



samplitude<sup>®</sup>  
**MUSIC**  
**STUDIO 14**

**Manual**

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# Preface

Congratulations on your purchase of Samplitude Music Studio 14!

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. What do I really need? What's best value for money?

Samplitude Music Studio 14 is the perfect solution: Fast and easy-to-handle music production on your PC – from recording to mastering. Transform your PC into a complete sound studio.

All you need to produce and arrange in high-quality is a conventional sound card. Additional studio equipment can easily be added.

The following pages will introduce you in detail to the various functions and possibilities of Samplitude Music Studio 14.

Have fun with Samplitude Music Studio 14.

Your

MAGIX team

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# Support

If you experience any problems with your software, please get in touch with our support team:

**Support website:** <http://support.magix.net>.

Here you can access the MAGIX Customer Service team as well as check out the following free offers:

- **FAQs** (frequently asked questions) and general **Tips and Tricks:** You'll find the solution to most problems you may encounter when using the program here. Just in case you don't, there's also an email support form for your queries.
- **Email support form:** You can use the special form to supply our support staff with information about your system. This information is used to quickly and competently solve whatever problem you may be experiencing. Simply fill it out and send it off!
- **Support forum:** You are not alone. Other users may have experienced similar problems and might be able to help you. Our competent support staff can be found on a regular basis on the forum as well.
- **Download section:** Advancements, optimizations and error fixing features, known as "patches", are also available as free downloads. Many problems that may occur are probably known to us already and can be fixed by installing the latest patch. Alongside the patches, you also find small assistant programs for checking and optimizing your system.
- **Links:** In the link list you'll find the contact address of important hardware manufacturers.

**Please note:** To be able to use the support you have to register your product using the serial number provided. This can be found on the CD case of your installation CD or on the inside of the DVD box.

You can also reach our support team by telephone:

**UK:** 0905 118 0888 (25p/min)  
(open Monday to Friday 9:00 - 16:00 GMT)

**Denmark:** 077345695  
(open Monday to Friday 10:00 - 17:00 CET)

**Finland:** 0942597819  
(open Monday to Friday 10:00 - 17:00 CET)

**Norway:** 021543223  
(open Monday to Friday 10:00 - 17:00 CET)

**Sweden:** 0852507027  
(open Monday to Friday 10:00 - 17:00 CET)

**Email:** info@magix.net

**Please have the following information at hand:**

- Program version
- Configuration details (operating system, processor, memory, hard drive...)
- Soundcard configuration (type, driver)
- Information regarding other audio software installed



# Getting started

## Package contents

**Program disc:** This disc contains the Samplitude Music Studio 14 installation manager.

**Printed manual:** The printed manual contains all necessary information for a quick start into the program.

**Hint:** The complete documentation is included in the Samplitude Music Studio 14 folder as a PDF file. You can read it on your screen or print it. You will need the "Adobe Acrobat Reader" application, which you can download for free from the Internet if it is not yet installed on your PC.

## Minimum System Requirements

### Computer:

- Intel® Pentium® or AMD® Athlon® 700 MHz or higher, 256 MB RAM (512 MB recommended)
- Free hard disk space: 3 GB
- Graphics card: Resolution 1024x768 with 16-bit high-color
- Full duplex 16-bit sound card or ASIO-enabled sound card (recommended)
- DVD ROM drive
- Microsoft® compatible mouse
- Operating system: Microsoft® Windows® 2000 | XP | Vista™

### Optional:

- Burn CDs/DVDs with CD/DVD±R(W) recorder.
- Access to and publication on [www.magix.com](http://www.magix.com) and in MAGIX Online Services only with Internet connection and Microsoft® Internet Explorer™ 6.0 or higher.
- Sending emails possible with Internet access and existing Microsoft® Outlook™ or Microsoft® Outlook Express™ standard email software.

## Seriennummer

A serial number is included in each product. This serial number is not required for the installation of the software, but does enable usage of additional bonus services. Please store this number in a safe place.

### What can a serial number do?

With a serial number your Samplitude Music Studio 14 is clearly assigned to you and only you. This way improved and more targeted customer service is made possible. Abuse of the software can be prevented with a serial number, which ensures that optimum the price/performance ratio continues to be offered by MAGIX.

### Where can the serial number be found?

The serial number can be found on the reverse side of your CD/DVD case. If your product, for example, is packed in a DVD box, you'll find the serial number on the inside.

For the versions that have been especially optimized for the Internet (e-versions) you'll get your serial number for activating the software directly after purchasing the product via email.

### When will you need the serial number?

The serial number is required when you start or register Samplitude Music Studio 14 for the first time.

**Note:** We explicitly recommend registering your product as you are only then entitled to use the MAGIX Premium Club (on page 20), get program updates, and contact the MAGIX Support (on page 15). Entering the serial number is also required for activating codecs.

## Installation

**Step 1:** Insert the program disc into the drive. The installation program starts up automatically. If the disc doesn't run automatically:

- Open the Windows Explorer and click the letter of the CD-ROM drive.

- Now double-click on "Start.exe" to start the installer.

**Step 2:** To begin the installation of Samplitude Music Studio 14, click on "Install". The Samplitude Music Studio 14 installation program will appear.

**Hint:** During installation you will be asked if, in case there are multiple users on your computer, you would like to set up an administrator. The option "Administrator only" restricts use of the program to the specified administrator only. The option "All users" allows all users of the computer to use the program.

Simply follow the instructions on screen to complete the installation process and then click on "Continue". All files are now copied onto the hard drive.

**Step 3:** Once the installation is complete, confirm the message by pressing "Finish". You can now start the program whenever you want from the Windows Start menu.

## More about MAGIX

### myGOYA

#### In perfect unison: MAGIX products and Online Services



Discover the possibilities offered by myGOYA, your free online operating system! Every MAGIX product offers a direct and easy-to-use gateway to the world of online multimedia.

- Present your photos, videos, and music directly in your Online Album or in worldwide Internet communities.
- Find professional templates & content for enhancing your personal projects.
- Create your own personalized website in professional Flash® design – with photos, videos, music & impressive animations.
- Order brilliant photo prints to be sent directly to your doorstep – quick, easy, and at the right price.

Experience these and many more online services on [www.mygoya.com](http://www.mygoya.com)

### MAGIX Premium Club

Our exclusive club for all MAGIX customers who own a registered product. MAGIX Premium Club members have access to a wide range of services:

- Free product updates and services
- Exclusive club events and surprises
- News and info about the club and much more...

Membership is free.

You can find more information about this topic on [www.magix.com](http://www.magix.com)

**Hint:** You can register your product either directly from the program using the Help menu, or with your product registration number at [www.magix.com](http://www.magix.com). You can find your product registration number on

your program CD. Earlier network card numbers with the example format XY-58241-45, are, of course, still valid.

# Introduction

## What is Samplitude Music Studio 14?

Samplitude Music Studio 14 is a multitrack recording and editing application for all types of audio material featuring unlimited editing options. It's easy to use and follows three simple steps:

### 1. Download and record

You can download CD tracks, MP3 songs, WAV files, video soundtracks or sounds & samples from the hard disk, the CD ROM drive, or downloaded from the internet. You can even make your own recordings from a stereo system or with a microphone. Everything you download or record is displayed as an object on the Arranger tracks.

### 2. Arrange and Edit

Basically all tracks stacked virtually above each other will be played simultaneously, and everything that follows horizontally will be played in subsequent order. However, you can mute the objects stacked above each other.

Every object – that is, every sound, every song – can be cut up or have effects added. For example, if you want to shorten a song, move the object with your mouse to the length at which you would like the song to be – done! Want to freshen up your sound? Then open the equalizer and either select a preset that fits, or modify your sound "by hand".

Arranging and editing is fundamentally all about cutting, blending, adding and mixing effects, and placing audio material into the right positions and onto the right tracks. But it's also about play and experimentation. If it fits, throw it in! Without experimentation there is no innovation. Samplitude Music Studio 14 allows you to experiment, and experiment wildly. There's no risk of your audio material being damaged. All editing functions are "non-destructive".

### 3. Export and use

Regardless what you're experimenting with, in the end something usable should come out of it. Samplitude Music Studio 14 has everything you need to do just that:

- Homemade audio CDs which can be played from every standard CD player

- Unique MP3 collections, for example, as a source for your MP3 player
- Personal direct publications in the MAGIX web publishing area, the online forum for creative musicians, beginners, and professionals
- and much more.
- Our export principle: "What you hear is what you get", that is, what you export sounds exactly as it sounded in the arrangement on playback in Samplitude Music Studio 14.

## **What's new in Samplitude Music Studio 14?**

### **100% Samplitude**

Music Studio is now 100% Samplitude. Benefit from the most advanced technology of the Samplitude® audio software that's been used for years in sound studios, and radio & TV stations around the world.

### **Hybrid Audio Engine**

The Hybrid Audio Engine® of Samplitude Music Studio 14 offers a new dimension in professional music production: The combination of the Low Latency Engine and the classic Samplitude® playback engine enables minimum latency at maximum performance. The Low Latency Engine allows for very short reaction times while calculating track effects, and also permits monitoring at low latency during Live Recording. The classic playback engine saves resources and allows for integration of high-performance effects.

### **VST MultiOut**

Samplitude Music Studio 14 now offers more outputs per VST instrument. You can access the VST instruments through the Track Editor. Clicking on the button right of the "Plug-ins" activates and opens the DirectX/VST Plug-ins dialog with which you can compile a plug-in setup for this track.

### **MIDI Multi Object Editing**

With the new MIDI Editor you can now edit several MIDI objects together in one editor. You can use a new button to toggle between MIDI objects.

