other words the keyboard is connected to the sound generator. However, this is exactly what you do not want when using the keyboard with a sequencer. In this scenario, the keyboard is used as the computer’s input device, while the computer will play the various connected tone generators, be they the keyboard’s own sound generator, or any other connected sound modules. If you wanted to control and record another sound module with your keyboard, its own sounds would get in the way—that is why the keyboard must be separated from its own internal sound generator. This function is known as “Local Off”, and can be set directly at your keyboard. The sequencer will speak to your

keyboard's tone generator just like any other connected, keyboardless sound module.

If you cannot find the "Local" function under your keyboard's MIDI menu, consult its manual as how best to proceed for sequencer use. Some keyboards allow you to select from among "Local", "MIDI" or "Both" for each of their so-called "Parts"—in this case, the "MIDI" setting is equivalent to "Local Off".

MIDI Inputs/outputs

If your computer has an internal or external MIDI port, or has a MIDI capable sound card connected, hook the keyboard "MIDI Out" to the computer's "MIDI In" (on the interface, sound card etc.). If the keyboard can generate its own sounds, connect the computer's "MIDI Out" to the keyboard's "MIDI In". If your computer (or the MIDI device) offers more than one MIDI output, connect any other tone generators to these. If the computer only has one MIDI output, you need to connect the second tone generator's MIDI In to the keyboard's MIDI Thru port. A third device can be connected to the second's MIDI Thru, and so on. The MIDI Thru port always delivers a copy of the signals coming into the device's MIDI In. It is preferable, however, to use a direct connection from a computer's MIDI Out to a device, rather than chaining too many devices, one after another. This is because timing problems may occur in the chain, if many MIDI commands are sent in a short time, due to the slight delays introduced by each MIDI In to MIDI Thru transaction. If your computer also has several MIDI inputs, you can connect the MIDI outputs of other MIDI expanders there.

Keyboards and Expanders with "To Host" Interface

The "To Host" interface, which allows a direct connection to the computer, can be found on many of the more cost-effective MIDI sound modules, as well as on many entry-level keyboards. This in effect is a simple integrated MIDI interface, with one MIDI In, and one MIDI Out for the computer. An instrument with a "To Host" interface is controlled directly; the MIDI In and Out serve as MIDI connections *for the computer*, to allow further instruments, such as another keyboard to be connected. This proves very cost-effective for entry level setups, which may include only one keyboard and another sound module. The expense of a dedicated computer MIDI interface, or card is not initially required.

If you are working with such a module, first install the driver software supplied by the manufacturer.

Connect the keyboard MIDI Out to the sound module's MIDI In, and the module's MIDI Out to the keyboard's MIDI In (assuming it can generate sounds). Connect the "To Host" interface to the computer, usually to a serial port.

Tape Synchronization

Details on how to synchronize MAGIX midi studio generation 6 with digital or analog tape machines, multitrackers, or video editing systems and their wiring requirements can be found in the reference manual.

Audio: Recording and Playback

Concept: Tracks, Audio Files, and Regions

MAGIX midi studio generation 6 combines a MIDI Sequencer with a Hard Disk Recorder. A Hard Disk Recorder is similar to a DAT Recorder or a Sampler: it allows digital recording and playback of audio signals. The hard disk recording medium provides many advantages over the magnetic tape medium; no rewinding is required, and the data is read from and written to various sectors of the hard disk almost simultaneously. The recordings to be played back simultaneously may be located at any position on the hard disk. The Hard Disk Recorder perceives sound recording edits as play instructions—i. e., an actual edit or cut does not occur. Subsequently, any edits of the material can be revoked and the original condition restored. This is generally referred to as non-destructive editing. CD players with programmable title sequences are based on a comparable principle: if you choose to listen to the titles on the CD in reverse order, the CD player will not change the data (the actual sequence) on the CD—which would be *destructive*. The program merely plays the titles in the changed sequence—which is *non-destructive*.

Number of Audio Tracks

On a multi-track tape recorder, the number of tracks that can be recorded simultaneously, the total number of tracks on the tape, the number of tracks that can be played back simultaneously, and the number of outputs for the playback of the tracks are the same. So, for example, with an 8-track device, you may simultaneously record 8 tracks, store 8 tracks on the tape, and play back these 8 tracks through 8 outputs.

A Hard Disk Recorder like MAGIX midi studio generation 6 operates differently. In its case, the number of tracks and outputs depend on the audio and computer hardware being used. The following applies, for example, to the MAGIX midi studio generation 6 with a sound card with two in- and outputs:

- You may simultaneously record two mono signals (or one stereo).
- There is an almost unlimited number of virtual tracks, i. e., recordings that may be located on the hard disk under MAGIX midi studio generation 6. The number of tracks is only limited by the hard disk capacity.
- The number of tracks that MAGIX midi studio generation 6 can play back simultaneously—the so-called *physical* tracks—depends mostly on the hard disk and

- on the computer. But 24 (respectively 48 tracks with MAGIX midi studio generation 6 deLuxe) tracks are the maximum with MAGIX midi studio generation 6.
- The sound card has two outputs for simultaneous playback of the physical tracks. Since MAGIX midi studio generation 6 provides a digital mixer with sound controls and sound effects, the fact that there are fewer outputs than simultaneously played-back tracks does not present the same limitation it would with a tape based system.

Depending on the available hardware, MAGIX midi studio generation 6 acts virtually like a *polyphonic* sampler with at least *one stereo* input and *one stereo* output, with *hundreds* of different samples loaded on the hard disk. The number of tracks that can be recorded simultaneously, the number of tracks that can be played back simultaneously, and the number of audio outputs depend on the hardware. The hardware play-back tracks are represented in the audio mixer by channels, which are similar to the channels of a conventional mixer. The MAGIX midi studio generation 6's mixer mixes all tracks, including effects, together on one or more stereo outputs.

The channels of the mixer also represent the hardware on the software display level. The number of tracks displayed by MAGIX midi studio generation 6 upon start-up is hardware-dependent, i. e. it depends on the computer and the available audio hardware.

Audio Files and Regions in the Audio Window

Select Audio > Audio Window to open the Audio window. In the Audio window, you can display and manage all *Audio Files*. Audio Files are the actual samples, i. e., the actual sound recordings. To load an Audio File select the local command > Add Audio File in the Audio Window.

A dialog box appears, in which you can select the file from a hard disk or from a folder. To record a new audio file, see instructions below.

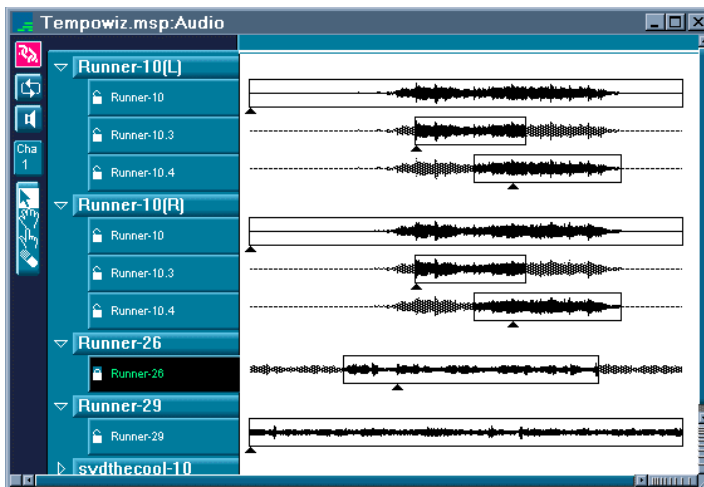
MAGIX midi studio generation 6 can be used to continuously play back sound tracks just like a tape recorder. However, this is not necessary.

The Arrange window displays audio tracks horizontally. Rectangular bars visually represent the location and length of the audio phrases within the song.

These sections are called *Regions* and may include a small portion of the audio file or the entire audio file.



In the Arrange window the regions on the audio tracks and the sequences on the MIDI tracks look the same. Operation and editing are identical, for the most part (top).



The audio window shown above displays all logged audio files and their regions—however, without the timing reference in the song.

The Arrange window shows the audio track regions on a time axis, whereas the Audio window shows the available audio files in a non-chronological sequence. On the left side, the audio file names are listed in bold. The region

names are indented, in regular type, and displayed with a padlock. The regions are only visible if the arrow to the left of the audio file name is pointing downward (click on the arrow to toggle). The audio file regions are shown in a dark shade inside the rectangles. The areas outside the regions are shown in a light shade. You may move the region boundaries by dragging them with the mouse pointer. To prevent accidental adjustments, click on the padlock to secure the region settings.

Moving the beginnings and ends of regions provides an easy, non-destructive editing method for the audio material. Nothing will be deleted. You may, for example, cut off the last syllable of a song line—and then restore this syllable by defining it in another region of the audio file, or by extending the region!

It is often very useful to open one Audio window and one Arrange window at the same time. You then can grab regions with the mouse pointer in the Audio window and drag them onto the desired track in the Arrange window. If you are using the Windows version, you must first select the respective track in the Arrange window and set the song position line to the position at which you want the region to be triggered.

In this context you should note that MAGIX midi studio generation 6 automatically remembers the various window configurations as *Screen Sets*. Just press the respective key, from 1 to 9, to recall the windows that were open when you last selected this screen set. The screen set number is shown on the main menu display (on top) at the right side of the Window entry.

Summary: Within *Audio Files* you define *Regions*. These regions are displayed in the Arrange window, where they are arranged on a *Track*. This track is then played back through a channel of the integrated Track mixer.

In the Audio window, you can play back a region, by pointing at it and holding the mouse button depressed. Playback will start at the position of your cursor. Alternatively, you can click the loudspeaker icon at the left and the selected region will be played back from its beginning. If the Cycle symbol is enabled, the region will loop continuously, which is very useful, for example, when adjusting the length of a drum loop. The lower button defines the play-back channel. If you are using multiple audio hardware systems, a similar button for the selection of audio hardware will be available.

The small, black arrow below the waveform display of the regions is the anchor. It serves as the region's timing ref-



erence point, i. e., if a region is assigned to the beat position 14 1 1 1, this anchor will be positioned on the 14 1 1 1 beat. Although this point will always be at the beginning of newly recorded regions, it does not necessarily have to be placed there. An up-beat syllable, or the breathing-in of the singer prior to the first syllable can sound before the anchor, which is quantized on a time grid. Caution: moving the anchor will also change the arrangement's timing reference.

Audio Recording

Setting the Recording Path

Prior to the first recording, you must define a hard disk and a folder for storing the audio files created during recording. In the Audio window, select Audio File > Set Audio Record Path. Use the File Selection box to create a folder with the name of the song. This folder will hold the created audio files.



It is generally best to preselect the maximum recording time as it allows MAGIX midi studio generation 6 to premap the location on the hard drive to which the files will be recorded 1. If the final recording is shorter than the selected time, the reserved storage space will automatically be freed up again. However, for various reasons it is not advisable to preselect a significantly longer recording time than necessary. Click on the *Set* button to define a hard disk and a folder in which the audio files shall be stored 2.

Recording in the Arrange Window

The Default Song, which opens when MAGIX midi studio generation 6 starts, contains some audio tracks. “Audio tracks” are simply tracks on which an *Audio Object* has been assigned. To assign an audio object to a new track, point to a track name and hold the mouse button depressed. In the flip-down menu select an *Audio Object*. The audio object symbolizes a channel of the track mixer with the same number.



Whenever an audio track is activated for recording (record-ready), an audio file will be created during recording with a region spanning the entire audio file length. Just as on a multi-track device, several tracks can be activated at once. The region will appear in the Arrange window exactly at the location that you recorded; i. e., you can record just as you would with a conventional tape recorder. The only difference compared to a MIDI recording is that the audio track must be activated (*record ready*); however, it does not have to be selected.

In the Arrange window, there are two buttons between the numbers and names of the tracks. The left button (*M*) mutes the track (*Mute*), the right button (*R*) activates the track for recording (*REC*). Similar buttons can be found in the audio objects underneath the fader: these buttons are also used to mute a track or to enable or disable recording of a track (*M* and *REC*).

While both record-ready buttons for a track (in the Arrange window or in the Audio Object) are always coupled, the effect of the mute button may be different under certain circumstances: in the Arrange window, muting always affects the respective track. The mute button at the audio object, however, is used to mute the respective playback channel of the audio hardware—this way, all tracks played back through this channel are muted. Please note that in the Arrange window several tracks can be played back through the same audio object (play-back channel), however, with the limitation that only one of these tracks can be heard at a time (the track with the region started last).

The recorded regions in the Arrange window look the same as the MIDI tracks. Using View > Object Colours you can, however, select different colors. During the recording of an audio track, a waveform will be displayed.

With a larger, vertical display, the waveform display will appear under the regions, whereas the MIDI sequences will show small notes. The largest display can be selected next to the scroll bars at the lower right edge of the window.

This display cannot be enabled, if HyperDraw is activated. HyperDraw is a function allowing the graphical input of level and panning processes, which will be displayed instead of the notes and waveforms. HyperDraw is described in the chapter [section titled *Graphical Mixdown with HyperDraw on page 49*](#).

Copying and Moving Regions

In the Arrange window, regions (and MIDI sequences) can be shifted by dragging them with the mouse. If you hold **ctrl** while dragging, a copy is created. To select several regions or sequences hold **shift** while clicking or select them by collecting them in a rubber band. During shifting, the selected regions or sequences will always jump to a grid position. The grid corresponds to the divisions visible on the bar ruler. It can be changed all the way down to the nominator of the beat type using the horizontal telescope.

If you want to use the format value as grid, hold **alt** while shifting. The format value is displayed in the Transport bar, in a field just under where the Time Signature is displayed. If you don't want to use any grid, hold **alt-shift** while shifting. This way, the regions and sequences are shifted by single ticks, which is useful to correct rhythmic irregularities in single song syllables.

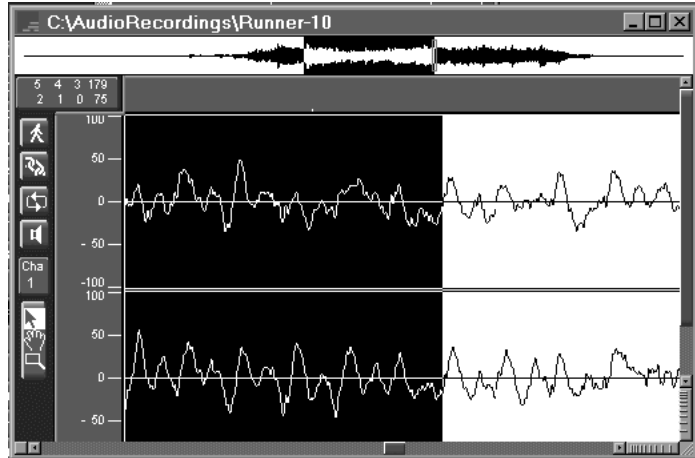
Recording the Input

Just as with professional multi-track devices, MAGIX midi studio generation 6 does not provide a *Record Level*. The analog recording must be adjusted using the source device. Typically, this would be the sub-group fader of an analog mixer. However, the channel of the on-screen mixer provides a record level display which you can use to monitor the recording level. To display this record level, double-click on the audio track name. Digital inputs cannot be adjusted during recording—which is not necessary under that circumstance anyway.

Sample Editor and Digital Factory

The Sample Editor Window

Open the Sample Editor by double-clicking on a region—in the Arrange window or in the Audio window or by choosing Audio > Sample Editor.



In addition to non-destructive editing, MAGIX midi studio generation 6 audio files can also be edited destructively in many different ways. The Sample Editor provides a detailed display of the audio file and all of the tools required for editing. It selects the exact region within the audio file—this is very practical, since all functions for changing data always affect the selection.

With MAGIX midi studio generation 6 deLuxe you can avoid major errors, i. e., accidental deletions, by first creating a backup copy of the entire audio file (Audio File > Create Backup). If needed, you can restore your original copy at any time by selecting Audio File > Revert to Backup. This backup functionality is not provided by MAGIX midi studio generation 6, so you have to be careful.

The *Functions* allow modification of the level or the amplitude (of the level control). For example, *Normalize* will raise the overall level of an audio file until the loudest peaks are at full amplitude. Fade in and fade out, the insertion of digital silence or the playback in reverse are more, but not all, functions available in the *Functions* menu. See for yourself what they can do for you—experiment and have fun!

With MAGIX midi studio generation 6 deLuxe you can ensure that the selection boundaries are always positioned at zero crossings, by selecting Edit > Search Zero Cross-

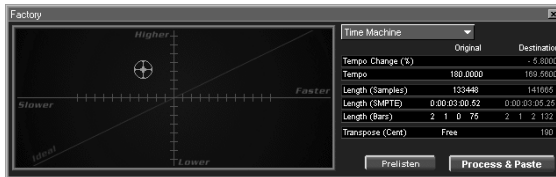
ings. This is desirable because non-zero cross points will cause small ‘snaps’ or ‘pops’ to occur.

The ruler along the top of the waveform display defaults to using Samples as the unit of measurement. If you wish to see the waveform in relation to bars and beats simply select View > Show Length as... > Bars&Beats (MAGIX midi studio generation 6 deLuxe only). Please note that the measurement will not relate to the regions actual position in the song unless you enter the Sample Editor by double clicking on the region in the Arrange Window. The reason for this should be somewhat self-evident—regions in the Audio window have no musical beat reference.

Digital Factory

Only with MAGIX midi studio generation 6 deLuxe you get even more breathtaking destructive editing features—collectively referred to as the Digital Factory. Here, we’ll briefly introduce you to two of them: the *Time Machine* and the *Audio Energizer*.

If you playback a record, a tape, or a sample at a speed other than the original, you will not change just the duration but also the sound and pitch of the output. The Digital Factory’s *Time Machine* allows you to modify the frequency spectrum (or “pitch”) and the duration of a sample independently from each other! The calculation for this task is extremely complex and with extreme values may cause a degradation of the sound quality. However, the Time Machine is ideal for correcting a badly intonated note or even transposing an entire mix within a reasonable range (say ± 2 or 3 semitones). It is also perfect for changing the tempo of a drum loop, without affecting the pitch.



Similar to a compressor, the *Audio Energizer* will increase the loudness of an audio file, even if the digital level boundary has been reached (not exceeded!).



The Waveplayer

The Waveplayer Window

MAGIX midi studio generation 6's built-in WavePlayer lets you play back any WAV-files you like—polyphonically, with filter and envelope treatments. If that sounds like owning a real sampler, you're right, but you don't have to buy an expensive piece of hardware. So how do you use the WavePlayer? Easy—just follow our small tour, and chances are that you'll never have to read the WavePlayer section in the reference manual. The only real precondition is that after you fasten your seatbelt and load MAGIX midi studio generation 6, you must select a DirectSound driver for the WavePlayer under Audio > Audio-Hardware & Drivers. This is because the WavePlayer works only with a DirectSound driver and only DirectSound drivers allow you to use the WavePlayer and the audio features of MAGIX midi studio generation 6 simultaneously. Got a few WAV-files at hand? Fine, let's start.

What you really got to know

Click on the Wave track in the Arrange window. Open the WavePlayer window via Options > WavePlayer. On the left side of the WavePlayer window you can see a horizontal keyboard. To the right of each key you can see the name of each note. To the right of each note name you can see the *File Name* box. Left-clicking on such a box opens the standard Windows File Selector. Select and open a WAV-file. You have now assigned this WAV-file to the key associated to the *File Name* box. Don't like the WAV you assigned? No problem: simply right-click on the *File Name* box to erase the key/WAV-assignment, then repeat the above procedure to assign a new WAV-file.

Now that you have assigned a WAV to a key, it will only play when you press this specific key. So let's define a keyboard zone in which you can play this WAV-file. Right beside the *File Name* box you see the controls for each WAV-file, arranged on a kind of grey crossbeam. Grab the upper or lower edge of the crossbeam without touching any other controls, and a double-arrow will appear, allowing you to stretch the crossbeam into a vertical rectangle. This rectangle defines the keyboard zone in which you can play the WAV-file.

There is only one limitation in doing this: you can extend the keyboard zone down all the way you like, but you can only extend it one octave (twelve semitones) upwards. This means that playing on your keyboard allows you to transpose down as far as you like, but an upward transposition

is limited to twelve semitones. It is important to be aware of the interdependence between the upper keyboard zone and the *Tune* parameter at this point. If *Tune* is set to +1200, you won't be able to transpose the WAV-file any further upwards because it is already transposed an octave up via *Tune* because *Tune* is measured in cents, and one cent equals 1/100 of a semitone.

Now that we have introduced *Tune*, we can also get right into the other parameters of the crossbar. You can determine which parameters you would like to see via View. The active default settings are: *Parameters*, *Keyboard*, *Filter Parameter* and *Filter Parameters as Knobs*. To start with, we suggest that you just leave them on.

Let's have a look at the parameters from left to right. *Tune* is already familiar to you. Next come *Start* and *Length*: here you can adjust from which point (in samples) the WAV-file is played back when you start it, and how long (in samples) the part played back will be.

Trigger defines the playback mode: set *Trigger* to *Gate* and the WAV-file will only play back as long as you hold the key. When set to *Freerun*, the WAV-file will play back for its whole length, regardless of whether you release or hold the key. Hint: *Freerun* is especially suitable for drum sounds.

SOUNDSHAPING VIA THE VCA: We'll leave out the *Lnk* checkbox for the moment and move to the *On* checkbox. Check it to activate the sound shaping section of the WavePlayer. Uncheck it to save computing power that could otherwise increase the polyphony of the WavePlayer, but then you won't be able to tweak those nice parameters we'll now describe.

The sound shaping parameters are divided into two groups: VCF and VCA. We will start with the VCA. The VCA group lets you alter the volume of your WAV-file over time. *Attack* (*Atk*) allows you to automatically fade in your WAV-file from zero level to full level. The smaller the *Attack* value, the faster you will hear the WAV-file at full level. Increase the *Attack* value and it will take more time for the WAV-file to gradually fade in. *Decay* (*Dcy*) allows you to fade out your WAV-file from full level to zero level. Small *Decay* values will give you rapid fade-outs, large values will correspondingly lengthen the fade out time. At maximum *Decay* value there will be no fade out at all; you will hear the WAV-file for its full length (or not, if *Trigger* is set to *Gate* and you release the key before the WAV-file has reached its end).

It is important to know that the *Decay* phase follows the *Attack* phase: first you can fade in a WAV-file, then you can fade it out. It is not possible to first fade it out and then fade it in.

The last parameter in the VCA group is *Vel*. With *Vel* you set how much the level of the WAV-file depends on the velocity (how fast you hit a key on your velocity-sensitive keyboard). The higher the *Vel* value, the faster you have to hit your keys to reach full level. Experiment with these three parameters to get to know them.

SOUNDSHAPING VIA THE VCF: Let's now go to the VCF group. Here you can give your WAV-file a new tone colour and a new tone colour curve. This is accomplished via two basic parameters: *Frq* and *Res*. With *Frq*, you can make your WAV-file sound "darker": the smaller the value for *Frq*, the darker your sound. With *Res*, you can make your WAV-file sound "sharper": the higher the value for *Res*, the sharper your sound. Experiment with these two parameters and you will very quickly get the idea of how to use them.

The VCF group also features the parameters *Atk*, *Dcy* and *Vel*, expanded with the parameter *Env*. With these parameters you can control *Frq* automatically. Try this example: turn *Frq* all the way down, *Env* all the way up and set *Vel* to 0. Now play with the *Atk* parameter: with small *Atk* values the sound becomes bright almost immediately. With large *Atk* values the sound starts very dull and it takes quite a long time before it becomes bright. *Dcy* works as you'd expect the other way around: with small values the bright-dark progression will take almost no time, while large *Dcy* values increase the amount of time required for the bright-dark progression. With *Dcy* at maximum, there will be no bright-dark progression at all. To put it briefly: *Atk* determines how long it takes for the dark-bright progression and afterwards *Dcy* determines how long it takes for the bright-dark progression.

With *Env* you determine how big the difference is between dark and bright of the dark-bright-dark-progression produced with *Atk* and *Dcy*. With small *Env* values you will be almost unable to hear the dark-bright-dark progression produced with *Atk* and *Dcy*, while large *Env* values will let you hear this progression very clearly. Don't be afraid to experiment in order to become familiar with the possibilities.

Lastly, *Vel* controls how hard you have to hit the keys to reach the value specified with *Env*. With small *Vel* values

the specified *Env* value will be reached even with soft touches of the keys. But with large *Vel* values you will have to hit the keys very hard in order to reach the specified *Env* values. Take your time to get familiar with these interdependencies.

ALTOGETHER NOW: Now that you've learned about the parameters associated to a single WAV-file, let's move on to that mysterious *Lnk* checkbox. The explanation is quite simple. Assume you've got two WAV-files loaded, one on C4 and one on C5. Check the *Lnk* box for the WAV-file on C4. Its VCF, VCA and *Trigger* parameters will disappear and are replaced with the corresponding parameters of the WAV-File on C5. To indicate this, its parameter cross-beam gets linked to that of the WAV-File on C5. In other words, checking a *Lnk* box on a WAV-file replaces its parameter settings with those of the next WAV-File above. If a WAV-file has no WAV-file above itself, it will have no *Lnk* checkbox, because there is nothing it can be linked to.

What is *Lnk* good for? Here is an example: imagine you have ten WAV-files, different recordings of a piano at different pitches. You have them beautifully laid out across the keyboard and then you want to make them all a little darker. Without *Lnk*, you could spend quite a lot of time with this task because you have to change the parameters of each and every WAV-file. But with *Lnk* activated in all but the topmost WAV-file, all you have to do is to change the parameters for the topmost WAV-file in order to apply the same a parameters to them all.

LOST YOUR WAY? That's it. Your WavePlayer crash-course ends here. Just two more things: if you lost track while experimenting, you can easily set all parameters back to their default values via Initialize > Default Parameters. And if you really want to start all over again, you can clear all WAV key assignments at once via Initialize > Delete All Assignments. So go ahead, experiment and have fun!

Mixdown with MAGIX midi studio generation 6

The Mixer and HyperDraw

The music you produce with MAGIX midi studio generation 6 can be mixed down within the program. For this, a fully automated mixer and a graphical editing view are available:

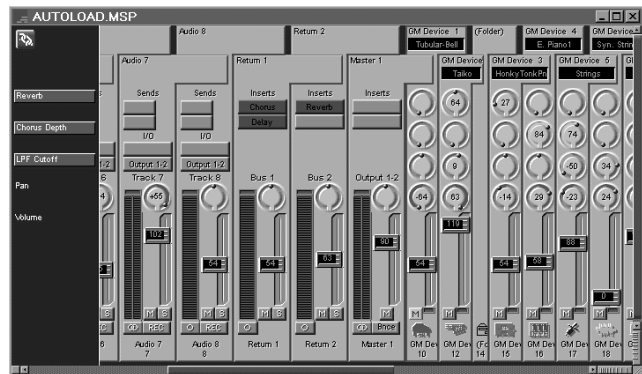
- The Track mixer
- HyperDraw.

The Track mixer allows you to mix both audio tracks and MIDI tracks at the same time. It always displays all of the tracks you are working with. The mixer can be fully automated. Data that you input from other editors will directly affect the mixer's display and vice versa.

Hyper Draw provides another option for mixing and editing . This view provides an easy way to view your mix in the Arrange window.

The Track Mixer

The Track mixer can be opened in the Arrange window by selecting Window > Open Mixer. MAGIX midi studio generation 6 will automatically create a mixer which offers a channel for every audio and MIDI track. The channel sequence corresponds to the sequence of the audio objects and the midi tracks in the track list of the Arrange window.



There is one thing that MAGIX midi studio generation 6 inherently cannot do: The audio outputs of all connected external MIDI sound generators must be mixed down as audio signals to a stereo recording, since the CD will require a stereo mix in the end. This is usually accomplished together with the computer's audio outputs or your audio hardware. Therefore, a separate, physical mixer still will

be required in order to merge the signals, to control the level during recording, and also to accommodate the microphone amplifiers. This mixer, however, can be considerably smaller than a mixer used in a comparable studio with a multi-track tape recorder. Additionally, you can mix together all audio signals with a uniform level, while MAGIX midi studio generation 6 will control the volume, pan, and any other effects that your MIDI device(s) may have.

Audio Channel Strips

Stereo- and Mono Channel Strips

You can recognize the stereo channels by the two overlapping circles on the button in the lower left corner of the channel strip. Click on this Stereo Link button to change the stereo channel to two mono channels with individual controls for each channel. The master section sends the mix to the stereo output



By clicking on the Stereo Link button, two adjacent objects will be merged to one stereo object, creating a stereo channel. To the left of the fader, there is a level control display showing the channel's (the track's) level *after the fader*. Above the fader, there is a pan control (stereo: balance control), and below the fader you will find a button (*S*) for soloing (post fader listening) and muting (*M*) of the track. The *Record Ready* button arms the track for recording (*REC*) (Record Ready). One difference between audio recordings and MIDI recordings is that for audio recordings the tracks will have to be armed just as with a multi-track tape recorder.



Each channel provides inserts for assigning effects directly to the track, and busses for sending to returns.

EFFECTS: The number of real-time effects MAGIX midi studio generation 6 can calculate simultaneously depends on the computer's CPU power, speed, and the amount of RAM available.

EQUALIZER: On each audio channel EQ's can be used. MAGIX midi studio generation 6 uses fixed built-in EQs, while MAGIX midi studio generation 6 deLuxe allows you flexible insertion of EQs: click-hold on the *Thru* field labeled *EQ* and select the EQ you need out of the flipmenu.

THE EFFECTS: Additional audio objects represent so-called busses, which are typically used as effect sends. Each channel-strip has a knob for controlling the amount of sig-

nal sent to the assigned effect. In the return channels click-hold one of the fields labeled *Insert* assign effects, like *Reverb*, *Chorus* or *Delay* for the effect. If you turn *Effi* up on a channel, then signal from that track will be sent to whatever effects you have inserted on the *Effect 1* return object. If you assign *Effect 2* to a track, then turning up the send knob will send signal from that track to the effect(s) assigned to the *Effect 2* return object.

The effects are assigned as *post Fader*; i. e., the relation between original signal and effect signal remains constant, even if the fader is moved.

To access edit parameters for the assigned effects, double-click the effect name in the green insert field.

The number of realtime-effects that MAGIX midi studio generation 6 can compute simultaneously depends on the computing power of your computer. The maximum is four effect busses with three effect-inserts each (with MAGIX midi studio generation 6 deLuxe) or two effect busses with three effect-inserts each (with MAGIX midi studio generation 6).

MIDI Channel Strips

General MIDI

General MIDI is not a deviation from the MIDI standard. If an instrument bears the GM logo, this merely means that the following minimum features are included:

- 16x Multi Mode (16 different sound on 16 different MIDI channels, the so-called parts); all of them can be played polyphonically with dynamic part assignment (it is not necessary to set the number of parts for each sound);
- at least 24 voices (parts) (24 notes can sound simultaneously);
- 128 standardized sound programs (program number 1 is always the piano...);
- 26 Drum and percussion sounds with standardized keyboard layout on channel 10;
- Chorus and Hall Effects;
- Certain MIDI commands can be recognized (velocity, pitch bender, modulation wheel, and others).

Most General MIDI instruments provide more minimum features. The above list is by no means complete. General MIDI instruments offer two advantages: 1) song files can easily be exchanged between different systems with different instruments, since sounds and keyboard layout are somewhat standardized. Solo entertainers, for example, can purchase song files from third parties and use them

without any problems, regardless of the sound generator brand used. 2) The low-cost General MIDI sound modules can be used to design complete arrangements, allowing you to create a good pre-production at a very low cost. Professional productions, however, will require the transfer of many sounds to instruments, which sound better and more distinct.

Roland has developed a General MIDI standard called General Standard (GS), which is fully forward compatible with General MIDI. If you are working with a Roland GS sound generator, you can adapt the GM/GS/XG Mixer to its configuration. Yamaha has developed a General MIDI standard called Extended General MIDI (XG), which is fully backwards compatible not only with General MIDI, but also with GS. If you are working with a Yamaha XG sound generator, you adapt the GM/GS/XG Mixer to its configuration. Some Yamaha instruments bear the XG logo, although they are not compatible with General MIDI. These are merely designed for interplay with other XG instruments (Yamaha P-50m, Yamaha VL 70m). To adapt your system touch the button shown on the right and select the appropriate setting.



The MIDI Channel Strips are merely a remote control.

A mixer is used to mix audio signals. This is not the case with this part of the Mixer. It is rather a remote control for a sound generator in the shape of an on-screen mixer. Why? Here is an example:

On your sound module (or on the sound generator of your keyboard) you can adjust how loud the sound coming in on MIDI channel 3 should be. This volume parameter can also be set through MIDI without ever touching the sound module. To set the volume of the sound on channel 3 to a value of 65 “MIDI units” (value range 0—127) you will send a MIDI volume command with the channel ID 3 and the value 65. MIDI Volume is a controller command, to be exact: a controller 7 command. In the Event Editor, this command would look like this:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFD
5 3 2	71	Control	2	7	32 Volume

MAGIX midi studio generation 6 will send exactly this command, if you set the fader (volume slider control) of channel 3 in the GM/GS/XG Mixer to a value of 65. The faders will send controller 7, the pan control will send controller 10, the reverb control will send controller 91—and so on. It is not necessary to remember all of these controller numbers. Just use the GM/GS/XG Mixer as remote

control for the sound generator. Watch the display to see how the settings change while operating the GM/GS/XG Mixer.

Please note that the sound generator will actually work in Multi Mode (“General MIDI”), not in Performance Mode. Also make sure that the GM sound generator is connected to the proper port (MIDI output).

All volume adjustments and the selection of sound programs must always be carried out in MAGIX midi studio generation 6—never adjust the sound generator! Otherwise your mixdown will not be saved with the song. It is not necessary to separately save mix parameters at the sound generator. You only have to open the MAGIX midi studio generation 6 song with the settings made under MAGIX midi studio generation 6. Rule of Thumb: Never touch your sound module, except to turn it on or off, or to save new sound programs. Comparable situation: Any corrections you make on a printout using White-Out have no effect on the text file saved on your hard disk.

Effect Paths of the GM/GS/XG Mixer

The GM/GS/XG Mixer provides knobs to control two effects on each channel. With these controls you can define for each part, how much Hall effect (Reverb) and how much Chorus effect should be applied to the respective sound. Not all General MIDI sound modules support this feature—however, most of them do. With GM and XG instruments you can also recall various effect types and edit them. The cutoff frequency of the low-pass filter is the major deciding factor for the harmonic content of the sound. This parameter could have been called “Brilliance”. Technically, this effect is not comparable to an equalizer in form of a “Treble” control. But in real-life applications, it usually serves as an effective sound control. This feature may not be supported by some of the older General MIDI sound generators. The effects settings and the cutoff controls work for all GS and XG instruments.



Automated Mixing

The mixer in MAGIX midi studio generation 6 is fully automated. Full automation means: Every control movement can be recorded, edited and played-back. For example, if the trumpet on track 12 initially is supposed to be loud, then become a little softer, and finally pan more to the right, you will operate the channel (channel 12 on the Track mixer) only once—*during the recording!* For every subsequent play-back, the trumpet will automatically repeat your mixdown.

Any time you save a song, all of the adjustments made on the mixer will be saved also.

Mixing Automation with the Track mixer

The mixing automation of the Track mixer is easy to explain: Record, operate the Track mixer, finish.

The automation data of the Track mixer will be recorded as MIDI sequences on the track for which you moved the fader or knob. The same applies to audio tracks, which will also be mixed down as MIDI commands.

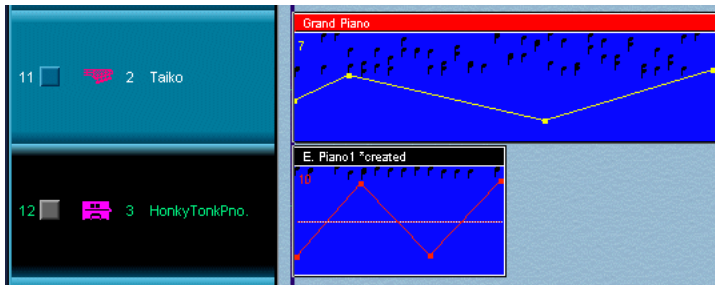
The audio channel controls send MIDI controller commands just like MIDI channels; the Volume Fader (volume slider control) sends Controller No. 7 (MIDI Volume). The meaning of the controller numbers is defined in the MIDI Standard. The sound generator will respond with a volume adjustment for the sound on the respective MIDI channel. If you open the Event Editor for the sequence created due to your mixing movements during recording, you can view the MIDI Controller data—and also edit them just like any other MIDI data.

In the NUM column you will find Controller Number 7. The Info column shows “Volume”. Controller 10 is Pan. You can edit the mixing process by deleting command or changing values (VAL).

The same data is visible in HyperDraw and can also be edited. The next sections describes Hyper Draw (bottom graphic).

Graphical Mixdown with HyperDraw

Volume and Pan can be graphically input, edited, and viewed using HyperDraw. Following is an example of a mix displayed in the Arrange window with HyperDraw enabled:



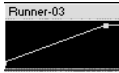
Volume events (MIDI Volume, Controller 7) appear as yellow lines, pan events (Controller 10) as orange lines on a blue background.

To enable HyperDraw in the Arrange window:

- Select the desired sequence(s).

- Using the Zoom Tool, select a large, vertical view (important!)
- Select View > HyperDraw > Volume.

Click in the left half of the blue field in the lower range of a sequence. At that location, a yellow, horizontal line will start. It represents a volume command (Controller 7). Click to the right at another height. Now you have created a series of volume commands, which are spaced between the two volume commands you have entered. You can grab the points and move them anyway you want: changing the time or the value. To delete a point, grab it and drag it beyond the right border of the sequence, i. e., outside the region. You can view your data in the Event Editor. Or you may open the Track mixer and watch how the mixer's fader will move during play-back like it is being moved by an invisible hand (in the main menu select: Window > Open Mixer). Using View > Hyper Draw > Pan you can enter Pan events in the same way. The applicable controller number (7 for Volume) is very small and shown at the left side.



When working with HyperDraw, you will frequently need an enlarged display of a sequence. For this purpose, the magnifying glass function is readily available: Press and hold the **alt** key and draw a frame around the respective sequence (group). Make sure to always start the frame in the background of the Arrange window. The selected section will be enlarged immediately. Now you can continue your HyperDraw edits comfortably. To restore the original size, click **alt** in the background.

Please note that in MIDI is a serial protocol meaning that all events are sent to each port sequentially, which may negatively affect the timing. If you are working with only a few MIDI ports, where each of the ports includes many channels, complex mixes, with a lot of controller data, may cause timing problems.

Audio Instruments

MAGIX midi studio generation 6 supports the new, included Magix synthesizers M-TB 6 (MAGIX midi studio generation 6 deLuxe only), Carpet Sweeper and Percusor. Outfitted with an innovative user interface, the units provide subtractive synthesis that meets the classic analog ideals. They offer everything that made the analog synthesizer so famous: rich basic sound, punchy filters, flexible modulation possibilities and extremely fast envelopes.

The synthesizer instruments integrate seamlessly within MAGIX midi studio generation 6's internal digital mixer; all plug-ins effects can be used and all parameters can be automated. The direct connection with the sequencing engine of MAGIX midi studio generation 6 guarantees unsurpassed precision through sample-accurate timing that is superior to any external MIDI synthesizer. Beside these built-in synthesizers MAGIX midi studio generation 6 supports VST™2.0 instruments as well.

To use the new instruments, MAGIX midi studio generation 6 features a new category of audio objects in MAGIX midi studio generation 6, called “audio instruments”. These can have the synthesizers or VST™2.0 plug-in in their top insert slot. The default song—the song that opens if you move your Autoload away from the Magix music studio folder—has readily configured audio instruments.

An audio instrument is an audio track with the track parameter “Cha” switched to one of the “Instruments (I-4)” (with MAGIX midi studio generation 6) or “Instruments (I-6)” (with MAGIX midi studio generation 6 deLuxe). So each audio track can be made an audio instrument by setting its “Cha” parameter in its object parameter box to an instrument channel. But it is more convenient to create a new audio instrument by simply selecting Functions > Track > Create Audio Instrument Track.

Please make sure that you have inserted the desired synthesizer in the Audio Instrument mixer channel in the Mixer window, and that you have selected the track of this Audio Instrument mixer channel in the Arrange window. Now double-click on the inserted synthesizer plug-in to see and access all those lovely knobs. As synthesizers are all about creating and playing new sounds, we will just tell you how to set up these instruments for usage, and encourage you to experiment with them. They come with plenty of pre-programmed settings that serve as starting points for your own, unique sound creations. You can load

Audio Instruments

these presets by clicking on the small triangle in the head of the plug-in window. What more can we say—go ahead and have fun!

MIDI: Recording and Playback

Flow of MIDI Signals

Typically, a keyboard is used to play in MIDI data; however Guitar-to-MIDI and Drum-to-MIDI controllers are also available. Your keyboard probably has an integrated sound generator, or perhaps you are using a master keyboard controller without an internal sound generator in connection with one or more MIDI sound generators. The MIDI sequencer will record the notes you are playing on the keyboard. During recording and playback, the sequencer will trigger the connected MIDI sound generators. Unlike audio recordings, MIDI tracks do not record any sounds. They record information, such as the time at which keys on the keyboard were hit, the strike speed and the release speed. Using the sequencer, this information can be edited in any way desired, or played back as is. Even though MIDI tracks can only be played back on MIDI instruments, the MIDI sequencer offers a multitude of advantages over an audio recorder. There is one thing about MIDI recording that should always be kept in mind:

The sequencer always plays the instruments live, so the instruments always need to be present. For example, if a synthesizer voice is required by the bass, it cannot play anything else. By contrast, audio recorders use multiple tracks to record entire choirs, or to record multiple parts with one synthesizer voice. Consequently, MIDI recording requires many voices. It is quite typical to have 64 voices in one sound module. If you are working with several MIDI sound generators, the significance of the number of voices will become apparent very quickly.

An exception are the new “audio instruments”, accessed via the new, correspondingly named track objects. Seen from the “input aspect”, these are MIDI instruments, as they are “played” via MIDI commands from the sequencer. Seen from the “output aspect”, they are audio instruments, as their output signal is directly generated and played back by the computer, just as the audio tracks.

ADVANTAGES OF MIDI RECORDINGS OVER AUDIO RECORDINGS:

- You may change the sound, either of the sound generator’s sound program or the sound generator itself, anytime after recording.
- You may insert, delete, or change notes, even if the notes are sounding on the same track. From a sustained C-major seventh chord you can create a C

- minor chord by deleting the B Natural, and changing the E to an Es. Re-recording is not required.
- The timing of the notes can be changed or quantized (optimized on a time grid) any way you like.
- The tempo and pitch of the notes can be handled totally independently of each other—without complex calculations or loss of sound quality.
- During recording, you could select a slow tempo and then choose an unplayable high tempo during playback without affecting the pitch.
- 1,000 tracks (MAGIX midi studio generation 6 deLuxe) respectively 256 (MAGIX midi studio generation 6) are available.
- Only a small storage space is required. Data handling is extremely fast, even with less powerful computers.
- Well arranged note displays (note print-out, note editor), Matrix Editor and Event Editor (listing) allow for very organized editing. Sound sequences can be input at the computer “virtually“ without playing an instrument.

ADVANTAGES OF AUDIO RECORDINGS OVER MIDI RECORDINGS:

- You can record any instruments without MIDI connection—such as vocals or acoustic guitar.
- No instruments are required for play-back. Individual voices can be used several times (e. g., choir recordings using only one voice).
- The time resolution is very precise and always consistent. There is no deviation of phase relations between individual notes. The play-back level for mixdowns is always exactly the same.

The above points indicate the following: all MIDI instruments should be recorded on MIDI tracks. The MIDI level production should be carried as far as possible, before starting the first audio recording. Prior to the first audio recording, the tempo of the song should be clearly defined. Subsequent tempo changes are possible, however, they involve time and a loss in quality.

Naturally, all non MIDI instruments have to be recorded on audio tracks. MIDI instruments have to be recorded on audio tracks only if the number of voices in MIDI is insufficient, if the instruments will not be available for playback, or if a mixdown is required.

ADVANTAGES OF AUDIO INSTRUMENTS: With the virtual Audio Instruments, the advantages and disadvantages of both MIDI and Audio Recordings are “equalized”:

- You can play as many tracks as the audio engine is able to produce audio material on your computer.
- No external instruments are needed for play-back.
- One audio instrument can be called up several times.
- High consumption of computing power.
- Precise and consistent time resolution.

Recording Notes and Playing Them Back with Sound Generators

You use the keyboard to play notes into your computer. The computer will forward the notes in real-time to a sound generator so you can hear what you are playing. This always applies, even if the output is stopped (Stop), paused (Pause), recording (Record) or playing back (Play). Very important: If you are working with a keyboard with an integrated sound generator, you must set *Local Off!* Recording always takes place on the currently highlighted track in the Arrange window. Every track will be assigned to a MIDI output (MIDI Out) and a MIDI channel (Channel).

If you are working with only one General MIDI Instrument...

...and your MIDI interface has only one MIDI output, you may use the empty default song, which is opened upon start-up of MAGIX midi studio generation 6, and immediately record and play-back MIDI notes. The same applies for sound generators with a GS logo (Roland) or XG logo (Yamaha) as well as for any other sound generator with up to 16x multi-mode.

Creating a new Track

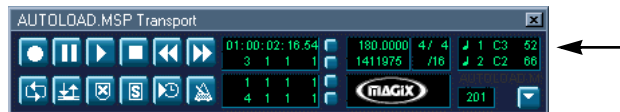
To create a new track in the Arrange window:

- Select Functions > Track > Create MIDI Track.
- At the left side of the screen, just below the box with those nice little tools like scissors etc. in it, you find the track parameter box. Here you can select an icon for the new track: Just click-hold on the icon and select one out of the appearing flipmenu.
- In the parameter-field below the icon you can select the MIDI channel for the track. This setting has to match the MIDI channel on which your sound generator receives MIDI data.
- Again a parameter-field below you can select the MIDI port of your interface, to which your sound generator is connected.

- Click on the *Prg* field, so it is checked. Move two field to the right to select the number of the sound program. Watch the sound generator display to see how the sound programs change after you select and change the program number. The number of the sound module may deviate by 1, since some devices count from 1 to 128, whereas MIDI counts from 0 to 127. The same applies to program numbers with the octal system (8 x 8 sound programs, typical for Roland).
- If your sound generator provides several banks with 128 sound programs per bank, also select the bank (left to the program number in the track parameter box, where initially “÷” is displayed). Unfortunately, the toggle commands for sound banks are not uniform for all instruments. Refer to the manual of your sound generator to find out which bank select command your sound generator needs. Select that command in the flip-menu *Bank Select Command* under Options > Settings > Record Options.
- Play on your keyboard: Now you should hear the sound module with the selected sound!

... if there still is no sound ...

- At the far right of the Transport window, there is a display for incoming MIDI signals (In) and outgoing MIDI signals (Out). Little note symbols should appear here while you are playing (see arrow; when releasing keys, the note symbols appear with strike-through markings).



- If you cannot hear anything, check the cable connection between the keyboard's MIDI Out and the MIDI In of the computer interface. Check that everything is plugged in. Go to Options > Settings > MIDI options... and make sure that the input filter does not filter out the incoming sounds (The note symbol should not be marked).
- If signals are displayed at the In display of the Transport window but none appear in the Out window, ensure that you still have selected the same track for the set up instrument, and that it is not muted. The button right next to the track number in the Arrange window (see left illustration) mutes the track (Mute). If the Mute button is hidden through the View menu, the

muted track will have a period to the left of its number (see right illustration).



- Does the MIDI instrument provide a MIDI In display? If yes, it must light up while playing. Is there a direct cable connection between the MIDI Out of your interface, and MIDI In of the sound generator? Are the audio connections correct? Does the sound generator have several stereo outputs? Perhaps Part 1 of the sound generator is routed to an unamplified stereo output. Double-check by connecting a headphone directly to the sound generator.
- Is the sound generator really set to Multi Mode, or did you select “Performance” or “Single Sound” instead of “Multi”, receiving on only one (different) MIDI channel? It is recommended that you always work in multi mode, even if layered sounds will initially be unavailable. Such sound layers can be organized more logically and clearly on the MAGIX midi studio generation 6 level with its various tracks than in the sound module.
- If sound generation is integrated into the keyboard, each part must be set individually for receiving incoming MIDI notes (Local Off, just called “MIDI” by some manufacturers). All parts must be set to “Local Off”!

Recording, Playing Back, and Deleting Sequences

In the Arrange window, set the song position line (the vertical line which shows the beat position during play-back) to the desired position. You may grab and drag the line, or you can click on the bottom half of the beat ruler to directly position the line.

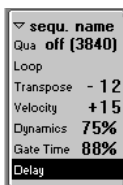
- Start the recording by pressing ✖ (RECORD) and play a few sounds. To repeat the recording, press ✖ again while the recording is still running.
- Stop the recording by pressing **enter** (STOP). Press **enter** again to return to Beat 1 (or, in the Cycle mode, to the left Locator).
- Play back your recording by pressing ○ (PLAY). Press ○ again during the play-back to start over at the same position.



- The recorded sequence is still selected and, therefore, shown in black. Press Backspace to delete everything that is selected—in this case the sequence you just recorded.
- Press **strg-z** (Undo) to undo the last action. In this case you can undo the deletion.

Fine or Rough Copying and Shifting of Sequences

Sequences are handled in the Arrange window the same way as regions: If you want to use the format value as grid, hold **alt**, if you want to use single ticks, hold **alt-shift** while shifting. If you hold (additionally) **strg** while shifting, a copy is created.



Sequence Play-Back Parameters

The play-back parameters of each sequence can be changed. Play-back parameters include Transposition, Quantization, and Velocity.

The play-back parameters do not affect the data in the sequences. They merely define how the sequences should be played back. This means that you may make changes at any time to these parameters, and at any time you may go back to your original performance. If you do wish to actually change the underlying data, there is a function to do so. This function is called *Normalize* and is accessed through Functions > Sequence Parameters > Normalize Sequence Parameters. This will apply all the play-back parameter settings you have made to the data. The settings in the parameter box will be reset to zero, since the actual MIDI data now will reflect the settings you have chosen. Normally you would only use this function when exporting your song as a Standard MIDI file. The only parameter not affected by “Normalize“ is Quantization. If you wish to permanently set the quantization, the use Functions > Sequence Parameters > Fix Quantize. Again, you normally would only do this when exporting the song as a Standard MIDI file. When working within MAGIX midi studio generation 6, it's a real advantage to keep your options open, by leaving these settings as play-back parameters. This way, you are free to change your mind at any time.

As long as no object is selected—you can do this by clicking once on the background in the Arrange window—the play-back parameters automatically apply to all of the objects currently being recorded. However, if objects are selected, the play-back parameters will apply only to them. If

nothing is selected, then “MIDI Thru” will be shown in the sequence parameter box instead of the sequence name.



Name

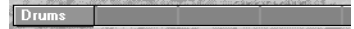
Double-click to enter a name for the sequence in the top line.

Quantization

Quantization allows you to correct the timing of a sequence with extreme precision. Quantization corrects the timing of the note-ons, while maintaining the original length of each note. If you wish to retain the original timing of your performance, set the Quantization to “Off (3840)”. There are many quantization options, including several odd tuplet and swing settings.

Loop

If you enable “Loop”, the selected object will be repeated until it encounters another object in the same track, or until the end of the song is reached. Loops can be very useful for providing the correct beat with a played Hihat track instead of with a metronome. For this, just record one, two, or four beats of Hihat and quantize to a sixteenth or an eighth. Loop the sequence (Loop: On), and a perfectly timed Hihat will accompany you. Later the loops can be converted to real copies for further editing by selecting Functions > Sequence Parameters > Turn Loops to Real Copies.

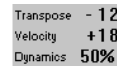


Transpose

This function allows you to transpose sequences in half-tone steps. An octave has 12 half-tone steps. You can, therefore, transpose a sound by one octave upward or downward with +12 or -12!

Velocity

MIDI differentiates 127 speeds with which a note can be struck—from the softest pianissimo (1) up to the hardest fortissimo (127). If you enter the value +18, the original velocity will be increased by 18 points, i. e., it will be moved towards “forte”.



Dynamics

A form of “MIDI compression” can be achieved with Dynamics, i. e., the differences between piano and forte, can be compressed (levelled). For this you select a value below 100%. Values over 100% emphasize the differences between the strike velocity of individual notes (Expansion). If you want a constantly stronger and more uniform strike velocity for your keyboard play, try the following setting: *Velocity* = +20 and *Dynamics* = 50%!

Gate Time

This parameter allows you to shorten or lengthen the duration of the notes in a selected sequence by a percentage. This can be useful to create staccato or legato effects very quickly. It can also be used to compensate for the differing attack/release characteristics that you may encounter when assigning a sequence to ply with different sounds. Percentages lower than 100 will shorten the notes, above 100 will lengthen them.

Delay

This function allows you to move up the play-back of a track (negative values) or to delay it (positive values). The Delay function is not only used for rhythmic effects, but also to compensate for sounds with slow attack times. By advancing the track a few milliseconds, even slowly fading in string sounds will sync with other sounds with faster attack times.

The Autoload Song

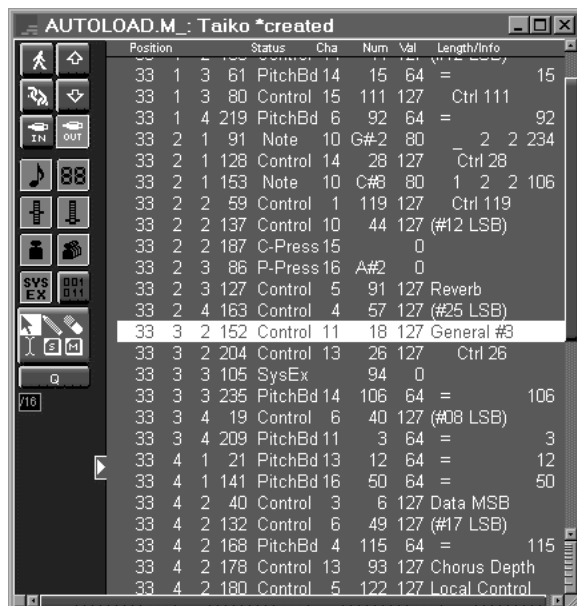
A Song named “Autoload”

After you have become familiar with the basics of MAGIX midi studio generation 6, you should create a default song which includes all settings so you can start a recording at any time. You can also record a drum track with kick, snare, and eights from Hihat, which will then accompany you like a sophisticated metronome. You can also prepare a standard arrangement including a track for piano, bass and strings. Further, you can prepare Screen Sets for the window combinations which suit your work method and your monitor size. Put the Autoload Song on your desktop, and start it by double-clicking it. You should always save your songs with a different name: File > Save As...). With the autoload file, the basic setup of tracks and other major settings needs to be done only once. It can be modified occasionally, if you add a new instrument to your collection, for example, or if you get rid of one.

Event Editor

Open the Event Editor by selecting Window> Open Event List.

NOTE: If you wish for the Event Editor to be the editor that is opened when you double-click on a sequence in the Arrange window, open the Options > Settings > Global Preferences menu and select *Double-click to open Event Edit in Arrange* from the flip menu at the bottom of the window. The Event Editor displays all data chronologically in a text format within a table. The Event Editor has no graphical features, and its arrangement and display of notes is not comparable to the easy overview provided by the Score and Matrix Editors. However, it is by nature the most efficient editor, showing you every MIDI event, with its type and its values (data bytes) in plain text. All of these parameters are accessible for editing. In fact, you could do a complete production without ever leaving the Event Editor. The MIDI event type is shown in one of the middle columns of the display. This makes it easy to quickly discern between Note, Volume (controller 7), Modulation wheel or any other type of data. Below is an Event window with a collection of MIDI events of all types. (thought not necessarily a real life collection of events, it is useful for this demonstration.



Position	Status	Cha	Num	Val	Length/info	
33 1 3	61 PitchBd	14	15	64	=	15
33 1 3	80 Control	15	111	127	Ctrl	111
33 1 4	219 PitchBd	6	92	64	=	92
33 2 1	91 Note	10	G#2	80	_ 2	2 234
33 2 1	128 Control	14	28	127	Ctrl	28
33 2 1	153 Note	10	C#3	80	1 2	2 106
33 2 2	59 Control	1	119	127	Ctrl	119
33 2 2	137 Control	10	44	127	(#12 LSB)	
33 2 2	187 C-Press	15		0		
33 2 3	86 P-Press	16	A#2	0		
33 2 3	127 Control	5	91	127	Reverb	
33 2 4	163 Control	4	57	127	(#25 LSB)	
33 3 2	152 Control	11	18	127	General #3	
33 3 2	204 Control	13	26	127	Ctrl	26
33 3 3	105 SysEx		94	0		
33 3 3	235 PitchBd	14	106	64	=	106
33 3 4	19 Control	6	40	127	(#08 LSB)	
33 3 4	209 PitchBd	11	3	64	=	3
33 4 1	21 PitchBd	13	12	64	=	12
33 4 1	141 PitchBd	16	50	64	=	50
33 4 2	40 Control	3	6	127	Data MSB	
33 4 2	132 Control	6	49	127	(#17 LSB)	
33 4 2	168 PitchBd	4	115	64	=	115
33 4 2	178 Control	13	93	127	Chorus Depth	
33 4 2	180 Control	5	122	127	Local Control	

With the buttons on the left side you can determine which data types should be visible. You can also use the buttons



to add events directly from the Event Editor. You do this by simply clicking on the desired button with the pen tool. You may select events by rubberbanding them within the Status column. (the column under the word *Status* at the top portion of the window.) Be careful not to grab the timing positions or the data lines, as you may change their values without wanting to.

Identity of buttons, starting at top left and moving down in criss-cross fashion: Notes, Program Commands, Pitch Bender, Any Type of Controllers, Channel Pressure (Aftertouch, Pressure Dynamics), Poly Pressure (polyphonic pressure dynamics), System Exclusive Data, Contents of System Exclusive Data.

Note-Off Events, i. e., commands to end notes, are not displayed separately. Instead the length of the notes is shown on the information line for Note-On Commands.

Application Example: Deleting unwanted Controller data

Let's assume that an otherwise perfect keyboard performance is flawed because of too much modulation wheel data. The Event Editor makes it very easy to delete only this unwanted data. You could then re-record just the modulation wheel performance and merge it back into the sequence containing the note data. Here is how you might proceed with such a task. Open the Event Editor and select a modulation wheel command (controller 1). Select Edit > Select > Select Similar Objects.

All modulation wheel commands are now selected.

Delete them by pressing Backspace. Close the Event Editor. In the Arrange window, select Functions > Track > Create MIDI Track to create a new, identical track on which you will re-record the modulation wheel commands only. Using the Merge Tool you can then merge these commands anytime with the currently edited note sequence.

You should also take note that the same value can be changed simultaneously for all selected events in the Event Editor. For example, once all the modulation wheel events were selected above, you could have reduced the amount of modulation wheel effect for one of the events and the values for all the other events would have changed simultaneously by the same amount. You could also use a similar procedure to alter the time position of any selection of events.

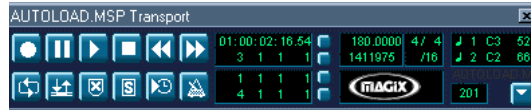
The Event Float Window



The Event window may not be as intuitively designed as the Score Editor or Matrix Editor. However, its detailed information and direct access to all Events parameters are invaluable. The Event Float window, a relative of the Event Editor, allows you to access this same information easily and compactly from within any other edit window. The Event Float is like a single 'slice' of the Event editor and will always display the currently selected event (if more than one event is selected, the first event is shown). Just as with the Transportation window, the float window always floats, i. e., is never covered by another window. To open an Event Float window select Options > Event Float in the main menu.

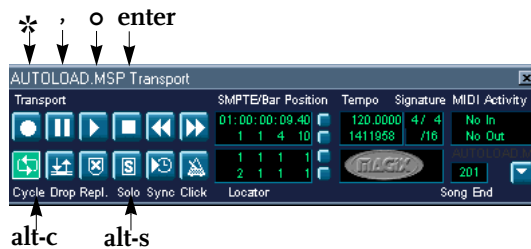
Transport Functions

To open the Transport bar select Window> Open Transport. (NOTE: A Transport bar will already be open if you in the first screen set of the default song.) The Transport bar includes all buttons for playback, recording, pause, fast forward and rewind, as well as the locator and a field for selecting the tempo. The Transport bar is a floating window; i. e., it is always on top and will never be covered by another window.



Click on the flip menu switch and select *larger* to increase the size of the Transport window. You may also choose enable *Legend*, which will provide descriptive labels for each of the Transport bar functions. This can be helpful while you are becoming familiar with them. Once you know these functions, you can disable the legend in order to save space on the screen.

We recommend that you move away from using the mouse to operate the basic transport functions as soon as possible. If you get used to the keyboard shortcuts right from the beginning, at least for the most commonly used commands, you can increase your work speed drastically. The illustration shows the default keys of the computer keyboard that correspond to the Transport field buttons.



Please note that the keyboard layout can be completely defined by the user. If you are using the supplied “PowerKeys” keyboard layout, Stop is **o**, Play is **enter**, and Solo is **s**.

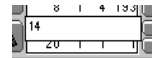
The Position Slider helps indicating and editing the current song position.



Punch, Cycle, Skip Cycle

Press “Stop” twice to set the song position line back to the beginning of the song (or, if *Cycle* is enabled, to the next locator to the left). This double-hit of the Stop key is very useful, if you want to start playing back or recording from the beginning of the song. With this function no rewinding is required. Record Toggle (preset to space bar) allows you to manually drop (or: *punch*); i. e., enter or exit a recording while the sequence is already playing. (drop in / drop out).

Cycle will continuously repeat the playback or recording between the left and right locator. You can directly click and drag on the beat position of each locator to change their value. If you double-click them, a text field opens in which you can type in an exact value. Type in a “space” or “.” to separate between the data positions of location, i. e., type “5.3.1.1” to set the locator to bar 5, beat 3. (NOTE: MAGIX midi studio generation 6 will also “round off” the values of positions not entered so typing “5.3” would render the same result as typing “5.3.1.1”) The illustration on the left shows the input of 14 in the left locator (seen graphically it actually is on top), by double-clicking Backspace, 1, 4, and **enter**. The “right” (lower) locator is set to a beat of 20.



For intensive editing of a song section, you can repeat it continuously using the Cycle function. To enable this function, press and hold your mouse button and move over the respective area in the upper half of the bar ruler. In the Cycle mode, playback and recording will be repeated only between the two locator positions.

This Cycle range is highlighted with a thick, orange bar on the bar ruler. As an alternative to the previous described method, you can change the locator positions by grabbing the lower corners of this bar and dragging them with the mouse.

To skip a section, press and hold the mouse button and move over the section from right to left. The Skip Cycle range is shown as a very thin bar at the top of the bar ruler. Under Skip Cycle, the left locator will have a later position than the right locator.

Count-In and Metronome

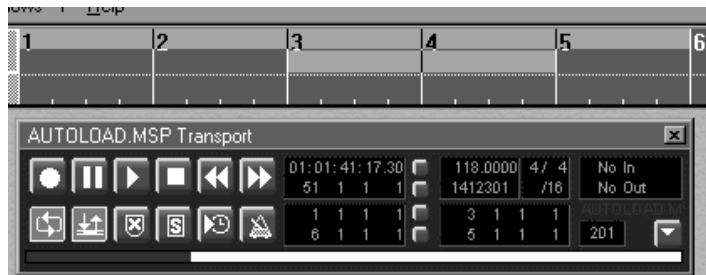
The count-in and metronome settings are set as follows:

- Select Options > Settings > Recording Options. In the bottom flip-down menu you can choose None, One, Two, Three, or Four beat count-in. You can also select the option *Wait for Note*, which will repeat a quarter note count-in, until you play the first note and the recording starts.
- In the Recording Options you can choose if the computer loudspeaker should click during recording and/or playback.
- Select Options > Settings > Metronome Settings to define a MIDI channel and MIDI notes to be used as metronome. You might, for example, use the Rim Shot of your sound module as metronome click.



Auto Drop

The *Auto Drop* function is used to automate the process of dropping in and out of record. When it is enabled, MAGIX midi studio generation 6 will drop in and out of record at the designated left and right locator points, i. e., at the left locator recording will start, at the right locator MAGIX midi studio generation 6 will switch back to playback. You can also use *Drop* mode in conjunction with *Cycle*, in which case a total of four locator points are displayed.



In the example below playback will start at beat 2. At beat 4, MAGIX midi studio generation 6 enters the recording (drop in). At beat 8, playback is re-activated (drop out). At beat 9, playback starts over beginning with beat 2.



If you want MAGIX midi studio generation 6 to act and feel like a real tape player for MIDI recordings; i. e., that the range within the drop locators will actually be *erased and replaced* instead of just recording an additional sequence, select *Replace*.



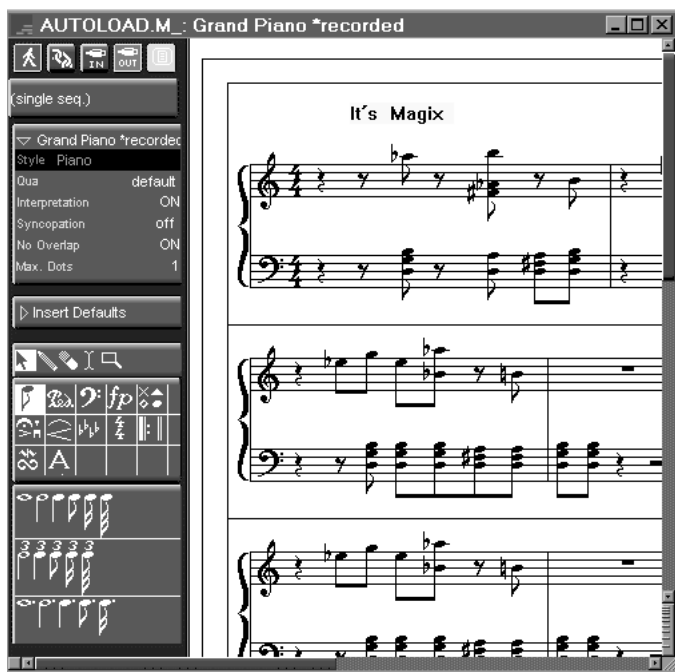
If *Solo* is selected, you can listen only to the selected track. All other tracks will be muted.

Score Editing and Printout

Interactive Score Editor

Open the Score Editor by selecting Window > Open Score. In the Options > Settings > Global Preferences menu you can choose which Editor window will open when you double-click on MIDI sequences.

If one of the Editor windows such as the Score Editor is open, you can watch during the performance how MAGIX midi studio generation 6 displays your play as notation on the screen. The notation serves two major purposes: 1) MAGIX midi studio generation 6 allows you to print out your score. The program also provides many graphical elements, display options, and smart text functions, as well as chord and stop symbols. 2) The Score Editor is a very practical tool for corrections, amendments and other edits of your recording.



Please read the operating manual to learn about the extensive options for typesetting camera-ready music sheets with MAGIX midi studio generation 6.

Editing Sequences in the Score Editor

To practice editing in the Score Editor, record a short sequence and purposefully perform some 'bad' notes in the key of C. In a melody accidentally slide over an unwanted

f sharp down to the actually intended *g*, and play a C-Minor chord where a C-Major chord should be played. Then correct these errors as follows:

- Double-click the recorded track. The Note Editor will open with a display of the Score.
- Grab the *f sharp* with your mouse. The *f sharp* will sound and be selected: it will blink. Press Backspace to delete. The *f sharp* is deleted.
- Grab the *e flat* of the incorrect C-Minor chord and drag it one half-tone step upwards. The *e flat* changes to an *e*, and the C-Minor changes to a C-Major chord.
- Try using the pen tool to add notes.

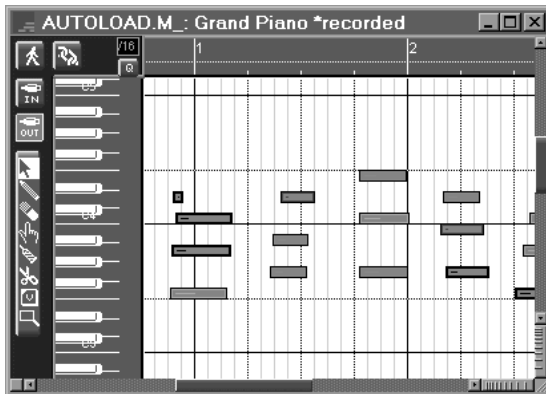
Please notice the Score Tutorial on the separate Tutorial CD. It consists of a .pdf file and a few example songs.

Matrix Editor

Open the Matrix Editor by selecting Window > Open Matrix.

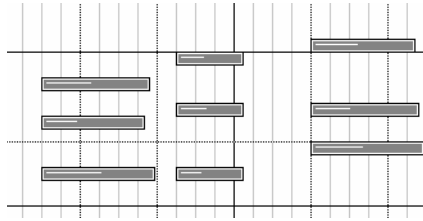
NOTE: If you wish for the Matrix Editor to be the editor that is opened when you double-click on a sequence in the Arrange window, open the Options > Settings > Global Preferences menu and select *Double-click Sequence to open Matrix Edit in Arrange* from the flip menu at the bottom of the window.

The Matrix Editor is perhaps the best editor for editing *Note length*. It is also useful for those who are unfamiliar with classical notations and who will therefore not feel at home in the Score Editor. The Matrix Editor displays the individual notes as bar diagrams—similar to the sequences in the Arrange window.

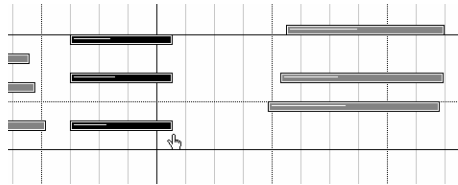


Note durations are an important element in musical expression and precise play. With conventional notation, phrasing is left for the most part to the performer. The Matrix Editor not only displays very exact note beginnings and ends, it also indicates the strike dynamics with little beams within the bars.

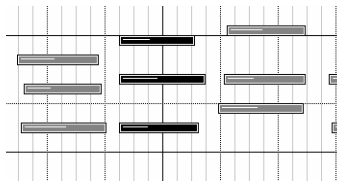
Sometimes notes are accentuated not by their dynamics but by playing them very short or staccato. This is especially typical with organ parts, since organ sounds are not generally velocity sensitive. In these situations, it is also very important that the notes of a chord end at precisely the same time. The Matrix Editor is the ideal tool for this type of editing.



Now the note beginnings are aligned exactly on the grid. You can shorten the notes by grabbing them at their right lower corner. If you simultaneously hold **ctrl-shift**, all of the selected notes will receive the same length.



In some editors, the **Q** button can be used to quantize the selected notes.



If you touch the **Q** button, a selection box appears. In this box you define the grid on which the notes should be quantized. The selection of a quantizing grid activates the quantization. Subsequent quantizations can be activated by clicking on the **Q** button.



Above the quantize button there is a field which shows the current resolution of the grid lines to which the notes will snap when moved. To move the notes without any grid lines, hold down **shift-alt** while moving the notes.



You may use the Velocity tool to change the dynamics of a selection of notes. With the tool selected, just click and drag up or down on a note or selection of notes. The length of the “velocity bar(s)” will change to reflect the change.

Preparing files for CD burning

File Format

Special software like MAGIX audio studio is required for the burning of CDs. This software accepts single songs in the form of single stereo files. The sequence and numbering of the titles will be organized by the CD software. The CD burner software requires the file format WAV. WAV files with the following characteristics:

- stereo,
- 16 bit
- 44.1 kHz sampling rate

These type of files can be created with MAGIX midi studio generation 6. This chapter describes the procedure used to create these files.

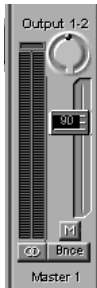
Mixdown by Track Bouncing

RECORDING MIDI INSTRUMENTS AS INTERMEDIATE AUDIO MIXDOWNS: MAGIX midi studio generation 6 allows you to digitally merge various audio tracks without playing back the song (digital mixdown). But only MAGIX midi studio generation 6 deLuxe allows you to record the final mixdown in real-time, for using internal plug-in effects and external real-time effects processors (like reverb and multi-effect devices) during the final mixdown and manual intervention. This technique is called Track Bouncing and is described in the following. To accomplish this, you might first record the signals of all MIDI instruments to be played back by MAGIX midi studio generation 6 deLuxe in their entirety on to a single stereo audio track and then mute all MIDI tracks.

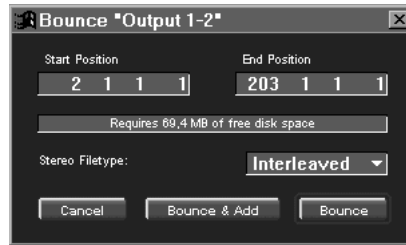
Only mix the signals that you will actually need on the recording input of MAGIX midi studio generation 6 deLuxe. Do not turn them louder than necessary, to avoid unwanted noise.

For automatic mixing, see chapter “Mixdown with MAGIX midi studio generation 6“.

TRACK BOUNCING: It is not necessary to re-record the total of all audio tracks through the analog inputs, or to use another master device. MAGIX midi studio generation 6 deLuxe provides a Track Bounce function, which allows you to master the mixdown in real-time on the hard disk—using a file format that the CD burner will recognize. Open the Audio Mixer or the Track Mixer (open the Track Mixer in the Arrange window by selecting: Window > Open



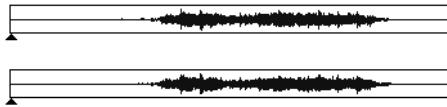
Mixer...). Press the Bounce button on the track object which plays back all tracks, i. e., the Master fader. The Bounce dialog box appears. In this dialog box you can set the beat range across which the mixdown should span. This dialog also displays the required storage space.



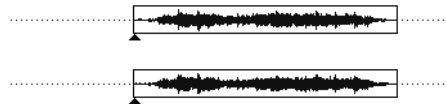
Click on the Bounce button, or confirm by pressing **return**. In the displayed dialog box enter the hard drive and the folder to which you want to write the mixdown of your song as an WAVE file.

Post-Production

Final editing of the stereo recording will take place in the Audio window and in the Sample Editor. At first you may have to cut any remaining unwanted material at the beginning and/or end of the mixdowns.



Grab the regions in the Audio window next to their lower corners, and shorten them.



Open the Sample Editor by double-clicking the region, and check the region's starting and ending point (Anything important cut off? Any unnecessary pauses?). Once you've made the desired selection, choose Functions > Trim.

With MAGIX midi studio generation 6 deLuxe you can perform a composite compression for that powerful hit sound—select Factory > Audio Energizer.



With MAGIX midi studio generation 6 you have to be satisfied with putting your original sound with maximum volume onto the CD: enable Functions > Normalize. If a very loud CD is desired, one of these options must be selected.

If a sampling rate other than 44.1 kHz was used, you must also use the Sample Rate Converter. Under Factory > Sample Rate Converter (MAGIX midi studio generation 6 deLuxe) or Functions > Sample Rate Converter (MAGIX midi studio generation 6) you can convert the sampling rate after the fact from 48000 to 44100 Hertz. It is recommended that you record the production for the CD right from the start with 44.1 kHz.

Troubleshooting

Possible Symptoms

They may be rare, but every computer user inevitably experiences seemingly severe computer problems at some point, whether they be crashes where the mouse freezes, the screen locks up, or the display becomes plastered with error messages. Even mature, well written operating systems cannot protect you completely from hardware conflicts, bugs, or other problems.

Experience has shown that such system problems are rarely caused by a defect in our programs or hardware products, since they are rigorously tested by a diverse range of musicians and studio users in a variety of applications, looking for any faults or problems.

This does not mean that the possibility of errors can be completely ruled out; problems can crop up especially as the various applications, operating systems and drivers are all developed and improved in parallel by unrelated teams, leading to occasional compatibility problems. We do, however provide fixes in the form of software updates, as soon as we become aware of such problems, and are grateful to any users who make us aware of them.

If you suffer from system crashes or errors, you may well find the tips in this chapter helpful, even if the problems are ultimately unrelated to our products. In most cases, these problems, once identified, can be rectified with a minimum of effort, although tracing the cause of such problems can be time consuming. You will be able to overcome most of these problems without needing to consult an expert—this chapter will guide you on how to proceed. It is best to eliminate the classic causes of problems before you suspect a hardware defect, or another fault, especially before you send your machine for repair, or your software for a refund! Take care, though: some of these suggestions may only cure the symptoms, and could therefore complicate the identification of the actual cause of the problem. Persistent problems *will* require the advice of an expert.

If you have bought the computer together with the sound card and other hardware, it is a good idea to test that the computer is functioning as expected, with just a mouse, keyboard, and display attached, before installing the card and additional hardware (hard disks, printers etc.). Most new computers come with pre-installed software, which should allow you to test to see that everything is working correctly. Once you have switched off everything, you can proceed to install any hard disks, modems, scanners etc.

Now check that everything is still working as it should. If so, you can unplug all cables from the back of the computer and begin to install the sound card.

If disaster strikes...

... your first priority should be to make a backup of your most important documents. Attempt to copy your files (lyrics, songs, tax declarations) to diskettes, hard, or removable drives, without launching their associated applications. While you are at it, you should also make timely backup copies of your software's installation diskettes. You can skip this step for CD-ROMs, but even CDs require extra care: neither of its two sides should be scratched. Once you have made backups of your private files, and programs, the chances of a true disaster are all but eliminated. Never skip making regular backups, even if everything is working perfectly—eventually, any hard disk may crash. A system crash can be caused by:

- operator error,
- a software conflict (e.g. incompatibility between two programs),
- overloading of the system's resources,
- faulty cable connections (or missing termination), or
- a hardware defect.

Eliminate the first two causes before deciding to have your hardware repaired.

If the problem persists, make precise note of the following:

- what you were doing at the time of the error (which program, which function, which applications were open);
- the exact text of any error messages and/or error numbers (if applicable);
- the version of the operating system, as well as of the program where the error occurred;
- your system configuration.
- After each crash: Check the files and file structure of your system hard disk with a suitable program like Scandisk. If necessary, repair the files and file structure of your system hard disk. We highly recommend checking your hard disks with the Scandisk program regularly, so as to rule out any hard disk related problems in the first place.

PCI Faults

PCI technology relies on highly accurate timing synchronization in your computer's data stream. Unfortunately, there are certain PCI card combinations that will cause

conflicts with each other, despite the fact that each on its own is working perfectly, and within the PCI specifications. PCI problems like this can cause seemingly random system crashes.

- Check whether the same problem persists after you have removed the PCI card. Of course, you need this card to work, but try to work on the machine for several hours without the card—if the problems have gone away, you have found the culprit. If the problems persists however, you can safely rule out PCI problems as being the cause.
- Try to use the PCI card in another slot. It is quite possible to solve conflicts by simply swapping slots.

SCSI and IDE Faults

Faults in the SCSI or IDE chain can have a variety of consequences. SCSI, SCSI2 and IDE are parallel interfaces, and can be used to connect hard and removable drives, CD burners, and other drives, as well as scanners to your computer. Always take care with the following:

- The total length of all cables must be as short as humanly possible, and the cables should be of the best quality.
- The connectors must sit securely in their sockets, i. e. securely screwed or clipped into place.
- Each SCSI ID (a number from 0—7) must be allocated only once per SCSI bus.
- The last device in a SCSI chain must usually be terminated with a resistor block. Some devices have internal termination, that can be switched in/out. If no termination is available, you will need an external terminator (which looks like a single connector). This will be connected to the last device's output. Although this may seem to contradict with the previous statements, it has been known for a SCSI chain to work better *without* termination. If you suffer from seemingly random system failures, without an obvious cause, you may well experiment with different device order combinations. Also experiment with, and without termination for the last device in the chain.

Faulty Cables

Cable faults are a common problem, which can cause all manner of problems.

The use of the right monitor cable is important—simply having the correct connector at either end is not sufficient. Before you assume an unrelated hardware fault, please

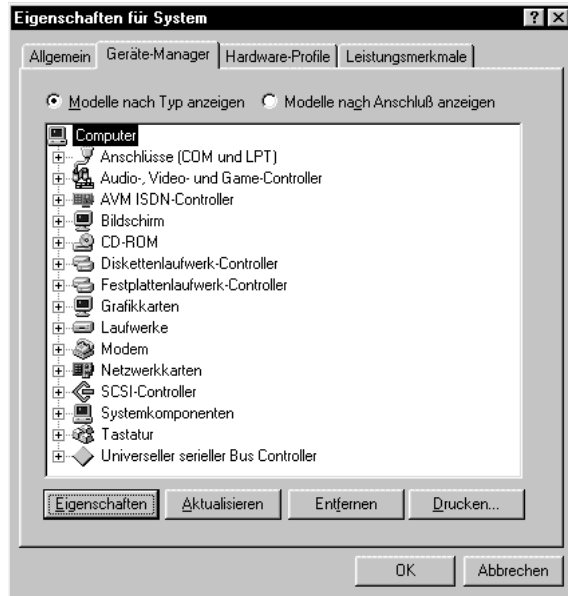
test whether the cable may be at fault by swapping it for a new one. Another common problem is loose internal computer connections, which especially can occur after computer transport. With awareness of the warranty requirements, as well as all safety precautions, our more technically minded readers may wish to fasten the internal connectors, with all due care. Be careful though: disconnect the power cable first, and wait for the high voltage to drop. Ground yourself with the computer. This can prevent many visits to the repair man (or the hospital). However, we cannot be held responsible for any computer manipulation of this kind.

Hardware Conflicts

The installation of various PCI cards and the use of external devices (like MIDI interfaces) can cause hardware problems—these sound more intimidating than they actually are. If Windows does not respond the way it used to after having installed new hardware, it will be useful to begin to localize the problem. Start Windows in Safe Mode.

- Restart the computer.
- During startup (while still in DOS mode) the message “Windows is starting” will appear—press **F8** as soon as it does.
- Choose Safe Mode by selecting **3** and confirm your choice with **return**. Windows will now launch in Safe Mode. Your video and audio card features will not be available—for example, the screen resolution will be lower than usual.

You can, at this point call up the Windows Help file, which can help you in many cases. Choose Start > Help. The “Contents” section has an entry for “Troubleshooting”. Now, right-click the “My Computer” icon on your desktop, and choose “Properties”, then select “Device Manager”.



- If you see any small yellow exclamation mark warning symbols (click on any plus signs to check all the entries), you have found the root of your problem.
- Select the hardware entry that is causing the hardware conflict, and click the “Properties” button.
- Pay close attention to the notes Windows gives about the hardware, for example about resource conflicts. Hardware resources such as IRQ numbers cannot be changed in Safe Mode. Instead remove the device from the Device Manager and restart your machine. You can now re-install the hardware. On a related topic, please note that IRQ conflicts can be avoided by setting your BIOS parameters correctly. However, BIOS settings should only be changed by experienced users. Consult your computer or music dealer for advice in this area.

Sound Cards

If MAGIX midi studio generation 6 complains with the error “PCAV Error xx : padUnprimeFailed (xx is a number) on start up, one of three causes could be the culprit:

1. There is no sound card installed in your computer;
 2. The sound card or its drivers are not stereo or 16bit capable (this applies to older sound cards);
 3. The sound card is currently in use by another program—the Windows CD Player, a wave editor, or the like;
- If the first instance, uncheck the ‘PC AV’ checkbox in Audio > Audio Hardware & Drivers. Exit MAGIX midi studio

generation 6, and start it again—everything should now work.

If the second case applies, you will need to install more recent drivers, or change the sound card altogether. Please ask your sound card's manufacturer.

In the third instance you simply need to close down the other programs and start MAGIX midi studio generation 6 again.

Advanced users can use the settings accessible via the "Control Panel" switches in Audio > Audio Hardware & Drivers > Audio Drivers to manually control MAGIX midi studio generation 6's sound card use.

Viruses

Regrettably, there are some malicious people, who program and distribute virus solely to cause damage. Check your drives regularly for viruses, especially if you are in regular contact with other people's data carriers, or download from the Internet. Not all virus programs are able to detect the tricky macro viruses, and others which are as yet unknown to virus protection software developers.

Graphic Cards

Graphic cards and graphic drivers can cause many problems. Always ensure that you have the latest drivers for your graphic card installed.

If you are confronted with inexplicable problems, install the Standard VGA graphics driver. This is sensible even if the actual symptom appears unrelated to graphics use. If the graphic card or its driver is responsible for the problem, the use of the Standard VGA driver should cure it.

Re-installing the Operating System

Sometimes parts of your computer's Operating System get corrupted. There are dozens of reasons for this. Then re-installing the operating system (Windows 95/98/2000) from your installation CD-ROM is a good idea.

To prevent such time-consuming actions, you should make sure that you only install software that you really need and use. Do not mess too much with installing each and every piece of software that comes across your way. And stay away from cracked software, not only for legal reasons, but also for cracks are likely to play havoc with your computer's operating system in order to avoid the cracked software's copy protection. Please remember: Realtime audio processing as carried out by Magix music studio generation 6 is a "Formula One" race for your com-

puter, so make sure your system is in VERY good shape. Learn about this in internet news groups or computer music magazines.

Updating the Operating System

Sometimes the faults simply come down to the operating system. You can usually find updates to your operating system, free of charge. Operating system upgrades can be conveniently download from the Internet. The Internet is a gold mine for solutions to problems, and a great meeting place for solution seekers. Many computer magazine websites have links from their home pages, to pages that offer solutions to many common problems.

If all else fails, there is only one thing left to do:

Formatting the Hard Disk

Formatting the hard disk is the last resort you should attempt before sending the computer for repair. This will erase all files on your hard disk, and most probably also any garbage data that may be causing your problems. The formatting process will erase all files, so make backups of all your files and programs first, and make sure to verify those backups to ensure that they have been successful. Note that all invisible authorization files will also be lost, so uninstall your authorizations of other software first. On a related note, consider the importance of sending us your registration card so that you can get help when a hard disk disaster strikes.

In order to allow formatting of the internal hard drive you need to start your computer from another, either from the CD-ROM or an external hard disk. To rule out a Virus problem however, it is advised that your reformat all your hard drives in the same session—after all, a CD-ROM cannot be infected with a virus (unless it was infected to begin with.). Install MAGIX midi studio generation 6 again. If the problem *still* persists, a hardware conflict or conflict between the program and the operating system is most likely. If the problem only occurs with a specific program, you will need to get in touch with the software manufacturer. If the problem occurs with several applications, you will need to get in touch with your computer dealer.

Part 2

Reference

**midi
studio**

Using MAGIX midi studio generation 6

This chapter summarizes MAGIX midi studio generation 6's general operating functions.

But first, a quick word about this manual.

Conventions of this Manual

Menu Functions: If the text is dealing with functions which can be reached via hierarchical menus, the different menu levels are described as follows: Menu > Menu entry > Function.

Key Commands: When a function can be operated by a key command of the same name, you will see this symbol at the side of the text. If names differ, or if a function is only available as a key command, its name will be printed like this: *Key Command*.

Options and Parameters: The options you can set from the Preferences or Song Settings, and the parameters in dialog boxes are printed like this: *Parameters*.

Different parameter values are printed like this: *Parameter value*.

Graphics: Sometimes this manual uses graphics from other MAGIX programs. This is due to technical reasons and does not influence the usability of this manual. However we apologize for this inconvenience.

The Mouse

Basic functions

Unless stated otherwise, the left mouse button is the one you should use whenever “the mouse button” is mentioned.

Clicking: Place the mouse pointer on the object (button, input field, etc.) and press the mouse button once.

Double-clicking: The same as clicking on an object, but you press the mouse button twice, in quick succession. You can set the appropriate time-span for this in the System Controls.

Grabbing or Clicking and Holding: The same as clicking on an object, but you keep the mouse button held down.

Moving or Dragging: Grab the object and move the mouse (keeping the mouse button held down) to the desired position.

Mouse Input

CHECKBOXES: Checkboxes are square boxes which become “checked” when you click them to activate an option

(or function). Click them again to remove the “check” and deactivate the option.

PULL-DOWN MENUS: Pull-down menus open when you grab certain input fields or buttons. You choose a command by moving the mouse onto the desired item. If you want to choose an item which is outside the visible section,

- move the mouse over the top or bottom edge of the menu; the further you move it, the faster you will scroll through the menu.
- now click using the right mouse button. You can then let go of both mouse buttons.

MOUSE AS SLIDER: You can set practically all the numerical parameters, (even note values or names) by grabbing the parameter value and moving the mouse up or down. If the parameter is made up of several separate numbers (e.g. song position), you can adjust each number individually.

USING THE MOUSE FOR IN/DECREMENTING: All the parameter values which can be set using the mouse as a slider may also be increased or decreased in single units by clicking on the top or bottom half of the value with the left or right mouse buttons while holding down the **alt**.

NUMERICAL INPUT: Double-clicking on a numerical parameter value opens an input field. The previous value appears pre-selected, (i.e. highlighted) to allow it to be overwritten by a new entry. You can also use the mouse to make a partial selection in an input field so that only the highlighted part is overwritten (for more on this, see the [section Numerical Value Input from page 220 onwards](#)). As long as the input field is open, all the keys may be used for inputting data only, and may not be used for key commands (the exceptions are the main menu functions).

... *by arithmetic:* At any time, you can enter numbers by typing in an arithmetical operation, e.g. “+2” or “-5”, which then simply changes the current value by that amount.

... *as ASCII-symbols:* You can also input numbers as ASCII symbols: just put a ` or " in front of it, and the ASCII code will be input as a number. For example:

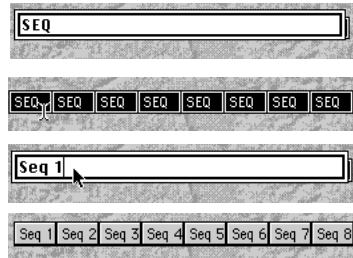
"! gives 33

"a gives 97

This function is particularly useful for entering text in SysEx strings.

TEXT INPUT: You input text names in the same way as numbers, but you only have to click the name fields once to allow input.

Numbered Names: As you might expect, you can give any number of selected objects the same name. If the name ends in a number, the number will automatically be incremented by 1 for each object. This allows you to name all the sequences on one track quickly.