### **VSTi and effect automation**

You can now draw parameters of VST instruments or effects plug-ins directly into the track. This also works while recording.

- First select a VST instrument or effect plug-in in the Track Editor  
[www.magix.com](http://www.magix.com)

from which you would like to control the track (via the plug-in button).

- Then right-click on the automation button in the Track Editor to specify the parameter you want to control.
- Now use the pen tool to draw the desired curve into the track.

**Hint:** You can also use the AUX busses for the effect automation. The principle: Create an AUX track via the menu Track > Track properties, add the track effect that will be controlled by the curve, an echo for instance, and then draw a volume curve into the AUX track using the pen tool. The curve of the AUX track thus controls the proportion of effects routed to the audio track. A "wave" therefore has to be drawn where the echo should "fly in".

### **New Vita Instruments**

The sample synthesizer MAGIX Vita, specializing in the realistic playback of natural instruments, now has new sound programs. Newly added are the electric guitar power chords, clean electric guitar and soundtrack percussion. Acquiring authorization to access the Vita user interface is no longer required. The Vita Instruments can be accessed in the Media Pool via the "Synthesizer" button.

### **Revolta 2**

Revolta 2 is an analog, varied and powerful-sounding, 12-voice synthesizer with highly advanced functions, sound matrix, noise generator, and a complete effect section with nine effect types.

With this synthesizer you can create any electronic music you may imagine. The sound presets were created by sound designers for Access Virus and Rob Papens Albino, which makes Revolta 2 the Number 1 choice for beginners and professionals alike.

### **Hardware controller support**

You can now use hardware controllers to control Samplitude Music Studio 14, e.g. Mackie Control.

### **Total overview**

More overview for long arrangements: The new total overview allows you to display all tracks and objects at a single glance.

### **magix.info**

Directly from within the program you'll be able to access the magix.info, the new knowledge base of MAGIX. Here you'll find answers to all the most frequently asked questions on MAGIX



products and multimedia. magix.info can be found in the "@Services" menu.

## The features

### Formats and interfaces

**Imports:** Standard MIDI formats (MID, GM, GS, XG), sample formats (SF2), WAV (24 & 32-bit), WAV with codec, OGG Vorbis, MP3, CDA (Audio CD with preview), AIFF, MOV, AVI

**Exports:** MID, WAV (24-Bit), WAV with Codec, OGG Vorbis, MP3 (demo encoder with 20 free runs), CD-A (Audio-CD), AIFF, WMA, RealAudio (Helix), QuickTime

**Interfaces:** VST(i), DirectX, ASIO, Rewire

In addition: Save sounds & projects on DVD, extract and export video soundtracks, synchronize to SMPTE, MTC, MC (master & slave), song to email

### Catooh

In the massive Catooh you will always find the matching sounds & pictures. The clearly archived library makes it child's play to find what you're looking for. Simply preview it and, if you like it, download it!

### Synthesizer

Samplitude Music Studio 14 comes with the following synthesizers that you can play directly on your PC keyboard or with a MIDI keyboard.

- **Sample Tank:** A sampler for acoustic or electronic instruments.
- **MAGIX Vita + Vital Instruments:** Another sampler with astonishingly real-sounding "classic" instrument sounds.
- **Drum & Bass Machine:** For bass and drum tracks in Drum 'n' Bass" sound
- **Beatbox:** For computer beats and computer sounds
- **LiVid (Little Virtual Drummer):** For "real" acoustic drum tracks.
- **Robota:** For "mean" electronic sounds
- **MAGIX Revolta 2:** A bass & lead synth
- **Atmos:** For nature sounds or atmospheres like rain, thunder, or wind

### Effects and effect plug-ins

Samplitude Music Studio 14 offers the following effects and effect plug-ins:

- **Equalizer** (graphic and parametric)
- **FFT filter**
- **Echo**
- **Reverb** (MAGIX VariVerb)
- **Vocoder**
- **AmpSim** (simulates classic tube amps)
- **Vintage Effects Suite**, consisting of chorus, flanger, analog delay, distortion, filters and the LowFi-Effects **BitMachine** (optionally as a free download)
- **Mastering Suite**, featuring parametric equalizer, multiband compressor, stereo enhancer and audio meter
- **Compressor** (various types, including Multiband Compressor **Multimax**, with many presets such as Limiter, DeEsser, Noise Gate, Expander or Leveler)
- **Tape Simulation** (high-quality simulation of analog tape compression)
- **Stereo FX** for editing the stereo bandwidth
- **Cleaning FX: DeHisser and DeNoiser** (for reducing hiss and other artifacts)
- **Declicking** (for eliminating digital clipping and blazing)
- **Timestretching/resampling/pitchshifting** (for correcting pitch and time)
- **Elastic Audio** (dynamic pitch correction)

### DirectX and VST Plug-ins

Samplitude Music Studio 14 enables the direct use of DirectX and VST plug-ins for which a large variety is available in retail or directly online. Such plug-ins (audio effects or synthesizers from third party manufacturers) can significantly increase the functionality of Samplitude Music Studio 14.

### MIDI integration

With Samplitude Music Studio 14 you can arrange, load, record, edit, and play MIDI data just as easily as audio data. You can combine wave sound files with MIDI files for controlling the sound chip on your sound card or VST instrument plug-ins or external synthesizers, and then arrange everything together.

For MIDI recordings and editing you can use the comprehensive MIDI Editor with Piano Roll, Drum Editor, Velocity/Controller Editor and Event List.

The recording of MIDI objects can be started directly from the Arranger by setting the recording mode in the track box to MIDI.

**High-end 32-bit floating point**

All sound changes are executed in the 32-bit floating point method for especially differentiated and high-quality sounds. This technology is also used in professional studios. This way, an audio picture with especially high dynamics can be created. Digital overmodulation and clipping become virtually impossible.

**24-bit playout & native editing**

High-resolution 24 bits have now become the standard for audio cards and sound samples. Samplitude Music Studio 14 also supports playing of these files in the presence of the relevant hardware without having to calculate down to 16-bit in real time, as used to be the case.

**MAGIX Jam Session Automation**

The Auto Jam Session lets you create complete songs single-handedly. The program simulates working with hardware "looping delays" like, for example, the Gibson Echoplex. The difference is that Samplitude Music Studio 14 creates an arrangement which can later be edited and compiled into a complete song.

During an Auto Jam Session, everything you do is recorded. The most important thing with the Auto Jam Session is the fun factor – there should never be too much of it.

**Manager & Explorer**

A project-related manager set for managing objects, tracks, ranges, and markers allows the efficient administration, archiving, and management of all project contents and data directly from the working environment. Without the diversion of Windows features, and with elegant Drag&Drop in the program – including Search & Find.

**Track Editor**

The Track Editor to the left of the arrangement window enables access to all important parameters of the selected track. Record and monitoring status, volume, panorama, MIDI/audio in- and outputs, plug-ins, AUX sends and EQ settings are displayed in well-arranged sections and can also be edited in this view. You will instantly see all relevant settings of the corresponding track.

You can open the Track Editor via the corresponding track button at the bottom of the VIP below the workspace selection button or via the menu "Window > Track Editor".

**MAGIX Remix Agent**

The Remix Agent is the ideal tool for producing DJ & Live Mixes. It [www.magix.com](http://www.magix.com)

automatically recognizes the beat of MP3 or audio CDs and edits it as loops precisely according to the beat. Simply drag songs into the arranger: remixing has never been simpler! The recognized beats can be used to quickly form a base for a comprehensive remix.

### **Track Freezing**

Entire tracks (including all track and object effects) can be frozen – meaning that tracks can be bounced and replaced by an object in the VIP, freeing up valuable computing power. If a track needs some extra work, “un-freezing” is a breeze.

### **Batch processing**

Convert entire sample libraries, create pre-listen MP3s from enormous music collections, or clean-up all your session recordings in one go – automatically.

### **ASIO driver support**

With the help of ASIO driver support, you can also use Samplitude Music Studio 14 as an external effects device. The signal is pushed through the realtime effects section by Samplitude Music Studio 14 and then re-issued. All realtime effects from the mixer can be used directly: MAGIX AmpSimulation, MAGIX multiMAX, reverb, echo, compressor, 4 band equalizer and vocoder. Requirements: You will need an ASIO driver for your soundcard.

### **User-friendlier interface**

The entire Samplitude Music Studio 14 user interface has been designed with presets to integrate smoothly with a variety of specific applications. For example, the presets for CD mastering, wave editing, multitrack recording and power user are included. These “beginner-friendly” presets offer clear and concise menus and toolbars in Samplitude Music Studio 14 that help implement such first projects.

### **Task Assistant**

The Task Assistant uses short video clips to demonstrate the simple ease of use of the technically demanding effects and functions.