Disabling automatic numbering: To turn off the automatic numbering, place a space after the number at the end of the name. All the selected objects will then end in the same number.

Tools and the Toolbox

MAGIX midi studio generation 6 allows recorded data to be handled graphically. This means that you don't have to carry out operations by inputting commands via number tables, but rather by manipulating graphic "objects".

When editing objects graphically, you always have two tools available at the mouse pointer position: one is already active, the other is activated by the right mouse button.

You change the currently active tool by clicking on the toolbox. The mouse pointer then adopts the shape of the tool you click on, so that you can tell what its function is by looking at the symbol: the Eraser is used for deleting, the scissors for cutting and the glue tool for merging objects. To assign a tool to the right mouse button, click on the desired tool in the Toolbox, with the right mouse button.

EFFECTIVE RANGE OF THE TOOLS:

- Tools are effective only in the working area of the window they were selected from (you can define individual tools for each opened window).

- A tool basically affects the objects you click on. If the clicked object is already selected, the tool operates on all other selected objects, as well.

SELECTING TOOLS: You select the tool you want to use by clicking on it in the toolbox (or clicking while holding down the right mouse button for the alternate tool).

If a toolbox is opened at the mouse position you can also use one of the number keys to choose a tool at the corresponding position. The tools are always numbered from left to right and top to bottom. Press the Show Tools key again to switch to the pointer, and close the box.

Opening the Toolbox at the Mouse Position: Use *Show Tools* (default: **esc**) to open a toolbox at the mouse position. This window will disappear as soon as

- you choose a tool by mouse click,
- you choose a tool by pressing a number key,
- you click anywhere outside the tool window or
- press any key.

INFO LINE: When operating many of the tools an info line appears at the edge of the window for as long as the mouse button is held down. The info line replaces the local menus in the window. This info line provides useful feedback about the type of operation you are performing.

THE TOOLS: *Pointer:* The pointer is the default tool. The mouse also takes on this shape outside the working area when you are choosing from a menu or inputting a value. Within the working area the pointer is used for selecting (by clicking on objects), moving (by grabbing and dragging), copying (by holding down **ctrl** and dragging) and editing lengths (by grabbing the bottom right corner and dragging). Grabbing and dragging anywhere in the background opens a rubber band (see [page 94](#)).

Pencil: The pencil is used to add new objects. You can also select, drag, and alter the length of objects.

Eraser: The Eraser deletes clicked objects. When you click on a selected object all of the currently selected objects are deleted (as if you had used **delete**).

Text Tool: The text tool is used to name arrange objects or add text to a musical score.

Scissors: The scissors are used to split arrange objects, e.g. before copying or moving individual sections (see [page 129](#)).

Glue Tool: The glue tool is the opposite of the scissors: all selected objects are merged into a single object, which is





given the name and track position of the first of the objects on the time axis ([more on this on page 129](#)).

Solo Tool: Grabbing with the solo tool allows you to listen to only selected objects during playback. Moving the mouse vertically also outputs any events the cursor touches, even when the sequencer is stopped (please refer also to [section Soloing sequences from page 130 onwards](#)).



Mute Tool: Clicking on an object with the mute tool stops it from playing and places a dot in front of its name, to indicate that it is muted. You can unmute it by clicking it again with the tool. If multiple objects are selected, the setting of the object you've clicked on applies to all selected objects (see also [section Muting sequences from page 130 onwards](#)).



Magnifying Glass: The magnifying glass allows you to zoom in on a “rubber-banded” section, right up to full window size. You revert to normal size by clicking on the background with the tool (for more on this, see the [section Zooming Selectively from page 88 onwards](#)). You can also access this function via other tools by holding down **alt**.



Finger: The finger is used in the Matrix Editor to alter note lengths.



Crosshair: The Crosshair is used in the Drum Editor to input a linear series of parameter values.



Layout tool: The layout tool is used for graphically moving objects in the Score Editor to optimize the display (e.g. bars to lines: “Local Formatting”) without altering the timing of actual MIDI events.



Size Tool: The size tool is used to adjust the size of graphic elements in the score.



Velocity Tool: In the note (i.e. Matrix and Score) editors), you can use the V tool to change the velocity of notes.

Window Functions

The basic functions of the MAGIX midi studio generation 6 windows are the same as those in other Windows application programs. However, the display options in MAGIX midi studio generation 6's windows are far more extensive.

In MAGIX midi studio generation 6, you can open different combinations of windows (even several of the same type) and adjust each one individually. All open windows in a song are constantly updated. This means that the windows update to follow the song position, and any alterations that you make in one window immediately update the display of all the other windows you are working with. It is also easy to save different window arrangements

(called “screen sets”), and recall them at the push of a button.

Working with windows

OPENING WINDOWS: All MAGIX midi studio generation 6 windows can be opened via the Window main menu. You can open as many of the same type of window as you like.

CLOSING WINDOWS: You close windows (**alt f4**) by clicking on the close symbol in the top right of the windows.



SETTING WINDOW SIZE: As is usual for Windows, you can change window size by positioning the mouse over a Window edge, or corner and pulling.

Maximizing window size: The windows maximize button, in the upper right corner of the window, toggles the window between its maximum size, and the size it was before you clicked on the button .



Minimizing window size: Clicking on the minimize button reduces the window to its minimum size. Double-clicking on a minimized window restores it to its original size.



SELECTING THE WORKING AREA: *Scroll Bars:* The scroll bars are situated at the right and bottom edges of a window, if you can only see one section of the working area in either the vertical or horizontal dimension.

You can move the visible section by clicking the arrows or grabbing and dragging the scroll slider. There are two points of note:

- The size of the scroll slider in relation to the size of the entire scroll bar corresponds to the size of the visible section in relation to the overall size of the window,
- the visible section changes as you move the scroll slider.

X/Y ELEMENT: The X/Y element is situated in the bottom left corner of the window. By grabbing and dragging it you can move the horizontal and vertical window section, as if you were dragging both scroll bars simultaneously.

PAGE SCROLLING: Use the key commands *Page Up*, *-Down*, *-Left* and *-Right* to scroll one page up, down, left or right, as if you had clicked in the grey region above / below the vertical scroll bar, or to the left / right of the horizontal scroll bar. The key commands *Page Top*, *-Bottom*, *-Left most* and *-Right most* take the visible section of the working area to the top, bottom, left or right, just as if you had grabbed one



of the scroll sliders, and moved it to one of its extreme positions.

ZOOMING: Below the vertical scrollbar and right beside the horizontal scrollbar you find two hatched fields. These fields are used for vertical respectively horizontal zooming and are therefore referred to as telescopes. Clicking the left, smaller side of the telescope symbol reduces the size of the objects in the display, allowing you to see more objects in the same space (zoom out) and clicking the right, larger side enlarges the objects in the display (zoom in).



The vertical telescope is for vertical zooming (*Zoom Vertical In/Out*, default assignment: **ctrl page up/ctrl page down**), while the one with the horizontal arrow handles horizontal enlargement (*Zoom Horizontal In/Out*, default assignment **page up/page down**). In some windows, only one telescope is available, and this then handles both horizontal and vertical zooming at once.



Whike “zooming”, the top left selected object is kept in the visible region, whenever possible.

ZOOMING SELECTIVELY: *Zooming In On One Section of the Screen:* To enlarge a section of the screen to the size of the whole window use the magnifying glass tool to drag a “rubber band” over the section you want. You can do this more than once.

Reverting to the Previous Zoom Setting: Click on the background with the magnifying glass. This will return the zoom to the original setting, by backtracking through the previous steps.

You can call up the magnifying glass functions with any other tool (apart from the pencil) by holding down **alt**. The pointer will still look like the previous tool, but if you “rubberband” with it, it will behave like the magnifying glass.

WINDOW ELEMENTS: *Adjusting the Size of the Window Elements:* If you move the mouse over the top left corner of the arrange area the mouse pointer turns into a crosshair. By dragging it, you can now adjust the size of the bar ruler, arrange area, track list, and transport buttons. You can also adjust the window elements in the Score, Drum and Matrix Editors using the same method.

Concealing/Revealing the Transport Functions: Use View > Transport to display or remove the transport panel buttons from the top left corner of the Drum, Matrix or Arrange windows. The number of buttons and indicators depends on the amount of space available (see the [section](#)

[Adjusting the Size of the Window Elements from page 88 onwards](#)).



Concealing/Revealing the Parameters: The function View > Parameters (*Hide/Show Parameters*) allows you to display or remove the entire area to the left of the Arrange and Editor windows, which contains the sequence parameters, track parameters, and the toolbox. Hiding these parameters gives you more space for the editor window itself. In many windows, you can hide and/or reveal further screen elements, such as the toolbox. These display options are always available from the View menu.

Menus

Because of MAGIX midi studio generation 6's great range of functions, most of them are not found in the main menus, but appear as local menus. These are always in the menu bars of the MAGIX midi studio generation 6 windows where they are required.

HIERARCHICAL MENUS: You use the menus (whether main or local) in the same way as in other application programs: grab the menu title, move the mouse over the desired item, and release the mouse button. In hierarchical menus, there is a right-pointing arrow after the item. If you highlight this item, a sub-menu drops down to the right. To choose an item from this sub-menu, move the mouse to the right, into the sub-menu, and then vertically over the desired item. Releasing the mouse button will activate the selected function.

Using a keyboard: You can also select the active window's menu using **alt**, and step through the menus in the usual way using **cursor left** and **cursor right** (or by hitting the typewriter keys for the underlined letters) to select the one you want. You then use **cursor down** and **cursor up** to select the menu entry you want (or carry out the menu function immediately by hitting the key for the letter underlined in the menu function's name).

If you encounter a hierarchical entry (which has a triangle at the end of the entry line), you can use **cursor right** to access the sub-entries (**cursor left** closes the sub-menu again) and, again, use **cursor down/up** to make your selection.

When you have chosen your function, hit **return** to activate it.

FIXED KEY COMMANDS: Some menu functions can be accessed via fixed keystrokes or combinations of keystrokes. The keys (or combinations thereof) are shown on-screen

next to the menu entries and operate globally. For example, you can open a song with **ctrl o**, or copydata to the Clipboard (=Copy) via **ctrl c**.

Please note that you may assign practically any other function to any key you like using the Key Commands window.

MENU OPTIONS WITH “...” IN THEIR TITLE: Three periods, like this: ..., next to the menu function title indicate that the entry does not activate a function immediately, but instead opens a dialog box.

Dialog Boxes

In Dialog boxes, you can hit the thick-bordered button by pressing **return**, or by clicking with the mouse.

As per usual for Windows, you can toggle the thick border from button to button with **cursor left/right**.

Window Types

There are two different types of window in MAGIX midi studio generation 6: normal windows and float windows. The contents of all the windows belonging to the current song are always updated, no matter what the type of window.

NORMAL WINDOWS: You can open as many normal windows as you want, including several of the same type. Even though the contents of all the windows is constantly updated, only one of the windows ever has the status of being the “top”, or “active” window. This is the window which is in the foreground when several normal windows are overlapping.

Top or Active Window: This window can be recognized by its fully-shaded title list. The main distinguishing characteristic of this window is that key commands only affect this window, and not any of the others. Windows > Next Window (**ctrl+tab**) brings the next window forward if it is fully covered up by others.

Background Windows: Background windows are identified by the color of their title bar. This color is determined by your “Appearance settings in Windows. You bring the window to the foreground by clicking on it, clicking on the title bar, or calling up one of the local menu functions.

FLOAT WINDOWS: MAGIX midi studio generation 6 knows two float windows: the Transport window and the Event Float window. Float windows are so called because they always “float” in the foreground, even above the top normal window (if there are too many open float windows, they will inevitably cover each other up—just click on

them to bring them to the front). Float windows are recognizable by their narrower title bar, which contains no name. Mouse operations can be carried out in the same way as in normal windows.

MAIN MENU WINDOW: MAGIX midi studio generation 6 Main Menu window is the main window of the program. You will find all menu items here. There are:

- Global Menus, which are always visible (e.g. File);
- Window related menus: they belong to a certain window type (e.g. Score Window) and are only visible when this window type is the active window. It only contains functions relevant for the corresponding window type.

As is common on Windows computers, you can address a menu using the alt key. Keep this window at its preset maximized size, there isn't much point in making it smaller.

The "Minimize Window" button can be used to switch between MAGIX midi studio generation 6 and other applications. You can get back to MAGIX midi studio generation 6 at any time by clicking the MAGIX midi studio generation 6 symbol in the Task Bar.

Press **alt tab** to toggle directly between MAGIX midi studio generation 6 and any other application.

Relationships between Windows

The two buttons at the top left of a window (shown here), determine its relationship to the song position (Catch), or to other windows (Link, Show Contents, or Contents Catch).



CATCH: The Catch function means that the visible section of a window follows the song position as the song plays.

If the button with the walking man on it is lit (i.e. if it is green), the window's display follows the song position as the song plays. If the button is not lit, the display does not update, even when the song position line moves past the right edge of the visible portion of the window (*Catch Clock Position*).

Automatic Catch Disabling: If you move the visible section manually, Catch is automatically switched off, so that the new section you have chosen doesn't then disappear, as the display is updated to the song position line.

Autocatch: The function *Enable Catch when Sequencer starts* (Options > Settings > Global Preferences...) always enables Catch mode whenever you press play or pause.



LINK, SHOW CONTENTS, AND CONTENTS CATCH: You can define these display options to control how information is displayed when working with related editor windows.

Link: When the button with the chain link icon is activated (i.e. when it is this window always displays the same contents as the top window. The display is adjusted whenever the selection in the top window is altered.

Here's an example: imagine the top window is an editor. In Link mode, the other editor windows can display the same data in another form (though please remember: you cannot have any event display as the background window of an Arrange window while in Link mode).



CONTENTS LINK: Double-clicking on the link button (dark blue) activates Contents Catch mode. This means that the window always shows the contents of the object selected in the top window. The display is therefore always one level below that of the top window.

Here's an example: if the top window is an Arrange window, in Contents Link mode the editor windows can show the events of a selected sequence. Selecting a different sequence in the Arrange window will cause the display of the linked editor to switch to that sequence, as well.



CONTENTS CATCH: By simultaneously switching on Catch and Contents Link, you activate Contents Catch mode. Initially, this is equivalent to Contents Link mode, but when the song position reaches the next object on the same track, the contents of *this* object are then displayed.

You could use this mode in an Arrange window, much as you would in Contents Link mode. The editor windows would then show the events of the sequence which is currently being played on a track.

Screensets

Normally you will lay out your windows on the screen in a way that suits your way of working. This layout with various windows, with all their different parameters (display, zoom, position of each window) is called a screenset, and can be stored. You can then swap between different screensets, much as you might swap between different computer monitors.

STORING SCREENSETS: Screensets are numbered from 1—99 using only the numbers 1—9. You can see the number of the current screenset in the main menu next to the word Window.

You don't have to save screensets with an explicit command. It happens automatically as soon as you switch to another screenset. Thus, without any effort, your current working view is always stored on the current screenset.

SWITCHING SCREENSETS: Just input the number of the desired screenset (1—9). For two-digit screensets hold down **alt** while inputting the first digit.

PROTECTING SCREENSETS: Use the key command *Lock/unlock current screenset* to protect the current screenset from being altered. A # then appears in front of the screenset number. Repeat the key command to unlock the screenset.



The *New Song* command deactivates all Screenset locks.

COPYING SCREENSETS: To copy the current screenset to a destination screenset, hold down **shift** when you switch screensets.

Copying Screensets between Songs: Close all the windows you want to copy in the screenset, switch to the other song, and reopen the editors. They will have retained their sizes and shapes in the new song.

The reason for this is that the preset values for window position, size, and all other pertinent parameters are stored in memory when you manually close a window, so that the settings remain the same the next time windows of the same type are opened again.

SEQUENCER-CONTROLLED SWITCHING: You can automatically switch screensets using meta event # 49—just add it to a sequence in the Event Editor.

- Set the song position to the point where you'd like the screenset to change.
- Right mouseclick in the Event Editor on the button shown. The inserted meta event has the default value 50 (*Song Select*).
- Alter the number in the *NUM* column from 50 to 49. This changes the name to *Screenset*.
- Input the desired screenset number in the data byte column (*VAL*).



You can stop the switching by muting the sequence that contains the Meta 49 event.

Selection Techniques

Whenever you want to carry out a function on one or more objects, you have to select the object(s) first. This applies to

arrange objects and individual events alike. Selected objects are either displayed in inverse color, or will flash (the latter in the Score editor).

The selection status of an object applies to all windows. An object selected in one window will also be selected in all other windows that display that object. Changing the top window doesn't affect the selection (as long as you don't click on the background, which deselects everything. Be sure to click on the window's title bar).

SELECTING INDIVIDUAL OBJECTS: Individual objects may be selected by clicking on them, and deselected by clicking in the background, or by selecting another object.



You can also use the key commands *Select next/previous Object* (default: *K/J*, in the Event List: *M/I*).

Selecting Alphabetically: **tab** selects the next alphabetical object. In the Arrange window pressing any letter key selects the first object whose name begins with this letter providing there is no key command assigned to this key.

SELECTING SEVERAL OBJECTS: To select several non-contiguous objects, hold down *S* as you click them. As subsequent objects are selected this way, the previous selections are retained. This also works with horizontal or rubber band selection.



Horizontal Selection: To select all objects on a track, click on the track name in the track list. In the same way, you can select all events with a certain event definition in the Drum Editor, by clicking on the event definition name, or all notes of a certain pitch in the Matrix Editor by clicking the relevant key on the screen keyboard.

In Cycle mode, the above selects only the events within the Cycle zone.

“Rubber-Banding”: To select objects which are close together, click on the background and drag a “rubber band” over them.

All objects touched, or enclosed by the rubber band will be selected.

Toggling the Selection Status: When you make any selection (including by rubber band or horizontal selection), holding down **shift** at the same time will reverse the selection status of the objects.



You can reverse the selection status of all objects using *Edit > Select > Toggle Selection*. For example: if you want to select all objects except for a few, first select these few and then choose *Toggle Selection*.

Selecting Following Objects: To select all objects after the current one (or, if no object is currently selected, to select all objects after the song position), choose Edit > Select > Select All Following.



Selecting Objects within the Locators (Vertical selection):

Edit > Select > Select inside Locators selects all objects lying wholly or partly within the locators.



SELECTING ALL OBJECTS: To select all objects, select Edit > Select All or press **ctrl a**.



Deselecting All Objects: You can deselect all objects by clicking on the background or using the key command *Deselect All*.



Edit Operations

The local edit menus in MAGIX midi studio generation 6's various windows all take the same form. The first item is Undo. Below Undo are the typical clipboard functions and at the bottom of each are the main selection commands.

UNDO: Undo allows you to reverse the previous edit. Under Options > Settings > Global Preferences..., you can disable the warning message that normally appears when you activate Undo, by checking the *Disable safety alert for Undo* box.



The key command for Undo is always **ctrl z**.

The Clipboard

The clipboard is an invisible area of memory into which you cut or copy selected objects so that you can paste them into a different position.

The clipboard spans all songs, which means you can use it to exchange objects between songs.

CUT: All selected objects are removed from their current position and placed on the clipboard. The previous contents of the clipboard are overwritten in the process (key command **ctrl x**).



COPY: A copy of all selected objects is placed on the clipboard. The selected objects are also left in place. Here too, the previous contents of the clipboard are overwritten (key command **ctrl c**).



PASTE: All objects from the clipboard are copied into the top window. The clipboard is not erased in the process (key command **ctrl v**).



The contents of the clipboard are added at the current song position (if they are events or arrange objects). The song position is incremented by the length of the pasted objects.

In the Arrange window, the contents of the clipboard are pasted to the selected track. If events are pasted in the Arrange window, either a new sequence is created for them, or the events are added to a selected sequence.

Any objects that existed previously are unchanged.



DELETE: Any selected objects are erased. Delete has no effect on the clipboard and is the same as pressing **back-space** or **delete**.

General Functions of the Editors



CONTROL OUTPUT VIA MIDI: Switching on the MIDI Out button causes MIDI events to be output when they are added, selected, or edited. This allows you to audibly monitor every editing stage, whether you are scrolling through the Event List (automatic selection) or transposing a note.



AUTOMATIC SCROLL FUNCTIONS: ... *scrolling to the Song position:* The button with the walking man on it activates the Catch function, which means that the window view will always show the current song position.

CONTENTS LINK: Clicking on the button with the chain symbol on it activates the link function, and double-clicking it activates the “show contents” function. In “show contents” mode, the window always displays the contents of an object selected in the top window; in link mode the window shows the same objects as the window where you are making the selections.

For a full description of the catch and link functions see [page 91](#).



In Editor windows, contents link is usually active. You can then, for example, select some sequences in an arrange window, and when you switch to a screenset with an open editor window, you will see the contents of the selected sequence(s).

Selection Commands and Editing Functions



SETTING LOCATORS BY OBJECTS: The Functions > Objects > Set Locators by Objects command allows you to set the locators in all the Editors (just as in the Arrange window) so that they just encompass the currently-selected events.

EDIT FUNCTIONS: For a description of the undo and clipboard functions (particularly adding events at the Arrange level), refer to [page 95](#).

ALTERING NOTE LENGTHS: While changing the lengths of multiple objects you can make all lengths equal by holding **shift ctrl**.

REPEATING OR COPYING EVENTS: To repeat selected events once or several times (with adjustable rounding of the position of the first repeated event), you can use the function Functions > Object > Repeat Objects.



DELETING EVENTS: The basic techniques are the same as for deleting sequences:

- **delete** deletes all selected events,
- the Eraser also deletes all selected events, and any events that you click with it (whether previously selected or not).

Step-time Recording

Step-time recording allows you to enter notes via the keyboard, but not at any defined tempo as in real-time recording. After each note is inserted, the sequencer “steps” ahead by an increment which is determined by the division setting in the Transport window. Every note or chord you enter automatically receives the note value of the display format, or a multiple of it. MIDI Step-time input is activated in the Score, Event List and Matrix Editors by pressing the MIDI In button.



Here’s how to do it. Select an existing sequence, or create one in the Arrange with the Pencil tool. Open one of the note editors (Score, Event List or Matrix).

- Switch on MIDI In.
- Play and hold a note or chord. You may even hit the notes for the chord one after another, if you like. The important thing is that at least one note remain pressed from the beginning.
- Release the last note. This moves the song position by one step (the format value on the transport), and you may enter a new note.
- Rests are entered with the sustain pedal. Each time you press this, you step through the song by the format value, without entering a new note.
- You may enter longer notes or chords by pressing the sustain pedal while holding down the note(s).

You may change the format value on the Transport at any time, even while you are holding down notes.

Step-time input is also possible from the score display. However, the quantize value *Default* should be avoided, as the note display will then change every time the step size is altered.

If you are step-time recording in the Score Editor you can also define the note value by clicking notes in the part box (but only if step-time recording is switched on.)

KEYBOARD CONTROL: When employing step-time input, there are a few special, non-editable key commands that can only be used if the keys in question have not been re-defined for another purpose (see the [section *Key Commands Window from page 101 onwards*](#)).

tab or **space bar:** as the sustain pedal. (please note that **space bar** is the default key for *Record Toggle*. If you wish to use **space bar** to move along in steps, you will first have to delete this key assignment; see the [section *Deleting Assignments from page 102 onwards*](#)).

n jumps to the next bar division position; so in 4_4 time, to the next quarter note.

m jumps to the next bar.

b moves back a step and erases the event there.

a sets the division value to 1_4 .

s sets the division value to 1_8 .

d sets the division value to 1_{16} .

q sets the division value to 1_{32} .

w sets the division value to 1_{64} .

e the current division value is set to the next highest triplet value: for example from 1_{16} to 1_{24} .

e the current division value is set to the next lowest triplet value: for example from 1_{16} to 1_{12} .

The key commands will continue adding these values, as long as the MIDI controller key is held down.



EDITING VIA MIDI INPUT: By double-clicking on the MIDI In button, you switch on “Edit by MIDI In Mode”. The values of the MIDI data being input are then used to edit the “Pitch” and “Velocity” of the currently-selected note. The note length remains unchanged. In contrast to MIDI step-time input, no new data is created; what exists already is merely changed. The key commands *Next / Previous Event* allow you to move one note further forward or back.

Event Quantization

The Event Editor has a separate quantization function which can be applied to all selected events. Unlike quantization for arrange objects the event quantization applies to

all events, not just notes. It irreversibly alters their positions (only notes can be returned to their original recorded positions).

QUANTIZING EVENTS: Select the events that you want to quantize.



You open the pull-down Quantization menu by grabbing the “Q” button shown here.

This is identical to the matching pull-down menu for the playback parameters, and contains its own quantization grid (for details see the [section Quantization from page 135 onwards](#)). As soon as you choose an item from the menu, all the selected events are quantized.

Please remember that you can only reverse note quantization. All other events are permanently shifted.

To apply the same quantization grid to another series of selected events (even in other Editor windows), select Functions > Quantize again, or click quickly on the “Q” button again.



Note Quantization

Normally, all notes in a sequence are quantized according to the Quantization parameter in the sequence parameter box and the extended sequence parameter box (explained in greater detail in the [section Quantization from page 135 onwards](#)).

To quantize single notes in either of the Note Editors (the Matrix or Score Editors) you can use the Q tool, as well as event quantize.



If you click on a single note (or a selected group) with the Quantize tool, and hold down the mouse button, the quantize menu should open and you can choose the quantization you want.

If you click quickly on notes, the last quantize value will be used again, just as with the Quantize Again command.

If you click on the background with the Q tool you get the usual rubber band for selection of several objects at once. Special note for working in the Score window: the display quantize setting will have an effect on how this works.

Unquantizing Notes: Note events can be returned to their original record positions, or moved by hand, by selecting the setting *Qua off (3840)*, or by clicking on the Q button while holding down **ctrl**.



You can also unquantize all the currently selected notes by clicking on them with the Q tool while holding down **ctrl**. You achieve the same result by selecting Functions > De-Quantize.



Display Functions

The [section *Window Functions from page 86 onwards*](#) describes the basic window functions, including how to lay out the window elements to make more space for the event display in the graphic editors, and how to operate the zoom functions.

Many of the display options in the editor windows correspond to those in the Arrange window:

By choosing View > Parameters you can hide or show the parameter fields to enlarge the window's working area. The key command is *Hide/Show Parameters*.

In the Matrix and Drum Editors you can conceal or reveal the transport panel in the top left corner by choosing View > Transport.

Key Commands

You can activate many MAGIX midi studio generation 6's functions via key commands. The Key Commands window is where you assign key commands to the keys.

Whenever this manual mentions a key command, this refers to a command which can be called up by a keystroke. This allows you to completely customize MAGIX midi studio generation 6 to suit your own working style.



If any function described in this manual is also available via a key command with the same name you will see this symbol.

Your personal key assignments are stored (together with the settings of the Preferences pages) in a file called "MAGIX midi studio g6.prf" in your PC's Windows folder. You should:

- make a backup of this file at another location on your hard disk;
- make a floppy disk backup of it in case you need to use a MAGIX midi studio generation 6 system on another computer.

When you install updates to your version of MAGIX midi studio generation 6, your personal key commands will remain unaltered.

SPECIAL KEYS: Some keys have special functions:

- The modifier keys **shift**, **ctrl**, and **alt** can only be used in conjunction with other keys.
- The **backspace** key has the fixed function "delete selected objects". It can only be assigned a function in conjunction with the modifier keys **shift**, **ctrl**, and **alt**.
- The **ctrl+f4** key (close window) and **ctrl+alt+f4** key combination (close application) cannot be reassigned.

- The key combinations assigned to the options in the main menu bar cannot be reassigned. The relevant keys are displayed after the main menu items.
- The + and - keys increase or decrease any selected parameter value in single units. However, they *can* be assigned different functions which overwrite this function.
- The keys **tab**, **n**, **m**, **b**, **a**, **s**, **d**, **q**, **w**, **e**, **r** have invisible predefined functions for step recording, which can also be overwritten if you choose to redefine them.

Key Commands Window

The Key Commands window can be opened by selecting Options > Settings > Key Commands....



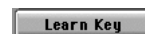
All the available key commands are listed on the right side. They are grouped according to the following categories:

- Global commands
- Functions affecting all windows (various windows)
- Functions affecting all Editor windows (various sequence Editors)
- Functions for the Arrange window
- Functions for the Score Editor (Score window)
- Functions for the Event List Editor (Event window)
- Functions of the Audio window
- Functions of the Waveform editors

A "*" in front of the description of the function indicates that the function is only available as a key command. To the left you can see the currently-assigned key.

ASSIGNING A FUNCTION TO A KEY:

- Click the *Learn Key* button.
- Select the desired function with the mouse.



- Press the desired key, if necessary together with the desired modifier key(s) (**shift**, **ctrl**, and **alt**).
- If you want to make another assignment, repeat steps 2 and 3.
- Deactivate *Learn Key!*

You can also set the key (*Key*) and the modifier via pull-down menus in the parameter box (top left).

DELETING ASSIGNMENTS:

- Click on *Learn Key*, to erase the key assignment.
- Use the mouse to select the function whose key you want to delete.
- Press **backspace**.
- To erase more assignments, repeat the second and third steps.
- Deactivate the *Learn Key* button.

CHECKING THE FUNCTION OF A KEY: Deactivate *Learn Key*, and press the key whose function you want to check. The function will be automatically selected, and displayed in the middle of the window.



MAKING THE DISPLAY CLEARER: You can use the *Hide Used* and *Hide Unused* buttons to remove all the used, or unused key commands.

All the other Key Commands window functions remain available for you to use.



FINDING KEY COMMANDS: Due to the large number of possible key commands, it can sometimes be difficult to find one in particular. For this reason, MAGIX midi studio generation 6 offers a *Find* function, which lets you search for a key command by typing in its name (or a part thereof).

Simply click in the white space to the right of the *Find:* button and enter the string of characters you're searching for. The window will then display only those key commands containing that character string (plus the selected command, even if it doesn't contain that string).

The Key Commands window remains active, even in Find mode; you don't have to leave this mode to continue making assignments.

The Find function is not case-sensitive, it makes no distinction between upper, and lower case characters.

The *Hide Unused* and *Hide Used* buttons work in combination with Find, but obviously, this means you must switch off both in order to see *all* the commands that fit the

search criteria, regardless of the commands' current assignment.

The *Find:* button switches Find mode off and on. The button is automatically activated if a string of characters is entered.

A small rectangular button with the text "Find:" inside.

By choosing Options > Scroll To Selection the key commands window will scroll to the currently selected key command. The same function will automatically be performed when the FIND button will be disabled.

You will find other helpful functions under the Options menu. Options > Import Key Commands... allows you to import the key commands from another .prf file. This imports only the key commands, not the rest of the settings stored in a .prf file. Just in case: Please make a backup copy of your existing .prf before importing other key commands.

If you want to printout your key commands, use Options > Copy Key Commands to Clipboard, paste the key commands into a text editor—and print them.

Global Functions

Object Colors

In the Arrange window you can define a color for selected objects. View > Object Colors... (*Open Object Colors*) opens a color palette. Selecting the key command a second time closes the palette.



Click on the color you want to fill in all the selected objects in that color.

Newly-recorded sequences acquire their tracks' colors.

Online Help

MAGIX midi studio generation 6 has an online help facility: the .HLP file is automatically installed, and needs to be in the MAGIX midi studio generation 6 folder. You can call up the online help via Help > Help.

Song Administration

All events, other objects and settings (apart from the Preferences and key commands) are components of a song. Songs are handled in the main File menu.

New Song

When you first launch MAGIX midi studio generation 6, it opens a preset standard song. After just a short time, you will have learned how to make your own adjustments to screensets and to song settings, and will no doubt want to keep these settings for use in future songs, as they are suited to the way you personally work with MAGIX midi studio generation 6. The best way to do this is to set up

your own “default song”, and save it in the same folder as the MAGIX midi studio generation 6 program, calling it “Autoload”.

AUTOLOAD SONG: If you want MAGIX midi studio generation 6 to automatically load a specific song when you boot up the program, just name this song “Autoload” and save it in the same folder as the MAGIX midi studio generation 6 program.

Now, every time you boot up MAGIX midi studio generation 6, the Autoload.MSP song will be opened automatically (provided you don’t start MAGIX midi studio generation 6 by double-clicking on a different song altogether).



CREATING A NEW SONG: If you select File > New (**ctrl n**), a new default song is created.

Loading a Song



You use File > Open (**ctrl o**) to bring up a typical file selection box.

Special Functions

CHECKING/REPAIRING SONGS: If you double-click on the display on the Transport which shows the remaining number of free events (see [page 108](#)), the memory will be reconfigured. At the same time, the current song will be checked for any signs of damage, structural problems and unused blocks.

If any unused blocks are found—which normally shouldn’t happen—you will be able to remove these, and repair the song.

Saving Songs



When you select File > Save (or **ctrl s**) the current song will be saved with its current name intact.



If you don’t wish to overwrite the last version of this song saved under this name (which is what will happen if you just use File > Save or **ctrl s**), try using File > Save As... Here, you can enter a new name for the song (and select a new directory or even create a new folder). The next time you save using straight Save (**ctrl s**), the new name and file path will be used.



REVERTING TO THE SAVED VERSION: Anytime you make a mistake, you can undo it by selecting Edit > Undo (**ctrl z**). If you have made some *really* serious blunders (unlikely as that may be), or you decide that since the time you last saved, your creative outpourings have gone in the totally wrong direction, you may find the function File > Revert

to Saved very helpful. This replaces the current song with the previously saved version.

Closing a Song

File > Close (**ctrl w**) closes the currently active song. If you have made any changes since the last time you saved, MAGIX midi studio generation 6 will ask you if the song should be re-saved before closing, to preserve the changes you have made.



Quick Start of the last four Songs

The last items in the File menu, just above the Quit command, are the last four songs you used—allowing you quick restarts of your recent works.

Quitting the Program...

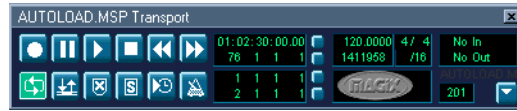
Choose File > Quit (**ctrl q**) to leave the program. If you have not yet saved your last changes, you will be asked if you want to do so before quitting (press **return** to save).

Transport Functions

The Transport Window

The Transport window is used to control and display recording and playback functions.

Being a float window, it is always in the foreground, and can never be covered by other windows.



Opening the Transport Window

To open the Transport window, select Open Transport from the Window main menu.

Closing the Transport Window: Click on the close symbol on the top right of the window.

The Transport Bar in Other Windows

You can also configure a fixed Transport window in the Arrange, Score, Drum and Matrix windows. When you choose View > Transport, the transport bar functions appear in the top left corner. The number of visible buttons and displays depends on the size of this area. Move the mouse cursor to the lower right corner of this area to change the cursor into a cross. With this you can grab the lower right corner and thus change the size of the area.

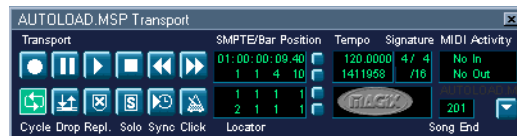
Altering the Display

To move the Transport window around the screen grab it by its title bar.

The Transport window pull-down menu opens when you click on the triangle symbol in the lower left corner. This is where you change the way the Transport window looks.

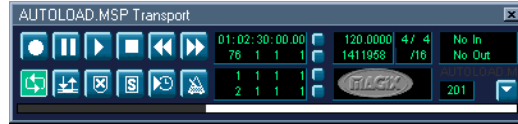
Smaller/Larger: You can adjust the size of the Transport bar to several different size settings.

Legend: This display option conceals/reveals a description of all the window elements, and is very helpful if you are still getting to know the program.



Position Slider: This hides/shows a stripe at the bottom edge of the window whose size represents the current amount of the song shown on screen relative to the entire song length (read the [section Song End from page 109 on-](#)

wards). You can also grab the stripe and move it quickly, to take you to a different song position.



Parameter Fields and Displays

All the displays in the Transport panel (apart from the song name), can be used for inputting data. You can either input the numbers via the keyboard, after double-clicking on the display field, or adjust the individual numbers using the mouse as a slider.

POSITION DISPLAY: The current song position is shown in two formats:

Above: SMPTE time.

Hours: Minutes: Seconds: Frames / Subframes.

For more on setting the song Start time when using external SMPTE sync, please read the [section SMPTE Offset from page 264 onwards](#). Below: bar position
Bar—Beat—Division—Ticks.

A beat corresponds to the denominator in the time signature, a division is a freely-definable part of a beat (see [section Time Signature and Divisions from page 108 onwards](#)). A tick is the smallest possible bar subdivision or system quantization—just $1/3840$ note.

Buttons: There is a column of four small gray buttons, between the locator display area, and the tempo display area. The bottom two of these are aligned just to the right of the two locator points. The upper of these will take the SPL to the left locator, when pressed. The lower button will take the SPL to the right locator.

LOCATORS: You define two sets of locator points, one for the Cycle zone, and the other for the Autodrop zone.

The locators on the left define the cycle region, which is a passage that can be constantly repeated (take a look at the [section Cycle Mode from page 112 onwards](#)).

The locators on the right define the autodrop range (take a look at the [section Autodrop from page 110 onwards](#)). They are only displayed when the cycle and autodrop functions are both switched on.

Any mention of the left or right locators is a reference to the left-hand cycle locators. The top one is the left locator and the bottom one is the right locator.



Switches: On the right of the cycle locators are two placement buttons. When you click on either of the buttons, the song position jumps to the relevant locator.

TEMPO: The tempo is given in quarter notes per minute or beats per minute (bpm). In MAGIX midi studio generation 6 it ranges from 0.5 to 9999 bpm and is given to a precision of 4 decimal places.

Programming Tempo Changes: Please refer to the [section Tempo from page 260 onwards](#).

TIME SIGNATURE AND DIVISIONS: *Bar numerator/ Bar denominator/ Division:* The division defines the third format value in all position displays (i.e. in the Event Window), and forms the grid for various length and placement operations. The division is normally set to 1/16 notes, but has a value range of 1/4 to 1/96 note. If the note value of the division is equal to or greater than the bar denominator, the third value of the position display is automatically removed.

Programming Time Signature Changes: If you alter the bar numerator or denominator in the Transport window, a time-signature change is created at the start of the bar where the current song position is. This is shown in the bar ruler, to the left of the bar number. Of course, a time change does not affect the absolute positions of the events that are already there.

You can also add time signature changes directly in the Score Editor. For more about this, see the [section Time signatures from page 253 onwards](#).

Editing Time Signature Changes: Move the Song Position Line to the first bar with the particular time signature you want to change. Set the new time signature from the transport bar.

You can also edit the time signature in the Score Editor, by double-clicking on it.

Erasing Time Signatures: Simply change the time signature back to the value of the previous time signature.

You can also erase time signatures in the Score Editor by selecting them, and hitting **delete**. To erase *all* time signatures, select Edit > Select > Select Similar Objects before doing this.



MIDI MONITOR AND PANIC FUNCTION: The top line at the far right shows the last MIDI message received, and the bottom line the last MIDI message transmitted. The monitor is mainly used to check the MIDI connections.

Click on the MIDI monitor to silence any hanging notes. If this doesn't work, double-clicking on it should do the trick (*Full Panic*; take a look at the [section For hanging notes—Panic Function from page 141 onwards](#)).



SONG TITLE: The title of the active song is shown below the MIDI monitor.

SONG END: Below the song title, on the right, you are given the position of the song end. As soon as the sequencer reaches this position, it stops automatically, except when recording. In this case the song end is automatically moved to the end of the recording.

For internal system reasons, the maximum length of a MAGIX midi studio generation 6 song is 8550 quarter notes, or about 2138 bars in 4/4 time.

A song can therefore last a maximum of around 70 minutes at a tempo of 120bpm. At 95bpm, the maximum length is over an hour and a half.

If you need to increase this length, e.g. for video synchronization, just halve the tempo. You can achieve the same result by using 4/8 time instead of 4/4 time, and treating quarter notes as eighth notes.

A 4/8 song at a tempo of 60bpm (equivalent to 4/4 at a tempo of 120) has a maximum length of more than 4273 bars, or over 2 hours and 22 minutes.

Keys and Buttons

All the functions of the Transport panel are also available as keyboard commands, even if the Transport window is not open.

TRANSPORT: The basic functions of these keys are the same as on tape machines, or cassette recorders, and should be familiar to everyone. Here are a few special features.

Record: Recording normally starts after the count-in, at the start of the current bar. In cycle mode, it starts at the left locator. You can also choose to have one beat constantly repeated, until a MIDI message is received, at which point recording begins ([more on this on page 114](#)).



Pause: Pauses recording or playback until you press pause or play again. During paused recording, you can add individual events which will still be recorded.

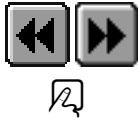


Play: Starts playback at the current position, or in cycle mode from the left locator.



Stop: Ends recording or playback—the sequencer stops. If the sequencer is already stopped, pressing stop moves the





song position to the song start, or in cycle mode to the left locator.

Rewind/Forward: If the sequencer is stopped, these work as normal. Both normal (*Rewind/Forward*) and fast (*Fast Rewind/ Fast Forward*) winding are available via the keyboard.



MODE: The mode buttons do not immediately trigger an action, but switch operating states. The activated mode is signalled by the relevant button being illuminated.

Cycle: Switches to cycle mode ([more on this on page 112](#)).

Autodrop: Switches to autodrop mode ([more on this on page 116](#)).

Replace: Switches to replace mode ([more on this on page 115](#)).

Solo and Solo Lock: In solo mode, only the selected objects are played. The data output from all other objects is muted. This is known as: “soloing the objects”. You can of course, change the solo mode of objects by changing what you have selected (if necessary, refer to the [section *Selection Techniques from page 93 onwards*](#)).

If you want to carry out specific functions on individual objects, regardless of the soloed sequences, you have to be able to select these objects without affecting the solo status.

This is what the solo lock function is for. After soloing the desired objects, double-click on the solo button, whose colors will then be inverted (as shown). You can now alter the selection without affecting the solo status of the objects.



Sync: This button allows you to synchronize MAGIX midi studio generation 6 from an external source. If MAGIX midi studio generation 6 is running by itself, or acting as a synchronization source (i.e. master), this button should not be activated. When you first boot MAGIX midi studio generation 6, Manual Sync mode is automatically switched off.

Grabbing the sync button opens a pull-down menu, where you can define the following:

- the type of external synchronization ([more on this on page 263](#)),
- direct access to the tempo editors ([more on this on page 260](#)).

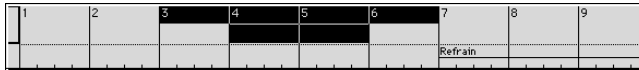


Metronome: This button is used to turn the metronome on and off. MAGIX midi studio generation 6 keeps a separate record of its setting for recording and playback. Grabbing the button opens a pull-down menu where

- you have direct access to the Recording Options (described on [page 278](#)),
- you have direct access to the MIDI Metronome Click settings.

Bar Ruler

There is a bar ruler at the top of all the horizontal time-based windows (i.e. the Arrange, Matrix, Drum and Score).



This ruler is used to display and set the;

- song position,
- start/end of the song and
- cycle and autodrop locators.

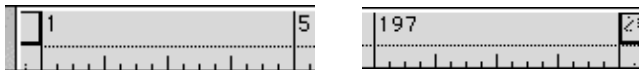
Display



Depending on the zoom settings ([page 88](#)) the bars are shown at the top edge in units of 1, 4, 8 or 16. Changes in time signature are also shown here.

In the bottom third, there is a vertical line for each bar. The shorter lines represent one beat, but are not always visible (depending on the zoom setting).

START AND END MARKERS:



The song start is normally at position 1 1 1 1. You can move the song start to an earlier position for playing upbeats or program change commands, by grabbing and dragging it with the mouse. The position display in the top left of the window will tell you where it is. The song end (default: bar 201) can be set using the same method, or via the numerical display (see [page 109](#)).

Song Position Line

The song position line (SPL) is a vertical line which indicates the current song position in all horizontal, time-based windows. You can grab the line with the mouse, and drag it to the desired position (but only if there is no object at the mouse position when you drag it). Choosing *Wide Song Position Line* under Options > Settings > Display Preferences... switches to a thicker SPL.

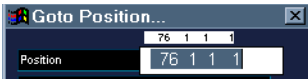
DIRECT PLACEMENT... Since it is fairly difficult to grab the SPL in the window itself, you can also directly position it using the bottom third of the bar ruler. Just click here to make the SPL jump to the point you've clicked at.

...while starting or stopping: Double-clicking on the bottom third of the bar ruler repositions the SPL, and also toggles between playback (or record) and stop.

...numerically: Choosing *Goto Position* (default key: **G**), calls up the dialog box shown above, to allow you to input the song position numerically. The last division used (bar position or SMPTE time) is automatically selected, with the last input value as a default. Since the numbers are registered from the left, it is enough just to enter the bar number.

...in the score: In the Score Window you can set the SPL directly by clicking into a staff at the desired position while pressing **ctrl**. This function is only available when the sequencer is stopped. The chosen position is displayed in the ineline while the mouse key is pressed.

A hint: This method is especially handy when working in page view mode, since there is no bar ruler in this case.



Cycle Mode

In cycle mode, a chosen passage of your current song is constantly repeated. This is useful for;

- composing part of a song,
- practicing a recording,
- recording individual tracks consecutively
- editing events.

The cycle region is shown as a black stripe in the top part of the bar ruler.



Switching On Cycle Mode

There are four ways of switching cycle mode on and off;

- clicking on the cycle button,
- using the *Cycle* key command,
- clicking on the top part of the bar ruler, and
- inputting graphically via the bar ruler.

How MAGIX midi studio generation 6 behaves in Cycle mode

- The Song Position Line jumps from the end of the cycle region to the beginning;
- The Play command starts playback from the beginning of the cycle region;



- To start playback from another position, hit Pause twice, or Pause and then Play;
- At the cycle jump point, you can use the Chase Events function (more on this later)—Options > Settings > Chase Events... > *Chase on Cycle Jump*)
- You can determine the way recording works in cycle mode, by using the various options on the Options > Settings > Recording Options... page (for more on this, take a look at the [section *Recording in Cycle Mode from page 115 onwards*](#)).

Defining the Cycle Region

GRAPHICALLY USING THE BAR RULER:

- Click-hold in the top third of the bar ruler, and define the desired region, by dragging the mouse (dragging from right to left generates a Skip Cycle; see above).
- Grab the bar in the middle to reposition it.
- Grab the bottom corner to move the start or end points of the cycle (you can even do this while the sequencer is still running.). If you set the start and end points to the same position, cycle mode is switched off.
- You can reset the nearest edge of the beam by clicking on it while holding down **shift**, even if the beam is outside the visible range, or if cycle mode is switched off.

When you set the size of a cycle graphically in the bar ruler, your sizes are quantized to the nearest bar. The locator positions can only be changed division by division at high zoom resolutions, or if you hold down **alt** as you drag. If you hold down **shift** and **alt**, at a really high zoom resolution, you can drag and change the size of the region in ticks.

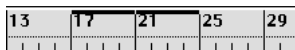
To set locator positions that do not lie on whole bar lines regardless of the zoom resolution, enter your locator positions numerically in the Transport window.

NUMERICAL ENTRY: The positions of the left and right locators (start and end points of the cycle) are shown in the Transport window, where they can also be altered.

Skip Cycle

When you are playing the song you can skip a passage, which is useful for trying out the musical effect of various transitions.

SETTING UP SKIP CYCLE: Drag out the skip cycle region from right to left in the bar ruler.



If there is already a (normal) cycle region just move the left locator after the right locator.

The skip region is shown as a very thin strip at the top edge of the bar ruler.

FEATURES OF SKIP CYCLE MODE: When the SPL reaches the right locator it skips to the left locator (i.e. the “right” and “left” locators swap positions).

Skip cycle is a quick way of leaving out a passage in an Arrangement, without having to physically delete it from all the tracks, make a backup, etc.

You can also use it when editing, to leave out those parts of the song which you don’t want to be affected by the edit.

Recording

CHOOSING A TRACK: First you have to select the track you want to record on, for example by clicking on it ([more on this on page 120](#)). Remember, just one track can be selected. During the recording, the incoming events are stored in a sequence, on the selected track.

Note: If you want to record fader, knob or button movements of normal audio tracks, just open the mixer and do what you have to do. All your changes will be recorded (as MIDI events) on the corresponding audio track.

Changing Tracks: You can change the record track, without having to stop recording —just select a new track, for example via the *Select previous / next track* command (default keys: **cursor up** or **down**).



Count-in

After you press the record button, the recording begins with a count-in. This is defined under Options > Settings > Recording Options.... The choices are:

No count-in The recording begins without a count-in.

Wait for note MAGIX midi studio generation 6 repeats the first 1/4 note (or note value of the bar denominator) until a MIDI note is received. The recording then begins.

1-6 Bar count-in There is a 1—6 bar count-in (default: 1 bar).

2/4 - 9/4 count-in 2—9 quarternotes count-in.

...*Click only during count-in:* If the Options > Settings > Recording Options... > *Click only during Count In* option is active, the click will be switched off after the count-in—so called “Drummer mode”.



This is often useful if the section of the song just before the part you're recording lacks the sort of rhythmic information necessary to play new parts in time, but when there's plenty of rhythmic reference, once the section you're recording to gets going.

Record Options

Record Toggle (default: **space bar**) switches between play-back and record mode.



Record into selected sequences: Normally a new sequence is created during every recording. Under Options > Settings > Recording Options... you can activate *Merge New Recording With Selected Sequences*, so that any new data is incorporated into an existing sequence, when this sequence is selected.

REPLACE MODE: To activate replace mode, press the replace button. In replace mode, any newly recorded data is always stored in a new sequence. In addition, any existing sequences on the destination track are cut at the punch in/out points of the recording, and any data between these points is deleted.



DESTRUCTIVE MIDI RECORDING: If you select *Merge New Recording With Selected Sequences (r)* and switch on replace mode (the recording head symbol in the Transport window), the new events you record will replace the ones in existing sequences.

The Merge/Replace combination can itself be coupled with the Autodrop and/or Cycle functions.

Recording in Cycle Mode

All settings for recording in cycle mode can be made in the Recording Options of the Song Settings (see [page 278](#)). You can either use several cycles to record a single sequence (*Merge only New Sequences in Cycle Record* checked), or you can create a new sequence for every cycle (...unchecked). A new track can be automatically created for each of these sequences (*Auto Create Tracks in Cycle Record*). The sequences you create can also be automatically muted (*Auto Mute in Cycle Record*). This mode is very well suited to recording several consecutive versions of a solo, and then picking the best one.

CYCLE AND REPLACE: During a cycle recording in replace mode, existing sequences are deleted during the first cycle, from the punch-in point to either a punch-out point or up to the end of the cycle. When the second cycle begins, recording continues, but no more sequences are deleted.

If you want to replace the end of an existing sequence, you don't have to stop recording before the second cycle begins: the start of the existing sequence remains intact.

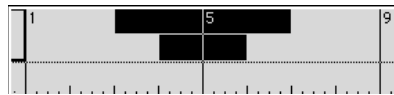
Autodrop

Autodrop means automatically going into and out of record at previously defined positions. Autodrop mode is most commonly used to re-record a badly played section of an otherwise well played recording. The advantage is; you can concentrate on the playing.



If cycle is not active, the left and right locators serve as drop-in, and drop-out points. Autodrop is activated by clicking the autodrop button.

DEFINING THE AUTODROP REGION:



If both cycle and autodrop are active, there is an independent pair of locators available for the autodrop. In this case, there will be two stripes in the bar ruler, the top one representing the cycle region, and the bottom one the autodrop range. The autodrop stripe can be graphically altered in exactly the same way as the cycle stripe. If the bar ruler display is very narrow, holding down **ctrl** as you alter it will ensure that all your actions apply to the autodrop stripe. To activate autodrop graphically in the bar ruler, drag down the stripe while holding down **ctrl**.

For graphic operations, the grid scale can be reduced to division resolution by holding down **alt**, and to tick resolution by holding down **shift alt**.

SETTING AUTODROP NUMERICALLY: The positions of the autodrop locators are displayed numerically, to the right of the cycle locators on the Transport window. Their position can be altered by changing the numbers from here.

RECORDING IN AUTODROP MODE: To carry out an autodrop recording, put the sequencer into record anywhere before the drop-in point. Any events which you play before the drop-in or after the drop-out are channelled through the sequencer as usual, but are not recorded.

If the song position line is behind the right locator when you start recording, recording automatically begins at the drop-in point, after the count-in.

Combining Cycle and Autodrop



If you want to improve a difficult part of a certain passage, you can use a combination of cycle and autodrop. Cycle mode lets you practice as many times as you like before the “final take”. Each time, only the autodrop range is recorded. You can use the previous section to “get into the groove”.

RECORDING WITH SKIP CYCLE: If skip cycle is switched on the cycle region is left out during the recording.

Chase Events

Chase Events is a function which searches all the sequences playing at a jump-in point. The function examines what all these sequences are doing *before* the jump-in point, to find out which events *would* be affecting playback at the jump-in point, if it had been reached by playing through the song, rather than by just jumping there.

This is a complex point to grasp, so here’s another explanation:

If you start playback of a song in the middle, by jumping straight to that point (via Cycle mode looping or by direct placement), you might expect there to be problems with note playback. If an important note started playing just before the play-start point, you would expect MAGIX midi studio generation 6 to miss it, and the note would not sound. Notes, however, are not the only potential problem. If there were a maximum pitch-bend message just before the play-start point, playback would leave this out too. Fortunately, MAGIX midi studio generation 6 is smarter than your average MIDI sequencer, to misquote Yogi Bear...

Open the Options > Settings > Chase Events... to set up the chase events function.

The function searches all the sequences playing at the play-start point, looking before the play-start for a selection of the following:

- any notes still due to be playing at the play-start point;
- any notes still due to be playing at play-start, because of a held-down sustain pedal (*Chase sustained Notes*);
- program changes;
- pitch-bend information;
- continuous controllers 0—15;
- continuous “switch” controllers 64—71;
- all other controllers (*all other Controls*);
- monophonic (channel) aftertouch;

- polyphonic aftertouch;
- SysEx data (the last SysEx message before the play-start point is transmitted)

Special Note:

There is a potential problem with chasing notes that are being used to trigger a drum loop in the WavePlayer of MAGIX midi studio generation 6. Unless you are lucky enough to start the sequence precisely at the beginning of the sample loop, the sample will be triggered at the wrong time and therefore, they will be played out of sync with the rest of the sequence, (at least until the next trigger note). The problem is that the WavePlayer, as almost every other sampler, can only play its samples from the beginning, and cannot synchronize them to the beat by starting in the middle.

Well, here's how you solve that one:

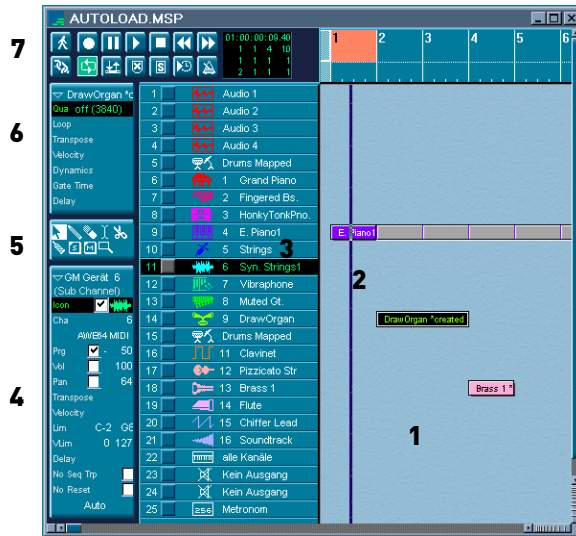
Activate the *No Seq Trp* parameter in the Track parameter box of the WavePlayer, and switch off *Chase Notes in No Seq Trp Instruments* under Options > Settings > Chase Events.... The result is that whenever the song jumps to a new position, your drum loops will not play until they reach the next "trigger note".

Note: The *No Seq Trp* parameter actually prevents transposition by the sequence playback parameters, which is also not desirable for drum sounds.

Arrange Window

Overview

The Arrange window is the heart of MAGIX midi studio generation 6. Study it closely because it is the view of the program that you will see most often when you're working with the program.



It appears in the first screenset whenever you start MAGIX midi studio generation 6. The arrange area **1** is where all MIDI information is recorded on horizontal “tracks”. Individual MIDI or audio recordings are called “sequences”, and are displayed as beams. Above the arrange area is the bar ruler which displays position information **2**.

To the left of the arrange area is the track list **3**. This is where you name each track and determine which sound program should play the MIDI information or which audio object plays back the audio data of each track. You can make various settings for the track parameters in the Track parameter box **4** in the lower left corner.

Because the sequences are arranged graphically, you can also use specialized mouse tools from the tool box **5** to help you perform different operations.

The sequence parameter box **6** is where you set the playback parameters for the individual sequences such as transposition and “quantization”.

In the upper left corner is the transport panel **7** which is functionally almost identical to the Transport window.



Opening the Arrange window: The Arrange Window can be opened by selecting Windows > Open Arrange in the main menu.

Tracks

Each individual track is stretched horizontally across the arrange area and the tracks are stacked vertically. A track is where the notes and other MIDI events are recorded.

In the track list each track is numbered from top to bottom. During playback a small “level indicator” appears over the track number. This indicates the velocity of the recorded notes and shines red for a maximum velocity value. The little “c” stands for Controller command.

Adjust the MIDI channel, MIDI port and the icon of each track in the Track parameter box.

Generally, only *one* track can be selected at any one time. The exception is with combining MIDI and audio recording, where it is possible to select one audio and one MIDI track simultaneously.) During recording, a sequence is created on this track containing the recorded MIDI events, audio or mixing data.

Selecting a Track

You select a track by clicking its name or icon in the track list. This also selects all objects on the track (if the Cycle function is switched on, it only selects the objects within the defined cycle region).



Use the *Select Next/Previous Track* function to select the track above/below it in the track list (key command: **cursor up/down**).

CHANGING TRACKS WHILE KEEPING SELECTION: If you click on a new track while holding down **ctrl**, the track will be selected without changing the existing selection of sequences.



SORTING TRACKS: To change the position of a track in the track list, grab the track near the track number and drag it up or down.

COPYING A TRACK: Drag a track, as described above, while holding down **ctrl** and you will get a copy of this track at the desired target location. The settings of the new track are the same as the ones of the old track.

Creating tracks

To create a track, use the Functions > Track > Create MIDI Track command to create a new track for MIDI data, use the Functions > Track > Create Audio Track command to

create a new track for audio data, or use the Functions > Track > Create Audio Instrument Track command to create a track for the new MAGIX synthesizers or VST™ 2.0-Instruments. The new track is created at the same position as the track currently selected, and all the tracks below it are moved down accordingly.

To create a track at the bottom of the track list, double-click in the track list below the lowest track .

The new track always has the same settings as the selected track.

MOVING OBJECTS ONTO A TRACK: The function Functions > Object > Move Selected Objects to current track moves all selected sequences from different tracks onto the selected track. The time position of all the sequences is retained.



This is useful for displaying sequences in a stave or gathering together regions of different vocal takes.

Deleting Tracks

To delete the selected track, use the Functions > Track > Delete Track function. If there are any objects on the track a warning message appears first.



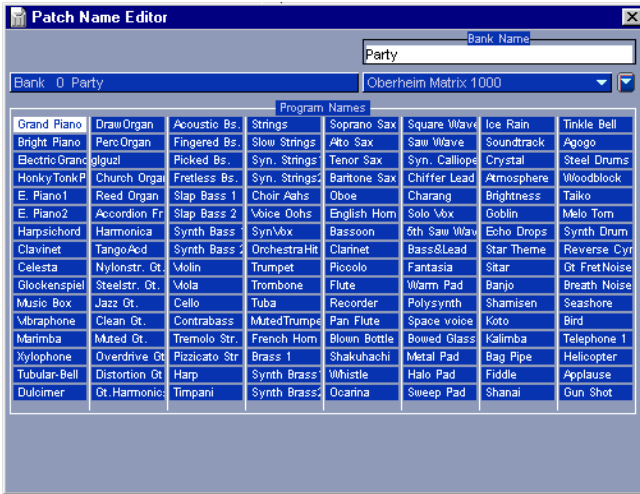
If there is no object selected in the arrange area you can perform the same function by pressing **delete**.

A third method is to grab the track as if to reposition it (see above) and remove it from the track list by dragging it to the left.

Naming tracks

To name a track use the right mouse key to double-click on the track name in the list. Now you can edit the name of the currently selected track. The edited track name will be shown in the Arrange window. If you use a * symbol in front of a track name the corresponding, selected Patch Name will be shown instead. This is also true when you leave the track name blank.

Arrange Window



Please note: In case you haven't enabled Program Change for the selected track in the Track Parameter Box (see below), the track name will always be shown.

Muting Tracks

Both MIDI and audio tracks have mute buttons on the left of the track list between the track number and the icon. Muting a track stops it from playing.



Selecting a Program

By clicking on a track's name (or icon) in the track list and holding down the mouse button, you open a flip menu. This is where you select another program.

The Patch Name Editor

As discussed earlier it is possible to change the patch numbers (sounds) of your MIDI keyboard via MIDI Program Change Commands. Many keyboards are able to store more than 128 programs and need therefore another memory category which are called banks. Each bank contains up to 128 programs and according to the MIDI specifications it is possible to address up to 16,384 banks via MIDI Bank Change Commands.

This is handy, yet there is one big disadvantage: Instead of real patch names you would select only cryptic numbers. The Patch Name Editor changes this forever. With its help you will be able to select programs (patches) and banks by name instead of numbers because the Patch Name Editor allows you to give a name to each patch of each bank of each MIDI port. It is even possible to program a Bank Change Command for each MIDI Port. For convenience these settings will be used for all of your songs.

How do you work with the Patch Name Editor ?

Simply select a MIDI Track. Clicking and holding the mouse pointer on the track name will open a menu from which you can select a patch by name. Similarly, select a MIDI Track, and go to the Track Parameter Box on the left side of your computer screen. Click and hold on the program number until a menu opens from which you can choose a patch for this track by selecting a name. In the same way, by clicking and holding on the bank number within the track parameter field it is possible to select a bank by name. For this to function the banks need to be named first.

Where do the names come from?

Program and Bank Names are entered with the Patch Name Editor. You will get to the Patch Name Editor by either double clicking on the track name or with the menu Function > Track > Edit Patch Names. The Patch Name Editor is divided in several areas: the bank name, a bank select pop-up menu, a Bank Change Command pop-up including several Bank Change Command formats, a little triangular symbol and finally the patch names.

Please note: all edits you perform in this window will be used for the port of your currently selected track. To edit the Patch Names of a different MIDI port select another track and then double click its track name. This will open the Patch Names of the corresponding MIDI port assigned to this track.

Patch names

A simple click will select a patch within the current bank. To edit the patch name just double click the name you like to change. By default the General MIDI Patch Names are used in this window.

The triangle

Here you will reset the Patch Names of the current bank as either patch numbers or as standard General MIDI Patch Names. Furthermore the names can be edited via the clipboard using Cut, Copy and Paste commands. To edit the names of whole banks comfortably copy and paste the names of the bank to an empty word processing document. Edit the names in the word processing document and copy all of them back into the bank. Make sure you don't alter the tabs and returns in the word processing document.

Bank Select Pop-Up

Here you select the bank of your choice. You can choose among 126 bank of the 16,384 possible discussed earlier. If none is selected the patch names of bank 0 are used.

Bank names

Here you name the currently selected bank. If you haven't previously selected a bank but enter a name, this name will be used for bank number 0.

Bank Change Command Format pop-up

Unfortunately some manufacturers interpret the bank change commando not as specified in the MIDI standard, but use their own formats. Thus you can select in this pop-up menu which bank change format will be active for the currently selected MIDI port. The formats also take into account gaps in the bank numbering system of some devices. This allows you to comfortably select any bank offered by your device.

Please note: If you don't change the bank change format in this pop-up the program will use the bank change format which has been set in Option > Settings > Recording Options.

The Track Parameters

In the track parameter box you can set on which MIDI port and channel the sequences of the selected track are to be sent and which icon this track should have. Also, here you choose the sound program, how loud and where in the stereo field the track data should be heard.



SELECTING AN ICON: Grabbing the icon opens a flip menu where you can choose an icon to represent the instrument.

Color of the Instrument Icon: The color of the instrument icon of the selected track can be changed via View > Object colors..., as long as no Arrange object (a sequence) is selected.

SETTING A MIDI PORT AND CHANNEL: The MIDI channel and the MIDI port are set on the right of the *Cha* parameter. This defines the channel on which the track outputs data, so that your MIDI instrument can receive the data.

If for the MIDI channel you choose the setting „All“, the events of the sequence will be sent to your instrument carrying their individual channel. For all other *Cha* settings the individual event's channels will be ignored and replaced by the *Cha* channel.

The MIDI port is set in the flip menu directly below the channel setting. This menu lists the available MIDI drivers.

ADJUSTING THE SOUND OF A TRACK: The *Prg*, *Vol* and *Pan* parameters transmit program changes, volume controllers (#7) and pan controllers (#10) respectively.

If there is no check in the respective box the default value is used. The corresponding value is only transmitted if you place a check in the box (by clicking it) . If there is already a check in the box, any value alterations you make are transmitted immediately.

A program change may be selected on the right via a flip menu; volume and panning are set using the mouse as a slider. If you hold down **alt**, any value can be increased or decreased by clicking on it and tapping the left or right mouse button.

To the left of the program number, there is an extra parameter which is used for Bank Select. If your sound source can receive Bank Select messages (check in your synth manual for format details), you can switch between different banks, each containing a maximum of 128 sounds. For this to work you must tell MAGIX midi studio generation 6 via the Patch Name Editor or via Options > Settings > Recording Options..., which Bank Select message your instrument is expecting.

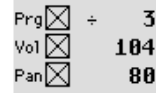
As many devices cannot receive these messages, you can deactivate this parameter by making the adjustment shown to the right.

As many devices cannot receive these messages, you can deactivate this parameter by making the adjustment shown to the right.

Recording Program Changes, Volume or Pan controllers:

Any of the types of events that can be transmitted by checking the right square in the track parameter box can also be stored when in record mode. For example, in record-pause mode, you can store program changes at specific positions in the following way:

- Remove the "x" in the box next to Prg (or Vol, or Pan);
- Click on Pause, then Record;
- Move the Song Position line to the place you want;
- Choose the sound (program) you want (or the volume/pan setting you want);
- Click on the box next to Prg (or Vol, or Pan). Each selected event will be sent and recorded.
- Click on Stop to exit Record mode.



In this context, please remember MAGIX midi studio generation 6's sophisticated Mixer Automation features as described in the mixer chapter.

The values of the Parameters *Prg*, *Vol* and *Pan* in the track parameter box will not be updated every time such control change events will be played back.

Sequence

Sequences

Sequences are containers for the MIDI events within them. Their purpose is to make things clearer and easier to deal with. They also correspond to the musical convention of treating a phrase or a riff as a single unit. It is often better to apply many operations (e.g. quantization) to these units rather than to individual notes.

Sequences within a track can be partly or wholly overlapped, but for clarity's sake this should generally be avoided.

Remember that all the following operations with a plural in the heading (sequences) apply just to selected sequences.

Creating a Sequence

Normally a sequence is created automatically when you record on the selected track. It begins at the start of the bar in which the first events were recorded and stops at the end of the bar in which the last event was recorded.

Sequences can also be created by directly inserting events from the clipboard into the Arrange window (see the [section *Inserting events from page 131 onwards*](#)).

CREATING AN EMPTY SEQUENCE: Click with the pencil at the position in the Arrange area where you want the empty sequence to begin. You can now enter the events manually in one of the Editors.

Deleting Sequences

You can delete all the selected sequences by clicking them with the eraser or by pressing **delete**. You can also delete any non-selected sequence by clicking it with the eraser. Of course if you accidentally delete a sequence you can restore it by choosing Edit > Undo (**ctrl z**) immediately afterwards.

Moving Sequences

Sequences may be moved by grabbing them and dragging them with the mouse pointer. You can move sequences both along the timeline and from one track to another.

Copying Sequences

To copy sequences to another point in the song or to other tracks, hold down **ctrl** while moving the sequence.

MAKING MULTIPLE COPIES OF SEQUENCES: The **Functions > Object > Repeat Objects** menu allows you to repeat one or more selected sequences. The repetition always starts at the end of the sequence itself or at the end of the latest (timewise) sequence.



Number of Copies: This is where you enter the number of copies (excluding the original).

Adjustment: This is where you determine whether you want a copy to begin exactly at the end of the original (or the previous copy) (setting: *None*) or whether you want the start-point to be “quantized”. In most cases the *Auto* setting will do what you want.

Please also note that there is a sequence parameter called “Loop”, which repeats a sequence over and over up to the next object on the same track (see the [section Loop from page 132 onwards](#)). This may be preferable to copying sequences in many cases.

Altering the Length of Sequences...

Grab the sequence at the bottom right corner with the pointer or pencil. You can now move the end of the sequence wherever you want. Even when you shorten sequences the data in them is never deleted; playback just stops at the end of the sequence.

... OF MULTIPLE SELECTION ... You can change the length of multiple objects in the same way. The length will be changed by the same absolute value.

... to the same absolute length: If you want to make all selected sequences the same absolute length—even if they had different original lengths—simply hold **ctrl shift** while changing the length (just as in the Matrix Editor or the Event List).

... to the same end position: If you want to end all selected sequences to the same time hold **shift** while changing the length.

... ADJUSTING THE START: You can also adjust the length of the sequence by grabbing it at the bottom left corner. However, you can never move the left corner beyond the first event in the sequence, i.e. you can never “hide” events from the front. If you want to remove the start of a sequence you have to cut it and mute or delete the start.

...ROUNDED TO WHOLE BARS: The function **Functions > Object > Snap Objects** rounds the start to the nearest whole bar.

When you lengthen or shorten sequences this never alters the position of the events contained within it. If you wish to do so, please do the following:

...BY TIME-COMPRESSING OR -EXPANDING: Hold down **ctrl** while you are altering the length. The timing of the events in the sequence will be stretched or compressed in proportion to the amount by which you've altered the length.

Using this method you can make a rhythm sequence play "half-time" by stretching it to twice the original length, or "double-time" by shortening the length to half the original.

...TO ADJUST IT TO FIT ITS CONTENTS: The function **Functions > Object > Set Optimal Object Sizes** reduces or increases the length of an object so that it is just large enough to contain the events (or other objects) within it. The object borders are rounded to the nearest bar.

If you hold down **alt** when you call up this function the borders are rounded to the nearest beat instead.

...TO ADJUST IT TO FIT OTHER SEQUENCES: When you choose **Functions > Object > Remove Overlaps** all selected sequences in a track are searched for overlaps. If an overlap is found the sequence that begins first is shortened by enough to remove the overlap.



Choosing **Functions > Objects > Tie Objects by Length Change** all selected sequences will be lengthened until the beginning of the next sequence on the same track.

...using a Finer Grid

All these operations (moving/copying, lengthening/shortening) snap to the bar or beat grid (depending on the current resolution of the bar ruler and the setting of the zoom function). However, there are two ways of reducing the grid:

Display Format values as grid scale: **alt + operation**.

No grid (ticks as grid scale): **alt shift + operation**.

All you need to do is hold these keys during the particular operation.

Let's say you want to shorten a sequence in a 4/4 bar so that the "4" is played but not the "4 and" of the last bar. Enlarge the screen display until you can see quarter notes in the bar ruler. Now grab the bottom right corner of the ob-

ject and move the mouse to the left until the sequence is shortened by one quarter note. Then press (and hold) **alt** and move the mouse carefully to the right until the sequence has become one division longer. While you are doing this the right side of the Arrange window's title bar shows the track number followed by the current length of the object in bars, beats, divisions and ticks. The three right-hand numbers should be "3 1 0".

Dividing Sequences...

Choose the scissors. Now click the desired sequence(s) and keep the mouse button held down. The left side of the title bar of the Arrange window shows the current position of the mouse. When you release the mouse button, all selected objects are cut at the relevant position. The grid is based on the Display Format value. This value is displayed and editable on the Transport window, just below the Time Signature indicator.

If any notes overlap other notes by more than a 1/16 note, the following dialog will appear on-screen:

Overlapping Notes found! Do you want to keep, to shorten or to split those? [KEEP|SHORTEN|SPLIT]

KEEP (default) leaves all notes unaltered. The sequence is cut as usual, but when you do this, you can end up with notes in the left-hand half that are much longer than the sequence now is. Such notes are played normally, unless "Clip Length" is set to cut off all sounding notes at the end of a sequence.

SHORTEN truncates all overlapping notes, so that they end at the point where the sequence was divided.

SPLIT divides overlapping notes across the two sequences created when a cut is made; two subsequent notes are created, with the same pitch and velocity, and the same total length as the original note.

...MULTIPLE DIVISION WITH THE SCISSORS: If you hold down **ctrl** while cutting an object with the scissor tool, the selected sequence will be cut into several pieces, whose lengths are determined by the length of the first segment. For example: To divide a 16-bar sequence into 8 2-bar sequences, cut the sequence at the start of bar 3 while holding down **ctrl**.

Merging Sequences

You can merge two or more selected sequences in a track into a single sequence by clicking on one of them with the glue tool.

This merges all selected sequences, even those on different tracks, into a single sequence in which all the events



from the individual objects retain their original time position. Be aware that the individual MIDI channels are replaced by the MIDI channel of the current track. The new object adopts the name and track of the first (timewise) of the merged objects.

See the [section *Merge/Normalize and MIDI Channels from page 134 onwards*](#) for more on this.

Demixing Sequences

The function Functions > Demix > Demix by Event Channel searches the selected sequence for events with different MIDI channels. A separate sequence containing all the relevant events is created for every MIDI channel found. Each of these sequences is created on a track with the same MIDI channel. If no such tracks exist the tracks are created on a track with the original channel.

Muting sequences

Often when you are arranging, you will want to test musical ideas out by muting certain objects. This is what the mute tool is for.

You can mute individual or selected objects by clicking on them with the tool. They are then displayed with a dot before the object name. Clicking a muted object reverses this state (unmuting).



You can perform the same function using the *Mute Folders/Sequences* key command.

Soloing sequences

You can solo any selected sequences using the *Solo* button in the Transport window or the key command of the same name. Double-clicking on the Solo button “locks” the soloed status, so that changing the selection doesn’t affect what is being soloed. This is especially useful when you want to make changes to the Playback parameters of a sequence while listening to a specific solo group. A further click (or using the key command again) quits solo mode. For more on this, read the [section *Solo and Solo Lock from page 110 onwards*](#).



The solo tool enables you to solo individual or selected objects by clicking them and holding down the mouse button. Release the mouse button to end solo listening.

Naming a Sequence



One sequence: click the sequence with the text marker tool and a text input box appears. Enter the name and press **return**, or click another object, or the background.

The same applies if you are entering the name in the sequence parameter box.

Special Functions

INSERTING EVENTS: MIDI events can be added directly to the selected track on the Arrange window, at the current song position, from one of the edit windows (or even from another song) via the clipboard.

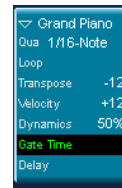
This function allows you to insert MIDI events—e. g. from the Matrix Editor—directly into the Arrange window. MAGIX midi studio generation 6 checks as it does this that you have selected a sequence, and then adds the data to that sequence. If you have *not* selected any sequences, MAGIX midi studio generation 6 will create a new sequence on the selected track.

Sequence Playback Parameters

The sequence parameter box is located to the left of the track list above the tool box.

Displaying Sequence Parameters: When you select a sequence object, its parameters are automatically displayed in the sequence parameter box. If the sequence parameter box isn't visible, select View > Parameters).

None of these parameters alter the original data of the sequence, they only affect the playback.



DEFAULT SEQUENCE PARAMETERS: If no sequence is selected, the upper line of the sequence parameter box will read “MIDI Thru”. When you record a new sequence, the settings in the >MIDI Thru< parameter box are carried over into the new sequence’s parameter box. The MIDI Thru parameter box can therefore be viewed as an adjustable “default” parameter box.

Realtime processing: By now you should understand that incoming MIDI data is always relayed “through” the track that is currently selected. What you may not know is that this data is processed through the previously described MIDI Thru parameter box. The MIDI Thru parameters are always displayed and editable when there are no sequences selected. (click on the window background to de-select all sequences).

EDITING SEVERAL SEQUENCES SIMULTANEOUSLY: If several sequences are selected, the number of selected sequences is displayed, instead of the name. If you now alter any sequence parameter this alteration affects all the selected sequences. If a parameter was set differently in the individual sequences, a >*< appears. You can still alter this parameter for all the selected sequences and the value

differential will be retained (relative alteration). If you want to set the same value for all the selected sequences hold down **ctrl** while you input the value (absolute alteration).

OPENING AND CLOSING: To the left of the name is a small triangle; clicking this toggles between showing or hiding the contents of the box, just like folders in the Windows Explorer. Closing the box leaves more room for the elements below.

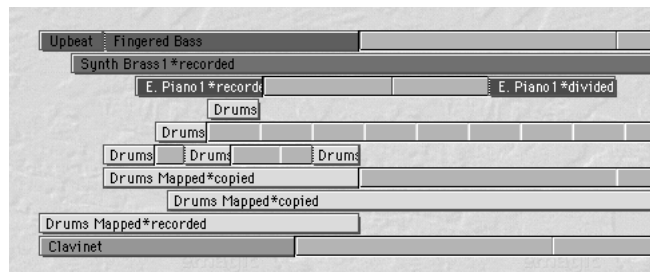
THE SEQUENCE PARAMETERS: If a sequence parameter is set to its default value, the display of the parameter value is hidden to make the display clearer.

NAME: The top line in the sequence parameter box simply shows the name of the selected sequence.

QUA: Covered in [section *Quantization* from page 135 onwards](#).

LOOP: Value range: On or Off. Normal value: Off.

When switched *On*, the object is repeated on its track until it comes up against another object. A loop also finishes at the song end marker. These repeats are displayed as grey beams (with no object name). The length of each loop is exactly the same as the length of the original object, so if you want to create polyrhythmic structures, try experimenting with the length of the original object.



To end a loop early simply create an empty sequence with the pencil at the desired beat.



Functions > Sequence Parameter > Turn Loops to Real Copies transforms the loops into real copies of the original object and simultaneously switches the *Loop* parameter for the resulting objects to *off*.

TRANSPOSE: Value range: ± 96 semitones. Normal value: 0.

All note events contained in the sequence are transposed up or down by the selected amount during playback.

If you want to transpose by octaves, grab to the left of the parameter field between the word “Transpose” and the actual value. This opens a flip menu to allow direct input of octave transpositions.

-36
-24
-12
0
12
24
36

VELOCITY: Value range: ± 99 . Normal value: 0.

All notes in the relevant object are offset by the selected value. Positive values are added and negative ones subtracted, although naturally it is impossible to go outside the limits prescribed by the MIDI Standard (0—127). If you select a velocity offset that exceeds the maximum or minimum possible value for a particular note, that note will play at the extreme possible range. For example, a setting of $>+20<$ will cause a note with a velocity of 120 to play at 127.

DYNAMICS: Normal value: 100%.

This parameter also affects the velocity values of the notes, but instead of adding or subtracting a fixed amount, the differences between “soft” and “loud” notes (the dynamics) are increased or decreased. This works in a similar way to a compressor or expander. Values above 100% expand the dynamics and so increase the difference between “loud” and “soft”, while values below 100% compress the dynamics, i.e., reduces the differences in velocity.

The *FIX* setting means that all notes are transmitted with a velocity of 64. When used in conjunction with the velocity parameter (see above) it is therefore possible to set any fixed velocity value.

GATE TIME: Value range: see diagram. Normal value: 100%.

The term “gate time” stems from the technology used in analog synthesizers and refers to the time between pressing and releasing a key. This parameter therefore affects the absolute note duration or length. This should not be confused with the musical note value, which normally refers to the amount of time until the next note. The technical term “gate-on time” or “note length” is described musically as extreme staccato and legato. The parameter range is referenced to this scale. “*Fix*” means extreme staccato; likewise the other values below 100% shorten the note lengths. Values above 100% lengthen the notes. The “*leg.*” setting produces a completely legato effect for all the

FIX
25%
50%
75%
88%
94%
106%
112%
125%
150%
175%
200%
300%
400%

notes, no matter what their original lengths, eliminating all space between notes in the affected sequence.

DELAY: Normal value: 0.

This parameter alters the time position of the selected objects. Positive values correspond to a delay (laid-back playing style or dragging), negative values cause a pre-delay (driving or rushing).

The units are ticks. A tick is the smallest time resolution in a sequencer, which in the case of MAGIX midi studio generation 6 is 1/3840th note. On the right side of the delay value field you can use the mouse as slider to input the value.

If you click to the left, between the word “Delay” and the delay value, the flip menu shown here appears for you to set the delay in terms of note value.

The delay parameter is mainly used for musical purposes. It is also a way of fixing timing problems that may occur for a variety of reasons. Some examples of these are:

- The attack phase of the sound is too slow. A good musician will automatically compensate for this by playing the notes slightly early. With very slow sounds you may need a pre-delay of over 100 ms to even them out.
- The sound generator is reacting too slowly to the incoming note-on messages. Older multitimbral sound generators often take tens of milliseconds before beginning to output a voice. This effect may be better compensated for by using the delay parameter in the track parameter box, since this will affect all sequences on all tracks sending to the slowly reacting device.
- The delay in outputting the voice is not constant because it depends where it comes in the order of notes arriving serially at the sound generator. You should therefore try pre-delaying rhythmically important tracks by as little as one tick—it can work wonders!



FIXING/NEUTRALIZING SEQUENCE PARAMETERS: You can normalize the sequence parameter settings of all selected objects using the command Functions > Sequence Parameter > Normalize Sequence Parameters (*Normalize*). This means that all settings are actually written to the data and the playback parameters resume their normal values. The audible result remains the same. The loop is not affected.



Merge/Normalize and MIDI Channels: Just like the Glue tool, the Normalize function is intelligent with respect to stored MIDI channel numbers. If all stored events have the same MIDI channel number, the channel will be

changed into that of the current track. If the events are on different channels, MAGIX midi studio generation 6 will ask whether you would like to convert the channels or not.

Quantization

Quantization is the rhythmic correction of notes to a specific time grid. Any inaccurately played notes are moved to the nearest position on this grid.

For example, if the smallest notes in a passage are 1/16th notes, you should use 1/16th quantization to move all recorded notes to their ideal rhythmic value. This will only work if no note has been played more than 1/32nd from the ideal position, otherwise the note will be moved 1/16th later or earlier than the proper position.

How It Works

Quantization settings are made in the sequence parameter box. They are non-destructive playback parameters, so they can be replaced by another setting at any time. This also means that by setting the *Qua* parameter to *off* (3840) you can always revert to the unquantized original recording. Unlike other playback parameters, quantization affects the way notes are displayed in the editor windows, thus allowing you to see from the position of the notes what effect the quantization parameters are having. The quantization affects only notes, not other types of events (e.g. controllers).

For every note event, two positions are stored internally: the *original position* that was played in, and the *playback position* (also shown in the Editor windows). For unquantized sequences, both positions are the same. Each time you quantize, a new playback position is calculated from the *original position*.

The *Fix Quantize* command (see the [section *Fixing the Quantization from page 136 onwards*](#)) overwrites the *original position* with the *playback position*. The same thing happens if you change a note in one of the Editors manually—although then you can't return to the original value.

WHAT EVENTS CAN BE QUANTIZED: Quantization only works on notes, not on other types of events like controllers. Apart from notes, all events have just one position parameter, which you can leave or change permanently by using Event Quantize or dragging with the mouse.

To quantize events other than notes, read the [section *Quantizing Events from page 99 onwards*](#).

Essentially, quantization works on the whole sequence. To quantize single notes only, use the note quantization in

one of the Editor windows (see the [section Note Quantization from page 99 onwards](#)). Keep in mind that this overwrites the original record position of the quantized note. If you wanted to quantize various parts of a sequence differently, you could divide the sequence up, and use different quantization settings on each part of the sequence. You can then recombine the parts of the original sequences without this affecting the way the parts are played.

The quantization grid always begins at the start of a sequence. If the sequence does not start at the beginning of the bar, neither does the quantization grid.

Qua: The quantization grid is accessed from a flip menu under the *Qua* parameter in the sequence parameter box.

Quantization off: The setting *off(3840)* plays the notes with the finest possible time resolution: 1/3840 note, which is practically unquantized playback.

Normal quantization: The settings 1/1, 1/2, 1/4, 1/8, 1/16, 1/32 and 1/64 note quantize the sequence to the equivalent note value.

Triplet quantization: The settings 1/3, 1/6, 1/12, 1/24, 1/48 and 1/96 note quantize the sequence to triplet note values. A 1/6 note is equivalent to a quarter triplet, 1/12 note to an eighth triplet, 1/24 note to a sixteenth triplet and 1/48 note to a thirty-second triplet, etc....

Mixed quantization: The setting 8 & 12 corresponds to eighths and eighth triplets, 16 & 12 to sixteenths and eighth triplets and 16 & 24 to sixteenths and sixteenth triplets. Mixed quantization always applies both note values and thus naturally requires greater precision when playing.

Odd quantization: The setting 9-Tuplet means novetuplets (1 bar = 9 beats), 7-Tuplet is septuplets (1 bar = 7 beats), 5-Tuplet/4 is quarterquintuplets (1 bar = 5 beats), and 5-Tuplet/8 is eighthquintuplets (1 bar = 10 beats).

FIXING THE QUANTIZATION: In the same way that the other sequence parameters can be normalized, the quantization settings can also be adopted permanently by the stored data.

To do this, use the menu command Functions > Sequence Parameter > Fix Quantize.

Of course once this is done it is impossible to revert to the original recording.

Pre-quantization: The Fix Quantize function is especially suited to pre-quantization. For example, if a recorded sequence cannot be immediately quantized to a 1/16 swing without producing a few incorrect notes, start by quantiz-

ing it to 1/16th notes and then call up Fix Quantize. You can now apply any swing quantization to this cleaned-up version of the sequence.

If you are recording a hi-hat pattern consisting of 1/16 notes and one single 1/32 note, first play the rhythm (quantized to 1/16 notes) without the 1/32 note and choose Fix Quantize. You can now raise the quantization to 1/32 notes and add the extra note without misquantizing any badly-played 1/16 notes.

Groove

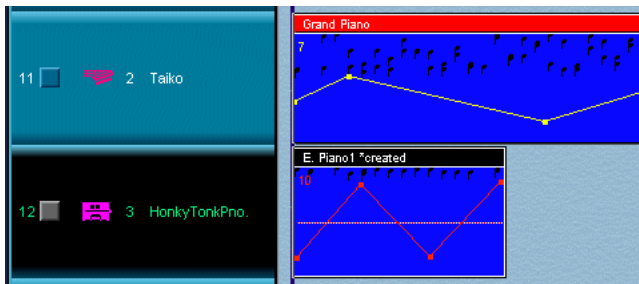
In the early days of sequencers, many people thought that electronic music sounded mechanical or sterile. This impression (which, at the time, might have been a fair observation) was based on the fact that sequencers could only output notes that were quantized. This is no longer the case. MAGIX midi studio generation 6's resolution is so high that at a tempo of 120 it can differentiate between two notes that are just 520 microseconds apart. This is equivalent to a single oscillation cycle of the highest note that you can play on a soprano saxophone!

So, if you think modern sequencers always sound mechanical, you probably haven't yet had the pleasure of working with Logic. Of course, using the above-mentioned quantization functions, it is still possible to generate sterile timing if that is what you actually want.

Hyper Draw in the Arrange window

Hyper Draw is the easiest way to create and edit volume and pan changes in the Arrange window. The changes in MIDI data are made by graphically inserting points, which represent fixed controller values.

The points are then interpolated automatically by MAGIX midi studio generation 6, which creates a series of events to smoothly connect the MIDI data from one fixed point to another. These automatically generated events are recalculated every time you edit the curve points.)



Hyper Draw is activated on a per sequence basis. For example, you could open Hyper Draw windows to control volume in one sequence, and pan in another.

In sections where the MIDI data being edited does not change in value, the data curve appears as a thin, horizontal line.

You must choose a large enough vertical zoom resolution in order to *see* the Hyper Draw curves.

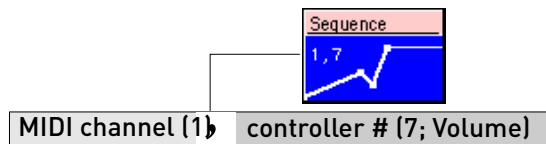
ACTIVATING HYPER DRAW: To activate Hyper Draw for the currently-selected sequence(s), select View > Hyper Draw > Volume (example). You can select different Hyper Draw modes for different sequences

Event type: You can choose the following types of events directly from the Hyper Draw menu

- Volume
- Panning

MIDI Channel: By calling up View > Hyper Draw > Channel... you can choose the MIDI channel on which events will be displayed and edited. If you select *any* here, events will be shown regardless of their MIDI channel. When inserting events, the most recently selected MIDI channel will be used.

DISPLAY: When sequences are displayed in Hyper Draw mode, both the MIDI channel and the Controller being edited are displayed on the left, divided by a comma.



If the channel is set to *any* (default) the first number (MIDI channel) will not be displayed. Then the controller events of all channels will be displayed. Inserted events get the channel of the track.

DEACTIVATING HYPER DRAW: To switch off Hyper Draw for selected sequence(s) choose View > Hyper Draw > off.

HYPER DRAW—FUNCTIONS: *Making Hyper Draw visible:* If you can't see the blue Hyper Draw window, increase the vertical resolution (zoom) of the Arrange window, either with a key command, the telescope icons, or by holding down **alt** and using the magnifying glass tool.

Quick Delete: You can delete all events displayed in Hyper Draw for a sequence by **shift ctrl**-double-clicking in the blue Hyper Draw area.

Adding new points: Just click on the blue background of the Hyper Draw display—you can use either the pointer or the pencil, and a point will appear. As long as you hold down the mouse, you can move any of these points. The position and value are displayed in the Info line on the upper edge of the Arrange window.

No events will be inserted into the sequence until you release the mouse button.

Deleting points: Click briefly on any point to delete it.

Moving an existing point: Just grab a point with the mouse and move it. If you hold down the mouse button while you do this, you can restore erased curve points by dragging the mouse over where they used to be.

Fine-tuning curve points: While you move a point, hold down **alt**. You will then be limited to moving the point vertically, but be able to select all 127 possible steps.

.USING COLORS WITH HYPER DRAW: You can globally assign colors for different controller numbers and MIDI channels, which are then used as presets to display the Hyper Draw lines. However the background color for Hyper Draw (blue) is fixed.

Select a Hyper Draw sequence, open the color selection window by choosing View > Object Colors... and choose a color. This will globally assign the color to this controller and channel. Now whenever you select this controller on this channel in any song, the color assignment will be used.

If you want to change the color of a sequence, you must first deactivate the Hyper Draw function.

Making practical use of Hyper Draw: Hyper Draw is very simple to use. For example, choose View > Hyper Draw > Volume. A blue area appears beneath the sequence name and by clicking here with the mouse you can insert or delete the points. You can also move the points by holding down the mouse button. While you are editing an Info line appears at the top of the Arrange window indicating the bar position and controller value.

If you want to edit pan values choose View > Hyper Draw > Pan. This means that only pan events will be generated and displayed. This rule applies to all types of events, i.e. only one type can be displayed at any one time.

If you've selected *Cha: All* in the current track parameter box, so that all MIDI channels 1—16 will play back, you

will have to choose the MIDI channel you want to edit via View > Hyper Draw > Channel....

Editing Edges, Move and Copy with HyperDraw engaged:

You can still move and copy sequences that have Hyper Draw active, by grabbing them by their top edges in the title list.

When Hyper Draw is active, you can still change the start and length of a sequence, but you have to grab it in the top name zone instead of the blue Hyper Draw area in order to move the left or right edge, or (for moving and copying), in the middle of the name area. Just delete the points by clicking on them and create them anew at the desired position. If possible, lengthen the sequence before and after the area in which you want to create controller changes.

If Hyper Draw starts behaving oddly...

Hyper Draw supports Program Change events. These are not interpolated like Controller events to give smooth curves; instead, one program number remains set until the next point.

Controller events will only be displayed if their MIDI channel matches the one set for Hyper Draw (set by calling up View > Hyper Draw > Channel...).

If you make alterations to a group of events (e.g. volumes) in another editor (e.g. the Event or Hyper Editor), the Hyper Draw display will not update until you have selected or deselected the relevant sequence.

Altering the Display

For information on the basic window functions, please refer to the [section *Window Functions from page 86 onwards*](#).

Display Menu

In order to maximize the usable space within the Arrange window, in the Display menu of the Arrange window you can switch off the display of both the *Transport* and the *Parameters*.

Object Display



MAKING SEQUENCE PARAMETERS VISIBLE: Enlarge the display using the vertical zoom button. If the zoom setting is large enough, you will be able to see the sequence parameters displayed in the bottom half of all the objects. Here you can directly edit the sequence parameters with the mouse (by means of sliders and/or flip menus).



CONTENTS VISIBLE IN THE OBJECT: If you vertically zoom the display further, you will be able to see the actual events contained within the objects.



Sequences show notes and controller events.

ALTERING THE BACKGROUND OF THE ARRANGE: Use the function `View > Grid` to switch on/off a track/bar number grid in the arrange area's background.

`View > White Background` toggles the background between grey/high resolution and white.

Reset Functions

To switch off stuck notes, click on the MIDI monitor in the Transport window, or hit "STOP" twice in rapid succession. In both cases, reset messages are sent, as defined in `Options > Settings > Reset Preferences...`

FOR HANGING NOTES—PANIC FUNCTION: If the notes continue to sound, then your sound sources may not be able to respond to "All Notes Off" messages. If this happens, try the following:

Double-click on the MIDI Monitor in the Transport window (or use the key command *Send discrete Note Offs*). Separate Note Off messages will now be sent for every note on all channels of every MIDI port. That should do the trick.



UNWANTED MODULATION—CONTROLLER RESET: `Options > Send to MIDI > Reset Controllers` transmits a control change message #121 with the value 0 (reset all controllers) on all MIDI channels and outputs used by existing tracks. This neutralizes all sound alteration caused by MIDI controllers like modulation or pitch wheels.



IF SOME SOUNDS ARE SUDDENLY TOO QUIET—

VOLUME RESET: The function `Options > Send to MIDI > Maximum Volume` transmits a control change message #7 (main volume) with a value of 127 on all MIDI channels and outputs used by existing tracks. This sets all channels to their maximum volume, giving your sound sources the optimum signal/noise ratio.



Using Audio in the Arrange Window

Regions in the Arrange Window

Creating Regions

When you record audio, MAGIX midi studio generation 6 automatically creates regions which represent your recording both in the Arrange window and Audio window. To import an existing audio file recorded in another application or from another MAGIX midi studio generation 6 song, it is necessary to manually place the region into the Arrange window.

Immediately after importing audio files from other songs, we recommend physically copying the files to the current song folder using the Audio window function “Copy Files”. Answer “Change References?” with “Yes”, otherwise destructive editing of these audio files will also affect the original song.

To play back a region at a specified point in a song, you have to place the region in the Arrange window first ([section *Adding a Region to the Arrangement* from page 189 onwards](#)).

A quick reminder: when you place regions onto tracks, don't forget to allocate each track its own audio object. For more information about this, take a look at the [section *Audio Tracks: Basics* from page 149 onwards](#).

INSERTING AUDIO FILES USING THE PENCIL TOOL: Audio files can be inserted by **shift**-clicking on audio tracks with the Pencil tool at the desired position. A file selector appears that lets you choose the file you wish to insert. The length of new regions inserted in this way defaults to the complete file length, which can be freely edited later.

DIVIDING REGIONS: When you divide a region using the scissors tool, you create two new regions. The newly created segments of the region take the same name and append it with a sequential number.

Resolution: When you are selecting a cutting point with the scissor tool, you can move it backwards and forwards in steps of one division. If you need a finer resolution, press **alt** after you have selected the sequence with the scissor point. To obtain the maximum resolution (ticks) press **shift**, as well.

Erasing Regions

Regions can be erased either by selecting them and pressing **backspace**, or by clicking on them with the Eraser tool.

Erasing recordings: When you erase a region that you have just recorded (since opening the song), MAGIX midi studio generation 6 will ask if you also want to erase the corresponding Audio File. This is a good way to avoid using up unnecessary space on the hard drive by storing bad takes and unwanted recordings.

If the recording was made before the song was loaded for the current session, this question does not appear. This prevents you accidentally deleting valuable recordings. Pressing **backspace** will only remove the region from the Arrange area. If you want to delete the corresponding Audio Files from the hard disk, you can do so by choosing Audio File > Delete File(s) in the Audio window.

Copying Regions

CREATING NEW REGIONS: Copies of regions are made exactly the same way as MIDI sequences—by dragging them while holding down **ctrl**. This automatically creates a new region in the Audio window. The new region will retain the same name as the old one, but will be numbered sequentially.

This allows you to alter the start and end-points of the copied region independently of the original. It is comparable to a genuine copy of a MIDI sequence, which is created in the same way.

MAKING MULTIPLE COPIES OF REGIONS: By choosing Functions > Edit > Repeat Objects... you can make multiple copies of both audio regions and MIDI sequences. Further details of this function are described in section *Making Multiple copies of Sequences*.

Another way to make regions repeat is to use the *Loop* parameter in the Region parameter box (see [section Loop from page 145 onwards](#)).

The command Functions > Sequence Parameter > Turn Loops to Real Copies changes the loops into audio regions. The arrange objects which are created, however, represent the same region. Thus any alterations in the length of the region or audio material affect all objects.



Moving Regions

You can grab regions in the Arrange window with the mouse and move them around just like MIDI sequences. Movements are made in steps of one beat (e.g. quarter notes—see below).

If you hold down **alt** while moving sequences, you can move them in steps of one division (in sixteenths, for example).

Using Audio in the Arrange Window

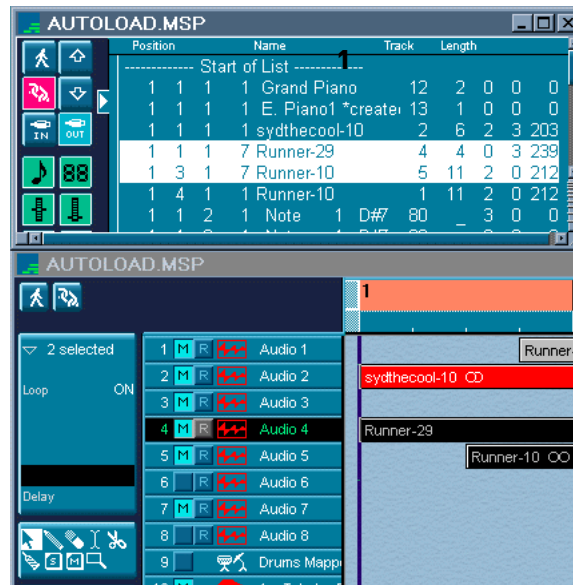
If you hold down **alt** and **shift** while moving sequences, you can move them by single ticks (maximum resolution). You can also use the Delay parameter in the Region parameter box to shift the placement of the regions (see [section Delay from page 146 onwards](#)).

Fine-tuning: In practice, a resolution of “1 tick” will usually be fine enough.

To move a region by a finer resolution than ticks, i.e. by a resolution of 1 sample word, please use the Anchor in the Audio window or Sample Edit window.

Don't forget that all cloned regions in the Arrange window will be affected as well.

MOVING SEQUENCES IN THE EVENT LIST: You can also move sequences by inputting data in the Event List. Select the region you wish to edit and choose Windows > Open Event List. You can then move sequences by units of a single tick if you wish, by changing the value in the *Position* column.



Audio files in the Arrange window **2** can also be displayed alphanumerically in the Event List **1**. Highly accurate position or length changes can be carried out easily using the Event List.



Inserting at the record position: You can copy (**ctrl c**) or cut (**ctrl x**) a region into the Clipboard, and then use Edit > Paste at Original Position to insert it into the selected track at the original record position.

Changing Start and End Points

You can shorten or lengthen any region by grabbing it by its lower right hand corner with the mouse and dragging it. You cannot make a region longer than its original audio file. This means that all the *other* regions derived from that region will be lengthened by the same amount.

Of course, the same goes for any changes you make to the start point of a region. Such a change can be made by grabbing the lower left edge of the region with the mouse and dragging.

You can edit start and end points much more accurately with the Sample Editor, which can be opened by double-clicking on the region. Simply slide the “S” and “E” markers to change the Start and End points of the region. While moving the start point, use the **ctrl**-key to make sure that the Anchor, and therefore the timing relative to the rest of the arrangement, remains unchanged. Keep in mind that the Anchor must be inside the region. If you wish to move the start point to the right, first move it to the approximate desired position while in the Arrange window. Then open the sample editor and use the **ctrl**-key to move the start point to the exact position.

Region Parameter Box

NAME: Just as with MIDI sequences, the top line of the sequence parameter box is for giving a name to the region. You can name several selected regions at once; the regions are then given the same name and distinguished only by different numbers at the end of the name. MAGIX midi studio generation 6 inserts these numbers automatically unless you deliberately leave a space at the end of the name.

When you change the title of a region, the corresponding region is also renamed in the Audio window.

LOOP: As with MIDI sequences, you can use the loop parameter to set a region to loop automatically. The loop repeats until it reaches the next region on that track or the end of the song. Don't forget that these loops are based on the sample grid of the region. This means that even if the song tempo matches precisely, after a while the loop repeats may start to go out of sync. You can avoid this by setting the end point of the region to an exact measure boundary. In these cases, it may be better to use the *Repeat Objects* function ([section *Edit Functions* from page 97 onwards](#)).

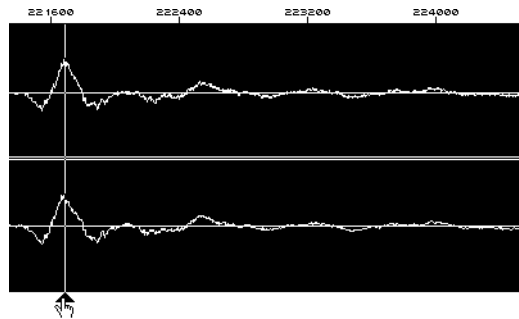
Using Audio in the Arrange Window

DELAY: Just as with MIDI sequences, you can advance or delay the playback of regions, the smallest available units being ticks.

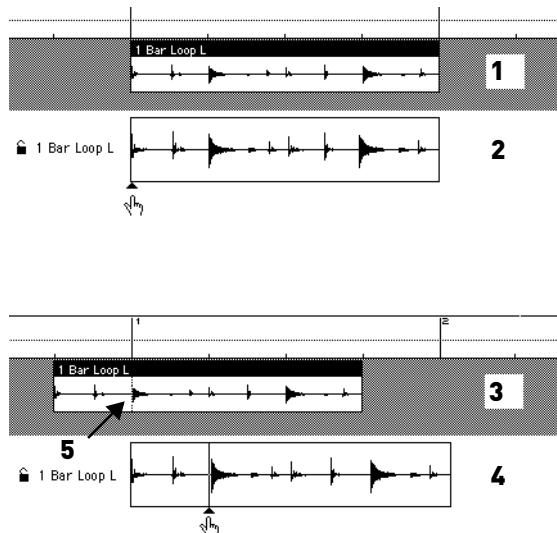
The Region Anchor

The Anchor is a region's temporal reference point. When you move a region, it's not the start point that is displayed in the Info column, as with MIDI sequences—it's the Anchor point.

To guarantee perfect sync between (for example) a one-bar drum loop and your sequencer, the Anchor must be assigned to a well-defined musical point. If the loop begins with a significant level peak (say a kick drum beat), set the Anchor to the point where the volume of that beat is at its precise peak.



The following procedure can be useful in determining whether the Anchor is set to its optimum position or not: play a drum sequence in via MIDI that duplicates the main rhythmic stresses of the drum loop. You should then be able to correct the Anchor position by ear.



The changes made to the position of the Anchor in the Audio window (**2** and **4**) directly affect the region in the Arrange window (**1** and **3**). The position of the audio shifts relative to the sequencer's time axis, while the Anchor remains tied to the same bar value, and is marked by a dotted line **5**.

Using Audio in the Arrange Window

MIDI Sequences and Regions compared

The following table sums up the main differences between audio regions and MIDI sequences. There are some notes at the bottom of the table to clarify the most important points.

Characteristic	MIDI sequences	
		Regions
Composed of discrete data	Yes	No, because regions are just references to parts of audio files
Can be given names	Yes	Yes
Sequence parameter "Loop" available	Yes	Yes
Sequence parameter "Quantize" available	Yes	No, but the position of regions themselves can be quantized, using the Event List display on the Arrange level
Sequence parameter "Transpose" available	Yes	No
Sequence parameter "Velocity" available	Yes	No
Sequence parameter "Dynamics" available	Yes	No
Sequence parameter "Gate Time" available	Yes	No
Sequence parameter "Delay" available	Yes	Yes
Freely positionable	Yes	Yes
Left or Right Corner Edit	Yes	Yes, and this affects the audio region, but not the position of the audio signals relative to the time axis of the sequencer
Can be cut with the scissor tool	Yes	Yes, creates new regions
Concealable intro	No	Yes
Have a variable musical reference point	No	Yes, a variable Anchor. This affects all the regions derived from one region and can change the position of the audio signals relative to the time axis of the sequencer

Characteristic	MIDI sequences	
	Regions	
Can be turned off with the Mute function	Yes	Yes
Can be soloed	Yes	Yes

Naturally, some of the parameters that can be applied to MIDI events have no effect on audio signals.

Only regions have the flexible reference point provided by the Anchor.

The fundamental functions (such as the freely determinable position and length, and the ability to name, mute, and solo) are generally available to all types of objects (MIDI sequences, regions and Alias objects).

Audio Recording

This section deals with audio recording only. For details on general preparations before making an audio recording please refer to the relevant sections in the [Audio Driver](#) chapter.

Audio Tracks: Basics

In the preset Standard Song the audio tracks of all tracks of the hardware are pre-defined (“Audio1” to “AudioX”). Adjustments to the audio objects can be made directly from the Arrange window. The Audio Track Parameter Box is located under the Toolbox. There you can set the icon of the audio track and the MIDI channel, on which the corresponding mixer channel receives its MIDI data. *Val* determines whether the fader of the corresponding mixer channel shows its value in dB ($-\infty$ dB to +6 dB) or as regular MIDI values (0 to 127).

The fields *Dev* and *Cha* are essential. Under *Dev* you must set the driver of your audio card. Using *Cha* you determine, from which channel of your audio card the corresponding track in the Arrange window will be played back. Normally you don’t need to know this, because your standard Song is set automatically (as mentioned above). If on the other hand you create a new audio track via Track > Create Audio Track, you will have to deal with these settings. The newly created audio track is not equipped with the “R” switch to record-enable the track (see below). The reason is that for this new audio track, looking at *Cha* in the Audio Track parameter box, no channel of your audio card has been assigned: *Cha* is set to “off”. Click-holding “off” opens a flip menu to assign an audio channel of your

card. Having done this, the “R” switch of this track appears. We will describe the function of this switch in the next chapter.



“Arming” Tracks

1. Method:

- Click the switch with the red “R” in the track list. If the switch is still not visible, you should switch on the driver for the relevant audio hardware in Audio > Audio Preferences... Audio Driver and then restart MAGIX midi studio generation 6.

2. Method:

- Open the Track Mixer per key command or from the Audio window by selecting Windows > Open Mixer).
- Click on the REC button of all the audio objects whose tracks you wish to record to.

Click the audio object once more (as shown above) to disarm the track again.

You can only make audio recordings on tracks that have been armed, no matter what track is highlighted in the Arrange window.

- If you choose a MIDI track, you’ll record MIDI events.
- If you choose an audio track, you’ll record on all the tracks that have been armed (record enabled).
- Space is reserved on the hard disk for armed tracks, and is no longer available for Undo files. For this reason MAGIX midi studio generation 6 will automatically disarm audio tracks if editing in the Sample Editor when the hard disk is nearly full.
- You can record simultaneously on one MIDI track and several audio tracks together by clicking the MIDI track and the audio tracks you’re going to record to, while holding down **shift**.

If several Arrange window tracks are assigned to the same audio track (e.g. “Audio 1”), then the new audio file (or region) will be recorded to the selected track.

“Disarming” all tracks: If several tracks are record-enabled, you can instantly disable them all at once by clicking one of the flashing REC buttons while holding down **ctrl**.

Recording Modes

MAGIX midi studio generation 6 gives you many options for starting audio recordings at various points in your song.

STANDARD RECORDING WITH COUNT-IN: You can start recording at any point you like in a song by setting the Song Position Line to the desired place. If the audio tracks you want to record to are correctly set, and the necessary input

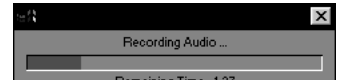


signals are connected and properly adjusted, just hit the record switch on the Transport bar, or press *.

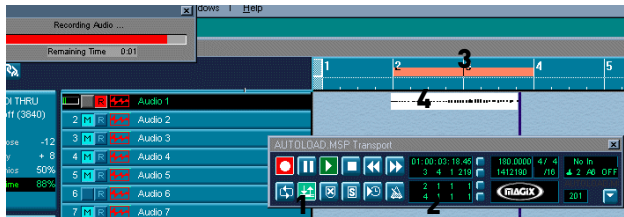
A “count-in” will sound. Signals will be recorded during this time. Depending on the number of tracks required, MAGIX midi studio generation 6 will pause for a short time between the record button being pressed and the recording actually starting.

During recording, the Recording float window opens. This displays the remaining recording time.

MAGIX midi studio generation 6 will automatically create a region in the Arrange window after recording. You can listen back to the new recording in the Arrange window as the overview is created.



PRE-PROGRAMMED DROP-RECORD: MAGIX midi studio generation 6’s autodrop function can be used on audio tracks just as it can with MIDI sequences. You enable autodrop by clicking on the autodrop switch on the Transport bar. Here is a step by step breakdown of the procedure:



- 1 The autodrop switch must be turned on.
- 2 You can set the autodrop locators numerically in the Transport window.
- 3 The autodrop recording zone is marked out by a thick orange bar in the middle third of the bar ruler.
- 4 Recording only takes place within the autodrop zone you have set up, with the exception of a short “lead-in” just before recording is due to start (see below).

The autodrop zone start and end points can be set either from the bar ruler or by using the locators in the Transport bar. Please note that if the Cycle function is switched on, you can set the Autodrop Locators in the window to the right of the Cycle Locators (under tempo).

Start the recording. MAGIX midi studio generation 6 will begin recording about one bar before the drop-in locator; afterwards a region will be created that exactly corresponds to the length of the autodrop zone. This method allows the start of the region to be lengthened later if desired, so that the lead-in becomes audible. However, doing

this does not change the position of the recording relative to the time axis.

A small tip: if you wish, you can even define a small auto-drop zone within a larger Cycle Zone (see below). This can be handy if a player needs to re-record a difficult passage in the middle of a song, and requires many attempts to get it right.

RECORD AND PAUSE MODE: If MAGIX midi studio generation 6 is in pause mode you can start audio recording by clicking “Record Toggle”, “Pause” or “Play”. Recording then begins at the current song position.

AUDIO CYCLE RECORDING: You can make audio recordings even when “Cycle” is switched on. A new track is created for every cycle. All the tracks created are still played via the same audio object. This prevents the tracks from being played simultaneously.

If you stop recording just after the end of a full cycle, no region is created for the cycle which has just begun. However, the audio material is not lost, but is recorded after the last region in the audio file.

The whole recording (during all cycles) is stored in a single audio file. This audio file is split into regions which are as long as the length of the cycle. The region for the previous cycle is automatically muted at the beginning of the next cycle.

Audio Cycle Recording also works when you are simultaneously recording two channels (e.g. stereo tracks).

After recording, please take note... After you’ve made your first audio recording in a song, you should not make any further adjustments to the tempo of that song. Decide on a tempo and all the changes in tempo well before the first audio recording, and stick to it! Audio recordings have a fixed playback rate and can only be matched to new tempos if you’re prepared to go through a great deal of hassle. The time compression/expansion algorithms currently available only permit you to match audio to new tempos when the tempo differences involved are relatively small; if you try and use them to significantly change the tempo of your audio recording, its quality may be significantly compromised.

If you’ve made your audio recordings in real time, playing them in over the top of, say, an existing MIDI arrangement, we don’t particularly recommend that you move the Anchor of any of your regions very often. You can make

slight adjustments to the timing of your regions using the “Delay” object parameter.

Functions

Digital Mixdown

Using MAGIX midi studio generation 6, you can mix down audio data in the digital domain from within the Arrange window. This is done with the glue tool. This function is non-destructive, as MAGIX midi studio generation 6 always creates a new file for the mixed-down material. This new audio file is stored on your hard drive, so you should keep an eye on available space.

To carry out a mixdown, you choose the glue tool from the toolbox and use it to select the required regions for mixdown (if necessary using **shift** as well).



No Mixdown Situation:

- If there are several regions (mono or stereo) in a row on the same track, which have been cut out of one region using the scissors tool, i.e. which originate in this order from the same audio file, no mixdown is carried out. Instead, a single region is simply created over the entire area. This gives the desired result, without using up any additional disk space.

MAGIX midi studio generation 6 can recognize associated regions even if there are gaps between the regions. The determining factor is that the relative position of the regions in the Arrangement corresponds to the relative position of the regions in the audio file.

- In the Arrange window if you want to mix two regions whose tracks are panned to opposite sides, no mixdown is carried out.

The two resulting mixdown files would be identical to the original audio files in the used areas of the regions. If you don't need the unused areas of the audio files choose “Optimize Files”.

“Mixdown” of Regions in a Track: If several regions that run concurrently (i.e. not after one another) are selected from one track, the program does not mix them down. Instead, you are asked to create a new audio file, which is named after the first region. The selected regions are then mixed together without any changes to volume, and without clip scanning.

If there are empty sections between two regions, these are added into the new audio file as silent passages.

Genuine Mixdown with Clipsan: If you combine audio data from two or more tracks, the current values for pan and volume found in the Mixer for the individual tracks

will define the pan and volume settings in the new audio files. If you combine both sides of a stereo audio file, first set the pan controls of the component mono sides to hard left and hard right, respectively.

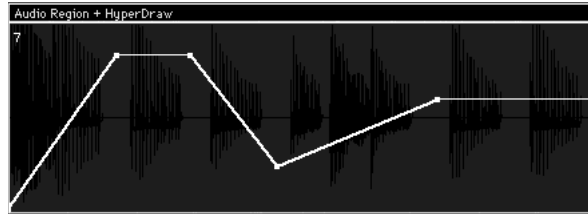
You can carry out a mixdown while the sequencer is playing.

After the digital clipping scan (Clipscan) is over and the mixdown is complete, MAGIX midi studio generation 6 replaces the previously selected regions with one region which contains the new, mixed-down audio file in its entirety. If you wish, you can use the undo function to restore the original audio regions. If you do this, you will then be asked if you wish to keep the newly created mixed audio file, or delete it. If you decide to keep it, it will remain in the audio window, and can be further processed there.

During a mixdown the Clipscan function uses 32-Bit resolution to ensure that the highest possible level is maintained without clipping.

Hyper Draw for Regions

Hyper Draw™ can also be used directly on audio regions and can be used, for example, to draw changes in volume and panning.



Choose View > Hyper Draw > If you are not yet familiar with Hyper Draw please refer to the “Hyper Draw” section in “The Arrange Window” chapter of the MAGIX midi studio generation 6 manual.

When you use Hyper Draw on audio regions, MIDI events are created, which are always organized together with the audio region. You can also edit these MIDI events in the Event List or Drum Editor.

Mixers and Audio Objects


The basics

Your Studio Equipment probably consists of one or more Multi Timbral Sound Module(s) with stereo analogue outputs, Microphone(s) and Guitar Pre-Amps or similar analogue signal sources, as well as a solid (hardware) Mixing desk (analogue or digital, at any rate a separate device). A chapter in the Installation Handbook describes how to connect these instruments to the audio in- and outputs, or, as the case may be, the respective Sound Card for MAGIX midi studio generation 6. With your Hardware Mixing desk you route the various signals that you want to record, using Subgroups when possible, to MAGIX midi studio generation 6's Recording Inputs (i.e. the Sound Card). The Hardware Mixing desk also contains the required separate Microphone Pre-Amplifier. In the simplest case these tasks could also be done by separate Microphone Pre-Amps (Voice Processor, for instance) or by Sound Modules with integrated Mixing functions. The Hardware Mixing desk, however, performs a further function, mixing the analog signals from your MIDI multi timbral sound module with the MAGIX midi studio generation 6 Audio output signals from the soundcard.

- MAGIX midi studio generation 6 mixes the Audio Signals that are fed to the Sound Card with its own effects.
- The instrumental part levels and the effect levels, that is, the entire mix of the signal output by your sound module, is remotely controlled by MAGIX midi studio generation 6.
- The Track Mixer performs both of the following functions simultaneously: The control of the MIDI multi timbral sound machine (that is Level, Pan, Effects of the different Parts) as well as mixing the audio tracks within MAGIX midi studio generation 6 (Level controls, Panning and so on). The actual electrical mixing together, resulting in the stereo signal that you will hear from the speakers, is once again the job of the Mixing Desk.
- Any mixing action in Logics mixers, that is: every movement of a fader or knob can be recorded simply by pressing the record button. Afterwards, the passage with the recorded movements of the controls can be played back, and you will see how the knobs move just as you have recorded them. Since the data controlling these knobs are MIDI controller events, you can edit

them like all the other events—for instance with the Drum Editor.

The Track Mixer

The Track Mixer is the simplest and most convenient way to mix audio and MIDI tracks. MAGIX midi studio generation 6 creates a mixer based on all tracks which are assigned to the track list of the Arrange window. It contains as many channels as there are tracks. The mixer deals with both audio and MIDI tracks. These are laid out in the same order as in the Arrange window. Each channel represents a track in the Arrange window: the audio channels correspond to the audio tracks, the MIDI channels correspond to the MIDI tracks. The parameters which you adjust on the Track Mixer are also available in the Arrange window. You open the Track Mixer via the key command  or, from the Arrange window, via Windows > Open Mixer. On the left is the parameter display which tells you (among other things) which effects are assigned to the aux sends. Selected tracks are framed in red.

DISPLAY: The Track menu is where you define what types of track are displayed in the track mixer. You can switch off MIDI tracks if necessary. Although the effect and master (output) objects are not track objects, they can also be displayed in the track mixer.

The View menu is where you customize the display to suit your requirements. You can hide the labels for the user-defined pots on the MIDI mixer channels, which saves a great deal of space. You can individually switch off the display of the program numbers, bank numbers, the user-defined pots on the MIDI mixer channels (*Assign*), the pan pots (*Pan*), the faders (*Volume*), and the track names and numbers, to make more space. You can also switch off display of the equalizer, the aux sends, and Plug-Ins for the audio channels.

Like the other editors, the track mixer is always stored in the Screensets. You can switch between these using the number keys 1—9, or you may call up two digit screensets by holding down **shift** while entering the first digit.

SETTING KNOBS TO THEIR DEFAULTS: Clicking a fader or knob in MIDI tracks while holding **alt** resets the value to a neutral value. The neutral value is zero for all controls except Volume = 100, and Pan, Balance, Cutoff = 64 (center position).

Send all Mixer Data: By choosing Options > Send All Mixer Data you can transmit all currently visible mixer knobs and faders to MIDI.

Track Selection when Playing or Recording: You can prevent the track selection from changing whenever you make an adjustment to a channel, while MAGIX midi studio generation 6 is in recording- or non-recording mode. For both situations there is an independent parameter. You can access these parameters by choosing Options > Change Track in Record Mode and Options > Change Track in Play Mode.

GM, GS, XG: To adapt the Track Mixer to the MIDI standard supported by the sound module you are using, to the right of the mixer channels you will find a flip menu where you can choose between the standards GM, GS, and XG.

EQ's, Effects and Plug-Ins

With the mixer you get CPU-based real-time effects with any audio hardware that can be addressed with MAGIX midi studio generation 6's own audio drivers. There are EQs, Reverb, Delay and others, which are included in this product. In addition, MAGIX midi studio generation 6 allows for real-time effects made by different software manufacturers to be integrated into MAGIX midi studio generation 6's audio signal-flow. These are managed exactly like the internal effects of MAGIX midi studio generation 6.

Memory: A propriety Plug-In requires between 10 and 400 KB. A single DirectX Plug-In, with its own graphic interface (editing window), can require up to 2 MB. Please ensure that you have enough free memory.

Refer to the section on memory in the Installation manual.

Effect Returns

In MAGIX midi studio generation 6 all effects except the EQs are sent to effect objects (*Return*). This makes these effect objects *effect returns*. If you insert a reverb effect in an Insert of a Return, you are applying reverb to your mix by

- setting up a *Send* to the *Return* in all desired audio channels of the mixer, by selecting the corresponding effect object from one of the send inserts on the audio fader (and adjusting its level) and
- adjusting the output level (fader) of that effect object

To choose an effect, grab one of the *Inserts* boxes on the effect object, with the mouse. Once the desired effect has

been assigned to the insert, a double-click on its name opens its parameter box.

BYPASSING INSERTS: Inserts can be bypassed (switched off) by clicking on the insert name while holding the **strg**-key.

The names of activated effects will be displayed with a highlighted background, the names of bypassed effects will have a grey background.

When you click the little box with the triangle, you will see the options for the plug-ins: Copy Setting, Paste Setting, Load Setting, Save Setting as..., Save Setting). The functionality is pretty self-explanatory: Copy a setting from one plug-in to the other (copy/paste), save the setting on the harddisk for later use, load a previous saved setting, or save an existing setting under another name to preserve the actual file.

The settings for a plug-in are stored in a folder named after the plug-in. All these plug-in-settings folders for the different plug-ins reside in a folder called Plug-In Settings. The folder Plug-In Settings resides in the folder of your MAGIX midi studio generation 6 program. Please do not touch this folder hierarchy—everything is set up correctly by the installation routine.

Equalizer (EQ)

Three bands of equalization are available per track. For treble control there is a shelving high frequency filter. For bass control there is a shelving low frequency filter. The midrange can be controlled with a semi-parametric sweep EQ. You can control the amount of treble and bass using the shelving type knobs (H and L). For the mid band, using knob “f” you can (in kHz) determine at which frequency you want to increase or decrease the level using knob M.

All EQ adjustments can be automated. Please read [section Automation from page 178 onwards](#).

Sends (Aux Sends)

The Sends allow you to send a portion of any signal out of the signal’s audio object, to an internal effect or auxiliary output. The Send routing options available vary depending on the hardware you are using. Sends are always “post fader”, meaning that the level of the track fader will affect the amount of signal sent to the aux effect.

Click on an empty Send slot and choose one of the possible four send destinations, using the flip menu that appears. When you have chosen the send destination, you can regulate the amount of signal supplied to the send us-

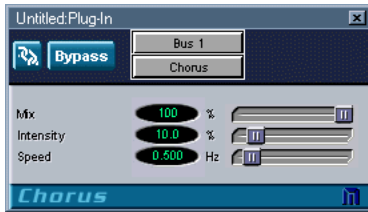
ing the Send Amount *knob* control. As you are adjusting the level, the relevant value appears in the menu box, to the left of the pot. You may assign up to 2 sends per track. *Normalizing the Send Level:* You can reset the Sends to 0dB (90) with a **ctrl**-click on the knob.

MAGIX midi studio generation 6's Real-Time Effects

You can add any of the real-time effects by click-holding on an insert slot of the return.

Double-clicking an already assigned insert slot opens the relevant plug-in edit window. This is where you can edit the parameters of the real-time effects. The Stereo Delay effect only works if the corresponding Return path is switched to stereo. The effects explained:

Chorus



The Chorus effect can be used to make a signal “bigger”, particularly the stereo Chorus (s/s). The Chorus effect is based on a very short digital delay

with a periodically modulated Delay Time parameter. The pitch of the delayed signal rises and falls periodically like the playback of a tape recorder when the tape speed is changed with the pitch knob. The modulated signal is mixed with the original signal, which simulates the effect of several voices playing or singing the same musical part. *Mix:* determines the ratio between the dry and effected signal.

Intensity: The modulation width of the chorus effect (the amount of pitch deviation).

Speed: The modulation frequency of the chorus effect.

Flanger



A flanger works almost like a Chorus, but with shorter Delay Times being used and with the effected signal being fed back to the input. This creates resonances and filtering effects based on

the frequency of the modulation, and the harmonic content of the original signal. With the Delay Time constantly changing, the harmonics rise and fall through the audio spectrum, creating the characteristic metallic flanging ef-

fect. The first parameters are the same as with the Chorus effect described above.

Feedback: “Feedback” controls how much of the delayed signal is routed back into the input. Negative values mean that the phase of the routed signal is inverted. This will result in a resonance that will be one octave lower, and only its odd-numbered harmonics will remain. You can use “Feedback” to increase the intensity of the flanger which can produce very dramatic effects.

Stereo Delay

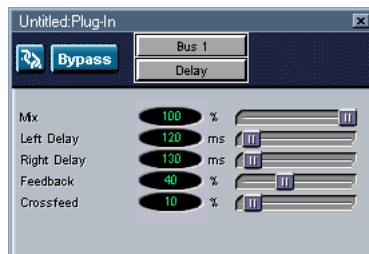
The stereo delay, as the name suggests, delays the audio signal, or simply creates echoes of the original signal.

Left/Right Delay: The “Time” parameter defines the delay time in

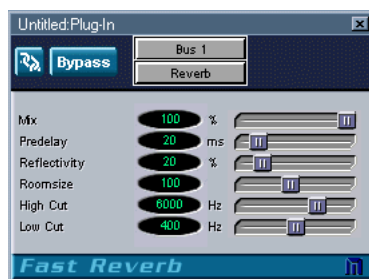
milliseconds. Very small values (up to 10 ms) produce resonances, larger values (10 to 100ms) produce doubling-effects, and even greater values produce echoes.

Feedback: “Feedback” controls how much delayed signal is routed back to the input, which allows you to control the number of repeats .

Cross Feed: This parameter determines how much of the left channel is routed to the right and vice versa. Higher values result in more complex reflection clusters.



Fast Reverb



Reverbs require far more processing than other real-time effects, especially with high quality values. The Fast Reverb is a good sounding reverb that puts less strain on the system than other reverbs.

Pre Delay: *Pre delay* determines the amount of time between the original signal and the initial reflection. With the right level of pre delay, the reverb gains space. The ideal values are normally between 5 and 50 ms. Very small values may sound better in solo mode, but in the mix can lead to “mushing” of the signal with its reverb. Larger values can be interesting for combined delay/reverb effects,

but in nature this would only occur if the sound source was outside a tunnel opening.

Reflectivity: The density of the reverb. High values lead to a reverb that is more dense, which depending on the sound material may sound better, but less natural. With room simulation, the “Density” determines the composition of the virtual reflective surfaces. Higher settings simulate harder surfaces, lower settings softer surfaces.

Roomsize: The “Roomsize” parameter defines the size of the simulated room. Small rooms have denser, more closely spaced reflections, less air damping of the sound-waves between the reflections off the walls, and therefore more complex phase relations between reflections.

Hi Cut / Lo Cut: Using the Low Pass (High Cut) and the High Pass (Low Cut) you can determine the frequency range of the reverberation.

There is one additional, new control for the Fast Reverb. *Density/Time*—you can look at this parameter as a “room sound thickness” control. Low *Density/Time* values will make the reverb sound thin with audible reflections. While high *Density/Time* values will produce a thicker or denser room sound but sometimes introduces a metallic color as well.

Digitizer

Crunch it, crush it and chew up your tracks. You want the sound of dirty, lo-rez digital gear? Then you need the Digitizer—deadly

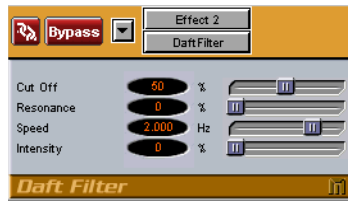
digital distortion. Use it on anything that needs a “bit” less.

You only need two controls: *Downsampling* and *Resolution*. Decreasing the *Downsampling* amount will reduce your high end and introduces digital artifacts. Lowering the *Resolution* raises the crunch factor. Your source signal will get more and more metallic and finally breaks up into the unintelligible. (note: extreme use of the Digitizer might damage your speakers, so take care!)

Daft Filter

Are you looking for that techno feel or does your track need some analog ‘phatness’? The Daft Filter builds on the sound of the analog era. A classic lowpass filter with resonance, complete with a built-in low frequency oscillator to automate the famous techno filter sweeps.





The *Cutoff* control removes the bright high-end content of your source audio to the point where it becomes dull (not “dull” as in boring, but rather “less

bright”) and eventually disappears completely.

Resonance adds emphasis to the sound. High *Resonance* values will produce the characteristic whistle and scream you are probably familiar with from your favorite techno songs.

Intensity introduces an up and down motion to the filter. The higher the *Intensity* values, the more pronounced the motion will become.

The speed of the filter’s up and down motion can be adjusted with the *Speed* control.

Mono Delay

This is the mono version of the Stereo Delay plug-in and should be used on mono audio channels. With the delay you can produce repeating echoes and metallic, resonating effects.



The controls are similar to the controls of the Stereo Delay.

With *Mix* you control how much of the delay effect is heard in relation to the original. Higher values mean more of the effect is mixed to your original signal. At *Mix* 100%, you will only hear the delay.

With *Delay Coarse*, you dial-in the delay time. This is the time after which your original signal starts repeating. High values create what you know as echo or repetitions. Small values create metallic, resonating effects. *Delay Coarse* works together with *Delay Fine*. *Delay Fine* can dial-in the delay time in much smaller steps. Add *Delay Fine* to *Delay Coarse* to get the total delay time.

The *Feedback* control. This is where you adjust how many times your original signal repeats. At 0% you hear only one repetition. Raise the *Feedback* control and more and more repetitions occur until at 99% the sound seems to continue endlessly.

High Cut and *Low Cut* are tone controls for each delay repetition. Raise *High Cut* and the repeating sound will get duller over time. Raise the *Low Cut* control to reduce the

low end over time. The repeating sound will appear to get thinner.

Try experimenting with delay times less than 10 ms. You will discover many nice robotic and metallic sounds.

Compressor

Do you have audio tracks which sometimes are too soft and other times too loud? This is where the MAGIX Compressor comes in! The Compressor can even out volume differences and also give an audio track more punch. Vocals, Bass Guitar and Kick Drums are normally good candidates for this treatment.

Threshold can be seen as a effect depth control. The lower you set the *Threshold* the more of the audio signal is being compressed. In other words, this is a control where lower means more.

Ratio determines the intensity of the applied compression. The control values are expressed in ratios, hence the name. A 1:1 ration means there is no compression, with higher RATIO settings the effect intensity rises. At 20:1 (the highest ratio you can dial-in) your audio signal gets completely squashed as if a ceiling is pressing down on it. The Compressor has become a limiter!

Attack and *Release* deal with time. The *Attack* time tells you how long it will take until the full compression intensity is reached (*Ratio*) and the *Release* time determines how long it will take for the compression to subside to zero. In a manner of speaking, *Attack* fades in the Compressor while *Release* fades it out again. *Attack* will make your track sound more even, while a little higher setting gives you more punch.

Some experimentation is needed to master the Compressor, as it is one of the most fundamentally useful—but misunderstood—tools in music production. Start with a *Ratio* of 3:1, *Attack* time of 10 ms and a *Release* time of about 100 ms. The *Threshold* depends on your signal. Try settings of about -20 dB first.

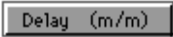
FUNCTIONS OF THE PLUG-IN WINDOW: Every Plug-In window has a row of switches at the top whose functions are the same in all Plug-Ins.

Link: If the Link button is switched off (default), you can open several Plug-In windows simultaneously.

If the Link button is switched on this Plug-In window is used to display all double-clicked Plug-Ins.

Bypass: The bypass switch takes the whole effect out of the signal flow. The effect's input signal is routed directly to the output unaltered.



Track 1Delay (m/m)

Choosing an Audio Object: If you have used the displayed effect algorithm in another effect object, you can simply swap between the objects. You can quickly compare settings.

Insert Slot Selection: If you have installed more Plug-Ins in other insert slots of the same effect object, you can quickly change to the other Plug-Ins. This allows you to quickly balance the settings of all the Plug-Ins within an object.

Plug Ins from Other Manufacturers

DIRECTX: MAGIX midi studio generation 6 supports the DirectX standard, which allows real-time effects made by different software manufacturers to be integrated into MAGIX midi studio generation 6's audio signal-flow.

Please follow the installation instructions from the Plug-In manufacturers to ensure their correct installation. There is an application on the MAGIX midi studio generation 6 program CD that allows you to exclude certain Plug-Ins—the Plug-In-Enabler. Due to some technical changes with the new audio engine, some Direct Show plug-ins which appeared in generation 5 may not appear MAGIX midi studio generation 6. If so, exit MAGIX midi studio generation 6, and start the latest version of the plug-in enabler in order to re-activate the deactivated plug-ins, assuming that these had been working correctly before.

The Plug-Ins are automatically available in the Plug-In menu, along with MAGIX midi studio generation 6's own effects. This is the menu which opens when you open an audio object's Insert button (in an effect object).

Double click an inserted Plug-In to open its editor. If the selected Plug-In does not have its own editor, MAGIX midi studio generation 6's standard surface will be used to access the Plug-In's parameters.

VST™ 2.0 SUPPORT: MAGIX midi studio generation 6 supports the use of VST™ 2.0 plug-ins. Of course, this means that VST™ 1.x plug-ins are now also supported. Please note the difference: VST™ 1.x plug-ins work as audio-in/audio-out plug-ins, as do your built MAGIX plug-ins, and are thus to be inserted in the effect objects (see above). However, VST™ 2.0 plug-ins work as MIDI-in/audio-out plug-ins, as do your built-in MAGIX synthesizer plug-ins, and are thus to be inserted in audio-instrument objects (see below). These support the stereo outputs of the relevant plug-ins.

To work with VST™ plug-ins in MAGIX midi studio generation 6, copy the plug-in files to the folder called “VST-PlugIns” in the corresponding directory. Simply create a folder with this name if one does not already exist—but the installation routine will have it done for you. In order to prevent particular plug-ins from being shown in the plug-in list, move the plug-in file to another folder, which could be named “Vst_unused”.

MAGIX midi studio generation 6 now supports programs for VST™/VST™ 2.0 plug-ins, if a plug-in provides program memory. You will find a new menu in the title bar of the plug-in window that displays the currently chosen program (“PROG 01” etc.). Double click on a program name to rename it.

Version 6 also allows the Plug-In enabler to activate and deactivate VST™ plug-ins. Click on the flip menu in the middle of the Enabler window to switch between both formats. It is possible to apply DirectX and VST™ plug-ins simultaneously; you do not deactivate one format when you switch to another.

Like MAGIX midi studio generation 6’s own plug-ins, VST™ plug-ins can also be automated. This type of automation is not possible with DirectShow plug-ins due to technical reasons based on the principle of the DirectShow interface.

Audio Instruments

MAGIX midi studio generation 6 supports the new, included MAGIX synthesizers Carpet Sweeper and Percussor. Outfitted with an innovative user interface, the units provide subtractive synthesis that meets the classic analog ideals. They offer everything that made the analog synthesizer so famous: rich basic sound, punchy filters, flexible modulation possibilities and extremely fast envelopes. The synthesizer instruments integrate seamlessly within MAGIX midi studio generation 6’s internal digital mixer; all plug-ins effects can be used and all parameters can be automated. The direct connection with the sequencing engine of MAGIX midi studio generation 6 guarantees unsurpassed precision through sample-accurate timing that is superior to any external MIDI synthesizer.

To use the new instruments, version 6 features a new category of audio objects in MAGIX midi studio generation 6, called “audio instruments”. These can have the synthesizer plug-in in their top insert slot. The default song—the song that opens if you move your Autoload away from the

MAGIX midi studio generation 6 folder—has readily configured audio instruments.

An audio instrument is an audio track with the track parameter “Cha” switched to one of the “Instruments (1-4)”. So each audio track can be made an audio instrument by setting its “Cha” parameter in its object parameter box to an instrument channel. But it is more convenient to create a new audio instrument by simply selecting “Functions > Track > Create Audio Instrument Track”.

Remarks on the Use of Audio Instruments

The instruments offer an opportunity to reduce system load. Please only assign as many voices that you expect to need for a particular task; for example, one voice is usually enough for a bass or snare drum.

Please note that muting an audio instrument track in Arrange does not reduce system load.

When an audio instrument track is selected, it is ready to be played in real-time and consequently produces some system load. Normally MAGIX midi studio generation 6 releases system resources used by the Audio Engine when the sequencer is stopped. But this is not true if an audio instrument track is selected in Arrange and is therefore available for real-time playing. Selecting a MIDI track or a normal audio track exits this “stand by” mode and releases reserved system resources again when the sequencer is stopped.

Audio instruments can only be addressed through corresponding audio instrument tracks in Arrange. Audio instrument tracks process the sequence parameters Quantize, Transpose or Delay in real-time. All other sequence parameters become effective after they are normalized. Loops and aliases must be converted to “real” copies. If you want to shorten sequences, please divide them with the scissors tool and erase the part you do not need any more. The reason for this is the totally different internal handling of an audio instrument as compared to external MIDI instruments. The good thing is: the MIDI timing of audio instruments is sample accurate.

To hear instrument plug-ins along with plug-in effects inserted afterwards, MAGIX midi studio generation 6 must be in play mode.

The Synthesizers—Audio Instruments

Introduction

With Generation 6 you now have access to everything a complete professional music production studio offers—thanks to the built-in synthesizers. To make it as easy as

possible to work with these synthesizers, each of them is tailored to a special task; for example, the “Carpet Sweeper” is built to deliver warm and full pad sounds which give your tracks that soft and spacious feeling. By tailoring each new synthesizer to a special purpose we were able to reduce the number of parameters, resulting in an ease and speed of use unparalleled by conventional synthesizers.

To make the new synthesizers still easier to use, each even comes with its own preset selection. By all means use these as a starting point for your own sound creations but don’t be afraid to experiment with all the parameters as well. This is the most enjoyable way to learn about the synthesizers—and it is the best way to create your own sounds that will set your tracks apart from those of your competitors.

We know that you do not want to be bothered with the jargon normally associated with synthesizers so, rather than talking in confusing technical terms, we will use a musical and understandable language to help you get the most out of our synthesizers as soon as possible. There are, however, some terms and principles that have to be understood before getting to each synth in detail. Here we go—

Principles

Synthesizers produce their sounds by providing control over the pitch, the timbre and the volume of a sound.

To do this, each synthesizer has a sound source, called oscillator. An oscillator produces a sound that goes on forever. The pitch of this sound can be adjusted and played via your keyboard. Typically you can select between waveforms that provide different sound characteristics, with the proviso that they all sound very bright.

This bright sound from the oscillator is then passed to the filter, which controls the timbre of the sound. A filter can make the bright sound darker or duller (not dull as in “boring”, but rather “less bright”), with the amount of “darkness” being adjustable with the *Cutoff* control. Furthermore a filter can also add some sharpness or pronunciation to a sound. The amount of sharpness is controlled with the *Resonance* control. When Resonance is turned up, the sharpness gets so pronounced that the filter itself might start outputting an additional sound. This can be pitched with Cutoff.

The interaction of the oscillator and the filter gives us lots of sonic variety—control the pitch of the entire sound at the oscillator, select different bright sound characteristics at the oscillator, give the sound a timbre anything between

bright and dark or sharp and soft with the filter. Remember though, that the sound output by the filter still goes on endlessly. This is where the amplifier comes in. It gives a beginning and an end to the endless sound by simply turning its volume up from zero and down to zero.

Okay, now you have learned how and where in a synthesizer the three basic sonic parameters—pitch, timbre and volume—are controlled. But there is one final step waiting to be taken in order to fully understand how a synthesizer does what it does. And that is that each of the parameters pitch, timbre and volume can not only be controlled manually—like twisting a control named “volume” or “pitch”—but can be controlled automatically by the synthesizer itself.

To do this, a synthesizer offers not only the above-mentioned oscillator, filter and amplifier modules, but also some additional modules that produce adjustable curves. These curves can be one-shot or repeat periodically, and are used to alter pitch, timbre or volume automatically.

Here are two examples: first, imagine an additional module that produces a periodically repeating curve that goes up and down and up and down and so on. Now imagine this curve controls pitch. The result? Pitch goes up and down and up and down and so on, according to the curve. In this case, we say that pitch is “modulated” by the curve that goes up and down and up and down and so on.

Second example: imagine an additional module that produces a one-shot curve that goes up, when you press a key on your keyboard, and that goes down, when you release the key. Now imagine that this curve controls volume. The result? The sound starts when you press a key, and it ends when you release it. In this case, we say that volume is modulated by the curve that goes up when you press a key on your keyboard, and that goes down when you release the key.

To sum everything up, a synthesizer gives you manual control of the three basic parameters of sound: pitch, timbre and volume. Furthermore, a synthesizer can control these parameters automatically by itself, which is called modulation. And now let’s get straight to the astounding capabilities of your new synthesizers. Enjoy!

Please note:

The following explanations of the synthesizers are designed to be read when you like. It is not necessary to read the explanations in a specific order; you can start with the synthesizer you first wish to get acquainted with. This means of course that some explanations will be repeated

in each synthesizer's section. As you know, there is always a price to pay—but we figured out that this method will get you started as soon as possible.

To get the most out of the following, we recommend that you have your MAGIX midi studio generation 6 up and running on your computer, with your audio and MIDI interfaces and a MIDI keyboard connected. Further, please make sure that you have inserted the desired synthesizer in the Audio Instrument mixer channel in the Mixer window, and that you have selected the track of this Audio Instrument mixer channel in the Arrange window. Finally, please load the setting “test” into the synthesizer. Ready? OK, let's start.

The Synthesizers—Carpet Sweeper

The Carpet Sweeper is designed to give you warm, soft and animated pad sounds, thus creating spacious atmosphere in your music. As opposed to bass synthesizers like the M-TB6, the Carpet Sweeper is designed as a chordal instrument providing eight voices, meaning that you can play up to eight notes at a time.



The sound generation of the Carpet Sweeper begins with an oscillator, with which pitch or frequency can be adjusted with the three pushbuttons at the left. Only one of them can be active at a time. They select the general pitch of the Carpet Sweeper in octave steps. The meaning of the numbers on the switches stems—believe it or not—from the pipes of church organs. Back then, the length of a pipe was measured in feet. The shorter a pipe the higher the pitch or frequency of its sound. Doubling the length of pipe resulted in halving its pitch. So, 16 is one octave below 8, while 32 is one octave below 16.

Back to the Carpet Sweeper. Its oscillator can, of course, not only be tuned, but offers a choice of two entirely different basic sounds: a “sawtooth” and a “pulse” wave. Locate the big *Mix* control and turn it. You will notice that you

can switch between the sawtooth wave at the very left of the dial, and the pulse wave, which continuously covers the rest of the dial's turn. Listen closely to sonic differences of the waves—the sawtooth wave gives you a bright, string-like sound, while the pulse wave covers a continuous range from bright, hollow, clarinet-like sounds at the left of the *Mix* control, and bright, nasal, clavinet-like sounds at the right end of the *Mix* control. And, of course, everything between, depending on the setting of *Mix*. As the icons indicate, turning *Mix* clockwise narrows the width of the pulse wave. Try it and listen to the results.

There is another difference between these two waves. Select the sawtooth wave, locate the *Vib/PWM* control and turn it up. You will hear the pitch of the sound going up and down and up and down and so on. This cyclic pitch change is called a “vibrato”, thus the abbreviation in *Vib/PWM*. The vibrato intensity is set with *Vib/PWM*. The vibrato speed is set with the *Speed* control below *Vib/PWM*. Now switch *Mix* to pulse wave and turn on *Vib/PWM*. You will not hear a vibrato, but a cyclic change in the sound color itself. This sound change is achieved by modulating the width of the pulse wave, as if you would manually turn the *Mix* control. This is called “pulse width modulation”, abbreviated to PWM. The speed of this cyclic sound change is again controlled with the *Speed* control below *Vib/PWM*. Both principles, vibrato and PWM, are the key features to bring life and animation to your pad sounds.

So much about the oscillator of the Carpet Sweeper, on to the filter. It features the main controls already familiar to you from the introduction: *Cutoff* for darkening the sound, *Resonance* for sharpening it. Please try these controls intensively, as they are the most effective and thus important tools for your sound creations.

Let us jump to the *Attack* and *Release* sliders. They control the volume course of the sound. The higher *Attack*, the longer it takes the sound's level to raise from zero to full level when you press a key. As long as you hold the key, the sound's level will be full. As soon as you release a key, the sound's level will fall from full to zero in the time specified with *Release*. The higher *Release*, the longer it takes the sound's level to fall from full level to zero when you release a key.

But *Attack* and *Release* are not only used to control the level course of the sound, they can also be used to move *Cutoff* automatically up or down from the position you set. Please note that you will not see the *Cutoff* control itself moving, but you will hear the appropriate effect. To hear it, turn

Cutoff half way up, locate *AR Int* just left of the middle between *Cutoff* and *Resonance* and turn it up. As you press a key, you will hear a change in timbre as you would move *Cutoff* manually. Leave *AR Int* turned up and try out different *Attack* and *Release* positions. You will find that *AR Int* controls the amount of the automated *Cutoff* movement, while *Attack* and *Release* control the times with which this timbre shift takes place.

AR Int can be set to positive or negative values. Positive *AR Int* values makes *Cutoff* raise from its original position with the time specified by *Attack* as you press a key, and fall down to its original value in the time specified by *Release* as soon as you release a key. Negative *AR Int* values makes *Cutoff* fall down from its original position with the time specified by *Attack* as you press a key, and rise up to its original value in the time specified by *Release* as soon as you release a key.

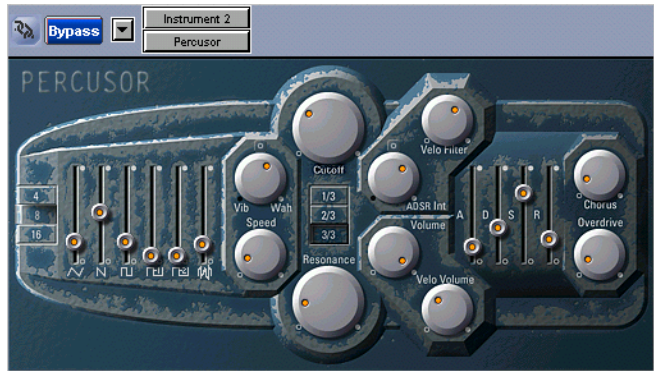
You can make *AR Int* sensitive to your playing. Try turning up *Velo Filter* below *AR Int*. This will make *AR Int* react to how hard you hit a key. If *Velo Filter* is turned full down, it does not matter how hard you hit a key. Turning it up clockwise increases the sensitivity, meaning that you have to hit a key harder to reach the *AR Int* value you have set. And if you do not want any *Cutoff* movement at all, simply press the little “zero” symbol right above *AR Int*. This will reset *AR Int*.

The final output level of the Carpet Sweeper is controlled with the big *Volume* control. Sideways below *Volume* sits *Velo Volume*: Turn it up to make the sound’s level react to how hard you hit a key.

That leaves us with three mysterious buttons in the upper right of the Carpet Sweeper. Besides *Vib/PWM*, these three switches are the final key for animated, swirling sounds. Try them and hear for yourself how they breathe life and motion into your sounds. You can deactivate these effects by clicking on an already activated effect.

The Synthesizers—Percusor

The Percusor is the most elaborate and universal synthesizer of your music studio. Together with the the Carpet Sweeper, the Percusor puts all the synthesizer magic at your disposal, and its sonic capabilities start where Carpet Sweeper reach their borders. Its full-featured ADSR section is especially suited for fine-crafted percussive sounds. The Percusor is, as is the Carpet Sweeper, designed as a polyphonic instrument providing eight voices, so that you can play up to eight notes at a time.



For enormous sonic wealth, the sound generation of the Percusor offers a special oscillator, the pitch or frequency of which can be adjusted with the three pushbuttons at the left of the Percusor. They select the general pitch of the Percusor in octave steps. Only one of them can be active at a time. The meaning of the numbers on the switches stems from the length of pipe organs, as the length of a pipe was measured in feet. The shorter a pipe the higher the pitch, or frequency, of its sound. Doubling the length of pipe resulted in halving its pitch. So, 8 is one octave below 4, and 16 is one octave below 8.

There is another similarity between those big pipe organs and the Percusor—both are able to produce new timbres by mixing existing ones. But instead of routing air through a pipe system, the Percusor's oscillator offers six sliders for convenient mixing of six different sounds. Locate the six sliders and move them up and down, one by one. We will start from the left, with the slider from the triangle wave. In the synthesizer world waves are named after their shape; when viewed through an oscilloscope—which is kind of a TV set for watching the shapes of electrical waves—the triangle wave does indeed look like a triangle.

The triangle wave does not sound as bright as the other waveforms you will encounter on the next sliders. It resembles a softly blown flute with quite a lot of low-end energy. Use it as an addition to give your sound creations a nice bottom end, or use it stand-alone for pleasant, mellow sounds. Next comes the sawtooth slider. The sawtooth is one of the two the most popular synthesizer waveforms. It sounds very bright and rich, resembles stringed instruments and is a good starting point for almost any sound experiment. The other one of the most popular synthesizer waveforms is the square wave, right beside the sawtooth slider. Compared to the sawtooth, the square wave

sounds bright as well, but with a hollow, clarinet-like character. The next two sliders do also give you square waves, but their pitch is one or two octaves lower, respectively, than the pitch of the other waves. Use them to give your sounds a really huge, wide character and the deepest basses. Or try this for unusual bright timbres: set the octave switch to 4 feet, pull down the sliders of all waves but the square wave two octaves below the original pitch. Now carefully pull up the sawtooth slider and note how bright your square wave gets...

The remaining slider is for the noise waveform. This sounds exactly as it reads: noisy. It is non-pitched, meaning it has no audible pitch and is thus independent from the note you play or from the setting of the octave switches. When used alone, this is the waveform of choice for all kinds of non-pitched percussion instruments, explosions, and sound effects like wind or waves. If you mix it to the other waves, you can emulate things like breath noise in a flute, or, when added at a very, very low volume, it can give your sound that animated high-end sparkle.

That's almost all about the oscillator of the Percusor, so let's move on to the filter. It features the main controls already familiar to you from the introduction: *Cutoff* for darkening the sound, *Resonance* for sharpening it. You will find them in the middle of the Percusor's surface. Please try these controls intensively, as they are, together with the almost endless mix combinations of the waveform sliders, the most effective and thus important tools for your sound creations.

In between the filter controls and the six waveform sliders you will find the *Vib/Wah* control. Turn it to the left. You will hear the pitch of the sound going up and down and up and down and so on. This cyclic pitch change is called a "vibrato", thus the abbreviation in *Vib/Wah*. The vibrato intensity is set with the left range of *Vib/Wah*. The vibrato speed is set with the *Speed* control below *Vib/PWM*.

Now turn *Vib/Wah* to the right: You will not hear a vibrato, but a cyclic change in the sound color itself, as if you moved the *Cutoff* control manually up and down and up and down and so on. And this is exactly what is happening, but it is now done automatically for you by the Percusor. The speed of this so-called "Cutoff modulation" is controlled with the *Speed* control below *Vib/Wah*. If you do not want to hear neither vibrato nor cutoff modulation, just click the little "zero" symbol above the *Vib/Wah* control.

Just in the middle between *Cutoff* and *Resonance* you will find three switches named $1/3$, $2/3$ and $3/3$. An engaged switch can be deactivated by clicking on it again. To learn what they do, deactivate these switches, pull down all waveform sliders but noise, turn *Cutoff* quite down and raise *Resonance* slowly till the noise gets a distinct whistling character. When you now play different keys on your MIDI keyboard you will notice that the pitch of this whistling is not affected by the notes you play. Now activate $3/3$ and play some notes again. You will hear that you can now almost play the whistling like any other waveform. This is done by controlling the *Cutoff* by the note you play. It will not exactly track the notes you play, but don't worry. These are the inaccuracies that make a digital synthesizer that is calculated inside a computer sound like an analog synthesizer made out of resistors, transistors and diodes—parts that react to temperature and thus always have some kind of uncontrollable “life”. With the other settings $2/3$ and $1/3$ the *Cutoff* will not track the notes played as closely as with $3/3$.

Let's jump to the sliders on the right side of the Percursor: *A* (stands for “Attack”), *D* (stands for “Decay”), *S* (stands for “Sustain”) and *R* (stands for “Release”). They control the volume curve of the sound: the higher the attack time (*A*), the longer it takes the sound's level to raise from zero to full level when you press a key. Continue to hold the key and the sound's level will fall down to the sustain level set with the sustain slider *S* in the decay time set with the *D* slider. The higher the decay time, the longer it takes the sound's level to fall from full level to sustain level. As long as you hold the key, the sound's level will then stay at the sustain level. As soon as you release a key, the sound's level will fall from sustain level to zero in the release time specified with *R* slider. The higher the release time, the longer it takes the sound's level to fall from sustain level to zero when you release a key. So, while *A*, *D* and *R* adjust times, *S* adjusts a level. Please note that your sound will die to zero in the decay time even when you hold a key if sustain level is set to zero.

But *ADSR* sliders are not only used to control the level curve of the sound, they can also be used to move *Cutoff* automatically up or down from the position you set. Please note that you will not see the *Cutoff* control itself moving, but you will hear the appropriate effect. To hear it, turn *Cutoff* half way up, locate *ADSR Int* below the right side of *Cutoff* and turn it up. As you press a key, you will hear a change in timbre as you would move *Cutoff* manually.

Leave *ADSR Int* turned up and try out different *ADSR* slider positions. You will find that *ADSR Int* controls the amount of the automated *Cutoff* movement, while *ADSR* sliders control the curve form with which this timbre shift takes place.

ADSR Int can be set to positive or negative values. Positive *ADSR Int* values make *Cutoff* raise from its original position with the curve specified by the *ADSR* sliders as you press a key, and fall down to its original value when you release a key. Negative *ADSR Int* values makes *Cutoff* fall down from its original position with the curve specified by *ADSR* as you press a key, and rise up to its original value when you release a key.

You can make *ADSR Int* sensitive to your playing style. Try turning up *Velo Filter* above *ADSR Int*. This will make *ADSR Int* react to how hard you hit a key. If *Velo Filter* is turned full down, it does not matter how hard you hit a key. Turning it up clockwise increases the sensitivity, meaning that you have to hit a key harder to reach the *ADSR Int* value you have set. And if you do not want any *Cutoff* movement at all, simply press the little “zero” symbol right above *ADSR Int*. This will reset *ADSR Int*.

The final output level of the Percusor is controlled with the *Volume* control. Sideway below *Volume* sits *Velo Volume*: turn it up to make the sound’s level react to how hard you hit a key.

To give your carefully crafted Percusor sounds that cutting edge, make sure you give the *Chorus* and *Overdrive* controls to the right of the Percusor’s surface a try. *Chorus* will broaden your sounds with a swirling effect, and *Overdrive* will give them the aggressive bite to cut through even the densest arrangements.

Faders and Level Adjustment

LEVEL METER: The channel strips have a level meter for displaying playback or monitor level.

When you arm a track in preparation for recording, the meter will display the input level.

Peak Hold: As with conventional mixing desk meters, peak values are “held” on the display for a few seconds, so that they can be read more easily. Even if your CPU processing capacity is not sufficient for a smooth display, it reliably shows the last maximum level.

Clip Detector: If the signal overloads, and goes into clipping, the Clip detector (the red “virtual LED” at the top of



the meter) will light and remain lit. You can reset the detector by clicking anywhere on the meter.



ADJUSTING THE LEVEL: The fader on each track object sets its playback level. The recording level is not set in MAGIX midi studio generation 6, but at the source supplying the signal. You cannot adjust the level on the digital input. MAGIX midi studio generation 6's fader shown here is used to control the monitor level.

The level reading of the audio objects and the aux sends can be shown in decibels (dB) or MIDI controller values. To change the scale, select the appropriate object and alter the "Val as" parameter. A MIDI volume of 90 is equivalent to 0 dB.

The maximum boost is +6 dB. You can reset the volume fader to 0dB (90) by **ctrl**-clicking.

During Recording: An independent monitoring level is available if a Track object is record enabled. When the object is again disarmed, the original level will be restored.

Routing



MUTE CONTROL: You can mute any audio object by pressing the button marked "M". Pressing the button again restores the previous level.



PAN/BALANCE: Mono objects feature a Pan control which determines the position of a signal in the stereo image.

Stereo objects, on the other hand, possess Balance controls. The balance control differs from the pan control in that the former controls the relative levels of *two* signals (L/R) at their outputs. The latter merely shares one signal proportionally between two outputs.

You can reset the pan control to center (64) with a **ctrl**-click.



TRACK ARMING: The Rec control (see right) "arms" a track, making it ready for recording. Once the track has been armed, the control flashes red. During actual recording, it remains lit red all the time.

If the control is flashing but gray-red in color, no audio track has been selected in the Arrange window. No recording can take place.

Rec controls only exist for Track objects. Please note that the number of Track objects which can be armed at the same time, is limited to the number of tracks which your audio hardware can record simultaneously.

You can select which available input the Track object will record from, by using the input selector switch, found in the I/O section of the Track object. Click-holding on the switch will reveal a flip-menu, showing all available inputs for your hardware. If the record track is stereo, the inputs will be displayed in pairs (Input 1-2, Input 3-4, etc.). For mono tracks, they will be displayed individually. If you are using different audio hardware systems, you can record on all hardware simultaneously.

SOLO: All audio objects have a solo button. This mutes all other audio objects. The muted objects are marked with a flashing “M” in the mute button. Please note that this does not mute MIDI tracks.

You can solo several objects at once.

ctrl-clicking releases other active solo buttons, so that you only hear one channel (“Interlocking Solo” or “Solo Toggle”).

ctrl-clicking any activated solo button removes the solo status from all audio objects.

Solo Safe: When you solo a channel, if you want to hear the signal together with its effects, the effect return channels should not be muted. Unlike conventional mixing desks, MAGIX midi studio generation 6 can scan the entire signal flow and leave the effect return channels open.

The same applies when you solo an effect return signal. The channels feeding the effect are muted (“taken out of the routing”) but their effect sends remain open so that the effect still receives a signal.

Of course the automatic mute-suppression only applies to the internal effect returns. If you are using external effect units via effect objects, the scan will keep the effect master sends open. However, MAGIX midi studio generation 6 cannot know which of the input objects you are using as effect returns for the external effect units. You need to manually switch these input objects to “solo safe”—just like in a conventional mixing desk.

alt-clicking an inactive solo button makes this audio object “solo safe”. This stops it being muted when you solo another channel. “Solo safe” status is marked by a cross in the solo button.

alt-clicking again removes the solo safe status.

MUTE REMOTE CONTROL: Mutes used to be recorded as Volume Controller events. Now Controller #9 is used instead. This allows you to control muting e.g. via hardware controllers.



Value 127	Mute (actually any value except 0 or 64)
Value 0	Switch off mute
Value 64	Toggle mute

Stereo Objects

All the types of audio objects (Track, Input, and Output) may be used configured as stereo.

Audio sequences on the tracks of stereo objects are always dealt with together, no matter what the operation being performed. If you open the Sample Edit window, both sides of the stereo pair are shown there, and processed together.

CREATING STEREO OBJECTS: To do this, select the object named “Audio 1” (click on its name, at the bottom). Click on the Mono symbol, at the bottom left of the object, next to the REC button.



The button will now show two interlinked circles, indicating that it is now a stereo object.



If you click-hold on this button, you will see a flip-menu, giving you four choices:

Mono Sets the track to play mono files.

Stereo Sets the track to play stereo files.

The Effects: Whatever parameters you adjust for stereo objects, the changes affect both sides equally. The pan control becomes a balance control.

Stereo objects have their own set of parameters for setting level, balance, aux send and EQ. As a result, you can toggle between stereo and mono object types without losing the parameters for each type.

Any combination of stereo and mono recordings is permitted. you can set tracks 1 and 2 each to stereo, and use tracks 3 and 4 for mono recording s, if you wish.

Automation

On a mixing desk, Automation is the ability to record the changes to the levels of the various audio channels over time, and then recall and reproduce these changes automatically when mixing.

“Full” automation allows you to recall the adjustments to *all* of the parameters on a desk, such as the pan and EQ settings, as well as all the channel levels.

Naturally, the “virtual” mixing desk of MAGIX midi studio generation 6 is fully automated. This includes all buttons, fader and knob movements.

Fader movements—just as with MIDI events—are recorded on a track. This track will consist of a sequence with corresponding MIDI events from the respective fader

or knob. After being recorded, these events can be edited, just like any other MIDI sequence.

The different channel tracks in the mixer create events with different MIDI channels. When automation data is recorded—from the adaptive mixer, the automation data is recorded to the corresponding track in the Arrange window.

EXAMPLE: Let's say you have three tracks: a bass track, a piano track (both MIDI tracks), and an audio drum loop on an audio track in the Arrange window. Click on the *Record* button in the Transport window, and then move any fader or knob on the mixer, and automation data will be recorded. If the fader for the piano channel on the mixer is moved, MAGIX midi studio generation 6 automatically creates a new sequence on the piano track in the Arrange window. Move the volume fader for the drum loop, and a new sequence is written to the corresponding track in the Arrange window. During the recording process, it is possible to jump back and forth between the mixer channels. The mixer assigns automation data to the correct track automatically.

OPERATION: Select Windows > Open Mixer in the main menu bar.

Click on "*Record*" in the Transport window.

Move the the faders, knobs, or buttons on the mixer.

The Audio Window

MAGIX midi studio generation 6 allows you to access all digitally stored audio recordings (audio files) are available in the Wave format (.WAV) or AIFF. All recordings made using MAGIX midi studio generation 6 are stored as Wave files.

The Audio window of a MAGIX midi studio generation 6 song is where you organize all the audio files used in the song on the hard disk. It doesn't matter whether these audio files have just been recorded or whether they were copied weeks ago from a CD-ROM onto the hard disk. The Audio window gives a MAGIX midi studio generation 6 song access to any compatible data on the hard disk.

There is no timing assignment of the recordings in the Audio window. An audio file contains no information on its time position in relation to the musical sequencer's time axis. This assignment is made by arranging sections of the audio files, known as "regions", in the Arrange window in the same way as MIDI sequences.

The Audio window is really like a catalog for audio files. It also gives you an overview of what regions have been defined for each audio file.

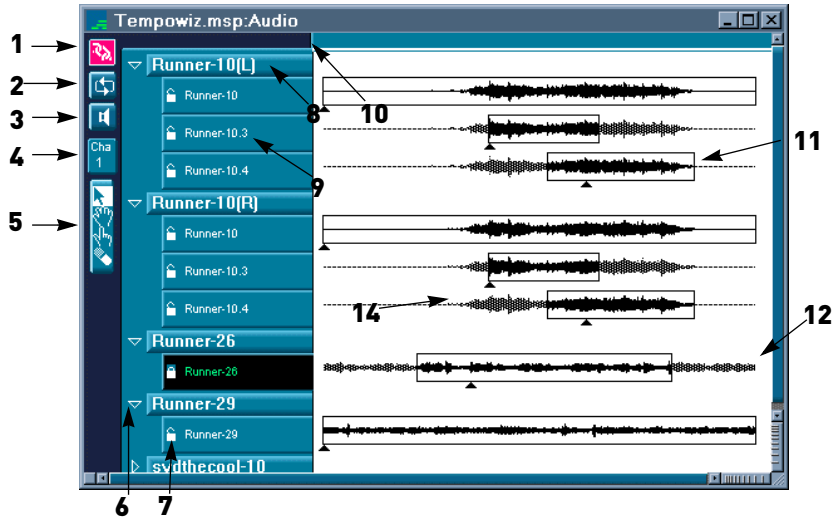
Here you can define new regions and edit, delete, or rename existing ones. When you edit them here, the accuracy is limited to units of 256 sample words. To make more precise edits use the Sample Edit window.

These regions can then be dragged directly into the Arrange window, where they now may be arranged as audio sequences.

The menus in the Audio window contain all the operations relating to the administration of audio files and regions, plus the System parameters of the hard disk recording hardware (HDR hardware).

Opening the Audio Window

To open the Audio window choose Windows > Open Audio. You can open several Audio windows at once (even within one Screenset) for example, if you want to use different zoom factors.



- 1 Link button
- 2 Region cycle button
- 3 Monitor button
- 4 Selection field for the output channel for monitoring
- 5 Tool box for the Audio window
- 6 Click this small triangle to show or hide the regions in the relevant audio file
- 7 Click the lock symbol to protect the parameters of the region
- 8 The name of the audio file (large print)
- 9 The name of a region (small print)
- 10 Grab and drag this point to adjust the horizontal window division
- 11 Region box with waveform display
- 12 Display of the audio passages outside the current region

13 The Anchor—musical reference point in the region
 If you add an audio file to the Audio window, MAGIX midi studio generation 6 automatically creates a region encompassing the entire length of the file.

You can create as many regions as you want from the same audio file and there are also no limits in terms of length, as long as the region is no longer than the source audio file.

Regions can be moved with the mouse into the Arrange window. The audio file is then played at the desired song position.

Layout

On the left side of the window is a thin column. At the top this are the mode buttons, and at the bottom are the tools. This is what is described in the following sections.

The column to the right lists the audio files, and their regions by name.

Further to the right, the region waveforms are displayed graphically in the large white area of the window. A region is shown as a boxed, black or colored area, while the rest of the audio file is shown in light gray indicating that this part of the audio file is not used for the region.

Zoom Functions

The two telescope symbols at the top right, just below the title bar can be used to enlarge or reduce the display (zoom function).

You can use the telescope symbol on the left to enlarge or reduce the vertical display area altering the height of the region waveform display.

The telescope symbol on the right is for enlarging or reducing the horizontal display size, i.e., altering the time display of the regions .

The Mode Buttons

The mode buttons allow you to select different operating modes. These affect both the display and the playback of regions in the Audio window.

LINK: Link mode in the Audio window means that whenever you select an audio region in the Arrange window the same region is automatically selected and displayed in the Audio window.



You can switch link mode on or off by clicking the button with the chain link icon.

“Hidden regions” cannot be displayed in link mode. If you want to display them you have to “Show” the regions (see [section *Hiding and Showing Regions* from page 183 onwards](#)).

MONITORING: You can play regions directly in the Audio window. This monitoring is not related to the time axis of the sequencer. There are several ways of playing a region:
Playing from a specific position: Click-hold the desired region in the waveform display with the mouse. Playback starts at the point where you clicked. This allows you to play specific sections.



Playback stops as soon as you release the button.

Playing the whole region: If you want to play an entire region, select it by clicking the name of the region in the au-

dio list. Now click the button with the speaker symbol to start playback. Click the button again to stop playback. As well as using the mouse, you can also start or stop this type of playback using the “Play/Stop Region” key command.



Stereo playback: If a region from a stereo file is selected, clicking the speaker icon plays both sides of the stereo file. However, if you click the icon while holding down **ctrl** or **shift** only the selected region (mono) is played. If you subsequently select a region from another stereo file, MAGIX midi studio generation 6 goes back to playing in stereo.

REGION CYCLE: Regions may be looped continuously during monitoring. To switch “region cycle” on or off, click the button with the circular arrow symbols. This mode applies to all regions in the Audio window.



This cycling only affects the monitoring in the Audio window and has no effect on song playback. It should not be confused with the cycle function in the Arrange window. You can adjust the start and end points of the region in real time while the region is being cycled. This is useful for setting precise region lengths, for example when “polishing” drum loops.

CHOOSING THE AUDIO OUTPUT FOR MONITORING: The actual routing of the audio signals to the different outputs is done in the Arrange window (using the audio object in the track list).

However, you can choose a specific channel of the audio hardware for monitoring in the Audio window. Set the desired output in the *Cha* button below the speaker icon.

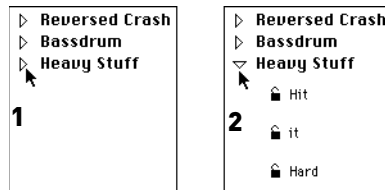


Display

The Audio List

The list display of the audio files and regions, (known as the audio list) gives an overview of all the audio files used in the current song and the regions contained within them. This is where audio files can be added, removed, deleted, or renamed. Regions can also be created, deleted and renamed.

HIDING AND SHOWING REGIONS: After you add an audio file, you can see the file name in the Audio window in large print. This takes up minimal screen space, and shows you as many currently used files as your zoom setting and monitor size will allow. There is a small triangular arrow directly next to the file name **1**.



Click the small triangle **2** next to an audio file to reveal its regions. Like the list display of folders in the Explorer, this shows you the “contents” of the audio files—i.e. the relevant regions. The arrow is now pointing downward toward the regions, which are shown in small print. Click the triangle again to hide the regions.

You can also press **ctrl** while clicking on this triangle to quickly Hide/Show ALL regions.

The Waveform Display outside the Region

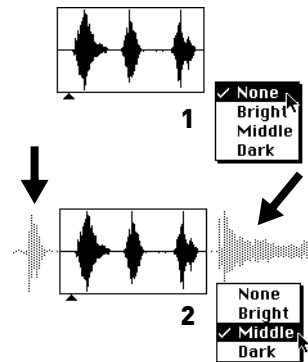
MAGIX midi studio generation 6 defaults to showing the waveforms outside the defined region area in light gray. You can alter the display yourself by clicking inside the region while holding down **ctrl** and keeping the mouse button held down. A flip menu appears containing the following options:

None : No waveform display outside the regions.

Bright : Waveform display outside the regions colored light gray.

Middle : Waveform display outside the regions colored medium gray.

Dark : Waveform display outside the regions colored dark gray.



Overview Calculation

In addition to the pure audio data, an audio file also contains data which is required for graphic display of the waveform in the Audio window and Sample Editor (“Overview” data).

Automatic Overview Calculation: If the option *Create Overviews after recording* is switched on in Audio > Audio Preferences..., graphic overviews are automatically calculated right after audio recording.

If you switch off this option, overviews are not calculated automatically. However, you can start them manually.

Starting Overview Calculation manually : Sometimes when you load/import audio files, you have to carry out the cal-

calculation manually if the audio files don't contain any overview data.

CONTROLLING THE OVERVIEW CALCULATION: The calculation of the overview data for an audio file is shown in a float window. This calculation is carried on in the background so you can continue working with MAGIX midi studio generation 6.



You can position this float window wherever you want—the last position is saved in the Preferences.

Double-clicking this window opens a dialog box.

If you stop the calculation by clicking *Abort* you can still play the audio file—but bear in mind that without an overview it will not be easy to edit.

Continue carries on the overview calculation in the background as it normally would.

Clicking *Finish* transfers the calculation to the foreground and therefore speeds it up considerably. The disadvantage is that you cannot use your computer for anything else until it is finished.

Update File Information: By editing an audio file in an external sample editor like MAGIX audio studio artefacts of the audio file—e.g. its length—may change. If you call up this function via Audio File > Update File Information MAGIX midi studio generation 6 will be informed of the change.

Operation

Selection Techniques

There are several different ways of selecting audio files and regions in the Audio window.

To select a single item just click either its name in the audio list, or the waveform display.

If you hold down **shift** at the same time you can select several items, even if they are spread out. In the audio list you can also use the “rubber band selection”.

To select all items at once choose Edit > Select > Select All (**ctrl a**).

AUDIO FILES: *Selecting the next Audio File:* The key command *Select Next Audio File* selects the next audio file in the audio list.



Selecting the Previous Audio File: The key command *Select Previous Audio File* selects the previous audio file in the audio list.





AUDIO FILES AND REGIONS: *Selecting used Regions:* When you choose Edit > Select Used all audio files and regions used in the arrangement of the song are selected.



Selecting unused Regions: Choosing Edit > Select Unused selects all those audio files and regions which are *not* used in the arrangement of the current song.

For example, you can call up this function at the end of a production to delete any items that are not required (**backspace**).

Edit Commands

All the standard edit commands are available in the Audio window. As usual, they apply to the currently selected entries (whether audio files or regions).

The *Cut*, *Copy* and *Paste* commands only apply to exchanging items between two different songs. An audio file can only appear once in a song's audio list, and so cannot be copied within a song. For instructions on how to physically copy an audio file to the hard disk, please see the [section Copying Audio Files from page 192 onwards](#).

Cut: The selected audio files or regions are cut out, i.e. moved to the clipboard. They are removed from the Audio window. Shortcut: **ctrl x**.

Copy: The selected audio files and their regions are copied to the clipboard. They remain in the Audio window. Shortcut: **ctrl c**.

Paste: The contents of the clipboard are added (providing they contain audio files and their regions from another song). Shortcut: **ctrl v**.

Clear: Any selected audio files or regions are deleted. You can achieve the same effect by pressing **backspace**.

Don't forget; the functions Cut or Clear do not delete audio files from the hard disk, they just remove them from the Audio window of the current song.

If regions from the audio files in the Arrange window are being used as audio sequences these sequences will be deleted from the Arrange window as well.

If you want to delete the selected audio files from the hard disk, select Audio File > Delete File(s).

Undo: Reverses the Previous Command (Shortcut: **ctrl z**). You should call up this function if you want to reverse an action.

Not all actions can be reversed using *Undo*. If you select a function which you cannot *Undo*, you will be warned of this before you can execute the function.

Regions

CREATING A REGION: Select the desired audio file and choose Audio File > Add Region. The new region will appear in the list, after the existing regions.



Copying a Region: If you select an existing region and then carry out the *Add Region* function, another region is created whose definition (start, end, Anchor) is exactly the same as the selected region.

DELETING A REGION: You can use the Eraser tool to delete one or more regions. If any of these regions exist in the Arrange window, they will be removed from there, as well. You should therefore be careful when using this tool. However, the Undo function is always available, if you inadvertently remove a needed region.



You can also delete any selected regions with **delete**.

ALTERING THE LIMITS OF A REGION: You can directly alter the limits of a region in the graphic display using the region edit (finger) tool.



You can also use the normal mouse pointer. Just make sure you grab the region by the lower third when carrying out the following actions:

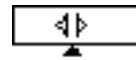
Moving the Start Point: To adjust the start point of a region, grab the left border. You can now adjust the start point.



Moving the End point of a Region: To adjust the end point of a region grab, the right border. You can now adjust the end point.



Moving the whole Region: You can also move an entire region within an audio file, by grabbing it in the middle. The tool turns into two arrows pointing left and right. If the region is very small, use the zoom function to enlarge the section. Make sure you can see the two arrows before making any alterations.



If you want to adjust the limits of the region without moving the Anchor, hold down **ctrl** during the operation. This applies to moving the start or end points, as well as moving the whole region.

MOVING THE ANCHOR: To move the Anchor, grab the small Anchor triangle below the region. The tool turns into the region edit tool. A guide line appears above the Anchor triangle.



With audio sequences in the Arrange window, the Anchor is marked by a vertical, dashed line.

FINE MOVEMENT: The graphic display in the Audio window is optimized for quick and simple organization of the audio files and regions. This involves displaying as many things as possible simultaneously in a window. The finest resolution for positioning the start point, end point and Anchor, is therefore limited to units of 256 samples. This is usually sufficient.

However, sometimes you need to make precise adjustments down to the individual sample words. Drum loops are a good example. The Sample Edit window is better suited to these situations. To open the Sample Edit window for a region, double-click on that region.



PROTECTING THE REGION PARAMETERS: Regions can be “locked”, to protect against accidentally altering the start and end points, or the Anchor position. The small lock symbol next to every region can be opened and closed by clicking it. If it is locked, you can play the region, but you cannot edit it.

A protected region can still be deleted.

RENAMING AUDIO FILES AND REGIONS: To rename audio files and regions in the Audio window, just double-click the name in the audio list. A text input box appears where you can type in a new name.

Before renaming audio files the following warning appears:

Keep in mind other songs may use the same file! Do you still want to rename the file?

You should check whether the audio file that you want to rename is used by another song. If it is, don't rename the file, otherwise it will not be found or played by the other song.

MAGIX midi studio generation 6 helps you in these situations:

- MAGIX midi studio generation 6 alters the name of an audio file in all currently opened songs which use this file.
- MAGIX midi studio generation 6 automatically assigns the new name to any SDII stereo file which is connected to the renamed file, and is stored on the same storage location, on the same drive (and has the same name).

You can rename regions whenever you like.

Providing the regions have the same names as their audio files, any renaming of the audio files is automatically carried over to their associated regions.

ADDING A REGION TO THE ARRANGEMENT: To add a region to the song arrangement, drag its graphic display into an open Arrange window to create an audio sequence.

First select the desired track in the Arrange window and move the song position line to the position where you want to create the audio sequence.

Grab the middle of the graphic display of the region in the Audio window and drag it into the Arrange window.

Don't worry if the region starts to play. It will stop playing as soon as you move the mouse pointer outside the Audio window. You can prevent this by using the region drag tool (the small hand with the outstretched fingers), or by grabbing the name of the region in the Audio List and dragging it into the Arrangement.



File Administration

Record File

DEFINING THE RECORD PATH: Every recording in the Arrange window creates a new audio file. To keep track of your recordings, you should tell MAGIX midi studio generation 6 where the data is to be written before you start recording.

You can also define a file name for the audio files that are recorded—a kind of working title—which MAGIX midi studio generation 6 will automatically keep using, by appending a series of numbers to the file name for every subsequent recording.

The path (folder) for audio recordings can be set individually for each song. You can also have different paths for different audio hardware systems running simultaneously.

To call up the dialog window for these settings, open the Audio window and choose Audio File > Set Audio Record Path... or open the Record menu (click-hold the Record button). The menu entries are:

Pre-Allocate Recording Files: If this option is selected, MAGIX midi studio generation 6 creates the audio file for the next recording after you record-enable the track. In addition, at the end of every recording, the audio file for the next recording is immediately created. This allows you to start audio recordings quickly.

Unused recording files are deleted when you quit MAGIX midi studio generation 6.

Maximum Recording Time (Recommended): xxx Minutes:

This parameter defines the maximum recording time for new audio files in minutes; this determines the size of the temporary recording file.

You can switch this option off, in which case a record file as big as the whole free memory from within the currently selected hard disk will be created.

Disadvantage:

- the audio file can be heavily fragmented, if the actual recording time is much less than the maximum available value.

It is strongly recommended that you switch on this option, and set a top limit for the recording time.

If there is not enough storage space available, the maximum length of the recording is temporarily reduced. During the recording you can see how much time is available in the Record Float window (with the red bar).

WHEN YOU ENTER THE RECORDING TIME REMEMBER...

Important: the display of the remaining memory and the maximum recording time depends on the following factors:

- the number of tracks which are to be recorded simultaneously.
- the sample rate.

It is always advisable to choose a much smaller value than the maximum possible recording time. Otherwise after the first recording there will not be enough space for further recordings unless you reduce the value.

Global Record Path / Song Record Path: The Global Record Path was available in earlier versions. It is stored in Preferences and applies to all songs. The advantage is that you don't have to define a record path in every new song before you can record, providing you don't mind recording files for every song into the same folder.

The Song Record Path allows you to organize the audio recordings for each song into its own folder. The advantage here, is that when you change between different songs, any new recordings are automatically stored in that song's folder, without having to switch the path manually.

Set: These buttons can be used to define the recording path. You can create a new folder (if required) in the dialog box.

To the right, you will see the current drive and the remaining capacity (only if the drive is registered).

If you click-hold the drive the entire path is displayed. This way you can see exactly which folder you are recording into.

Here is an example illustrating the individual steps:

It is usually advisable to store all the audio files from one recording session or song in its own folder. Let's suppose the song you are working on is called "Morning Light".

- Choose Audio File > Set Audio Record Path.
- Create a new folder by clicking the "folder" symbol in the file selection box.
- Call the folder something like "Morning Light Audio" and click Open.
- Now enter a working name for the audio files. It is a good idea to enter a name which mentions the song and the type of recording. If you are recording vocals for the song "Morning Light" you could use something like "Morning LeadVoc" as a working name.
- Then click *Store*.