### **In addition:**

- "BPM Tap": Create your own grooves with this intuitive tempo maker in the transport control
- MAGIX Guitar Tuner: Tuner (not just for guitars)
- Video Support for precise video dubbing
- Download coupons for MAGIX soundpool samples
- MAGIX Music Manager: Record, archive, and burn

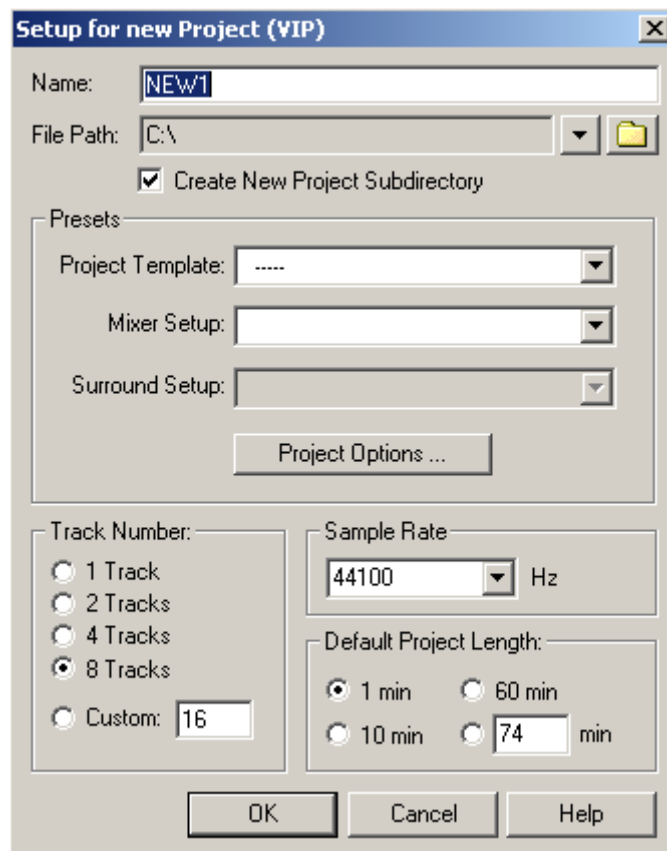
- MAGIX Photo Manager incl. MAGIX Online Services

## Tutorial

In this chapter we will introduce the most important features of Samplitude Music Studio 14. You will learn how to create an arrangement with audio and MIDI as well as the powers of both formats. Furthermore you will receive information on essential parts of the program so that you can take advantage of all possibilities of Samplitude Music Studio 14.

### Creating a VIP

First of all, create a new project by clicking on the "New multi track project (VIP)" button in the program's Start Wizard menu. If you already have Samplitude Music Studio 14 open, select "New Virtual Project (VIP)..." in the "File" menu.



Name your new project and select the file path here to which you wish to save the VIP. Now enter the settings and then confirm by pressing "OK":

- 4 tracks (you can add tracks anytime via the Track menu)
- Select "[0] Stereo Master" as the Mixer Setup.
- Sample rate: 44100 Hz (for recording in CD quality)

As a first test we will subsequently record two stereo tracks. Let us assume that you are using one audio source, e.g. a microphone or a musical instrument. Connect it to the input of your sound card with a suitable cable.



The first track in your virtual project (VIP) is already armed for recording. This is indicated by the red "R" in the track.

### Recording the first track

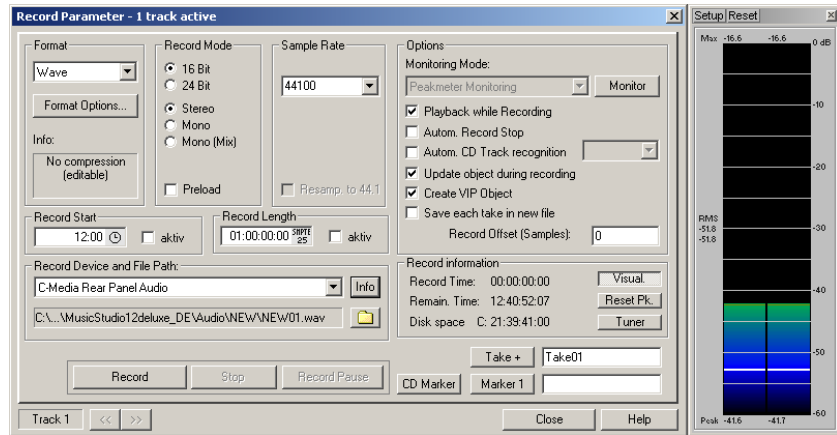
1. Now right-click on the Record button of the transport console.



In the dialog that will now appear you can enter all necessary settings for recording.

**Hint:** If the transport console is hidden, unhide it by clicking on the "Transport" button in the lower part of Samplitude Music Studio 14.

2. Click on the "Monitor" button. This function lets you preview audio material and monitor it while recording. The level meter will display what enters at the sound card inputs. If it reaches the upper red range, the input level is too high and clipping will occur. In this case you should reduce the input volume.



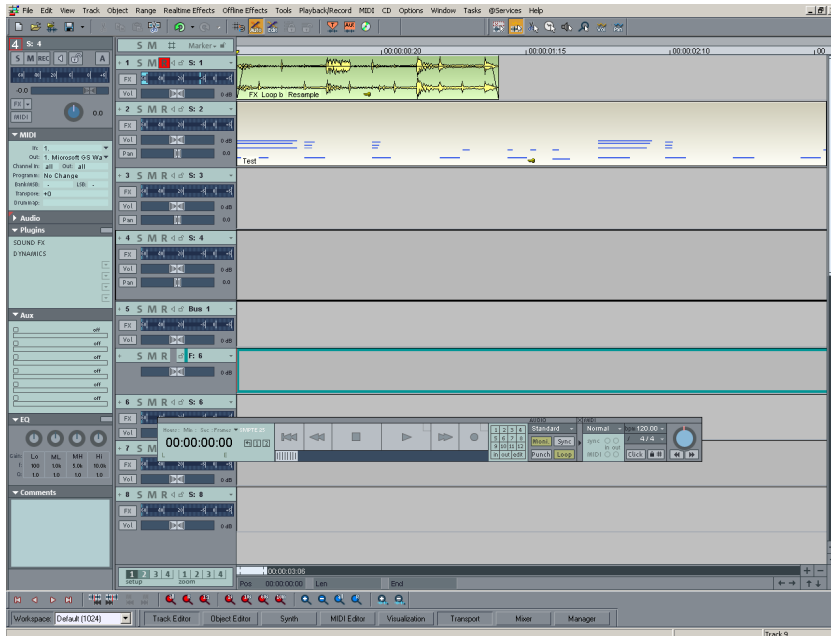
3. Click on the "Record" button. Samplitude Music Studio 14 now starts recording and indicates this in the record window by displaying a counter.



4. Now stop the recording at a suitable position by pressing the "Stop" button.



Samplitude Music Studio 14 will then stop recording. You can now either use the recorded material or delete it. You can repeat the recording without saving the first attempt on your hard drive. If you want to use your recording, Samplitude Music Studio 14 will add the audio material to the first track as an object.



## Recording another track

Now we will record a second track. If your record dialog is still open, please close it. Now perform the following steps:

1. Activate the Record button in the second track by clicking on the "R" button left of the second track. The track is now ready for recording.
2. Right-click on the Record button in the transport console. You can now enter further record settings. As we now want to play the first track while the second is being recorded, you will have to activate "Play while recording".



3. Click on the "Record" button again.
4. Now stop the recording at a suitable position by pressing the "Stop" button.

**Hint:** "Playback while recording" requires that your sound card can play audio material while recording (full duplex mode). Some sound cards can either record or play, but can't do both at once. In such a case you should deactivate "Playback while recording".

### Integrate audio material

Now add new, already available audio material. Audio material can be added to your virtual project from different sources and in different file formats. You can add audio CDs, WAV files, MP3 files, sample CDs (such as the MAGIX Sound Essentials) as well as other audio files. There are several possibilities for loading audio material:

- In the menu bar click on "File > Load/import > Load audio file...".
- You can also drag audio files directly from the Windows Explorer® into the Samplitude Music Studio 14 arrangement.
- Audio tracks first have to be copied onto the hard drive individually. To do this, click into the top menu bar of Samplitude Music Studio 14 on "File > Load/import > Load audio CD tracks...".

You have now created your first arrangement from two of your own arrangements and a completed audio file. You can listen to the result anytime by clicking on the Start button in the transport control or pressing the Space bar on your keyboard.

### VIP and Wave projects

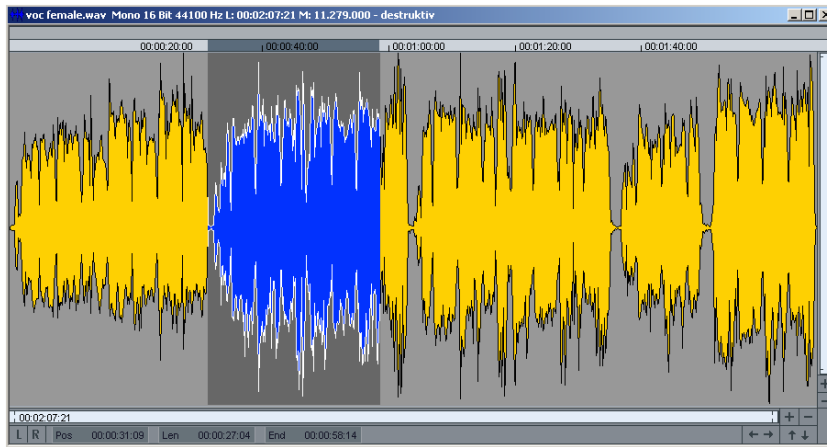
A wave object is created for each audio object you can see in the arranger. You can generally work in two project types:

- Virtual Project (VIP): This is an arrangement made up of different objects. The tracks in the virtual project are for recording or loading audio material onto several tracks. You can conveniently record and create sound on different tracks.
- Wave Project: This is the audio material of one object.

**Hint:** If you delete an object in a virtual project, the audio material and the corresponding wave project on your hard drive will be retained.

Switch to a wave project, for instance, your first recording: Mark the

corresponding object in the VIP by mouse-clicking, click into the top menu bar of Samplitude Music Studio 14 on "Object", and select the option "Edit wave project...".



If you have opened a wave project, you will see the wave display of the audio material in enlarged view. The acoustic properties are directly visible in the wave form. This means that where there's something to see, there's something to hear. The higher the peak of the wave form, the higher the volume. Press the Space bar on your keyboard to play the wave project.