For every new recording a successive number is added to the name. For example:

Morning LeadVoc.#01

Morning LeadVoc.#02

Morning LeadVoc.#03 ...

You can change the path and name whenever you want, by calling up the *Set Record Path* function again.

Let's assume you want to record the lead guitar for our example song "Morning Light". Enter a new name such as "Morning LeadGuit".

WHEN YOU CHOOSE THE PATH REMEMBER...

- If the hard disk to which the path leads is not connected or is switched off, the path is deleted.
- If you rename the drive, MAGIX midi studio generation 6 will not be able to find it.

Adding Audio Files

If you want to use an audio file stored on the hard disk in the current song choose Audio File > Add Audio File..., or simply drag them from Windows to the desired position in the arrange window.



Click *Cancel* in the file selection box when you have finished choosing the files.

The file names will then be listed in the Audio window.

ADD AUDIO FILES FROM CD: If files have been added from CD, or some other protected volume MAGIX midi studio generation 6 asks you for a path, so it can copy these files onto the hard disk.

REMOVING AUDIO FILES: To remove an audio file from the current song, select its name in the Audio window and press **backspace**. This does not delete the file from the hard disk.

Creating Audio Files

Audio files are normally created by making a recording. After a digital mixdown of regions in the Arrange window a new audio file is also created (see [section *Digital Mixdown from page 153 onwards*](#)).

DELETING AUDIO FILES: In theory audio files are displayed and organized by the Windows operating system in exactly the same way as all the other Windows files. You can therefore delete or copy them in Windows Explorer. However, this has the following disadvantages:

- If you delete an audio file you may not know if it is needed in a song.
- If you accidentally delete audio files MAGIX midi studio generation 6 warns you of this when you load the song. In addition, there will still be items in the Audio window and Audio sequences in the Arrange window which originally referred to the missing audio file and have therefore been “orphaned”. This detracts from a clear overview of the song.

For this reason, it is safer to delete redundant audio files in the Audio window. First, select the audio files which you want to delete. Be careful, because once files have been deleted they are gone for good. You cannot use the Undo function to recover deleted audio files.



Choose Audio File > Delete File(s). You will see an alert message informing you of the number of audio files about to be deleted.

Click *Cancel* to abandon the deletion process, or click *Delete* to permanently delete the files.

Here too, you should make sure that the files about to be deleted are not being used in any other songs.

Copying Audio Files

The Audio File > Copy File(s) function copies files to a different location on your hard disk (or other storage medium). When you copy a file you can enter a new name in the file selection box.

MAGIX midi studio generation 6 checks whether there is enough space to copy the selected file(s) at the target location. If there is already a file with the same name there, MAGIX midi studio generation 6 asks whether you want to replace it. MAGIX midi studio generation 6 also gives

you the opportunity of replacing the audio file in the song with the file that you have just copied.

Data format: MAGIX midi studio generation 6 allows saving audio files in the formats Wave (.wav) or AIFF (Audio Interchange File Format).

Moving Audio Files

The Audio File > Move File(s) function enables you to move audio files on your hard disk. Unlike the copy function, the source file disappears afterwards.

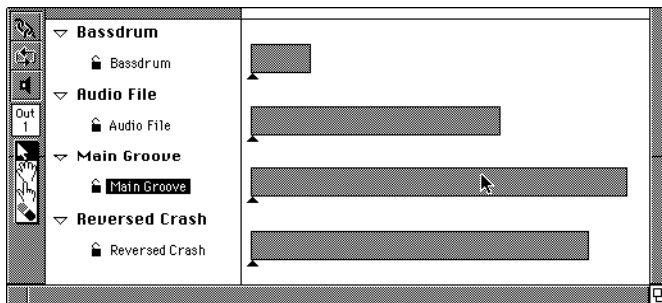
If the source drive/partition is the same as the target drive/partition the files are simply moved to the other folder. This is a very quick and convenient way of organizing the drive and the song.

Choose “Select Used” from the Edit menu of the Audio window (this refers to the files which are being used in the Arrange window), and move them to a new folder. This folder will then contain just the audio files from this song. Be very careful when using this function. A different song may use the same audio files. The next time you start the other song, you will then have to locate the files that you have moved.

MAGIX midi studio generation 6 updates the information on the new path for all open songs which use this audio file. Thus, you can open every song which uses the audio file(s) you are moving. Then move the files to the new location, and save the songs to transfer the storage reference(s).

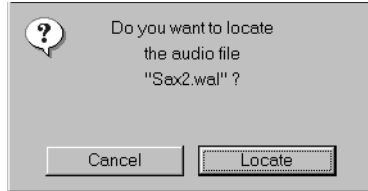
Other Functions involving Audio Files

REASSIGNING AUDIO FILES: If MAGIX midi studio generation 6 cannot find one or more audio files—for example when it opens a song—the regions are shown as gray areas in the Audio window.



If the files are available under a different name or if you want to assign a “replacement” file, you can do this as follows:

Double-click the relevant region, or select Audio File > Update File Information.



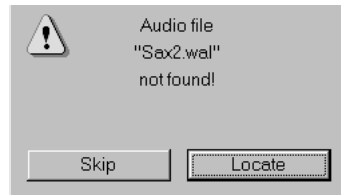
Choose *Locate* in the dialog box and a file selection box opens, where you can load the desired audio file.

WHAT TO DO IF MAGIX MIDI STUDIO GENERATION 6

CANNOT FIND AN AUDIO FILE: Sometimes MAGIX midi studio generation 6 cannot find a file which was previously used in the song. This could be due to one of the following :

- You have not connected the relevant hard disk or you have renamed the drive.
- You have stored the files in a different drive, or moved them to another drive.
- You have renamed the files in Windows Explorer, or renamed them in the Audio window of another song.
- You have deleted the files.

In this case MAGIX midi studio generation 6 produces this dialog box:



You can respond in any of the following ways:

Locate: The current drive is searched for this name. If the search is unsuccessful, MAGIX midi studio generation 6 asks you if you want to search other drives for these files. This enables you to assemble songs even if you have copied or moved the relevant files onto other media.

Skip: (Don't search for this file). Use this function if you know that this audio file no longer exists or has been renamed. This button changes to "Skip All" if after the first skip, yet another audio file could not be found.

Skip All (for Several Files): (Don't search for any more files). Use this function if you know that all audio files in this song no longer exist, or have been renamed.

Other Functions

CHOOSING THE SAMPLE RATE: In the Options menu of the Audio window you can choose one of the available sample rates, for example 44.1kHz or 48kHz. (If you are not sure which one you need please refer to the Introduction manual).

The sample rate setting is global and applies to the playback of all audio files in the current song. It is not possible to play different audio files simultaneously using different sample rates.

If you have loaded several songs, each with different sample rates, MAGIX midi studio generation 6 can automatically take account of this when you switch songs. Each song can only contain files of one sample rate.

Converting the Sample Rate: MAGIX midi studio generation 6 can digitally convert sample rates:

- Double-click a region in the Audio window to open the Sample Editor.
- Press **ctrl a** to select the whole file.
- Choose Functions > Sample Rate Convert....
- Enter the desired sample rate in Hertz next to Destination (Hz) (e.g. 44100), and
- Press **return**.

For more detailed instructions see [section *Sample Rate Converter* from page 209 onwards](#).

Audio Driver

EASI/ASIO

The driver settings for the sound card are covered in the Installation manual. Please refer to it for the relevant settings.

The Sample Edit Window

The Sample Edit window offers an enormous number of data-editing functions which are used to process individual audio files. You can edit mono as well as stereo files. You can set the lengths of audio regions with extreme precision (down to single-sample resolution) by making use of the window's adjustable zoom resolution. The anchor points can also be positioned here with the same degree of accuracy.

Opening the Sample Edit Window

There are various ways of opening a Sample Edit window:

- Select Audio > Sample Editor.
- Double-click on any audio region in the Arrange window; this opens that region in the Sample Editor.
- Double-click on any region in the Audio window; this takes that region into the Sample Editor.

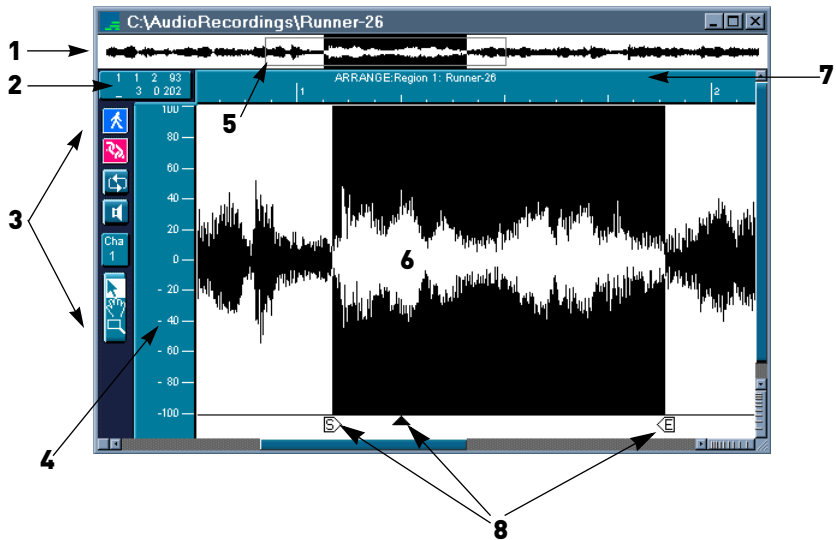
If no region is selected, MAGIX midi studio generation 6 will ask if you'd like to load a new file into the Sample Edit window.

If you're dealing with a stereo region or audio sequence, both channels/audio files will be displayed in the Sample Edit window, with the left side on top, and the right side below.

If you open the Sample Edit window from the Arrange window, as opposed to the Audio window, the bar ruler is able to reference the regions position in the song.

A dotted line indicates no time connection (Audio window), while a broken one indicates a time connection for the region, which is being used as an audio region in the Arrange window.

Layout



- 1 This is the overview; the entire audio file is depicted here.
- 2 This is the parameter box for the current selection, and shows the start point and length of the selected area.
- 3 When the *Catch* (“walking man” symbol) button is activated it insures that the playback position is always visible in the window. The other controls operate as in the Audio window.
- 4 Amplitude Scale (readings as percentage).
- 5 The dotted frame shows the extent of the section visible in the display area.
- 6 Detailed waveform display.
- 7 The horizontal time ruler displays the name of the edited region at the top left. Beneath that is the time position in the audio file, in various formats.
- 8 The Start point, Anchor and End point of the currently selected region can be changed by simply grabbing, and dragging them.

Display

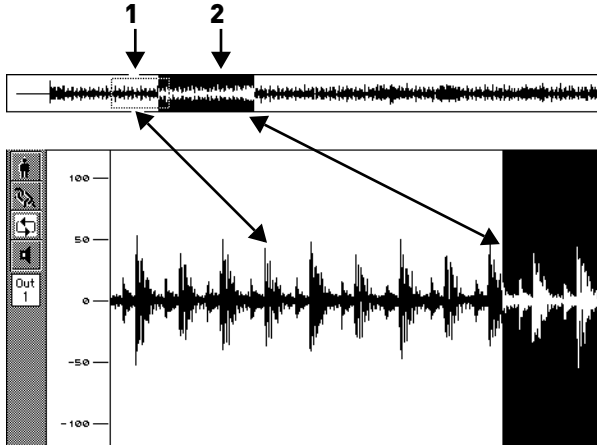
Overview

Between the Sample Edit window’s title strip and bar ruler is the so-called “Overview”. This display always shows the full length of the currently selected audio file, regardless of the zoom resolution set by the telescope symbols. Please note that no idea of scale is given in the overview; a kick drum sample lasting 0.3 seconds could take up the same space here as a choral passage lasting 15 minutes.

During playback, the current position is indicated by a vertical line, moving in real time. This is visible in both the overview and the detailed waveform display.

The current selection is also displayed in the overview.

The section visible in the detailed waveform display is shown in the overview as a dotted rectangle.



The overview: the dotted box **1** shows the section of window currently displayed in the detailed waveform display. Part of the selection **2** is also visible.

FUNCTIONS IN THE OVERVIEW: A short mouse click on the overview brings the area clicked on into the detailed waveform display.

A long click on the mouse resumes playback from this position. Releasing the mouse button halts playback once more.

Double-clicking lets you listen to the sample from the position clicked.

Window functions

The Catch and Link functions work in pretty much the same way as in the other edit windows.

CATCH MODE: Catch mode insures that the Sample Edit window always displays the area around the current playback position (whether you are playing the song, or monitoring the sample). *Catch* is turned on and off either by clicking the switch with the “walking man” symbol on it or via the key command.



LINK MODE: Link mode insures that any audio sequences selected in the Arrange window are displayed in the Sample Edit window. *Link* mode is turned off and on by click-



ing the switch marked with the “linked chain” symbol or via the key command.

If you often work in Link mode, give this a try: open a Sample Edit window and switch on Link mode. Now close the window. MAGIX midi studio generation 6 now leaves Link mode permanently on.

Double-click on the audio region you wish to view. You can see straight away that the display in both windows is linked.

The Detailed Waveform Display

The Zoom Tool: Just as in the other windows, there is a zoom tool in the Sample Edit window toolbox (the magnifying glass). If you use this tool to draw a rectangle, the selected area of the window will be magnified so that it fills the whole screen. You can also repeat the action. Clicking the mouse once (with the tool) returns you to the previous zoom resolution.

You can access the zoom function even more conveniently by pressing **alt**, if the pointer tool is selected. Before you can draw a magnification box, you have to click on an empty space in the window.

X- AND Y-AXES SCALES: The Y-axis has a vertical scale showing the waveform amplitude in percentage units.

The X-axis (the time ruler) shows the course of the audio file over time. This corresponds to the display in the other time-based windows. The “Zero point” is represented by “| | | |”, but lengths are measured from “o o o o”.

Don’t forget that this display format also affects the figures shown in the Info line and the selection parameter field:

ABSOLUTE AND RELATIVE TIME: The different axis scales in the Sample Edit window can be displayed on the basis of one of two different reference values:

- by reference to the time axis of the song (absolute position)
- by reference to the beginning of the audio file (relative position)

Relative Position: The units in the time axis (between the Overview and the waveform display) will be displayed with dotted lines when it is displaying the Relative Position. You will be in this mode if you open the Sample Editor from the Audio window, or if the Sample Editor is in Link mode, and you select a region in the Audio window. The beginning the section is automatically assigned the value zero, or in Bar/Beat terms, “| | | |”. Please note that

this does not necessarily match the actual song position. The calculation of all remaining musical sections is then done using the current song tempo.

Absolute Position: You can recognize this format by the broken line below the units in the time axis. There will be a broken line below the units in the time axis when it is displaying the Absolute Position. You will be in this mode if you open the Sample Editor from the Arrange window, or if the Sample Editor is in Link mode, and you select a region in the Arrange window.

Time is measured from the start of the Song, which is given the value zero (or 1 1 1 1 in Bar/Beat terms). In this instance the time axis shows the absolute (song) time and the figures do not refer to the audio file.

The Sample Edit Window In Use

Monitoring Sample Playback

There are various ways of playing back the sections of audio visible in the Sample Edit window, making it possible to hear audio as you edit it. Playback occurs independently of the position of the sequencer in a Song. If, on the other hand, you'd like to hear the selected audio passage in the context of the whole song, you'll have to use the transport controls as usual.

PLAYBACK FROM THE OVERVIEW: Monitoring playback from the overview display is carried out in exactly the same way as with regions in the Audio window. Simply click-hold the mouse at the point at which you wish to begin playback. Releasing the mouse causes playback to stop. You can also start monitoring from any position by double-clicking there.

PLAYING THE CURRENT SELECTION: To play back the current selection, click on the switch depicting a small loudspeaker.



You can also perform this function with the key command *Play/Stop Selection*.



PLAYBACK FROM A CERTAIN POSITION: If you double-click at any point on the time axis, the audio file will play back from this point, to the end of the current selection. If you double-click on a point beyond the selected area, the audio file will play right to its end.

CYCLE PLAYBACK MODE: On the left-hand side of the Sample Edit window, just above the Loudspeaker symbol, is



the Cycle button. If you turn this on, the currently selected section of audio will cycle continually when sample edit window playback is engaged.

Please note that you can change the start and end points of the selected area, while monitoring it in cycle playback mode. In this way, you could edit the start and end points of (say) a drum loop until it loops perfectly.

CHOOSING THE AUDIO OUTPUT: The small box under the loudspeaker symbol allows you to choose the output channel to be used for monitoring. If you're editing a stereo file, the right channel will be sent to the next-highest available output channel.

Set the number of the output you want to use in the *Cha* box under the loudspeaker symbol.

Make sure that the pan positions of both channels are set as widely as possible.

Automatic Scrolling

You use the scroll strip on the bottom and right edges of the Sample Edit window to scroll through the detailed waveform display in the usual way.

Making Selections

SELECTING THE WHOLE AUDIO FILE: You can select the entire audio file with the function Edit > Select > Select All (**ctrl a**).

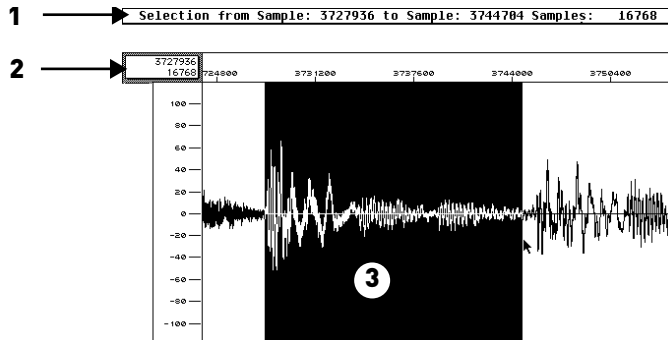
MANUAL SELECTION: To select a particular section of an audio file, click on the start or end of the area you want to select, hold down the mouse button, and move the mouse to the right or left.

TO CHANGE THE BOUNDARIES OF A SELECTION: By clicking on a selection while holding down **shift**, you can change its existing start and end points at any time. Whether you change the start point or end point by doing this, is determined entirely by whether the point you clicked on was nearer to the start or end of the selection. The closest one wins...

Changing the Further Selection Limit: If you hold down **ctrl shift** the further selection boundary is changed (rather than the nearer).

MOVING A SELECTION: If you hold down **ctrl**, you can shift the whole selection without changing its length.

THE SELECTION PARAMETER BOX: Please note that the start point and length of the current selection are shown in the selection parameter box at all times.

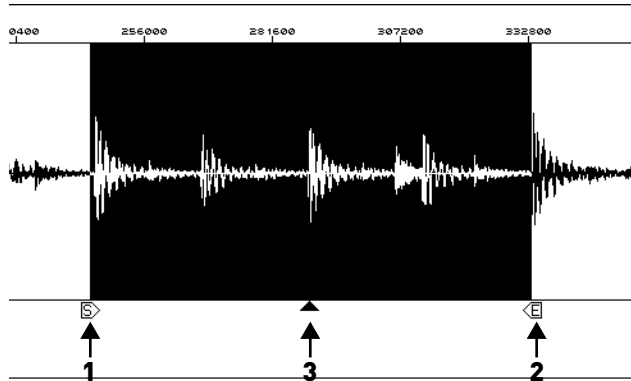


EDITING REGIONS IN THE SAMPLE EDITOR: If accuracy is what you need, you should edit the start and end points of regions in the Sample Edit window, not the Audio window.

The same goes for any adjustments you make to the anchor, which in many cases should really be placed on the amplitude peaks, rather than at the start of the attack phase of the sound. A good example would be recordings of brass instruments, which may take some time to build to a peak. By moving the anchor to these peaks, the region will snap to the grid in your arrangement using the anchor as the pivot point. The flexible zoom settings allow you to be as precise as you like, going right down to the level of single bits, at the highest magnification.

Be Careful! Any changes to the position of the Anchor point will change the relative position of that audio region in the song. Since the region start is the default position for the anchor you must also take care when changing a region's start point.

The small markers on the lower edge of the waveform display allow you direct access to the boundaries of the region and the anchor. As usual, you can just grab them, and pull!



Protecting the Anchor point: If you move the start or end points of a region past the anchor point, the anchor point will also move. This is quite often not what you want to happen.

Holding down **ctrl** while you move the start or end markers of a piece of audio prevents the anchor from moving.

Editing commands

Like the other windows, the Sample Edit window features the usual edit commands Cut, Copy, Paste, Clear and Undo under its Edit menu (or via the keyboard).

Please note: in the Sample Edit window all these commands (except Copy) change the data on the audio files itself; in other words, they behave destructively. Consequently, they cannot be reversed using the “Undo” command.

Cut: cuts a selected passage out of an audio file and copies it to the Clipboard. All the following sections of audio move forward to fill the gap.

Copy: copies a selected passage to the Clipboard, leaving the selected area in its original location.

Paste: Inserts the contents of the Clipboard at the cursor position, or start point of the selection. If there is no selection available, the cursor acts as the paste point (it is shown as a thin dotted line). If audio data is present behind the paste point, it is moved back to make room for the Clipboard contents. If anything is selected at the time of the paste, it is deleted and replaced by the Clipboard contents.

Clear: Erases the selection without placing it in the clipboard. All data beyond the deleted passage is pulled forward to fill the gap.

UNDO: Cancels the last edit command used, and reverses its effect. This also works with the destructive editing com-

mands described in the [section *Functions from page 205 onwards*](#).

Remember that the Undo function in the Sample Editor is organized separately from the rest of the program. This allows you to try out the edit in the Arrangement. If you don't like it you can go back to the Sample Editor and reverse the edit using the Undo function.

- Space is reserved on the hard disk for armed tracks which is not available for undo files. MAGIX midi studio generation 6 therefore automatically switches off record-ready status for audio tracks, if the disk is nearly full, and this would make an edit possible in the Sample Editor.

Functions

The following section describes various useful functions available in the Sample Edit window, for perfecting audio recordings. You can use these to add the finishing touches to your work.

Each of the commands affects only the currently selected audio. If you want to use them to alter the whole audio file, you have to use the Select All function beforehand.

All of the following functions are destructive, so they change files stored on your hard drive. You can use the Undo function—but only until you make another destructive edit. So you could, for example, change the start and end points of the selected audio in between destructive edits, without losing your undo facility.

Since the Undo function in the Sample Editor works independently of the rest of the program, you can try out an edit in the Arrangement and make changes there. As soon as you open the Sample Editor again (or bring it into the foreground), the Undo function is available for the last destructive sample edit.

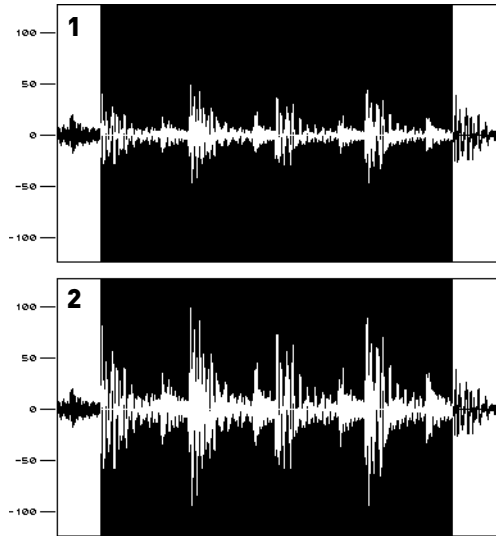
Before these functions are executed, you are asked to confirm them as a safety measure. This confirmation dialog box can be turned off by choosing Audio > Audio Preferences > Warning before process Function in Sample Edit (Menu) or ... (Key).

NORMALIZE: Normalization is the process by which a digital signal is brought up to its highest possible level, without introducing distortion. Normalizing is possible in MAGIX midi studio generation 6 by selecting Functions > Normalize.



This is done in the following way; MAGIX midi studio generation 6 finds the point with the highest volume (–xdB) in the currently selected audio, and determines how

far this is from the maximum possible level. The level of the whole selection is then raised by this amount. The dynamic balance of the audio passage remains unaltered—it merely gets louder.



Example showing the “Normalize” function. **1** Before **2** After

Please note that the start and end points for the section being normalized should generally not fall within a continuous section of audio, as this will result in abrupt increases in volume after normalization. The start and end points should therefore be located in sections that also contain pauses. Occasionally, you should remove any unwanted, audible noises that fall in gaps in the music with the aid of the “Silence” function.



CHANGE GAIN: You can use Functions > Change Gain to raise or lower the level of a passage of audio by a specific amount.

A dialog box appears in which you can set the required level change in percent (Change relative:).

If you click on Search Maximum, the highest peak level is determined and the value is then calculated that would be used to normalize the audio file.

The value results in absolute: displays the maximum level that would be achieved by changing the gain by the amount shown in the Change relative: box.

You should never make a gain change that results in a value over 100%, as this would create digital clipping.

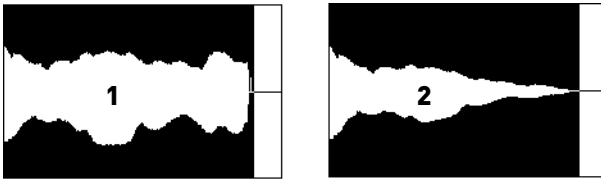
The gain change is effected by hitting Change (or **return**).

FADE IN: You use Functions > Fade In to create a fade in. You set up the period of time over which the fade-in will occur with the help of the currently selected audio (as shown in 1 and 2). Volume is set to zero at the left start point of the selection, and the fade-in occurs over the length of the selection.



Example showing the “Fade In” function. **1** Before **2** After

FADE OUT: Functions > Fade Out works in the same way as Fade In, except that the fade works in the opposite direction. This lets you fade passages out automatically.



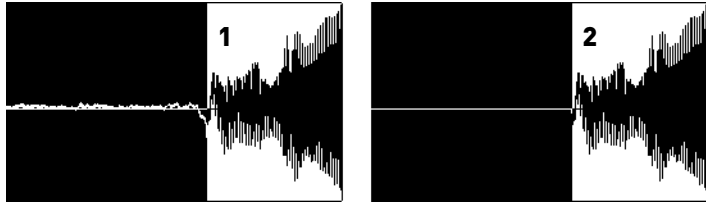
Example showing the “Fade-Out” function. **1** Before **2** After

Fading Tips: 1: Common fades (like the typical fade-out at the end of a track) can also be achieved with the help of the mixer faders or using Hyper Draw. The advantage of using MIDI volume to achieve the fade is that your audio doesn’t need to be edited in any way.

2: If you use the Silence function (see below) to remove unwanted background noise from silent passages, small jumps in volume can sometimes appear at the start and end points of selections, as well as on the flanks of the audio signal. In this case, select only a small area (e.g. within and just in front of the flank of the signal) and then use the “Fade-in” function.

SILENCE: You use Functions > Silence to remove all data from a selected area. The waveform material contained in the selected audio passage and the corresponding amplitude values are all set to zero. You can use this function to silence the unwanted background noise in quiet passages.

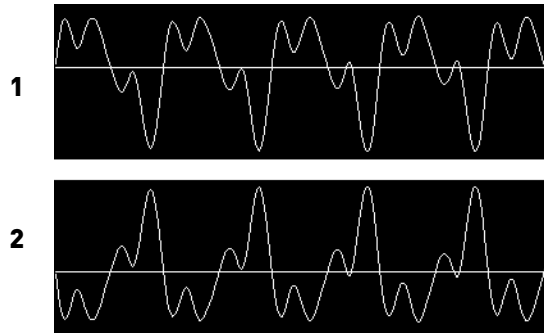




Example showing the “Silence” function. **1** Before **2** After



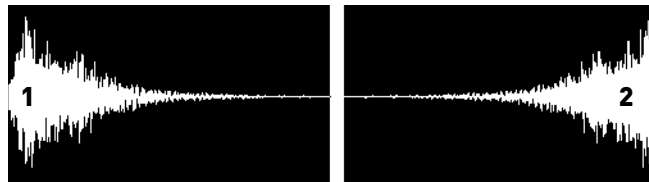
INVERT: Functions > Invert completely reverses the phase of all the currently-selected audio material. All negative amplitude values become positive, and vice versa. While this doesn’t change the file audibly, if it is heard in isolation, you can use *Invert* to correct phase cancellation errors, particularly if you’re mixing down to mono. This is particularly valuable when several out of tune signals (or several signals processed with chorus pedals) are to be mixed down to mono together. The effect depends on the audio material.



Example showing the “Invert” function. **1** Before **2** After



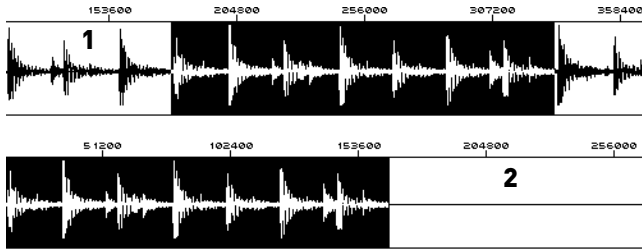
REVERSE: You reverse the selected audio passage by selecting Functions > Reverse.



Example showing the “Reverse” function. **1** Before **2** After

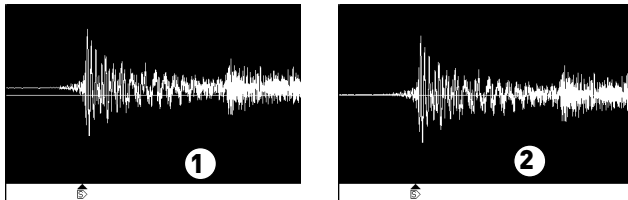


TRIM: By selecting Functions > Trim you can erase all the regions that *aren’t* selected. Use “Trim” to remove unimportant passages from the start and end of your Audio Files.



Example showing the “Trim” function. **1** Before **2** After
 Make sure that the areas you are about to delete do not contain any regions which you may need. Regions outside the selection will be lost, and regions which are partly outside will be shortened. If any such regions are being used in the Arrange an alert box appears, giving you the option of cancelling the trim function.

REMOVE DC OFFSET: When using poorly constructed audio hardware, direct current (DC) can be undesirably layered over the audio signal. This results in a vertical shift in the waveform position, which can be clearly seen in the Sample Editor. During playback, this can cause crackling sounds at the start and end of the audio region.



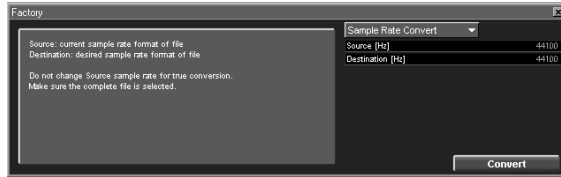
Waveform with **1** and without **2** DC Offset
 With Functions > Remove DC Offset it is possible to center the waveform around the zero amplitude line, to avoid crackling at cut points.

Sample Rate Converter

The Sample Rate Converter is used for converting the sample frequency. For example, audio files which have a 48kHz sample rate (recorded on a Hi-Fi DAT recorder and digitally transferred into the computer), can be converted to 44.1kHz.

Normally you will want to convert the sample rate of a whole audio file. To do this, select the whole audio file in the Sample Editor (**ctrl a**). Select Functions > Sample Rate Convert... in the Sample Edit window. To execute the function click the *Convert* button.





PARAMETERS: *Source (Hz)*

This shows the previous sample rate of the audio file. However, to enable you to change incorrectly stored sample rate formats (for example after editing in other programs)—or for effects—you can enter any value you like here. You should only use this function if you know what you are doing.

Destination (Hz)

Here you can enter the desired sample rate to which the selected area is to be converted.

In most professional audio circles only the 44.1 kHz sample rate is used. There is little audible advantage in using 48kHz. This format is mostly used with older DAT machines.

The WavePlayer

The WavePlayer window

The WavePlayer of MAGIX midi studio generation 6 provides polyphonic playback—including filter and envelope treatment—of any WAV-files you like. This is just like having a dedicated sampler without buying expensive external hardware.

As with the MAGIX midi studio generation 6 in general, the CPU of your computer also computes the WavePlayer. Therefore, in order to get a lot of voices and fast computation of all processes simultaneously, the following simple rule-of-thumb applies: the faster the CPU and the larger the RAM, the better. Don't try to save money on these items, especially if you are planning a new purchase. False economy at the beginning could very possibly lead to frustration later on.

WAVEPLAYER DRIVER: In order to use the WavePlayer, please bear in mind that you have to select a DirectSound driver for the WavePlayer under Audio > Audio Hardware & Drivers > Audio Driver, because the WavePlayer works only with a DirectSound driver.

If you want to use the WavePlayer and the audio features of MAGIX midi studio generation 6 simultaneously, you have to use a DirectSound driver for PC AV also.

CONTROLLING THE WAVEPLAYER: The Waveplayer is controlled via its special track in the Arrange. This track cannot be erased.

THE TRACK PARAMETER BOX OF THE WAVEPLAYER: The Track parameter box of the WavePlayer differs only slightly from those of MIDI tracks (see [section *The Track Parameters from page 124 onwards*](#)). You will notice that there are no settings for the MIDI port and channel as these are not necessary for the WavePlayer.

You will, however, find a new checkbox: *No seq trp*. Transpositions of sequences on the WavePlayer track will be ignored if this is checked. This is very useful if the WavePlayer plays back drumloops or drumkits, because transposing such elements would result in unwanted timing shifts and timbral mutations (see also [section *Chase Notes in 'No Seq Trp' Instruments from page 281 onwards*](#)).

OPENING THE WAVEPLAYER WINDOW: You can call up the WavePlayer window via Options > WavePlayer..., the re-

leated key command or a double-click on the WavePlayer track.

The Structure of the WavePlayer

In the WavePlayer window you see the note range from A0 to C6. You can assign a separate WAV-file to each of these 64 notes. Each WAV-file sound can be shaped via an independent synthesizer-like sound shaping section consisting of a VCF with an envelope and a VCA with an envelope.

In addition, each WAV-file can span a note range than greater than one note and thus be played polyphonically just like on a real sampler. Furthermore you can adjust the synthesizer-parameters for multiple WAV-files simultaneously.

Finally, the output of the WavePlayer can be adjusted in level and balance. Unlike the previously mentioned settings, level and balance are not set in the WavePlayer window, but in the Mixer and/or the Track parameter box.

Assigning WAV-files

A click on the *File Name* field opens a file selector box in which you can select and load a WAV-file. This WAV-file gets assigned to the key belonging to the *File Name* field you clicked on.

A right-click on an already assigned *File Name* field erases that WAV-file from the WavePlayer keyboard assignment.

ADJUSTING THE KEYBOARD RANGE: Right beside the *File Name* field you find the settings of the assigned WAV-file, arranged on a grey crossbeam. The upper and lower edges of this crossbeam can be grabbed and moved with the mouse to define the keyboard range of a WAV-file. Please note that while a WAV-file can be transposed down as far as you wish, its upward transposition is limited to an octave. This applies if the upward transposition is achieved by playing the keyboard, using the *Tune* parameter or a combination of both of them.

The parameters of a WAV-file in the WavePlayer

Each WAV-file in the WavePlayer has its own parameter set. The View menu allows you to decide which parameters you wish to see.

TUNE: The pitch of a WAV-file is adjusted in *cent* (1 *cent* = 1/100 semitone). The adjustable range is ± 1.200 *cents* (that equals ± 1 octave).

START AND LENGTH: Adjusts the point in the WAV-file from which it gets played back when pressing a key (*Start*)

and how much of the WAV-file will be played back from the Start point (*Length*). Both parameters are displayed in samples. If View > Wave Display is active, these parameters can be changed graphically with the mouse in the wave display.

TRIGGER: Determines how a WAV-file is played back. If *Gated* is selected, the WAV-file will only be played back as long as you hold the corresponding key. If *Freerun* is selected, the WAV-file will be played back to its full length, regardless how long you hold the key. *Freerun* is especially suited for drum or percussive sounds.

LINK: This checkbox is only visible if you have loaded more than one WAV-file into the WavePlayer . Checking this box for a specific WAV-file means that its VCA, VCF and envelope settings will be determined by those of the WAV-file immediately above.

ON: This checkbox is only visible if you have not activated *Link* for this specific WAV-file. If you check *On*, you'll activate the sound shaping section consisting of VCA, VCF and envelopes for that specific WAV-file, and any WAV-files linked to it.

Please note that you can save computing power by deactivating the sound shaping section, therefore possibly gaining more voices for the WavePlayer.

SOUNDSHAPING VIA VCA AND ENVELOPE: These parameters let you change the volume curve of a WAV-file. In honour of good old analogue synthesizers, this section is called VCA, which stands for Voltage Controlled Amplifier. While the VCA is responsible for the volume change, it is itself controlled by an envelope which determines how the volume changes over time.

The envelopes of the WavePlayer have two time sections: *Attack (Atk)* and *Decay (Dcy)*. *Attack* determines the time the envelope needs to change gradually from zero level to full level. *Decay* starts immediately after *Attack* has finished and determines how much time the envelope needs to change gradually back from full level to zero level. In other words, if you press a key, the envelope starts at zero level, changes gradually over the *Attack* time to full level and then falls gradually back from full level to zero level in the *Decay* time.

The WavePlayer uses the curve of such an envelope to control the VCA. It then takes a WAV-file and puts it through

the VCA. You then hear the WAV-file with a new volume curve, determined to your taste via the envelope parameter settings. Fade in the WAV-file automatically in the *Attack* time and then fade it out automatically in the *Decay* time; the smaller the values for *Attack* or *Decay*, the shorter the fade-times. There is only one exception: if *Decay* is set to maximum, there won't be any fade-out at all and the WAV-file will sound till it is finished.

Vel in the VCA section stands for *Velocity* and determines how dependent the volume of a WAV-file is on the velocity with which you hit a key. The larger value *Vel* has, the harder you have to hit a key to gain the maximum volume.

SOUNDSHAPING VIA VCF AND ENVELOPE: This section changes the tone colour of a WAV-file. The section responsible for tone colour changes in an analogue synthesizer was called VCF, which stands for Voltage Controlled Filter, so we used this abbreviation here.

The WavePlayer uses lowpass-filters. Broadly speaking, these filters let the deep parts of a sound passed, but not the high parts, thus changing the brightness of a sound. The *Frequency (Frq)* of such a filter determines the border between the deep and the high parts of a sound. Technicians call this the cutoff-frequency. To put it briefly, the lower the *Frq* value, the duller the sound will be .

With *Res (Resonance)* you can emphasize the parts of the sound that are in the immediate neighbourhood of the cutoff-frequency (or the deep-high border). The higher *Res* is, the sharper the overall sound.

As is the case with the VCA, the VCF (more precisely, the cutoff-frequency) is also controlled via its own envelope. *Env* determines the influence of the envelope. The interplay between *Frq*, *Atk*, *Dcy* and *Env* is as follows: press a key, and the cutoff-frequency starts at the value adjusted via *Frq*, rises in the *Atk*-time to a value equalling the sum of *Frq* and *Env*, and falls back from that to *Frq* in the *Dcy*-time. As in the VCA-envelope, if you set *Dcy* to maximum, *Dcy* will be disabled and the cutoff-frequency will stay on the sum of *Frq* and *Env* for the duration of the sample.

Finally, *Vel* controls how hard you have to hit the keys in order to reach the value specified by *Env*. If you go for small *Vel* values, you will reach *Env* even with soft key strokes. If you choose large *Vel* values, you'll have to hit the keys quite hard in order to reach the value specified by *Env*.

Global WavePlayer parameters

With Initialize > Default Parameters, all WavePlayer parameters are set back to default values.

Initialize > Delete All Assignments clears all key-WAV-file-assignments immediately, so you can start from scratch at once.

View allows you to exclude certain parameter groups from display to save space or protect them against unwanted adjustment.

View > Wave Display means that, in addition to the numeric information, each WAV-file will be graphically displayed as a waveform. The WavePlayer plays only the black marked section of the graphic. You can adjust the borders of that region and its position with the mouse.

View > Parameters: If this item is checked, you have access to the parameters Tune, Start and Length of all WAV-files.

View > File Info provides you with the following valuable information about each WAV-file: Format, Sample Rate and Size. These values are read-only.

View > Keyboard displays a keyboard at the left window edge to make the note-WAV-file-assignment easier.

View > Filter Parameters activates the display of the VCF and VCF section.

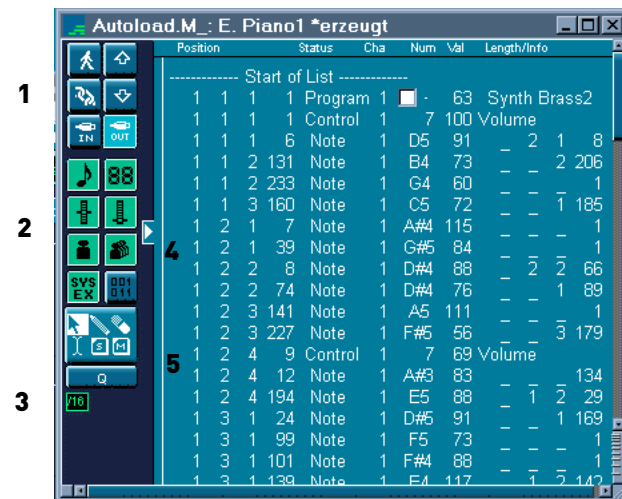
View > Filter Parameters as Knobs: Displays the VCA and VCF parameters as knobs instead of numbers.

The Event List

The Event List displays MIDI data in the form of a “list”, combining all the data-editing functions of the other editors, (except for graphic operations and the expressive options offered by the Score Editor).

USAGE: The Event List is used whenever you need to make precise alterations to recorded data, and the graphic display of the other editors is not suited to the task. It is the only editor which gives you access to all recorded event data. You can also restrict what you see, allowing you to edit only specific event types.

OPENING THE EVENT LIST: To open the Event List and view the contents of the selected sequence, choose Windows > Open Event List, or use a self-defined key command (*Open Event Editor...*).



You can also open it by double-clicking on a sequence with the right mouse button.

STRUCTURE: The standard buttons are supplemented by two scroll arrows **1** to help you move through the list. The event type buttons below them **2** allow you to filter specific event types from the display, and access or add them (by clicking on them with the right mouse button). Beneath the toolbox is the quantization grid selection field for the event quantize function (above **3**). There is also a field for defining the Division value (to the right of **3**) which corresponds to the Division value as set in the Transport win-

dow. If the Catch function is switched on, the arrow-shaped position marker **4** will always point to the current event. The structure of the actual list display **5** is described on [page 220](#).

Display

The event type buttons allow you to “filter” the display to remove individual event types from the Event List, so that you can view only the specific types of events you are interested in. Click the desired button with any tool (except the pencil).

If a button is grayed out, that event type will not be displayed.

All the functions affect only the events displayed, so non-displayed events are protected from any alterations you make.

Here is a short overview. For more detailed information on the individual event types see [page 222](#).

The note symbol stands for *note events*.

The symbol with the dual-digit, seven-segment display stands for *program change events*.

The hand wheel symbol with a marker in the middle (pitch bend wheel) stands for *pitch bend events*.

The hand wheel symbol with a marker at the bottom (modulation wheel) stands for all *control change events*.

The single weight symbol stands for *aftertouch events* (channel pressure).

The multiple weights symbol stands for *polyphonic key pressure events* (polyphonic aftertouch).

This symbol stands for *SysEx events*.

The symbol with a row of zeros and ones is called the *full message* button. This does not filter out any type of event but affects the display of all event types.

Normally the display in the Event List is restricted to one line per event. When the full message display is active, all information stored along with the event is shown too. This is particularly important for editing SysEx messages.

When examining note events in the Event List, you will also notice MAGIX midi studio generation 6’s internal score layout information included in the list. You can edit this in the Event List if you want, but it serves little purpose.

Operation

SCROLLING: Clicking either of the scroll arrows moves the display up or down by one event. The event at the position





marker is always selected (so the existing selection changes as you scroll). The scrolling speed can be varied as you scroll, by vertically moving the mouse. The key command *Scroll to Next/Previous Event* is also available from the Event window, and has the same end result.

Remember that if the MIDI Out button is switched on every newly selected event will be played. This means you can scroll through the list and audibly monitor the events as you go.

If you want to keep the selected event where it is, use the usual scroll bar functions.

SELECTION TECHNIQUES: When selecting events with the mouse, you should click near the status column to avoid any unintentional parameter alterations.

You can use any of the standard selection techniques here: individual selection by clicking on objects, multiple selection using the rubber band, or both of these (without altering the previous selection), in conjunction with **shift**. Don't forget you can also make selections according to specific criteria via the Edit menu (read the [section *Selection Techniques from page 93 onwards*](#)).

Any events which you remove from the display by clicking on the event type buttons are immediately deselected. This ensures that all the functions affect only the displayed (selected) events.

SPECIAL SELECTION FUNCTIONS: Some selection commands (which can be accessed from within all the Editor windows via their Edit menus), can also be utilized in the Event List by selecting an item with the mouse while holding down additional modifier keys.

1. If you click on an event while holding down **ctrl**, you select all events between the last event that was selected and the current one.
2. If you hold down **alt** and select an event, all *similar* events will also be selected.
3. If you select an event while holding down the **alt** and **ctrl** keys, all *identical* events will be selected.

Event Editing

ADDING EVENTS: To add an event, click on the desired event type button with the pencil (or with any other tool while holding down the right mouse button). The event is then added at the current song position, and is automatically selected.

DUPLICATING EVENTS: To duplicate an existing event (for example, so you can alter the parameter value of the copy) click on the original event with the pencil. An input box appears—this is where you enter the position for the newly-duplicated event. If you just hit **return**, the duplicate will appear at the same place as the original.

Pasting from the Clipboard: When adding events using the clipboard's Paste function, a position input box will appear, allowing you to type in the position of the first event. Once again, if you confirm by just pressing **return**, the original position of the event is retained. The relative positions are also always maintained.

This means that the events are *not* added at the song position, as in the graphical editors. For more details on the way the clipboard works, please refer to [page 95](#).

MOVING EVENTS: To move an event in time, alter its position indicator. As soon as you alter its position, the list is automatically sorted, even though the currently selected event remains the same.

Altering Values

Event positions or parameter values can be altered in the usual way by using the mouse like a slider (grabbing and dragging), or via text input (just double-click on the parameter value).

You cannot alter the *type* of events using this method, however. To alter the event type, you must add an event of the desired type, and then delete the original event.

ALTERING THE VALUES OF SEVERAL EVENTS: If a parameter of a selected event is altered, it will affect the same parameter in all selected events.

Relative Value Alteration: When you alter parameter values in a multiple selection, the relative differences between the parameter values remain unchanged. The parameter values that you grab or double-click on can therefore only be altered until the value of one of the selected events has reached its maximum or minimum value.

Flexible Relative Value Alteration: If you want to continue altering a parameter value in a multiple selection (even if one of the values in the selection has reached its maximum or minimum), hold down **ctrl** while you move the mouse, or press **return** to confirm a numerical input.

Absolute Value Alteration: If you want to set a parameter to the same value for all selected events, hold down the **shift** and **ctrl** keys while you use the mouse as a slider.

NUMERICAL VALUE INPUT: If you want to directly input a number, double-click the relevant parameter.

Event List Structure

The individual columns in the list have the following meanings:

POSITION				STATUS	CHA	NUM	VAL	LENGTH/INFO	
1	3	1	1	NOTE	1	C#3	80	- -	1 232
1	3	1	1	NOTE	1	C#3	80	- -	1 232
1	3	1	1	NOTE	1	E3	80	- -	1 232
1	3	1	1	NOTE	1	E3	80	- -	1 232
1	3	1	1	NOTE	2	62	80	- -	1 232
1	3	1	1	PitchBd	1		64	- -	
.	- -	

Position: The position of the events in the song; for note events this means the beginning of the note. The units represent *bars*, *beats*, *divisions*, and *ticks* (see [page III](#)).

Counting begins at 1 for each unit (first bar, first beat, first division, first tick: 1 1 1 1), and continues until it is carried over to the next largest unit.

Numerical inputs start from the left (which means you can enter just the bar number if you want). The units can be separated by either spaces, dots, or commas.



Position within the Sequence: If you select View > Local Position, the event positions do not refer to the absolute location within the song but to the relative position within the sequence.

STATUS: This is where you can see the event type, as specified by the status byte of a MIDI message (for details, refer to the [section Event Type Structure from page 222 onwards](#)). You cannot directly edit this parameter.

CHA: The MIDI channel used to record an event.

Remember that during playback this MIDI channel will be replaced by the *Cha* parameter of the track. The event is only output to the recorded MIDI channel when the *Cha* parameter is set to *All*.

You should also keep in mind that with notation, the record MIDI channel is used to assign a polyphonic voice to the note. (for more on this, read [Arrange Window](#)).

NUM, VAL: These columns contain event data bytes. Their meaning depends on the event type:

Status	Num	Val
Note	Pitch	Velocity
Control	Controller number	Value

Status	Num	Val
Pitch	LSB	MSB
C-Press	(not used)	Value
P-Press	Pitch	Value
Program	Bank Select	Program number

LENGTH/INFO: With controller events, this column shows the controller name, and with SysEx events, the manufacturer's name.

With pitch bend events, a 14-bit value is displayed here, which is composed of the first (Num) and second (Val) Data bytes combined. This value can be edited directly from here.

With notes or sequences, the length is displayed here.

Here too, the units are bars, beats, divisions, and ticks. For the sake of clarity, when the length begins with one or more zeros, the “_” symbol is used instead. The minimum length is rtick (_ _ _ 1) not 0 ticks, because it makes no sense to simultaneously switch a note on and off.

Numerical input starts on the right, working to the left—and you can enter just ticks if you want. The units can be separated by either spaces, dots, or commas.

End instead of Length: If you choose View > Length as absolute Position you can make the length display show the absolute position of the note off event, instead of its length from the note on.



List Structure on the Arrange Level

When you double-click on any entry, you move up one level in the folder/sequence hierarchy. You may also move up a level by double-clicking the white area above or below the list entries (if visible).

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
----- Start of Event List -----					
----- End of Event List -----					

This allows you to see all the arrange objects in the current song. On the arrange level, the list has the following columns:

POSITION	NAME	TRACK	LENGTH
----- Start of Event List -----			
3 1	1 Main Theme	1	14 2
3 1	1 Main Theme	2	14 2
3 1	1 Main Theme	3	14 2
3 1	1 Main Theme	4	14 2
----- End of Event List -----			

POSITION: The start of the arrange object (see [page 220](#)).



NAME: Name of the sequence. You can alter the name with the text tool.

TRACK: Displays the track number. You cannot edit this value from here (you might totally destroy your arrangement if you could). If you want to move arrange objects to other tracks, it is better to do it graphically from the Arrange window.

LENGTH: The length of the arrange object (see [page 221](#)).

Event Type Structure

NOTE EVENTS:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 1 1	1	NOTE	1	A2 88	- 1 1 232

Num



MIDI note number (note #). The range is from C-2 (note #: 0) to G8 (note #: 127). Middle C is note # 60 and in MIDI terminology is called C3.

On some keyboards/synth modules (notably those made by Korg and Roland), the note range is C-1 (#0) to G9 (#127). In these cases middle C is called C4.

In the Preferences (Display page) you can reference the display to the description used most frequently on your devices (*Display middle C as...*).

Val

Velocity of a note from 1 to 127. The value 0 carries the *note off* message, and thus is not available.

Length/Info

Length of the note. Although MIDI can only transfer *note on* or *note off* messages, MAGIX midi studio generation 6 actually stores the position and length of all the notes which makes them easier to access musically. The *note off* message is generated automatically during playback.

PROGRAM CHANGE EVENTS:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
2 1 1	1	Program	1	<input type="checkbox"/>	1 Bright Ac Pno



Program change events can be transmitted to connected MIDI devices to call up different patches. These may be sounds in a synthesizer, programs in an effect unit, or snapshots in an automated mixing desk.

Val

A program number between 0 and 127.

Some manufacturers (e.g. Yamaha) number the programs in their devices from 1 to 128, not 0 to 127. In this case, you have to subtract 1 from the program number given in the device itself.

Other manufacturers use various methods of dividing into groups (or banks) and sounds. The most common is dividing into 8 groups of 8 sounds, each numbered 1 to 8. These devices respond to program numbers 0—63 by calling up storage locations 11—88. The instruction manuals for these devices should contain conversion tables to assist you.

Num

Bank select. Normally you will see this symbol, which means no bank select will be sent. If you assign a number between 0 and 62, a bank select event is sent before the program change event. This allows you to address different sound banks (e.g. preset, internal, card) inside your synthesizer. The synthesizer must be able to recognize controller 32 as bank select, but unfortunately this standard is not yet widely used. If you have any problems with bank select, check your synthesizer's manual to see whether, and how it responds to bank select commands.

**PITCH BEND EVENTS:**

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
2	1	1	1	PitchBd	1 0 79 = 1920

Pitch bend events are used to continuously vary the pitch. They are usually generated by a centered pitchbend wheel or a joystick on your keyboard.

**Num**

Fine pitch bend division (LSB). Many keyboards just transmit the value 0. If the pitch bend wheel has an 8-bit resolution, you will see the value 0 or 64 here.

Val

The effective pitch value (MSB) of 0—127. The value 64 corresponds to the mid-way setting of the wheel.

Length/Info

The 14-bit value is displayed in this column as a decimal figure ranging from -8192 to 8191. This value may be edited in this column in the usual way.

CONTROL CHANGE EVENTS:

The Event List

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 1 1	1	Control	1	54	Modulation
1 1 1	1	Control	1	64	Sustain
1 1 1	1	Control	1	7	64 Volume
1 1 1	1	Control	1	10	64 Pan



These event types are used to transfer MIDI controllers (e.g. modulation, sustain, volume and pan).

Num

The number of the controller. All the various MIDI controllers (such as the modulation wheel or sustain pedal) have their own numbers (#1 or #64 respectively). Some other effects are also defined, such as volume (#7) or pan (#10).

Controllers that are defined in the MIDI Standard are described in the *Length/Info* field.

Val

Value of the controller. Continuous controllers have a range of 0—127. Switch controllers (#64—#90), transfer only two states; *off* (val=0) and *on* (val anything between 1 and 127).

AFTERTOUCH EVENTS:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 1 1	1	C-Press	1	64	



Aftersustain (or channel pressure) events are generated by a mechanical pressure sensor beneath the keyboard. The resulting sound modulation affects all the notes on that particular MIDI channel.

Num

This column is empty with aftersustain events, since they have only one data byte.

Val

Strength of the pressure on the keyboard (0—127).

POLY PRESSURE EVENTS:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 1 1	1	P-Press	1	E3	64



Poly pressure events are generated by mechanical pressure sensors beneath each individual key. The resulting sound modulation affects only that particular note. Only a few keyboards currently support this capability.

Num

MIDI note.

Val

Strength of the pressure on the key.

META EVENTS:

POSITION	STATUS	CHR	NUM	VAL	LENGTH/INFO
1 1 1	1	META	1	49	Screenset

Meta events are not MIDI events, but are control messages specific to MAGIX midi studio generation 6. They are used to automate specific MAGIX midi studio generation 6 functions, and organize objects in the notation which cannot be represented by MIDI events.



To create a meta event, click on the Full Message button with the right mouse button.

Num and Val

Num determines the function of the Meta Events you create, and *Val* is the value that is sent. In the Event List window you should only ever insert and edit the following *Num* values:

Num = 47 Send Byte to MIDI. This sends the track any byte value (*Val*) between 0 and 255 (\$00-\$FF). As an example of how to use this Meta Event, if you send 246 as the byte, this is equivalent to a MIDI tuning request message. The display will show “Send Byte \$F6”. Only use this Meta Event if you know what you’re doing—if you don’t, your sound modules and synths may start to behave very oddly indeed...

Num = 49 Goto Screenset. This event calls up a screenset (*Val* determines the number). The track is irrelevant.

Num = 50 Song Select. This event will switch songs on a MIDI data filer (*Val* = the stored song number), if you have one connected. The track for this event is irrelevant.

Num = 52 Stop Song. Playback will be stopped.

Event Float Window

The event float window can be accessed from most other windows.

Select Options > Event Float... (or the key command *Open Event Float*) to open an event float window. This gives information on the currently-selected object, and can be compared to a single line of the Event List. You can edit all the parameters in this window.



32	1	3	23	NOTE	8	F4	88	-	-	-	92
----	---	---	----	------	---	----	----	---	---	---	----

The following parameters are displayed:

- the start point of the selected object in bars, beats, divisions, and ticks,
- the type or name of the selected object,
- the recorded MIDI channel and first data byte (if the selected object is an event)—for notes, the name—and, if there is one, the second data byte;
- length of the selected object in bars, beats, divisions, and ticks.

Clicking on the video symbol (on the extreme left) toggles the position and length display between SMPTE time and the normal display.

Clicking on the SMPTE symbol with the right mouse button turns the “MIDI Out” button on or off, and with it the monitor that gives MIDI playback in the Event float window).

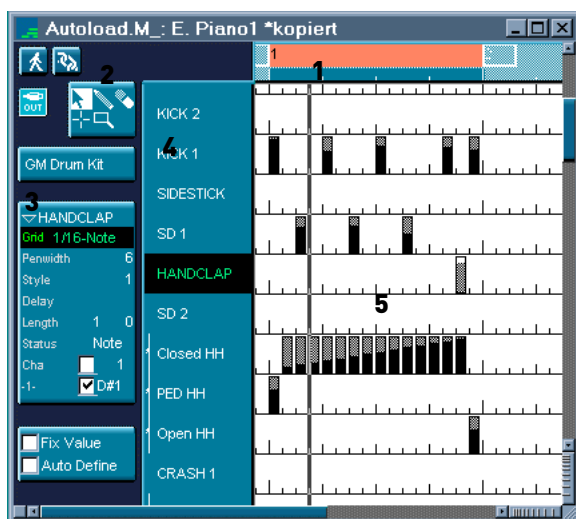
The Drum Editor

Usage

The Drum Editor has many uses. The main ones are creating and editing drum sequences, and graphically editing controller data.

Opening the Drum Editor

To open a Drum Editor window, select Windows > Open Drum Edit (**ctrl** right mouse button double-click, or a self-defined key command). You will then be able to see the contents of the sequence selected in the Arrange window.



Structure

The structure of the Drum Editor window resembles that of the Arrange window: there is the horizontal bar ruler at the top (1) and the optional transport panel (2, currently disabled) in the top left corner. On the left is the optional parameter area (3), next to it the event name column (4) and to the right of that the editing area (5) which can be likened to the area containing the tracks in the Arrange window.

The individual lines in the Drum Editor are functionally similar to the tracks in the Arrange window, in that each line has an event definition which determines the event type displayed in this line. When you select a line in the name column, its event definition is shown in the parameter box.

The display of the events takes the form of a horizontal row of vertical beams whose height indicates the value of the relevant event. You can directly alter the value by grabbing the beam slider.

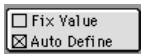
Event Definitions

The event definition of a drum edit line determines which events it displays. This selection usually affects the status byte and the first data byte of the event. The second data byte then contains the adjustable value, which is represented by the height of the beam. For example, in an event definition line, the value of a controller or the velocity value of a note is shown as a beam. Don't worry if this seems a bit confusing at first: when setting up these parameters, MAGIX midi studio generation 6 helps you by providing pull-down menus containing written definitions of the status byte and (to the furthest extent possible) the first data byte. There is an even simpler way: you can automatically create event definitions for selected events. Example: In a given drum edit line the Velocity values of a note are displayed as bars.

There are many ways of altering the way the beams are displayed, and adjusting them to the particular event types. You can also use a grid to align the display of existing events, and add new events. This grid can be set separately for each event definition. The height of the lines is adjusted using the Drum Edit window's vertical zoom function.

Selecting the Event Definition: As with tracks in the Arrange window, you can select an event definition by clicking on the name column. This allows you to view its parameters in the event definition parameter box. Unlike with arrange tracks, however, it is possible to make a multiple selection.

Creating an Event Definition: When you choose Drum > Create Event Definition a new event definition is added, at the position of the currently selected event definition. Initially, it has the same parameters. The event definitions beneath it are moved downwards.



Automatically Creating Event Definitions: If you select an event in another opened editor window you can automatically create an equivalent event definition by checking the *Auto Define* checkbox. If an event definition exists which corresponds to the type of the selected event, MAGIX midi studio generation 6 does not create a superfluous double definition. Instead this event definition is moved to the visible area.

Don't forget to switch off *Auto Define* immediately after completing the input.

DELETING AN EVENT DEFINITION: Choose Drum > Delete Event Definition to remove the selected event definition.

DRUM SETS: COPYING EVENT DEFINITIONS: Select the event definition that you want to copy and choose Drum > Copy Event Definition. Switch to the destination Drum Set and choose Drum > Paste Event Definition. You can paste the event definition as often as you like. These functions are especially helpful to copy event definitions between Songs: If for example you disfigured your “GM Drum Kit” so badly that you just want to restore your good old version of it, you simply create an empty Song, call up the Drum Editor, select all Event Definitions and, via Drum > Copy/Paste Event Definition, copy them back into your Song.

SORTING EVENT DEFINITIONS: To change the vertical order of the various event definitions, just grab the event definition you want to move by its name column, and drag it to the desired position.

Event Definition Parameter Box

The event definition parameter box is where you make the settings for the currently selected event definition line. The most important parameters are *Status* and *-1-* ([page 231](#)).

Opening the event definition parameter box. You can show (or hide) the entire left parameter area by checking (or unchecking) View > Parameters. You can close or open the parameter box by clicking the triangle in the top left corner.

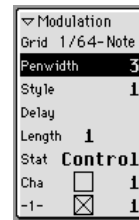
Name of the Event Definition: By clicking the name next to the triangle you can determine what appears in the name column. If you define a named MIDI controller via the *Status* and *-1-* parameters the relevant name will be offered as a preset.

Display and Editing Grid: The *Grid* parameter is set via the typical pull-down quantization menu. New events can then be added at the set grid positions. The positions of existing events are not affected.

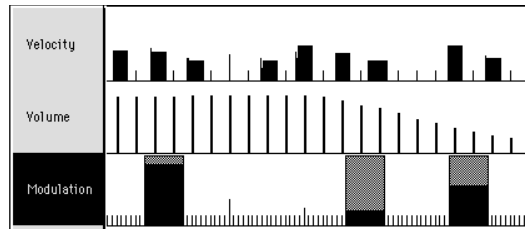
If you want to quantize the positions you can do so using event quantization (see [page 99](#)).

The same quantization templates are available as for the playback parameters.

When editing complex drum rhythms, it can be useful to create several definitions for one drum note, each with a different quantization grid. For example, if there are two lines for a snare drum, one with a 1/16 and the other with a 1/96 grid, you can use the pencil to add individual hits in the coarser grid and rolls in the finer grid.

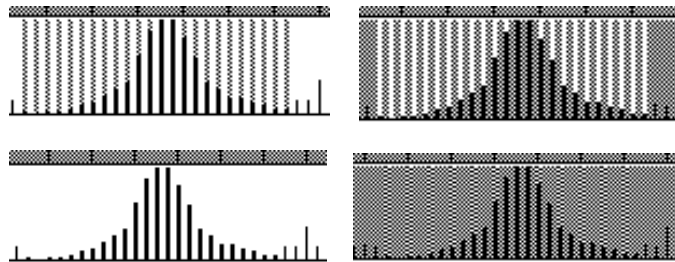


Beam Width: You can set the width of the event beams from 1—16 using the *Pen-width* parameter. Regardless of the beam width, the exact event position is always marked by the left edge of the beam.



When set to the maximum value (*Penwidth* = 16) note events are displayed with their actual length.

Beam Display: The *Style* parameter allows you to choose from four different color display variations for the beams. Styles 5 to 8 are the same as 1 to 4, but the selected events flash to highlight them.



Delay: The *Delay* parameter can be used to delay (with positive values) or advance (negative values) all the events in an event definition line by an adjustable number of ticks. The change in position is visible immediately. Even new events are offset from the grid positions by the *Delay* value. If you click between the word *Delay* and the parameter value you can use a pull-down menu to enter note values (e.g. 1/16 etc.) directly.

- 1/1
- 1/2
- 1/3
- 1/4
- 1/6
- 1/8
- 1/12
- 1/16
- 1/24
- 1/32
- 1/48
- 1/64
- 1/96
- 0
- 1/96
- 1/64
- 1/48
- 1/32
- 1/24
- 1/16
- 1/12
- 1/8
- 1/6
- 1/4

Unlike the sequence playback parameters' *Delay* option, this affects only individual event types or note numbers, which is very useful for drum programming.

In general, it is useful to transmit controller data slightly before or after the exact grid positions to improve the timing of the notes lying on the grid positions.

Length of Notes to be Added: You can use the *Length* parameter to set the length of notes to be added, measured in divisions (the left number) and ticks (the right number).

To guarantee optimum timing when drum programming, you should ensure that note off events are never transmitted at the same time as note on events. Use note lengths

which are not close to straight note values, e.g. 100 ticks (1/48 note = 80 ticks, 1/32 note = 120 ticks). Very small tick values are also unsuitable, because the note off events may sometimes be transmitted at the same time as note on events at the same position.

Event Status: If you grab the right side of the *Status* line a pull-down menu opens where you can determine the event status for this event definition line.

MIDI Channel: Next to *Cha* there is a checkbox and to the right of this you can set a MIDI channel number. If you check this box, the display is restricted to events on the set channel. If the box is unchecked, the channel parameter is ignored, and matching events on all channels are displayed.

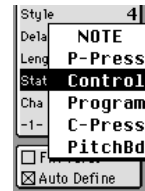
First Data Byte: In the bottom line is the *-1-* parameter where you can determine the first data byte of the displayed event.

For example, if *Note* is set as the event status you can determine here which pitch (note #) should be displayed in this event definition line.

As with the MIDI channel, the checkbox determines whether (if checked) only events with the defined first data byte should be displayed, or whether (if unchecked) the setting should be ignored. In the case of note events the velocity values of all notes (regardless of pitch) would be displayed in the relevant event definition line.

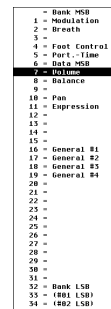
If *Control* is set as the event status you can use a pull-down menu to determine the controller type (controller #).

With channel aftertouch (status *C-Press*) or program change events (status *Program*) the setting of the *-1-* parameter is always ignored, since the first data byte is displayed as a beam height. With pitch bend data (status *PitchBd*) the setting is also ignored, because both data bytes are used to display the beam height.



MAKING DIFFERENT DEFINITIONS SIMULTANEOUSLY: Like the parameters in several sequences you can set the parameters of several event definitions simultaneously. Select several event definitions in the name column by holding down **shift** and clicking on them. You can also use Drum > Select All Event Definitions to select all event definitions and then deselect some of them by holding down **shift** and clicking on them.

Any alterations which you make in the event definition parameter box affect all selected event definitions absolutely.



Hi-Hat Mode

In hi-hat mode event definitions can be gathered together in groups within which a only one event from each group can be played at any time position. A typical use is collecting different hi-hat notes (open, closed, pedal...) into a group.

To define a hi-hat group, click in any of the lines at the left edge of the name column. Click here once again to switch hi-hat mode off for that line. All lines in a hi-hat group must be vertically adjacent to each other.

If you add an event within a hi-hat group all existing events at this time position are deleted.

You can create as many hi-hat groups as you want, but they must all be separated by at least one line in which hi-hat mode is switched off.



Operation

The grid defined by the *Grid* parameter in the event definition parameter box is very important:

- During selection all events within a grid section are selected,
- When you change the values of existing events, all events within a grid section are altered, and
- New events are added at the grid positions, in accordance with the value set as the *Delay* parameter

Selection Techniques

You can use any of the usual selection techniques, as described in the [section Selection Techniques from page 93 onwards](#). However, there are the following differences:

- To select individual events hold down **shift**, as you would when selecting several events that are scattered across the screen, and;
- When making a rubber band selection hold down **shift** (be careful not to click any events).

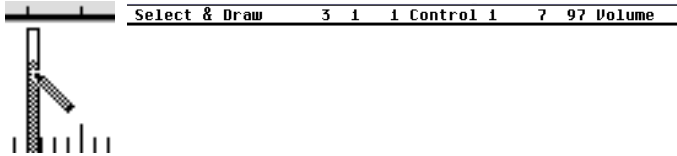
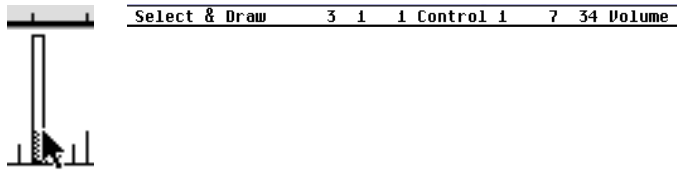
MOVING AND COPYING EVENTS: When moving selected events, you also have to hold down **shift**.

To copy events, use **ctrl** as usual.

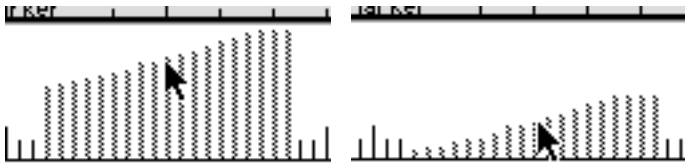
With both operations, you can move events to other event definition lines. The events will be automatically converted.

Altering Event Values

You can alter individual values by grabbing the event beam (with the mouse pointer or pencil). As you change the event value, the current value is shown in the top line.

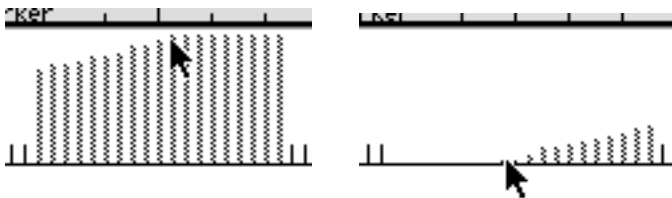


ALTERING SEVERAL EVENTS:

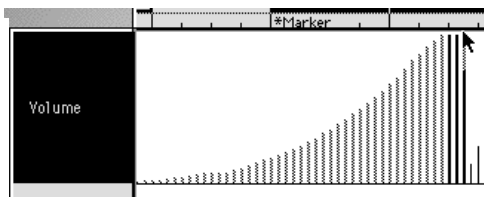


If several events are selected, you can alter all the values relatively, by grabbing just one of these event beams. The absolute differences between the event values remain the same. If one of the beams reaches the top or bottom, you will not be able to go any further in that direction.

However, if you hold down **ctrl** as well, you can keep raising or lowering the values of the selected event group, until the event beam which you have grabbed reaches the top or bottom.



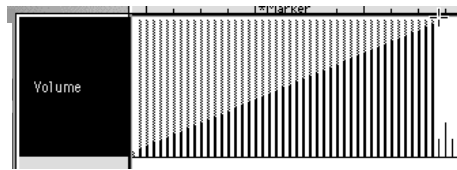
SETTING UP A MANUAL SERIES:



Existing Events: Draw the events with the mouse pointer while holding down the mouse button.

Creating New Events: Draw the events with the pencil while holding down the mouse button. The pencil is pre-set as the second tool (right mouse button).

SETTING UP A LINEAR SERIES:



- Select the crosshair tool.
- Click anywhere in the beam display area and hold down the mouse button.
- Keep an eye on the display showing the exact position and event value in the top line. Move the mouse to the start point of the line you want.
- Release the mouse button.
- Move the mouse to the desired end point of the line (to the right or left). You can also keep an eye on the position and event value in the top line.
- Click to align the event beams along the line.

If there were already events in the area between the start and end points, they are aligned along the line.

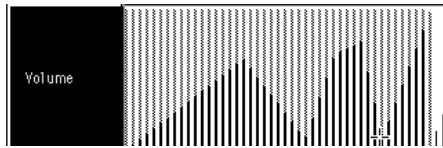
If there were no events in the region new events are created at the grid positions (in accordance with the *Grid* parameter).

If you definitely want to create new events, hold down **ctrl** when you click for the last time.

This creates one event at every grid value. With very flat slopes, or very fine grids, the individual grid positions always remain unoccupied if the value to be added there is the same as the value of the previous event. This reduces the data-flow along the MIDI bus without reducing the resolution of the controller.

When defining the *Grid* parameter to add successions of controllers use the motto, “as coarse as possible and as fine as necessary” to keep down the data output. MAGIX midi studio generation 6 can deal with very large amounts of data but unfortunately the same cannot be said of MIDI.

LINEAR SERIES IN SECTIONS: The last time you click (regardless of whether or not you hold down **ctrl** to add new events) if you also hold down **shift** you can immediately draw another line from the end point of this line.



Adding Individual Events

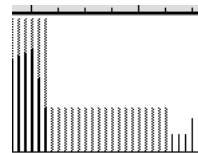
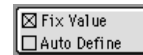
Use the pencil to add individual events. You can alter the added value even before you release the mouse button. The pencil is preset as the second tool (right mouse button).

FIX VALUE: If you place a check in the *Fix Value* checkbox, you can prevent the height of any event beam being altered with the mouse pointer or pencil.

When adding events with the pencil, all the added events are given the value of the previously-selected event. This allows you to draw a succession of events with the same value.

By selecting an event with the pencil, you can adopt this value as a preset, because in fix value mode it is impossible to alter the value by clicking on it.

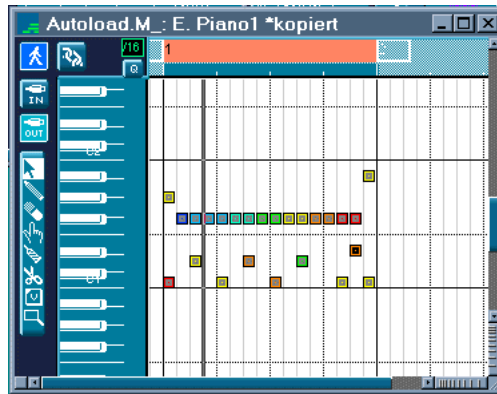
When adding events with the crosshair tool, the preset value is always used as the start point of the line.



The Matrix Editor

The Matrix Editor is used to graphically edit note events. Its advantage over the other editors is its ability to provide a more precise display of the length, position and velocity of the notes. The Matrix Editor is designed for fine-tuning the positions and lengths of notes.

OPENING THE MATRIX EDITOR: To open a Matrix Editor window showing the contents of the selected sequence, select Windows > Open Matrix Edit or a self-defined key command (*Open Matrix Editor*).



You can also double-click a sequence while holding down **ctrl**.

Display

Only notes are shown in the Matrix Editor. The beams (and the way they can be edited) are very similar to the sequences in the Arrange window.

PITCH/NOTE NAMES: The pitch is indicated by the vertical keyboard on the left side. To help you with positioning there are horizontal lines running across the screen between notes B and C and notes E and F.

Remember that you can adapt the octave numbering to Roland/Korg devices ([page 285](#)).

POSITION: You can read the position of a note in the bar ruler. The background is marked by vertical lines to assist with positioning:

- A straight line at every bar,
- A dashed line at every beat, and

- A dotted line at every division (you can alter the division value in the Transport window or up on the left in the parameter area).

OTHER DISPLAY OPTIONS: All other display options are covered in the [section *Display Functions* from page 100 onwards](#). In the Matrix Editor, you will often want to move the visible section (using the scroll bars), and alter the display zoom (with the telescope buttons and magnifying glass).

Editing Notes

You can use the same intuitive editing functions as for the sequences in the Arrange window.

There are also some editing options which are available in all editor windows. These are covered in the [section *Edit Functions* from page 97 onwards](#).

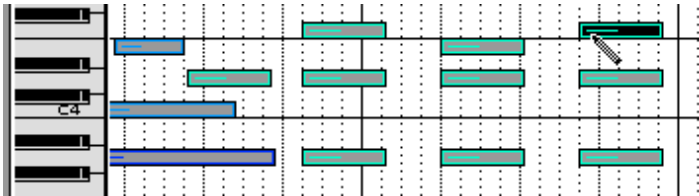
Creating Notes

To create a note, click with the pencil at the desired point in the background.



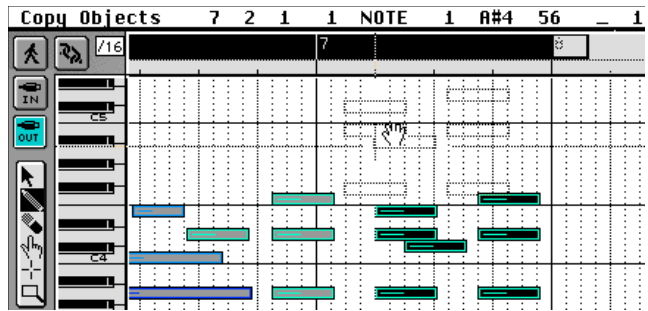
DUPLICATING NOTES: To copy an existing note to another position or pitch, first click the original note with the pencil (near the middle).

Now, any notes which you create by clicking the background will have exactly the same length and velocity as the original note.



Moving Notes

You can move selected notes by grabbing them (near the middle) and dragging them. If you move notes vertically they will be transposed, and if you move them horizontally they will be moved in time. While you keep the mouse button held down, the target position and pitch are shown in the info line at the top.



When you move notes horizontally, they snap onto the division positions (you can alter the division setting whenever you want).

Remember that you can limit movement to one direction to avoid accidentally transposing notes when moving them vertically (and vice versa). (Options > Settings > Global Preferences...: *Limit Dragging to one direction in Matrix and Score*).

SETTING A FINER GRID: When moving notes in the Matrix window you can make fine adjustments at a high resolution by holding down **alt** as you drag. The exact resolution you use depends on the current Zoom setting of the window.

If you hold down **alt shift**, you can move the notes in tick steps, completely independently of the Zoom setting and the time grid.

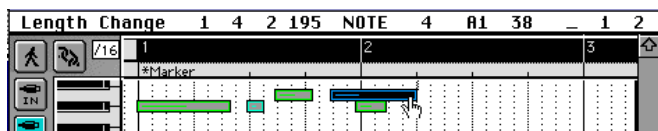
Copying Notes

Hold down **ctrl** as you move the notes.

.Of course you can also copy (Edit > Copy or **ctrl c**) or move (Edit > Cut or **ctrl x**) the notes onto the clipboard, and then add them at the current song position with the original pitch (choose Edit > Paste or **ctrl v**; see [page 95](#)).

Altering Lengths

To alter the length of a note, grab it by its bottom right-hand corner and drag it to the required length. While you are altering the length, the info line will keep you informed of the precise length of the note.



ALTERING THE LENGTHS OF SEVERAL NOTES SIMULTANEOUSLY: You can adjust the lengths of several selected notes at once (e.g. a chord) simply by altering the length of

one of them. This will alter the lengths relatively among the selected notes.

MAKING NOTES THE SAME LENGTH: If you want to make several selected notes the same length hold down **ctrl shift** (as in the Event List, when making several parameters the same value).

What Tools to Use

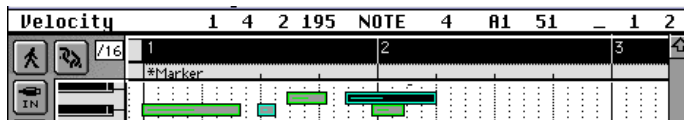
When altering note lengths, you can use either the mouse pointer or the pencil. However, it is better to use the pointer, because you might accidentally draw new notes with the pencil.

With very short or small notes it can sometimes be difficult to grab the bottom right corner. In this case, you should use the index finger tool which allows you to grab notes anywhere, and alter their length.



Altering the Velocity

To alter the velocity value, click on the note with the V tool. The info line will then indicate the velocity value of the note you have clicked on.



If you hold down the mouse button, you can alter the velocity by vertically moving the mouse. If the MIDI Out function is switched on, the note will be output every time you alter the velocity.

Altering the Velocity of Several Notes: All selected notes can be altered simultaneously; the differences in the velocity values will be retained. If the velocity value of one of the selected notes reaches an extreme value (0 or 127) you can't go any further. However, by simultaneously pressing **alt** you can carry on altering the velocity values until the clicked note reaches an extreme value.

To give all the notes the same velocity value, hold down **alt shift** as you alter the value.

Deleting

You can delete selected notes by pressing **delete**, or clicking on them with the eraser.



Selection Techniques

In addition to the usual selection options you can select all notes of the same pitch throughout the whole sequence by clicking one of the keys on the screen keyboard.

If you hold down the mouse button, you can also draw (rubber-band) a pitch range over the screen keyboard and select all the notes within it.

Don't forget the specialized selection options available via the Edit menu (or key commands). These are covered on [page 95](#).

Functions

For a description of all the other functions of the Matrix Editor, such as automatic length correction, and selective deleting /copying, please refer to the [section *General Functions of the Editors* from page 96 onwards](#).

Score Edit Window

This chapter is all about editing your sequences using conventional notation. Although the Event and Matrix Editors have features that are designed for specific tasks (such as velocity and note length editing), if you read music, there's nothing like being able to work directly on the staff.

Opening the Score Editor

The Score Editor is opened choosing Windows > Open Score.

The standard elements in the Score Editor

As a reminder of what's available, here are the elements listed:

- The buttons Catch, Link, MIDI Out, Zoom
- A toolbox
- The bar ruler

The operation of these elements should be familiar to you by now.

THE PARAMETER BOX: The Options menu is where you can hide the parameter box from view. This is useful if you use a small monitor as it gives more room to the staves.

When you first open the Score Editor it defaults to the middle zoom level.

Justifying the display

The default display quality is generally quite sufficient when just editing notes, as one is more concerned with efficiency and speed than with wanting to perfect a score for printing. However, it can become necessary to adjust some of the display parameters to better accommodate the musical material being edited. You'll find the display parameters in the display parameter box that's described in detail in the [section *Layout and Printing from page 244 onwards*](#).

Click the little box next to the sequence name to open the display parameter box for that sequence.

“STYLE”: The Score Styles in MAGIX midi studio generation 6 are pre-programmed standard settings for specific instruments. Whether it's piano or bass or transposing instruments such as saxophone—the Style contains, amongst other things, the right clef, octave range and transposition. Selecting a Style automatically adjusts the display of the notes in the sequence.

DISPLAY QUANTIZATION: The display quantization is for choosing the correct rhythmic format for the musical material in hand. You should set the “Qua” value to the smallest note value that appears in the music.

If a sequence’s smallest notes are sixteenths, set it to “ $\frac{1}{16}$ ” and nothing smaller, as too fine a display quantize setting can make the music unreadable:



The “Qua” value is too small

Display quantization affects the display only, not the MIDI events represented by the display. Do not confuse this “Qua” parameter with the one in the Arrange window or the one in the Event Editor.

The other display parameter functions are discussed in the [section *Layout and Printing* from page 244 onwards](#).

Editing notes

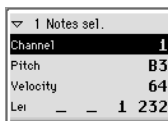
SELECTING: Individual notes are selected by clicking as usual. To select a group of notes, such as the notes in a chord, drag a lasso around them. To select notes incongruously, press **shift** while clicking.

THE INFO LINE: The Score Editor’s Info Line is displayed just under the window’s title bar whenever you are copying or moving an object. The Info Line provides accurate up-to-date information about the events position and, when applicable, length. It is therefore very useful to monitor it during an edit operation.

The Event Parameter Box

This box is located below the display parameter box and provides data on the selected object(s). The actual parameters displayed vary depending on the object. When a note or notes are selected, the parameters are Pitch, Velocity and Length. These parameters can be edited and applied to more than one event at a time.

The parameters function similarly to the way they do in the Event Editor. If the selected notes’ values are different from one another, the relevant parameter shows an asterisk. In this case, changing one of the values changes them all by the same amount, relatively.



EXAMPLE: if you select a chord the Pitch parameter will show an asterisk. If you click-hold this and move the mouse, all the chords' notes will move.

If you hold **ctrls** while changing the values, the parameter is set to the same value for all selected objects. This can be useful for example when you want to change the lengths of all the notes in a chord to the same value.

You can also transpose the whole sequence or track—depending on the level—by using “Select All” from the local Edit menu.

MOVING AND TRANSPOSING: To move or transpose notes, select them and drag them to the desired position; the Info Line will appear under the window's title bar and show the current position of the mouse pointer, both in terms of pitch and time. Time-wise, the resolution of the steps is defined by the Transport window's display format.

COPYING: To copy notes, select and drag them to the desired position while keeping **ctrl** pressed. You can also use the local Edit menu's Copy and Paste functions.

INSERTING: Notes can be created using the pen tool. Simply click-hold the pen tool at the desired position. Once the Info Line is showing the desired pitch and location, release the mouse button and MAGIX midi studio generation 6 will create a new note whose length is equivalent to the note value of the note selected in the partbox.

“Insert Defaults”

If you click in an empty part of the Score area, the event parameter box switches to showing the caption “Insert Defaults”. The values set when it is in this mode will determine the default values for newly inserted events as follows.

Channel This is the MIDI channel the note is assigned to. In the Score Editor the channel is relevant only when you have double staves or polyphonic notation, where MAGIX midi studio generation 6 allocates notes to staves according to their channels. It's important to have selected the correct Score Style, such as “Piano 1/3” or “Organ”.

Velocity Inserted notes acquire this velocity value. This affects only how they sound, not how they appear in the notation.

Lyrics Here you can set whether text which is to be inserted with the Text Tool should be normal text (*Off*) or Lyrics (*On*). (Please read also [section Text from page 256 onwards](#)).

Diatonic Insert

When Options > Diatonic Insert is active, notes will be entered only at the pitches of the current key signature. Those pitches that don't occur in that key (e.g. chromatic ones) are ignored. Diatonic Insert is very useful for quickly entering conventional notation as it's very "forgiving" as to where you click the mouse on the staff.

Deleting

To delete notes, select them and

- click them with the eraser, or
- choose Edit > Clear, or
- press **delete**.

Layout and Printing

In this chapter you will learn how to layout and print your Songs (or parts of it) using the layout and display functions of MAGIX midi studio generation 6.

Playback and Visual Appearance

MAGIX midi studio generation 6 automatically creates a notation display from the MIDI events that are in the sequences.

So far as the interpretation of pitches and positions is concerned, it is always 100% accurate. This does not imply that the display is immediately 100% readable, since the length of the notes plays a big role in their ultimate display. MAGIX midi studio generation 6 allows quite a tolerance in the interpretation of the display which means that additional editing is often required to produce the desired results.

The following illustration shows a typical example of how sixteenthths can appear on the staff before any additional editing is applied:



How MIDI is interpreted in notation form if the wrong display quantization is selected...

This display may well be correct, but it's unreadable. Why is that?

MIDI note events contain very precise information about where a note begins, its length and pitch, and this must be exactly reproduced on playback. The "feel" of the groove can be altered if the notes are all a little under a sixteenth

long. If this were to be accurately displayed in the notation, it would be unreadable, as in the above illustration. Also, pure MIDI events have no way of communicating whether the gap between two notes is a real rest, what the key is, which notes are to be tied and which not, and how the dynamics of the piece should be treated. That's why the automatic conversion of MIDI to notation is always to a greater or lesser extent different from what is expected. Fortunately, MAGIX midi studio generation 6 offers a range of automatic and manually controllable functions that are designed to render a readable score with the minimum fuss. These make a big difference, as you can see from the illustration below, which shows how the above example will look after applying a few of these settings:



...and how it should look

The layout and scoring functions set out in this chapter...

- optimize the conversion of the MIDI events into notation ready for printing,
- offer dynamics signs, clefs, slurs and many other symbols to complete the notation,
- offer text with definable fonts for musical comments, titles, instrument names, and so on,
- offer a printing preview feature for further WYSIWYG layout and printing.

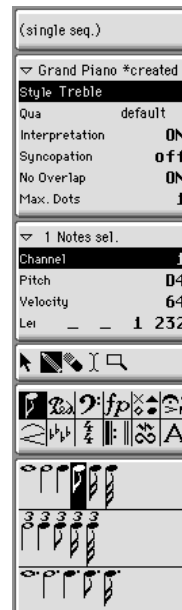
Preparing the notation for printing

While one of MAGIX midi studio generation 6's goal's is to provide a readable score without changing the MIDI performance this is not always realistic. An example of this is where you need to alter note lengths so that the display shows the correct note value or rest; this type of editing would of course affect the playback. For this reason, we generally recommend that you have two versions of your song, one for sequencing and the other for the layouting/printing. This allows you to alter the MIDI events while you are preparing the score for printing without worrying about how this will affect playback.

The parameter area

The parameter area that occupies the left-hand side of the Score window has the following elements:

- The track filter
- The display parameter box
- The event parameter box
- The toolbox



– The part box in two sections

We came across the display and event parameter boxes and the toolbox in the previous chapter. The new elements are primarily used in the configuring of the notation layout-out, ready for printing.

Switching levels

As in the Event Editor, the Score Editor lets you select between two levels: the sequence and the song levels.

THE SEQUENCE LEVEL: When you open the Score Editor it starts by displaying a single sequence.



The sequence level

THE SONG LEVEL: When you're working on the layout and printing of your score, you may prefer to view the entire track, or all of the song's tracks. In this case, switch from the sequence to the song level.

To get from the sequence to the song level, click the Levels button in the Score Editor window. You can also double-click in an empty space in the Score area.



The song level

Use the song level to view and edit the notation of the different sections of your song as various extracts from the score. This allows you to do things like visually check whether a bass note is in the same place as a kick drum,

etc. Notes that occur at the same time are shown directly one above the other.

To jump back into the sequence level, double-click the staff of a single track, or, if Link mode is active and you're in an Arrange window or Event Editor that's also open, click the sequence.

The Track Filter

Even if you're on the song level, you can restrict yourself to viewing a single track. Below the Mode buttons there's a flip menu field: on the sequence level it simply says "single seq." and cannot be opened. On the song level it says "ALL TRACKS".

This means that the song level starts by showing all the available tracks. To view a specific track open the flip menu and select the track. This is how to quickly toggle between the tracks you are editing without changing levels. This option is also important because it allows you to see multiple sequences on a single track as one continuous staff of music.

The track filter also affects the printout, allowing you to produce score extracts for specific instruments.

The display parameter box

Its parameters help you optimize the notation for printing.

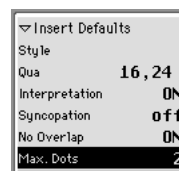
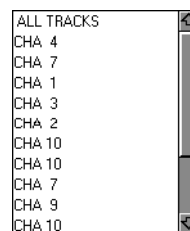
NAME: The text input field is available here for naming the sequence: click a note before clicking the name.