In wave projects you can directly edit your audio material. Direct editing of the material is particularly useful: Mark a range in the wave project with the mouse and then press the Del key. After editing the audio material you can close the wave project. You now have to decide whether you want to accept the changes or discard them. If you want to accept the changes, click on "Save project". The original audio file will now be overwritten.

## Working with MIDI

### What is MIDI?

A few words about MIDI: MIDI files do not contain the actual sounds like audio files, only the note control information which is first played by the synthesizer chip of the sound card. This has several advantages:

1. MIDI files need a lot less memory than wave files.
2. MIDI files can be adapted to any beat (BPM) without affecting the sound. Only the playback tempo is changed.

3. Similarly easy is the transposition of MIDI files to other pitches. When doing so, a section in a song does not have to be saved in several different keys. The version in C major is perfectly sufficient. It can then be transposed to any key by simply clicking on the right mouse button.
4. In Samplitude Music Studio 14 you can use VST instruments which play the notes contained in the MIDI files.

**The disadvantage of MIDI files:** The actual sound is not yet set. Only during playback by the synthesizer chip of the sound card from external MIDI synthesizers/virtual instruments (VST instruments) will be produced. High-quality sound cards or external synthesizers will sound completely different and better than standard sound cards.

### Audio + MIDI in one application

The division of previous versions into "Audio Studio" and MIDI Studio" is now a thing of the past. Now there is only one Music Studio, thus integrating audio and MIDI into one program.

### Preparing a MIDI recording

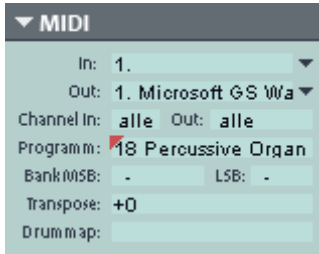
Prepare an empty track in your VIP for recording. Click on "R". Then click on "Track Editor" in the lower half of the Samplitude Music Studio 14 program screen to make track settings.



Use the small triangle to open up the MIDI section. Here you can now define the in- and outputs for your MIDI data on the selected track.

- **Input (In):** Could be a MIDI keyboard here which you can use to enter MIDI notes that are then recorded by Samplitude Music Studio 14.
- **Output (Out):** Can be a virtual instrument (VST instrument) that plays the MIDI notes entered with the MIDI keyboard as sounds. To select a VST instrument, click on the small triangle next to the word "Out" in the Track Editor and select "New instrument".

**Hint:** All global MIDI settings can be found in the System Settings dialog ("Y" key), sub menu "MIDI".



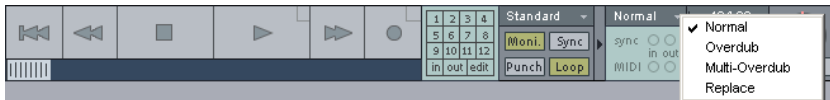
Via "Channel In" and "Channel Out" in the Track Editor you can assign a special receive and send channel for every type of MIDI data. This is important, for instance, if you can to control an external synthesizer via a MIDI keyboard.

For instance, if your MIDI keyboard is transmitting on MIDI channel 1, you should enter the value "1" in the "Channel In" menu. While recording Samplitude Music Studio 14 will then receive all notes transmitted on channel 1 by a MIDI keyboard.

You can generally assign a specific MIDI channel to external MIDI synthesizers. For instance, if your external synthesizer is addressed via MIDI channel 4, you should also enter the value 4 in the "Channel Out" menu of the Track Editor in order to be able to address the external synthesizer via this track.

### MIDI record modes

There are several methods of recording MIDI. You can set the MIDI record mode in the transport control.



- **Normal:** This Record Mode corresponds to that of the audio recording, that is, for each recording process, a new MIDI object is created over the existing object. The old object remains intact. This way you can record multiple takes of a passage and then compare them in the Take Manager later on.
- **Overdub:** The data is recorded into an already existing object, available and newly recorded MIDI data is mixed together.
- **Multi-Overdub:** The data is recorded into an already existing object, available and newly recorded MIDI data are mixed together. Existing objects, however, remain the same.
- **Replace:** The data is recorded to an existing object, any MIDI data is overwritten.

After you have selected MIDI record mode, you can prepare the corresponding track by clicking on the "R" button for recording. Now start recording by clicking on the "Record" button in the transport control.

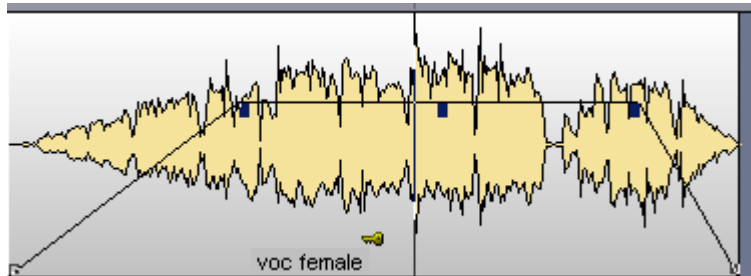
## Edit Objects

Many object edits require the objects to be selected first.

Individual objects are highlighted with a mouse-click. Multiple objects can be selected when the Shift key is pressed. You can also click and drag out a rectangle to select multiple objects. All objects contained therein will be selected ("rubber band selection").

All objects can be shortened or looped by moving the mouse to one of the lower corners of the object until it turns into a stretch symbol. You can now reduce the size of the object. If "Create looped object" is activated in the top menu bar, you can stretch the object with the right handle. This way you can create entire rhythm tracks from short drum samples by simply stretching the object apart.

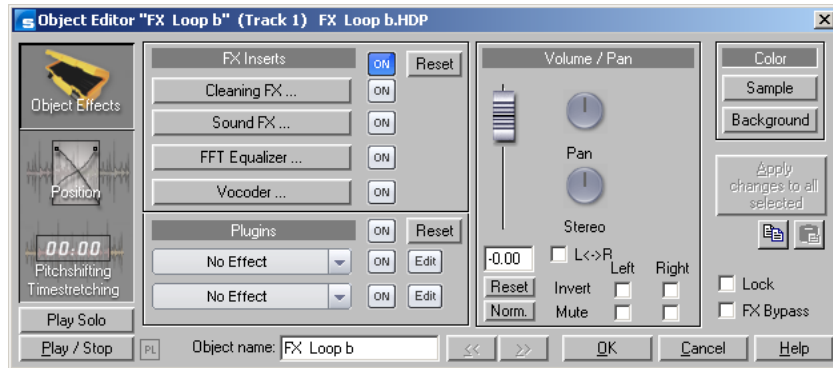
At the top corners of every object there are two fade handles that can be adjusted to fade an object in or out. The handle at the top center can be used to adjust the volume of the objects. The handles of audio and MIDI objects work the same way.



**Tip:** Several objects can be combined with others to make up a group, to avoid the objects being unintentionally moved out of relation to each other. First mark the individual objects. Then click on the "Group" symbol of the tool bar.

## Object editor

Right-clicking on the object opens a context menu from which you can also select the Object Editor. Here you can make all important settings for the corresponding object. For instance, in the Object Editor you can add effects to audio objects and change the quantization on MIDI objects.



**Tip:** The Object Editor can be permanently open: It will adjust its setting depending on which object is currently selected.

## MIDI Editor

You can use the MIDI Editor for editing MIDI data. To access the MIDI Editor, right-click on the object, open the context menu and select the "MIDI Editor." The MIDI Editor displays the data of the MIDI object.

MIDI data can be edited in the MIDI Editor in five main areas:

- Matrix Editor (Piano Roll)
- Drum Editor (toggle between the Drum Editor and Piano Roll possible)
- Controller Editor (velocity, MIDI volume...)
- List Editor (event list)
- Score Editor

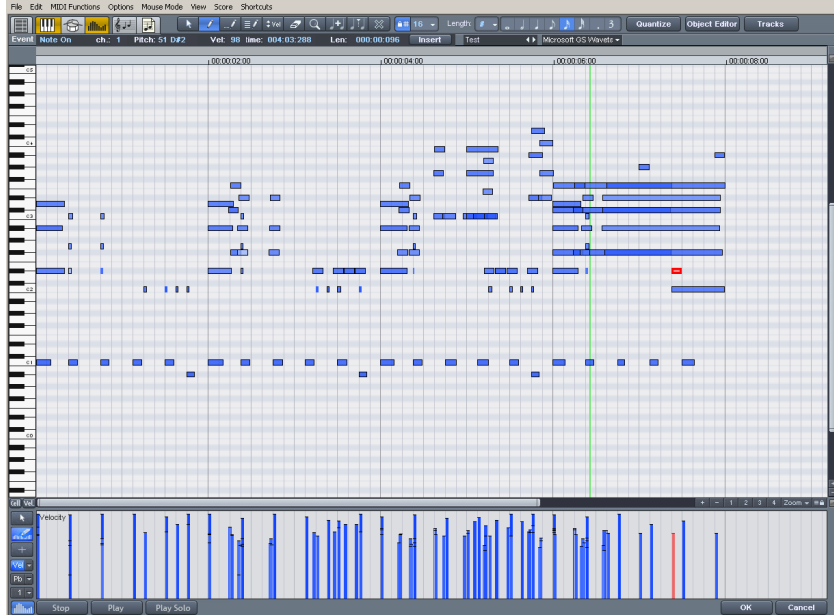
Here various tools are available, for example, pencil or eraser.

Fundamentally, changes, for example, moving or deleting notes, always refer to all selected MIDI events (red) with just a few exceptions. You can, for example, select a group of notes in the Piano Roll and then change the velocity of these note groups which

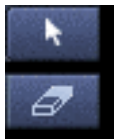
modifies all selected notes simultaneously.

### Working with the Matrix Editor

The Matrix Editor is particularly useful for conveniently arranging MIDI notes (Piano Roll).



In the Matrix Editor you can edit MIDI notes for controlling sound generators such as synthesizers, drum machines and virtual instruments (VST instruments). If a MIDI instrument is activated, you can play it via the keyboard at the left of the screen. Clicking on a key makes the synthesizer create the corresponding sound.



Now select a pen and paint the notes into the score sheet. MIDI notes can also be prolonged by holding the left mouse button or double-clicking. The Eraser tool deletes notes from the note field.

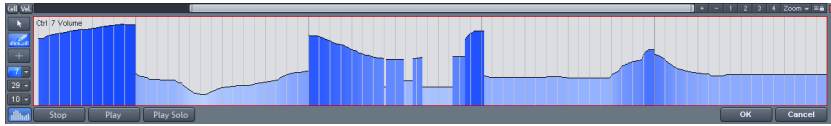
**Tip:** The tool for drawing the pattern is particularly interesting. Use the selection tool to select specific notes and then click Ctrl+P on your keyboard. The selected notes are played as a sound pattern. You can now easily sketch the sound pattern with only one click.

**Tip:** Pressing the "left" and "right" arrow keys on your keyboard moves forwards and backwards in the notation. With the cursor



up/down keys you can adjust the note pitch step by step.

## Using the Controller Editor



In the Controller Editor you can adjust MIDI parameters such as velocity. A simple click in the left part of the MIDI Editor opens the Controller Editor. Clicking on the small button above opens a context menu. Here you can select a MIDI parameter and then sketch it with the pen tool in the Controller Editor.

## Multi Object Editing

With the new MIDI Editor you can now edit several MIDI objects together in the MIDI Editor. Please select the MIDI objects in the arrangement in sequence by holding the Ctrl key and then clicking on the MIDI Editor button to open the MIDI Editor. In an already opened MIDI Editor you can include additional MIDI objects by clicking on them while holding down the Shift key.



You can access individual MIDI objects via the flip menu next to the name.

**Hint:** Right-clicking on this position opens the Object Editor so that you can quickly toggle between the Object and MIDI Editor.

## From MIDI to Audio

If you are not controlling an external MIDI synthesizer with your arrangement you can convert its sounds into audio tracks using the Samplitude Music Studio 14 record function. This is particularly recommended if you want to enrichen the sounds created with your external synthesizer with audio effects, convert your project into MP3, or burn it onto disc.

1. The audio output (Line-OUT) of your external synthesizer should be connected to the audio input (Line-IN) of your sound card.
2. Set an audio track to "armed" by pressing "R".
3. Start audio recording as usual. The MIDI data will be played and recorded simultaneously via the record function. The result is an audio file that can be edited and exported together with the

multimedia files. The result is an audio file that can be edited and exported together with the multimedia files.

**Tip:** Do not delete MIDI tracks in the arrangement after you have generated audio files from them, simply mute them with the "Mute" button. You can then later change melodies composed via MIDI and record them as audio files again.

**Hint:** If you prefer VST instruments as synthesizers it makes more sense to use the function Track Freeze (on page 298) from the context menu.

# Mixer

With the Mixer (keyboard shortcut "M") you can adjust the volume and panorama of the recorded tracks as well as automate the fader and panorama movements. Furthermore, you can add effects and much more here. Adjust the volume of the tracks with the slider in the lower part of the mixer until you have a balanced result and every instrument in the song is sufficiently accounted for. You can also experiment with the effects on the individual tracks.



## Effects

You can considerably enhance your music productions with effects. Clever use of effects adds bass and simply sounds better. Samplitude Music Studio 14 has plenty of effects. Experiment around with the various effects in Samplitude Music Studio 14 and learn how to use them.



### Offline effects and realtime effects

In the top menu line of Samplitude Music Studio 14 you can directly access "Realtime Effects" and "Offline Effects": Offline effects alter the audio files in the Wave Project resulting in imminent changes to the initial audio file.

Unlike offline (destructive) effects, virtual effects are not added in realtime to the wave projects to which the objects refer. Such effects are recalculated every time they are played and can be modified, varied, without altering your original audio material.

**Hint:** To add an effect to an audio object you first have to select it with a mouse-click.

### Calculating audio effects

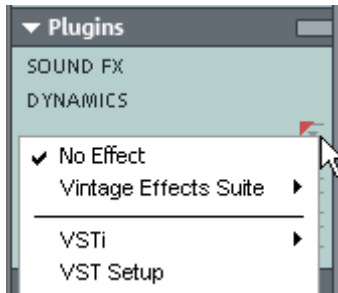
You can add audio effects in three different levels: audio objects, tracks and in the master. When played, effects are first calculated in the audio objects. Track effects are then added. The master effects are added last.

First start with the object effects to distort individual objects while other objects in the same track remain the same. For instance, if you have saved a groove consisting of several audio objects on one track, you can edit the last object of the groove with a distorter.

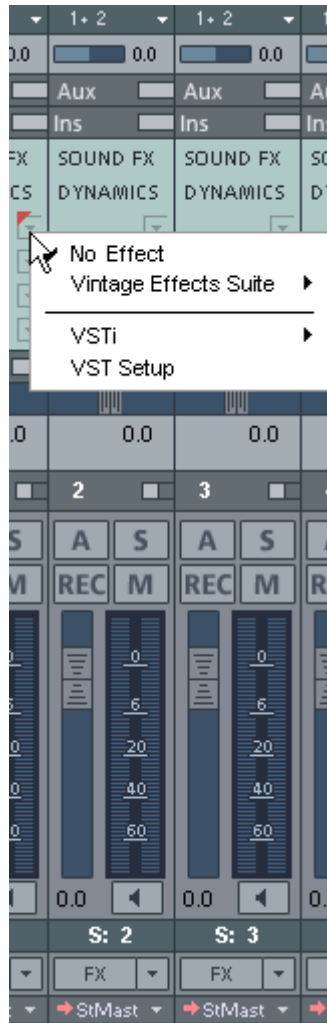
Then use track effects, for example to add reverb, to all objects located on one track. Finish off your song with powerful master effects that have an effect on the entire song.

**Effects in audio objects:** Right-click on an object to open the context menu. [www.magix.com](http://www.magix.com)

menu and add an object effect. In the context menu you can access the object effects directly. Object effects can be selected and edited via the Object Editor.



**Effects in tracks:** To adjust track effects in the Mixer, open the Mixer by clicking on "Mixer" in the lower part of Samplitude Music Studio 14. In the "Ins" section click on the arrow symbol of an effect slot in the corresponding channel.

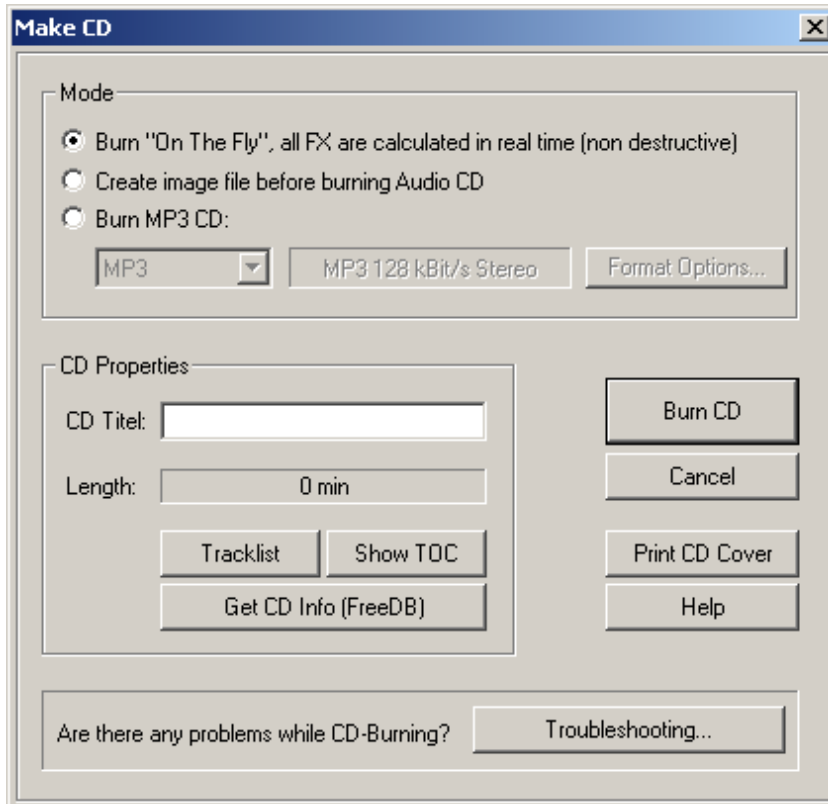


**Effects in the Master:** Open the Mixer to add master effects. You will find the master section at the right edge of the Mixer. Here you can install the desired master effects.

**Hint:** Track effects and master effects are always realtime effects.

## Burn CD

If your VIP is finished, you can burn it onto disc. To do this, click on the button with the CD symbol. The CD burning dialog now opens.



Now click on the "Burn CD" button:

# Program desktop overview

## VIP window



- 1 **Menu bar:** You'll find menus in the main window of Samplitude Music Studio 14 directly under the title bar. A keyboard shortcut can be allocated to every menu entry.
- 2 **Toolbar:** Toolbars are made up of buttons which carry out specific commands with a mouse click. They can be found above and below the project window. More information on the individual button bars can be found in the button overview. More information on the individual toolbars can be found in the keyboard shortcut overview.
- 3 **Grid/Marker bar:** The grid/marker bar is positioned above the first track in the VIP. In the upper half, you'll find the marker bar where the markers and playback cursors. The lower half displays the grid list which displays the project time depending on the selected unit of measurement. You can also open various ranges.