"STYLE": MAGIX midi studio generation 6 offers preset Score Styles. These are defaults for the display of notation, and can be compared with the standard paragraph formats that you find in word processing programs such as Microsoft Word. The Style affects the clef, transposition and—with the Piano and Organ Styles—the number of staves. The advantage is that you don't need to manually set these parameters for standard instruments such as trumpets or cello, but simply select the corresponding Style.

Note Assignment in Multi-Staff Score Styles

MAGIX midi studio generation 6 offers multi-stave score styles for piano and organ notation. The assignment of notes to one of the staves is determined by the MIDI channel of the note events.

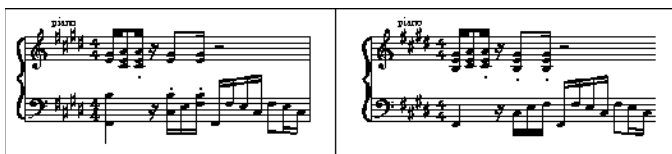
MOUSE INPUT: When you insert notes with the mouse from the Partbox into a multi-staff system, they will automatically get the proper MIDI channel. After insertion,



also the channel for these notes can be edited. Please be careful only to use channels 1 or 3. Notes with other channels will not be displayed when using the *Piano 1/3* style. If you do accidentally assign a note to a channel other than 1 or 3, you can change the channel back for the note in the Event List.

DISPLAY: In these multi-stave systems, MAGIX midi studio generation 6 only shows the notes carrying the MIDI channel of the Style or the staff, respectively. As an example, in Style Piano 1/3 you would only see an empty staff if all contained notes had MIDI channel 4.

SCORE STYLE *PIANO 1/3*: In this style the MIDI channel of each note determines which staff that note will belong to: All notes with channel 1 will be written in the upper staff, all notes with channel 3 in the lower staff/bass clef. However, this does not mean that you have to adjust the MIDI channel of every individual note: When you record a sequence, the notes will initially get channels 1 or 3 according to their pitch. Notes equal to or above middle C will get channel 1, notes below middle C will get channel 3. After the sequence is recorded, the MIDI channel of each note can be edited in order to assign that note to the other staff. To change the MIDI channel of a note, select it and change the channel setting in the Event Parameter Box. This also works for several notes at once (use the rubber band method for selecting more than one note). Here is an example:

The image shows two side-by-side musical staves. Both staves are in 4/4 time and have a key signature of one sharp (F#). The left staff is labeled 'PIANO' and shows a sequence of notes in the bass clef staff. The right staff is also labeled 'PIANO' and shows the same sequence of notes, but the notes with a pitch of B2 (B below middle C) are now placed in the upper staff. This illustrates the 'Piano 1/3' style where notes are assigned to different staves based on their MIDI channel.

Here you see the same sequence twice, displayed with different Score Styles. On the left side the regular *Piano* Score Style is used: Notes with pitch B2 (= B below middle C) are displayed in the bass clef staff. However, since those notes clearly belong to the chords played with the right hand, they should be displayed in the upper staff. To achieve this, the *Piano 1/3* style has been used in the right example, the MIDI channel of the three notes with pitch B2 has been changed to channel 1.

SCORE STYLE *ORGAN 1/1/5*: This Score Style combines the regular *Piano* style with an additional pedal staff for organ music. Channel 1 notes go to the upper two staves and are

split between treble and bass clef using middle C as a split point (as in the regular *Piano Style*). Notes with channel 5 will be written on the lowest staff.

As with the *Piano* and *Piano 1/3* styles, however, it will be necessary in many musical situations to use the *Organ 1/3/5* style when writing music for organ.

SCORE STYLE *ORGAN 1/3/5*: This Style is a variation of the *Organ 1/1/5* Style: In this case the allocation of notes is solely determined by their MIDI channel: Channel 1 for the top (treble clef) staff, channel 3 for the middle (bass clef) staff and channel 5 for the bottom staff (bass clef for organ pedal).

HIDING THE PARAMETER DISPLAY: If you want to use the whole window for the score display, you can switch off the Parameter area using *View > Parameters*.

Display Quantization

The Score Editor has an additional quantization setting which affects the notes' behaviour in the notation. It has no effect on the MIDI output, only on what you see. For this reason it is referred to as "display" quantization.

The display quantization also offers duple/triplet hybrid resolutions such as 16_{12} or 16_{24} . Choose these when the passage contains a combination of duple and triplet values, for example, 16th notes as well as 16th note triplets. ($1/24$ th note).

A passage containing strict-time and triplet values

The above illustration shows the same passage under sixteenth quantization (top) and 16_{12} (bottom).

“INTERPRETATION”: This controls the automatic rests and tie-correction algorithm. In a way, it functions like a display only length quantize. When it’s on, MAGIX midi studio generation 6 displays rests and ties in such a way as to make the best possible musical sense; it does not affect the playback. You’ll find more details in the [section *Layout and Printing* from page 244 onwards](#).



The same passage without (top) and with Interpretation

Interpretation also applies to notes that are created from the part box with the mouse (see below).

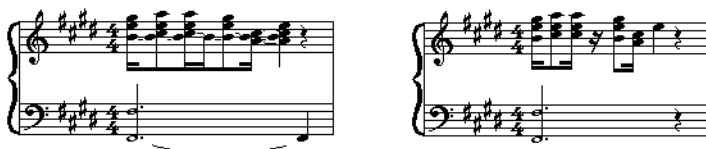
“SYNCOPIATION”: This option affects the way syncopated notes are displayed. When it is on, it will generally display syncopations as independent notes instead of as small-value tied notes. This can help improve the readability of the score.



The same passage without (top) and with Syncopation

Syncopation often only makes sense when used in combination with “Interpretation ON”.

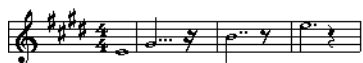
“NO OVERLAP”:



The same passage without (left) and with No Overlap

This function suppresses the display of ties where notes overlap their neighbours. This often happens when a passage was played legato.

“MAX. DOTS”: This setting determines the maximum number of dots in the display of dotted notes. When it’s at “0”, MAGIX midi studio generation 6 shows no dots at all.



Max. Dots = 3 (top) and 1

In normal use you can leave the value at “1”. The number of dots that are shown are also affected by the display quantization and the Interpretation and Syncopation modes.

Inserting symbols from the partbox

A complete score needs more symbols (slurs, dynamic signs, fermata and so on) and other notation signs than the program is able to automatically create from its interpretation of the MIDI events you record. These symbols can all be inserted from the partbox using the mouse. Clefs, time signatures and key signatures can also be dragged in from this partbox.

The majority of these symbols have no effect on the MIDI playback, only on the display.

The symbols are all in the partbox and can be dragged from there onto the staves.

If you cannot see the partbox, check that “Hide/Show Parameters” in the local Options menu is active. Otherwise, make the window taller and/or minimize the Display and Event Parameter boxes. The width of the partbox can be varied by horizontally dragging the vertical dividing line between the parameter area and the Score area.

As you can see from the diagram (left), the partbox width adapts itself to the width of the parameter area. This is so you can adjust it to the size of your screen.

The partbox comprises two sections:

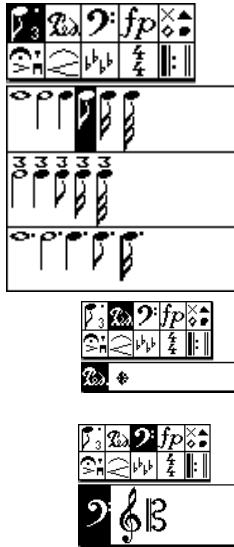
The top section contains buttons that select the overall symbol “families”. Click a button and the corresponding family moves to the top of the partbox section below. The bottom section contains the symbol fields. The displayed symbols depend on which family of symbols you selected.

INSERTING SYMBOLS: Symbols are inserted the same way as notes: click the pen tool (right mouse button) in the staff. Use the eraser tool to delete them, and the normal arrow tool for moving or copying them (pressing **ctrl**). You

can also drag symbols (including notes) out of the partbox with the mouse arrow.

ASSIGNING A SYMBOL TO SEVERAL NOTES: To assign the same symbol to more than one note—such as staccato dots—select the notes, then insert the symbol onto one of the notes.

SELECTING SYMBOLS:



Here is an overview of the symbol groups. The following groups are available (which will be covered individually below): *notes*, *pedal signs*, *clefs*, *dynamics*, *note heads*, *articulations*, *slurs*, *lines and arrows*, *keys*, *time signatures*, *repeats and section symbols*, *trills* and *text mode*.

Notes: Select the value of note you want to insert with the mouse. MAGIX midi studio generation 6 offers all the binary, triplet and dotted forms of whole notes through to $\frac{1}{32}$ triplets.

To create chords, it is easier to insert the first note, then to copy (with **ctrl**) it to create the other notes.

Pedal signs: The pedal signs represent the sustain pedal on/off and MIDI Control Change 64 (sustain pedal). When you insert a pedal sign, its corresponding MIDI event is also inserted and therefore affects what you hear.

Clefs: MAGIX midi studio generation 6 offers three clefs: violin, bass and tenor.

MAGIX midi studio generation 6 distinguishes between two types of clef: the basic clef, and the clef change. The basic clef is always displayed in the first bar or at the beginning of each staff, and is determined by the Style.

A partbox clef is interpreted as a clef change, and can be inserted anywhere, even in the middle of bars. Clefs are deleted by using the eraser tool.



Clef changes can be inserted anywhere

Dynamics: There is a complete range of dynamic symbols available. The dynamic signs have no effect on the MIDI output.



Note-heads: MAGIX midi studio generation 6 defaults to giving each note the note-head that corresponds to its value. The partbox note-heads relate to percussion and can be manually assigned to existing notes: select one or more notes and insert the desired note-head onto anyone of them.

Articulation signs: These signs are assigned to individual notes. Any change to a note (e.g. transposition) affects its sign as well. MAGIX midi studio generation 6 automatically positions the sign relative to the note: select one or more notes and insert the desired note-head onto any one of them.

Dim/Cresc, slurs, lines and arrows: These symbols can be placed anywhere in the notation and are freely editable. If you insert a slur or select it on the staff, little “grab boxes” appear which allow you to change its shape. To move the symbol as a whole, drag it using the spaces between the “grab boxes”.

Key signatures: Keys can be entered where you like in a staff: they then apply to all the song’s staves from that point. If you have defined a Style for a transposing instrument, its transposition relative to the new key is assured. To enter a new key, choose the corresponding letter, and the program will automatically convert that into the necessary flats and sharps.

The one at the earliest time position is taken as the basic key signature.

Existing key changes can be edited as follows: double-click the signature to open the dialog box in which you can choose a new key signature. You can select between major or minor key signatures. Alternatively you can insert the new key from the partbox by placing it on top of the old one.

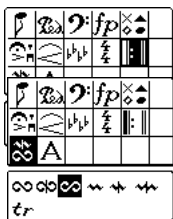
To delete a key signature, click it with the eraser tool.

Time signatures: MAGIX midi studio generation 6 distinguishes between the basic time signature and time signature changes. The basic signature is the one that comes first. Time signature changes can be placed where you like in a staff and have no effect on the playback. They apply to all the staves in the song from that point and are automatically shown in all the staves.

The time signature affects the following parts of MAGIX midi studio generation 6:

- The display format in the Transport window
- Any position or length display
- The bar ruler
- The metronome click and count-in.





Repeats and section symbols: These symbols include start, end and repeat symbols plus a final stroke and a section stroke. You can also add these symbols within a bar. However before you do so there must be notes already there. These symbols are global, i.e. they apply to all sequences. You can delete these symbols by clicking them with the eraser.

Trills: This gives you a range of the most common trill symbols which you can position where you want.

Text mode: As an alternative to using the Cursor tool, you can add Text and Lyrics by dragging the corresponding symbols from the partbox.

The symbols as seen in the Event Editor

A non-MIDI symbol is shown as a “Meta event” in the Event List. This type of event is also shown in the Info Line when it’s inserted in the Score Editor. Theoretically, Meta events are editable in the Event Editor, though it’s more natural to do this in the Score Editor.

POSITION	STATUS	CHA	NUM	VAL	LENGTHINFO
19	3	4	1	META	1 62 4

Manipulating the notation

The following functions serve only to manipulate the notation and do not affect the MIDI playback. Nevertheless, they are vital for creating a score that’s readable and ready to print.

ENHARMONIC SHIFTING: MAGIX midi studio generation 6 automatically shows accidentals according to the current key signature. There are situations, though, where you need to change the accidental representation for certain notes to improve readability. This is done manually using the following menu operations.

To shift the enharmony of one or more notes, select them and choose one of the following items from the local Functions menu:

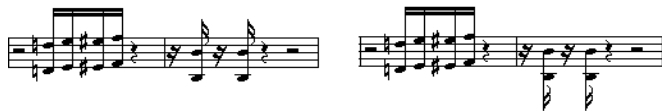
- enharmonic shift # converts “b” accidentals into “#” accidentals
- enharmonic shift b converts “#” accidentals into “b” accidentals.
- default accidentals restores the note to how it was before.



Enharmonic shifting

You can apply these functions more than once to create double flats or sharps.

NOTE STEMS:



You are able to determine the stem direction of selected notes, thereby overriding MAGIX midi studio generation 6's automatic display. Select the notes and choose one of the following items from the menu Attributes > Stems > ... (their operation is self-explanatory):

- Default
- Up
- Down

MANUAL BEAMING: You are able to determine the beamed grouping of selected notes, thereby overriding MAGIX midi studio generation 6's automatic display. The following illustration shows automatic beaming (top) after it has been manually edited (bottom).



Beaming

To beam a group of notes, select them and choose Functions>Beam selected.

To remove the beam from a group of notes, select them and choose Functions>Unbeam selected.

To restore the beaming to how it was originally, choose Functions>Default beams.

These functions apply to selected notes only. To restore a whole sequence's worth of alterations to their former situation, select the whole sequence.

MOVING STAVES VERTICALLY: Each staff can be moved vertically: click-hold in the area of the basic clef in the empty space between two leger lines. The leger lines dim and the Info Line says "Move Stave".

Now simply drag the stave to where you want it.

Multi-staves: When you are using a piano or organ multi-stave Score Style, you can move it as a whole as well as change the distance between the individual staves.

- To move the entire multi-stave, drag it by the top staff.
- To alter the distance between the individual staves, drag the lower ones. This will not affect the multi-stave's overall position.



Expanding a double-stave

Text

MAGIX midi studio generation 6 allows you to introduce text into the score for naming staves, giving your song a title, or naming the composer and so on. Text is shown as Meta events in the Event List.

SELECTING A FONT: MAGIX midi studio generation 6 lets you choose any of the fonts you have installed in your computer for displaying and printing text in your score. MAGIX midi studio generation 6 prefers to work with TrueType fonts; these are able to be shown on-screen in any size. You can recognize TrueType fonts by the TT symbol that comes before the font name in the fonts window. To select the font in MAGIX midi studio generation 6 choose **Font>Score Font** and a window opens in which you can choose the font, its style and size.

The font applies to all the text within a song. If you change the score text font after entering text, this reformats the entire song's text, often with undesirable consequences. It therefore makes sense to choose the final font before you start work.

INSERTING TEXT: Choose the text-cursor tool from the toolbox. Click it at the location you want to enter text. This opens a text input field and the Info Line.

Type the text and finish by pressing **return**. The text remains selected and blinks. You can now use the mouse arrow to fine-tune its position. Once you click in an empty space the text is fixed in position. To edit existing text, either click it with the text-cursor tool or left-click it.

POSITIONING TEXT: Text can be dragged in the same way as other events, using the mouse arrow. It's also possible

to move the text numerically using the event parameter box's parameters. This method can also be used to assign text to a different stave as follows:

Stave This value is relevant only with Piano and Organ Styles and defines the stave number the text belongs to. You can instantly shift text from one stave to the other by simply changing the stave number. If you enter a stave number that exceeds the number of available staves, the text disappears.

vert. pos The vertical position of the bottom of the text relative to the top leger line, in pixels.

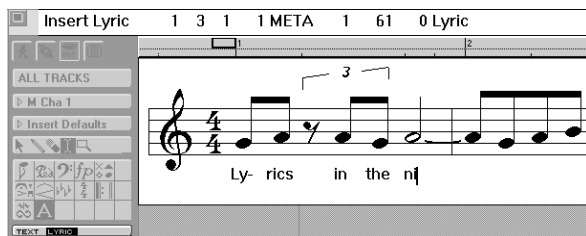
hor. pos The horizontal position of the left-hand end of the text relative to the earliest position at which a note can be entered on the stave, in pixels.

LYRICS: You can enter note-referenced lyrics in the Note Editor. Lyrics have special features compared to normal text (e.g. title or composer):

- The words are directly assigned to the notes and can be moved together (to do this, you have to select both the note and the corresponding text), and
- The note spacing adapts to fit the word lengths.

To enter lyrics:

1. First choose the letter "A" in the Part box.
2. Click "Lyrics" and with the mouse button held down drag the mouse pointer below the first note where you want to assign lyrics.



A flashing text cursor appears along with the Info Line.

3. Enter the text for the first note,
4. Press **tab** to jump to the next note,
5. To complete the entry press **return**.

Lyrics can be edited, copied or moved just like normal text.

Page Edit

You may have come across the “Page Edit” concept in word processing or DTP programs. MAGIX midi studio generation 6 calculates the contents of a whole side of paper and shows these on the screen as they will appear in print using the WYSIWYG principle.

PAGE EDIT AND THE NORMAL DISPLAY: You can swap between the two by clicking the “Page Edit” button that’s next to the MIDI Out button.



Page Edit is not just for manipulating the score prior to printing (e.g. titles, text), but can be used for editing a long passage of music. Indeed, all the editing commands we’ve covered so far apply in Page Edit mode, too. The “word-wrapping” (or more correctly “stave-wrapping”) means you can see appreciably more bars on the screen at the same time.

SCROLLING THE PAGE EDIT DISPLAY: The vertical scroll bar is used to “turn the pages” of the Page Edit display. The page number is shown at the top left of the score.

PAGE EDIT AND PRINTERS: You must install your printer and have it correctly set up before you start manipulating the layout of your final score. What you see in the Page Edit display depends on the printer installed and its paper format and resolution settings. The advantage is that Page Edit is then exactly able to show how the printout will look. For more information on setting up the printer, see the section below.

Printing the score

The print parameters are relatively simple to prepare as MAGIX midi studio generation 6 mainly uses the standard Windows settings for printers. This means that MAGIX midi studio generation 6 is able to function with any printer that you've installed in the Windows Control Panel under "Printer".

Before you start to print, you must activate your printer and select the correct paper format under File > Page Setup.... The Score Editor window showing the Page Edit display must be the active window, i. e. must be on top of all others. You start the printout via File > Print. Following this command a print dialogue appears, Depending on the printer or printer driver, there are several different options, e. g. number of pages, number of copies, etc.

The result of the printout always matches exactly what you see in the Page Edit display. However, the following screen elements *will not* be printed:

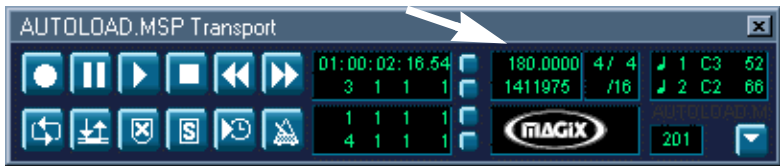
- The green lines marking the top/bottom and left/right page margins
- The mouse pointer and the Song Position Line (SPL)
- The coloration of the currently selected sequence and of the margins.

Printers use to have a resolution much higher than the monitor you are working on. Therefore, when fine positioning the symbols and the text, you should work in a highly detailed zoom display. Hint: Using the Zoom Tool you can easily switch between normal size and extreme magnification of the corresponding detail.

Tempo

Tempo Display

If your song has a tempo that stays the same throughout, you can set this constant tempo in the Transport window.



The current tempo will always be displayed here, even if you are using programmed tempo changes or external synchronization.

Tempo Track

Tempo changes are controlled by tempo events, which are stored in a special tempo track. This track is not visible in the Arrange window.

The tempo track applies to the whole song.

The tempo track also determines the relationship between incoming time code, and the current song position (see [page 270](#)).

Overview

INFORMATION ON CHANGING SONG TEMPO: The easiest way to set *individual tempo changes* is from the Tempo List (see [page 260](#)). The Tempo List is a specialized Event List editor for tempo events.

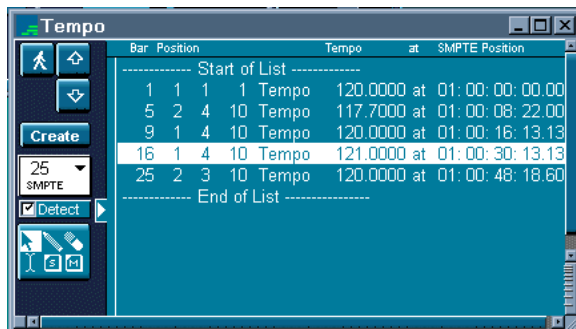
Another way is to record tempo changes with the mouse, from the Transport window, or you can do this more accurately using the Graphic Tempo editor (see [page 262](#)). The Graphic Tempo editor is a Drum Editor, with a fixed event definition for tempo events, and is really useful for editing *existing tempo changes* by hand (see [page 262](#)).

To find out *how to lock a particular bar of a song to a particular SMPTE time frame* (for all of you out there who are using MAGIX midi studio generation 6 to synchronize music to picture), read the [section Positioning Bars to Frames from page 269 onwards](#).

Tempo List Editor

You can open the Tempo List by clicking and holding on the Transport's Sync button with the mouse. A pull-down menu will appear, from which you select Open Tempo List... or, you can simply select Options > Tempo > Tempo List Editor....





The layout, and way you use the Tempo List are very similar to those of the Event List (see [page 216](#)).

Creating Tempo Changes

- Set the song position to the required point.
- Click *Create*.

A tempo event appears showing the current tempo. You can alter the tempo in the tempo column.

Or, with the pencil tool selected, click on the word “Tempo” on an existing tempo event. A new tempo event appears, with an input box for the position. Enter the required bar position and press **return**.

DELETING TEMPO CHANGES: You can delete tempo events by clicking them with the eraser, or pressing **delete**.



Copying The Tempo Changes from a Passage

- Set the locators to the passage containing the correct tempo change.
- Choose Edit > Select > Select Inside Locators.
- Copy the tempo events onto the clipboard (**ctrl c**).
- Deselect all tempo events (by clicking *Start of Eventlist/End of Eventlist* or the background).
- Paste the tempo events from the clipboard (**ctrl v**).
- A position input box appears at the first tempo event, where you can alter the bar position. If the first tempo change is not at the start of the bar in the passage, be sure to alter the number of the bar and leave the “fractional values” unaltered.
- Press **return**. The copied tempo changes are selected, and you can undo the operation if necessary.

Other Functions

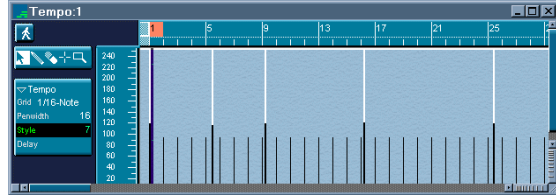
The entries in the tempo list interact with, and affect each other. For details, please refer to the [section Positioning Bars to Frames from page 269 onwards](#). You can also make several synchronization settings here. All other

functions are identical to those in the Event List (see [page 216](#)).

The Graphic Tempo Editor

The Graphic Tempo editor is a specialized Drum Editor, that only allows you to draw and edit tempo events.

To open the Graphic Tempo editor, grab the Sync button in the transport panel and choose Open Graphic Tempo... from the pull-down menu. Or, select Options > Tempo > Tempo Graphic Editor....



Creating Continuous Tempo Changes

- Choose the Crosshair tool.
- Click on the required section in the working area, and hold down the mouse button.
- Keep an eye on the info line at the top of the window which tells you the exact position and tempo. Set the start (or end) of the tempo change.
- Release the mouse button.
- Now set the end (or start) of the tempo change. If you want to create new tempo events (instead of altering existing ones) hold down **ctrl**.
- Click the mouse button.

Remember that the time width of the added tempo events depends on the setting of the *Grid* parameter.

In most cases, the 1/16 note setting is enough to create the impression of a continuous tempo change.

OTHER FUNCTIONS: The operation of other functions are identical to those of the Drum Editor (see [page 228](#)).

Tempo Functions

Recording Tempo Changes

Go to Options > Settings > Recording Options, and activate the Allow Tempo Change Recording checkbox. All tempo alterations which you make during the recording will now be recorded as tempo events on the tempo track. You can then edit them in one of the tempo editors.

Synchronization

Synchronization Window

You can open this window from the Arrange window via Options > Settings > Synchronisation Settings... or via a long click on the Sync button in the Transport window.

At the top edge you can switch pages: General, Audio, MIDI.



General

This page of the synchronization window contains the major synchronization parameters for running MAGIX midi studio generation 6 as a slave.

SYNC MODE: This parameter defines the master to which MAGIX midi studio generation 6 is to be synchronized:

Internal: MAGIX midi studio generation 6's internal timer. MAGIX midi studio generation 6 is the master. External devices can be synchronized via MIDI Clock or MTC (the relevant settings are made on the "MIDI" page).

MTC: "MIDI Time Code". MAGIX midi studio generation 6 runs as a slave. The MIDI Time Code can either arrive at a MIDI In port, or be generated by a MIDI interface from "translated" incoming SMPTE code.

MIDI Clock: MIDI Clock and Song Position Pointer. MAGIX midi studio generation 6 runs as a slave. Clock and SPP can be received at any MIDI input.

AUTO ENABLE EXTERNAL SYNC: When this option is activated, MAGIX midi studio generation 6 runs as the master (Sync Mode Internal), until it receives a synchronization signal—either in the form of MTC, or Clock/SPP, or from the tempo interpreter.

MAGIX midi studio generation 6 automatically locks to the first received synchronization signal. Please be sure that different synchronization signals don't arrive simultaneously—because *there can be only one* time code master.

EXTERNAL STOP ENDS RECORD MODE: This option means that during external synchronization, recording stops whenever the time code ceases.

If the option is switched off, MAGIX midi studio generation 6 stops, but remains in record mode (Record + Pause).

Frame Rate: This is where you set the frame rate (in "fps", frames per second). This frame rate applies to both transmitted and received timecode.

Synchronization

Frame rate	Typical applications
24	Video
25	Audio (Europe) and PAL Video
(30 d)	Unusable (not real-time)
30	Audio (USA) and NTSC Video (s/w)
29.97 d	Audio (USA) and NTSC Video (color)
29.97	Extremely rare (not real-time)

“d” stands for “drop frame”. In “drop frame” formats, certain frames are left out according to a regular pattern. To distinguish between them, formats without drop frame are sometimes referred to as “nd” or “non drop”.

AUTO DETECT FORMAT OF MTC: With this option the incoming timecode is analyzed and the correct frame rate is set automatically. In general you should leave this option switched on.

Please note that it is not possible to automatically distinguish between MTC frame rates 29.97 and 30, because;

1. the MTC standard does not allow a distinction, and
2. a measured rate of 30 fps could also be 29.97 fps timecode running too fast, and vice versa.

MAGIX midi studio generation 6 automatically interprets frame rates with “approx. 30 fps” as either 29.97 df or 30 nd, depending on whether or not the drop frame format is used. This interpretation will usually be correct, because only these two formats are actually used as a standard.

“Auto Detect...” only switches to 29.97 df or 30 nd if, previously one of the other conventional formats was set. If you want to synchronize MAGIX midi studio generation 6 to one of the unconventional frame rates, you have to define the format manually. This setting will not be altered by “Auto Detect...”.

SMPTE OFFSET: This is where you set the SMPTE offset for the song. Because songs do not always have to start precisely at bar 1 you can select any bar position to be played at the set SMPTE time.

The preset is 1/1/1/1 at 1:00:00:00. The SMPTE offset 1:00:00:00 is normally used, because it allows you to pre-run some timecode.

Audio

This page of the synchronization dialog window contains all the relevant parameters for synchronizing Audio and MIDI.

NOMINAL SAMPLE RATE: This is where the selected nominal sample rate is shown.

You can change the sample rate via Audio > Sample Rate, if your hardware supports several different sample rates.

MTC [Hz]: This display shows the deviation between the incoming MTC, and its nominal frame rate.

If the deviation is too large, please check that you have set the right frame rate (on the “General” page of the synchronization window). If in doubt, set the frame rate to 24 fps and switch on “Auto Detect format of MTC”.

If the frame rate is correct, you can use this display to adjust the tape speed of the master machine to the nominal value (i.e. the same speed as used when the time code was recorded). Adjust the varipitch control on the master machine, until the vertical yellow line is exactly in the middle.

SAMPLE RATE: This display shows the deviation of the sample rate from its nominal value.

Bear in mind that some audio hardware will not allow any variation in the sample rate.

DEVIATION: This display shows the current phase deviation of the word clock from the timecode master, in other words, the deviation between audio and MIDI.

With varying timecode you can see in this display how MAGIX midi studio generation 6 Audio regulates the sample rate of the hardware in “MTC continuous” sync mode. Even with large timecode variations, there is no deviation between audio and MIDI. Your audio hardware must be capable of continuously variable sample rate, for this to function.

Small deviations between audio and MIDI are unavoidable, because MIDI can (and should) follow the timecode master directly.

SYNC MODE: This is where you define how the audio hardware should be synchronised to an external timecode master.

Depending on its design, not all audio hardware can work in every sync mode described below. This depends particularly on whether or not the hardware’s sample rate can be controlled.

MTC Trigger: Audio regions are started in sync, but are then played with a constant sample rate, regardless of any variations in the timecode master. MAGIX midi studio

generation 6 Audio always uses the set nominal sample rate (44.1 or 48 kHz).

This mode is suitable when it is vital to retain the absolute pitch of a recording. If the speed of the timecode master deviates from the nominal value, you have to split long regions into shorter sections.

In MAGIX midi studio generation 6, this mode is available with any audio hardware. It allows far better synchronization than with software not capable to synchronize the start points of regions to the external Time Code Master in real time.

External/Free: MAGIX midi studio generation 6 has no influence on the sample rate. The audio hardware has to ensure that the position and sample rate of the audio regions match.

MIDI

This page is where you monitor all the settings sent by MAGIX midi studio generation 6 via MIDI when the sequencer is running. This enables you to synchronize external devices as slaves to MAGIX midi studio generation 6, which acts as the master.

TRANSMIT MIDI CLOCK: The switch on the right activates transmission of MIDI Clock. In the display next to it you can choose the port (MIDI Out Driver) from which MIDI Clock is sent.

Every time you start, "Song Position Pointer" (SPP) is also sent.

Because not all devices can process SPP the real-time message "Continue" is also sent. The exception to this is when you start at position 1/1/1/1. In this case, the real-time message "Start" is sent, instead of "Continue".

MIDI Clock to all Ports (All Ports): Both MIDI Clock and MTC can be sent to all ports simultaneously: select "All Ports".

MIDI Clock can easily be sent via a bus along with other normal MIDI events (notes, controllers). With multiport MIDI interfaces like Unitor8 MkII, it is better for timing reasons to send MIDI Clock via all ports rather than via several individual ports.

If MIDI Clock is transmitted via all ports, the events are sent only once from the computer to the interface. If you address individual ports, one event has to be sent for each individual port, which worsens the timing for all ports.

ALLOW SONG POSITION POINTER WHILE PLAYING: According to the MIDI Standard, Song Position Pointer is nor-

mally only sent when you start. This option means that SPP can also be sent while the sequencer is running. The advantage is that external devices can also follow MAGIX midi studio generation 6 in Cycle mode.

If the external devices cannot process SPP, you should switch off this option. This improves the timing when cycling.

TRANSMIT MTC (MIDI TIME CODE): The switch to the right activates transmission of MIDI Time Code. In the display next to it, you can define the port (MIDI Out Driver) to which MTC is transmitted.

It is not advisable to send MTC to all ports. Unlike MIDI Clock, if you want to send MTC (which is very data-intensive), use a MIDI port which is not being used for anything else.

TRANSMIT MTC DELAY: This parameter allows you to delay the transmitted MIDI Time Code. Negative values mean that the MTC is transmitted earlier. This enables you to compensate for any reaction delays in the external MTC slaves.

Special Functions

Switching on external sync

Switching on the sync button on the Transport causes MAGIX midi studio generation 6 to synchronize to the sync source you've chosen.

You can use the Sync button to turn off the external sync at any time, without changing your selected sync source. This allows you to remove MAGIX midi studio generation 6 temporarily from the sync master's time axis. This could prove useful if, for example, you need to quickly edit a sequence while the external sync source (tape machine, VTR etc.) is still running.



RECORDING WITH EXTERNAL SYNCHRONIZATION: When "Record" is pressed during external sync, MAGIX midi studio generation 6 goes into MIDI Record mode, but does not start until it encounters external time code.

INCOMING MIDI TIME CODE DISPLAY: The flashing dot on the transport window's sync button indicates that MAGIX midi studio generation 6 is receiving error-free MIDI time code.

If the dot "sticks", an error has occurred. Although MAGIX midi studio generation 6 is capable of dealing

with many MTC errors itself, you should nevertheless check the quality of your SMPTE signal, as well as other potential sources of error.

MTC INTERPRETATION: Because the MIDI standard only supports four of the possible six time code formats (the 30 fps and 29.97 fps formats cannot be differentiated), MAGIX midi studio generation 6 has to decide which format is “intended”, when it encounters incoming time code:

incoming MTC format	is interpreted as
24 fps	24 fps
25 fps	25 fps
30 drop fps	29.97 drop fps
30 fps	30 fps

In other words, the much more commonly used 29.97 fps and 30 drop fps formats are used in preference to the uncommon 30 fps and the virtually-unheard-of 29.97 drop fps formats.

However, you can manually set the format from the Tempo List editor to whatever you like: for example to convert material to 30 fps for black and white TV transmission in the NTSC format.

RECEIVING MIDI CLOCK/SPP: Sync via MIDI Clock/SPP is the most accurate method, if MAGIX midi studio generation 6 is being synchronized to a bar-referenced master.

MIDI Clock has a resolution of 24 PPQN (pulses per quarter note), while MAGIX midi studio generation 6 has an internal resolution of 960 PPQN (some 40 times more accurate!). For this reason, MAGIX midi studio generation 6 has to interpolate the 39 steps between two incoming clock impulses itself.

If you are bothered by small variations in timing between master and slave, you can improve the relationship when in external sync, by entering the expected tempo changes from the master into MAGIX midi studio generation 6’s internal tempo list as well.

Even if you don’t take this step, the sync should hold up fairly well, as long as you avoid large deviations, such as an internal setting of 200 bpm, with an external tempo of 40 bpm.

Continue Event: When a MIDI Continue Event is received, MAGIX midi studio generation 6 doesn’t leap to the last

valid position received via MIDI Clock. Instead, playback recommences from the current song position. This allows you to change the song position manually while the sequencer is halted, and restart from the new position, with a MIDI Continue command.

POSITIONING BARS TO FRAMES: If you want to arrive at a position in the song at a specific SMPTE time, you have to alter the tempo of the preceding passage. You don't want to do this by trial and error.

- Open the Tempo List ([page 260](#)).
- Create a tempo event at the relevant bar position ([page 261](#)).
- Set the desired time position for this tempo event in the *SMPTE-Position* column. The preceding tempo event is automatically adjusted to generate the correct bar and time position for the “auxiliary tempo event”.
- You can then delete the “auxiliary tempo event” if you want to keep the same tempo for the following passage.

Synchronizing Video Files

AVI

MAGIX midi studio generation 6 lets you open videos in the Video for Windows (*.AVI) format.

You can run these videos in a MAGIX midi studio generation 6 window synchronized to the song. Wherever you move the song position, the video follows. You can write video music, or attach sound effects to individual frames. To ensure smooth playback, you should try to play the Audio files, and the video material from different hard disks, if possible.

OPENING A MOVIE: If you select Options > Video Player..., the file selector opens, and you can select an *.AVI video from your hard disk.



SETTING AN OFFSET: Following the path Options > Video Settings... a small window opens. There, just above the entry SMPTE Start, you can set the video start-point.

ENABLE AUDIO OF VIDEO: In the window you open via Options > Video Settings... you can choose whether you want to hear the audio track of the video.

The Basics

Summary

If you want to synchronize MAGIX midi studio generation 6 to a second sequencer system (workstation, drum machine) please use MIDI Clock/SPP.

For all other situations where you use external synchronization (tape machine, stand-alone hard disk recorder, video recorder) use MTC. To synchronize MAGIX midi studio generation 6 to a SMPTE signal you need a “synchronizer”, which converts SMPTE into MTC. This can be done by nearly all interfaces with multiple MIDI ports.

Timecode and Clock synchronization

synchronization involves ensuring that several devices run absolutely in time with each other. This doesn't just mean that the devices start at the same point, and run at the same speed. To set exactly the same speed would require infinite precision (even with digital devices). Instead, synchronization means that while the devices are running, *every point* along the time axis of all the devices must be linked.

This requires that the devices to be constantly “connected” to each other. This is only possible if one of the devices acts as the “master”, defining the current position, while the all other devices act as “slaves” and constantly try to follow this position as closely as possible.

There are two different ways of doing this, depending on the type of devices being used:

1. With devices like sequencers or drum machines, the positional information shared is expressed in bar positions—in other words, they use “bar-referenced synchronization”.
2. Devices like tape machines or hard disk recorders usually use “time-referenced synchronization”—the positional information shared by these devices is time information, in the form of so-called time code. Devices that use time-referenced sync include tape machines for video signals, like VTRs (video tape recorders) and VCRs (video cassette recorders). With time-referenced sync, the tape speed or sampling rate is not dependent on the musical tempo of the recorded song.

Bar-referenced synchronization is only appropriate if you are using devices from the first category. As far as devices from the second category are concerned, time-referenced sync really ought to be used. A single tape machine *could* theoretically control several devices from the first category, by playing recorded bar-referenced time code. How-

ever, for various reasons, most professionals would work using time-referenced code. For one thing, this is the only way to sync additional machines up to the tape later. A sequencer synchronized to tape has to calculate the bar position from the time position, using its tempo track.

BAR-REFERENCED SYNCHRONIZATION: First, a quick trip down memory lane...

Pulse Clock and FSK (historical)

The original method of synchronizing analog sequencers, or drum machines to each other was by transferring electrical impulses (clock signals) at specific intervals. The norm was 24 ppqn (pulses per quarter note), which is equivalent to a resolution of $1/96$ note. However, some companies used 48 (Korg, Linn), 64 (PPG), 96 (Oberheim) or 384 ppqn (Fairlight). By way of comparison, MAGIX midi studio generation 6 has a resolution of 960 ppqn).

By encoding these impulses as the “shift between two pitches” (FSK code, frequency shift keying), it was possible to record this kind of code onto tape. It was mainly used to synchronize drum machines to tape machines. There were plenty of disadvantages to it, however

- FSK code laid down a fixed tempo.
 - It was impossible to program intros/outros later.
- Both Pulse Clock and FSK had two further disadvantages:
- If any impulses were lost through signal dropouts, the synchronized devices would run constantly out of sync from that point onwards.
 - Because there was no position indicator, you always had to start the song from the beginning (FSK 2 or Smart FSK overcame this by encoding the song position as well).

These disadvantages eventually killed off clock and FSK, neither is now used professionally.

MIDI Clock / SPP: With the advent of the MIDI Standard, an equivalent to clock impulses was incorporated into the command protocol: *MIDI Clock*. MIDI Clock events are transmitted by the master 24 times per quarter note. To avoid having to start songs from the beginning every time, a further MIDI command is also transferred: *song position pointer*. This transmits $1/16$ notes from the beginning of the song. Because two data bytes are available for encoding (14 bit), it is possible to distinguish a maximum of 16384 different $1/16$ notes or 1024 bars. The slave recog-

nizes the current song position within this region, and synchronizes to it.

Modern devices always use a combination of MIDI Clock and song position pointer.

If a sequencing program has a higher timing resolution than $1/96$ note, the positions between must be interpolated. The resolution of MAGIX midi studio generation 6 is $1/3840$ notes.

TIME-REFERENCED SYNCHRONIZATION: Time-referenced synchronization originates from the field of video synchronization, but nowadays it is also used for audio work. This is why it divides a second not into tenths and hundredths, but into frames. One frame was originally the time it took for a single frame of video (i.e. one image) to pass through a video camera, or projector.

Unfortunately, the number of frames used per second varies according to country, norm and usage. For video, the international norm is 24 frames per second (fps). American black and white television uses 30 fps. With the introduction of color television, the frame rate of the NTSC norm, used in America and Canada had to be reduced to 29.97 fps for technical reasons. In Europe, a lower frame rate of 25 fps was used from the start, and with the introduction of color television this was adopted by the European PAL TV standard, as used in Europe today.

The original reason for the differing video rates, incidentally, derives from the different rates of alternating current used on the different continents (USA: 60Hz, Europe: 50 Hz), which corresponds to the number of half-frames of video passing through a camera/projector per second.

SMPTE/EBU: It was the American Society of Motion Picture and Television Engineers (SMPTE) which first laid down a norm for encoding the individual frames. This designates exactly 80 bits per frame for encoding the hour (0—23), minute, second, and frame (frame number within the second). Some of the surplus bits are used to indicate the frame rate, i.e. the number of frames per second. This encoded data stream of 80 bits per frame is known as SMPTE time code. Because the individual bits themselves have a definite time spacing, they are also used as a further subdivision of a frame, called a “subframe”.

This code was adopted without alteration by the European Broadcasting Union (EBU), for use with the European frame rates, and renamed “EBU Time Code”. In practice this time code is usually referred to as SMPTE time code, or just SMPTE (pronounced: “simptee”).

Drop Frame (df): One technical problem was the frame rate of 29.97 fps. Only whole frames can be counted, but counting up to the 30th frame in every second would cause a deviation between the time code time, and the actual time (a difference of about 5.4 seconds for a typical feature video). So, the following trick was employed: in every minute 2 frames are left out (“dropped”), except in minutes that can be divided by 10.

This may sound complicated, but is actually simpler than “one leap-year every 4 years except in years divisible by 100, apart from those also divisible by 400”!

To describe this method, “drop” or “df” is added after the frame rate. Because it is used so often with 30 fps, it is more common to indicate *non-usage* by adding “non drop”, “nd” or “ndf” to avoid confusion.

The 29.97 nd format is seldom used (just like the point-less 30 df), because the timecode time “drifts” from “real” time.

Frame Rates: The SMPTE frame rate must be set the same for all connected devices; you can’t have different frame rates in one system. The diagram below shows the various frame rates with the respective duration of a frame, or sub-frame:

Frame Rate [fps]	Frame [ms]	Bit [μ s]	Source
24	41.67	520.8	Video
25	40	500	PAL
29.97 drop	33.37	417.1	—
29.97	33.37	417.1	NTSC color
30 drop	33.33	416.7	—
30	33.33	416.7	NTSC S/W

In Europe 25 fps is used both in the audio field and for synchronizing television or video productions.

American audio productions use mainly 30 fps, but with video the frame rate is nearly always 29.97 df.

International audio productions are recorded with 25 fps, and 30 fps on different tracks.

LTC / VITC: The 80 bits per frame of the SMPTE time code can be stored in two different forms:

- As a sound signal on a sound track. This is called longitudinal time code (LTC).
- As a signal in the scanning gap of the video picture. (The complete picture information is transferred slightly quicker than the duration of a frame. There is a short gap, while the electronic beam of the cathode ray

tube travels from the end of the bottom line, back to the beginning of the top line. Because the beam is temporarily switched off, time code transferred during this gap does not interfere with the picture.) This is called vertical interval time code (VITC).

LTC is used for all audio productions, and often for video synchronization as well. Tape duplication plants can record LTC onto one of the audio tracks, usually track 2. The SMPTE time can also be written onto the picture. Because of the almost universal use of LTC for audio work, the term “SMPTE” is used synonymously with it.

With video synchronization LTC can only be output during playback at normal speed. VITC (pronounced “vitzi”) has the advantage that it can be output while fast-forwarding, or rewinding. This is very useful when creating frame-synchronized sound effects, or musical phrases.

Emagic’s networkable 8x8 MIDI interface “Unitor8 MkII” has a synchronizer that can read and write both LTC and VITC.

MIDI Time Code (MTC): MTC is a “translation” of the SMPTE bits into the MIDI Standard, and contains the time and frame rate information. This requires one status byte and eight data bytes. MTC defines only 24, 25, 30 df and 30 ndf.

SYNCHRONIZERS: A professional synchronizer is a device which can write and read SMPTE signals. It is connected to a master, and one or more slave tape machines, and can also control their transport functions.

In computer MIDI interfaces, built-in synchronizers generally have just a SMPTE input and output. SMPTE signals arriving at the input are automatically passed on to the computer by the interface, in the form of MTC.

Which device should be the Master, and which the Slave? As a general rule, the slowest machine should be used as the master, to reduce waiting times for the slaves when rewinding or forwarding. Since a sequencer naturally “winds” much faster than even the quickest tape machine, it always acts as the slave.

SYNCHRONIZATION PROCEDURE: The following steps apply to external equipment, rather than MAGIX midi studio generation 6.

Recording SMPTE: If you want to synchronize a computer-based sequencer to a tape machine, the first thing to do is record a SMPTE signal onto one of the outside tracks (the outside tracks on analog tape machines are of a marginally

lower quality, because of the (very slight) “fluttering” of the tape, but they are perfectly adequate for time code). Connect the SMPTE out of the interface with the input of the tape machine (or the input of the mixing desk, if you want to route the time code, and set a level). It is customary to use the track with the highest number. Set the level of the time code to -10 VU. Avoid recording stationary time code by starting the time code generator before the recording. For several reasons—for example to avoid drop-outs which can lead to gaps or jumps in the time code, and to give you the option of extending a song later,—it is a good idea to record the time code throughout the whole tape (this is known as “striping” the tape). It is also customary to set a SMPTE code start time of just under one hour (01:00:00:00). The first song on a tape then always begins at exactly one hour. Other tapes of the same project can be given SMPTE times with consecutive hours, which means the SMPTE time can be used to clearly identify a tape, if the tape boxes get mixed up.

Synchronizing Sequencers to Tape: Connect the output of the time code track to the SMPTE input of the computer. To minimize crosstalk, it is better to make a direct connection rather than routing the signal via the mixing desk. The computer does not have to begin bar 1 at a SMPTE time of 0 hours, 0 minutes, 0 seconds and 0 frames (00:00:00:00), you can set an “offset”, to make the sequencer wait for the correct SMPTE position, before it starts the song. If the second song on tape begins at (say) 01:04:50:00, you need to set the SMPTE offset to match. Make a note of the SMPTE offset on the track sheet for the song, or next to the song title on the tape box.

The bar position which is reached at a specific SMPTE time position depends on the tempo of the sequencer. If you have begun to record onto tape, you won't be able to alter the tempo without disrupting the synchronization. You should, therefore, also make a note of the precise tempo on the track sheet.

The SMPTE offset and tempo settings *are* saved with the song, but it is not unheard of for the song file and the tape to be separated.

Synchronizing Several Sequencers: If you want to synchronize several sequencer programs with a tape machine acting as the master, you should try at all costs to synchronize just *one* sequencer via SMPTE or MTC. You can then synchronize the other sequencers to this one, via MIDI Clock/SPP. When synchronizing several sequencers (with no tape machine) you should *only* use MIDI clock/SPP.

This avoids deviations in the bar position, since otherwise, each sequencer has to calculate this independently, from the time information using its own tempo track.

Click Track: It is common practice to record a click track, i.e. a metronome sound, to run throughout any song at the correct tempo, in addition to the time code. This is partly due to possible deviations in the positional calculation of different sequencers from the recorded SMPTE code. It also allows overdubs in studios without MIDI equipment, although nowadays, such studios are few and far between. When recording a click track or other signal onto the track next to the SMPTE code, it is better to set a fairly low record level. Crosstalk from a high-level signal onto the SMPTE track can corrupt the SMPTE track, and interfere with smooth synchronization.

If you have Sync Problems

... you may find some useful advice here ...

Faulty Digital synchronization: If MAGIX midi studio generation 6 is synchronized to an external wordclock (*Audio Sync Mode: External /free*), you must ensure that a valid digital signal is always available. If you are getting error messages like “Sample Rate 13,x kHz recognized” it may be that the DAT recorder (or whatever clock source you have connected to your audio hardware’s digital input) does not transmit wordclock in stop or pause mode (or has switched itself off).

Faulty synchronization to an External Tape Machine: Create a new song, make a new recording and see if that does the trick. Why? If an old recording on tape was not properly synchronized to timecode you will not be able to use it. One basic rule: the playback situation must be identical to the recording situation.

If everything is working fine with the new recording, this means the present setup is o.k. Next, check whether anything has changed in your global setup. Has the frame rate changed? Has the tape speed changed? If you have changed a 30 fps setting, try variations such as 30 drop or 29.97.

If MIDI and Audio are not synchronized: Go to the Audio page of the synchronization dialog window and under *Audio Sync Mode*, select *MTC Trigger*. If your audio hardware does not support this operating mode, you should cut extremely long regions into shorter sections.

If MIDI and SMPTE are not synchronized: Check all the frame rate settings. The frame rate of all connected devices must be identical, including the timecode on the tape machine, the synchronizer, and in MAGIX midi stu-

dio generation 6 itself. Some synchronizers encode the wrong frame rate in MTC. In this case open the Tempo Editor, switch off the *Detect* option, and set the correct frame rate manually.

Note for America: try out the different kinds of 30 fps (30 drop, 29.97 fps).

In Europe, a frame rate of 25 fps is almost always used.

Song Settings and Preferences

Both the Song Settings and the Preferences... can be reached via Options > Settings > Both consist of a dialog box which allows you to access various different sub-pages. Some of these pages can also be reached directly from MAGIX midi studio generation 6's local menus (for example in the Score window), or from the transport buttons, via pop-up menus.

The Song Settings and Preferences are where you can define some of MAGIX midi studio generation 6's basic operating parameters. This section explains each of these windows' menu items individually. Unless indicated otherwise, the descriptions of the various options are the ones that apply when the checkbox next to the option is crossed (in other words, when it's active).

Song Settings

Song settings are saved independently with each song, which means that different songs can have different song settings. You can save all of your standard settings in a template song. This way, you can start each MAGIX midi studio generation 6 session with your preferred working setup.

Recording Options



This page can be reached via Options > Settings > Recording Options..., or via Recording Options... in the metronome switch pull-down menu on the Transport bar.

The settings here determine how MAGIX midi studio generation 6 responds in record mode. If this page is open, you can enable/disable some of the checkboxes via the computer keyboard using the keys indicated in brackets after the function. While this page is open, any key commands normally assigned to these keys will be temporarily deactivated.

Merge New Recording With Selected Sequences: After each recording, all newly-recorded data is merged with all the selected sequences on the recorded track, to form one sequence. At the same time, the following function is automatically activated (see below).

Merge only New Sequences in Cycle Record (n): When recording with Cycle Mode enabled, this function merges all data recorded during later cycles to the sequence recorded during the first cycle. It can be used independently of Merge New Recording With Selected Sequences.

Auto Mute in Cycle Record (m): If recording with Cycle Mode enabled, this function creates a new sequence for

every cycle during which there is any data input. All sequences made during previous cycles are automatically muted. If the Auto Create Tracks in Cycle Record function (described next) is not active, all the sequences are layered onto one track. This function deactivates both the merge functions.

Auto Create Tracks in Cycle Record: While recording with Cycle Mode enabled, this option creates a new track with each new cycle, when there is data input. The recorded sequences from earlier cycles are pushed down to the tracks below, so the “oldest” tracks end up at the bottom. This function deactivates both the merge functions. This function is useful when, for example, you are doing multiple takes of a solo, while cycling a section of music. Recordings made during each repetition of the cycle will appear on their own track, making it easy to sort through them when you have finished recording.

Allow Tempo Change Recording: All tempo changes made in record mode are recorded. For details on how to edit these “tempo recordings”, please see the [section *Tempo from page 260 onwards*](#).

MIDI Data Reduction: Controller events are thinned out during the recording, to lessen the data load on the MIDI bus during playback. This improves the timing of dense arrangements on interfaces with fewer MIDI ports. The function actually reduces the duration of controller events, using an intelligent algorithm which retains the value at the end of a succession of controller data.

Click while recording: The metronome click is automatically switched on for recording. This is the same as activating the metronome switch in the transport panel during the recording.

Click while playing (p): The metronome click is automatically switched on for playback. This is the same as activating the metronome button in the transport panel during playback.

Polyphonic Clicks: The MIDI metronome sends all notes defined and activated for bars, beats and divisions. For example, at the beginning of each measure, two or three notes may be sent simultaneously. If the option box is not checked, then the metronome only ever transmits one note at a time.

Speaker Click: This sends the metronome click to the computer loudspeaker.

MIDI Click: The metronome click is sent out as a MIDI note.

Bank Select: If your sound module accepts Bank Select (please refer to the manual of your sound module), with this message you can switch to any bank of 128 sounds each (maximum). For this function to work correctly, via this flip menu you must tell MAGIX midi studio generation 6 which kind of Bank Select message your instrument will expect. Please refer to [section Program Change Events from page 222 onwards](#)) on how to actually select the Bank.

Count-In: This pull-down menu is where you set the count-in that precedes a recording.

Wait for Note MAGIX midi studio generation 6 keeps running in a “symmetrical” loop of one beat, centered around the start point of the recording, until MIDI events are input. Since the loop starts half a beat before the start point, you are allowed up-beat notes of up to half the value of the bar denominator (e.g. with $n/4$ time, a maximum of $1/8$ notes).

No count-in the recording begins with no count-in.

1-9/4 Bar count-in 1 bar of count-in up to 9/4 bars count-in.

Click only during Count In (Record): When this option is active, the record click sounds only during the count in and is then switched off.

MIDI Options

This page can be reached from the Arrange window by selecting Options > Settings > MIDI Options... These settings determine how the MIDI inputs and outputs behave.

Input Filter: The input filter switches are for filtering out certain event types at the input of the sequencer. The symbols correspond to those in the Event List. When a switch is dark grey, it will filter out the corresponding events.



Note Events



Program Change Events



Pitch Bend Events



Controller Events



Aftertouch oder Channel Pressure Events



Polyphonic Key Pressure Events



System Exclusive Events

Sysex with MIDI Thru function: SysEx messages are passed through the computer along with other MIDI thru data. This is particularly important when using hardware

programmers as only then will you be able monitor the changes to the sound immediately. If you just want to record SysEx dumps don't select the checkbox. It hardly ever makes sense to divert dumps through the computer, unless you want to record a dump, and simultaneously transmit it to a second device of the same make.

Transmit MIDI Clock: MAGIX midi studio generation 6 transmits MIDI Clock with Song Position Pointer. For more about these terms, please see the [section *Receiving MIDI Clock/SPP from page 268 onwards*](#). The MIDI output is selected to the right of this option (see the next paragraph).

Transmit MTC (MIDI Time Code): MIDI Time Code is transmitted when this is enabled. You may set the MIDI output port in the input area at the right of this option. Select the port by click-holding on the box.

AUTO SYNC IN: When this option is activated, MAGIX midi studio generation 6 runs as Master (sync mode Internal), until any synchronization signal will be received—either MTC or Clock/SPP.

MAGIX midi studio generation 6 synchronizes automatically to the sync signal that will be received first. Please be sure that you are either; a) only using one external synchronization source or; b) certain that MAGIX midi studio generation 6 will not receive sync data from more than one source at a given time.

Chase Events

This page is for making settings relating to the “Chase Events” function described on [page 117](#). You can reach this page following the path Options > Settings > Chase Events...

MESSAGE TYPE SWITCHES: These switches are used to select the event types for which event chasing applies. The symbols are the same as the ones in the Event List Editor. If a button is gray, it means chase events is deactivated for that event type.

NOTES: When this button is switched off, the following three options are not available.

Chase sustained Notes: This checkbox is used to search around the current play-start point for any notes which should still be playing, because of a held-down sustain pedal.

Chase Notes in 'No Seq Trp' Instruments: This means that even notes are searched, that are played by drum tracks



(whose check box *No Seq Trp* in the track parameter box of the Waveplayer window is checked).

CHASE NOTES ON CYCLE JUMP: When activated, the chase function will also chase notes, if a cycle jump occurs. This parameter is only available when 'Chase on Cycle Jump' is active.



PROGRAM CHANGE: The last program change command before the current play-start point is sent. Keep in mind that a sound module will usually take a short while to respond.



PITCH BEND EVENTS: Pitch bend data are searched for.



CONTROLLER EVENTS: If this switch is active, you can switch three controller groups on and off individually:

Chase Control 0—15: Controller numbers 0—15 are searched. These include the following controllers: modulation wheel, breath, foot, volume, pan, portamento time, balance and expression, plus the MSB for data entry and bank select.

Chase Control 64—71: Switch controllers 64—71 are searched. These include sustain, sostenuto, hold 2, soft pedal and portamento.

Chase all other Controls: All other controller numbers are searched.



AFTERTOUCH OR CHANNEL PRESSURE EVENTS: Aftertouch data generated by the pressure sensor under the whole keyboard is searched for. Aftertouch is also called „Channel Pressure“.



POLYPHONIC KEY PRESSURE EVENTS: Polyphonic Aftertouch data, generated by pressure sensors under the individual keys of is searched for.



SYSTEM EXCLUSIVE EVENTS: The last SysEx messages in the sequences before the current play-start point are transmitted. If the sequence contains the recorded data of a SysEx fader, the fader will be set to its correct state at the start point.

Please keep in mind that chase events cannot always fully restore the correct state of SysEx data at the start-play point. To do so would involve not just searching for, but also analyzing all SysEx messages in the whole song, both before and after the play-start point. Because of the non-

standardized data structure of SysEx messages, this is completely impossible.

If even a couple of sound parameters have been recorded, each with separate SysEx faders, at differing settings before the play-start point, there will be deviations in the sound. To get around this, try recording controller data to remote-control the SysEx faders during playback instead. Since chase events searches all the different controller numbers separately, the SysEx settings for the sound parameters will all be correct at the play-start point. Another advantage to this method is that controller events can be edited graphically in the Drum Editor, or using Hyper Draw.

Chase sep. channels in 'All Cha' instruments: This option affects tracks whose *Cha* parameter is set to *All* (i.e. which play events with their recorded MIDI channel). All defined event types in sequences started part-way through are then searched separately for each MIDI channel.

Chase on Cycle Jump: Switches on the Chase Events function for cycle jumps. When this function is activated, in the check box below you may exclude notes from the Chase Events function.

Send full MIDI Reset before Chasing: Before chasing events, corresponding to the settings in the Preferences a MIDI Reset will be sent (see [section *Reset Messages from page 285 onwards*](#)).

Preferences

The Preferences are saved together with the key command assignments as a separate file called “MAGIX midi studio g6.prf” in the Windows directory. These settings are valid for the whole Song.

OPENING THE PREFERENCES: This Preferences window can be reached from the main menu by selecting Options > Settings > Global [resp. Display, Score, Reset] Preferences...

Although the settings you make in the Preferences affect the way MAGIX midi studio generation 6 deals with *all* the songs it opens, you still have to open a song before you can alter the Preferences. You can't open the “MAGIX midi studio g6.prf” file directly.

INITIALIZING THE PREFERENCES... If you erase the “Magix midi studio g6.prf” file in your PC's Windows folder, MAGIX midi studio generation 6 will create a new Prefer-

ences file next time you launch. All parameters will then be reset to their default values.

When you erase the Preferences file, you also lose all your custom key commands.

Global

This page contains the global presets.

When Opening a song, ask to 'Close current Song(s)?':

Whenever you load a new song before closing the old one, MAGIX midi studio generation 6 will ask whether the current song should be closed.

Add 'Last Edit Function' to sequence name: After performing any edit operation (e.g. cutting), the description of the edit operation is added to the name of the arrange object (or resulting objects).

Disable safety alert for 'Undo': This means that no safety alert appears when you call up the undo function.

Enable Catch when sequencer starts: Every time you start the sequencer (start or pause), the catch function is automatically switched on, in all windows (see [page 91](#)).

Enable Catch when moving song position: The “Enable Catch when moving SPL” option means that whenever you move the SPL, the Catch function (screen view follows SPL) is switched on.

Allow Content Catch by Position if Catch and Link enabled: If the catch and content catch functions are active, the contents of the sequence at the current song position are what is shown. If there is no check in the box, the window view still follows the song position within the displayed sequence, but does not update to show the contents of subsequent sequences when they become the current sequence (see [page 92](#)).

Limit Dragging to one direction in Matrix and Score: In the Matrix or Score Editors, you can only move notes in one direction, per operation. This means that a note may be either transposed or moved in time, but not both at once. This prevents accidental alteration of the other parameter.

Limit dragging to one direction in Arrange: This restricts the direction you can move sequences in the Arrange window, in a similar way to, and for the same reasons, as the option above.

Hide Windows of inactive Songs: If this check box is checked, the display looks much better when several Songs are open at the same time.

'Export MIDI File...' saves single sequences as Format o: If only one sequence is selected when you choose File > Export Selection as MIDI File... the contents of the sequence are saved in MIDI file format o. This file format is guaran-

ted to be compatible with every MIDI file player ([more on this on page 288](#)).

Double Click Sequence to open... In this flip menu you can determine, which Editor opens when double-clicking a sequence in the Arrange window.

Display

This page contains two display options and your preferred language setting.

Wide Song Position Line: A thicker Song Position Line is used.

Display Middle C as C₃ (Yamaha): This option affects the description of notes in the editors. Bottom C on a five-octave keyboard (note # 36) is labeled C₁ and middle C (#60 or c') is labeled C₃. According to this standard, the lowest MIDI note (# 0) is called C-2. This is the official standard and is used by most manufacturers.

If there is no check in the checkbox, bottom C on a five-octave keyboard is labeled C₂ and middle C is labeled C₄. Using this standard, the lowest MIDI note is C-1.

Language selection: In this flip menu you may set your preferred language. This setting will be active after the next program launch.

Score

This page of the Preferences can also be reached via the Score window's local menu by selecting Options > Score Preferences....

Dashed Song Position Line: The song position line in the Score Editor is dashed. If the box is not checked, the line is solid.

Show sequence selection colored: If you switch on this option, in the Score window on Song level the selected sequence will be displayed in blue color.

Fast (Lower Resolution) Curves on Screen: The screen redraw rate is accelerated by using a slightly coarser display of braces and slurs.

Reset Messages

This is where you define which controllers are sent as a reset message.

A MIDI Reset is transmitted when:

- the sequencer is halted by pressing Stop twice, in quick succession;
- you click on the MIDI Out display in the Transport window;
- you make use of the Full Panickey command;
- or automatically when a new Song is opened or activated (regardless of the chase settings—see the [section Chase Events from page 281 onwards](#)).

Smart Reset: The reset has been optimized for use with the following controllers, to minimize data congestion at cycle jumps, or when the sequencer is stopped:

1. Pitch Bend
2. Channel Pressure
3. Modulation wheel (Control 1)
4. Sustain Pedal (Control 64)

MAGIX midi studio generation 6 handles these messages separately for each track. As soon as MAGIX midi studio generation 6 is halted, or its position altered, the above MIDI messages will be transmitted to the relevant tracks, and no others.

Send Used Instrument Settings On Reset: When this option is switched on, all currently used instrument parameters will be transmitted, whenever a MIDI Reset occurs.

Audio

Warning before closing Sample Edit: If you have executed a destructive edit command in the Sample Editor, e.g. Normalize or Fade Out etc., when you close the window you will be asked if you want to Undo this edit. Of course, once you are used to editing audio data in the Sample Edit window, you may begin to find this alert box irritating, so this is where you can get rid of the warning.

Warning before process Function in Sample Edit (Key): Before you carry out a destructive edit in the Sample Editor using a key command, a warning appears giving you the opportunity to cancel it, before altering the data.

You can define key commands for all the destructive edit commands in MAGIX midi studio generation 6, which will then be valid only if the Sample Edit window is active (active title bar). Depending on what key commands and window combinations you are using, there is a danger of executing edit commands accidentally. Thus, MAGIX midi studio generation 6 is preset so that an alert box appears first. If you feel confident that you won't accidentally process a file, you can switch off the alert here.

Warning before process Function in Sample Edit (Menu):

This option is functionally almost identical to the previous one, the only difference being that the warning appears whenever you use a menu to execute a destructive command in the Sample Edit window.

Once you are more experienced, you may not need this alert box when you call up an edit command via a menu, so you can switch it off here.

Create Undo file for "Normalize": Storing the "Undo" files for destructive edits of audio data can take up a lot of time and memory, depending on the length of the audio data.

Normalize is generally a safe, and usually beneficial type of data edit. Switch this option off, if you want to remove the Undo option for the normalize function.

Display Color in Audio Window: If audio regions in the Arrange window are very brightly colored, it can sometimes be difficult to make out the waveform display in the Audio window. You can, therefore revert to a black and white display here.

Release Audio in Background if Stopped: When you switch on this option, MAGIX midi studio generation 6 releases the audio hardware whenever playback stops. This allows you to switch to another program, like a Sample Editor, which also needs to use the audio hardware, without having to quit MAGIX midi studio generation 6 first.

Prepare Audio Playback when Stopped: Normally at the start of a recording—or playback—all audio files at the song position are prepared for playback. Depending on the number of tracks, and type of system, this can take anywhere from a fraction of a second, to over a second. In some situations, you might prefer to bypass this preparation of all the playback tracks, to allow you to start recording immediately. In such a case, you should switch on this option. Recording (and MIDI playback) can then begin straight away, although the audio tracks will not start playing until a few seconds later.

Create overview after recording: Creating the overviews is time-consuming. If you don't want to waste time directly after recording, you can deactivate this check box.

Global Instrument Tune: With this parameter you can tune all audio instruments plug-ins at once. Unit is cent, which is 1/100 of a semitone, and the range is ± 50 cents.

Audio Drivers

On the pages Audio Driver and Audio Driver 2 you can activate and deactivate the audio engine of MAGIX midi studio generation 6. Uncheck the boxes left of each driver to effectively turn MAGIX music studio generation 6 into a MIDI only application which can run on computers with less RAM. Remember that any alterations made will not become valid until the next program startup.

Standard MIDI Files

Basics

Standard MIDI Files are not specific to a particular sequencer program or type of computer. They contain the following information:

- MIDI events with their time positions and channel assignments,
- Names of the individual tracks,
- Tempo changes.

MAGIX midi studio generation 6 supports the importing and exporting of Standard MIDI File formats 0 and 1:

- Format 0 can contain one track,
- Format 1 can contain multiple tracks.

Neither format recognizes any division of a track (e.g. into several sequences).

Loading Standard MIDI Files

To load a Standard MIDI File, select File > Open. In the file selector, select *MIDI File* in the “Files of Type” box.

Bank Select: When you open Standard MIDI Files, program change and controller events occurring at the same position are moved by one tick, so that they will remain in their intended order. This prevents MAGIX midi studio generation 6 from reversing the transmission order of the events. The reason for this is that certain MIDI devices will not respond properly to program change and bank select events that do not occur in the correct order.

This guarantees that there will be no timing problems, because the transmission of a MIDI event always lasts longer than 1 tick.

Via Drag and Drop: MIDI files may also be opened via Drag and Drop. Being in a window of the Windows Explorer or the desktop, just drag the MIDI file onto an open Arrange windows of MAGIX midi studio generation 6.

Saving Standard MIDI Files

If you want to play a MAGIX midi studio generation 6 song on another sequencer, you can do so by saving the selection as a Standard MIDI File. Consult the other sequencer’s instruction manual to see which Standard MIDI File formats it can read. All sequencers should be able to interpret at least the type 0 file format.

PREPARING THE SONG: Because of the limitations of the Standard MIDI File format, you should make the following preparations to your MAGIX midi studio generation 6 song:

- Neutralize all playback parameters with the normalize function (select them all by pressing **ctrl a**, then choose Functions > Sequence Parameter > Normalize Sequence Parameters),
- Convert all playback quantization with the fix quantize function (**ctrl a**, Functions > Sequence Parameter > Fix Quantize),
- Convert all loops into real copies (**ctrl a**, Functions > Sequence Parameter > Turn Loops to Real Copies),
- Convert all sequences on each track into a continuous sequence: Click on a track, so that all objects of this track are selected. Select the glue tool from the tool box and click on one of the tracks's objects. Now all sequences of the track have been merged into a single sequence. Repeat this procedure for all of your Song's MIDI tracks containing sequences.

Additional preparations for file format 0: Since Standard MIDI File type 0 format files can only save one sequence, you must also merge all sequences into one (press **ctrl a**, take the glue tool and click a sequence).

SAVING A SONG AS A STANDARD MIDI FILE: Select all of the required sequences and choose File > Save Selection as MIDI File... You can now enter the destination directory.

In File Format 0: See whether under Options > Settings > Global Preferences... the parameter "Export MIDI File..." save single Sequences as File Format 0 is checked. If it is, choosing File > Export MIDI File... when only one sequence is selected means that file format 0 will be automatically used.

Glossary

ADAT: Abbreviation for Alesis Digital Audio Tape. The ADAT (supported by Alesis, Studer, and Fostex) is a digital multitrack cassette recorder with eight audio tracks using an S-VHS video tape, with 16 or 20 Bit quantization. The optical port allows the parallel transmission of all eight audio channels.

Aftertouch: Also known as pressure. MIDI data-type generated by pressure on keys after they have been played. There are two types; channel aftertouch, whose value is measured by a sensor stretching along the whole keyboard and whose data apply to the whole MIDI channel, and polyphonic aftertouch (rare) which is individually measured and transmitted for every key.

AIFF: Abbreviation for Audio Interchange File Format. Data format for audio files in the Macintosh operating system.

Autodrop, Auto Punch: Automatic *drop-in recording* with adjustable drop-in/out positions.

Bar ruler: Ruler at the top edge of the screen, divided into bar units.

BBS: Abbreviation for Bulletin Board System. An electronic mailbox.

Catch: Function for making the section of the song currently displayed in the window reflect the current song position.

Cha: Abbreviation for channel or MIDI channel

Check box: A small box. Placing a check in it (by clicking on it) activates an option.

Click: Metronome, or metronome sound.

Clock: Electrical synchronization impulse, transmitted every 1/96 note. Was used in older drum machines before the advent of MIDI. (i.e. MIDI Clock).

Controller, control change: MIDI data type, e.g. for sliders, pedals, switches or standard parameters like volume and panning. The type of command is encoded in the first databyte, the value in the second databyte.

Count-in: Beats which sound prior to the start of a recording.

C-Press: Channel pressure or *aftertouch*.

Cueing: Monitoring while fast-forwarding or rewinding.

Cycle: Function which constantly repeats the passage between the *locator positions*.

Data bytes: These define the content of a MIDI message. The first data byte represents the note, or controller number; and the second the velocity, or controller value.

Default, default value: The preset parameter value.

Delay: An object that can create a series of repeats. In the Arrange window, a *playback parameter* which can delay or advance a selected Track by a given number of milliseconds.

Dialog, Dialog box: A window containing a query or message. It must be cancelled or replied to before it will disappear and allow you to continue.

DIMM: Abbreviation for Double Inline Memory Module. Type of RAM chip.

Display Format Value: Adjustable note value for the grid used in displays and operations. Third number in the position indicator.

Drag & Drop: Grabbing objects with the mouse, moving them, and releasing them.

Driver: In MAGIX midi studio generation 6: specialized support for audio hardware. The part of MAGIX midi studio generation 6 which allows you to address and use this hardware.

Drop, drop-in, drop-out (Punch in/out): Going into and out of record to record over a section of an existing recording.

Edit: Local menu with clipboard functions.

Editor: Window for editing MIDI Events.

Envelope, Envelope Generator: This term comes from the analogue synthesizer technique. Produces a change of voltage over time after triggering (e. g. by hitting a key on the keyboard).

EQ, Equalizer: Used to boost or cut frequencies within a sound spectrum.

Erase: Delete

Event definition: Parameter for defining the display of a line in the *Drum Editor*.

File: In MAGIX midi studio generation 6 the two most important types of file are: 1. Song files containing all the MIDI events and parameter settings in a song (including mixer automation data) plus information about which audio files are to be played; 2. Audio files containing the actual recordings of guitar, vocals, etc. (not actually stored in the song files).

Flip menu: See *Pull-down menu*.

Float window: Window with special status which always “floats” on the surface above all the other windows, but can only be operated with the mouse.

Font: Character printing style.

Frame: Unit of time. A second in the *SMPTE* standard is divided into frames, corresponding to the frames in a movie or video.

GM (General MIDI): Standard for MIDI sound modules, including standardized instrument sounds on the 128 program numbers, a standardized key assignment for drum and percussion sounds on MIDI channel 10, 16-part multi-timbral and at least 24-voice polyphony.

Grab (an object): Placing the mouse pointer on the object, pressing the mouse button and keeping it held down.

GS: Extended *GM* standard developed by Roland Inc.

Hierarchical menus: Structured menus where highlighting an individual entry opens yet another menu.

Icon: Small graphic symbol. In MAGIX midi studio generation 6 an icon may be assigned to the tracks in the Arrange window.

Info Line: Display at the top of the window which tells you the position of objects when using the mouse tools.

Insert: Point on a mixer where you can patch in an effect (Plug In). The effect objects on MAGIX midi studio generation 6's track and audio mixers have inserts for effects.

Key command: Function which can be executed by pressing a specific key.

Legato: Method of musical performance that smoothly connects one note to the next.

Local menu: Menu in a window containing functions which are relevant to only that particular window.

Local Off: Operating mode on a MIDI synthesizer with a keyboard where the keyboard (local) does not directly play its own integrated sound generator. This is useful when using it as a master keyboard in a MIDI setup with a sequencer.

Locators (left and right): Two programmable song positions which set the cycle limits in the Transport window. The Locators also can be used to define the area to be edited for certain functions.

Loop: Constant repetition of an object, up to the next object in the same track, or to the end of the song (whichever comes first).

Merge: Mix, combine together.

Meta event: Type of event in the Event List. Contains non-MIDI events that can control special MAGIX midi studio generation 6 features, like text or screenset configurations.

MIDI (Musical Instrument Digital Interface): Standardized, asynchronized, serial and event-oriented interface for electronic musical instruments.

MIDI Clock: Short *MIDI message* for *clock* signals. See also: SPP.

MIDI Event: Individual MIDI command, such as a note on command. Continuous controller movements (e.g. modulation wheel) produce a quick succession of individual events with absolute values.

MIDI Message: A message transmitted via MIDI consisting of 1 status byte and none, one, two or (with system exclusive commands) many data bytes. See MIDI Event.

MIDI Multi Mode: Multi-timbral operating mode on a MIDI sound module in which different sounds can be controlled polyphonically on different MIDI channels. A multi mode sound module behaves like several polyphonic sound modules. General MIDI prescribes a 16-part multimode, (i.e. the ability to control 16 different parts individually). Most modern sound generators support multi mode. In MAGIX midi studio generation 6, multi mode sound modules are addressed via multi instruments.

MIDI System Exclusive Message: Also SysEx. System exclusive data forms the top tier in the hierarchy of MIDI commands. These messages are tagged with an identification number for each manufacturer (the Sys Ex Manufacturer's ID number). The actual contents of these MIDI commands is up to the manufacturer. They are used for transferring whole sound programs and/or system settings, and for addressing individual parameters used in sound generation or signal processing. Editor software transmits and receives MIDI system exclusive messages from MIDI devices, allowing you to program these MIDI devices on your computer.

Modifier (Special keys): Computer keyboard keys used together with "normal" keys to change their function: **shift ctrl alt**.

Modulation: Generally, a slight, continuously varying pitch change. The MIDI standard is controller no. 1, transmitted on keyboards by the non-centered control wheel (or by moving the joystick vertically).

Moving: *Grabbing* an object, moving it with the mouse button held down and releasing it at the target position.

MTC (MIDI Time Code): "Translation" of a SMPTE signal into the MIDI Standard.

Mute: Switch off (a sound or track).

Normalize: 1) This function applies the settings of the current *playback parameters* to the selected events (by altering the actual events themselves), and clears the *playback parameter* settings.

2) (Audio): This function raises the volume of a recorded audio file to the maximum digital level without altering the dynamic content.

Note number (Note #): Pitch of a MIDI note, controlled by the first data byte of a MIDI note event.

Object: General term for *sequences*, *Events* or a *Mixer's channel*.

Option: Alternative function, often in the form of a *checkbox*, sometimes also as a menu entry to be ticked.

Parameter box: Field on the left side of the screen where you can adjust the parameters of the selected object.

Paste: Add. The command **ctrl v** adds the contents of the clipboard—i.e. whatever you copied with **ctrl c** or cut with **ctrl x**—to the position of the cursor, or song position line.

Pitch Bend Message: MIDI message transmitted by a keyboard's pitch bend wheel.

Pitch Bend Wheel: Hand wheel for generating pitch bend messages.

Pixel: One matrix dot on the computer screen. Short for "picture element."

Play parameters: The parameters for quantization, transposition, velocity, compression and delay which do not alter the stored data but merely affect how the events are played back.

Position indicator: Units: bars, beats, sub-divisions (often written simply as *divisions* in this manual) and ticks.

Post Fader: Positioned after the fader in the signal flow, i.e. the level of a signal routed post fader to an auxiliary changes when the fader is moved. Post fader aux sends are normally used for effects (such as reverb) so that the reverb level changes with the channel level, and the ratio of original and effect signal remains constant

P-Press: Polyphonic key pressure, also known as polyphonic aftertouch. Rare and very data-intensive type of command, measuring the pressure exerted on each individual key. Very few keyboards have sensors for poly pressure.

Pre Fader: Positioned before the fader in the signal flow, i.e. the level of a signal routed pre fader to an auxiliary does not change when the fader is moved. Pre fader aux sends are normally used for monitor mixes, so that the mix on stage or in the studio headphones does not change when the levels are altered in the control room.

Preferences: Storable settings for a program.

Pull-down menu: Selection menu which opens when you *grab* the parameter input box. Occasionally referred to in this manual as a flip menu.

Punch, punch-in, punch-out (Drop in/out): Going into and out of record to record over a section of an existing recording.

Quantization: Time-correction of note positions by moving them to the nearest point on a selectable grid.

Region: Chosen area of an audio file which is registered in the Audio window for use in the song and, can be placed in the Arrange window on the audio tracks, just like a sequence can be placed on the MIDI tracks. The region could be the whole length of the audio file, or any portion thereof. A region is created automatically after every audio recording.

Replace: Operating mode where a new recording deletes the previous one (like a tape machine).

Rubber band: Technique for selecting items by click-holding the mouse, and lassoing it over a group of adjacent items.

Scroll bars and scroll box: Gray beam at the edge of a window with a movable box inside it for adjusting the section of a song displayed in the window.

Screenset: Storage location for the layout of the various MAGIX midi studio generation 6 windows. Each MAGIX midi studio generation 6 song may store up to 90 Screensets.

Scrubbing: On tape machines: manually moving the tape across the tape head. In a sequencer: manually moving the *song position line* through the song, triggering playback of the MIDI events.

Selecting: Choosing. Selected objects are displayed in inverted colors.

Sends: Abbreviation for auxiliary sends (used for effect or monitor sends).

Sequence: A collection of MIDI events which is shown in the Arrange window as a horizontal beam with a name on it.

SMPTE: Standard for time coding in a specialized sound signal used for synchronizing different devices. There are six formats. Acronym for the **S**ociety of **M**otion **P**icture and **T**elevision **E**ngineers. Specifies the “counter position” of a “SMPTE clock”. Composed of hours, minutes, seconds and *frames*. The MIDI variation of SMPTE is MIDI Time Code (MTC).

Song Position Line: Vertical line in the Arrange, Matrix and Score windows which indicates the current song position. It can be grabbed with the mouse and moved (see *scrubbing*).

Sound source: General term for MIDI-controllable synthesizer, sampler, drum machine, digital piano, etc.

SPP, song position pointer: A specific type of MIDI message which gives the distance from the song start in $1/16$ notes, and is transmitted along with MIDI clock.

SMF (Standard MIDI File): Standard file format for exchanging songs between different sequencers or MIDI file players.

Status byte: First byte in a MIDI message, which determines the type of message.

Subframe: A sub-division of a SMPTE *frame*, corresponding to the individual bits of a SMPTE frame. One frame consists of 80 bits.

Swing: Parameter which alters the rigid timing of a quantization grid by delaying every other note of a specified *sub-division* by a definable amount.

Synchronization: Method for keeping several recording/playback devices locked together timing-wise.

Synchronizer: Unit for centrally controlling the synchronization of several devices.

Tick, plural = ticks: The smallest unit of timing resolution in a sequencer. In MAGIX midi studio generation 6 this is $1/3840$ note.

Timing: Measure of the ability to play notes at the right time.

Toggle: Switches backwards and forwards between two states (windows, parameter values, etc.)

Track column: Situated to the left of the working area of the Arrange window. Displays the instruments assigned to various tracks.

Undo: Function which reverses the previous operation.

Update: 1. New revised and improved version of a program. 2. Mixer automation mode in MAGIX midi studio generation 6, where the old automation data is replaced by new recordings of existing controllers.

VCA: This term has its roots in the analogue synthesizer technique. The abbreviation stands for Voltage Controlled Amplifier. The level of a signal passing through a VCA will be controlled by a voltage. Usually, this voltage is been taken from an envelope generator.

VCF: This term has its roots in the analogue synthesizer technique. The abbreviation stands for Voltage Controlled Filter. The frequency content of a signal passing through a VCF will be controlled by a voltage. Usually, this voltage is been taken from a filter envelope generator.

Velocity: Force with which a MIDI note is struck; controlled by the second data byte of a note event.

View: Local menu with display options.

Virtual memory: Area of the hard disk which can be used by the PC as an extension of the RAM memory. The disadvantage in using it is its very slow access time.

WAV File: Audio file format in the Windows operating system. Uses the file extension, “.WAV”.

Window class: Status of the window as a *float window* or a normal window. Float windows are not hidden by normal windows in the same program.

Work area: The area of a window in which you edit objects (sequences or events).

WYSIWYG: “What You See Is What You Get”. The ability of a program to accurately display the forthcoming print-out on the screen, e.g. Page View mode in MAGIX midi studio generation 6’s Score window.

XG: Extended General MIDI standard from Yamaha, compatible with Roland GS.

Zoom function: Shrinking or enlarging the display in MAGIX midi studio generation 6 windows.

Part 3

Tutorial

**audio
studio**

New features in the generation 6 version

- The maximum number of tracks is now 24 for MAGIX audio studio and 48 for MAGIX audio studio deLuxe.
- Direct Internet connection: Via FTP connection you can use the internet as a boundless image and sample pool and load audio samples or songs from the World Wide Web directly into your arrangement. The MAGIX web publishing area is for the publishing of your work – one mouse click takes you into the charts. Every surfer is entitled to vote, the best songs and videos will receive attractive prices...
- The menu structure of the program has been completely overhauled. The numerous menu commands and dialogues have been regrouped and are now easier to locate.
- MP3 files – like wave files – can be downloaded directly, processed, arranged and enhanced with real time effects. For MP3 export, the audio studio has a QDesign® limited encoder for MP3 files valid for 20 applications. After that an upgrade can be bought.
- All supported media formats can be downloaded directly and processed; no separate conversion is required.
- There are two new mouse modes: time stretching can now be processed via the object tabs directly in the VIP. For hard disk projects (HDPs), a freehand mode is available with which crackling etc. can easily and quickly be eliminated from the audio material.
- The equaliser, echo/reverb and compressor effects have been improved.
- The transport control contains a Jog & Shuttle Wheel, which can be ‘scrubbed’ across the files.

Quickstart

When you have installed MAGIX audio studio generation 6, a soundcard and a Windows driver, make use of the following example to get to know the MAGIX audio studio process.

Start the audio studio by double clicking the icon in the start menu in the MAGIX directory.

The first recording

We will record two stereo tracks for our initial test.

Let's assume that you are using an audio source like a microphone or a musical instrument. Connect this with the help of the appropriate cable to the soundcard input.

Preliminary settings

First create a 4-track multi-track project. After the program start you will see a dialogue in which you can select the creation of a multi-track project. (If not, select the option 'New multi-track project' (VIP) in the file menu.)

This will open the dialogue window "Setup for a new VIP".

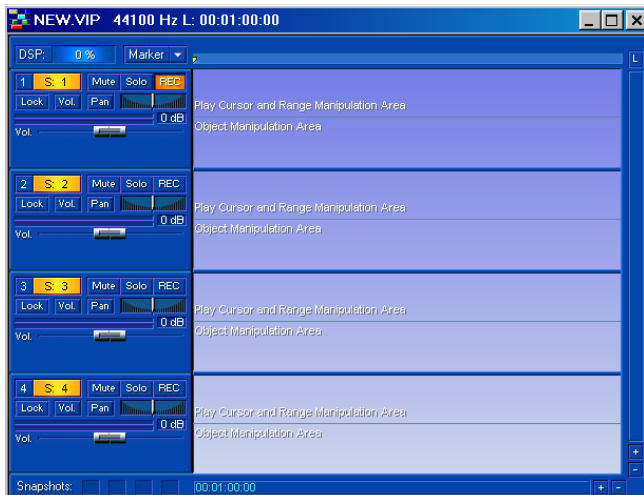
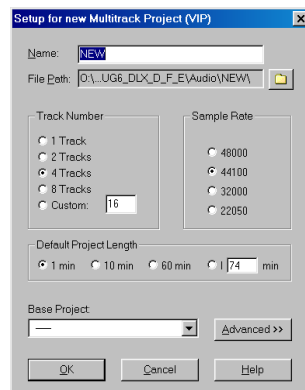
– Now please enter the following settings:

– 4 tracks (you can use the menu "Edit at any time to extend the number of tracks in your arrangement)

– Sample rate: 44.1 kHz (for a CD quality recording).

MAGIX audio studio opens a new, empty project with four stereo tracks.

The Project window can be enlarged to screen size by pressing the enter key.





The first track in your VIP (Virtual Project) is activated for recording. This is made visible by the red REC button for the first track.

All tracks within a project can be used for recording.

The first track

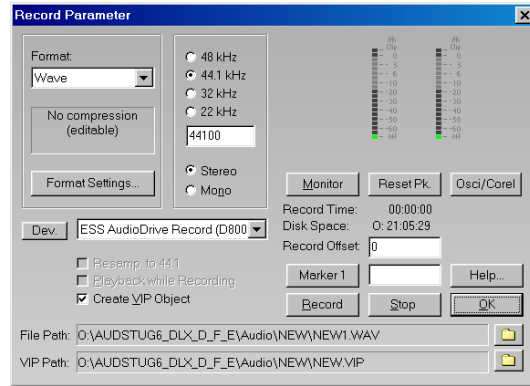
1. Click the small box at the top right of the record button in the transport console, which is activated as a standard. (Otherwise, you can activate it via the Window menu). You can now enter various settings in the newly opened dialogue “Record Parameter”.



Record



Small box for the Record Parameter dialogue

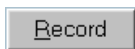
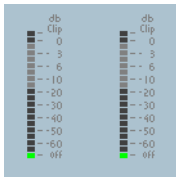


In it you can make several selections as far as your recording settings are concerned. For the time being we are not concerning ourselves with any settings and leave the default settings in place.

2. Activate the Monitor button.



This option allows you to preview the audio prior to actually recording it. Start the audio source to monitor the strength of the audio signal. You might need to adjust the volume with either an external mixing console or by using the sound card’s audio utilities to adjust the input volume. If the levels are at the desired volume you can move on to the next step. The LED peakmeters will show you whether your audio is coming in too loud as well. If you see a ‘Clip’ indicator, please reduce the volume of the audio signal.



3. Restart the audio again and click on the Record button in the Record Parameter dialog or press ‘R’ on the keyboard.

MAGIX audio studio generation 6 will now start recording your audio and will indicate the length and progress of the recording in the Record Time field. During the recording

the monitor LED peakmeters might actually react a little bit sluggish depending on the computer speed of your system. This is because MAGIX audio studio monitors the audio signal that is recorded from the buffers, which are lagging behind to ensure that the recording process takes top priority.

4. At the desired length click the Stop button.



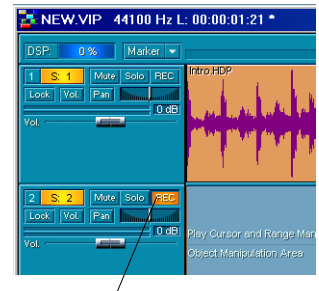
MAGIX audio studio stops the recording and display a dialogue that basically asks you to confirm the recording. You have a choice to redo your recording at this point. If you click on the Delete button, you return to the Record Parameter window and you can redo your recording all over. If you click on the OK button, MAGIX audio studio will insert a new object at the beginning of the first track.

The second track

Now that we have successfully recorded the first track, we can move on to record the second track. Depending on whether you have one of the sound cards that allow for simultaneous playback and record, you will be able to monitor the first track while you record the second track.

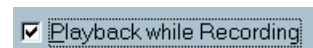
To record the second track:

1. Disable the REC button on the first track .
2. Click on the REC button on the second track.
3. Click on the Record button in the toolbar.



The REC button on the second track

The Record Parameter dialogue appears on the screen and allows you to make further choices. Since we want to monitor the already existing track, we will need to enable the option **Playback while Recording**.



NOTE: This requires that you have a sound card that is capable of simultaneously recording and playing back audio. If you do not have such a card and your system, MAGIX audio studio will generate a error display indicating that there is some problem with your sound card. This is normal as MAGIX audio studio is not able to address the card for the simultaneous playback and record functionality, also referred to as full-duplex.

4. Click on the Monitor button.
5. Start the audio for the second track or sing into the microphone. If the levels need to be adjusted again, please do so now.
6. Click on the Record button or press the 'R' key.

MAGIX audio studio generation 6 now starts recording the second audio track and at the same time will playback the contents of the first track.

7. Click the Stop button at the desired location.

The confirmation dialogue appears on the screen. If you click on OK. MAGIX audio studio inserts another object into the second track. If you decide to delete the audio, you have another chance to record the audio over again.