**4 Project window/Clip:** A "clip" refers to part of the project visible in the project window. The part displayed depends on the position of the section and the zoom setting.

There are many commands for moving (scrolling) the visible clip and customizing its size (zooming). These can be opened via the menu view, the grid/marker bar, and the shortcut keys.

**5 Track box:** The track box is the front range of a VIP track. It contains various controls which range from mixer functions and monitoring commands to other track parameters. More information on the individual controls of the track box can be found in the track box overview.

**6 Track Editor:** The left border of the arrangement window enables access to all important parameters of the selected track. Record and monitoring status, volume, panorama, MIDI/audio in- and outputs, plug-ins, AUX sends and EQ settings are displayed in well-arranged sections and can also be edited directly in this view.

**7 Setup/Zoom/Position buttons:** This part of the work area helps manage each of the four different setup and zoom settings project clip displayed in the VIP window. Similarly, the "Pos.", "Len.", "End", "Mouse", and "Mixer" fields can be configured with a right-click.

**8 Status display:** The status display appears at the bottom border of the VIP window. For longer actions or calculations a bar is displayed whose width shows the current state of operation.

Furthermore, CPU load information on the processor load, latency, buffer, etc. is updated and displayed constantly. The status display can also be opened via the "Window > Status display" menu.

## Transport control

Shortcut: Ctrl + Shift + T



The transport control window contains the most important

commands for playback, recording, and positioning.

**Play / Stop / Fast forward / Rewind buttons:** This way, the positioning can be controlled like a cassette player.

**Right-clicking on the Play button:** This opens the playback parameters window for running in stereo master mode. Here you can, amongst others, specify the sample rate, playback device, and scrubbing/varipitch options.

**Right-clicking on the Record button:** This opens the recording parameters window. Here you can adjust the recording settings, for example, "Play while recording", you can also start a mono or stereo recording straight from here.

**Record button:** This starts the recording for all activated tracks, that is, tracks with a red "R" button in the Track info to the left. The recording devices have to be set up before by right-clicking on the "R" button.

**Time display:** Displays the current playback position. The unit of measurement can be selected by clicking on the small triangle.

**Range buttons:** You can save ranges with buttons "1" and "2". Using the arrow symbol you can open previously used ranges.

**L/E time display:** Here, the length and end position of a range is shown and can be edited with a double-click.

**"Marker" button:** This button opens the marker manager for further marker editing. More information can be found in the chapter called "The Manager".

**Marker buttons 1...12:** The current play position can be saved at any one of the 12 marker buttons with a simple mouse click. If one position has been saved, the marker will appear bright. Another click on the same marker moves the play position to the corresponding marker. Right-clicking deletes the saved marker again, making it available again to be allocated.

**Recording modes:** Here you can set up the appropriate recording mode.

**Recording without playback (play monitoring):** If this option is selected, playback of existing objects is deactivated while recording,

the cursor remains at the beginning of the recording.

**Standard mode (record while playing):** This is the typical recording mode for multi-track productions. This adds further tracks to already available audio material while playing.

**Punch Marker mode:** This setting starts a recording process which can be started and stopped at any time during playback. This setting corresponds to using the "Punch" buttons.

**Auto JamSession:** Opens the "Auto JamSession" window.

**"Rec M" button:** This button activates Samplitude Music Studio 14 record monitoring, i.e. you will see the incoming signal in the peak meters of all tracks with "R" activated. Right-clicking on the "Rec M" button lets you select from the various monitoring modes.

**"Sync" button:** This button opens the dialog with the synchronization settings. Further information can be found in the "MIDI in Samplitude Music Studio 14 -> Synchronization" chapter.

**"Punch" button:** This button shifts Samplitude Music Studio 14 into Punch mode. This means that a recording can be started "on the fly" using the record button during playback at any time, also multiple times back-to-back. Punch In and Out markers are then placed automatically. A punch recording is ended by pressing the record button, playback is not interrupted.

**"In" button:** This button sets the starting point for a Punch recording.

**"Out" button:** This button sets the end point for a Punch recording.

If Punch In and Punch Out markers are set, the Punch recording can be started using the Record button. While the Record button is flashing, playback occurs until the Punch In Marker has been reached. When reached, the Record button turns red. It now records until it reaches the Punch Out marker, then Samplitude Music Studio 14 changes back to Playback mode again.

Additional Punch In/Out markers can be set by holding down the **Alt-key**.

**"Loop" button:** Use this to switch into Loop mode, that is, a specific range is played repeatedly.

**MIDI record modes:** The following MIDI record modes are available: Normal, Overdub, Multi-Overdub and Replace. These decide which of [www.magix.com](http://www.magix.com)

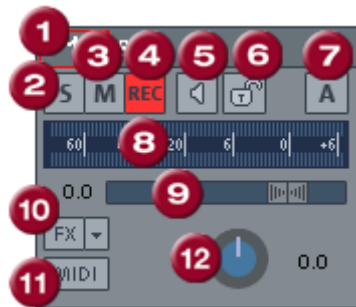
the newly recorded MIDI files will be added to the VIP.

**Tempo section:** In the tempo section of the transport control you can adjust the playback speed and the tempo of the entire arrangement. All objects in the VIP are adapted to the speed of your choice with timestretching. In addition, you can fade in the bar grid with the "SNAP" button and switch on the metronome click with the "CLICK" button. Right-clicking on the "Click" button opens the metronome settings button.

**Scrub control:** With the Scrub Control wheel, the playback speed can be adjusted. This can be used to find audio passages.

The buttons beneath it can be used to start playback forwards and backwards at a slower speed. This too can be used to improve control over audio passages, like editing out crackles or other errors later.

## Track Editor



- 1 **Track number display and track name:** Right-clicking on the track name opens the "Track Settings" dialog.
- 2 **"S" button:** Switches off all tracks with the exception of the one selected.
- 3 **"M" button:** Mutes the track.
- 4 **"Rec" button:** Activates the track for the recording.
- 5 **The loudspeaker symbol:** Switches on playback of the incoming signals when the "Rec" button is active, if "Manual monitoring" is selected in the system options.
- 6 **The Lock button:** Lets you protect objects in the track and prevents unintended moving or deleting of an object.
- 7 **Peak Meter:** Both LED displays show the input and output signal for the track.

- 8 Volume input field and volume control
- 9 **"FX"**: Here you can access the track effects of the activated track. You can copy, insert, reset, save, or load them. Save your personal track effect settings in the program directory in "FX Presets > Track FX". Of course you can also create new subfolders here.
- 10 **"MIDI" button**: Switches the track to MIDI recording and opens the MIDI section of the Track Editor.
- 11 **The Panorama button**: Controls the position within the mix.

**Automation**

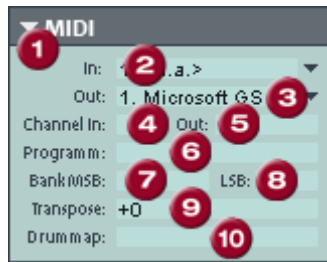


**A:** Right-clicking opens the context menu

**Plug-in:** Select the plug-in you would like to automate here.

**Param:** Select the parameter you would like to automate here.

**MIDI:**



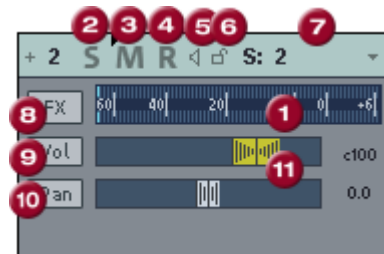
- 1 **Arrow:** Opens and closes the dialog box.
- 2 **In device:** Opens the MIDI Input device menu.
- 3 **Out device:** Opens the MIDI Output device menu.
- 4 **Channel in:** Set the MIDI Input channel here.
- 5 **Channel out:** Set the MIDI Output channel here.
- 6 **Program:** This button is used in MIDI mode for program selection of the MIDI instrument.
- 7 **Bank MSB:** Set the device-specific control change messages for controlling your external instrument here.
- 8 **LSB:** Sets the device-specific control change messages for fine-tuning your external instrument here.
- 9 **Transpose:** You can transpose the notes of the respective MIDI input or output up or down here.
- 10 **Drum map:** Here you can select a drum map for allocating MIDI notes to the device-specific sound.

## Other areas:



- 1 **The "In" slot** specifies the audio input device, for example, your sound card.
- 2 **The "Out" slot** specifies the audio output device. This can, for example, be a sound card output or (in MIDI mode) a VST instrument.
- 3 **Plug-ins:** Here you can activate the sound rack containing various track effects as well as an additional compressor. In the first slot you can also select a MAGIX Synth that is to be controlled from the track. Clicking on the button to the right of the field beside "Plug-ins" activates and opens the DirectX/VST Plug-ins dialog with which you can compile a plug-in setup for this track.
- 4 **Aux:** Here you can specify the AUX send feed for which you can then select the desired effects in the AUX return channel in the Mixer view.
- 5 **EQ:** Contains the parametric EQ for this track. Right-clicking opens a convenient input window.
- 6 **Comments:** Track info section for quickly adding notes on tracks.

## Track box



- 1 **Peak Meter:** Both LED displays show the input and output signal for the track.
- 2 **"S" button:** Mutes all tracks except the selected one.
- 3 **"M"-Button:** Mutes the track.
- 4 **"R" button:** Arms the track for recording.
- 5 **Loudspeaker symbol:** Switches on playback of the incoming signals when the "R" button is active, if "manual monitoring" is set up in the system options.
- 6 **The Lock button:** Lets you protect objects in the track and prevents unintended moving or deleting of an object.
- 7 **Track name:** Right-clicking on the track names opens the "Track settings" dialog.
- 8 **"FX":** Opens the effects/routing dialog with which you can configure and edit multiple effect groups. Right-clicking opens the context menu which contains all the available track effects for the object.
- 9 **"Vol." button:** This button switches on the volume automation curve. This way level adjustments in the track can be controlled via an automation curve and drawn by moving the channel fader.
- 10 **"Pan":** With this button you can switch on the panorama automation.
- 11 **Volume and panorama controls**

## Workspaces

The purpose of workspaces is to sort menu entries and toolbars in such a manner that you have a good overview of the functions of Samplitude Music Studio 14. Workspaces bundle commands with regard to certain tasks such as mastering, editing or recording.