NOTE: You can add additional tracks at this point by repeating the above steps. Depending on the system configuration and power of your computer system, you may be able to record a number of additional tracks. However, if MAGIX audio studio starts to skip the audio playback during the recording process, it is time to reduce the number of playback tracks. The skipping of the audio is an indication that either your buffer settings are too low or your computer system cannot carry all the load. If you run into problems while recording additional tracks, please see the chapter on **Problems and Solutions**.

The first arrangement

Every recording produces an object that can be processed and arranged on the tracks in various ways. In order to move or delete objects on the track, click the lower half of the object with the mouse button. By keeping the mouse button depressed you can now move the object to any position and track you select. The Del button deletes the object from the track.

VIPs and Waves

A so-called wave project is set up for every object that you can see in the arranger. You can work essentially with two different project types: arrangements (VIPs) – i.e. multi-track projects with different objects – or wave projects – i.e. the audio material used in the VIPs.

When you delete an object in an arrangement, the audio material and corresponding wave project remain in tact. You can access the wave project used in the current arrangement (VIP) via the window menu. Move across to the wave project of your recording! As your recording is saved directly onto the hard disk, the corresponding wave project is allocated the suffix HDP (hard disk project). When you open the HDP you will see a wave presentation of the audio materials in large format.

In wave projects you can process your material directly. You can cut, enhance with effects etc. This alters the audio material. VIP processing is different: Here you work ‘virtually’ – positioning, cutting and many effects are calculated in real time; the original material undergoes no change.

Now move back to your VIP! The tracks in a virtual project support recording of several tracks simultaneously or in sequence and downloading of audio material. You can therefore set up different tracks for drums, bass and guitar, for example. When you record or download, these tracks will then contain virtual objects of the new material.

Download audio material

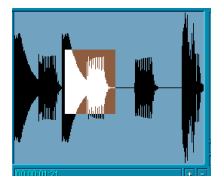
Audio material can be downloaded from various sources and in various file formats. You can use audio CDs, MP3 files from the Internet, sample CDs (like the MAGIX soundpool series) or other audio files. You can use all supported formats on any track within a project.

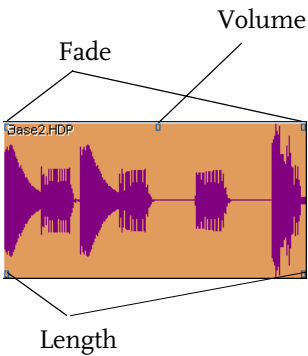
There are several ways to download material. The ‘Open’ option in the file menu offers all supported data formats. Audio CD tracks must first be copied separately to the hard disk (‘grabbed’). To do this, select the appropriate option in the file menu (or in the CD menu of the deLuxe version). The simplest method is to download audio material directly from the Windows Explorer. Just open the Windows Explorer, organise the Explorer and audio studio windows in such a way that both are accessible, access the directory in Explorer that contains the audio material and pull the desired files across to your audio studio with the simple drag & drop function.

Position objects

All files are displayed as objects in the arranger and can be moved to any track and arranged. The tool bar contains a separate bar with buttons for various mouse modes. If this is not visible, you can activate it via the menu ‘Window>Mouse Mode Bar’. Normally, you will work in universal mode, which makes very comprehensive possibilities available to you. To move an object in universal mode, click the lower half of the object. If you keep the mouse button depressed, you can move the object.

If you click the upper half of the object, you expand various areas (“ranges”) that are displayed in inverted format. These areas can be played separately and edited (e.g. enhanced with effects).





Handles (Tabs)

All objects in VIP can be shortened or looped, simply lead the mouse to one of the lower corners of the object until the mouse pointer becomes a stretch symbol. Now the object can be compressed. If the option 'Create looped object' is activated in the 'Object' menu, the object can be stretched via the lower right tab. This allows you to create entire rhythm tracks from short drum samples simply by stretching!

At the two upper corners there are two fade tabs, which are pulled towards the inside in order to fade the object in or out. The upper middle tab adjusts the volume of the object.

Processing

All objects can be cut into several objects. To do this, select the option 'Cut object' in the 'Process' menu or 'Separate objects' in the mouse mode. The mouse pointer becomes a scissors and you can cut the objects into as many smaller objects as you like.

Multiple objects can be consolidated as a group, e.g. to prevent inadvertent movement within the group. The first step here is to mark individual objects.

Single objects can be marked simply by clicking the lower half with the mouse button in standard mouse mode. The three upper object tabs of a marked object become grey to indicate their selection. Multiple objects can be marked by keeping the Shift key depressed. If you click with the mouse next to an object on the lower half of track, you can draw a rectangle with the depressed mouse button. All objects within the rectangle are then marked ('rubber band selection').

Export

The destination for all arrangements and processes is normally an audio file. There are a number of different export formats, which can be selected via the File menu. In the deLuxe version, the arrangement can be burned directly onto an audio CD. All export calculations are independent of the play performance. If the computer experiences replay difficulties due to an excessive number of objects and effects, the export file will nevertheless calculate correctly. In the event of computer overload, it is recommendable here to move already completed passages of complex arrangements by export or mix-down function into a single file.

Terminology

The following lists some specific terms that were defined to describe components of MAGIX audio studio generation 6 that are mentioned frequently throughout the documentation. Even if you were somewhat familiar with some of the particulars, we would like to encourage you to read the definitions for the individual terms. The terms are specific context related and are not further covered in the rest of the documentation. PC typical terms such as button, window, and file requester are not explained here. Please refer to a PC or Windows™ manual for further details on those terms.

Overview

1. Your recordings will be saved as individual **Wave projects**. You can edit those projects as a unit or only parts of it (ranges).
2. Multiple Wave projects or different **ranges** of Wave projects can be arranged as **Virtual projects (VIPs)**.
3. In virtual multi-track projects, audio tracks will be positioned and displayed as **objects**. Within those objects you can select ranges, edit them and switch between the different views.
4. Important working functions for audio are the **Clip** and the **VirtClip** that function as a temporary saving space for Wave projects and Virtual projects.
5. Important graphical tools are the **handles**, **marker**, **section** and the **play cursor**. With the use of the handles and markers you can change and position the objects. In the section you can edit different ranges of the project. The play cursor shows and marks the play-back position.

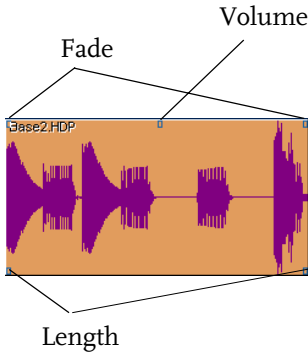
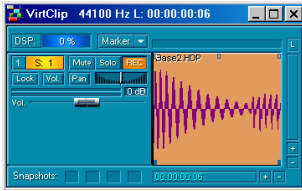
Terms in alphabetic order:

Clip

Clip for Audio Data (Wave Projects)

The **Clip** is a storage place for samples from Wave projects, which are copied from a Wave project window and can be inserted in the same Wave project or a different one. In addition, the content of the Clip can also be mixed with that of another Wave project window. The Clip always takes on the attributes of the originating project (Bit Rate, Sample Rate, Mono, L&R, or Stereo Mode). The Clip is represented on the screen with a window that contains the word 'Clip' in its title bar. Otherwise, the Clip is like any other project that can be played back, edited and saved with a different name.





VirtClip for Virtual Projects

While the Clip is responsible for transferring material from and to Wave project windows, the **VirtClip** does this with data from Virtual projects. Likewise, the window is not initially opened and displayed.

Handle

Handles are the five little rectangles that appear on the outline of a selected object.

LENGTH HANDLE: Lower right and left-hand handles. These can be used to change the object length.

FADE HANDLE: Upper right and left-hand handles. These handles change the fade in and fade out of an object.

VOLUME HANDLE: Upper middle handle. This handle sets the volume for the selected object or object group. The level is displayed in the upper left-hand corner of the VIP window.

Marker

Markers are used to store specific time locations. They are indicated on the upper edge of the sample display by small triangles and show any assigned name or number. These markers can be moved with the left mouse button.

Any project can have an unlimited number of markers. Up to 10 of these markers can be accessed through the number keys. A marker that has been assigned to one of the number keys carries the name '1' through '10'. The menu option **Range>Store Marker>Other** can be used to store markers with specific names. These names are displayed next to the marker in the project window.

If you click the right mouse button in the area where the markers are displayed, a context sensitive pop-up menu is displayed, which contains additional commands to manipulate markers.

Use the **Marker Manager** (Menu 'Tools' or Marker Context menu) to manage and rename markers.

To select a range between two markers, click on the triangle of the first marker to activate it, followed by holding the Shift key and clicking on the second marker.

Objects

Audio data is displayed in Virtual projects via rectangles, which are located in multiple tracks. These are the so-called **Objects**. An object is a representation of sample material

from an audio file. In other words: An object references or links to audio data contained in a Wave project. Additional information about objects is available in the definition list for **Virtual Projects** .

Play-Cursor

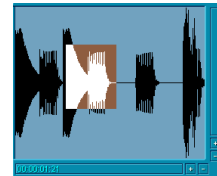
The **Play Cursor** or the Position Line is the vertical moving line during playback and shows the current playback position.

The start position of the Play Cursor (playback start) is set by clicking the left mouse button into the project window. (Click next to an object for virtual objects.) This deselects any previous range.

Range

If you edit sound and multi-tracks in MAGIX audio studio generation 6, you'll mostly work with different **ranges** in your Wave- and Virtual projects.

1. Ranges are used to specify the sections that you want to edit (cut, paste, normalize, fade in/out, volume controls, effects and delete).
2. Ranges define the loops considered in the playback of the projects.
3. Ranges define the outlines (edge) of the section of the graphical display of the object (rectangle).



Especially the upper and lower edges may be analyzed during editing, which is not the case with some of the function groups!

A range can be selected with the mouse. Ranges can be played back with the Spacebar. It is defined by the beginning and end (horizontal) and by the upper and lower limits (vertical).

Every project can have an unlimited number of ranges defined. Up to 10 ranges can be accessed directly through the function keys. Additional ranges can be accessed with the Range Manager. The vertical range borders can be locked with the function Fix Vertically (Menu 'View'). This will set the height of the range to a maximum value, which is the default setting for Virtual projects.

Section

MAGIX audio studio generation 6 offers the possibility of displaying any project window in up to three **sections**. This enables you to show the complete sample in one section while displaying smaller sections in one or two other

sections. Each section can be accessed and edited in separately.

Active Section when using Zoom Levels

If Zoom commands are used on one of the display sections, such as the buttons on the Positionbar, it is important to designate the section that is to be zoomed. Click on the left or right scrollbar of a section to activate it.

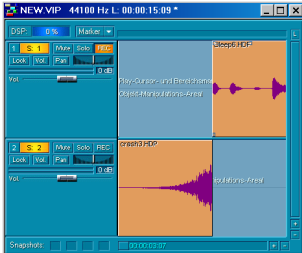
Virtual Projects (VIPs)

Virtual projects are the centerpiece of MAGIX audio studio generation 6! In Virtual projects you can arrange objects taken from multiple Wave projects and arrange complex audio projects. All cut operations, volume level changes, fades, and more are completely virtual, meaning that the audio material is not destroyed! This allows you to select the proper cut position, cut length, volume level, effect setting, etc. by experimenting without losing audio material or alter it.

Detailed information about working with Virtual projects can be found in the electronic Reference Manual.

Even if the present audio hardware can only play back up to 2 channels of audio (Stereo), multiple tracks beyond a stereo pair can be played back in a Virtual project.

The display of the Virtual project can be switched between two definitions. The Tab key allows you to switch between the two modes. The key combination Shift + Tab displays the Editor dialog for the Virtual project display preferences. Attributes such as displaying only a single graphic form for Stereo tracks can be chosen next to whether you want text displayed in the objects.



VIP with two objects

Buttons on the left side of each track in VIPs

MUTE: Mute: Mutes the corresponding track.

SOLO: Only this track is played back when this button is active (independent from any Mute button assignments).

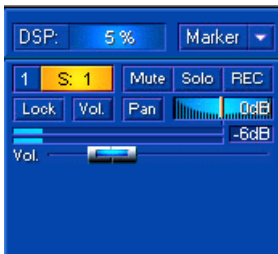
LOCK: Objects on this track can no longer be moved.

VOL: Activates the volume automation curve for the track.

PAN: Activates the panorama automation curve for the track.

REC: Arms the track for recording.

S-BUTTON: activates the track info dialogue where you can activate the surround mode for each track.



Snapshot Buttons in VIPs

The four buttons in the lower left-hand section of the Virtual project window allow you to save four setups incl. Zoom-Level, Display-Position, and Display Mode. To store a setup, hold the Shift key and click on one of the buttons. A single click on the button without holding the Shift key recalls the stored setup or zoom level. Any changes applied to the windows will return to the state saved to the button.



Wave projects

A Wave project contains audio data. Access to the Wave project is obtained by selecting the corresponding Wave project window. The title bar of the window displays the name of the Wave project, the bit resolution, the length of the sample, and the resulting storage requirement. To activate the window, simply click into the project window. MAGIX audio studio generation 6 can work with an unlimited number of Wave project window displayed on the screen.



Working in a Wave project window works much the same as with conventional sample editing programs and you may already be used to those conventions.

To perform destructive editing, it is necessary to select a range with the left mouse button.

Clicking the right mouse button opens a context sensitive pop-up menu. The menu displays the most important functions for working with destructive processing.

Wave projects feature five mouse modes, which can be selected in Options>Program Preferences>Wave Project Mouse Mode or via the mouse mode toolbar.

For additional information see **Effects**. Please keep in mind that destructive editing is also possible in most cases in an object oriented fashion in Virtual projects.

RAM and HD Wave Projects

The **RAM Wave project** load their complete content into the RAM memory of the computer.

When working with RAM Wave projects, you can decide at the end, whether you want to keep the changes or whether you want to discard them by simply not saving the changes to the file stored on the hard disk. Since the material is completely loaded into the RAM memory of the computer, any changes will be lost unless they are saved to the file stored to the hard disk (Shortcut: 's').

This method of editing and processing is equivalent to the computer's native behavior. However, with large data content as is the case with audio files, the computer suffers from extreme speed loss since the operating system starts

to transfer the memory contents to the virtual memory file on the hard disk.

Any editing or processing applied to HD Wave projects are immediately written back to the hard disk file, as is the case with conventional tape recorders. Prudence is suggested when using the editing options in the menu Effects and any commands in the Edit menu to prevent any accidental loss of audio material.

For test or preview purposes, please follow the outlined below:

First, work on a copy of the audio material. To accomplish this, copy the selected range into the Clip (Shortcut: 'c'). Open or activate the Clip window and select the complete contents of the window (Shortcut: 'a'). Any processing can now be applied to the Clip contents.

Mono, L&R, and Stereo Wave Projects

MONO: Contains mono audio data.

STEREO: Stereo audio with a standard one-channel graphical display (combined display of both stereo channels). Contains stereo audio data. The sample values for the right and left channels are contained in the same file in successive order.

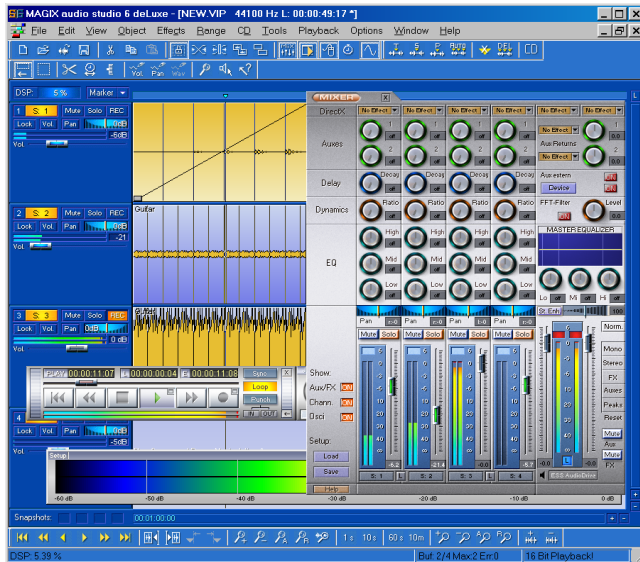
It is also possible to display both stereo channels. To switch the display select **View > VIP Display Mode > Definition > Stereo in 2.**

L&R: Stereo audio with two-channel graphical display (separate display of both tracks). Contains two mono samples (mono audio data) for both stereo tracks.

Using L&R projects in MAGIX audio studio is only necessary as a transitional step to convert a stereo Wave project into two mono projects and vice versa.

All types of Wave projects (Mono, L&R, Stereo) can be used in the same VIP. To play back L&R Wave projects in stereo, the parameters for the two (mono) tracks need to be set to 'left' and 'right' respectively.

Virtual Editing Concepts



Working with Objects

Integrating an audio file as a VIP Object

METHOD 1: LOADING A FILE INTO A VIP

Mark a range in the VIP and load the WAV file with File>Open Project>Audio File. The file is inserted at the beginning of the selected range as an object. The range also denotes the track into which the WAV file is inserted.

METHOD 2: DRAG & DROP FROM THE EXPLORER

You may use the Windows Explorer to drag & drop audio files into the VIP. The program automatically creates objects and their associated HD Wave projects.

Integrating a WAV File Range as a VIP Object

Open a Wave Project. Mark a range, which is to be incorporated into a Virtual project (Complete Range: key 'a'). Create a new Virtual project with File>New Multi Track Project (Shortcut: 'e') or with the corresponding button in the toolbar. Tile the open windows by pressing the 'Enter' key. Drag the selected range in the Wave project into the Virtual project by clicking the left mouse button into the range and dragging the range into a VIP track. A new object is created in the VIP at the position the mouse button was released.

Accessing Audio Material in an Object

Select any object. In the menu Object, select "Destructive Editing". (The same menu option is available from the context sensitive menu when clicking the right mouse button on the object.) This opens the corresponding Wave project window. The marked range represents the audio material that is used in the VIP object.

Selecting an Object with the Mouse

Clicking the left mouse button selects the desired object. Prerequisite for this is the selection of the correct Mouse Mode: Object Mode, Object & Curve Mode, and Universal Tool Mode all offer this functionality. In the Universal Tool Mode, the object is selected by clicking on the lower half of the object.

The five handles on the outline of the objects identify any selection of objects. While the mouse button is held clicked, the outline of the object is also displayed.

Clicking the mouse button outside of the object confines deselects any object selection.

Also, see the information in **Details about the Individual Mouse Modes** .

Selecting Multiple Objects with the Mouse

If the Shift or Ctrl key is pressed in addition to a mouse click, additional objects are selected without undoing any previous object selection.

Prerequisite for this is the selection of the correct Mouse Mode: Object Mode, Object & Curve Mode, and Universal Tool Mode all offer this functionality. In the Universal Tool Mode, the object is selected by clicking on the lower half of the object.

Another method of selecting multiple objects is the use of the **Object Lasso**. Simply click the left mouse button at an empty VIP track pane location to the left of the desired objects and drag a marquee (Object Lasso) around the object you would like to select. Once the mouse button is released, the object covered by the Object Lasso will be selected.

Also, see the information in **Details about the Individual Mouse Modes** .

Moving and Duplicating Objects

Any object selection can be moved (dragged) along the horizontal time line or vertically into different tracks by clicking and holding the left mouse button on one of the selected objects. After releasing the mouse button, the objects appear at the new location.

If multiple objects situated in independent tracks are selected, the complete group can only be moved within the confines of the VIP track pane. In other words, all objects need to stay within the vertical and horizontal track borders. If the Shift key is pressed while moving the object selection, the horizontal time position is maintained. The object selection can only be moved vertically (to different tracks). If the Ctrl key is pressed while moving the object selection, a copy of the object selection is created. In this case, the copy of the original object selection is placed at the destination. The original objects maintain their position. Prerequisite for this is the selection of the correct Mouse Mode: Object Mode, Object & Curve Mode, and Universal Tool Mode all offer this functionality. In the Universal Tool Mode, the object is selected by clicking on the lower half of the object.

Also, see the information in **Details about the Individual Mouse Modes** .

Changing Object Borders in Virtual Projects

The lower object handles of a selected object can be used to alter the object borders. The mouse can be used to change the object beginning or end. The object length can only be changed within the confines of the physical Wave project window. This means that the beginning of the object can not be extended beyond the beginning or end of the corresponding Wave project. Conversely, the end of the object can not be extended beyond the beginning or end of the corresponding Wave project.

Prerequisite for this is the selection of the correct Mouse Mode: Object Mode, Object & Curve Mode, and Universal Tool Mode all offer this functionality. In the Universal Tool Mode, the object is selected by clicking on the lower half of the object.

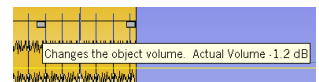
Also, see the information in **Details about the Individual Mouse Modes** .

Fade-In / Fade-Out and Object Volume

The object handle in the upper middle can be used to set the object volume. The exact volume level in dB during the change is visible in the pop up window at the object.

The upper left and right-hand handles of the object change the fade-in and fade-out settings of the object.

Since these changes are applied in real-time, during playback of the project, the original audio material is left intact. This allows easy set up of fades and volume levels without having to fear data loss.

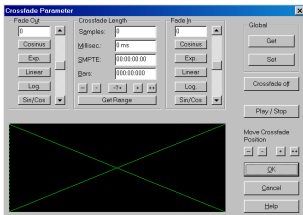


Prerequisite for this is the selection of the correct Mouse Mode: Object Mode, Object & Curve Mode, and Universal Tool Mode all offer this functionality. In the Universal Tool Mode, the object is selected by clicking on the lower half of the object.

Also, see the information in **Details about the Individual Mouse Modes** .

Overlapping Objects

A track (channel) can only play back one object at a time. If one object is moved over another object, the previous object is partially or completely taken out of the playback list much like one sheet of paper covers another partially or completely. The invisible part of a covered object will not be audible. By moving the covering object out of the way, the covered section or the complete object can be made audible again. To create a crossfade between two objects that are intersecting each other, the **Crossfade Editor** in the menu Edit can be used.



Working with Ranges

Selecting the Correct Mouse Mode

Initially, the correct mouse mode needs to be selected, since the mouse is the center point of any range manipulation. In Virtual projects, the Range mode and the Universal Tool mode (upper track pane) are available. In Wave projects, the Range mode can be used to select and manipulate ranges.

Selecting a Range

A range can be selected from any position to the next by clicking with the left mouse button into the waveform.

Hold the mouse key and move the cursor within the range/waveform.

The selected range will appear as an inverse rectangle. Release now the mouse button. In the Textile right under the header of the project window you will see the horizontal edges of the selected range.

If you want to select a different range, just click into the area next to the inverse rectangle, but still within the waveform. The previous range will disappear and you are able to select a new range.

Adjusting a Range

Click into the inverse rectangle if you want to extend or shorten the size of the selected range. Move the cursor (hold the mouse key down) into the direction in which you want to extend to. As soon as you slide over the edge of the

rectangle, the selected range will follow your mouse movements. When you are done with the adjustments, release the left mouse button. In this way you can move one edge only to the desired position while maintaining the correct limits.

If the entire waveform is already selected and you still want to adjust only one edge of the rectangle then you have two possibilities:

Either you have another area that is not within the selected range and you can click in there. The previously selected range disappears and a very small range will appear. Now you can define a new area within the previously selected range.

Another way is to press the key 7 (Home) or 1 (End) on the numeric key block on your keyboard. Those are the shortcut commands to place the marker to the start and end of a range. The previously selected range disappears and you can select a new one.

You can also find those functions in the menu **Range**. In addition to that you can use key 4 (cursor left) and key 6 (cursor right) to scroll the range to the left or right.

De-Selecting a Range

If you want to select a different range or want to deactivate the current range selection, click the mouse button once into the project window. The previous range disappears and the window can be used to select a new range.

Changing a Range

If you want to change an already selected range outline (beginning, end, upper, and lower border), simply click the left mouse button into the range and while holding the button, move the mouse in the direction you want to extend or shorten the range. As soon as the mouse pointer crosses over the current range border, the program picks up the border and snaps it to the mouse pointer. You now can move the range border to the new point and release the mouse button.

Moving a Range Horizontally

Hold the Ctrl or Shift key while clicking inside a range. Next, hold the left mouse button clicked and move the range to the new position. Release the mouse button to place the range at the new location.

Saving Ranges and Special Range Commands

Ranges and markers can be saved with the help of menu functions or keyboard shortcuts.

MAGIX audio studio generation 6 can store an unlimited number of ranges and markers. These and other special functions to define, change, and use ranges can be found in the menu **Ranges**.

To manage saved ranges, use the **Range Manager** (Menu 'Tools').

Moving of Ranges in Small Increments (Keyboard Shortcuts)

By holding the Shift key and using the cursor keys, ranges can be moved in small increments. An overview of all keyboard shortcuts can be found in the **Shortcuts** section.

Changing Range Ends in Increments Using the Mouse

This is most often needed when searching for optimized loop borders in Wave projects. The sections can be split with a keyboard shortcut (Shortcut: 'b') or with **Range>Split Range**. All range borders are displayed with a high-resolution zoom level.

Using Shift + b returns the display to a single section.

Playback of a range

Simply press the space key to playback selected samples. There are 3 different types of playback. You can control with the 3 buttons in the top tool bar.

The first one plays the sample or range once, the second plays the sample or range looped, the third plays the sample from the beginning and plays into a loop which is very handy for testing of instrumental loops. If a certain range is selected, that selection will be played back again and again.

When you adjust the range (while playback) it will play the new range immediately. If only a marker is set but not a range, it will only play from the start of the marker to the end of the sample. When you set a marker within a range, it will play a loop from the marker to the end of the range. You can stop the playback with the space key. The All bit resolutions can be reflected immediately. Conversion of the data works in real-time meaning while playback. That means also a high CPU activity, and sometimes the CPU is overloaded or not able to process the request at once and the system stops and/or doesn't react to any regular stop and play commands. In this case, you can press ESC to interrupt the conversion process.

Shortcuts for range editing

- Cursor left, right: The active range scrolls to the left or right
- Cursor left + shift: The edge or the active range will be moved smoothly to the left.
- Cursor right + shift: The edge or the active range will be moved smoothly to the right.
- Cursor left + Ctrl: Zoom into the active range
- Cursor right + Ctrl: Zoom out of the active range
- Cursor left + shift + Ctrl: The selected range will be doubled to the left. This function is very handy when you search for Drumloops: When you have selected a bar in a Rhythm sample, you can use this function to select the previous bar. This will also ease the use of the Virtual projects.
- Page Up: The beginning of the range will be adjusted to the next smaller volume level (to avoid glitch/disturbing noises).
- Page Up + shift

Volume

The volume levels of objects and tracks/channels can be changed at various stages. Here is an overview of the different possibilities:

Wave Project Level

The volume level changes are applied to the audio material with **Effects>Normalize>Normalize File** or with **Fade In/Out**.

The audio data is changed. The computer usage is not affected during playback.

Object Level

Every object can have an independent setting for its volume level. This can be performed by changing the upper handles of the object or with **Effects>Amplitude/Normalize>Normalize Object**.

The audio data is not changed. The calculations are performed in real-time during playback.

Track Level

The volume of every track can be changed dynamically with the volume automation curve and the volume fader in the Mixer or the VIP.

The audio data is not changed. The calculations are performed in real-time during playback.

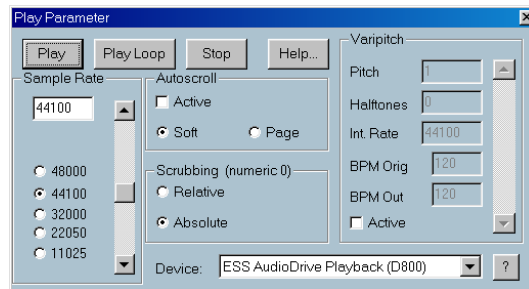
Also, see **Effect Calculations and Signal Manipulations in Effects**.

Output modus

You can setup the output modus in the **Playback parameter** dialog (key P).

With the **sample rate** option you can choose a different sample rate as playback. With **Device** you can select the desired playback device (if you have more then one active soundcard).

Please note that some soundcards are not be able to playback all sample rates.



Tips & Tricks

A few tricks that help make working with MAGIX audio studio generation 6 easy:

Working in Projects

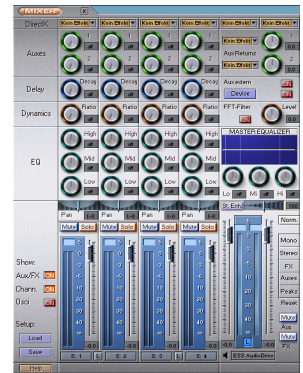
- The **a** key will select the complete sample as a range.
- With the keys **Home** and **End** you can set the play cursor to the beginning or end; all selected ranges will disappear.
- A range can be selected from one exact marker position to the next by clicking on the marker above the waveform. Next, hold the **Shift** key and click on the second marker.
- Using the **Shift + mouse click** a range can be moved horizontally.
- **Shift + Ctrl + Cursor** keys will flip a range to the right or left. This is a great way of testing a loop at a different position.
- Objects in Virtual projects can be displayed in two different modes. By pressing the **Tab** key you alternate between the modes. Pressing **Shift + Tab** will open a dialog window in which you can set the parameters of the display modes.
- Using **Ctrl + mouse click** on an object copies the object.
- Double-clicking the mouse button on the volume curve you can create and delete volume handles. Activate the volume automation curve with the **V**-button in each track of the VIP!
- Change the function of the mouse buttons in VIPs with the menu **Preferences>Mouse Mode** or use one of the Mouse Mode buttons in the Mouse Mode toolbar!
- The function **Lock Objects** allows you to lock objects to prevent for example accidental movement. This is especially useful for multi track recording when the individual tracks need to stay in sync with each other.
- To determine the tempo of a selected range (BPM), open the **Snap Definition** dialog (**Shift + 'r'**) and select the number of beats the selected range represents (for example: 4) in the Section **Free Bar Snap**. Next, click on the button **Get Range** in the section **Free Bar Snap** to retrieve the length of the selected range. The BPM display in the **Fixed Bar Snap** section now displays the BPM of the audio section.
- Try the right mouse button on various components of the VIP window! A context sensitive pop-up menu is displayed, which features useful functions depending on the window component you clicked on. Among them are objects, Record and Mute buttons, and the scrollbars.

- The **Delete** key deletes markers when the Play Cursor (real-time cursor) is located exactly on the marker. The same key deletes any selected objects and deletes ranges that are selected.
- The key **t** separates a selected object at the position of the Play Cursor. If a range is selected within the object, the object is separated on the range borders, which results in three objects. If the **Auto Crossfade mode** is active while the separation takes place, MAGIX audio studio adds smooth crossfades at the separation points. These crossfades can later be edited for further refinement. Use the **Crossfade Editor** to change the crossfade aspects.
- Multiple zoom levels can be saved to the four **Z** buttons in the lower left-hand corner of the Virtual project window. Use the **Shift + left mouse click** to store a zoom level to a specific preset button. When clicking on a previously assigned preset button, the zoom level is recalled. The **S** preset buttons can be used with the **Shift + left mouse click** to store a complete window configuration set. This includes the scroll position of the window and the Mute/Solo assignments for the tracks. This offers four Mute/Solo groups that can be quickly recalled.
- Multiple objects can be selected by holding the **Ctrl** key and individually clicking on the desired object.
- Objects between two points can be selected by holding the **Shift** key and clicking the mouse button behind the last object you want to select.
- WAV, HDP, and RAP Projects, as well as stored objects can be opened with the Windows Explorer by dragging them from the Explorer window to the MAGIX audio studio window. A special menu option is available to open the Explorer from within MAGIX audio studio with **Tools> Explore the HDP Directory**. The default folder opened in Explorer is the same as the HD-Project setting in the **System** dialog (Shortcut:'y').
- **Shift + Tab** can be used to display the **VIP Display Mode** dialog. This dialog allows you to change the VIP Display aspects such as the VIP window behavior when an object or range is moved toward the confines of the currently displayed window borders (VIP Border Scroll).
- When pressing the **Return** key, all open windows are tiled on the MAGIX audio studio screen. This is a good starting point when using drag & drop functionality to move ranges and objects between individual project windows.

- Use the menu option **Edit>Edit Tracks** to manipulate complete tracks. This includes adding new tracks, inserting tracks and rearranging tracks.

Mixer

- Clicking the right mouse button on a Mixer effect control knob or element opens the associated effect dialog.
- A double click on the middle of a control knob or element returns it to the passive default setting. Another double click resets the element to the previous position.
- Clicking on the left or right outer limits of a control knob changes the setting in individual increments.
- In the **Mixer** window, multiple channels can be soloed simultaneously. When holding the **Shift** key and clicking on a Solo button, all previously soloed channels are un-soloed and the single channel is soloed.
- The **Master Normalization** function in the **Mixer** window can be used to instantaneously adjust the output level to 0 dB, no matter how loud or soft the master output signal is.



Performance

- It often helps to run two copies of MAGIX audio studio at the same time (simply start it twice from the Desktop). This allows you to work on an extensive effect processing, a longer recording, the creation of a CD, or any other unattended procedure, while working on another aspect of a second VIP or project. When working on dual processor systems in Windows NT, both instances use the full capacity of one of the processors. Even under Windows 95 this technique can be used to work more effectively. Make sure you disable the option **Check Space Bar for Play Back...** in the **System** dialog (Shortcut: 'y') to prevent the program in the background to stop any process.
- After installation, the VIP Buffer size is set to 16,000 Stereo samples (System Dialog – Shortcut: 'y'). This setting enables all effects in the Master section of the Mixer window with an optimum hard disk performance. If you only work with a small number of VIP tracks and do not use the FFT Filter in the Master section of the Mixer, you may reduce the buffer size up to the minimum of 2,000 Stereo samples. The Start/Stop responds much faster and the Scrubbing (using the keypad 'o' key) works much smoother.

Recording/Playback

- The **Recording** window can be displayed by pressing the shortcut key **r**. The recording can be started with the key **r** and stopped with the key **s** when the Recording window is displayed and active.
- The playback can be started and stopped with the Spacebar. When stopping, the Play Cursor returns to the original position. If the playback is stopped with the **o** key on the numeric keypad, the cursor will stop at the current playback position. Continuing to hold the **o** key, while moving the mouse (Scrubbing) can alter the exact position.

The Effects

This section covers detailed information about the signal path and combination of effects in MAGIX audio studio generation 6.

MAGIX audio studio includes a selection of infinitely variable high-end effects. With some effect combinations, controlled volume or panorama fades, Cross-fading or the external DirectX-plugin-ins you are able to adjust and fine tune the sound to every desired result.

Effects in the VIP

For each VIP (menu 'Effects' or click right mouse button):

- You can use the effects for sound editing: With the **graphical** and the **parametrical equalizer** you can define the high, middle and low frequency range of the audio files.
- Dynamic effects: the **compressor** will align the volume level. Compressor effects are usually used for vocals and bass recordings to avoid unwanted volume changes. The sound becomes then more compressed and intense. **Expanders** on the other hand extent the dynamic differences between the top peaks and the lower sequences. The **gater** function suppresses the signal once it is over the defined level.
- **Hall, echo/delay** and **distortion**: Those are the most common infinitely variable effects used in MAGIX audio studio generation 6.
- Effects for the reduction of unwanted noises (deLuxe version only): the **de-clipping** reduces digital distortion or clipping on badly cut loops. **Noise reduction** will reduce any kind of unwanted background noises.
- **Timestretching** and **Resampling**: with time stretching you can adjust the tempo (BPM= beats per minute) to a recorded sample. With resampling you can change the key of a sample. It will change the key and the length of the sample proportionally. Please note that you should take this step by step; otherwise you'll end up with a „Mickey Mouse“ or „Darth Vader“ effect on voices.
- **Surround**: Each channel of a stereo tracks will be rotated 180 degree within a phase when you use the surround mode. This means for the playback on a surround system that the middle frequency (mono part) of the stereo signal will play from the back. If both channels of a stereo track are identical, the entire track will be played from the back. You should experiment with identical tracks and cross-

fadings. When you cross-fade two identical stereo tracks and one track will be played in surround mode you can fade the middle tone part slowly from the front to the back speakers. You can activate the surround mode via the track info dialogue at the left end of each track.

Mixer-Effects

In mixer window you will find more real-time effects for your mastering:

- a **graphical three-band equalizer** for each track
- a **stereo enhancer** for editing the stereo pans, **echo**
- a **FFT-filter** to filter selected frequencies in order to edit the sound fields.



Effect Calculations and Signal Manipulations

When working with MAGIX audio studio generation 6, audio material manipulation can be performed on five levels. The signal flows through these five levels in sequence:

1. Wave Editing (Destructive Editing),
2. Manipulations on the object level in Virtual projects (Real-time Processing),
3. Volume and panorama automation, including track volume fader in the Mixer or VIP (Real-time Processing),
4. Real-time effects in the Mixer tracks (Real-time Processing),
5. Real-time effects in the Mix Master section (Real-time Processing).

Significance fo the Effect Processing and Signal Manipulation Order

The sequence of the effect processing and other manipulations (volume and panorama automation) often affects the result. Some effects depend on the input signal level.

When working with volume, panorama, and filter manipulations, the sequence is not important. For example, it is of no significance whether you first apply a filter function and then change the volume or vice versa. Even when working with a multiple of effects, the input signal level is unimportant. Among them are the Reverb, the Delay (Echo), Resampling and Timestretching, or Pitch Shifting. However, all Dynamics functions and those that remove or reduce noise (Dehisser and Noise Reduction) are dependent on the input signal level and in some cases on the frequency response of the input signal. If you have found an optimal

setting for the parameters, you should not apply other changes to effect blocks that precede these types of effects.

Destructive Processing of Effects (Wave Editing)

The audio material is physically altered.

Destructive processing should always be the first among many editing steps. This means that level-changing destructive editing should always be performed before any real-time effects or dynamic functions are applied.

Real-Time Effects in the Mixer Tracks

The following effects can be applied to individual tracks. They are processed in the following order:

1. Track Volume and Panorama (linked to the volume and panorama automation curves in the VIP),
2. DirectX Plug-Ins,
3. Equalizer,
4. Echo (Delay).

Real-Time Effects in the Mix Master Section

When not working in **Multi-card mode**, the Master section effects can be used for special mastering tasks.

The effects are processed in the following order:

1. FFT-Filter,
2. DirectX Plug-Ins,
3. Volume,
4. Equalizer.

Internet-Functions

MAGIX audio studio generation 6 is equipped with a direct Internet connection for down- and uploads of songs and audio files.

Web Publishing (Upload)

You can very easily publish your own songs in the Internet, so that they can be heard by all Internet users around the world. The only prerequisite is perfectly normal Internet access – modem, ISDN or DSL.

As soon as you have created a good personal song with MAGIX music studio, you can ‘upload’ it with Web Publishing Wizard and tell all your friends that they can listen in via the MAGIX Web Publishing Area! Everyone can vote; the votes submitted are used to generate a chart list, and the most successful titles stand to win prizes and maybe even contracts...

If you exclusively use material from the MAGIX soundpool CDs for your song, the song will be available immediately in the Internet in the MAGIX Web Publishing Area. If other material is contained, e.g. own recordings, a check must first be run to ensure that publication is legally permissible – then it can take a few hours before your song is online. It is expressly prohibited to upload copyright protected material, specifically music from commercial CDs, for example! If you have completed a good arrangement, save it before you do anything else. Then select the option ‘Publish to web’ in the file menu.

The first window of the ‘Publishing Wizard’ will open and accompany you through the process. You must agree to the licence stipulations displayed prior to continuation of the process.

On the second page, enter your name and a song title – these will be used later for the online search process. It is also useful to add a style type (genre), so that one can select a favourite style when listening to songs. Then enter you e-mail address, in case there are any questions or comments about your song.

Your name, the song title, the genre and your e-mail address are important details for the inclusion of your song in the Web Publishing Area, so thy must be correctly and carefully entered. You can decide whether you e-mail address should be published in the Internet or not.

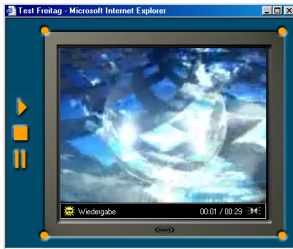
On the next page, you enter the optimum Internet download speed for the song. The pre-set is 56 kbit/seconds, which represents the right rate for most modems and ISDN cards.



MAGIX web publishing area



Online radio



Online monitor

For slower modems one should set 28 kbit, but this will negatively impact the quality.

Optimum quality is achieved with a setting of 128 kbit Dual Channel ISDN for anyone with a fast Internet connection, supporting the best sound experience. Ideally, one activates all 3 speeds – then 3 versions of the song are created and uploaded, so that the right version is available for every Internet connection type. Then you move on to the button ‘Finish’ – and your arrangement is compressed in the selected format and uploaded to the MAGIX server. This will require Internet connection when prompted.

And that is all! Just open your web browser with the MAGIX Web Publishing Area and your chosen genre is selected.

FTP Download

You can access the Internet directly from the program, allowing you to download and process songs and audio files from the farthest corners of the World Wide Web into your arrangement. The option ‘FTP Download’ in the file menu opens the FTP selection dialogue; here you can enter the name or IP number of the desired Internet FTP server. The pre-set address is the MAGIX Entertainment server, on which you will always find new sounds and effects.

Once you have selected the FTP server, you will see the basic directory in the dialogue box. Here you can select audio files and download them to the hard disk via the download button.

Depending on the speed of your Internet access, downloading can of course take somewhat longer than from a local CD-ROM. However, FTP servers will generally offer compressed sounds e.g. in the popular MP3 audio format, which can then be used directly in the audio studio. These sounds then need only about 5-10% of the transfer time of uncompressed waves while still delivering almost full sound quality. Typically, a 2 second loop can be downloaded in 2-4 seconds, so that the delay remains within acceptable limits.

Prerequisite to a successful FTP connection is, of course, access to the Internet. Your PC must be connected to a provider via modem or ISDN card. If providers with proprietary access software are used, it is recommendable to establish the Internet connection with this software first and then to set up the FTP connection in MAGIX music maker generation 6.

For types of Internet access that can be accessed directly via a correctly installed Windows® telecommunications network, the dial-in will be processed automatically on setting up the FTP connection.

Burning of CDs (deLuxe version only)

This chapter introduces you into the basics of burning audio CDs, and the functionality of the burning functions of MAGIX audio studio generation 6.

RedBook

To standardize the data structure of CDs and to make them compatible with the CD drives, Sony and Philips laid down individual standards for the various types of CDs. The names simply arose from the color of the books in which these standards were recorded. Besides of the RedBook for audio CDs, e.g. there is one YellowBook for CD-ROMs or one WhiteBook for video CDs with MPEG format.

Among others, a sampling rate of 44.1 kHz and 16 bit resolution were laid down, and these are supported by CD players as well as by audio CDs. The audio CDs, furthermore, must consist of 1-99 tracks that can be directly jumped to by CD players. Information on number and length of tracks and pauses are copied from the CD to the player via special subchannels.

Thanks to MAGIX audio studio generation 6 you may directly master and burn audio CDs from any multitrack and any wave project in RedBook standard. Besides the actual tracks, all required subchannels and data information is created on the CD blank as well.

Data Transfer

Burning CDs means making special demands on the data transfer from the hard disk to the CD recorder. The data must stream continuously to the recorder. If, at any time during writing, the temporary memory of the recorder should be left without data, a so called buffer underrun error will occur that will render the CD unserviceable. This necessitates the use of a fast SCSI or IDE hard disk. The mean access time should be 15 ms or better, and the permanent data transfer rate should not be less than 800 Kbyte per second.

Burning CDs in MAGIX audio studio

Some years ago, there was but a small number of select studios in a position to carry out CD mastering. Today, writing of audio CDs is nothing exceptional any longer, and permanently dropping prices for CD-R burners and media are within everyone's reach.

On the CD the audio material is stored digitally, and these data are read by the CD player and transformed back to the

analog plane. While in action, track indexes show the CD player which song starts at what position.

MAGIX audio studio can write an audio CD directly out from the program too. Before the write process starts, the track indexes are directly set in the VIP window. Then MAGIX audio studio converts stereo sum and indexes into a data stream that is fed to the CD burner.

The CD-R drive modifies an assigned layer of the medium by means of a laser such that an audio CD player can read this information as digital audio data later on.

1. In order to write an audio CD the VIP window must at first contain audio material. You may either record it new or import existing wave files into the virtual project.

In theory, multiple-track projects might be written in any number of tracks onto the CD in realtime. Reality sets a limit that is determined by the capacity of the computer. If the computer produces intermittent faults this may be an indication that the writing process onto the CD won't function in realtime any longer too. In this case create a single stereo file by trackbouncing first, import it into a new VIP window, and there you set the track indexes now.

2. Mix your recordings by means of the realtime functions of the VIP window and the mixer window. The CD will later sound exactly like you will hear the playback via a stereo sound card. All settings for the playback will be audible on the CD too.

You may arrange the individual tracks or objects by the equalizer, compressor or delay, and upgrade the stereo sum with master effects such as the stereo enhancer. You may, furthermore, adjust sound conditions by means of the automation curves.

3. Set the track indexes to mark the starting position of each song. The track indexes show the CD player which song starts at what position. Since the track indexes are a special kind of markers they can be edited like them. As an example, they may be moved afterwards.

If the VIP window contains but one stereo track in which each song is created as separate object, you may cause MAGIX audio studio to create indexes by means of the button "automatic indexes". This will cause an index to be positioned at the beginning of each object. Tracks and indexes may be arranged in MAGIX audio studio at

discretion. Thus pause intervals may be continuously adjusted, and indexes may be set without any pause either. MAGIX audio studio is one of the few audio programs permitting this.

One click on the button "track marker" on the toolbar will set a track index at the current playback position. Place, by a mouse click, the position line at the position where you want the track index be positioned, and then click onto the button.

According to the RedBook standard the minimum pitch between two track indexes is 4 seconds. Due to the fact that track indexes mark the beginning of a song as a rule, there won't be problems by that in practise. However, if you try nevertheless to create track indexes with a lesser pitch then you will receive an error message.

4. With the indexes set the CD may be written. This requires a CD-R drive supported by MAGIX audio studio to be connected to the computer, and an empty CD-R in the drive.



Now click onto the button "create CD" in the toolbar or select "CD > create CD" in the menu.

This dialog offers two options:

- **Write "on the fly"**. In this mode, all effects are calculated in realtime.
- **Create complete new files**. MAGIX audio studio creates a new stereo file that contains all information on the multiple-track project.

The first option would be a much more simple and convenient method to burn a CD.

One click onto the button "OK" starts the writing process, and MAGIX audio studio starts searching for available CD-R drives. If several drives are connected to the system you will be asked to select the drive desired. Before burning, the writing process can be simulated. You may check by that whether the capacity of the computer is sufficient for the writing process. Once started it cannot be stopped no more.

DSP Display



During the writing process on CDs in realtime the system capacity is of the essence. Once the writing process started it cannot be stopped no more. The whole CD becomes unserviceable upon an abnormal termination due to a system not fast enough. When "on the fly" is selected the

computer must calculate the playback with all realtime functions and simultaneously write the data onto the CD. The DSP display is a fine expedient to assess possible problems when writing onto the CD. The below table gives you a clue for the maximum possible writing speed. Individual deviations may result due to the configuration of your system and the speed of its components.

DSP Display and Writing Speed

nearly 100 percent	single speed
up to 50 percent	double speed
up to 25 percent	fourfold speed

Particularly when first using a new and unknown computer system it is recommended to simulate the writing process at first to check the limit performance of the system. Should the system become overloaded, a reduction of the number of tracks or realtime effects will help by combining parts of the VIP window by trackbouncing.

The offline variation of the writing process offers another possibility. At first, it creates a new stereo file that will be the basis for the writing process.

The Individual Mouse Modes

Universal Mode



Right Mouse Button: Displays context sensitive pop-up menu.

Left Mouse Button:

UPPER TRACK PANE:

Range: Selecting ranges and moving ranges (with Shift key).

Play Cursor: Single click sets the real-time cursor anywhere in the track.

Zoom: Double click outside of a selected range (or no range) zooms out. Double click inside a selected range zooms in.

LOWER TRACK PANE:

Selecting Objects: Single click selects objects (or group of objects.) Single click + Shift selects multiple objects, including all objects between the two clicks. Single click + Ctrl selects multiple single objects.

Moving Objects: Dragging moves objects or object groups. Dragging + Shift moves objects or object groups up or down the track list without changing the time position. Dragging + key 'k' move the object under the mouse pointer, plus all objects behind on the same track.

Duplicating Objects: Dragging + Ctrl duplicates one or more objects. Dragging + Shift + Ctrl duplicates one or more objects, while allowing the objects to be moved up or down the track list without changing the time position.

Lasso Function: Clicking next to an object while right dragging the marquee (lasso) across multiple objects selects the objects within the marquee. Clicking next to an object while left dragging the marquee (lasso) selects multiple volume or panorama curve events.

COMPLETE TRACK:

Object Handles: The upper handle changes the object volume. The changed level is shown in dB in the upper left-hand corner of the VIP. The upper left and right handles change the fade-in and fade-out of the object. Fade curve parameters can be set in the Crossfade Editor. The lower handles resize the object.

Volume and Panorama Automation Curves: Double click on the automation curve creates a new curve event. Another double click on the same curve event deletes

the event. Single click on an event selects the automation curve event.

Selecting Events: Single click + Ctrl allows selection of multiple events.

Dragging of a curve event moves the selected event.

Dragging + Ctrl moves several events.

To delete events, select the events and use **Edit->Delete** ... **Handle**.

Range Mode (Secure Mode)

Right Mouse Button: Displays context sensitive pop-up menu.



Left Mouse Button:

Range: Selecting ranges and moving ranges (with Shift key). Objects or automation curves can not be changed by accident (therefore called 'Secure Mode').

Play Cursor: Single click sets the play cursor anywhere in the track.

Zoom: Double click outside of a selected range (or no range) zooms out.

Double click inside a selected range zooms in.

Select Object Mode temporarily: Using the '.' (Period key) temporarily switches to the object mode, which allows moving of objects.

Select Curve Mode temporarily: Using the '-' (Minus key) temporarily switches to the curve mode, which allows moving and manipulating of automation curve events.

Draw Volume Mode

Right Mouse Button: Displays context sensitive pop-up menu.



Left Mouse Button:

Draws volume automation curves into VIP tracks. The 'V' button for a respective track needs to be active prior to drawing the volume curve.

Draw Panorama Mode

Right Mouse Button: Displays context sensitive pop-up menu.



Left Mouse Button:

Draws volume automation curves into VIP tracks. The 'P' button for a respective track needs to be active prior to drawing the panorama curve.



Curve Mode

Right Mouse Button: Context menu

Left Mouse Button: The left mouse key offers following functions:

VOLUME AND PANORAMA RUBBER BAND

When you click into the track near by an object, you can, by pulling the mouse to the left or right, spread a rectangle with the mouse key kept depressed. This will select all volume and panorama points contained within.

VOLUME AND PANORAMA GRADUATIONS FOR THE WHOLE TRACK

By means of the panorama and volume curves, volume and stereo panorama graduations can be graphically recorded. For this purpose sizing handles which are moved are created on the curve.

A double click on the volume or panorama curve creates a new handle, and a further double click will clear it. Selected handles may also be cleared by selecting the option "clear handles" in menu "edit".

You may select a volume or panorama handle by a single click. You will select further handles by holding the Ctrl key while clicking.

When you click into the track on the right besides an object, you can spread a rectangle with the mouse key kept depressed. This will select all volume and panorama points contained within (rubber band function).

You may move selected volume and panorama handles with the mouse. To move several handles the Ctrl key must be kept depressed while pulling.



Context Help mode

Right Mouse Button: Context menu

Left Mouse Button: Click onto the object or subject for which you request further information.



Cut mode

Right Mouse Button: Context menu

Left Mouse Button: You can use the mouse cursor like a pair of scissors to crop objects.



Zoom mode

Right Mouse Button: Zooms out of the project

Left Mouse Button: Zooms into the project

Object separator mode

Right Mouse Button: Context menu



Left Mouse Button: You can use the mouse pointer like a scissors in order to cut objects.

Pitch-shift/Time stretch mode

Right Mouse Button: Context menu



Left Mouse Button: The lower right tab allows compression or stretching of an object. A time stretching effect is created: The object is not played as a loop or shorter version, but simply in a different play tempo.

Using the centre tab, the pitch can be altered using pitch shifting.

Draw wave mode (only wave projects)

Right Mouse Button: Context menu



Left Mouse Button: Free-hand drawing function for the wave format.

Shortcuts

Below are the default MAGIX audio studio generation 6 shortcuts for the program. You may change the shortcuts at any time with Options>Program Preferences>Edit Keyboard Shortcuts.

General

A	Range all
Ctrl-A	Redo
B Split	range into 3 views
Shift-B	Display gets 1 view
C or Ctrl-C	Copy range
Shift-C	Copy As
Alt-C	Copy and Clear (VIP)
E	New VIP
F	Fade In/Out
G	Synchronization
H	Close all Windows
I	Project Information
Ctrl-I	Import Sample
L	Load RAM-project
Shift-l	Load HD-project
M	Open Mixer
N	Normalize (virtual)
Shift-N	Normalize (destructive)
O	Load Virtual project
P	Play parameter
R	Record Dialog
Ctrl-R	Grid on/off
Shift-R	Grid definition
Q	switch Grid off
S	Save project
Shift-S	Save project with new name
T	Split objects
Ctrl-T	Trim objects
Ctrl-V or V	Insert Clipboard
Alt-V	Overwrite with Clip (VIP)
W	Load wave
X or Ctrl-X	Cut range
Y	System preferences
Ctrl-Z	Undo
Tab Toggle	object draw mode
Tab + Shift	Define object draw mode
Space	Playback on/off
Enter	Arrange windows

Esc	Abort playback, recording & physical sample manipulations
Del	Delete range
Del + Ctrl	Delete selected objects
Backspace	Restart Playback
Insert	Overwrite with Clip
+ Ctrl	Copy into Clip
+ Shift	Insert Clip
Numeric 0	Scrubbing
Numeric ','	2 Views
# Switch	Grid on/off

Range

Cursor left or 4 on numeric pad:	Scrolling left
+ Ctrl	Zoom In
+ Alt	Play Cursor to beginning of the range
+ Shift + Ctrl	Flip range left
Cursor right or 6 on numeric pad:	Scrolling right
+ Ctrl	Zoom Out
+ Alt	Play Cursor to end of range
+ Shift + Ctrl	Flip range right
Home	Play Cursor to beginning of project
+ Shift	range to beginning of project
End	Play Cursor to end of project
+ Shift	Range to end of project
PgUp	Range start to next zero crossing
+ Shift	Range start to previous zero crossing
PgDn	Range end to next zero crossing
+ Shift	Range end to previous zero crossing
Cursor up	Scroll up
+ Ctrl	Zoom in vertically in VIPs
Cursor down	Scroll down
+ Ctrl	Zoom out vertically in VIPs
/ * - + Keys on numeric pad:	Move range borders dependent on zoom level

Function keys

I-IO	Get range I-IO
+ Shift	Store range I-IO
+ Shift + Ctrl	Get range length
F11	Store range with new name
Keypad 0-9 (not numeric block!):	Get Marker I...IO
+ Shift	Store Marker I bis IO

+ Alt	Store Marker while playback
?	Store Marker with new name

Mouse

For a full description of the mouse shortcuts, please see the section on **Details about the Individual Mouse Modes**

Microsoft® Intellimouse

Middle mouse click:	Playback Start/Stop
Wheel:	Scroll horizontally
+ Ctrl	Zoom In/Out horizontally
+ Shift	Zoom In/Out vertically
+ Ctrl + Shift	Scroll vertically in VIPs

Button overview

Upper Toolkit bar

When the program is first started, only the tools and mouse mode bars are opened in the upper right corner of the monitor. All further ones may be added via menu "windows".

All toolbars may be placed on the screen at discretion, and they are automatically arranged in the upper part of the screen by a double click onto the header line.

Tools bar



1 2 3 4 5 6 7 8 9 10 11 12 13 14

- 1 – New multi-track project
- 2 – Open VIP
- 3 – Open WAV file/HD-Wave project
- 4 – Store project
- 5 – Crop
- 6 – Copy
- 7 – Insert
- 8 – Screen active
- 9 – Auto crossfade mode
- 10 – Crossfade editor
- 11 – Form group
- 12 – Cancel group
- 13 – Mixer
- 14 – Transport console

Mouse Mode bar



1 2 3 4 5 6 7 8 9 10 11

- 1 – Universal mode
- 2 – Range mode
- 3 – Cut mode
- 4 – Pitchshift/Timestrech mode
- 5 – Curve mode
- 6 – Draw Volume mode
- 7 – Draw panorama mode
- 8 – Draw wave mode
- 9 – Zoom mode
- 10 – Scrubbing mouse mode
- 11 – Context Help mode

CD bar (deLuxe version)



1 2 3 4 5 6 7

- 1 – Set track marker
- 2 – Set Sub index
- 3 – Set pause index
- 4 – Set auto marker
- 5 – Clear index
- 6 – Clear all indexes
- 7 – Write CD

Lower toolbars

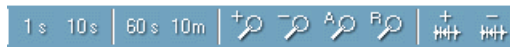
Positioning bar (left)



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

- 1 – Cropping at start
- 2 – Cropping to left
- 3 – Half cropping to left
- 4 – Half cropping to right
- 5 – Half cropping to right
- 6 – Cropping at end
- 7 – Object edge left
- 8 – Object edge right
- 9 – Range to last marker
- 10 – Range to next marker
- 11 – Zoom in
- 12 – Zoom out
- 13 – Zoom all
- 14 – Range as clipping
- 15 – I:I presentation

Positioning Bar (right)



16 17 18 19 20 21

- 16 – Zooming range 1 sec, 10 sec, 60 sec or 10 min
- 17 – Zoom in vertically
- 18 – Zoom out vertically
- 19 – Zoom all vertically
- 20 – Range as vertical clipping
- 21 – Waveform zoom in/out

Range bar



- 1 – Play cursor to start of range
- 2 – Play cursor to end of range
- 3 – Fold range to the left
- 4 – Fold range to the right
- 5 – Range editor

Problems & Solutions

The following are solutions to some common problems.

I see markers with the letter 'E' in my physical audio file and interruptions occur at those spots. What are they?

MAGIX audio studio generation 6 creates these markers automatically if during the recording the program runs out of resources and recording interruptions take place. This can happen if the computer is overloaded or not fast enough to do the processing of multiple tracks. Look at the 'pops and clicks' section for some solutions to the problem.

I want to back up all my project files. What needs to be included?

When backing up project files **all** files need to be included that are associated with the VIP project! These files may include any of the following: *.hdp, *.ho°, *.hr°, *.vip, *.wav, *.so°, *.st°.

To keep files organized we suggest that for each project or song you are working on, you create a sub-directory before you start working with the project and save/record all files into that directory. This can be done from the Record Parameter dialog.

I have pops and clicks in my material when I play back any audio.

Pops and clicks can sometimes occur with certain sound cards and system configurations. If it happens, it is most often during the recording of audio tracks.

Especially when using MAGIX audio studio generation 6 in Windows 95 there are several things that can be done to remedy the problem:

Make sure you use the latest driver for the sound card. You might need to contact the manufacturer of your sound card for an updated driver.

Check to see that there are no IRQ or DMA conflicts with other devices in your system. The Device Manager in the Control Panel in Windows 95 might help you diagnose problems.

The audio caching setting in Windows 95 might need to be adjusted. To do this bring up the Control Panel and select Multimedia from the options. Next, click the Advanced tab and select the Media Control Devices option. In the Media Control Devices look for Audio Control Device and call up the Properties. The following setting can be adjusted to solve some pops and clicks problems.

Some problems with pops and clicks can be solved by editing the SYSTEM.INI file in the Windows directory. Look for a [Vcache] section and add the following lines:

maxfilecache=4096

This should effectively solve the problem. The values for the parameters are Kbytes of file cache and can be adjusted depending on your RAM size.

By disabling virtual memory a problem with pops and clicks or other playback or recording problems can sometimes be solved. Please refer to your Windows manual for instructions on how to disable the virtual memory.

As a rule of thumb: If the status bar in MAGIX audio studio does not indicate any errors during playback or recording, the problem most likely has to do with the sound card driver or settings for the sound card.

I get no audio during recording or playback.

If you hear no audio during either recording or playback, check on the following items:

Make sure that all cable connections are made properly and that none of the cables is defective.

If the sound card has a mixer program, make sure that none of the mute options are turned on and that the volume faders are sufficiently turned up.

Check to see whether you have the proper driver installed for your sound card. You can do this in the Windows Control Panel.

If you don't hear any audio in MAGIX audio studio generation 6 and would like to check your sound card, use the sound card's own sound utilities to diagnose the card. Also, many sound cards come with their own set of playback software for digital audio. Follow the instructions in the sound card's manual for testing digital audio with the card's utilities.

Make sure that your external mixer/amplifier is turned on and has a sufficient volume setting.

These are the most common problems you would be dealing with when having audio problems.

Note: The Digital Audio Labs CardD+ approaches monitoring the recorded signal during the recording a little bit different than other sound cards. It is perfectly normal to have the incoming audio signal missing on the outputs of the card as you are recording the audio.

The CardD+ will not 'feed' the audio signal on the inputs of the card to the outputs during the recording. You will need to monitor the recorded signal externally during the recording phase. All other tracks in MAGIX audio studio generation 6 will play back just fine.

My VIP volume appears to be too low. How can I fix that?

MAGIX audio studio generation 6 has a sophisticated way to deal with digital audio clipping which can occur when you add audio tracks in the VIP. Depending on how strong the audio signals are in each of the tracks, by the time you add audio in tracks 5 or 6, you actually might encounter digital clipping.

Since digital audio volume processing deals with mathematical addition of volume values it can easily happen that the resulting volume for combined tracks is beyond a sound card's capabilities to deal with the audio volume. This is when digital clipping would be introduced.

In MAGIX audio studio you can set a 'master volume' for each VIP. This setting can be different depending on the audio material in the VIP.

This setting can be found in **File>Properties>Project Info**. You will need to have a VIP open to get to the Project Info dialog. You can adjust the overall volume setting for the VIP in the Volume section of the dialog. By default, MAGIX audio studio will assign a setting of -12dB which can be too low for some projects. You can easily increase the volume setting to 0 dB for example. When you encounter digital clipping, you may want to reduce the volume setting at that point.

You may also change the overall volume setting in the Mixer window in the Master Volume + Image section.

MAGIX audio studio display some sort of 'SYSTEM' error when I try to do simultaneous record and playback with my sound card. What could be the problem?

Unfortunately, you may be dealing with a sound card that is not capable of working in the 'full-duplex' mode needed for simultaneous record and playback. Some sound cards are only 'half-duplex' sound cards, meaning that you can either play back your audio or record audio, but not both at the same time.

You will either need to install a second sound card and record with one card while you play back audio tracks with the other. Or you will need to replace your sound card with a full-duplex sound card. Check with the manufacturer of your card to verify the capabilities.

Whenever I start playback or recording my system hangs or displays an error message.

This many times is an indication that an IRQ or DMA and possibly an address conflict is present. You will need to make sure that no other component in your computer system uses the same hardware settings as your sound card. If it does, the system may hang or even crash.

Under Windows 95 and NT 4.0 you may use the Device Manager to find free IRQ, DMA and address settings. Refer to your Window manual for instructions on using the Device Manager to diagnose your system. There are also a number of commercial diagnostics tools available that may assist you with finding free settings. In some cases reconfiguration of already existing components is necessary and sometimes even replacing components with ones that allow you more configuration choices.

When I try to do something with my mouse it doesn't respond or does something erroneous.

Make sure that the correct mouse mode is selected. You may need to set the mode back to it's default setting by selecting the Universal Mouse Mode from the mouse mode toolbar. You may also change the mouse mode in **File>Preferences>VIP Mouse Mode**.

Why can't I close a Wave project even though all references (objects), using the Wave project contents, in the VIP are gone?

Trying to close a Wave project usually only works if there are no objects in a VIP that may use ranges from the Wave project (HDP or RAP). This is due to the fact that the VIP needs the Wave project for playback of material in the object(s). If all VIP objects in the VIP window are deleted that make use of the Wave project, the Undo list still may have references to the Wave project open in case you need to undo any editing step associated with the VIP window. If you are really convinced that the material in the Wave project is not needed anymore, simply delete the Undo Levels with Edit, Delete Undo Levels. After this you will be able to close the Wave project since all references in the Undo list are gone.

Note: MAGIX audio studio generation 6 will only allow you to delete the Undo Levels when a VIP window is active (click on the title bar of the VIP window).

Synchronization

There are various aspects to synchronizing MAGIX audio studio generation 6 with the outside world.

Synchronization is used when you need to synchronize MAGIX audio studio with a tape based recorder, video machine, external sequencer or other equipment which will send sync signals to MAGIX audio studio. Most of these situations will work best by setting up MAGIX audio studio as the slave and the external sync source as the master.

Once the setup has been made for MAGIX audio studio to expect the synchronization signals at a particular interface port, you do not need to do anything else in MAGIX audio studio to start the playback or the recording. Once MAGIX audio studio detects the incoming signal, it will attempt to locate the song position pointer and jump to that location. Playback is started automatically.

The same holds true if you need to record in MAGIX audio studio while synching up to an external device. Simply open up the **Record Parameter** window and make all necessary adjustments. Now, press the **Record** button. Once you have made the needed changes in the window, simply start the external device. MAGIX audio studio will lock up to the incoming signal and will start the recording process. It's that simple!

There are several things to consider when working with an external sync source:

Make sure that the synchronization interface can convert a SMPTE signal into MTC code. A software utility should let you do this easily, or the card's device driver might do it for you automatically.

When striping analog or digital tape with a SMPTE track, make sure that the signal is strong enough to feed a continuous, uninterrupted sync signal. MAGIX audio studio will stop the playback or recording as soon as a drop out occurs.

You might need to work with the offset settings in MAGIX audio studio when working with a sync source that starts in the middle of a tape for example.

Make sure you are using the proper sync protocol.

Part 4

Reference

**audio
studio**

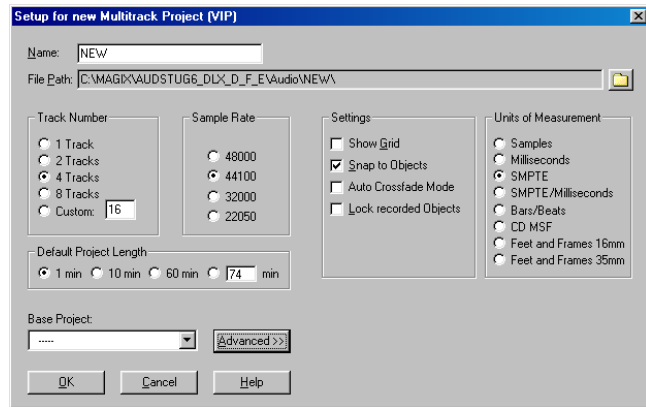
Menu File



The project menu contains wide-range functions for generating, managing, loading and saving projects.

New Multitrack Project

A new virtual project is opened, you can choose the track and select a name for the new VIP.



TRACK NUMBER: Sets the number of tracks for the virtual project. The maximum number of tracks in MAGIX audio studio generation 6 is 24 (deLuxe: 48).

SAMPLE RATE: Sets the sample rate of the virtual project.

NAME: Each new VIP can be named here.

GRID: Activates the grid display.

UNITS OF MEASUREMENT: Select from six different display types for the grid.

SNAP TO OBJECTS: Activates the Object grid. Objects will be snapped together sample exact when this option is active.

LOCK RECORDED OBJECTS: Recorded objects are immediately locked once they are placed into a VIP track. This prevents accidental moving and is especially helpful for multi-track projects.

PROJECT-PATTERNS: Projects (arrangements) can also be saved as patterns in the File-Menu. The patterns are empty

arrangements that contain all of the settings (f. ex. of the VIP-display) of another project.

AUTO-CROSSFADE-MODE: see Edit-Menu

Keys: e

Open → Virtual Project

Multi-track project in MAGIX audio studio, which makes use of Wave projects.

When loading a virtual project, all associated Wave projects (RAM and HD Wave projects) are opened if they were not open prior to loading the VIP. The windows of the individual Wave projects remain minimized to prevent cluttering of the screen. They are initially only visible as icons.

Once the Wave projects are loaded, the VIP project window is displayed.

Keys: o for virtual projects

Open → Audio file

When opening an audio file, MAGIX audio studio automatically creates an associated HD Wave project. The HD Wave project file contains additional information about the audio file, such as marker positions. Once the audio file has been opened once in MAGIX audio studio, it can be loaded as a HDP from that point on.

Please note that direct editing of audio files from a CD-ROM is not possible. Please use “Import Sample” instead.

Note: If a VIP is the active window, all loaded HD projects are immediately turned into objects in the VIP. Any selected range (range beginning) determines the position and track where the object is created.

Keys: w for WAV files

Open → RAM Wave (RAP)

RAM Wave projects contain audio data in MAGIX audio studio's proprietary format. These files are loaded into the RAM memory of your computer, including their associated graphic files, marker position information, etc.

Keys: l for RAM projects

Open → HD Wave (HDP)

HD Wave projects contain audio data, which is directly loaded from the hard disk, together with the graphical in-

formation, marker position information, etc. The audio format used for these files is the WAV format.

Keys: SHIFT+l for HD Wave projects

Open → Object

Contains playback instructions (link to a Wave project, track, time position, parameters, etc.) for audio data. Objects are used in virtual projects.

Open → Session

A previously saved MAGIX audio studio session can be loaded with this command. All projects and their related windows are arranged on the screen the way they were saved to the session.

Keys: ALT+s for Sessions

Load Audio CD Track(s)...

This option is located in the menu “CD” in the deLuxe-version.

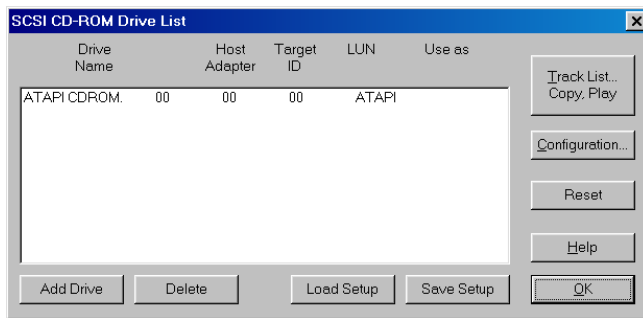
This function allows you to import audio data from most CD ROM drives and CD-Writers in the digital domain, without any loss in quality. Please contact our technical support for the latest list of supported drives.

The HD Wave projects are recorded as WAV files and can therefore be edited with other audio editing programs without having to convert them first.

To do this, please follow these steps:

1. Open the drive list dialog and select your desired CD-ROM drive, if you have more than 1 drive
2. Click the “Track List” Button
3. In the CD track list dialog select one or more tracks in the list box
4. Click on “Copy Selected Track(s)..”
5. Select a filename for the new WAV file or HD Wave project and click O.K.
6. Now the audio data is copied from the CD-ROM to your hard disk as a new WAV file.
7. Close the tracklist dialog and the drive list dialog, in your VIP appear one or more new objects, containing the audio data from your CD.

Features of the Drive List Dialog



TRACK LIST: This button opens the track list dialog for selecting several audio tracks of your CD.

CONFIGURATION: This button opens the drive configuration dialog, where you can select special copy modes and SCSI IDs...

RESET: Restores the standard drive settings.

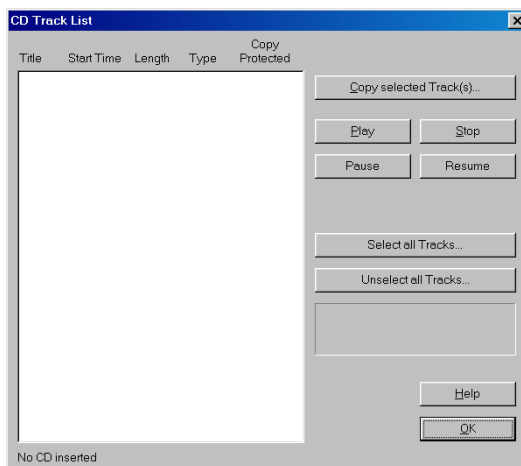
ADD DRIVE: Creates a new drive entry in the list for editing the configuration data.

DELETE: Deletes the selected drive entry from the drive list.

SAVE SETUP: Saves the drive list and all configuration data in a *.cfg file.

LOAD SETUP: Loads the drive list and all configuration data from a *.cfg file.

Features of the Track List Dialog



COPY SELECTED TRACK(S): This button starts the audio data copy process, all selected tracks from the list are copied into one WAV file.

PLAY: Starts audio playback of the first selected track in the list.

STOP: Stops audio playback.

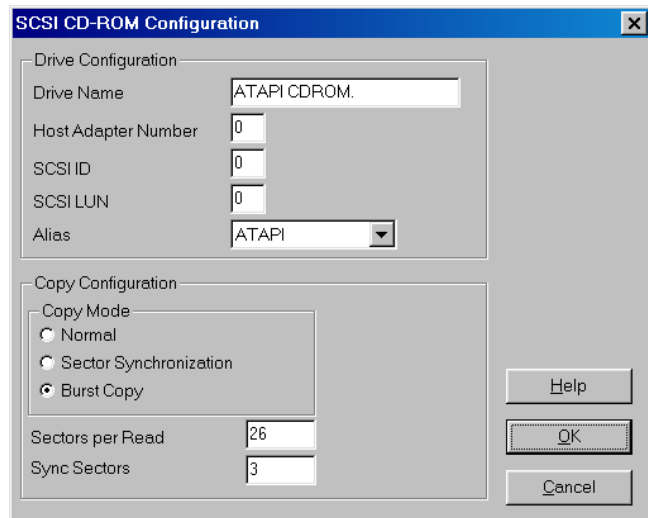
PAUSE: Stops audio playback for later resuming.

RESUME: Resumes playback if previously paused.

SELECT ALL TRACKS: Selects all tracks of the CD for copying the complete volume. You can select multiple tracks with Ctrl + mouse click or with Shift/Alt + Cursor keys!

DESELECT TRACKS: Closes the drive door of the CD ROM drive.

Features of the CD ROM Drive Configuration Dialog



DRIVE NAME: Lets you edit the name of the drive in the list. This is useful if you create more than one entry accessing the same physical drive.

HOST ADAPTER NUMBER: Lets you specify the number of your SCSI adapter – normally 0.

SCSI-ID: Lets you set the ID of your CD ROM drive. Be sure to set the correct ID, there is no error checking!

SCSI-LUN: Select the SCSI LUN parameter, normally 0.

ALIAS: Lets you select a manufacturers type of your CD ROM drive.

COPY MODE NORMAL: Copies the audio data without any software correction.

COPY MODE SECTOR SYNCHRONIZATION: Copies the audio data using a software correction algorithm. This is useful, because some CD ROM drives cannot seek exactly to the same position between two read accesses but MAGIX audio studio can correct these differences using this algorithm.

COPY MODE BURST: Optimizes the speed of the copy process, no software correction is done.

SECTORS PER READ: Defines the number of audio sectors per read cycle, the higher the number the faster the copy process will be. Not all SCSI adapters support more than 27 sectors!

SYNC SECTORS: Defines the number of audio sectors used for the Sector Synchronization. A higher number results in a better synchronization but also in a slower copy process.

Save Project

The current project is saved with the name displayed in the project window. If you previously have not specified a name for your project, MAGIX audio studio will ask you to do so.

Keys: s

Save Project as

You can define the path and name of the new project you want to save your work under. RAM projects and virtual projects will be saved with the new names (the source file remains untouched). HD Wave projects are renamed on the hard disk. MAGIX audio studio will not generate a copy of it for reasons of conserving space on your hard drive.

Keys: SHIFT + s

Save complete VIP to

This function in menu “Project” allows saving a VIP with all needed Wave projects (*.RAP., *.HDP) into a specified directory. This makes it easy to copy all files of a VIP to a backup disk etc.

Save Project as “Base Project”

This option allows you to create project-patterns, where all project settings such as the number of tracks or the type of grate are maintained and saved without the objects and HDPs. These patterns can be loaded when you are creating a new multi-track project (Menu File > New Multitrack Project).

Save in Format

With this function, you have the possibility to convert projects between the different MAGIX audio studio Wave project formats. This is useful if, for example, a RAM Wave project is to be converted into a HD Wave project or a L&R Wave project (two linked mono files). Another option is the conversion to and from stereo Wave projects to mono Wave projects.

Save Object

This function allows you to save a single object. This is especially helpful if you want to transfer material between VIP projects or want to preserve certain parts of a VIP by saving them to single objects. Another use is the creation of a sound effects library. Please keep in mind that you can use the Windows Explorer to drag & drop multiple object files into a VIP for easy access.

The default file extension for object files is *.obj.

To save an object, select any object in the VIP and click on File->Save Object.

Save Session

This will let you save a complete session in MAGIX audio studio. This includes information about all just opened projects and their respective window positions etc.. This is useful to be able to continue later at the same place without having to load the individual projects first.

If a session is stored with the name “startup.sam”, this session is automatically loaded at the next start of MAGIX audio studio.

Import Sample

Import Sample as Dump

MAGIX audio studio gives you the option of importing Wave, AIFF or Sample Dump files into a MAGIX audio studio project. You will need to specify which type the project is going to be, a RAM Wave Project, or a HD Wave project.

Difference between Open->WAV and Import Sample->WAV:

The command Open->WAV opens an already existing WAV file and edits the file as a HD Wave project. MAGIX audio studio automatically creates a HDP file and the corresponding graphic file in the source folder.

When importing a WAV file, the complete file is copied. Additional hard disk space is needed and the process takes much more time, since the audio file has to be copied with Open Project->WAV. Import Sample->WAV has to be used when intending to use the WAV file as a RAM Wave project.

Convert → Unlink Project

Sometimes it is necessary to split a 2 channel stereo project (two joined mono projects (L&R Wave project) into two independent mono projects. With this menu option, you can terminate the static connection between the projects.

If you would like to join the projects again, simply select “Link Projects” from the “Special” menu (see below).

Convert → Link Projects

Two mono projects are linked to one L&R Wave project. This is a convenient way of editing joined mono samples with the same operations.

Make sure that the windows of the two projects to be linked are open. Select one of the objects as the current object (click on the lower half with the left mouse button) and call up the “Link Projects” menu option. Next, click on the project you want to join. MAGIX audio studio will link the two projects.

MAGIX audio studio will automatically match the sample length of the two projects but not the bit resolution.

Convert → Append Projects

With this function a project can be appended with another project, i.e. the material of one project is copied directly behind the material of the first.

You need to first select the object you want to append. Then you activate the menu and click on the project you want to add to the first.

A particular use of this option is the “cleaning up” of VIP’s that contain numerous physical samples.

Convert → Change Bit Resolution

When using this function, MAGIX audio studio lets you select the bit resolution of a Wave project.

Notes for Working with 8-bit Wave Projects

Lower resolution audio files are often used for multimedia applications. A reduction of the resolution to 8-bit is useful, since the storage requirements are also reduced.

A drawback of lower bit resolutions is the decline of the signal to noise ratio (SNR). The quantization noise increases with the lower resolution. The quantization noise is not of a steady type. In fact, it is modulated by the signal and appears especially annoying.

By the way, the bit resolution of a project file is always displayed in the title bar of the project window. Bit resolutions between 1 and 8 bits use 1 Byte (8 Bit) per sample value. Resolutions between 9 and 16 bits use 2 Bytes (16 Bit).

If you need to perform multiple processing steps on an 8-bit Wave project, convert the audio file into a 16-bit project before starting the processing. Any calculation inaccuracies occur in the 16-bit realm and are therefore minimized. Also, some functions in the Effects menu only work with 16-bit samples. After you are done processing the audio, convert it back to an 8-bit audio file.

Convert → Mono

The current L&R Wave project is converted into a mono mode. If it was a stereo project before, both channels will be mixed. The previous samples are first added with 100% of their image and then divided by two to prevent over modulation (distortion). This is an equivalent of reducing the volume by 6 dB.

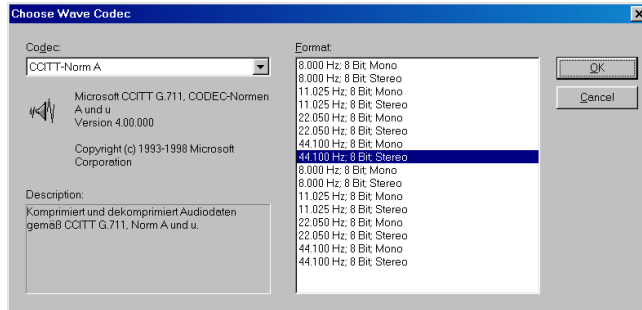
Convert → Stereo

The original mono Wave project is duplicated and converted into a single L&R Wave project with the same sample in both channels.

Export audio→ Wave

The audio material is exported as a standard Wave file. This is the standard format for further use on PCs running in a Windows environment. These files are not compressed and contain the full quality of your arrangement.

If you want a lower resolution or a lower sample rate you can select that via the “Format Settings” button.



Export audio→ MP3

Exports the arrangement in MP3 format. This is the extension for MPEG Layer 3 coded audio files, used for high quality audio material off the internet (Off-line Playback).

20 free encodings are available.

ENCODER UPGRADE: For the upgrade of the QDesign® encoder you just select the option “Upgrade QDesign MP3 Coder” in the menu “Options”.

Export audio→ MPEG

Exports the arrangement in MPEG format. This is the extension for MPEG-Layer 2 coded audio files, used for high quality audio material off the internet (Off-line Playback).

Export audio→ MS Audio File (deLuxe version)

This is the internet format from Microsoft. It makes the continuous playback of audio files through the internet possible. However, for this format you will need to use a suitable codec that prevents file rates from getting to high for an on-line playback (“Format Settings”).

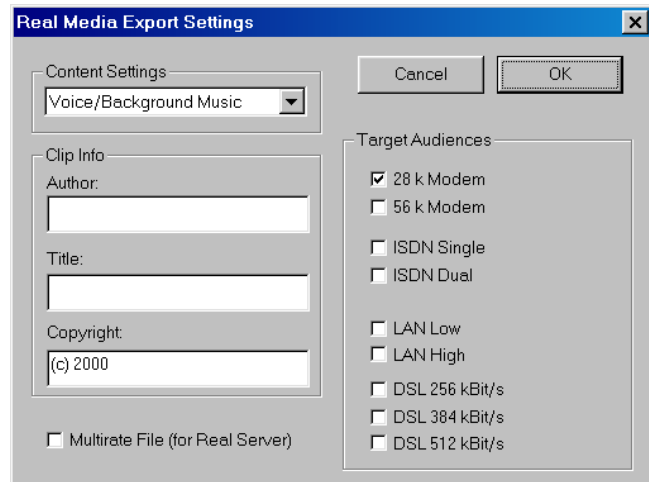
Export audio→ Real Audio (deLuxe version)

This is a format specifically optimized for internet purposes. It reaches a very high compression rate, and the sound quality is noticeably lower. However, this format is very useful if e.g. audio on-line has to be played through the

internet (Streaming Audio). After selecting the file name you can choose the bit range of the transferring speed (Modem, ISDN etc.). This should still play audio files without interruption.

Format Settings

Here you can select presets for the quality of the audio material.



TARGET GROUPS: Here you select at which band width the video is to be created, i.e. on which data line it can be played ('streamed') in real time. The setting you select here may possibly restrict the other selection possibilities, as a file for a 28k-modem cannot be generated in high-quality.

MULTIRATE FILE (REAL SERVER): The streaming of videos requires a server application which must have been installed on the server from which the video is to be played ('streamed') in real time. If this application does not exist, only a download is possible. 'Real server' is a server application which makes it possible to stream videos in real video format.

If you activate this option, you can create a multirate file which basically contains several videos of different band widths. It is thus possible to select several 'target groups'.

Export audio → AIFF file with Quicktime (deLuxe version)

Exports the arrangement in AIF format, compressed with the Quicktime coder. This is a format specifically optimized for internet purposes.

Export audio→ 16 Bit AIFF (deLuxe version)

Exports the arrangement in AIF format. This is the audio format used with Apple Macintosh. These files are not compressed and contain the full quality of your arrangement.

Export audio→ Export as Dump

Exports the arrangement as a dump file e.g. for external samplers connected to the computer via MIDI.

Rename Project

The “Rename Project” command will let you rename a project file rather than save it to a different file. For RAM Wave projects, only the internal names are changed (without being saved). But all corresponding files are renamed immediately in the case of HD Wave projects.

RAM Wave projects need to be saved after renaming the project.

Export as PlayR-File

The arrangements can be exported in the MAGIX playR-tables format (MKS-format), a special format for the live-remix-program MAGIX playR. All you need is an arrangement with 8 audio-tracks, that can then be exported to the playR-format and directly opened and played back using the playR.

The MAGIX playR includes a CD and a MP3 player, a fully equipped DJ-control desk and multimedia remix-software. You can start up to 16 samples simultaneously on your 2 turntables, using a mouse, the keyboard or a joystick; A crossfader and a mixer provide you with the live-mix facilities. The MAGIX music maker can be used for creating and editing the playR-songs. A smaller version of the playR – the MAGIX playR jukebox – is included in this package!

Connect to the Internet

opens the dialup connection to the Internet.

Publish to Web

It's really easy to publish your own songs and videos on the web so that all internet-users worldwide can listen to them and enjoy them immediately.

All you need is a normal internet-connection for your computer – using a Modem, ISDN or ADSL.

However, it is forbidden to upload material that is protected by copyright laws, for example songs from commercial CDs. This will be checked every time you upload material, so it

may actually take a few hours for your song to appear online. If you've just created a nice arrangement, save it first using the "File > Save as"-option. Then click on "Publish to Web" and follow the instructions of the Publishing Wizard. See chapter "Web Publishing" for further details!

FTP-Download

This option allows you to build up a direct connection to any FTP-server on the internet in order to download audio material directly into your music studio so that you can edit it there. The pre-set server is the MAGIX Server, where you will always find new sound-material. Once again, the only thing you need is a working internet connection.

Delete Wave Project(s) (HDP)

HD Wave projects are deleted from the hard disk. Use this command with caution, as all corresponding files are lost. (If you wanted to delete a HD Wave project (HDP) from a file manager such as Windows Explorer, it would also be necessary to delete the graphic files related to the project files.)

Close Project

closes the arrangement.

Exit

closes MAGIX audio studio.

Menu Edit

This menu contains all functions, which are similar to cutting on a tape machine.

In virtual projects, you can select track sensitive ranges, so only the selected tracks are manipulated.

Activate cutting and copy also makes a project named Clip activated. The window for this project will appear if double-click on the icon.

Some of the functions are only available for Wave projects. Others only for virtual projects (VIP), while some of the functions will work in all types of projects.

When working with a virtual project (VIP) a selected range is always required for the cut functions. The beginning and end of the selected range determine the start and ends of a cut. The vertical position indicates which tracks are affected by the edit.

It is recommended to use the Auto-crossfade function to achieve smooth transitions between the edit points. This will automatically create fades at the object edges.

Please note that these functions are processed for both channels when working with stereo and L&R Wave projects. (If only one channel is to be edited, you will need to convert the Wave project into two mono Wave projects. After editing the two mono Wave projects can be merged again.)

Undo

MAGIX audio studio offers you a comfortable way of tracking your changes in virtual projects. Up to 100 changes can be kept in memory and traced backwards.

That means, virtual processes can be reversed (undone). Range and marker manipulations can also be undone using the “Undo” feature.

Thanks to this extremely efficient feature, critical operations can simply be tried and then reversed to return to the original status if the results are not satisfactory.

MAGIX audio studio offers a convenient undo option for VIP objects. A maximum of 100 undo steps can be retraced. This number can be configured in File/Preferences/Undo Definition.

No undo is available for physical Wave projects.

Keys: CTR+z

Redo

Redo revokes the latest undo command.

Undo	Alt+Back, Ctrl+Z
Redo	Ctrl+A
Undo History...	
Cut	Shift+Delete, X, Ctrl+X
Delete	Delete
Clear	Alt+Delete
Copy	C, Ctrl+C, Ctrl+Insert
Copy + Clear	Alt+C
Copy as...	Shift+C
Paste / Insert Clip	V, Ctrl+V, Shift+Insert
Overwrite with Clip	Alt+V, Insert
Extract	
Mix with Clip	
Insert Workspace	
Add one Track	
Crossfade Editor...	
Auto Crossfade active	
Delete Volume Handle	
Delete Panorama Handle	
Delete Undo Levels	

Keys: CTRL+a

Cut

WAVE PROJECTS:

The audio data in the selected range are copied from the current Wave project into the Clip. The material behind the removed range is merged with the material in front of the removed range to close the gap. The complete Wave project becomes shorter.

Please keep in mind that the Clip always contains the same attributes as the Wave project the material was copied or removed from.

If you cut material from a mono Wave project, the Clip becomes a mono Wave project. If material from a stereo Wave project is cut or copied to the Clip, the Clip becomes a stereo Wave project. Another attribute adopted is the bit resolution and the sample rate of the originating Wave project.

The previous contents of the Clip are deleted.

After a successful removal of the selected material, MAGIX audio studio drops a marker at the position the removed range previously started. This allows you to insert the contents of the Clip into the Wave project at the exact same spot if you accidentally removed the material. Use the function **EDIT->PASTE/INSERT CLIP** to insert the Clip contents.

VIRTUAL PROJECTS (VIP):

In virtual projects the selected range is copied to the VirtClip and is removed from the current VIP project. The VirtClip does not contain actual audio information, only the links to the audio files. The VirtClip also contains as many tracks as the removed range.

The material behind the removed range is appended to the material in front of the removed range. The VIP project becomes shorter if the selected range did cover all tracks. This way you can shorten Vips which contain empty space behind the last object.

As with the Wave projects, a successful removal of the selected range drops a marker at the position the removed range previously started. This allows you to insert the removed material with **EDIT->PASTE/INSERT CLIP**.

Keys: CTRL + x or x

Delete

The data of the current range is deleted. The sample data after the deleted range is added at the position the deleted range started. The sample length becomes shorter.

Please note that this command will not save the deleted data to the Clip. If you want to preserve the deleted sample data, use the “Cut” command. Using this the “Delete” command will delete the data from the current sample and preserve the contents of the Clip.

Keys: Del

Clear

The data of the current range is replaced with silence. Please note that this command will not save the deleted data to the Clip. If you want to preserve the deleted data, use the Cut or Copy command. Using the Delete command will delete the data from the current project and preserve the contents of the Clip.

Keys: Alt + Del

Copy

The current range is copied into the Clip but not deleted in the project. The sample length is not varied. Please note that the former Clip contents are deleted. The Clip again has the same attributes as the project.

Keys: CTRL + c oder c

Copy and Clear

The current range is copied into the Clip and cleared in the project. The project length is not changed. Please note that the previous Clip contents are deleted.

Keys: Alt + c

Copy as

The current range of a Wave project (HDP or RAP) is copied into a new file. A file requester appears to select the name of the new project.

Paste/Insert Clip

The contents of the Clip are inserted into the current project behind the position of the play cursor or the beginning of the currently selected range. The data or objects that are located behind the insert position are moved out of the way to make room for the Clip contents. The samples or audio tracks become longer. The Clip remains unchanged during the procedure. If the Clip was empty, an error message is displayed.

After inserting the contents, the program selects a range over the inserted area. If you select EDIT->DELETE, the inserted contents are removed and the project is returned to the original state.

In VIRTUAL PROJECTS using selected ranges, the program utilizes the beginning position and relative track position as the insert point for the VirtClip or Clip contents.

The following table shows how MAGIX audio studio responds in the case the clip and the project have different channel numbers:

Clip Project	> Clip Channel	>Project Channel
Mono	> Mono	> Channel 1 Channel 1
Stereo	> Stereo	> Channel 1 Channel 1
		> Channel 2 Channel 2
Mono	> Stereo	> Channel 1 Channel 1
		> Channel 1 Channel 2
Stereo	> Mono	> Channel 1 Channel 1

Keys: CTRL +v oder v

Overwrite with Clip

The current range is replaced with the Clip contents. The overall sample length remains unchanged. The data that occupied this position before cannot be recalled. The Clip contents are not changed. The assignment of the Clip channels follows the table mentioned above.

In VIRTUAL PROJECTS, the selected range determines the position and track in which the Clip is inserted.

Shortcut:

Keys: Alt +v or Insert Key

Extract

This function is the counter part of the 'Cut' function.

Wave Projects:

The current range remains unchanged only the sections before and after the selected range are PERMANENTLY DELETED. The audio file becomes shorter. The contents of the Clip are unchanged.

Virtual Projects (VIP):

The selected range determines the material from all VIP tracks that remains in the project after using the function no matter whether the selected range spans all tracks or not. This means that this function does not operate track

selectively. The objects before and after the selected range are deleted from the project. The contents of the VirtClip remain unchanged.

The virtual project is expanded by one empty track.

Mix with Clip

The range contents and the Clip contents are mixed. Channel assignment between project and Clip follows the table above (See “Insert” function). The contents of the Clip are not altered.

Since either component is combined with their full sample values, make sure that no over-modulation takes place. This function is performed by way of addition. This assures on one hand, that the project sample remains free of a sudden volume decrease. On the other hand, modification of the amplitude might need to be performed before the mix to keep the resulting sample from clipping and distorting. For information on amplitude modification, see “Editing Menu”.

Insert Workspace

The “Insert Workspace” option will insert “blank” data at the current play cursor position or the position of the currently selected range. Size and position of the inserted blank space will depend on the length of the range selected before.

The blank space will actually contain data with zero value. The data following the insertion point will be added to the end of the blank space. The defined range is maintained, the length of the inserted space extends the overall sample. If you do not have sufficient memory to insert the workspace (i.e. with RAM projects), MAGIX audio studio will display an error message.

Add one Track

This option adds a new empty track. The maximum number of tracks is 24 (deLuxe: 48).

Crossfade Editor

Wave Projects (RAM or HD):

The section before the current play cursor position or the selected range is merged with the contents of the Clip in a way to create a crossfade section. Two separate cuts are needed:

- 1) Copy a range into the Clip.
- 2) Set the play cursor on the desired position and then call up the crossfading function.

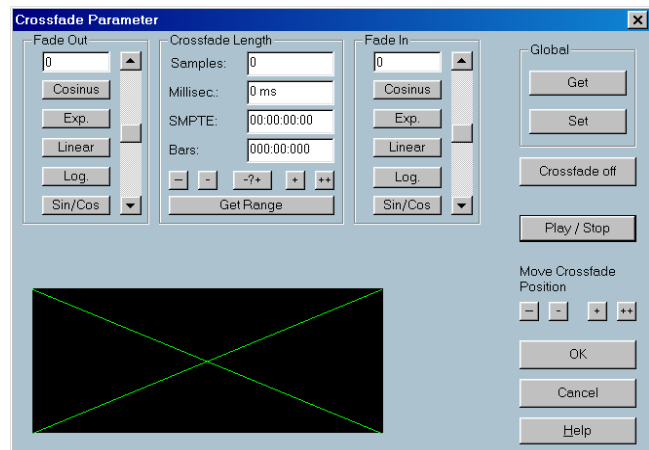
Virtual Projects (VIP):

This option offers a convenient way of adding a real-time crossfade to two objects in a VIP track. Both objects need to be selected. The best way to select the two objects is with the Object Lasso. The Object Lasso is used when starting the selection in an empty area and dragging a marquee over the two objects. The next step is to display the Crossfade Editor with Edit->Crossfade Editor.

The length of the crossfade can be specified in different length units or can be transferred from the selected range. Make sure that enough material is available before and after the object borders to create the desired crossfade length.

Available fade-in and fade-out curve types are Linear, Logarithmic, Exponential, and Sine/Cosine.

If a range is selected over the crossfade section, the crossfade can be previewed with the Play/Stop button. This also works while making adjustments in the editor dialog and allows you to audition the crossfade parameters in real-time. Please keep in mind that long crossfades employ twice the processing power compared to playback of single tracks. Two samples are played at the same time in real-time and increase the processing requirements. In critical cases increase the VIP Buffer size in File->Preferences->System. Linear crossfades do not take as much processing power as non-linear crossfade curves.



The buttons “+”, “/” and “-” change the length of the crossfade section in default increments.

The CROSSFADE POSITION: can also be moved with the and – buttons.

The button CROSSFADE OFF: deactivates the crossfade for the selected Object.

GLOBAL SET: The currently selected settings for the crossfade can be used as default setting for newly created crossfades.

GLOBAL GET: Restores the global crossfade settings as parameters for the Editor configuration. The special functions and shortcuts in the menu Object->Object/Crossfade Editing are very helpful when editing crossfades in VIP projects.

GET RANGE: The length of the currently selected range is used for the length of the crossfade.

Auto Crossfade active

If this option is turned on, all newly recorded or cut material in a VIP or material that is copied from a Wave project into a VIP track has an automatic crossfade applied to it. Global settings for fade-in and fade-out parameters are assigned to the object. These settings can be changed with the crossfade editor in the Edit->Crossfade Editor. If two objects are overlapped that had an automatic crossfade applied to them a real-time crossfade is the result. The auto crossfade mode is an excellent tool to easily perform a linear cut of a spoken voice track, jingle track etc., which requires a soft passage without the unwanted “pops”. If needed, each crossfade can be edited in the editor or by manually manipulating the handles.

Delete Volume Handle

This function deletes volume curve events, which have been previously selected. Individual volume events can be deleted by selecting the **OBJECT AND CURVE MODE** mouse mode and double clicking the left mouse button on a volume curve event. However, when deleting several curve events, the “Delete Volume Handle” function is the best tool. Use the **CURVE MODE AND GRAB TOOL** to select multiple curve events.

Delete Panorama Handle

This function deletes panorama curve events, which have been previously selected. Individual events can be deleted by selecting the **Object and Curve Mode** mouse mode and double clicking the left mouse button on a volume curve event. However, when deleting several curve events, the “Delete Panorama Handle” function is the best tool. Use the **Curve Mode and Grab Tool** to select multiple curve events.

Delete Undo Levels

This feature will delete the Undo levels of a virtual project. This is useful, if for example certain Wave projects are left in the Undo chain, but do not exist in the VIP anymore. You won't be able to process or delete the Wave project if the Undo chain still contains a reference. After deleting the Undo levels, these projects are available again.

Menu View

This menu contains tools for manipulating the display of MAGIX audio studio.

Rebuild Graphic Data

Display inaccuracies after complicated sample processing can be fixed by using this menu option. The screen (window) will be cleared and redrawn to display the project properly.

Sections

MAGIX audio studio allows the optional display of one, two or three sections of the samples belonging to one Wave project or the VIP itself. Other audio editing applications usually show only one window of a sample.

If you select “2”, MAGIX audio studio will display the same sample in two window sections. Each section can be handled separately. It is possible, for example, to represent the complete sample in one section and a zoomed in version of a certain range in the other.

The mode “3 sections” is especially useful for searching for loop points in Wave projects.

The whole sample can be shown in the upper section, while the section on the lower left displays the beginning of the loop range and the section on the lower right the end of the range. Use the split range function for this purpose (key b).

Go back to 1 view with Shift b!

This is only an example of the mode “3” view. All sections can be handled independently.

You can also drag ranges over the section bounds. Establish the starting point of a range by clicking, then keep the mouse button pressed, and change over to another section. MAGIX audio studio will show you the size of the range and at the desired location release the left mouse button to determine the end of this range.

Fix vertically

Ranges can be dragged (pulled) in MAGIX audio studio horizontally and vertically as well. If this option seems too strange to you, you can fix the upper edge of a range(s) to the maximum value and the lower end to the minimum value. Thus, you get the usual representation in range dragging. However, a trade-off is, that you will not be able to define the vertical extension of a section by choosing the vertical range button.

Rebuild Graphic Data	
Sections	▶
Fix vertically	
Show Grid	#
Grid Setup	▶
Units of Measurement	▶
Snap to grid	Ctrl+R
Snap Setup...	Shift+R
VIP Display Mode	▶
Store position and zoom level	▶
Get position and zoom level	▶
Horizontally	▶
Vertically	▶

Show Grid

This menu function will display the grid on the project window. The units of measurement defined in “Units of Measurement” will appear in the upper sections of the grid.

Keys: #

Grid Setup

With this option, you can define the type of grid that is used for the Show Grid option. Select between several line styles.

Units of Measurement

With this function you can define the unit of measurement for the grid, for the display of start and length of the selected range and for the position of the play cursor.

Snap to Grid

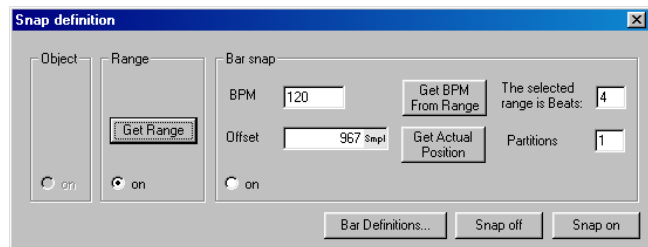
This function switches the Grid on and off.

When working with virtual objects the Virtual Grid becomes available. Objects can only be shifted to the beginning, the end, or the hot spot of another object. The reference point is usually the beginning of the object to be shifted to. A hot spot when defined will be used as a reference point as well. If several objects have been selected, the move is performed in lining up the beginning of the last selected object in the sequence with the reference object or Grid point. All selected objects remain their position to each other.

This option can be used to easily rearrange objects with their audio patterns and gain sample-exact connections.

Keys: r

Snap Setup



OBJECT: Activates the object grid.

RANGE: Activates the range grid and enables the use of the current selected range as grid base (by clicking on the but-

ton “Get Range”). This option is very useful if you have found the perfect location defining a particular music bar in the sample. To transfer the range into the grid, use the command “Get Range”.

BAR SNAP: Activates a grid, this is based on bars and beats. You can specify the speed of the measure by entering the BPM (Beats Per Measure) value in the dialog box. By clicking on the “Bar Definitions” button you have more options to specify the parameters for this option such as the time signature.

If a complete 4/4 measure is selected the number of beats in the measure would be 4. The length of the range would determine the speed in BPM that is needed to play the sample in the selected time frame.

BAR DEFINITIONS: This dialog lets you specify the bar settings, e.g. Numerator / Denominator, the speed in beats per minute and the timer resolution in peaks per quarter note.

Keys: SHIFT + r

Key for switching the two modes: Tab

VIP Display Mode

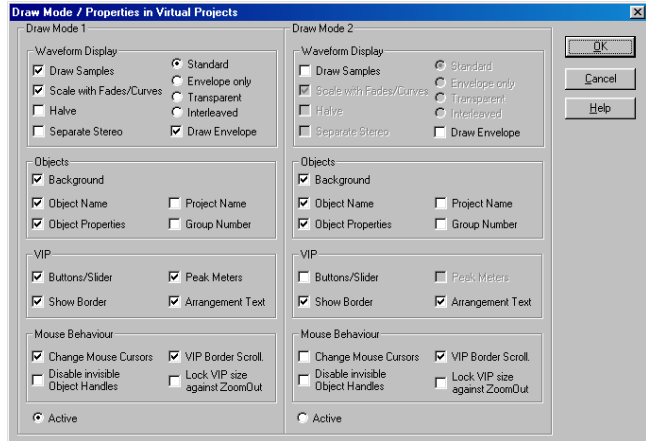
The Display Preferences were designed to help you define the two alternative display modes possible in MAGIX audio studio when working with virtual projects.

Usually you choose mode 1 for detailed drawing of samples with all information displayed and mode 2 for a quick drawing without graphics. Switching between the two modes is possible by pressing the Tab-key.

The menu option will provide you with another window in which you can specify the details of the two different display modes.

Definition

This will allow you to set the following configuration options for the VIP display. Settings can be made for the to display modes.



SAMPLE / HALVE: The graphical representation of the audio material can be displayed as a whole waveform or half the form for higher definition. Checking this box will display the waveform with half its information.

This mode is recommended, because the grid function (key #) and the vertical zoom functions (Ctrl + cursor up/down) are perfectly adapted to this draw mode.

BACKGROUND: Each object in the VIP track can be assigned with a color. The color is displayed if this option is checked. Otherwise, the same background color is used as for the track background.

OBJECT NAME: Objects in VIP windows can have their own name. If this option is checked, the object name is displayed.

PROJECT NAME: MAGIX audio studio also allows you to display the audio file name in each object. This is especially useful if you quickly want to identify the Wave project used in an object. Checking this option will display the file name in the object.

OBJECT PROPERTIES: This shows you which object related effects are applied the the object, e.g. EQ for equalizers, DYN for dynamics etc...

GROUP NUMBER: Objects in VIP windows can be grouped together. When grouping objects it is helpful if the group number is displayed in the object. This option allows you to display that information in the object.

BUTTONS/SLIDER: By default, MAGIX audio studio displays the buttons and sliders for each track. However, on smaller displays it may be desirable to turn the display for the buttons and sliders off. By unchecking this option, they are not displayed.

PEAK METERS: Every track in a virtual project has its own LED meter to allow exact volume level display. However, they are only visible up to a certain vertical zoom level. The LED meters also work during recording and contain a peak hold function that remembers the maximum input level. This allows you to adjust the input levels. When working with a large number of tracks, the peak meters can slightly increase the processing load.

CHANGE MOUSE: This option causes the mouse pointer to change when moving it over certain areas. For example, moving the mouse pointer over an object handle, the mouse pointer is changed into a directional pointer. This option is only useful for mouse modes that combine several functions.

NEW OBJECT MODE: This mode allows moving of objects on the second click, rather than the first click. The first click selects the object, but disables simultaneous accidental replacement.

SHOW BORDER: Decides if a border is drawn between tracks in a VIP. Switch it off to save space for VIPs with lots of tracks on small displays!

SEPARATE STEREO: If this option is active, stereo tracks in VIP projects are displayed with a two-channel display. This allows you to expand the display to both channels rather than displaying just one composite channel display. Please keep in mind that this will also affect the Wave project display for stereo Wave projects.

ACTIVE: Allows you to determine which mode is to be used. This can also be done with the TAB key from the VIP window without having to call up the VIP Display Definitions dialog.

Keys: SHIFT + Tab

Store / Get position and zoom level

This function does the same as the snapshot-buttons at the bottom left of the VIP. The four buttons in the lower left-hand section of the Virtual project window allow you to save four setups (S1...S4, incl. Zoom-Level, Display-Position, and Display Mode). To store a setup, hold the Shift key and click on one of the buttons. A single click on the button without holding the Shift key recalls the stored setup or zoom level. Any changes applied to the windows will return to the state saved to the button.

Horizontally

This menu contains all the functions of the horizontal (red) position bar.

Section to Beginning	
Section Left	
Half Section Left	
Half Section Right	
Section Right	
Section to End	
Objectborder Left	
Objectborder Right	
Marker Left	
Marker Right	
Zoom In	Ctrl+Cursor Left
Zoom Out	Ctrl+Cursor Right
Show All	
Range to Section	
1 Pixel = 1 Sample	
Zoom Range 1s	
Zoom Range 10 s	
Zoom Range 60 s	
Zoom Range 10 min	

Vertically

This menu contains all the functions of the vertical (blue) position bar.

Section to Upper End	
Section Up	
Half Section Up	Cursor Up
Half Section Down	Cursor Down
Section Down	
Section to Lower End	
<hr/>	
Zoom In Track	
Zoom Out Track	
Show All	
Range to Section	
1 Pixel = 1 Bit	
<hr/>	
Zoom Out Wave	Ctrl+Cursor Down
Zoom In Wave	Ctrl+Cursor Up

Menu Object

<u>N</u> ew Object	
Mute Objects	
Cutting Objects	▶
Split Objects	Shift+T
Trim Objects	Ctrl+T
Lock Objects	▶
Object to Playcursor Position	
Object to Original Position	
Set New Original Position	
Build Loop Object	
Set <u>H</u> otspot	
Select Objects	
Switch Selection	
Group Objects	
Ungroup Objects	
Object Background Color...	
Object Foreground Color...	
Objectname...	
Object Editor...	
Take Manager...	
Destructive Editing...	

Contrary to the menu Edit all functions in this menu exclusively manipulate selected objects in virtual projects. Selected ranges have no effect with these functions. Ranges are used to determine insertion points or cut positions of objects. When inserting material into a virtual project, the range beginning has the same function as the play cursor – the material is inserted at the range beginning.

New Object

Use this function to create a virtual object. The current range in the Wave project will be inserted into the virtual project at the play cursor position. It will also be the currently selected object. This is the same procedure as the drag&drop method explained earlier in this chapter.

The object is inserted at the actual range position in the VIP.

Mute objects

The selected objects will be muted.

Cutting Objects → Cut Objects

The currently selected object is replaced with empty space and copied to the VirtClip. The length of the current project remains and all other non-selected objects remain in their positions. The previous contents of the VirtClip are replaced with the cut object.

If a range is selected, all active objects are separated on the range edges.

Cutting Objects → Copy Objects

To place a copy of the currently selected object into the VirtClip select this option. The contents of the VirtClip can then be inserted into the project using the “Insert Objects” option (see below). The previous contents of the VirtClip are replaced.

Cutting Objects → Insert Objects

Objects in the VirtClip can be inserted in the project at the current play cursor position. The other objects in the project maintain their positions. Please note that the newly inserted object might cover portions of the already existing objects. Simply drag the new object to a different set of tracks or reposition the object on the same tracks.

Cutting Objects → Delete Objects

The selected objects are deleted from the current project. The length of the current project however remains the same. Previously unselected objects keep their positions. The contents of the VirtClip remain unchanged.

Keys: CTRL + Del

Cutting Objects → Extract Objects

All objects not currently selected are deleted. Please note that the function Edit->Extract works similar. However, the Edit menu function requires a previously selected range!

Cutting Objects → Duplicate Objects

All selected objects are duplicated and pasted to the same position as the original objects. The original object is overlaid with the copied object. The duplicate object can easily be shifted to a desired position by using the mouse. If several objects have been selected before the duplication, press the shift key before shifting to ensure that all objects remain in selected status and are shifted together.

This option does not make use of the VirtClip, so all contents of the VirtClip remain unchanged.

This function is also available using your mouse. Press and hold the Ctrl-key, click on the object you want to duplicate and drag the copy to a new position in the project.

Another option is to use the Drag&Drop functionality for the Object or Universal Mouse Mode:

If multiple objects are selected, press the Ctrl key and drag the selected objects to the new position. This allows you to duplicate the selected objects easily and without using the VirtClip.

Cutting Objects → Duplicate Objects multiple

This function duplicates multiple objects and places them in sequence. Another dialog is displayed, which allows you to determine how many copies of the selected objects are to be duplicated, the separating distance and the overall length of the duplication.

This is also another way of building Loop-Objects!

The following parameters are available:

NUMBER OF OBJECTS: Determines the number of objects that are created.

GROUP CREATED OBJECTS: When checked, all created objects are grouped together.

DELTA TIME: This determines the relative position of each created object to the next (from the beginning of one object to the beginning of the next). The default setting is the length of the selected object. At the default setting the duplicated objects line up without a gap between them, this creates a seamless loop.

DURATION: As an alternative, the duration can be specified, which are the combination of time difference and the number of duplicated objects.

Cutting Objects → Split Objects on Marker position

This function splits or separates selected objects so that individual object sections can be further manipulated. All selected objects are separated at the current marker position, which results in two independent objects.

Split Objects

This function splits or separates selected objects so that individual object sections can be further manipulated. All selected objects are separated at the current play cursor position, which results in two independent objects.

If a range is selected, the cut occurs on **BOTH** range borders. It is not necessary to select objects prior to choosing the range and calling the Split Objects function. If an underlying object is separated, the newly created object covers the original underlying object.

Keys: t

Trim Objects

This function trims the object borders to the currently selected range borders. The selected range needs to be located within the confinements of the object you want to trim.

Keys: Ctrl+t

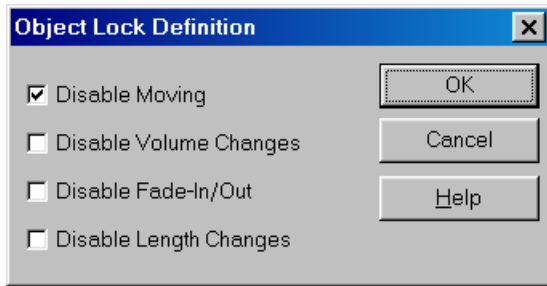
Lock Objects → Lock Objects

To protect objects from unintended shifting use this option. First, select the objects you want to “lock” in place and activate the lock function. A diagonal line is placed across the locked object.

Lock Objects → Unlock Objects

Locked objects are unlocked and made available for shifting. Make sure you have selected the object(s) you want to unlock prior to activating the unlock function.

Lock Objects → Lock Definitions



Here you can select, which options should be disabled:

DISABLE MOVING: Disables moving of objects (default). This is useful in multi-track projects to avoid delays between several tracks.

DISABLE VOLUME CHANGES: The volume handles are disabled.

DISABLE FADE IN/OUT: The fade handles are disabled.

DISABLE LENGTH CHANGES: The length handles are disabled.

Object to Playcursor Position

This moves the selected object to the actual playcursor position.

Object to Original Position

This moves the selected object to the original position where the material was originally recorded. This is often helpful if an object was accidentally moved.

Set New Original Position

The current object position is used to reset the Original Position attribute for the object. This is also used in the Take Manager.

Build Loop Object

With this function, a loop can be defined within an object. An area, which indicates the loop length, must be selected in the object first.

The object then becomes the loop object. That means that the number of loops can simply be “raised” with the “length handlers” at the bottom of the object.

Such generated loop objects are ideal for generating long drum sequences from only one drum loop! Loop objects

also help to save memory, since in the VIP only one object is handled rather than multiple objects or copies of the same material or very long samples!

Set Hotspot

The current play cursor position is turned into a reference point for the snap function. Instead of the object's beginning, the hot spot is now used when the object is snapped to the grid.

Stroked vertical lines illustrate hot spots. Hot spots may stand outside an object (in front of or behind the object). This function is very useful for a case where the portion of an object to be synchronized does not line up with its beginning.

Select Objects

To select all objects located partially or entirely in the selected range, or at the current play cursor position.

Switch Selection

To select all objects located partially or entirely in the selected range, or at the current play cursor position.

Group Objects

All selected objects are grouped together. All operations are applied to the whole group.

Ungroup Objects

Selected objects are ungrouped. Individual objects are available for processing after that.

Object Background Color

Sometimes it is necessary to distinguish certain objects from others. MAGIX audio studio will let you specify different colors for selected objects. Once you have selected one or more objects, choose "Object Background Color" from the "Object" menu and specify a different background color for the objects. After clicking on OK, all selected objects will have the specified background color.

Object Foreground Color

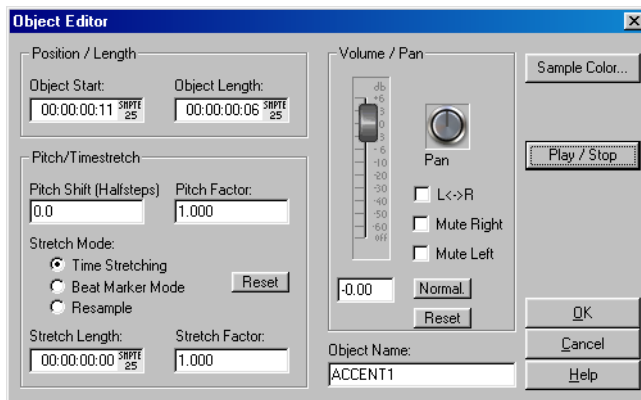
The foreground color (such as sample data displayed) can be changed as well. After selecting the desired color, all selected objects in the project will have the same foreground color.

Object Name

Another way to distinguish certain objects is to give them a different name. MAGIX audio studio will let you specify a name (such as “Verse”) with this option. Please note that the name only shows up if you enabled this option in the “Object Drawmode” definition window (available from the “Setup” menu or by pressing Shift+Tab when the object is selected).

Object-Editor

The object editor lets you adjust some of the most important features of your objects.



OBJECT-POSITION: Here you can change the position of the objects in the VIP, typing in a value.

OBJECT-LENGTH: Change the length of the object.

SAMPLE-COLOR: Adjust the foreground color of the sample.

BACKGROUND-COLOR: You may also change the background color of the sample.

PLAY/STOP: Starts or stops playback in the actual area. The area should be placed on the object or on a part of it before you open the Object-Editor so that the object-effects can be heard immediately while editing!

OBJECT-NAME: Name your object. This name will then be displayed in the VIP.

PITCH/TIME-STRETCHING: In this section you’ll be able to edit the pitch and the length of an object by typing in new

values. We recommend the time/pitch-mouse-mode for more intuitive editing.

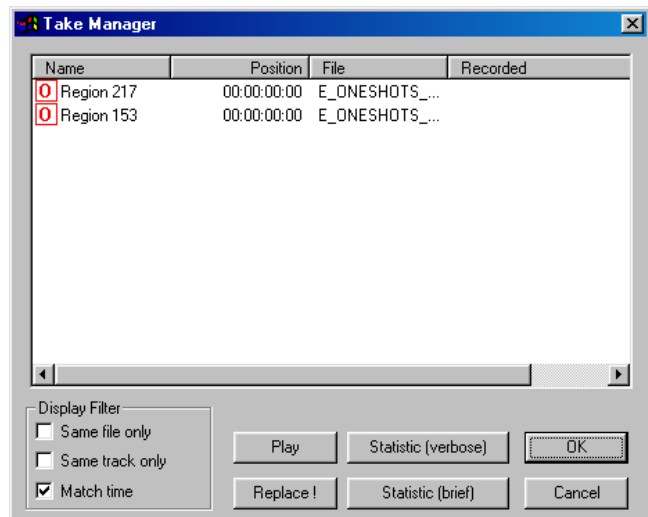
VOLUME/PAN: You can also assign your object a certain volume level and an exact position in the stereo-pan.

Keys: right + left mouse button or left double-click on the object

Take Manager

The Take Manager is another powerful feature of MAGIX audio studio. It is especially for those who work with many different recording takes and need to manage them.

MAGIX audio studio registers the VIP position of the recorded audio material. This time stamp is stored to the HD or RAM Wave project and offers the option to always return the recorded object to its original position.



APPLICATION EXAMPLES:

- Selection of the best take after five loop-punch recording passes.
- Locating the best material between bars 32 and 34 of 12 takes from a classical production.
- A clear overview of all available takes during a SMPTE time of 30:00 to 35:00.

Basis for working with the Take Manager is a selected object. This could be the last created object after using punch-in recording. This object is referenced in the take list with a colored “O”.

ATTENTION: The Take Manager does not work if objects are used in a VIP, which are not created by recording material into MAGIX audio studio. This would be the case for any material imported through the WAV Import or CD Track features!

When objects are present that were not created through recording, a manual time stamp can be assigned to the objects by using the function Object->Set New Original Position. Once completed, the Take Manager will list the objects in the take list.

Display Filter

SAME FILE ONLY: Only those takes are displayed that belong to the same audio file as the selected object.

SAME TRACK ONLY: Only those takes are displayed that are positioned in the same track as the selected object.

MATCH TIME: Only those takes are listed that match the original time position of the selected object.

PLAY: Starts the playback. Before opening the Take Manager set the play cursor to the desired playback position.

REPLACE!: This replaces the selected object with the currently chosen takes from the Take List.

STATISTIC (VERBOSE): Creates a new VIP with the currently shown takes from the Take List. Every take is listed in a new track. The VIP can be used to audition the individual takes with the Solo and Mute functions of each track.

STATISTIC (BRIEF): Creates a new VIP with the currently chosen takes from the Take List. All takes are lined up on the same track.

Destructive Editing

The corresponding Wave project window for a VIP object is opened. This Wave project contains the audio material that is referenced in the VIP object. The selected range in the displayed Wave project is the material used in the VIP object. The Wave project allows you to conduct any destructive editing (Wave editing).

When using destructive editing, simple editing procedures such as cut and copy functions can be used, as well as very elaborate effect processing.

Using destructive editing may not necessarily be the best method of editing. For example, if you have duplicated an object several times, all of the objects would contain the same destructive editing effect after changes are applied directly to the Wave project window.

Please keep in mind that editing functions such as cut, copy, fades, crossfades, and others, can all be applied to the audio material in a non-destructive way in the virtual project.

Also, remember that if you work extensively with WAV files, MAGIX audio studio has the perfect solution for Wave oriented editing. By using a 1-track virtual project, you can complete all editing steps faster and more convenient than any other Wave editing application! For example, any type of cutting and rearranging of audio segments can be performed in a non-linear, non-destructive, and extremely fast way in the virtual project. The TRACK BOUNCING option in the Special menu allows you to take any material in a VIP and turn it into a WAV file.

Menu Effects

This menu will let you add high-grade effects to Wave projects.

Important tips regarding the effects functions

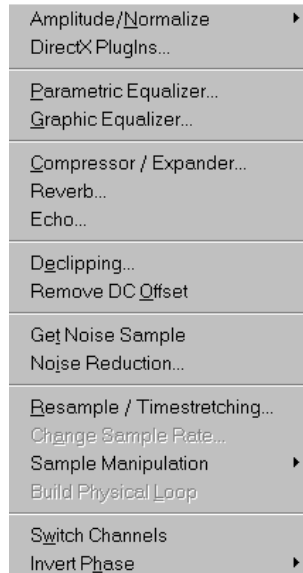
The following effects can be directly applied to VIP Objects: Normalizing, Switch Channels, DirectX Plug-Ins, Parametric EQ, Graphic EQ, Reverb, Declipping, Remove DC Offset, Get Noise Sample (needs selected range in VIP)

Noise Reduction.

- Please note that in Wave projects most functions are only available for selected ranges. If the complete audio file is to be processed with the DSP function, the whole file needs to be selected as a range in the Wave project (also see Menu Range->Range All).
- Selected objects in VIP projects are processed with their complete content, no matter which range is selected in the Wave project. (An exception is the function Get Noise Sample.)

If you don't want to alter the whole object, you would first need to cut the object apart (select a range over the desired length and press the key "T"). We suggest turning on the Auto-Crossfade-Mode (menu Edit->Auto crossfade active) to prevent pops during the object transitions.

- It is even possible to apply an effect to multiple selected objects. If several objects are selected in the VIP, the effect is applied to each individual object and its corresponding audio material in the physical audio file(s).
- A suggestion regarding the differences between RAM and HD Wave projects: With RAM Wave projects you can decide after an applied edit whether you want to keep the current version. Since the audio material is only processed in the computer memory, it is possible to simply close the Wave project and not saving the changes to the hard disk. To keep the changes, the project would need to be saved to the hard disk (shortcut: "S"). In HD Wave projects, the changed audio material is immediately saved to the file on the hard disk.
- To preview or test a processing step the following methods are suggested: Use the Preview options in the effect dialogs. You can also work with a copy of the audio material for test purposes. To accomplish this, copy the selected range in the Wave project to the clipboard (shortcut: "C"). Next, open the Clip window (this window is iconized at first) and select the complete contents of the Clip window (shortcut: "A"). The effect can now be



- experimented with on the temporary copy of the audio material.
- A tip: To edit ranges in a VIP, the object first needs to be separated (selecting a range over the desired length and pressing “T”). We suggest to turn on the Auto-Crossfade mode (Menu Edit->Auto Crossfade active) to smooth the transitions and prevent pops. If the complete HDP needs to be saved, the separated object will need to be merged into a new audio file (HDP). This can be accomplished by selecting a range over the three object parts resulting from the separation (Suggestion: Use the Grid to assist with the creation of the range.) Next, use the Track Bouncing function (Menu Tools->Track Bouncing, Setting: Only Selected Range) to merge the objects in the range to create a new HD Wave Project.
 - The real time effects dialogs in the Mixer window can also be accessed by clicking the right mouse button on the respective effects knob of a channel. The corresponding effects dialog will appear, which can be used to make detailed adjustments to the settings.

Amplitude/Normalize → Normalize File (phys.)

This function modifies the sample’s overall amplitude. The data is altered so that the maximum amplitude occurring in a specified range is set to 100% (or any other value between 1-400%). MAGIX audio studio will first attempt to detect the maximum and relate it to the percentage chosen. Then all other values are weighted with the new factor.

The Normalize function is designed to fully modulate or over-modulate samples. A particular application is processing that is done before a conversion from a higher sample resolution to a lower resolution takes place. Since the dynamic range of the low resolution is smaller, it still can be fully utilized by applying the Normalize function.

If working with sounds from one single instrument, you should set the factor to 100%.

If, however, your audio material has background percussion for example, you will be able to over-modulate the sample to 120% to 200%. This will only cut off the new percussion peaks. The same method allows you to alter the sound of natural instruments by over-modulating them.

As preparation for further physical processing, such as filters, reverb, dynamic compression etc., a level reduction of 50-70% is suggested. This should avoid clipping during post processing.

AN IMPORTANT RESELECT: If the volume level during the recording is relatively low and the material is later norma-

lized, the result will not be of the same quality if the recording level is maximized to its fullest range. If for example the volume level was only set to 50% of the possible range, the audio material will be in 15-bit quality. Even normalizing the material to 100% will not change this aspect.

Keys: Shift + n

Amplitude/Normalize → Normalize Object (virt.)

This function will perform real-time normalizing on the selected objects. This is different than the physical normalizing, which will restructure the audio file.

The real-time normalizing will look for the peaks in your audio material and adjust the volume so that the peaks represent 0 dB. The rest of the audio material is scaled accordingly.

Keys: n

Amplitude/Normalize → Amplitude / 2

This function divides the amplitude of all sample values by a factor of 2. The same could be achieved by a fade-in/fade-out with parameters ranging from 50% to 50%. However, this function is much faster since computing time is greatly reduced.

Amplitude/Normalize → Amplitude * 2

The same holds true for the “Amplitude * 2” function. However, sample amplitude values are multiplied by a factor of 2, thus corresponding with a fade-in/fade-out process with parameters ranging from 200% to 200%.

Amplitude/Normalize → Set Zero

Sample data values in a selected range are set to zero (no data). Noise and imperfections in a sample can thus be eliminated.

Amplitude/Normalize → Fade in/out

This function allows sample ranges to be faded in or out. The amplitude is varied in its time characteristic from the start value of the beginning to the final value at the end of the range. When the function has been called, a window appears in which you can specify parameters for this operation.

A simple fade-in operation would be performed with the parameters from 0% to 100%, whereas normal fade-out requires the specification from 100% to 0%.

The fade curve can be adjusted from linear to exponential or logarithmic.

Notice that real time fading is applied to virtual projects only (with handles). For all other projects (RAM and HD), the sample data is physically altered.

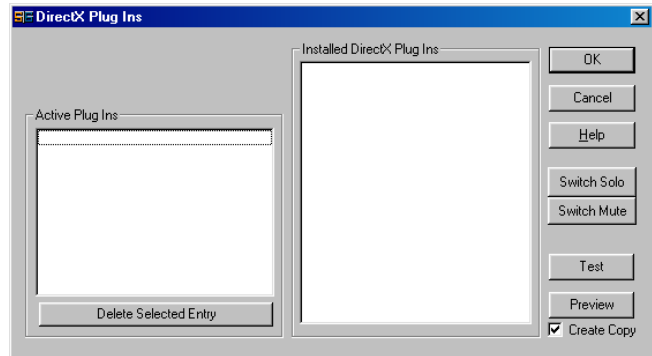
Keys: f

DirectX Plug-Ins

This function allows you to use Microsoft DirectX compatible plug-ins with MAGIX audio studio. This complements the already existing superb effects with an unlimited number of 3rd-party effects.

The Mixer in MAGIX audio studio is also compatible with plug-ins, which can be used as real-time effects. However, the plug-ins have to be able to process the audio data blocks immediately and completely, without changing the length of the material. This is the case for most plug-ins (i.e. Wave Native Powerpack, Power Technology DSP FX, Arboretum Hyperprism, TC Native Reverb and others). Other algorithms will fail, such as time stretching plug-ins, since they are based on changing the length of the material.

The menu EFFECTS does not pose these limitations. All available plug-ins should work, even if they change the length of the audio material or temporarily off-load the data blocks (i.e. Sonic Foundry Acoustic Modeler).



Working with the Plug-Ins

After opening the plug-in dialog, a list of installed DirectX Plug-Ins is visible. Double clicking on a specific plug-in moves the plug-in to the left side of the dialog. The left side shows the active plug-ins. At the same time the plug-in is moved into the active plug-in list, the dialog for the chosen plug-in is displayed. The DirectX plug-in dialog allows you to make further settings for the effect. Additional double clicks on entries in the right-side list add other plug-ins to the active plug-in list on the left side. Please make sure that

the chosen plug-ins are compatible with each other. For example, mono and stereo plug-ins can not be used simultaneously – an error message is displayed.

The last plug-in loaded into the active plug-in list can be deleted with the button “Delete last Entry”.

TEST: This button activates the real-time preview of the active plug-in listed on the left side of the display. This function is ideal for testing of the chosen plug-in settings if the real-time calculation operation operates sufficiently.

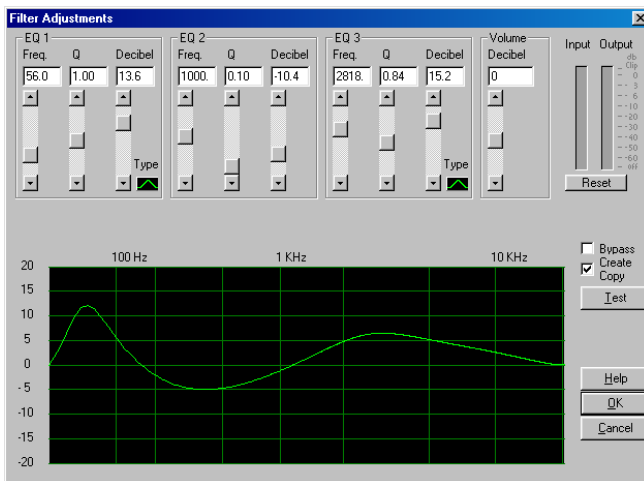
PREVIEW: This function calculates a short segment of the audio material with the active plug-in settings and plays back the audio segment. Use this option if your system does not seem to be able to sustain the real-time preview (button “Test”). The length of the off-line preview can be determined with the setting **SYSTEM** (shortcut: y).

Parametric Equalizer

This dialogue contains a 3-Band parametric equalizer. You can adjust the sound of your sample activating filters on three independent frequency bands. This allows you to raise the bass and treble in a broad spectrum as well as making very specific corrections in the dynamic frequency spectrum.

However, you will first have to highlight an area of the current project or the entire project with the a-key (wave-projects).

Don’t forget that the mixer (m-key) also includes one equalizer per channel that works in real time and does not modify the saved audio-material! (non-destructive manipulation process).



FREQUENCY: Adjust the middle frequencies of the different filters between 10 Hz and 24 kHz using these switches. As your choice is completely unrestricted, you can also set various filters to the same frequencies in order to obtain more pronounced effects.

SPECTRUM: Here you can set the frequency-spectrum of each filter between 10 Hz and 10 kHz.

DECIBEL: These switches control the activity and intensity of each filter. If the switch is set to 0, the filter will be inactivated, saving system resources.

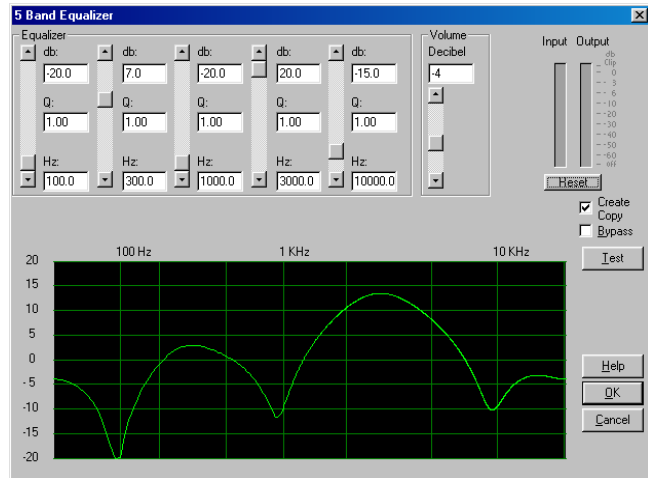
VOLUME: This button controls the general volume should the filters produce an extreme increase or decrease of the individual levels.

TEST: This button activates the real time demo-function. If the demo-function can't be stopped using this button (due to work-overload) you can stop playback using the spacebar. Maybe you should then choose a bigger real time buffer-size in the "Setup > System"-menu!

The effect of the equalizers can be enhanced by using it repeatedly on the same sample. This enables you to make any manipulation you want on the dynamic frequency spectrum!

Graphic Equalizer

This editor contains a 5-band graphic equalizer. You can activate filters on five pre-set frequency bands in order to adjust the sound of your sample.



Again, an area of the current project or the whole project has to be highlighted using the a-key.

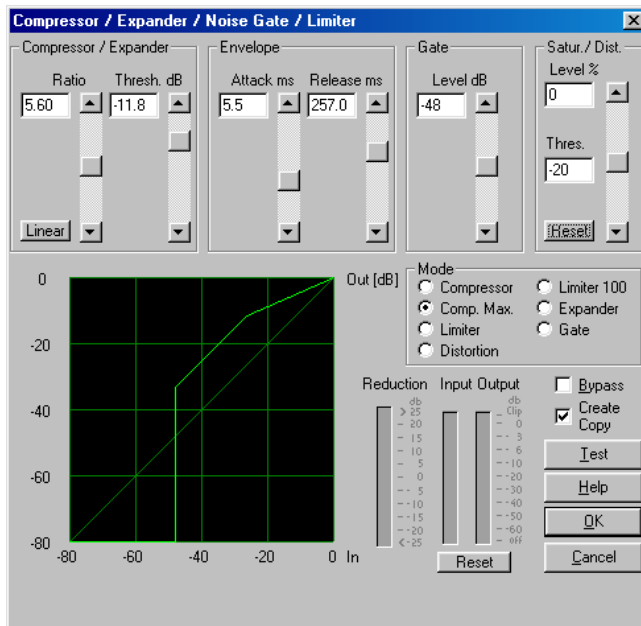
Please don't forget, that the mixer (m-key) also features one equalizer per channel, which works in real time and does not modify your saved audio-material! (non-destructive manipulation process).

EQUALIZER: Using the 5 switches you can lower or raise the different frequency bands individually. If the button is set to o, the corresponding filter will be inactivated, saving system resources.

VOLUME: This button controls the general volume. Use it if the individual filters increase or decrease too much.

TEST: This button activates the real time demo function. If you can't stop the demo function by means of this button (due to work-overload) you can stop playback by using the space-bar. Try to choose a bigger real time buffer-size in the "Setup > System"-menu!

Compressor / Expander / Gate / Distortion



With this Editor you can work on the dynamics of a sample. Processing is carried out in the same way as on high-quality studio equipment "previewing", i.e. there is no peak over-riding, or other artefacts, as the algorithm can never be "surprised" by peak levels. All of the functions can be pre-heard in real-time (Test-Button).

The following functions are available:

Compressor/Expander

The dynamics of a work are restricted, loud passages stay loud, quiet passages become louder. Compression is often used to give material more power and assertiveness. The compression level is set with the Ratio Control, the application level is determined by the Threshold. Build-up and fade-out times can be influenced by Attack and Release. An Expander is the functional opposite to the compressor: the differences between the peak levels and quiet passages become greater.

Gate

Very quiet passages (under the Threshold Level) are suppressed or drawn down to zero. This effectively enables the noise level even in the pauses between individual takes to be suppressed, but even at high compressions levels (Ratio > 5) the Gate function is useful, to avoid over-raising of the quietest passages and thereby the background noise.

Distortion

With this set-up audio material can be distorted by means of a non-linear transfer identification line; the signal become louder and additional harmony waves are created. By influencing the application point of the distortion (Threshold) a soft, analogue sounding distortion (Overdrive) can be generated (Threshold e.g. on -40 dB), or a hard, digital sounding distortion (Threshold on 0 dB). With Ratio the strength of the distortion can be set precisely.

Parameters for the Compressor/Gate/Distortion Editor:

RATIO: This parameter controls the strength of the given effects, 1.0 means no effect.

THRESHOLD: Here the application threshold can be set, above or below that of the given effect.

ATTACK: Here the time can be set in which the algorithm reacts to increasing levels.

RELEASE: Here the time can be set in which the algorithm reacts to decreasing levels.

GATE LEVEL: THIS parameter determines under which amounts the level should be set to 0.

Reverb

This function generates high quality reverb in 3 different types.

TYPE: Here you can switch between short, medium and long reverb.

MIX: This slider lets you adjust the level of the dry signal and the reverb sound.

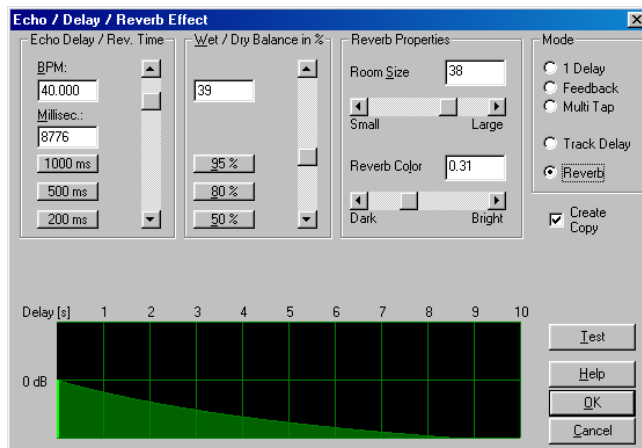
VOLUME: Here you can adjust the output level of the audio material.

TEST: This button calculates a short buffer of audio material with reverb and starts playback for previewing the results.

Echo

This editor allows you to include echo-effects in your samples. In order to avoid overriding, leave a certain margin for adjustments, in other words, the sample data should not reach the maximum or minimum values. That can be achieved (if necessary) by using the Normalising-function (around 70%).

Again, you should keep in mind that the mixer (m-key) features one echo effect per channel, which is generated in real time so that your saved audio material will remain unharmed!



DELAY MS: This button indicates the delay in ms between the single echoes or the original sound and the first echo. The preset value is 500 ms, or half a second if you prefer. Note that the delay depends on the sampling rate, there-

fore any changes in the sampling rate after introducing the echoes will produce changes in the echo delays.

DECAY %: This button adjusts the dumping values (percentage) between the individual echoes. A value close to 100 % produces slowly decaying echoes, whereas a value below 40% produces echoes that disappear rapidly.

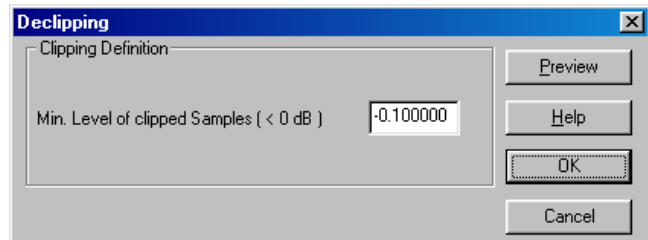
I DELAY: This just adds a delay to the original.

FEEDBACK: This option produces an echo with feedback.
Multi-Tap: The Multi-Tap produces a series of echoes of different intensities and delays.

WET-/ DRY BALANCE %: Adjust the damping between the individual echoes. A percentage close to 100 % produces slowly decaying echoes, whereas a percentage below 40% produces rapidly disappearing echoes.

RESONANCE: In this option you can adjust the size of the virtual resonance room and the color of the resonance by typing in values or using the scroll bars.

Declipping



MAGIX audio studio contains a function to remove digital or analog clipping. Anybody who records audio has encountered this one before. The perfect live recording contains clipping at the most important moment. This alone may render the recording unusable!

MAGIX audio studio uses high-grade algorithms to interpolate the passages containing the clipping. The algorithm uses the material before and behind the clipping as a reference point.

The declipping algorithm is especially useful for material that contains obvious clipping, such as a piano or voice recording. Distorted drumbeats are normally not salvageable.

MINIMAL LEVEL OF CLIPPED SAMPLES: This setting determines the volume level the algorithm considers offending material. There are sound cards that exhibit different

clipping behavior and this setting becomes an important issue. Some DAT recorders have an analog protection mechanism so that the level never reaches the digital maximum signal. In these cases a setting of -0.5 dB or lower make most sense.

By entering a value of -6 dB all samples above half of the digital maximum are considered “distorted” and are recalibrated. Even analog distorted material can be improved with the algorithm.

Remove DC offset

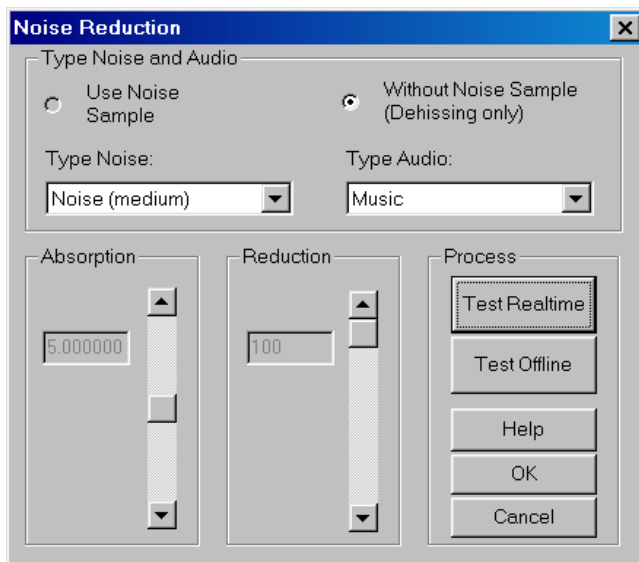
This function in menu “Effects” removes a DC offset in the selected range of a Wave project (RAP or HDP). Some sound cards produce such a DC offset while recording, so it is useful, if you can remove it!

Get Noise Sample (deLuxe version)

This mode uses a noise sample to reduce the unwanted sound.

Noise Reduction (deLuxe version)

The Noise Reduction function can be used to effectively remove annoying noise material from the audio with very little or almost no discoloration of the original audio. For this function the algorithm needs an example of the noise print that needs to be removed. This function works best with types of noises such as a constant occurrence of a ground loop, air conditioner, hum, tape hiss or feedback.



Please note that this algorithm was not necessarily developed to remove pops and clicks from audio material. However, a typical click noise floor such as vinyl recordings can still be successfully treaded with this function.

The algorithm can also work without a noise sample – then only white noise is reduced, such as tape hiss or microphone amplifier hiss.

Mark a range over the audio material you want to be reduced in the recording! Then create the noise sample before opening the Noise Reduction dialog using the menu “Effects > get Noise Sample”!

WITHOUT NOISE SAMPLE: Use this mode if you do not have a noise sample and you only want to reduce white noise (dehissing).

TYPE NOISE: Here you can select between different noise types.

TYPE AUDIO: Here you can select between Music and Voices to control the denoising algorithm.

ABSORPTION: This parameter lets you adjust the level of noise to be reduced. Please adjust this level carefully – it controls the quality of the complete noise reduction algorithm! If the level is too low you still hear noise and artificial high tones. If the level is set too high you may loose high frequencies of your audio material.

REDUCTION: Here you can adjust the balance between original signal and denoised signal. In most cases is is useful to keep a certain amount of original (non denoised) material – e.g. with a setting of -12 dB. This keeps as much of the natural color of the audio material as possible.

TEST REALTIME: This button starts the realtime preview function of the actual settings on fast PCs.

TEST OFFLINE: This buttons starts the preview funtion for slower PCs – small parts of audio material are calculated and played back.

Remove DC offset

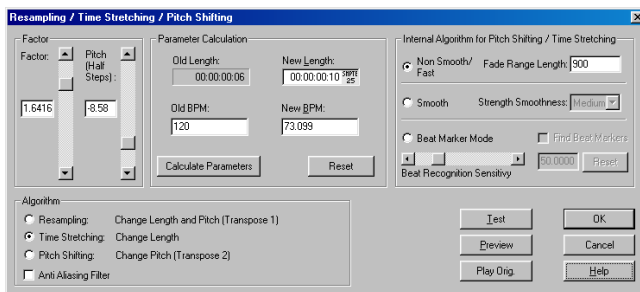
This function in menu ‘Effects’ removes a DC offset in the selected range of a Wave project (RAP or HDP). Some sound cards produce such a DC offset while recording, so it is useful, if you can remove it!

Resample / Timestretching / Pitchshifting

IMPORTANT: If you want to change the sample rate of a whole audio file (e.g. from 48 kHz to 44.1 kHz) please use the separate function “Change Sample Rate” in the Effects menu!

All algorithms in this dialog only use the parameter factor (upper left edit control) to set the amount of effect. All the other input fields in the parameter group simply control this factor. This makes it easy to specify the factor by typing in the new length, pitch or tempo in bpm. Press “Refresh Display” to calculate the actual factor if needed!

The following algorithms can be used:



Resampling:

When using a factor lower than 1.0 the material becomes faster and higher. This is very similar to an analog tape deck, which runs at a higher or lower speed. Also samplers and pcm-synthesizers use this type of algorithm for transposing the samples or waveforms. Use this mode to correct the pitch and speed of any audio material, which may change its length.

If the factor is lower than 1.0, the re-sampling process is performed without a quality loss.

Otherwise, the re-sampling process will result in a loss of high frequencies. If for example the length of a 44.1 kHz sample is doubled, the resulting frequency response of the processed sample is limited to 11.025 kHz.

Pitch Shifting:

The pitch of the sample is changed, maintaining the length. Use this mode to transpose an audio object without changing the length.

Time Stretching:

The length of the sample is changed, maintaining the pitch. Use this mode for example to change the tempo of a drum loop without changing the pitch.

Time Stretching and Pitch Shifting are no loss-less procedures - depending on the factor there can occur short delays or other artifacts in the sample. To minimize these artifacts you have the choice between 3 internal algorithms:

LOOPS/SONGS: Use this mode for factors in the range of 0.9...1.1. This algorithm keeps the original phase even of stereo material, but it produces more artifacts when using with large factors.

LOOPS/SONGS/SPEECH: This mode uses a much more complex algorithm, which needs more time that is calculating. But it gives in most cases better results when using large factors. The phase of the material is changed to get a “smoother” sound. If you were for example dealing with speech, vocals, or orchestral instruments this would be no problem. More complex spectrums, such as a mix of different instruments or completed mix problems, may develop problems.

SOLO INSTRUMENTS: This mode uses the same algorithms as the last one, but uses more of the smoothing component. This makes it ideal for solo instrumental sounds like piano samples or vocals.

BEAT MARKER-MODE: This is a additional Timestretch Mode. It is made for pure Drumloops. Basically it works like this: Through activating the option “Find Beat Marker” the algorithm tries to find and mark Beats in the Audio material. Only these points will be used for timestretching by moving the audio material at the markers ahead or back. Increasing the tempo will superimpose some beats, slowing down generates short pauses between the beats. That mostly sounds better than the older algorithms. A threshold value for beat detection can be set by using the sensitivity control.

Furthermore you are able to set the beat markers manual before you open the Timestretching dialog.

Just set the markers short of the beats (key: shift + 1 ... 0)
If a Wave Project is open and visible, you can follow the process of setting beat markers on the screen.

TEST REALTIME: This is a new function for the beat marker mode. Herewith it is easy to test the effect before you let Music Editor calculate the whole sample.

Irrespective of the tempo, the pitch of the loop can be adjusted using the pitch control in the upper left region of the dialog.

Change Sample Rate

Use this function to change the sample rate of a whole audio file. This may be needed to convert a DAT recording at 48 kHz to 44.1 kHz for use on an audio CD.

After choosing the new sample rate you can select a filename for the new project.

If the resolution is increased the sample rate change will take place without any quality loss – the sample material will not experience fidelity reductions. (The needed hard disk space will increase though.)

If the resolution is reduced, the overtones or high frequencies may be lost during the sample rate change. For example, if the resolution of a 44.1 kHz sample is reduced to 22.05 kHz, the frequency response of the resulting sample is reduced to 11.025 kHz. The frequency response is always half of the resolution specified. For a conversion from a 48 kHz sample to 44.1 kHz, this loss in quality is not significant, since the human ear only recognizes frequencies up to 20 kHz. (A resolution of 48 kHz is often only used because the digital to analog conversion can take place with much higher precision without expensing a lot of effort.)

Please note that resampling to 44.1 kHz can also be done while recording in real-time.

The Playback Parameter window (Shortcut: p) contains a Varispeed option for real-time resampling during playback. The Record window (Shortcut: r) lets you resample to 44.1 kHz in real-time from any of the selected sampling rates.

Sample manipulation → Sampledata / 2

Every second sampling value is removed and the complete sample is reduced to half its length. The audible pitch is doubled, i.e. raised by one octave. When halving the sampling rate you will notice that the corresponding upper harmonics are missing.

The frequency range is divided (i.e. 0-22.05 kHz @ 44.1 kHz Sample Rate -> 0-11.025 kHz @ 22.05 kHz).

Sample manipulation → Sampledata * 2

This function inserts a new value between two neighboring sampling values. It is the average of the two sampling values.

The complete sample changes to twice its length and the resulting pitch of the sample is cut in half. You must then double the playing rate to achieve the former pitch.

You should note that the higher sample rate does not lead to new upper harmonics – the frequency range of the audio material stays the same.

Sample manipulation → Reverse

The sample data in the selected range is reversed along the time axis. The playback of the sample data happens from the end to the beginning. This allows for very interesting effects, not to mention the “hidden messages” frequently referred to in various songs.

This function is reversible: if you do not select a new range, calling this function once more leads to the original material.

Build Physical Loop

This function utilizes a complex algorithm for optimizing loops in Wave projects. It is useful when samples are to be used for instrumental sounds as well as wave table synthesizer.

Before you can process a sample you need to select a range in your sample that already defines the rough edges of the sample loop. Remember that you can shift and vary a range during playback to find the best loop position. A comfortable way to look at the loop positions is by activating the split range mode by pressing “b”. The sample will be displayed in 3 sections.

To gain an interruption-free loop the outer limits of the range will be set to zero. By applying a crossfade to the material at the loop end containing the sample data in front of the loop beginning, MAGIX audio studio will create a ‘smooth’ transition between loop end and loop beginning. When a marker is set in front of the selected range, the range between the marker and the beginning of the loop will be used for the crossfade. This offers you a feature found in professional hardware samplers. To achieve a short crossfade set the marker close to the loop beginning. To receive a long crossfade position the marker further away from the loop beginning.

Notice that the distance between marker and beginning of the loop range needs to be smaller than the loop range itself to make a crossfade possible.

Switch Channels

With this function you can switch left and right stereo channel. This is useful to correct recordings with switched channels.

Invert Phase

The sample data within the selected range is inverted along the amplitude axis. This phase inversion means that negative values become positive and vice versa. This function, too, is reversible.

The “Invert” function permits samples with different phases to be matched.

Along with the available mixing functions (which are, from a mathematical viewpoint, adding functions) you can actually subtract samples by applying this function to the selected sample.

Menu Range

Range <u>a</u> ll	A
M <u>o</u> ve Play Cursor	▶
E <u>d</u> it Range	▶
R <u>a</u> nge Length to	▶
S <u>p</u> lit Range	B
S <u>p</u> lit Range for <u>V</u> ideo	
S <u>t</u> ore Range	▶
G <u>e</u> t Range	▶
G <u>e</u> t Range Length	▶
S <u>t</u> ore Marker	▶
G <u>e</u> t Marker	▶
M <u>a</u> rker on R <u>a</u> nge <u>B</u> orders	
S <u>e</u> t Markers on S <u>i</u> lence...	
D <u>e</u> lete Marker	
D <u>e</u> lete all Markers	
R <u>e</u> call last R <u>a</u> nge	
R <u>a</u> nge E <u>d</u> itor...	
O <u>b</u> ject L <u>a</u> sson	

MAGIX audio studio offers a convenient way of working with ranges. The “Range” menu will let you use these options.

Range all

The range will cover the complete sample. This command comes in handy if you want to apply changes to the entire sample with functions that normally only address certain ranges.

Keys: a

Move Play Cursor → to beginning

Sets the start position of the play cursor to the beginning of the project.

Keys: Home

Move Play Cursor → to end

Sets the start position of the play cursor to the end of the project.

Keys: End

Move Play Cursor → to range start

Sets the start position of the play cursor to the beginning of the currently selected range.

Keys: Alt + cursor right

Move Play Cursor → to range end

Sets the start position of the play cursor to the end of the currently selected range.

Keys: Alt + cursor left

Edit Range → Range to beginning

The beginning of the range will be extended toward to the beginning of the project.

Keys: SHIFT + Home

Edit Range → Range to end

The end of the range will be extended toward the end of the project.

Keys: SHIFT + End

Edit Range → Flip Range left

The current range is shifted left by the length of the range. Its end will be its former beginning. If there is not enough room to place the range, the command will not be executed.

Keys: CTRL + SHIFT + left

Edit Range → Flip Range right

The current range is shifted right by the length of the range. Its beginning will be its former end. Keep in mind that if there is not enough room to place the range, the command will not be executed.

Keys: CTRL + SHIFT +right

Edit Range → Beginning of Range → 0

This function shifts the beginning of range to the right of the next zero position. The function can be called from the keyboard by pressing the left Shift + Alt keys and “6” on the numeric keypad at the same time. You can also press the PgUp key.

Keys: Page Up

Edit Range → End of Range → 0

This function shifts the end of the range to the right of the next zero position (change in polarity). “Zero position” is the next sample value with zero value or the boundary between a positive and a negative sample value (or vice versa). This is particular useful for searching for loop points. The function can be called from the keyboard by pressing the right Shift + Alt keys and “6” on the numeric keypad or the PgDn keys.

Keys: Page Down

Edit Range → Beginning of Range ← 0

This function shifts the beginning of the range to the left of the next zero position. The function can be called from the keyboard by pressing of the left Shift + Alt keys and “4” on the numeric keypad. You can also press the PgDn key.

Keys: SHIFT + Page Up

Edit Range → End of Range ← 0

This function shifts the end of the range to the left of the next zero position.

The function can be called from the keyboard by simultaneously pressing the right Shift + Alt keys and “4” on the numeric keypad or by pressing the Shift + PgDn keys.

Keys: SHIFT + Page Down

Edit Range → 0 → Range ← 0

This function shifts the beginning of the range to the left and the end of the range to the right of the next zero position.

Keys: Clear

Range length to

This command lets you set the range length to 1, 2, 4, 8, and 16 bars. You can set the tempo in BPM with menu View->Snap Setup.

Split Range

This function is in particular useful for working with loops. If not already displaying in Split Range Mode the project is first switched to this mode displaying three sections on the screen.

The upper section displays the whole sample. The section located at the bottom left displays the data near the beginning of the range. The section at the bottom right displays the data near the end of the range.

The boundaries of the range can be exactly positioned in the lower sections, while the upper section will display the location of the entire range. You can also define ranges across several sections.

Keys: b

Split Range for Video

This function is in particular useful for working with AVI Videos.

The upper section displays the whole sample. The section located at the bottom left displays the data near the beginning of the range. The section at the bottom right displays the data near the end of the range.

Both lower sections are zoomed down to single frame accuracy.

The boundaries of the range can be exactly positioned in the lower sections, while the upper section will display the location of the entire range. You can also define ranges across several sections.

To undo the split, the display has to be returned to a 1 section display with SHIFT + B or View->Sections->1.

Store Range

Another powerful feature of MAGIX audio studio is the option of defining and saving different ranges for future retrieval. An unlimited number of ranges can be defined. You can for example specify different loops and compare them while you recall their ranges.

All ranges of a project can be seen in menu Tools->Range Manager. There all ranges can be renamed or played.

When selecting this menu option, the selected range needs to be stored by entering a numerical value the range is associated with.

Keys: SHIFT + F2 ... F10

You can define more ranges by using the submenu "Other". You will need to specify a name for the range selected.

Keys: SHIFT + F11

Get Range

By selecting this option, you can choose one of the defined ranges as the current range.

MAGIX audio studio even lets you choose a range while playing. The specified range becomes the current one and is audible. Using this method, you can change between two ranges comparing them with each other. Ranges can also be named and recalled with the Range Manager (Tools menu).

Keys: F2 ... F10

Get Range Length

By selecting this option you can choose the length of one of the defined ranges as the current range.

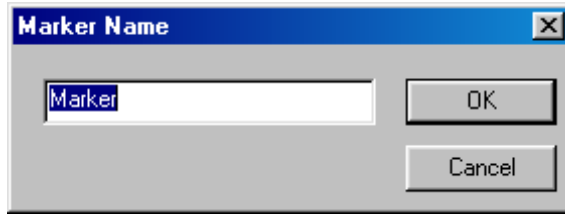
MAGIX audio studio even lets you choose a range length while playing. The specified range becomes the current one and is audible. Using this method you can change between two range length comparing them with each other.

Keys: Ctrl + Shift + F2 ... F10

Store Marker

You can store an unlimited number of markers wherever the play cursor is placed at.

Keys: SHIFT + I ... O



Using the submenu “Other”, you can define more markers with a desired name. Defined markers can be seen above the sample data section of the project window and can be moved with the mouse.

Keys: SHIFT + [

Get Marker

By selecting this menu option, you can easily locate marker points. Simply specify the desired marker location and MAGIX audio studio will position the play cursor at that location.

You can even select a new play cursor location during playback of the project.

You should keep in mind that, whenever a marker has been defined, the range between the marker and the end of the sample is played.

Keys: I ... O

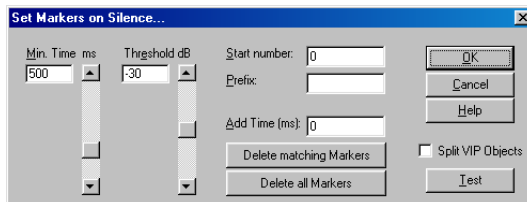
Markers on Range Borders

This function sets two markers to the beginning (S) and the end (E) of a selected range.

Set Markers on Silence

This function sets markers on silent regions in the sample (only in Wave projects - HDP or RAP). You can choose the minimal length of the pause, a threshold level, the start number and a prefix for the marker name.

This is very useful to select the regions of sample CDs etc...



MIN. TIME (MS): This is the minimum length in ms of a “silent” area.

THRESHOLD (DB): This is the maximum volume of a "silent" area. The level of the area in the project will be set on the level of the threshold in the graphic display!

STARTING NUMBER: The markers will start to count from the number you type in this dialogue box.

PREFIX: This allows you to insert additional symbols (letters would be appropriate), which will be placed in front of the marker-numbers. By doing this, you will be able to distinguish between new and older markers.

Delete marker

The selected marker will be deleted.

Delete all markers

All markers of the project will be deleted.

Recall last range

Get the last selected range. This is useful if you have clicked

Range Editor

The beginning, the end and length of a selected range can be numerically changed in different units of measurement. This function will let you specify minute details of a particular range you need to set.

If you change any of the values in the "Range Start", "Range Length" or "Range End" sections, all other values will automatically be updated with the exceptions below:

Change values in the Range Start section:

The end will be maintained.

Change values in the Range End section:

The start will be maintained.

Change values in the Range Length section:

The start will be maintained.

Please note the format of the "Bar" dialog box. The format is displayed as a 4/4 beat with 96 clicks per quarter. Displayed are the bar, beat, and clicks.

The number of beats per minute (BPM) can be set in the BPM dialog box in View->Snap Setup.

Menu CD (deLuxe-version)

Load Audio CD Track(s)...
Set Track
Set Subindex
Set Pause
Set Track Indices on Silence...
Set Track Indices on Object Edges
Remove Index
Remove all Indices
Make CD...
Show CDR Drive Informations...
Show CDR Disc Informations...
CD Track Options...
CD Disc Options...
Set Pause Time...
Set Start Pause Time...
Special CD Arrange Mode
Bouncing (internal Mixdown)

MAGIX audio studio deLuxe allows you to create audio CDs directly from virtual projects and any Stereo Wave project, regardless how many tracks are in the VIP. The requirement is a sample rate of 44.1 kHz for the project. 24-bit objects are converted to 16-bit during the burning of the CD or the CD Track Bouncing function.

Single-track virtual projects (so-called CD VIPs) are especially useful, if WAV files or Wave projects are ready to be turned into a CD. The VIP treats the loading of the Wave project different than for multi-track VIPs. Regardless of any selected range, the Wave projects are loaded by automatically inserting a pre-determined space between the songs or objects. The distance can be set with CD->Set Pause Time.

If a completed VIP represents a single track on the CD, use the Track Bouncing function to turn the multiple tracks into a single Wave project. This Wave project can then be loaded as a "Track Object" in a new CD VIP to properly place it among other track objects.

Load audio CD track(s)

See menu „File“!

Set Track

Use this function to set a track marker (Index Marker) on the current play cursor position. All markers behind the insertion point will be renumbered.

Each track on your CD needs a track marker, typically set after a short pause at the beginning of the next title.

Use the function "Track markers on object edges" to create the markers automatically on the borders of the sample objects!

To manage the markers or to rename them use the Marker / CD Track Manager in the menu "Tools".

Set Sub-index

Use this function to set a sub-index marker on the current play cursor position. All sub-index markers behind the insertion point will be renumbered.

Sub indices are not necessary for your CD but useful for selecting several regions in one track.

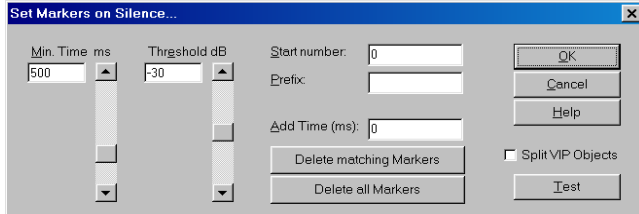
Set Pause

Use this function to set a pause marker on the current play cursor position. This lets the CD player switch the output

to absolute silence while continuing playback until to the next track index/marker is encountered.

Set Track Indices on Silence

If you are inserting a longer audio-file containing various titles (for example a live-take or recordings on DAT), you can automatically insert track-markers between the titles using this function.



MIN TIME: Time interval detected as silence

THRESHOLD DB: Maximum volume detected as silence

STARTING NUMBER: The number of the marker that will be the starting point for the automatic indexing procedure.

PREFIX: You can add additional symbols (letters) to the marker numbers which will be displayed in front of them. This allows you to distinguish new markers from already existing markers.

DELETE PREFIXED MARKERS: All markers that are labeled with the same prefix will be deleted.

DELETE ALL MARKERS: Deletes all markers

Set Track Indices on Object Edges

This function sets track markers (Index Markers) automatically to the beginning of each VIP object in the first VIP track.

Prior to using the function, execute **REMOVE ALL INDICES** to delete any possible track markers.

If there are multiple objects that make up a single track or title, you may want to use the **BOUNCING** function to combine the objects to ensure proper track assignments.

Remove Index

Use this function to remove a previously set track or sub-index marker. First, click on the marker (the small rectangle below the number), then activate this function to delete it!

Keys: Delete

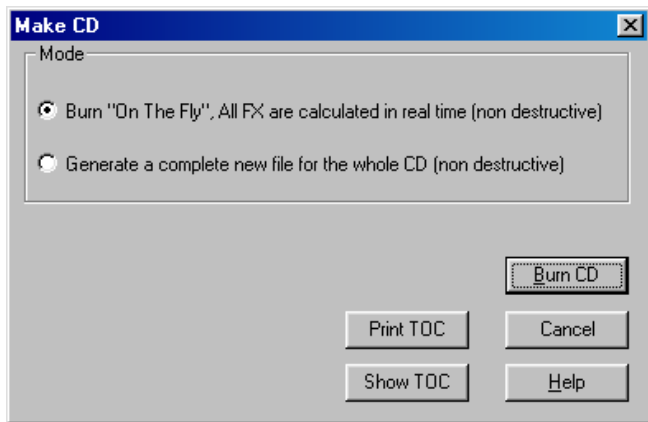
Remove all Indices

Use this function to remove all previously set track or sub-index markers. This can be helpful before calling the function “Set track markers on object edges”!

Make CD

This dialog starts the CD writing process. MAGIX audio studio contains high-grade CD creation routines that are constantly updated. The software code is licensed from Point Software & Systems.

MAGIX audio studio creates a TOC (Table of Contents) file prior to starting the CD creation. The name of the current VIP is used and the extension *.tcx is added to the file. The TOC file is located in the same folder as the current VIP. It is therefore important to save the VIP to the hard disk prior to starting the burning process.



Burn “On the Fly”

Use this extremely powerful mode if you want to create the CD directly from within the VIP. All necessary calculations are performed in real-time during the burning process. The following real-time tasks are calculated during the process:

- volume and panorama settings
- Fades and crossfades
- Mixing of tracks
- Mixer track effects
- Mixer Master section effects

To get a good idea whether your system is able to sustain the real-time processing needed for this functionality, try this:

Play back the VIP sections that contain the largest number of tracks and/or where the most real-time effects are used. Watch the DSP meter (bottom left-hand). Below are the expected performances at the different DSP values:

- Below 25%: CD creation with up to 4x mode
- Below 50%: CD creation with up to 2x mode
- Below 90%: CD creation with up to 1x mode
- Above 90%: Real-time creation is not possible, use the second mode (Bouncing)

Generate a complete new file

Use this option if your system is not fast enough to sustain the real-time creation of the CD (see above). This mode calculates all WAV files, including fades, crossfades, and volume automation into a new audio file. Any other real-time processing is also part of the newly created audio file. Make sure that you have sufficient hard disk space prior to starting the process (approx. 700 MB for a complete CD). The original WAV files used in the VIP remain unchanged. This makes this procedure non-destructive!

Use Uni Code for TOC

This is the default setting and is used for the internal CD creation process as well as the 32-bit version of Point CDAudio.

Use ASCII Code for TOC

This format should only be chosen when using the 16-bit version of Point CDAudio.

Print TOC

This starts the external TOC Printer application. This convenient tool allows you to print the contents information of the current CD. You may choose between a text style format to print the production documentation and a formatted printout for the CD jewel case. Please refer to the on-line help for the TOC Printer for more specific information!

Show TOC

This button opens a text window, which shows the contents of the current TOC. The “Copy” function can be used to copy the contents to the Windows Clipboard for use with other text editing applications.

Show CD-R Drive Information

This dialog shows you information about the active CD-R drive(s).

Among the information displayed is the manufacturer, drive name, hardware revision, cache size, and the features supported by the drive mechanism.

The feature “Disc At Once” is extremely important, since it is needed to produce Red Book compatible Audio CDs that are accepted as masters by pressing plants

Show CD-R Disc Information

This dialog shows information about the currently inserted CD-R media.

The most important information is the maximum length that can not be exceeded during the production (i.e. 74 minutes and 5 seconds).

CD Track Options

The CD Track dialog shows all CD tracks and sub-indexes used in the current VIP.

Every track can be assigned with a name, which is also displayed in the VIP.

Other settings such as Preemphasis, Copy Protection, and Second Generation Protection Flags can be set for each of the tracks.

The button Set All allows you to use the current flags to set all tracks to the chosen settings.

Other settings are the ISRC Codes for every CD track.

CD Disc Options

This dialog configures settings for the current CD. Among them are:

CD Title

The title is written to the CD and is used in the TOC Printer application to print the CD information.

UPC/Ean Code

This code is also written to the CD and can be requested by special CD players that work with this format.

Number of first CD Track

Under certain circumstances, such as writing with Track-At-Once, the number of the first track can be determined with this setting. When using the Disk-At-Once mode this setting does not have any significance. The CD will always start with track 1 in this mode.

Set Pause Time

Use this function to set the length of the default pause between two tracks. These pause length is needed for the grid function, which lets the sample objects snap to the edges of other objects + this pause time. Normally a pause time of 2 seconds is used.

Set Start Pause Time

Use this function to set the length of the default pause before the first track.

Normally a start pause time of 2 seconds is used.

Special CD Arrange-Mode

If you activate this menu feature, MAGIX audio studio will arrange the next objects introducing a Red Book-Standard-Pause between them.

The following procedure highly recommended:

- Open a new VIP, with 4 tracks for example, so that you may reedit it later on
- Activate the Special CD Arrange Mode in the CD Menu
- Open a new VIP
- Load wave files, audio tracks or make a recording using the microphone
- You will notice gaps in the VIP between the individual objects which represent the inserted breaks. You can adjust the length of the included pauses in the dialogue "Adjust Pause Length" if you want.

Bouncing (Internal Mixdown)

Use this function to convert the objects within a selected range to a new WAV file. The selected objects in the VIP are replaced with the track-bounced version. This is very useful to combine multiple objects into a single object so that the function to create track markers automatically can be used.

Menu Tools

Track Bouncing...
Remove unused Samples

Waveform Generator...

Range Manager...
Marker / CD Track Manager...
Object Manager...
Take Manager...

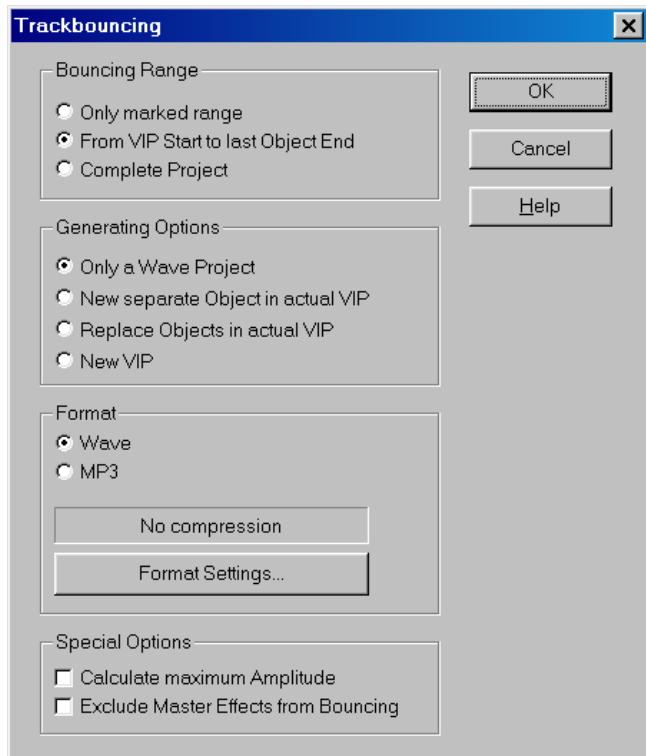
External Program 1...
External Program 2...

Track Bouncing

The current virtual multi-track project (VIP) can be converted into a WAV file or MAGIX audio studio HD Wave project and saved with a new name. All tracks in the VIP are mixed and all real-time processing, cuts, crossfades, all Mixer settings, Mixer effects, DirectX Plug-Ins, Volume automation and Panorama automation are included in the bounced version.

The function “Track Bouncing” may require a large amount of storage, depending on the length of the VIP.

Four track projects are internally mixed to combine two tracks for playback on each channel. To prevent clipping, an amplitude reduction of 6 dB is applied (which corresponds with a 50% representation of the source material). For eight track projects, the reduction is normally 12 dB. However, you can change the value in Options-> Project Info (shortcut: 1).



There are two variations for the track bouncing implementation:

ONLY SELECTED RANGE: MAGIX audio studio uses any selected range in a VIP for the track bouncing. This command does not work track selected, meaning that the number of tracks that are spanned by the selected range does not matter. The track bouncing will always use all tracks for the period of the selected range.

COMPLETE PROJECT: The complete contents of the VIP project are used.

CALCULATE MAXIMUM AMPLITUDE: When checked, this option displays the peak level of the mixed WAV file in dB. Further processing of the bounced audio file can use the specs to make precise adjustments. After the track bouncing process, MAGIX audio studio displays a dialog with the maximum amplitude value.

Remove unused Samples

This function removes all material from Wave projects belonging to the current VIP that is not used by any of the VIP objects. The objects in the VIP will point to the proper audio ranges in the linked audio files. This leaves the VIP itself unchanged.

Using this function can conserve a lot of storage space. However, the downside of using this option is that object length changes are possible only in a limited form. Object can be made short, but they cannot be extended.

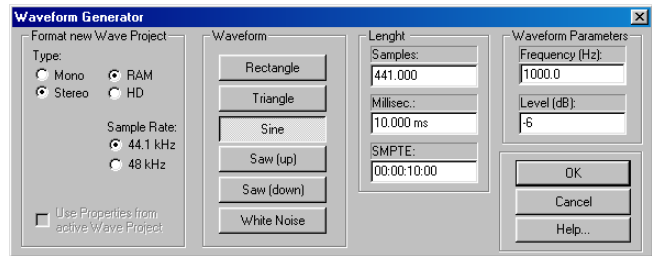
TIP: If you need the complete contents of the audio files for other production projects, it is recommended to archive the finished project in the following way. Save the complete project to a new folder (File->Save Complete Project to). The VIP is now located with the **COMPLETE CONTENTS**, in other words all the audio files, in an unaltered form (WAV, RAP, etc.) in the same folder that the VIP was saved to. Next, use the command **Remove Unused Samples**. The same folder will now only contain the audio data or samples that are actually used by the archived VIP. The contents can be easily back up to any backup medium such as CD-ROM, Data DAT, and others.

Waveform Generator

This dialog contains a powerful generator of several test tones. Please be sure to have activated a Wave project (HDP or RAP) before opening this dialog!

The generated waveform is stored in the Clipboard with

the same properties as the opened wave project. Please rename the Clip after generating the waveform, so it can be easily included into other projects without naming conflicts. You can adjust type, frequency, and length in samples of the created waveform.



The generated samples are always fully amplified. The volume level can be easily reduced with the normalizing function (NORMALIZING).

The following types can be selected:

Square, pulse, triangle, sine, saw up, saw down and white noise.

Range Manager

The Range manager is a window illustrating all ranges of the current project. The current range is selected by a colored bar. The range bounds are selected by clicking on the range name. The range name can be changed in the lower line. Ranges can be deleted and new ranges can be saved.

With the PLAY ONCE button you can playback the actual range once, with PLAY LOOP it is played as a loop. This way you can use the range manager as a simple jingle player!

Marker / CD Track Manager

All currently saved markers of the active project are shown with their name and position in this dialog.

The play cursor is moved to the respective marker position by clicking on the dialog entry of the desired marker.

You can also change the marker names and create new markers. In addition, the dialog lets you delete individual or all markers of a project.

Object Manager

In the object manager all objects used in a VIP are indicated in sequence of their temporal appearance. With this option the object manager features a function which is often offered in other programs with “Play Lists”.

In the object manager objects can be selected, which are also activated in the VIP. Small objects can be identified and manipulated easily.

Ctrl + a mouse click will select several objects; Shift + a mouse click will select all objects between two selects (like in the Windows Explorer).

Especially productive is the search function in the object manager:

With it you can look for certain objects in full text mode rather than just the graphical representation of the objects. An example would be to look for all HD Wave projects with the name "XYZ.HDP" or all objects that contain the name "Intro". You simply enter the search criteria in the text field and click on "Search". All found objects will be selected and are available for further processing.

Take Manager

see Menu "Object"!

External Program 1, 2

This menu item in menu "Special" runs an external program with the actual project as parameter. This makes it easy to export a MAGIX audio studio project to another audio software for special edits.

Use the ?-button to select the external program you want to run. After editing and saving the file in the external program you can load it back to MAGIX audio studio using the recent file list in menu "Project".

This function works only with HDPs in Mono or Stereo Wave format!

Menu Playback

Play once

The project or the range is played once.

Keys: Space

Play loop

The project or the range is played in a loop.

Keys: Space

Play in Range

If you have specified a range selecting this menu option (or button) will start the playback of the sample from the beginning, enter the range and continue to loop through the range until you press the stop key (button). This mode is very useful when testing loops for instrument samples.

Keys: Space

Play with Preload

All buffers are loaded and the playback is ready to be started. Another window will appear with which playback can be started at your convenience. No delays will occur. This function is useful on slower systems and if a synchronization must be started in manual mode and an exact start has to be performed.

Keys: Shift + Space

Stop

The playback is stopped for all projects types.

Keys: Space

Stop and go to current position

The playback is stopped; the play cursor goes to the current position.

Change Play Direction

The playback direction can be changed even during the actual playback.

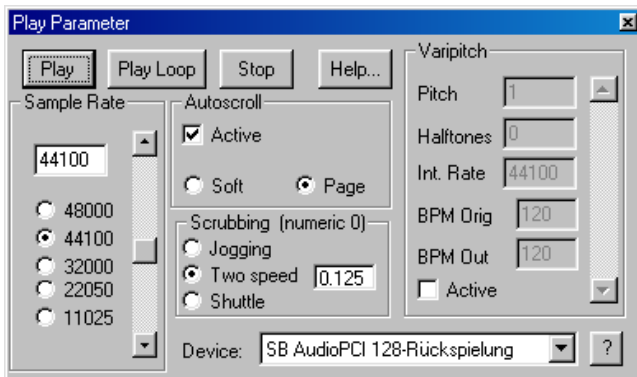
Restart Play

Playback will start at the beginning even during the actual playback.

Keys: BACKSPACE

Playback Options

The Play Parameter window which appears after selecting this menu option is designed to quickly enter playback parameters. Below is an explanation of the options available in this window.



SAMPLE RATE: The sample rate can be changed here as long as the soundcard supports the new rate (some soundcards even support changing the rate while playing the sample!). This is especially useful to hear notes in a sample range played in a different octave. When selecting half the sample rate the pitch should be the same. It would be played one octave lower.

DEVICE: To specify the driver of the sound card use this dialog box. This is necessary if playback takes place through a single sound card device. This is especially important if multiple output devices are located in the computer.

Autoscroll

The “Autoscroll” section will let you activate the autoscroll feature. It is especially useful when working with long disk files. The HD Wave project window will follow the play cursor during playback.

When working in “2” or “3” section display mode, the autoscroll feature will cause the individual sections to follow the play cursor as well. If you have zoomed into one of the sections, the play cursor will move through the section faster resulting in more screen redraws.

There are two alternatives in auto scrolling:

1. The “Soft” option performs a smooth scrolling of the whole waveform, the play cursor stays in the center of the display. This mode needs a fast graphics board, because the complete screen is scrolled between the marker steps.
2. The “Page” option performs a page by page scrolling. Please note, that the auto scrolling requires certain processing power based on your processor, graphic card and the resolution of the display. For this reason you might encounter small interruptions in playing the audio files. Should this occur simply disable the auto scroll feature or raise the buffer size (select “Setup” menu and click on “System”).

Scrubbing

While pressing the `o` key on the numeric block (Numlock active) and moving the mouse you can perform scrubbing. MAGIX audio studio starts playback at a very low speed, the mouse position relative to the start play cursor controls the speed.

There are two scrubbing modes (in playback parameter window - key `p`):

NOTE: When working with smaller buffer sizes (4000, 2000 samples) the scrolling becomes “softer”. Please verify the performance of your computer system and smaller buffer sizes to not produce playback interruption.

RELATIVE: The distance between the play cursor and the mouse sets the playback speed.

ABSOLUTE: The position of the mouse in the window sets the playback speed - at the left border playback speed is 200% backward, at the right border speed is 200 % forward, in the middle of the window the speed is `o`.

There is a real time resampling performed for changing the playback rate without changing the sample rate of the sound card. For best performance, use small play buffer sizes and a fast processor (Pentium recommended)!

A TIP USING SCRUBBING: The scrolling becomes “softer“ when using small buffer sizes (2000, 4000 samples). You may need to test your system for error free playback with these small settings. Combined with the Soft Scroll mode, editing becomes very convenient on faster computers.

Varipitch

MAGIX audio studio supports smooth changes of the pitch while playback, even in multi track projects (vertical slider in playback parameter window - key p). Activate the Varispeed mode with the “active” button, then you can change the playback speed in various kinds:

VERTICAL SLIDER: Changes the playback speed from -200% to +200%

PITCH FACTOR: Lets you specify a certain pitch factor manually

HALFTONES: Lets you specify a value of halftones. The playback will be transposed the number of halftones.

INTERNAL RATE: Here you can set a sample rate for the varipitch calculation. If you want to play a WAV file with a sample rate of 48 KHz but your sound card can only play rates up to 44.1 KHz simply set the internal rate to 48 and activate varispeed. You hear the same result as playing back with real 48 KHz! This function is also very useful for digital playback to DAT with 44.1 KHz samples and vice versa!

BPM: Here you can type in the original bpm value of your material and a destination bpm value, which is reached using the varipitch.

IMPORTANT: Varipitch works also while recording! So you can set the pitch to -2 halftones, sing a song into the computer, then switch off the varipitch – your track is transposed two halftones higher!