Besides hiding menu entries (Options > Program Preferences > Edit keyboard shortcuts and menus > Hide menu) and redesigning toolbars (right mouse-click on the toolbar), you can also save your settings as a preset.

You will see the selection box for the workspace at the bottom left corner of the VIP window. Some workspaces are already predefined. "Power user" displays all toolbars and commands, and is a good starting point for defining customized workspaces.

**Creating a new workspace:** To create a new workspace, open the context menu by right-clicking on the workspace bar and selecting "New workspace". You will now be asked to enter a name for your workspace. The new workspace contains all settings of the previously

activated workspace as well as your current changes. All further adjustments are automatically saved in the workspace. Manual saving is not required.

**Adjusting the workspace:** Open the context menu and click on "Edit workspace". Here you can select which toolbar you want to have displayed in your new workspace. You can activate or deactivate each bar individually, or add/remove individual symbols. You can also hide menu items in "Edit menu". Simply select the corresponding menu item from the keyboard shortcuts and then press the button "Show menu item" or "Hide menu item".



# Functional overview

## Working with Objects in the VIP

### Loading an audio file into 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 Windows Explorer

Open Windows-Explorer and arrange the Explorer and Samplitude Music Studio 14 windows so that both are at hand. Access the audio file in Explorer that you would like to use, and then simply drag it over into Samplitude Music Studio 14 while holding down the mouse button.

### Load ranges from Wave Projects into the VIP

- Open a Wave Project.
- Mark a range, which is to be incorporated into a Virtual project.
- 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:  
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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 unselects any object selection.

### **Moving and duplicating objects**

Once one or several objects have been selected, they can be shifted vertically (by track number) and horizontally (in the timeline) while holding the left mouse button. As soon as you let go of the left mouse button the object will be placed at the current position.

If several objects have been selected in different tracks, the selected group can be moved vertically only so far that all objects remain within the tracks.

If the Shift key is pressed when moving the Objects, the time position is retained and you can only change the track.

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.

### **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.

### **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.

The curve types when fading in and out can be set in the Crossfade Editor.

### **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.

### **Object-Editor**

The object editor is a very practical tool for editing the most important settings for objects.

To open the object editor, double click the bottom half of an object.

Important settings such as length, position and volume can be edited numerically in the object editor. To adjust the pitch tone or the playing tempo, there is a Pitchshift/Timestrech effect.

Click on OK to save the settings. This closes the object editor. The settings will now only affect the object when it is being played. Of course, you can also edit the EQ in the mixer. There are an infinite amount of effects combinations to utilise.

There's no need to close the new version of the object editor. You can jump between different objects in the VIP – the open object editor will automatically adjust to the currently selected object.

## **Ranges**

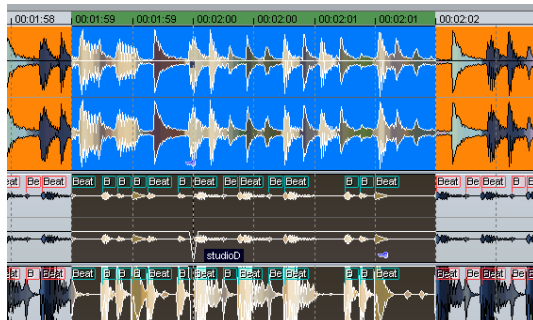
Ranges are selected sections of the arrangement that can be set for

editing or re-opening later on. When creating ranges you are not bound to object borders, individual tracks or any other limitations like markers. Ranges that you search for are displayed inverted. By switching on the "Grid" function in the "Project options" you can set the step size of the selection.

Detailed information on the project options can be found in the menu reference in the "Options" menu -> Project options".

### Selecting a range

To select a range, move the mouse pointer to the top half of an object and press the left mouse button. Move the mouse pointer within the object while pressing the mouse button. Now you can see an inverted rectangle between the starting point and the current mouse position. Once you let go of the mouse button, the range is selected. The play cursor always automatically remains at the beginning of the range, even if you can't see it at this moment in time. To expand the range onto other tracks, click on the top half of the selected object again and drag the mouse down vertically while keeping the mouse button held.



You can also select a range by dragging the mouse across the timeline. It will then be displayed in green. Double-clicking on this timeline area selects a range in the selected track, a further double-click selects the range over all tracks, the next double-click then reverts back to the simple timeline selection. In the timeline selection you can also position the play cursor outside the range. The range will remain intact. This way you can start playback in front of or within a loop. Range borders can also be changed during playback. The play range can be deleted by dragging to size 0.

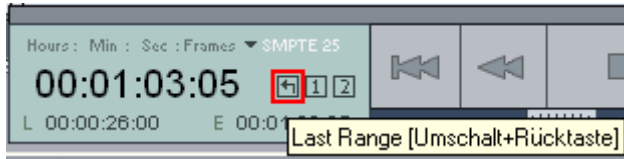
### Leaving a range

If you wish to select a different range, click elsewhere in the project

that does not include the current range and sketch a new range.

### Reactivating a range

Enter the keyboard shortcut: "**Shift + Backspace**". By clicking on this command repeatedly you can restore the last five ranges. You can execute the same function by clicking on the button with the left arrow in the transport control.



### Change range border

In the timeline selection you can change the range edges by positioning the mouse over the range border. The mouse pointer turns into a double-arrow. Now you can change the range edges by dragging horizontally.

If you wish to change a border of an already existing track range (start, end, top edge, or bottom edge), left-click inside the range of the existing area and keep the mouse button pressed. Now, while keeping the mouse button pressed, leave the range in the direction of the border you wish to change. As soon as you have crossed the border of the existing range, the range border will follow the movements of the mouse pointer. Once you have newly defined the range border, you can let go of the mouse button. The start of the range of a track can be changed with the arrow keys of the keyboard, while the range end can be changed with Shift key + arrow keys.

### Horizontal movement of a range

Left-click within the existing range while holding down the Shift key, keep the mouse button held and move the range horizontally.

### Saving and opening ranges / Special range commands

Selected ranges can be saved using the "Range" menu or by pressing "Alt" and one of the function keys "F2-F10" and opened again with "Ctrl+F2-F10".

"Alt + F4", however, shouldn't be used as it is a Windows command that closes the current screen. Similarly "Alt+F9" should not be used either as it is used for 4-Point Cut editing in Samplitude Music Studio 14. In Samplitude Music Studio 14 you can redefine this keyboard shortcut whenever you like via "Options" > "Program settings" >

"Shortcuts" and "Edit menu".

You can also save and rename ranges without any restrictions using Alt+F11.

These and further special functions for defining, changing, and using ranges can be found in the "Range" menu. Beneath this you'll find a range editor dialog for the exact numerical input of ranges and the Range Manager (on page 251) for quick and easy viewing of and jumping to ranges.

More information on ranges can be found in the menu reference point under "Range".

### Examples for working with ranges

**Example 1:** You wish to move multiple neighboring objects to a new position. Instead of selecting each object separately while holding down the Ctrl key, you can select a range that contains all objects. You can select them using the function from the **"Object" menu -> Select objects -> Select objects under the play cursor / range**.

**Example 2:** You wish to completely remove a section of a song from the VIP window. This may be, for example, a verse of a song that should be cut out in order to reduce the overall length of the track. You can select the verse in question by dragging out a range and activating all tracks with a double-click. Then select **"Edit" > "More" > "Delete with time/ripple"** to remove the verse.

**Example 3:** You wish to play a selected range as a loop. Here you can modify the range borders. Before making your cuts final, you can preview the possible result.

## Working in wave projects

A wave project contains the audio files. Objects in VIP refer to these audio files.

Access to the wave project is through the respective wave window.

When a VIP is open, you can't normally see the wave window. In order to view it as an icon, activate the "wave project as icon" option in the menu window. To hide it again, select "Hide wave project".

In the title bar of the wave window is the name of the wave project, the bit resolution, the length of the sample and the subsequent memory required. To activate a wave project, the appropriate window must be clicked with the mouse. Samplitude Music Studio 14 can administer many wave projects on screen simultaneously.

### Virtual wave editing

Samplitude Music Studio 14 now offers real non-destructive (virtual) wave editing. Basically, wave project edits are saved in a virtual domain as long as editing is being processed. This saves an enormous amount of time when editing waves!

In order to start non-destructive wave editing, deactivate the settings in the Options > project properties > Destructive wave editing mode".

When you select "Wave Editing", the wave project will by default be set to non-destructive editing mode.

Selecting "Destructive Edit" confines the wave project to destructive wave editing mode

One can always see in the title bar of the wave window what wave editing mode (destructive or non-destructive) one is currently working in. The wave project in the image above is thus in destructive mode.

## Using markers

### Position marker

Position markers serve as reminders for position points. They are visible as in a special line at the top edge of a project as named orange bars. Markers can be placed during playback as well as during recording.

- Markers in wave projects are saved in the audio file (\*.wav) as so-called audio markers and are available in this form in other applications as well.
- Markers in wave projects can also be viewed and set in the VIP object (VIP display options).
- A project can contain any number of markers. The first ten can be accessed directly using the number keys and receive the corresponding names "1" to "10". You can save these by pressing "Shift" + "Number key". By pressing the corresponding number key you can jump back to the marker once again.
- With the menu point "Range > Remember marker > Other" you can

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define and name other markers.