There is a real time resampling performed for changing the playback rate without changing the sample rate of the sound card. For best performance use small play buffer sizes and a fast processor (Pentium recommended) !

Keys: p

Punch In → Punch In Mode active

This option activates the Punch mode. Punch-In and Punch-Out are a process automating the recording start and end of an audio segment. Once the Punch mode is active, the Punch-In Record can be used to record audio segments without stopping the playback.

Requirements for this mode is an armed Record track. Use the “REC” button on each track to select it for punch recording!

Punch Recording can be done in two ways:

I. PUNCH-IN/OUT “ON-THE-FLY”

This allows you to start the recording (punch in) at any time during the playback. Once the recording commences, it can be stopped at any time (punch out), while the playback continues.

This is very similar to tape based multi-track recorders, which allow you to correct mistakes during previous recording takes by overwriting segments of the tape.

Simply start the playback with the Spacebar. The Punch-In recording can be started by clicking on the Punch Record button in the toolbar. The same button punches out of the recording mode, while the playback continues. To stop the playback, press the Spacebar.

2. PUNCH-IN/OUT WITH MARKERS

The second method is the punching in and out of recording using special markers. This is a more automated way of dealing with punch-in/out recording. This is useful when specific punch-in and punch-out points are determined and you don't want to take any risks in possible punching in or out of the recording. Don't panic though! The punching in and out with markers lets you specify the exact points the recording is to start and stop. Since you are working in a non-linear, non-destructive environment, any mistake or unwanted take can be removed or undone without any problems. The previous material in the track would still be there!

This is simply a very convenient way when it's midnight and your fingers are getting tired!

To operate in this mode, a range has to be selected, which defines the beginning and end of the recording. The functions SET PUNCH-IN MARKER and SET PUNCH-OUT MARKER are used to tell MAGIX audio studio where to punch in and where to punch out. Next, set the play cursor to an appropriate position prior to the punch-in point and start the playback/recording with the PUNCH RECORD button in the Punch Toolbar.

IMPORTANT: When working with the punch in/out functionality, make sure that the AUTO CROSSFADE mode is activated, by clicking on the corresponding button in the MAGIX audio studio toolbar. The auto crossfade will create smooth transitions between the takes. This helps to prevent little pops and clicks!

There is also a way to perform LOOPED PUNCH-IN RECORDING! Simply select a range over the desired punch region.

The range is played back until you stop the playback with the Spacebar. Each time the program loops through the range, new takes are recorded at the punch markers. To find the best take after the recording is completed, use the TAKE MANAGER!

PUNCH IN RECORD: This function/button starts and stops the punch-in recording.

SET PUNCH IN MARKER: This function/button sets the punch-in marker.

SET PUNCH OUT MARKER: This function/button sets the punch-out marker.

REMOVE PUNCH MARKERS: This function/button deletes the punch-in and punch-out markers.

Punch In → Punch In Record

This function/button starts and stops the punch-in recording.

Punch In → Set Start Marker

This function/button sets the punch-in marker.

Punch In → Set End Marker

This function/button sets the punch-out marker.

Punch In → Remove Punch In / Punch Out Markers

This function/button deletes the punch-in and punch-out markers.

Live Input Mode

This is another very powerful feature of MAGIX audio studio – the Live Input Mode! When working with this mode, MAGIX audio studio lets you use the real-time Mixer to mix live inputs from the sound card with recorded audio material.

This turns MAGIX audio studio into a full-scale digital real-time effects device, including DIRECTX Plug-Ins!

THE BASICS:

The Live Input Mode basically functions similar to recording audio material – without writing it to disk! A channel that is to be used for live mixing has to be armed for recording. Once the playback of the VIP is started with the Spacebar, the live signals on the input of the audio device(s) are routed

through the Mixer. Use the controls in the Mixer window to create a mix. In addition, any VIP object is also played back WHILE the live inputs are processed.

LATENCY

The audio processing in MAGIX audio studio obviously takes time. This may lead to small delays at the outputs versus the incoming signal. This delay is very much dependent on the VIP Buffer size. The latency can be reduced by using smaller VIP buffer settings. Use settings that enable the program to process the real-time audio without introducing any errors. A setting of 4 buffers at a buffer size of 8000 stereo samples creates a delay of 0.7 seconds. A buffer size reduction to 2000 samples results in a delay of only 0.2 seconds. Experiment with the buffer settings to find the optimal settings for your system!

The latency may not make it possible to use the Live Input Mode to replace an analog effects device. However, it leaves room for some very interesting application aspects.

MAGIX AUDIO STUDIO AS LIVE EFFECT PROCESSOR

If you are looking for fancy effects that are not offered by effect units in your rack, try to use some of the integrated effects in MAGIX audio studio. A live signal can be processed with the FFT Filter, the Eqs and the Stereo Enhancer. You may also use the many DirectX Plug-Ins available. There is no limit to your creativity!

Record

Starts recording.

Record Parameter

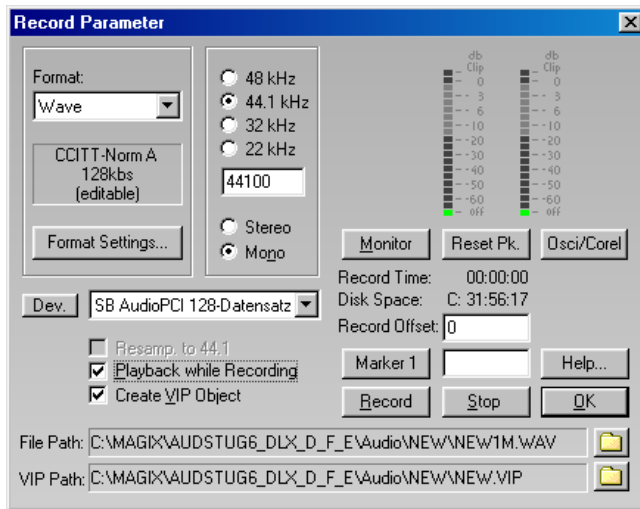
This menu option opens the Record window. All necessary settings for the recording can be performed here.

RECORD MODE: Select between Stereo and Mono, whether you want to record the audio into a RAM Wave project or to the hard disk as a HD Wave project.

PRELOAD: The Preload option allows you to load all the buffers before the recording actually begins. This enables you to an immediate recording once you click the recording button. Otherwise MAGIX audio studio will load the buffers and depending on the size of the buffers and the overall computer speed this may take a little bit of time.

SAMPLE RATE: Select the sample rate of the audio file. Make sure that your sound card supports the chosen sample rate.

RESAMPLING TO 44.1 KHZ: Some MAGIX audio studio versions can perform a real-time sample rate conversion to 44.1 kHz if you are recording with a different sample rate. For example, many times a DAT tape is recorded at 48 kHz but the tape needs to be mastered and prepared for Red Book audio CD processing, which needs to be in 44.1 kHz. MAGIX audio studio allows you to automatically convert the audio during the recording, eliminating the additional sample rate conversion step after the recording.



DEVICE: This selects the desired device driver you want to use for the recording. If you have more than one sound card installed in your system, this window will let you specify which card to use. Make sure the sound card is properly installed in Windows and is operational. If you do not see an entry in this window, check whether a device driver has been installed for your sound card. This usually is done during the software installation for your sound card.

? (DEVICE): By clicking on the “?” button you can check on the record capabilities of the selected sound card. It shows you information on the sound card driver and it’s capabilities.

PLAYBACK WHILE RECORDING: Simultaneous record and playback is especially important when wanting to monitor existing tracks while recording a new track. This option allows you to turn the feature on. To conserve system resources and keep the recording error free on slower systems, you may need to turn this feature off.

NOTE: If you only have one sound card in your system and want to use this feature, you will need a full-duplex capable sound card. Check the capabilities of your sound card for this functionality. MAGIX audio studio will generate an error message if your sound card is not capable of working in this mode.

Also, this option is grayed out until the first track is recorded.

VIRTUAL WORKING: MAGIX audio studio allows you to choose whether you want to automatically create objects in a VIP once you are done with the recording. If you check this box a new object is created for every recording take and inserted at the play cursor location and in the track(s) you enabled for the recording.

If the box is unchecked MAGIX audio studio will not create an object but rather open the Wave project with the contents of the recorded audio material.

MONITOR: This checkbox activates the VU meters. Most sound cards also allow you to preview the audio signal you are about to record and depending on the features of the sound card, you will be able to monitor the recorded signal during the recording.

To keep the system requirements down, you may wish to disable the monitor function if it is not crucial to the recording you are doing. This will lower demand on the computer system, which may be required if you are working on a slower system.

During the recording, the meters will react more slowly due to the priority level change. The most important task is to keep the recording error free. For this reason, MAGIX audio studio will switch the updating of the VU meters to a lower priority to not overload the computer system.

This results in a slower reaction time of the meters. The levels are still shown with the correct values. Also, if you use lower buffer settings, the meters are updated in faster intervals.

COREL/OSCI: A oscilloscope view can be opened to display the wave form in a scaleable window. When activating the Phase check the phase correlation of a stereo signal can be displayed.

A vertical line represents a mono signal, a horizontal line represents a signal with a phase inversion, which is not wanted in most cases.

RECORD TIME: This counter indicates the length of the actual recording in minutes, seconds, and milliseconds.

DISK SPACE: This counter shows you the available disk space in total track minutes for the selected sample rate and record mode. This counter does not decrease during the recording. It is updated after the recording takes place.

RECORD OFFSET: This option allows you to specify an offset, which is calculated in samples. Sometimes it is necessary to compensate for any delays due to processing speed and other factors, such as your sound card's ability to switch between playback and recording mode. Delays can occur between the recording and the playback of audio when the Playback while Recording feature is turned on. This option allows adjustments if this occurs. Good values to start with are in the 20-2000 sample range.

HELP: This brings up the context sensitive help system with information on the features in the Record Parameter dialog.

NEW (BUTTON 1): The path to the left of the button indicates the location of the audio file that is to be recorded. If you click on the New button you may enter a new name for the audio file or a new location. This is an easy way to target specify directories or hard disks as destinations for the new audio files. If you select a new name, the Wave project is renamed as well.

NEW (BUTTON 2): The path to the left of the button indicates the location of the VIP file you are working with. You may reassign the VIP to a new location on a hard disk or in another directory. If you specify a new VIP name, a new VIP is generated with only one track of the same type as the mode that is specified in the Record Mode section in the Record Parameter dialog.

SET MARKER 1: You can drop markers into the project. The current position of the play cursor is used to drop a marker at positions you want to select for later clean-up or similar tasks.

MEDIA: This option allows you to link a media file with the recording. Files that can be linked include MIDI, AVI and WAV files. Please refer to MIDI/Video Link in the Properties section for a detailed description of available features.

Linking media files is often needed for editing of audio for AVI films or when needing to synchronize a MIDI file to add digital audio tracks to it.

RECORD: Starts recording by activating this button.

STOP: Stops the recording process. MAGIX audio studio will ask you whether you wish to keep the recording or delete it.

Should the computer become overloaded due to swapping data or hard disk access for example, simply interrupt the recording with a click of the right mouse button or the space key.

OK: Closes the Record Parameter dialog.

Key: R (second R starts recording)

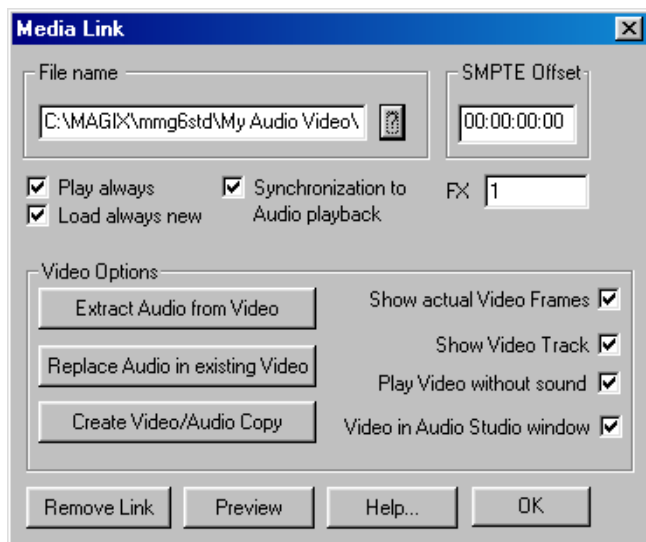
Menu Options

Project Properties → Playback Options

See menu “Playback“!

Project Properties → Media link

This is one of the most powerful features of MAGIX audio studio. With this option you have the opportunity to synchronize media files such as MIDI files or AVI files. These can be complete MIDI songs or sequences (*.MID files), Video clips (*.AVI files) or other files for which a MCI driver is installed in Windows.



SYNCHRONIZING MAGIX audio studio PROJECTS WITH MIDI SONGS

Since MAGIX audio studio offers synchronization with media files, you can set audio tracks to a already existing MIDI song. Certain audio effects in VIP's can be perfectly positioned on MIDI material (e.g. drum loops, scratches etc.). Otherwise, a project recording can be synchronized with the MIDI file, so that MIDI and audio material will play simultaneously. Please note that the MIDI file is always played through the selected MIDI device in the Windows Control Panel.

SYNCHRONIZING OF MAGIX audio studio PROJECTS WITH VIDEO-FOR-WINDOWS MOVIES (AVI)

With this capability MAGIX audio studio is an excellent tool for film music arrangements. Film and video clips are recorded as AVI files. A MAGIX audio studio virtual project

can then be synchronized with it. The music, original sound, voice tracks, effects and much more can be adjusted on the time line and played with the AVI video simultaneously. As the final step, the audio signal can be recorded back to the video tapes original audio tracks or mixed for broadcasting.

FILE NAME: Here you can specify the file name and directory where the media file is located. By clicking on the “?” button you will receive a file requester dialog that allows you not only to look for the location on your hard disk(s), but also let’s you specify which media file type you are looking for. Once you have found the media file, simply click on OK and MAGIX audio studio will make the link.

SMPTE OFFSET: The Offset allows you to specify a different start time for the media file. The default is a zero position, which means that the media file would be started at exactly 0 position, which is the beginning of the file. If the offset is different than the 0 position the playback of the media file starts at the position you entered. Here is an example:

Let’s assume that we are working on the audio for an AVI file and the audio section does not appear until 15 minutes into the AVI file. It would be unnecessary to create 15 minutes of empty space at the beginning of the VIP in order to line up the AVI frames and the audio. Instead we can specify an offset of 15 minutes and the AVI file would start playback at 15 minutes into the video file. However, all the audio in MAGIX audio studio would start at position 0.

It makes good sense to write down the offsets you are specifying for the individual projects you are working with. This way you can easily identify offset references for your work.

PLAY ALWAYS: This checkbox allows you to specify whether MAGIX audio studio is to play the media file every time you start playback or recording in MAGIX audio studio. If you uncheck the option MAGIX audio studio will not play back the media file. This is a quick way to turn off the playback of the media file.

LOAD ALWAYS NEW: If this option is checked, MAGIX audio studio will always load the media file for every playback or recording of your VIP or Wave project. If the box is not checked the playback of the media file is performed with the contents of the memory. If the media file is too large for the buffers, the playback is performed from the hard disk.

On faster computers, the real-time preview can be used. Using the preview, a specific setting can be easily examined before it is written back to the sample. On a Pentium with 90 MHz or higher, all 3 bands can be calculated in real-time and played back simultaneously!

EXTRACT AUDIO FROM AVI: If the file type is an AVI file with video and audio data, audio streams are extracted from all other information and the audio information itself is put into a Wave project. This allows you to extract and edit the audio apart from the rest of the contents in the imported file.

REPLACE AUDIO IN EXISTING AVI: This option performs a track bouncing of the current VIP into 1 WAV file. This file is merged into the selected AVI file, so the AVI gets a new audio track.

CREATE AVI / AUDIO COPY: This option performs a track bouncing of the current VIP into 1 WAV file. The AVI file is copied to a new file, which contains the new audio track. This option keeps the original AVI.

PLAY VIDEO WITHOUT SOUND: This option applies for AVI files only. If the AVI file contains audio the playback of the AVI file and it's audio could interfere with the audio playback in MAGIX audio studio. For this reason, it is suggested that you turn the audio playback for the AVI file off.

VIDEO IN MAGIX audio studio WINDOW: This option also applies to the AVI file playback only. Normally, the AVI file is played back in a completely independent window. This means, that if you run the MAGIX audio studio window enlarged you will not see the playback of the AVI window. You would need to minimize the MAGIX audio studio window or scale the window in order to display both windows on the screen. However, by checking this option you can display the AVI window as another MAGIX audio studio related window, which always stays on top during playback. This allows you to display the AVI movie at any time the playback or recording in MAGIX audio studio takes place.

SHOW VIDEO TRACK: This is a new feature in MAGIX audio studio! With this option, you can display a video track in the VIP window, which shows individual frames of the AVI file. In the upper left-hand corner of the VIP window, the current frame is displayed when clicking the play cursor at

a particular location in the VIP tracks. This allows you to position audio events and material at exact frame positions. If you zoom into the window, the video track is also enlarged, showing the video frames at a lower zoom level as well. If you select to display the window at its lowest zoom level, each frame is shown in the video track.

FX: The FX option allows the adjusting of small delays that can occur on slower computer systems for example. The linking of media files with VIP or Wave projects is based on two playback processes, one for the MAGIX audio studio window and one for the media file window. No synchronizing of material takes place during the playback process. This means that on computers that have timing problems due to insufficient system resources or speed the digital audio tracks and the media file may run “out of sync”. With the FX option you can specify a factor that is used to do internal sample rate conversion. How does that work?

Since we can not influence the playback speed of the media file, we need to adjust the playback speed of the digital audio tracks. Imagine that a normal playback speed is represented with a factor of 100. If the digital tracks play ahead of the media file, the playback needs to be slowed down. This would be accomplished by multiplying the regular playback speed of 100 with a FX factor just a little below 1, for example 0.998. This would result in a playback speed of 99.8, which is a little bit slower than the regular speed. This way we would align the digital tracks with the media file.

On the other hand, if the digital audio tracks lag behind the media file playback, a factor higher and 1 would need to be entered. A value of 1.002 would be an example.

Rule of thumb for this factor is to use small value increments. The values should stay around 1. You will need to experiment with this setting, since there is no hard rule about the system performance of an individual computer system.

If you do not have any problems with the digital audio tracks and the media file playback staying in sync, you should not enter any values in this field!

REMOVE LINK: This button will unlink the media file from the MAGIX audio studio window. This effectively stops all association with the media file. If you do not need any further referenced to the media file, you may use this option.

PREVIEW: The Test button allows testing of the current link. By clicking the button the playback of the media file should commence. If no playback is visible in a MAGIX audio stu-

dio window, you may need to check the Video in MAGIX audio studio window option for AVI files. Other media files should be playing back through the Windows multimedia extension, such as the MIDI file player.

Project Properties → CD arrange mode (deLuxe version)

See “Menu CD (deLuxe version)”!

Project Properties → Text Comments

You can enter text comments to the current project via a simple text editor. This text can be displayed at each new opening of the project. This will preserve important information about the project together with the audio material.

Project Properties → Units of Measurement Project Properties → Snap Setup

See “Menu View”!

Project Information

This will show you information on the current project. This includes creation date, memory size, path and file names. For virtual projects, a list of all included physical files is displayed.

Virtual projects also display a list of linked Wave projects. Volume Reduction in Virtual Projects:

The Project Information dialog features a setting for the volume attenuation in 6 dB steps. This setting allows you to adjust the main volume output of virtual projects.

Theoretically, each track of a 4 track stereo project must be reduced by 2 bit's (12 dB). In the real world application, tracks are often not recorded or played back at the maximum level so that the reduction can be adjusted accordingly. However, raising the volume reduction setting may result in clipping.

Please keep in mind that MAGIX audio studio reduces the volume of Wave projects to the setting in the virtual project that uses the Wave project. This allows you to switch between the VIP and the Wave project without the usual encounter of volume differences between the project types. If a Wave project is opened by itself (without using the Wave project in a VIP), MAGIX audio studio automatically uses the maximum volume playback.

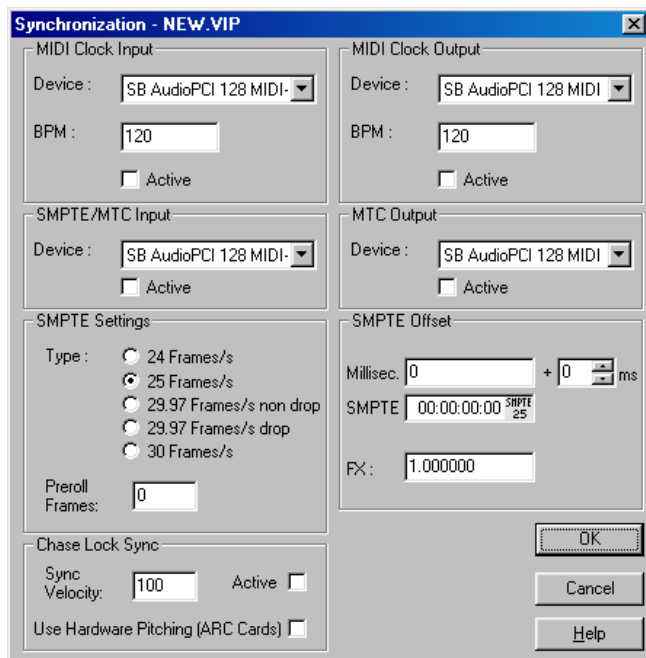
Key: I

Synchronization (deLuxe-version only)

MAGIX audio studio deLuxe will slave to SMPTE/MTC/MC and can act as the master for MIDI Clock and MIDI Time Code. Please note, that in most cases the slave sync functions work more stable under Windows95 than the master mode!

To run MAGIX audio studio in multitasking with a sequencer a MIDI connection must exist between the sequencer and MAGIX audio studio. That can be done through simple connection of a MIDI input to a MIDI output with for example a MIDI interface of a soundcard. Better is an internal combination of the programs through a Multi MIDI driver (available as shareware software, e.g. Hubis MIDI Loopback), which connects the output of one program to the input of another one. Keep in mind that one program will need to act as the “master”, while the other takes the position of the “slave”. Select the modes in the programs accordingly. Starting and stopping is done from within the “master”. If possible MAGIX audio studio should be the slave!

If MAGIX audio studio needs to be synchronized to a tape machine, such as a video recorder or a multi-track recorder, a SMPTE interface with Windows driver is necessary. Internally the computer interfaces process the SMPTE code as MIDI Time Code (MTC). You can also use an external



SMPTE to MTC converter and feed the MTC signal to a MIDI input port on a MIDI interface in the computer.

MAGIX audio studio supports REAL CHASE LOCK SYNC (MIDI Clock and MIDI Time Code/SMPTE). This means, that the internal sample rate of MAGIX audio studio's playback or recording is varied in small steps, so that MAGIX audio studio can follow little timing changes of the sync master. This is very useful when using sync between a tape or video recorder (master) and MAGIX audio studio (slave), because most tape machines always produce small pitch changes, which results in delays between the tape and MAGIX audio studio, when not using chase lock sync. If the timing changes are too big, MAGIX audio studio produces heavy pitch changes, which may be reduced by entering smaller values for the Sync Velocity in the sync dialog. Try values of 200 or more, when you need fast pitch changes in sync mode! In the lower right status bar you can read the actual/maximal pitch change in cents (1 cent = 1/100 halftone). Please know, that the chase lock sync performs a real time resampling (if not using ARC44/88 sound cards), which needs a certain processing power, so be carefully on slow machines!

When receiving SMPTE/MTC you can start and stop playback with the space key – MAGIX audio studio will always be in sync!

MIDI CLOCK INPUT DEVICE: Here the driver must be selected from which MAGIX audio studio will receive MIDI Clocks for the synchronization.

BPM: Here the tempo must be entered, with which the MIDI Clocks should be received.

SMPTE/MTC INPUT DEVICE: Select the device driver through which MAGIX audio studio will receive the SMPTE/MTC signal.

MTC OUTPUT DEVICE: Select the device driver through which MAGIX audio studio will send the MIDI Time Code master signal.

TYPE: Select the proper frame rate. Use 24 frames for cinematic synchronization, 25 frames for PAL video, and audio synchronization, 30 frames for NTSC video.

PREROLL-FRAMES: You can specify, how many frames MAGIX audio studio is to ignore before the synchronization starts. Here you can account for the fact, that certain ana-

log instruments need time to reach the correct speed. In order to have MAGIX audio studio link up to the proper time values, a certain pre-roll frame count can be specified.

SYNC VELOCITY: You can specify how fast MAGIX audio studio follows a pitch change of the sync master. A value of 100 is good for normal purposes. If you need faster pitch changes, try 200 or 300. If you want to reduce the pitch changes in MAGIX audio studio try a setting of 50 or 30!

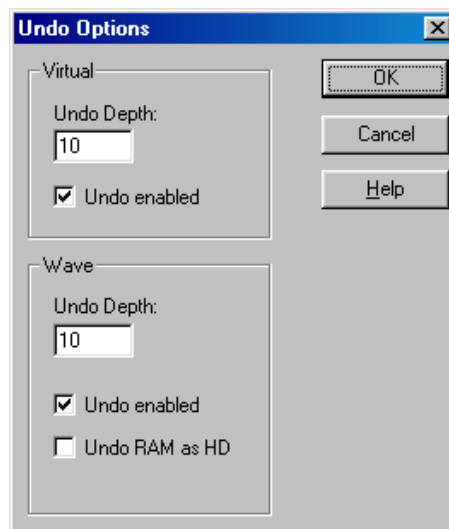
SMPTE-OFFSET: The SMPTE offset is indicated in milliseconds and in SMPTE frames. The offset is removed from the incoming SMPTE time code signal to line up differences between tape material and recorded samples in MAGIX audio studio. With an offset of “60:00:00” milliseconds (1 hour) a tape that was previously stripped can be synchronized, if the start point for the recording/playback starts at 1 hour. MAGIX audio studio will, however, start at the correct beginning position.

FX: With this parameter, possible inaccuracies during the positioning of long samples can be equalized. Requirement is a flawless synchronization at the sample beginning. Follow the instructions in the chapter “Problem Solutions”.

SHORTCUT: KEY G

Program Preferences → Undo Definitions

The depth of undo can be specified when working with VIP's. A value of “20” means that the last 20 changes can be undone.



Program Preferences → VIP Mouse Mode

This submenu makes the following selections available. (These are also accessible via the Mouse Modes Toolbar.):

UNIVERSAL MODE: This is the default mode in MAGIX audio studio. All necessary functions can be executed with the left mouse button. The right mouse button accesses a context sensitive pop-up menu.

The vertical position within each VIP track determines between Object handling or marker and range manipulation. The upper half of a track lets you select ranges and set the position of the play cursor. The lower half of the track makes object selection and manipulation possible. Object handles, and volume and panorama curve events take precedence and can be modified at any position within the track.

RANGE MODE (SECURE MODE): This mode lets you only modify the ranges and the play cursor position. Using two special keys, additional functionality is available:

If the period key is pressed, MAGIX audio studio changes temporarily into the Object Mode. Once in the Object Mode you can easily select and manipulate objects.

Pressing the Minus Key “-” key, MAGIX audio studio temporarily changes into the Curve Mode. In the Curve Mode, you can change the volume and panorama automation curves.

These special functions provide a way to quickly reach all of the important functions, while protecting an object from accidental moving. This is why this mode is also called “Secure Mode”!

CUT MODE: You can use the mouse cursor like a pair of scissors to crop objects.

PITCHSHIFT-/TIMESTRECH MODE: The lower right tab allows compression or stretching of an object. A time stretching effect is created: The object is not played as a loop or shorter version, but simply in a different play tempo.

Using the centre tab, the pitch can be altered using pitch shifting.

CURVE MODE: The Curve mode allows you to manipulate existing volume and panorama automation curves.

DRAW VOLUME MODE: The left mouse button draws volume automation curves. Before using this mode, make sure the “V” button for the desired track is active.

DRAW PANORAMA MODE: The left mouse button draws panorama automation curves. Before using this mode, make sure the “P” button for the desired track is active.

SCRUBBING MODE: You can listen to the spot in an arrangement at which the mouse is currently located in this mouse mode by pressing the mouse button. The replay cursor therefore follows the mouse movements.

ZOOM MODE:

Right mouse key: Zooms out of the project

Left mouse key: Zooms into the project

CONTEXT HELP MODE: Click onto the object or subject for which you request further information.

Program Preferences → Wave Mouse Mode

You can select between two draw modes for Wave projects (HD and RAM Wave projects):

RANGES MODE: The left mouse button is used to set the real-time cursor, select ranges, and markers (default).

DRAW WAVE: In this mode you can use “freehand drawing” to manipulate the waveform. This is useful to correct single samples, small distortion peaks, clicks etc... Please use a zoom level of 1:1 or larger for exact handling!

DRAW VOLUME: In this mode you can draw the volume of the sample, e.g. to create a special fade curve. The middle of the display is volume 100%, the lower border is volume 0%, and the upper corner is volume 200%.

Program Preferences → Object Lock Definitions

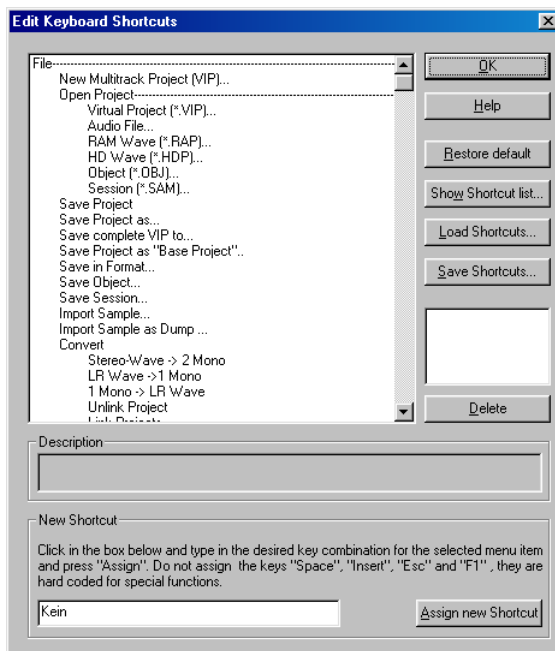
See “Menu Object > Lock objects > Lock Definitions”!

Program Preferences → Edit Keyboard Shortcuts

This dialog allows you to customize the keyboard shortcuts for all menu functions in MAGIX audio studio. This makes it possible to assign your popular commands to specific keys and key combinations for a quick recall.

The shortcut settings are saved to the file “MusStu40.ini” in the Windows directory when exiting the program. The next time the program is loaded, the customized shortcuts will be retained.

The most important aspect of the dialog is the display of the MAGIX audio studio menu tree. You can select which menu option is to be reassigned a new key. To accomplish this, simply click on the desired menu option in the tree and then on the “New Shortcut” box. Next, press the new key or key combination and press or click on the “Assign new Shortcut” button. Any possible combination of Shift, Alt, and Ctrl with other keys is possible. Please do not use the space bar, ESC, or the Insert key. These functions are hardcoded into MAGIX audio studio and can not be changed!



RESTORE DEFAULT: This will return the shortcut assignments to the default settings of MAGIX audio studio.

SHOW SHORTCUT LIST: This opens another dialog that will show a complete list of current shortcut assignments. This list can be copied to the Windows Clipboard with the Copy button for further processing with a text editor to print a hardcopy of the list.

LOAD SHORTCUTS: Previously loaded shortcut assignments can be loaded with this button.

SAVE SHORTCUTS: The current shortcut assignments are saved to a new file name with the extension “*.ssc”.

DELETE: Deletes the selected shortcut.

ASSIGN NEW SHORTCUT: This will assign the value in the “New Shortcut” box as the new shortcut for the respective menu function.

Program Preferences → Change Toolbar style

You can change the style of the toolbars into 3-D or a flat look. You have to restart MAGIX audio studio if you changed the toolbar style.

Program Preferences → Enable VIP Tooltips

ToolTips are small information windows that open up automatically if the mouse pointer stops briefly on a button or some other area. They provide information about the button’s function. These information boxes can be switched off or on with this option.

Program Preferences → Colors

MAGIX audio studio lets you specify the color for various areas of the screen. Use this menu option if you want to change the default color to another one.

Program Preferences → Grid Setup

See “Menu View>Snap setup”!

Program Preferences → Video Height

MAGIX audio studio allows you to link to an AVI file. The AVI movie is played back whenever the VIP or Wave project is played back or recorded into. If the option to display the AVI frames in the VIP window, the height of the AVI pictures is determined with this setting.

Program Preferences → Font Selection

MAGIX audio studio will also let you specify the font used for text display in the various objects.

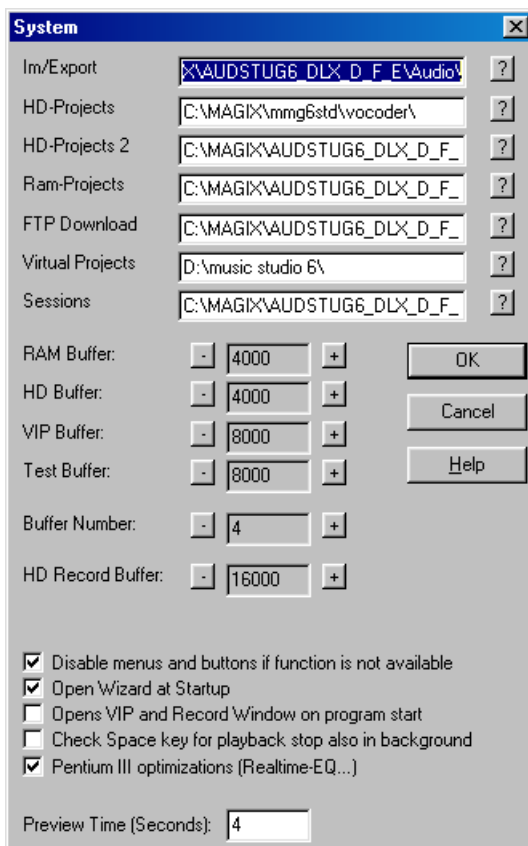
Program Preferences → Font for Time Display

This option lets you select the display font for the Time Display (Window->Time Display).

System

In the “System” menu, you have options to fine-tune MAGIX audio studio. You can specify parameters such as paths and play and recording buffers.

A principal rule about buffers: the larger the buffer, the more reliability you gain in playing back audio files (especially on slow systems or in full 16-track mode). However, if you increase the buffer size too much, the computers processing time becomes longer and delays might be introduced in the overall command handling. You will need to find a compromise between these two factors for each individual computer system.



IM/EXPORT: To enter the default path for wave import and export. Click on the “?” button to bring up another window to look for a specific directory in case you do not know the full path.

HD WAVE PROJECTS: To adjust the default path for HD Wave projects.

RAM WAVE PROJECTS: To adjust the default path for RAM Wave projects.

VIRTUAL PROJECTS: To adjust the default path for virtual projects.

SESSIONS: The path for sessions is set.

PLAY/RECORD BUFFER: This setting determines the buffer size for the playback and recording of audio files. Larger buffer settings may lead to a more stable playback on slower systems or at full CPU load. The number of simultaneous playback tracks increases. However, the response of the computer slows down, which may have an adverse effect on real-time effect editing. We therefore suggest finding an optimal compromise for your individual system.

For simultaneous playback and record (Record while Play) the buffer settings for the HD Record and HD Buffer needs to be the same.

RAM BUFFER: The default setting is 4000 Samples. This buffer is used for playback of RAM Wave projects. If you want a faster response time when playing back RAM Wave projects, experiment with smaller settings!

HD BUFFER: The default setting is 8000 Samples. This buffer is used for the playback of HD Wave projects. To gain faster response times, try smaller settings.

VIP BUFFER: Default setting is 16000 Samples. The buffer is used for the playback of virtual projects. Since an error free playback is more important than fast response times, we suggest using a setting between 16000 and 32000 when working with a large number of tracks. This setting is the most important setting when working with virtual projects and the real-time Mixer. Any of the other buffer types and settings are not utilized in VIPs and the Mixer window!

REAL TIME BUFFER: The default setting is 8000 Samples. This buffer is only used for the real-time preview in the Effect menu dialogs. (The real-time effects in the Mixer window do not use this buffer. The VIP Buffer is used for those functions.)

BUFFER NUMBER: This setting determines how many of the above buffers are to be utilized (values between 2 and 9). A higher setting for Buffer Number secures a more stable operation. However, the memory requirement increases

and the response time decreases. The actual buffer utilization can be monitored with the status bar in the lower right-hand of the MAGIX audio studio screen.

HD RECORD BUFFER: The default setting is 16000 Samples. This buffer is used during the recording of audio material and determines the length of the data block that is written to the hard disk.

DISABLE MENUS AND BUTTONS IF FUNCTION IS NOT AVAILABLE: When checking this option, only those menu options appear in the menu selection, which are actually available with the type of project window.

OPEN VIP AND RECORD WINDOW ON PROGRAM START: A new default VIP and the Record window are displayed when first starting MAGIX audio studio.

CHECK THE SPACEBAR FOR PLAYBACK STOP IN THE BACKGROUND: The spacebar is used for playback start and stop. If MAGIX audio studio is playing in the background, (another Windows application takes the focus), this option determines whether the spacebar is monitored to stop playback in MAGIX audio studio.

PREVIEW TIME: This determines the length of preview for the non real-time preview in the Effects menu dialogs. The non real-time preview is used for very processing intensive effects in the destructive Wave editing portion of MAGIX audio studio (Menu “Effects”).

Keys: Y

Draw Setup

See “Menu View > VIP Display Mode > Defintition”!

Upgrade QDesign MP3 Coder

The included MP3-Encoder from QDesign allows you to use the program 20 times for free. After that, you may want to use the Upgrade-Option of the program.

In the upgrade-dialogue your personal ID-code will be displayed. If you indicate this code to MAGIX® you will receive the code for unlocking your MP3-Encoder for only 19,90 DM (149 ÖS / 19,90 CHF / 9 EUR). You just have to type in the code in the corresponding dialogue-box, confirm and then you can encode, encode, encode...



Just inform us about your wish to upgrade via internet link of the upgrade dialogue, by phone, fax or mail:

Europe (UK):

Phone: +49 (0)5741 3455 0

Fax: +49 (0)5741 310 768

Mail: MAGIX Entertainment Products GmbH,
Borsigstrasse 24, 32312 Lübbecke, GERMANY

US:

Phone: 1.888.866.2449

Fax: 310 656 0234

Mail: MAGIX Entertainment Corp., 429 Santa Monica Blvd.
#120, Santa Monica, CA 90401

Please don't forget to name the information as follows:

- Key word: QDesign-Upgrade
- ID code
- Address
- In case of payment by credit card: Credit card number and date of validity
- In case of payment in advance: Stamped transfer bill
- In case payment by check: Signed nonnegotiable check

CD bar (deLuxe version)



Shows or hides the CD bar on the display of the deLuxe-version.

Mixer

This option opens the very powerful real-time Mixer.

NOTE: Depending on the number of tracks, certain processing power is needed for the real-time effects. Please use the Preferences Profiling tool to check the DSP power of your machine during playback! Well-configured Pentium Pro starting at 166 MHz or faster systems normally have no problems to perform all the effects.

For the new mastering effects in MAGIX audio studio (FFT Filter...), we recommend a Pentium II system. Using multiple processing intensive DIRECTX Plug-Ins may also necessitate a Pentium II configuration.



Channel Settings (Mixer)

AUX1: Adjusts the send level to AUX1 bus

AUX2: Adjusts the send level to AUX2 bus

ECHO: Adjusts echo decay, right mouse button opens echo dialog

HI: Adjusts high EQ band, right mouse button opens EQ dialog

MID: Adjusts medium EQ band, right mouse button opens EQ dialog

Low: Adjusts low EQ band, right mouse button opens EQ dialog

PAN: Adjusts the panorama position. When using stereo files only one panorama knob of both tracks can be used.

MUTE: Mute the selected track. Note: This button is independent from the Mute button in VIPs!

SOLO: Solo the selected track. Note: This button is independent from the Solo button in VIPs!

DIRX: This button lets you insert **DIRECTX** Plug-Ins into the signal path for the channel. (More about it below.)

LINK: Links two mono tracks. All controllers are edited across the linked channels. (If you activate this feature for two stereo tracks, the parameters of both stereo channels are altered simultaneously. This may not necessarily be desired.)

VOLUME FADER: Adjusts the volume of the selected track.

Master AUX Sends (Mixer)

AUX1: Adjusts the master level on the AUX1 bus

AUX2: Adjusts the master level on the AUX2 bus

DIRX: This inserts **DIRECTX** Plug-Ins into the signal chain of the AUX Sends. (More about it below.) To use you will need to click on the DirX button. It is necessary to activate the **INTERN** mode when using Plug Ins.

EXTERN: The auxiliary send signal is routed to the selected playback device (button “?” selects the device).

?: If you are using the AUX Sends with external playback devices, you will need to select the appropriate output device. Make sure that a different device than that of the Master output is used (check with keyboard shortcut “p” to display the Playback Parameter dialog).

If only a single stereo device is installed in the system, the AUX Sends will not be available.

Master Effects (Mixer)

MASTER EQUALIZER

Low: Adjusts low EQ band, right mouse button opens EQ dialog

MID: Adjusts medium EQ band, right mouse button opens EQ dialog

Hi: Adjusts high EQ band, right mouse button opens EQ dialog

MASTER FFT FILTER

The control knob adjusts the damping of the filtered signal. The FFT Filter section enables you to make precise Master EQ adjustments. Simply draw the required frequency response into the graphic window of the FFT filter dialog. The complete FFT Filter section can be bypassed with the button next to the control knob in the Master section.

STEREO ENHANCER

The base width can be changed with the control knob. The settings range from “o” (Mono) to “200” (variance signal, the mid-section is removed).

The complete effect can be bypassed with the button next to the control knob in the Master section.

Master Volume (Mixer)

VOLUME FADERS: Adjusts the master volume.

NORM: This is the Master Normalization. When the button is clicked, the volume faders are adjusted in a way, so that the loudest sections in the signal represent 0 dB.

Requirement for this function is the locating of the loudest section in the VIP and playing it back. The maximum level is displayed during the playback. While clicking on the Norm button, the program adjusts the master level in a way to reference the signal at that exact location to 0 dB. To display the maximum values after other changes in the effects are made, use the Peak Reset button to clear the peak meters.

DIRX: This allows you to insert DIRECTX Plug-Ins into the signal chain. (More about it below).

LINK: Links the master section faders to a stereo fader.

?: The Playback Parameter window is opened. This is where settings for the playback device for the Master mode are made.

Global Control Elements (Mixer)

PLAY/STOP: Start/Stop playback.

MUTE AUX: Mutes all AUX sends.

MUTE FX: Mutes all EQ, Compressors and Delays.

RESET AUX: Resets all AUX send levels to standard settings.

RESET FX: Reset all EQ, Compressors, and Delays to standard settings.

RESET (MONO): Resets complete mixer to standard settings for use with mono or L&R Wave projects.

RESET (STEREO): Resets complete mixer to standard settings for use with stereo Wave projects.

OSCI/COREL.: Opens the Oscilloscope/Phase Correlation display

PEAK RESET: Resets the peak meters.

INPUT ATT.: Dampens the input signals by 6, 12, or 18 dB. This may help prevent internal distortion, which can occur when working with the 16-bit precision. This setting can also be changed with the Project Information for the virtual projects.

Tips and Tricks (Mixer)

- Clicking the right mouse button on any of the effect control knobs opens the corresponding effect dialog.
- Double clicking on the middle position of a Mixer control knob returns the knob to the default setting. Another double click resets the knob to the original active position.
- Control knob values can be changed in small increments by clicking on the left and right outer limits of the knob without the fear of invoking a double click.
- The Mixer window allows you to solo multiple channels simultaneously. When multiple channels are soloed, holding the Shift key while clicking on a Solo button of a

- channel deselects the previous solo assignments and solos the single channel.
- The Master Section in the Mixer window contains a convenient feature, the Normalizing function. The master output level can be quickly set to 0 dB by clicking on the “Norm.” button. If the Limiter in the Master section is active, the signal is also monitored to prevent any exceeding signal level.

Using DirectX Plug-Ins in the Mixer (deLuxe-version)

Right clicking on the DIRX button opens the DIRECTX Plug-In menu for the DirectX section.

Simply select the needed Plug In from the list and select it. The Plug In properties dialog is opened - you can adjust all needed parameters.

Close the dialog when all adjustments are done.

To re-open the Plug IN dialog choose again the marked Plug INs from the menu.

To select another Plug in simply click on ist name in the menu.

To clear the Plug In choose the first entry “No Effect” from the menu!

Transport Control



With the new transport control you can easily start and stop playback, start record and punch recording.

Also the cursor position and range length can be seen in the transport control.

An output peakmeter is shown in the lower line.

Control Elements

PLAY: Here you can read the play or range start position

L: This shows the length of the actual range.

E: This shows the end position of the marked range

SCROLL BAR: This lets you move the play cursor through the project.

SYNC (DELUXE VERSION ONLY): Opens the Synchronization-Dialog in the deLuxe version.

LOOP: switches the Loop Playback Mode

PUNCH: Activates the Puhch Record Mode, starting record now begins the punch recording process.

IN: Sets the Punch IN Marker

OUT: Sets the Punch OUT Marker

JOG & SHUTTLE WHEEL: The transport controls features a jog & shuttle-wheel, which allows you to "scrub" over the files. The scrubbing-function is similar to the edit mode of a tape recording machine. In this mode, both motors are switched off but the tape stays in contact with the head. Moving the tape slowly by hand allows you to locate exactly certain sequences.

Scrubbing is more difficult in a digital system, as there are no moving mechanical devices. The controls of the scrubbing-function in the audio studio is similar to the tape recording machine, as playback follows the movements of your mouse. Quick mouse moves produce a higher playback speed, whereas slow moves produce slower playback speeds.

Mouse Mode Toolbar

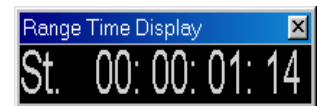


Shows or hides the mouse mode toolbar with buttons to select different mouse modes in VIPs.

Time Display

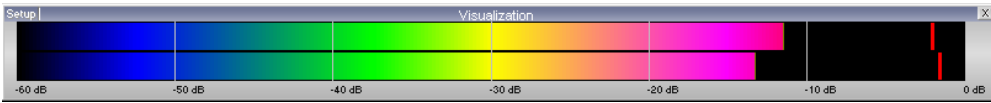
Shows or hides the time display window.

This window always shows the actual time position in the actual format. You can change this format with the menu "Units of Measurement". We recommend the SMPTE format: hours:minutes:seconds:frames. The colors and the font for the display can be changed in the File->Preferences. You can zoom the window to any size and position it anywhere on the screen!



Visualizer

A visualizer can be opened to display the wave form in a scaleable window.



- Oscilloscope
- Phase correlation
- Peakmeter
- Spectroscope
- Spectrogram

- Peak range ▶
- Spectral options ▶
- Stereo options ▶
- Speed ▶
- Colors ▶

SETUP: You can select several views and options for the waveform display.

Close all Windows

Closes all opened projects. Before closing a window/project, MAGIX audio studio will ask you whether you would like to save the project.

Hide all physical projects

This function will hide all Wave projects to make room for the display of the virtual projects.

Iconise all physical projects

This function will reduce all Wave projects to their icons to make room for the display of the virtual projects.

Half Height

The MAGIX audio studio screen is shown in the upper half of the display.

This is useful, when using a sequencer program in multi-tasking. So you can switch between MAGIX audio studio and the sequencer without the need of complete screen redraws.

1, 2, ...

Choose active window from the list.

Menu Help

This menu contains the context sensitive online help functions of MAGIX audio studio.

Help

Use this command to show the contents of the help.

Help Index

Use this command to show the index of the help.

About Help

Use this command for getting informations about the on-line help system.

Context Help

Use this command, to get help about any part of MAGIX audio studio.

System Information

A window is displayed, containing information about the memory status and other parameters.

Particularly useful is the display of the free storage on all connected disk drives, the used system resources utilized by MAGIX audio studio and the memory usage. Make sure the parameter for system memory used by MAGIX audio studio never grows larger than the displayed overall system memory available (physical RAM). If this happens, the performance of MAGIX audio studio is reduced caused by page swapping (virtual memory) done to compensate for the missing memory.

About MAGIX audio studio

Copyright notices and version numbers are displayed.

Online registration

Here you can register online as a MAGIX networker.

Help	
Help Index...	
Context Help...	Shift+F 1
About Help...	
System Information...	
About MAGIX audio studio...	
Online-Registration	

INDEX–MIDI STUDIO

A

Accelerando [262](#)

Add

 Audio File [191](#)

 Region [187](#)

Aftertouch Event [224](#)

Altering Values

 absolutely [219](#)

 numerically [220](#)

 of events [219](#)

 relatively [219](#)

Anchor [146](#)

 moving [187](#)

 protecting [204](#)

Arrange Window

 Inserting Events [131](#)

 tracks [120](#)

ASCII Input [83](#)

Attack Phase Compensation [134](#)

Audio

 arming ~ Track [150](#)

 Autodrop recording [151](#)

 Digital Mixdown [153](#)

 List [183](#)

 recording [149](#)

 recording with count-in [150](#)

 Release in Background [287](#)

 Stereo Object [178](#)

Audio File [189](#)

 adding [191](#)

 copying [192](#)

 Destructive Editing [205](#)

 exchanging ~s & Regions between Songs [186](#)

 finding [194](#)

 Formats [180](#)

 locating [194](#)

 moving [193](#)

 Overview [184](#)

 reassigning [193](#)

 removing [192](#)

 selecting [185](#)

Audio Region [142](#)

 Anchor [146](#)

 changing start and end points [145](#)

copying [143](#)
creating [142](#)
cutting [142](#)
Delay [146](#)
erasing [142](#)
fine-tuning [144](#)
Loop [145](#)
moving [143](#)
moving numerically [144](#)
Name [145](#)
Parameter box [145](#)
Audio window [180](#)
Edit commands [186](#)
Link mode [182](#)
opening [180](#)
Selection techniques [185](#)
Undo [186](#)
Auto Create Tracks in Cycle Record [115](#)
Auto Define [228](#)
Auto Mute in Cycle Record [115](#)
Autodrop [116](#), [151](#), [290](#)
 Button [110](#)
 Cycle [116](#)
 defining ~ region [116](#)
Autoload [104](#)
Automatic Scrolling [91](#)
AVI [269](#)

B

Background Windows [90](#)
Balance [176](#)
Bank Select [125](#)
Bar
 Position Display [107](#)
 positioning ~ to Frame [269](#)
Bar Ruler [111](#), [290](#)
 display [111](#)
 Positioning directly [112](#)
 Song Position Line [111](#)
Beam Width [230](#)
Beaming [255](#)
Bypass [163](#)

C

Catch [91](#), [96](#)
 Enable when SPL is moved [284](#)
 switching off automatically [91](#)
 switching on automatically [91](#)

Change Background [141](#)
Chase Events [117](#), [281](#)
 SysEx [282](#)
Checkbox [82](#), [290](#)
Chorus [159](#)
Clefs [252](#)
Click [110](#), [279](#)
 only during count-in [114](#)
Clip Detector [175](#)
Clipboard [95](#)
Clipscan [153](#)
Concealing the Parameters [89](#)
Contents
 Catch [92](#)
 Link [92](#)
Copy [95](#)
 File(s) [192](#)
 Notes in Score Editor [243](#)
Count-In [114](#)
Crosshair Tool [86](#)
Cut [95](#)
Cycle [112](#)
 button [110](#)
 Chase Events [283](#)
 defining the region [113](#)
 Numeric Display [107](#)
 switching on [112](#)

D

Damaged Song [104](#)
Default [291](#)
Delay [134](#), [160](#), [291](#)
 for single event types [230](#)
 of Audio Regions [146](#)
Delete [96](#)
 File(s) [186](#), [192](#)
 Note in Score Editor [244](#)
Deselect all [95](#)
Dialog Boxes [90](#)
Diatonic Insert [244](#)
Digital Mixdown [153](#)
Disable safety alert for Undo [95](#)
Disarming all tracks [150](#)
Display
 bar numerator [108](#)
 bar/SMPTE [107](#)
 denominator [108](#)

- division value [108](#)
- Format [128](#), [129](#)
- Locators [107](#)
- MIDI Events [108](#)
- parameter box [247](#)
- quantization [242](#)
- Song End [109](#)
- Song Position [107](#)
- song title [109](#)
- tempo [108](#)
- Division value [108](#)
- Dots [251](#)
- Double-clicking [82](#)
- Double-time [128](#)
- Drag and Drop of MIDI Files [288](#)
- Drop [291](#)
- Drum Editor [227](#)
 - Beam Display [230](#)
 - Beam Width [230](#)
 - Beams [228](#)
 - Changing Event Values [232](#)
 - Changing several Event Values [233](#)
 - Creating new Events [234](#)
 - Event Definition [227](#), [228](#)
 - Grid [228](#), [229](#)
 - Length of Notes [230](#)
 - Linear Series [234](#)
 - Open [227](#)
 - Selection Techniques [232](#)
 - Setting Events with fixed Values [235](#)
 - Style [230](#)
- Dynamics [133](#)
- Dynamics signs [252](#)

E

- EBU [272](#)
- Edit
 - Control via MIDI Output [96](#)
 - Repeat Objects [127](#)
 - via MIDI Input [98](#)
- Edit Operations [95](#)
 - Copy [95](#)
 - Cut [95](#)
 - Delete [96](#)
 - Paste [95](#)
 - Undo [95](#)
- Editor

Contents Catch [92](#)
Contents Link [92](#)
Drum Editor [227](#)
Event List [216](#)
Matrix Editor [236](#)
Score Editor [241](#)
Enable Catch when Sequencer starts [91](#)
Enharmonic Shift [254](#)
Enlarging [88](#)
Entering Numbers [83](#)
Equalizer (EQ) [158](#)
Eraser [85](#)
Event
 ~ Types [222](#)
 Add [218, 235](#)
 Aftertouch ~ [224](#)
 Alter ~ Value [219](#)
 Chase ~s [281](#)
 Control Change ~ [223](#)
 Convert [232](#)
 Copy [232](#)
 Data Byte [220](#)
 Delete [97](#)
 Display [108](#)
 Duplicate [219](#)
 Float Window [225](#)
 Input Filter [280](#)
 Insert [131](#)
 Meta ~ [225, 254](#)
 MIDI Channel [220](#)
 Move [219, 232](#)
 Note ~ [222](#)
 Paste [219](#)
 Pitch Bend ~ [223](#)
 Poly Pressure ~ [224](#)
 Position [220](#)
 Program Change ~ [222](#)
 Quantization [98](#)
 Relative Position [220](#)
Event Definition [228, 230](#)
 Beam Width [230](#)
 Create [228](#)
 Create ~ automatically for selected Events [228](#)
 Editing different ~s simultaneously [231](#)
 Erase [228](#)
 Event Status [231](#)
 First Data Byte [231](#)

Grid [229](#), [232](#)
Hi-Hat Mode [232](#)
MIDI Channel [231](#)
Note Name [229](#)
Parameter Box [229](#)
Select [228](#)
Sorting [229](#)
Event List
 Arrange Level [221](#)
 Display Filter [217](#)
 Length/Info [221](#)
 Meta Event [254](#)
 Monitoring Events [218](#)
 Open [216](#)
 Scroll [217](#)
 Selecting Events [218](#)
Event Parameter Box [242](#)
External Sync
 Enable [267](#)

F

Fader [176](#)
Feedback [159](#)
Filtering Events [280](#)
Finding Key Commands [102](#)
Fix
 Quantize [135](#)
 Value [235](#)
Fixed Key Commands [89](#)
Flanger [159](#)
Float Windows [90](#)
Font [256](#)
Forward [110](#)
Frame [291](#)
 Rate [263](#), [273](#)
Frequency Range [158](#)

G

Gate Time [133](#)
Glue Tool [85](#)
Goto
 Position [112](#)
 Selection [98](#)
Grid [229](#)

H

Half-time [128](#)
Hand Tool [86](#)

Hanging Notes [108](#)
Hardware Programmers [280](#)
Help [103](#)
Hide
 Unused Key Commands [102](#)
 Used Key Commands [102](#)
Hierarchical Menus [89](#)
Hi-Hat Mode [232](#)
Horizontal Selection [94](#)
Hyper Draw [137](#)
 Colour [139](#)
 Deactivating [138](#)
 Defining MIDI Channel [138](#)
 Fine-tuning Values [139](#)
 Inserting a new Curve Point [139](#)
 Making ~ visible [138](#)
 Moving a Curve Point [139](#)
 Quick Delete [138](#)
 Tips [140](#)

I

Input Filter [280](#)
Insert
 Defaults [243](#)
 Notes in Score Editor [243](#)
Interpretation mode [250](#)

J

Jump [112](#)

K

Key Commands [100](#)
 ~ Window [101](#)
 Assign [101](#)
 Check [102](#)
 Delete [102](#)
 Find [102](#)
 Hide [102](#)
 Learn Key [101](#)
 Special Keys [100](#)

L

Layout [244](#)
 Tool [86](#)
Legato [133](#)
Level
 adjusting [176](#)
 Meter [175](#)

Link [92](#), [163](#)
Locators
 Numeric Display [107](#)
 Setting by Objects [96](#)
Loop [132](#), [292](#)
 of Audio Regions [145](#)
 Turning ~s into real Copies [132](#)
LTC [273](#)
Lyrics [257](#)

M

Magnifying Glass [86](#)
Matrix Editor [236](#)
 Change Note Length [238](#)
 Change Velocity [239](#)
 Copy Note [238](#)
 Create Note [237](#)
 Delete Note [239](#)
 Duplicating Note [237](#)
 Functions [240](#)
 Move Note [237](#)
 Note Display [236](#)
 Open [236](#)
 Selection Techniques [239](#)
Max Dots [251](#)
Menus [89](#)
Merge
 New recording with selected sequences [115](#)
 Only new Sequences in Cycle Record [115](#)
Meta Event [225](#), [254](#), [292](#)
 ~ switches Screenset [93](#)
Metronome [110](#), [279](#)
MIDI
 Control Change Event [223](#)
 Control Output via ~ [96](#)
 Event Display [108](#)
 In switch [97](#)
 Monitor [108](#)
 Options [280](#)
 Out Switch [96](#)
 Step Edit [98](#)
MIDI Clock [271](#)
 Interpolation [268](#)
 Transmit [266](#)
MIDI File [288](#)
 Bank Select [288](#)
 Format [284](#), [288](#)

- Load [288](#)
- Open via Drag and Drop [288](#)
- Save [288](#)
- Save in Format 0 [289](#)
- MIDI Monitor [108](#)
- MIDI Thru
 - Parameter Box [131](#)
 - SysEx [280](#)
- MIDI Time Code [274](#)
 - Delay [267](#)
 - Format Interpretation [268](#)
 - Send [267](#)
 - Transmit [281](#)
 - Trigger [265](#)
- Mode Buttons [110](#)
- Modify Object Borders [128](#)
- Monitoring [182](#), [201](#)
 - ~ from a Position [182](#)
 - ~ Output [183](#), [202](#)
 - Cycle [183](#)
 - Stereo ~ [183](#)
 - Whole Region [182](#)
- Mouse [82](#)
 - as slider [83](#)
 - Pointer [85](#)
- Move [82](#)
 - File(s) [193](#)
 - Note in Score Editor [243](#)
 - Selected Objects to Track [121](#)
- MTC [274](#)
- Multi ~ [256](#)
- Multi Stave [247](#), [256](#)
- Mute [130](#), [176](#)
 - Tool [86](#)
 - Track [122](#)

N

- Names [247](#)
 - Input ~ [84](#)
 - With Numbers [84](#)
- New Song [103](#)
- Next/Previous Object [94](#)
- No Overlap [250](#)
- Normalize [293](#)
 - Sequence Parameters [134](#)
- Notation [241](#)
- Note

- ~ End as absolute Position [221](#)
- ~ Event [222](#)
- ~ Head [253](#)
- ~ Name for Event Definition [229](#)
- ~ Names in Matrix Editor [236](#)
- ~ Symbol Families [252](#)
- Beaming [255](#)
- Change ~ Length [97](#), [238](#)
- Change ~ Length with Sequence Parameters [133](#)
- Change Velocity [239](#)
- Copy [237](#), [238](#)
- Copy ~ in Score Editor [243](#)
- Create [237](#)
- Delete [239](#)
- Delete ~ in Score Editor [244](#)
- Editing via MIDI In [98](#)
- Insert ~ in Score Editor [243](#)
- Move [237](#)
- Move ~ in Score Editor [243](#)
- Quantize ~ individually [99](#)
- Stem Direction [255](#)
- transposing in Score Editor [243](#)

Noten

- Symbolgruppe [252](#)

Num [220](#)

Numerical

- Input [83](#)

- Value Input [220](#)

O

Object [294](#)

- Colors [103](#)

- Snap ~ [128](#)

- Solo listening [110](#)

Online Help [103](#)

Open [104](#)

Original Event Position [135](#)

Overview Calculation [184](#)

- Aborting [185](#)

- Accelerating [185](#)

- Automatic [184](#)

- Start manually [184](#)

Overview Display [198](#)

P

Page

- Edit [258](#)

- Scroll [258](#)

Up/Down/Left/Right [87](#)
Page Edit [258](#)
Pan [125](#), [176](#)
 Insert ~ Event [125](#)
Panic Function [108](#), [141](#)
Parameter Box [294](#)
Partbox [251](#)
Paste [95](#)
 At original Position [96](#)
Paste at Original Position [144](#)
Pause [109](#)
Peak Hold [175](#)
Pedal
 ~ in Step-Time Recording [97](#)
 Sign [252](#)
Pen Width [230](#)
Pencil [85](#)
Pitch Bend Event [223](#)
Play [109](#)
Play parameters [294](#)
Plug-In Window [163](#)
Pointer [85](#)
Poly Pressure Event [224](#)
Preferences
 Audio [286](#)
 Audio Extensions [287](#)
 Display [285](#)
 Global [284](#)
 Initializing [283](#)
 Reset [285](#)
 Score [285](#)
Print [259](#)
Program Change [125](#), [222](#)
 Insert ~ Event [125](#)
Pull-down menus [83](#)

Q

Q Tool [99](#)
Qua [136](#)
Quantization [135](#)
 Display ~ [249](#)
 Event ~ [98](#)
 Fix [136](#)
 How it works [135](#)
 in Sequence [136](#)
 Mixed ~ [136](#)
 Odd ~ [136](#)

Triplet ~ [136](#)
Quantize again [99](#)
Quick Record [287](#)

R

Record [114](#)
 Arm ~ [176](#)
 Autodrop [116](#)
 Button [109](#)
 Change a Track [114](#)
 Choose a track [114](#)
 Count-In [114](#)
 Cycle & Autodrop [116](#)
 Cycle & Replace [115](#)
 Erase ~ [143](#)
 in Cycle Mode [115](#)
 in Replace Mode [115](#)
 in Step Time [97](#)
 Merge & Replace [115](#)
 Options [115](#)
 Pause [109](#)
 Predefining ~ Length [190](#)
 Setting a ~ Path [189](#)
 Time [190](#)
 Toggle [115](#)
Recording Options [278](#)
Rec-Ready Switch [176](#)
Region
 Add to Arrangement [189](#)
 Altering Limits [187](#)
 Copy [187](#)
 Create [143, 187](#)
 Cycle [183](#)
 Delete [187](#)
 Drag Tool [189](#)
 Fine Adjustments [203](#)
 Protect [188](#)
 Rename [188](#)
 Select [186](#)
 Show/Hide [183](#)
 Waveform Display [184](#)
Regions
 Individualize ~ in Arrange [143](#)
Relative Value Alteration [219](#)
Remove Overlaps [128](#)
Repeat Objects [127](#)
Replace [110](#)

Reset [141](#)
 Controller [141](#)
 Panic [141](#)
 Volume [141](#)
Rest Correction [250](#)
Reverb [160](#), [163](#)
Revert to Saved [104](#)
Rewind [110](#)
Ritardando [262](#)
Rubber-Banding [94](#)

S

Sample Editor
 Absolute Position [201](#)
 Catch Mode [199](#)
 Change Gain [206](#)
 Cut, Copy, Paste, Clear [204](#)
 Fade In [207](#)
 Fade Out [207](#)
 Invert [208](#)
 Layout [198](#)
 Link mode [199](#)
 Normalize [205](#)
 Open [197](#)
 Overview functions [199](#)
 Relative Position [200](#)
 Remove DC Offset [209](#)
 Reverse [208](#)
 Silence [207](#)
 Trim [208](#)
 Warning before Closing [286](#)
Sample Rate
 choosing [195](#)
 convert [209](#)
Save [104](#)
Save as... [104](#)
Scissors [85](#)
Score Editor [241](#)
 Arrows [253](#)
 Articulation signs [253](#)
 Crescendo [253](#)
 Decrescendo [253](#)
 Diminuendo [253](#)
 Info Line [242](#)
 Key Signature [253](#)
 Lines [253](#)
 Lyrics [257](#)

- Multi Stave [247](#)
- Open [241](#)
- Overlap Correction [250](#)
- Partbox [251](#)
- Print [244](#), [259](#)
- Slurs [253](#)
- Speed up Screen Redraw Rate [285](#)
- Text Font [256](#)
- Screenset [92](#), [295](#)
 - Copy [93](#)
 - Number [92](#)
 - Protect [93](#)
 - Sequencer-controlled Switching [93](#)
 - Store [92](#)
 - Switch [93](#)
- Scroll [87](#)
 - to SPL [96](#)
- Select
 - All Objects [95](#)
 - Alphabetically [94](#)
 - Following Objects [95](#)
 - Horizontally [94](#)
 - In Score Editor [242](#)
 - Next Audio File [185](#)
 - Previous Audio File [185](#)
 - Rubber-Banding [94](#)
 - Several Objects at once [94](#)
 - Single Objects [94](#)
 - Unselected Items [94](#)
 - Unused [186](#)
 - Used [186](#)
 - within the locators [95](#)
- Selection [93](#)
 - Toggling [94](#)
- Send Fader Values after loading [281](#)
- Sequence [126](#), [295](#)
 - ~ Playback Parameters [131](#)
 - Adjust Length to fit [128](#)
 - Automatic Naming [284](#)
 - Change Length [127](#)
 - Change Tempo [128](#)
 - Copy [127](#)
 - Create [126](#)
 - Create empty ~ [126](#)
 - Create with Clipboard Events [131](#)
 - Cut [129](#)
 - Cut several Times [129](#)

- Delete [126](#)
- Demix by Event Channel [130](#)
- Finer Grid [128](#)
- Fix Playback Parameters [134](#)
- Hyper Draw [137](#)
- Inserting Events [131](#)
- Join and Mix [129](#)
- Loop [132](#)
- Make Contents visible [141](#)
- Move [126](#)
- Moving the Start [127](#)
- Mute [130](#)
- Name [130](#)
- Quantization [136](#)
- Repeat [127](#)
- Soloing [130](#)
- Sequence Parameter [132](#)
 - Change several ~s at once [131](#)
 - Default [131](#)
 - Delay [134](#)
 - Dynamics [133](#)
 - Gate Time [133](#)
 - Loop [132](#)
 - Normalize [134](#)
 - Open ~ Box [132](#)
 - Qua [136](#)
- Sequencer Positions as List [221](#)
- Sequences
 - Round Length to Bars [128](#)
- Set Locators
 - by Objects [96](#)
- Set Optimal Object Sizes [128](#)
- Show
 - Contents [92](#)
- Silence [207](#)
- Size
 - of Display [88](#)
 - of Window Elements [88](#)
 - Tool [86](#)
- Slider Input [83](#)
- SMPTE [272](#)
 - Drop Frame [273](#)
 - Frame Rate [273](#)
 - LTC/VITC [273](#)
 - Offset [264](#)
 - Position Display [107](#)
 - Recording Time Code [274](#)

Snap Objects [128](#)
Solo [130](#)
 Button [110](#)
 Lock [110](#)
 Tool [130](#)
Solo Tool [86](#)
Song
 Autoload ~ [104](#)
 Check/Repair [104](#)
 End [109](#)
 Load [104](#)
 New [103](#)
 Revert to saved Version [104](#)
 Store [104](#)
 Switch between ~ [104](#)
Song Position
 Catch [91](#)
 Display [107](#)
 Jump graphically [112](#)
 Jump numerically [112](#)
Song Position Line [111, 295](#)
 Catch [91](#)
 Wide ~ [285](#)
Song Position Pointer [266, 271](#)
Song Settings [278](#)
 Chase Events [281](#)
 MIDI options [280](#)
 Recording Options [278](#)
 recording options [278](#)
Song Title Display [109](#)
SPL [111, 295](#)
SPP [271](#)
Staccato [133](#)
Standard MIDI File [288](#)
Start/Stop with Bar Ruler [112](#)
Stave [256](#)
 Move ~ vertically [255](#)
Step-Time Recording [97, 98](#)
 Keyboard Controls [98](#)
Stereo Objects [178](#)
Stop [109](#)
Style [241, 247](#)
Swing [296](#)
Symbol groups [252](#)
Sync
 Button [110](#)
 Mode [265](#)

Synchronization

- ~ of Sequencers to Tape [275](#)
- ~ of several Sequencers at once [275](#)
- Bar-Referenced [271](#)
- Basics of ~ [270](#)
- Click Track [276](#)
- MIDI [266](#)
- MIDI Clock [271](#)
- Problem solving [276](#)
- Procedure [274](#)
- Pulse Clock/FSK [271](#)
- SMPTE/EBU [272](#)
- Song Position Pointer [271](#)
- Status Display [260](#)
- Time-Referenced [272](#)

Synchronizers [274](#)

Syncopation [250](#)

SysEx

- MIDI Thru [280](#)

T

Telescopes [88](#)

Tempo [260](#)

- display [108](#)
- events [260](#)
- Graphic Tempo Editor [262](#)
- List Editor [260](#)
- Overview [260](#)
- recording tempo changes [262](#)
- Spur [260](#)

Tempo Changes

- continuous - creating [262](#)
- copying from a musical passage [261](#)
- creating [261](#)
- deleting [261](#)

Text

- ~ in Score Editor [256](#)
- lyrics [257](#)
- positioning ~ [256](#)

Text Input [84](#)

Text Mark [85](#)

Text mode [254](#)

Tie Correction [250](#)

Tie Objects [128](#)

Time Code (TC) [272](#)

Time Signature and Divisions [108](#)

Time Signature Changes [253](#)

- creating [108](#)
- editing [108](#)
- erasing [108](#)
- Toggle Selection [94](#)
- Toolbox
 - at the mouse position [85](#)
- Toolbox (see Tools) [84](#)
- Tools [85](#)
 - crosshair [86](#)
 - effective range [84](#)
 - eraser [85](#)
 - glue tool [85](#)
 - hand [86](#)
 - Layout ~ [86](#)
 - magnifying glass [86](#)
 - Mute ~ [86](#)
 - pencil [85](#)
 - Pointer [85](#)
 - Q tool [99](#)
 - scissors [85](#)
 - selecting [85](#)
 - Size Tool [86](#)
 - solo tool [86](#)
 - text mark [85](#)
 - two at once [84](#)
 - voice splitter [86](#)
- Top Window [90](#)
- Track [124](#)
 - Filter in Score Editor [247](#)
 - Icon [124](#)
 - Mute [122](#)
 - Pan [125](#)
 - Program Change Event [125](#)
 - Selecting Banks [125](#)
 - Selecting Programs [122](#)
 - Setting MIDI Channels [124](#)
 - Setting MIDI Port [124](#)
 - sorting [120](#)
 - Volume [125](#)
- Track Column [296](#)
- Tracks [120](#)
 - changing [120](#)
 - creating [120](#)
 - deleting [121](#)
 - selecting [120](#)
- Transfer
 - MIDI File [288](#)

Transport
 in window [88](#)

Transport Bar [106](#)
 buttons (lower) [108](#)
 buttons (upper) [107](#)
 time signature and divisions [108](#)

Transport Function Keys [109](#)

Transport Window [106](#)
 Autodrop [110](#)
 changing the display [106](#)
 cycle [110](#)
 Forward [110](#)
 large SMPTE or bar display [107](#)
 legend [106](#)
 Locators [107](#)
 metronome [110](#)
 MIDI monitor [108](#)
 moving [106](#)
 opening [106](#)
 panic function [108](#)
 part display [107](#)
 Pause [109](#)
 Play [109](#)
 position display [107](#)
 position slider [106](#)
 pull-down menu [106](#)
 Record [109](#)
 Replace [110](#)
 Rewind [110](#)
 smaller/larger [106](#)
 solo [110](#)
 Solo Lock [110](#)
 Stop [109](#)
 sync [110](#)
 tempo [108](#)

Transposing
 notes in Score Editor [243](#)

Trill symbols [254](#)

TrueType Fonts [256](#)

Turn Loops to Real Copies [132](#)

U

Undo [95](#)
 Audio window [186](#)
 in Sample Editor [204](#)
 Safety Alert [284](#)

Unused Blocks [104](#)

Update File Information [194](#)

V

V Tool [239](#)

Val [220](#)

VCA [212](#), [213](#)

VCF [212](#), [214](#)

Velocity

 Compressing [133](#)

 tool [239](#)

Vertical Selection [95](#)

Video for Windows [269](#)

View

 parameters [100](#)

 transport [100](#)

VITC [273](#)

Voltage Controlled Amplifier [213](#)

Voltage Controlled Filter [214](#)

Volume [125](#)

 Insert ~ Event [125](#)

W

Waveform

 Absolute Time Axis [201](#)

 Change Gain [206](#)

 changing selection [202](#)

 Detailed display [200](#)

 Editing commands [204](#)

 fading in [207](#)

 fading out [207](#)

 moving selection [202](#)

 normalizing [205](#)

 Phase inversion [208](#)

 Relative Time Axis [200](#)

 selecting [202](#)

 Selection Parameter Box [203](#)

 To digital Zero [207](#)

 X and Y axis [200](#)

WavePlayer [211](#)

Wide Song Position Line [111](#)

Window

 Drum Editor [227](#)

 Event List [216](#)

 hiding those of inactive songs [284](#)

 Matrix Editor Window [236](#)

Windows

 Arrange [119](#)

 autocatch [91](#)

Background ~ [90](#)
Catch [91](#)
changing the elements present [88](#)
close box [87](#)
concealing the parameters [89](#)
concealing the Transport [88](#)
contents catch [92](#)
Event Float Windows [225](#)
Float Windows [90](#)
functions [86](#)
Graphic Tempo Editor [262](#)
Hierarchical Menus [89](#)
Key Commands [101](#)
Link [92](#)
main menu [91](#)
maximizing [87](#)
menus [89](#)
minimizing [87](#)
opening [87](#)
relationships between [91](#)
screensets [92](#)
scrolling [87](#)
selecting the working area [87](#)
selective zoom [88](#)
Show Contents Mode [92](#)
size [87](#)
Tempo List Editor [260](#)
top window [90](#)
Transport window [106](#)
types [90](#)
zooming [88](#)
WYSIWYG [258](#)

X

X/Y Element [87](#)

Z

Zoom [88](#)

selective [88](#)

Zoom Function [297](#)

INDEX - AUDIO STUDIO

A

About MAGIX audio studio 455
Absorption 398
Accessing Audio Material 314
Active Section when using Zoom Levels 310
Add one Track 367
Adjusting a Range 316
Amplitude 388, 389, 417
Amplitude * 2 389
Amplitude / 2 389
Append Projects 357
Apple Macintosh 361
Application Examples 384
Arrange Icons 447
Assign new Shortcut 442
Attack 394
Audio data 308, 311
Audio file 351
Auto Crossfade active 369
Auto-Crossfade-Mode 351
Autoscroll 421
AUX1 448, 449
AUX2 448, 449

B

Background 374
Background-color 383
Bar Definitions 373
Basics 425
Beat Marker-Mode 400
Beginning of Range ← 0 405
Beginning of Range → 0 405
Bouncing 415, 416
BPM 423, 437
Buffer 444
Buffer Number 444
Buffer size 323
Build Loop Object 381
Build Physical Loop 402
Burn "On the Fly" 412
Burning of CDs (deLuxe version) 330
Button Crossfade Off 368
Button overview 341
Buttons/Slider 375

C

- Calculate Maximum Amplitude 417
- Cascade 447
- CD arrange mode 435
- CD bar 342, 448
- CD Disc Options 414
- CD ROM Drive Configuration Dialog 354
- CD Title 414
- CD Track Manager 418
- CD Track Options 414
- Change Bit Resolution 358
- Change Mouse 375
- Change Play Direction 420
- Change Sample Rate 401
- Change Toolbar style 442
- Changing a Range 317
- Changing Object Borders 315
- Channel Settings 448
- Clear 365
- Clip 307
- Close all Windows 454
- Close Project 362
- Colors 442
- Complete Project 417
- Compressor 325, 393, 394
- Connect to the Internet 361
- Context Help 455
- Context Help mode 336, 440
- Convert → Mono 358
- Convert → Stereo 358
- Copy 365
- Copy and Clear 365
- Copy as 365
- Copy Mode Burst 355
- Copy Mode Normal 355
- Copy Mode Sector Synchronization 355
- Copy Objects 378
- Corel 428, 451
- Create Audio Copy 433
- Create AVI 433
- Create complete new file 332
- Crossfade Editor 322, 367
- Crossfade Position 368
- Curve Mode 336, 439
- Cut 364
- Cut mode 336, 440
- Cutting Objects 378, 379, 380

D

Data Transfer 330
De-Selecting a Range 317
Decay % 396
Decibel 392
Declipping 325, 396
Delay 325
Delay ms 395
Delete 364
Delete all Markers 409, 411
Delete Marker 409
Delete Objects 379
Delete Panorama Handle 369
Delete prefixed Markers 411
Delete Undo Levels 370
Delete Volume Handle 369
Delete Wave Project(s) (HDP) 362
Delta Time 380
Destructive Editing 314, 326, 385
Destructive Processing 327
Device 421, 427
DirectX Plug-Ins 390, 452
DirectX plug-ins 327
DirectX-plug-ins 325
DirX 449, 450
Disable Fade In/Out 381
Disable Length changes 381
Disable Moving 381
Disable Volume changes 381
Disk Space 429
Display Filter 385
Distortion 325, 393, 394
Download audio material 305
Drag & Drop 313
Draw Panorama Mode 335
Draw Volume 440
Draw Volume Mode 335, 439
Draw Wave 440
Draw wave mode (only wave projects) 337
Drive List Dialog 353
DSP display 332
Duplicate Objects 379
Duplicate Objects multiple 379
Duplicating Objects 314
Duration 380

E

- Ean Code 414
- Echo 325, 395, 448
- Edit Keyboard Shortcuts 440
- Edit Range 404, 405, 406
- Effect Calculations and Signal Manipulations 326
- Effects 325
- Effects in the VIP 325
- Enable VIP Tooltips 442
- End of Range ← 0 405
- End of Range → 0 405
- Enhancer 326, 450
- Equalizer 325, 393
- Expander 325, 393, 394
- Export 306
- Export as PlayR-File 361
- Export audio→ 16 Bit AIFF 361
- Export audio→ AIFF file with Quicktime 360
- Export audio→ Export as Dump 361
- Export audio→ MP3 359
- Export audio→ MPEG 359
- Export audio→ MS Audio File 359
- Export audio→ Real Audio 359
- Export audio→ Wave 359
- Extern 449
- External Program 1, 2 419
- Extract 366
- Extract audio from AVI 433
- Extract Objects 379

F

- Fade Handle 308
- Fade in/out 381, 389
- Fade-In / Fade-Out 315
- Feedback 396
- FFT Filter 323, 326, 327, 450
- Fix vertically 371
- Fixed Bar Snap 373
- Flip Range left 405
- Flip Range right 405
- Font for Time Display 442
- Font Selection 442
- Frequency 392
- FTP Download 329, 362
- Full-duplex 303
- FX 434, 438

G

Gate 393, 394
Gater 325
Generate a complete new file 413
Get Marker 408
Get Noise Sample 397
Get position 376
Get Range 369, 407
Get Range Length 407
Global Control Elements 451
Global Get 369
Global Set 369
Graphic Equalizer 392
Graphic Refresh 371
Grid 350
Grid Setup 372, 442
Group created Objects 379
Group Number 374
Group Objects 382

H

Half Height 454
Halftones 423
Hall 325
Handle 306, 308
HD Buffer 444
HD Record Buffer 445
HD Wave (HDP) 351
HD Wave Project 351
HD Wave project 312
HD Wave Projects 443
HDP 322
Help Index 455
Hide all physical projects 454
High EQ 449, 450
Horizontally 376
Host Adapter Number 354

I

Iconise all physical projects 454
Import Sample 357
Import Sample as Dump 357
Individual Mouse Modes 334
Insert Objects 378
Insert Workspace 367
Integrating a range 313
Integrating a WAV File 313

Internal Mixdown 415
Internet-Functions 328
Invert Phase 403

L

L&R Wave Project 312
Lasso Function 334
Latency 426
LED peakmeters 302, 303
Length changing 381
Length Handle 308
Link 449, 450
Link Projects 357
Live Effect Processor 426
Live Input Mode 425
Load Always New 432
Load Audio CD 352, 410
Load Shortcuts 441
Lock Definitions 381
Lock Objects 321, 380, 381
Lock Recorded Objects 350
Loops / Songs / Speech 400
Low 450
Low EQ 449
Lower toolbars 342

M

Make CD 412
Marker 308
Marker Manager 308, 418
Markers on Range Borders 408
Master AUX Sends 449
Master Effects (Mixer) 450
Master Equalizer 450
Master FFT Filter 450
Master Normalization 323
Master Volume 450
Match Time 385
Maximale Spurenanzahl 300
Media 429
Media link 431
Medium EQ 449, 450
Menu CD (deLuxe version) 410
Menu Edit 363
Menu Effects 387
Menu File 350
Menu Help 455
Menu Object 378

- Menu Options 431
- Menu Playback 420
- Menu Range 404
- Menu Tools 416
- Menu View 371
- Menu Window 447
- Microsoft® Intellimouse 340
- MIDI Clock 437
- MIDI Clock Input Device 437
- MIDI Time 437
- MIDI Time Code 436
- Mix Master Section 327
- Mix with Clip 367
- Mixer 323, 327, 448
- Mixer-Effects 326
- MKS-format 361
- Monitor 302, 303, 428
- Mono 358
- Mono Wave Project 312
- Mouse 340
- Mouse Mode 439, 440
- Mouse Mode bar 341
- Mouse Mode Toolbar 453
- Move Play to beginning 404
- Move Play to end 404
- Move Play to range end 404
- Move Play to range start 404
- Moving 381
- Moving a Range Horizontally 317
- Moving Objects 314
- MTC Output Device 437
- Multirate file 360
- Mute 449
- Mute AUX 451
- Mute FX 451
- Mute objects 378

N

- New features in the generation 6 version 300
- New Multitrack Project 350
- New Object 378
- New Object Mode 375
- Noise Reduction 397
- Noise reduction 325
- Noise Sample 398
- Normalize 388, 389
- Normalize File (phys.) 388
- Normalize Object (virt.) 389

Number of first CD Track 414

Number of Objects 379

O

Object 352

Object and Curve Mode 314

Object Background Color 382

Object Foreground Color 382

Object Lasso 314

Object Lock Definitions 440

Object Manager 418

Object Mode 314

Object Name 374, 383

Object Properties 374

Object to Original Position 381

Object to Playcursor Position 381

Object Volume 315

Object-Editor 383

Object-length 383

Object-position 383

Objects 334

Offset 432

On-The-Fly 412, 424

Online registration 455

Open Project 351, 352

Osci 451

Oscilloscope 428

Output modus 320

Overlapping Objects 316

Overwrite with Clip 366

P

Panorama 449

Panorama Draw Mode 440

Parameters for the Compressor 394

Parameters for the Distortion Editor 394

Parameters for the Gate 394

Parametric Equalizer 391

Paste/Invert Clip 365

Peak Meters 375

Peak Reset 451

Performance 323

Pitch Factor 423

Pitch Shifting 399

Pitch-shift/Time stretch mode 337

Pitch/Time-stretching 383

Play 385, 451

Play Always 432

Play Buffer 444
Play Cursor 335
Play in Range 420
Play loop 420
Play once 420
Play Video without sound 433
Play with Preload 420
Play-Cursor 309
Play/Stop 383
Playback 324
Playback of a range 318
Playback Options 421, 431
Playback while Recordin 427
Position objects 305
Positionbar 447
Positioning bar 342
Prefix 411
Preload 426
Preview 434
Print TOC 413
Problems & Solutions 344
Program Preferences 438, 439, 440, 442
Project Information 435
Project Name 374
Project Properties 431, 435
Project window 301
Project-patterns 350
Publish to Web 361
Punch In 423, 425
Punch In Mode active 423
Punch In Record 425
Punch Out Markers 425
Punch-In/Out 424
Punch-In/Out with Markers 424

Q

QDesign 359, 445
Quickstart 301

R

RAM Buffer 444
RAM Wave (RAP) 351
RAM Wave project 311
RAM Wave Projects 444
Range 309, 335
Range, $\leftarrow 0, 0 \rightarrow$ 406
Range all 404
Range bar 343

Range Commands 317
Range Editor 409
Range length to 406
Range Manager 418
Range Mode (Secure Mode) 335, 439
Range to beginning 404
Range to end 404
Rangebar 447
Ranges Mode 440
RAP 322
Ratio 394
Real Time Buffer 444
Real-Time Effects 327
Real-time Processing 326
REC-Button 302
Recall last range 409
Record 426, 430
Record Buffer 444
Record button 302
Record mode 426
Record Offset 429
Record Parameter 426
Record Time 429
Recording 324
Recording/Playback 324
RedBook 330
Redo 363
Reduction 398
Release 394
Remove all Indices 412
Remove DC offset 397, 398
Remove Index 411
Remove Link 434
Remove Punch In 425
Remove Punch Markers 425
Remove unused Samples 417
Rename Project 361
Replace 385
Replace Audio in existing AVI 433
Resampling 325, 399
Resampling to 44.1 kHz 427
Reset (Mono) 451
Reset (Stereo) 451
Reset AUX 451
Reset FX 451
Resonance 396
Restart Play 421
Reverb 395

Reverse 402

S

Same File Only 385
Same Track Only 385
Sample / Halve 374
Sample manipulation 401, 402
Sample Rate 350, 421, 426
Sample-color 383
Sampledata * 2 401
Sampledata / 2 401
Samplerate 301
Save complete VIP to 356
Save in Format 356
Save Object 356
Save Project 355
Save Project as 355
Save Session 356
Save Shortcuts 441
Saving Ranges 317
Scrubbing 324, 422
Scrubbing mode 440
SCSI-ID 355
SCSI-LUN 355
Section 309
Sections 371
Secure Mode 335
Select Objects 382
Selected Range 417
Selecting a Range 316
Selecting an Object 314
Selecting Multiple Objects 314
Selecting the Correct Mouse Mode 316
Separate Stereo 375
Session 352, 444
Set End Marker 425
Set Hotspot 382
Set Markers on Silence 408
Set New Original Position 381
Set Pause 410
Set Pause Time 415
Set Punch In Marker 425
Set Punch Out Marker 425
Set Start Marker 425
Set Start Pause Time 415
Set Sub-index 410
Set Track 410
Set Track Indices on Object Edges 411

Set Track Indices on Silence 411
Set Zero 389
Shortcuts 338
Shortcuts for range 319
Show Border 375
Show CD-R Disc Information 414
Show CD-R Drive Information 414
Show Grid 372
Show Shortcut list 441
Show TOC 413
Show Video Track 433
Signal Manipulations 326
SMPTE code 436
SMPTE Offset 432, 438
SMPTE/MTC Input Device 437
Snap Setup 372, 435
Snap to Grid 372
Snap to Objects 350
Snapshot Buttons in VIPs 311
Solo 449
Solo Instruments 400
Special CD Arrange-Mode 415
Spectrum 392
Split Objects 380
Split Objects on Marker position 380
Split Range 406
Split Range for Video 406
Starting number 411
Statistic 385
Statusbar 447
Stereo 358
Stereo Enhancer 450
Stereo Wave Project 312
Stop 420, 451
Stop and go to current position 420
Store Marker 407
Store Range 407
Surround 325
Switch Channels 402
Switch Selection 382
Sync Velocity 438
Synchronization 348
Synchronization (deluxe-version only) 436
Synchronizing MAGIX Audio Studio projects 431
System 443
System Information 455

T

Take Manager 384, 419
Target groups 360
Terminology 307
Test Offline 398
Test Realtime 398, 400
Text Comments 435
Threshold 394
Threshold db 411
Tile 447
Time Display 453
Time Stretching 399
Time stretching 325
Timestretching 399
Tips & Tricks 321
Tips and Tricks (Mixer) 451
Toolbar 447
TOOLS bar 341
Track Bouncing 416
Track Delay 396
Track List Dialog 353
Track Number 350
Transport Control 452
Trim Objects 380
Type Audio 398
Type Noise 398

U

Undo 363
Undo Definitions 438
Ungroup Objects 382
Units of Measurement 350, 372, 435
Universal Mode 334, 439
Universal Tool Mode 314
Unlink Project 357
Unlock Objects 380
Untile 447
UPC 414
Upper Toolkit bar 341
Use ASCII Code for TOC 413
Use Uni Code for TOC 413

V

Varipitch 423
Vertical slider 423
Vertically 377
Video Height 442

VIP Buffer 444
VIP Display Mode 373
VIP Mouse Mode 439
VirtClip 308
Virtual Editing Concepts 313
Virtual Projects 310, 351, 364, 366, 368, 444
Virtual Projects (VIPs) 310
Virtual Working 428
Visualizer 454
Volume 319, 392, 393
Volume changing 381
Volume Fader 449, 450
Volume Handle 308
Volume/Pan 384

W

Wave Mouse Mode 440
Wave Projects 351, 364, 366, 367
Wave projects 311
Wave-Projects 311
Waveform Generator 417
Web Publishing (Upload) 328
Wet-/ Dry Balance % 396
Working in Projects 321
Working with Objects 313
Working with Ranges 316
Working with the Plug-Ins 390
Write "on the fly" 332
Writing Speed 333

Z

Zoom 335
Zoom levels 310, 322, 376
Zoom mode 336, 337, 440