- To delete a marker, click on it and press the Del key. Markers can be moved by grabbing them and dragging them to where you want to go, the mouse pointer changes into a double arrow <->.
- If you right-click within a marker line, a context menu will appear from which you have access to all important commands.
- You can manage and name markers in the Marker Manager (Tools menu or Marker context menu).
- To stretch a range between any two markers, click on the first marker. Then click on the second marker while holding down the Shift key. This selects a new range.
- To quickly move between the marker positions, use the shortcuts, see Keyboard Shortcuts (menu "Range > Move play cursor > Marker left/right").

### CD Markers

CD markers are triangular markers for various CD burn functions. There are

- CD Track Markers
- CD Subindex Markers
- CD Pause Markers

### MIDI Markers

- Beat markers for tempo changes at a specific position in the project
- Signature markers for changes of the beat type from the marker position onwards (e.g. from 4/4 beat 3/4 beat)
- Beat marker (option "Lock musical position (bar)"). Beat markers assign a certain musical position to a certain part. This way, the bar frame/grid and MIDI events can be easily synchronized with existing audio material.

## Volume

The volume levels of objects and tracks/channels can be changed at various stages.

### 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.

## **Output Mode**

You can setup the output mode 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 than one active soundcard).

Please note that some soundcards are not be able to playback all sample rates.

Note: Different recording and replay devices for individual tracks can be selected in the "Track information" dialogue rather than the Play parameter window. Track information opens a click on the track number.

## **Record**

### **Hard drive Recording**

The device used to digitize audio signals is already included on the sound card and is called an Analogue Digital Converter (A-to-D, ATD or A/D). In order to record, the A/D Converter gathers, in determined time lapses, samples of the signal that has to be digitized, measuring its frequency. The rate is called "sample rate" and normally lies in the kHz ranges. KHz means a vibrating frequency of several thousand  
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times per second. The higher the rate, the more samples are taken by the A/D Converter and the more natural the digital transformation of the sound will be.

The precision with which the A/D Converter measures the analogue signal is determined by the sample resolution. Here, too, the finer the resolution, the better the digital transformation.

CD-quality audio recordings are recorded with a sample rate of 44.1 kHz and a 16 bit resolution.

### **Recording Source**

First of all, the Recording Source must be connected to the Sound card. There are several ways to do this, depending on your equipment.

**Microphone:** Microphone signals must first be amplified before the soundcard modifier can record them. Most soundcards have separate microphone inputs that pre-amplify signals, but the results are rarely of a professional

**Quality.** Connection to an external mixer or external microphone amplifier produces far better results.

**Amplifier:** If, for example, you possess a guitar amplifier that has a line-out output, you can connect it with the line-in input of the soundcard.

**stereo system:** The stereo system's amplifier usually has separate line-out. If instead, you see "Aux-out-Sockets," you should use these. Connect them with the Input of the Sound card (usually shown in red). Normally, a hi-fidelity (hi-fi) amplifier has chinch sockets, and the Sound card mini-stereo catch sockets. You must have the corresponding cable to connect these properly.

If the amplifier doesn't have separate outputs (other than the loud speakers), you can use the phones socket for recording. In this case, you need a cable with two mini-stereo headphone connectors. This process has an advantage: you can control the signal level through the phones input. The disadvantage is that phones outputs are normally not very good. With cassette recordings, always use the Tape-Decks Line-Out. Often with record transfers you have no other choice. Never connect a record player's outputs directly to the Sound card, because the phono signal must be pre-amplified first. If you don't have a pre-amplifier, the only way to do this is via the phones

output or an external amplifier

### **Adjusting the Signal**

Digital recordings through the Sound card need optimal control in order to obtain the best sound quality.

Once the recording source is connected to the Sound card, open the Recording Dialogue with the Record Button and start the recording source.

You can check the control on the LED displays in the Recording Dialogue.

If the level is too high, reduce the incoming signal. If the recording source is connected through the amplifier or tape deck's Line-Out connectors, you can reduce the incoming signal only by using the Sound card's Mixer Window. This is located in the Recording Dialogue under the Level Control tab.

If you reduce the input sensibility with the Sliding Regulator (fader), you also reduce, in many sound cards, the precision of the resolution with which the analogue signal is digitized. This is why these controls should be kept at the loudest possible setting!

The standard for optimal adjusting is naturally the loudest section of the material. This should be turned to the maximum setting

### **Digital Transfer**

With the Recording Function, digital audio data can be transferred to the hard drive through a digital interface (e.g. S/PDIF or ADAT).

ADAT or DAT Recorders normally produce data with a sampling rate of 48 kHz. For a CD Project with 44.1 kHz you must convert the sampling rate. This is carried out in real time by Samplitude Music Studio 14. The digital signal is read at 48 kHz but is automatically converted and inserted into the project as an audio file at 44.1 kHz.

For this to occur correctly, you must first set the sample rate of the incoming signal in the Recording Dialogue. Click on the Dev. Button in the Recording Dialogue. In the following Dialogue, Sound card Characteristics, set the audio recording formats supported by the Sound card.

Now, connect the digital output of your recorder to the digital input of your Sound card – and start recording!

### 24 bit audio support

Audio files in Samplitude Music Studio 14 can not only be recorded in 16 bit quality, but also in far superior 24 bit resolution. Simply click the "device" button in the recording dialogue, and select the "24 bit" option under "soundcard properties". 24 bit recordings require a high quality audiocard with 20 or 24 bit converters, as well as a 24 bit-compatible NME drive. 24 bit audio material can also be transmitted via audiocards with SPDIF digital interfaces.

We have had positive experiences with the 24 bit audiocards produced by Marian, RME, SEKD and Terratec.

The high resolution audio files are stored and edited in the 32 bit "floating point" file format by Samplitude Music Studio 14. This ensures the full 24 bit quality independent of the gauge. The dynamics may increase to over 140 dB, while the recording's jamming transmission sinks, according to the type of audiocard, to 110 dB and more. Thanks to floating point processing, there is no need to worry about internal editing being distorted. Floating point processing only starts to distort at around 1,500 dB above zero – in contrast to a 16 bit signal that distorts immediately once the zero dB line has been traversed.

Even in cases whereby audio material is intended for burning onto a 16 bit CD, it is worth selecting 24 bit recording because all effects calculations are made in a higher quality and therefore no "rounding" mistakes can be detected in the audible 16 bit range.

24 bit recordings (via storage as 32 bit float files) take up twice as much storage space on the harddisk as 16 bit recordings. But with current harddisk storage capacities, it works out as a good compromise when one considers the increase in quality.

High resolution audio files can be imported and exported as 24 bit WAV files, enabling trouble-free file exchange with other high quality audio systems.

### Further Recording Dialog possibilities

The recording dialog also offers

- a string instrument tuner for creating the best sound possible before recording. Deviations from the standard pitch are graphically displayed.
- the option of laying track markers (either manually or automatically) while recording a CD.
- the possibility of directly incorporating a variety of audio formats e.g.

to save fixed-disk space.

Please read the “Recording Options” section of the “Playback Menu” chapter to learn about all of the Recording dialog options.

## Tips & Tricks

A few tricks that help make working with Samplitude Music Studio 14 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, Samplitude Music Studio 14 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.
- Holding the Shift key and clicking the mouse button behind the last object you want to select can select objects between two points.
- 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 Samplitude Music Studio 14 window. A special menu option is available to open the Explorer from within Samplitude Music Studio 14 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 Samplitude Music Studio 14 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

If errors occur during playback, you have the following options:

- Increase the VIP and HD buffer in the "System" dialog ("Y" key).
- Zoom out to project full view (button "A" at position bar)
- Deactivate the "Autoscroll" function in the "Playback parameters" dialog (key "P").
- Reduce the number of displayed image elements of the VIP window in the dialog "Object display in virtual projects" (Shift + Tab).
- Bounce several tracks by Mixdown and mute the original tracks.
- Reduce the used realtime effects in the object editor or mixer.
- Do not use plug-ins as they increase the CPU load.
- In Windows NT the playback performance of the hard disk system is particularly good if the corresponding files are played for the first time. So, if a VIP with many tracks is not played perfectly, save it, close all windows (key "h") and open the VIP again. Now the NT file system performance is optimum again.
- It often helps to run two copies of Samplitude Music Studio 14 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 Playback... in the System dialog (Shortcut: 'y') to prevent the program in the background to stop any process.

### 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 0 key on the numeric keypad, the cursor will stop at the current playback position. Continuing to hold



the 0 key, while moving the mouse (Scrubbing) can alter the exact position.

## Effects and effect plug-ins

Samplitude Music Studio 14 contains lots of high-quality effects and effect plug-ins ("MAGIX plug-ins") as well as interfaces for external VST plug-ins and DirectX plug-ins.

### What effects are there and how are they used?

In general there is a difference between the effect types. The following effects occur in Samplitude Music Studio 14:

**Realtime effects:** These effects are also referred to as "non-destructive" or "virtual" effects. They are added to the original sound while it is played. This means that the original file remains unchanged on the hard drive.

**Offline effects:** These effects are also called "destructive effects". They are added to the audio file before it is played. This means that either the original file is changed or a copy is created on the hard drive for working in.

These effects are independent effects modules, i.e. they are provided by third party vendors or programmers. In Samplitude Music Studio 14 we distinguish between three types of effect plug-ins: "MAGIX Plug-ins", "DirectX plug-ins" and "VST plug-ins".

The place of use is a further criteria for effects. The following are integrated into Samplitude Music Studio 14:

- **Object Effects** (can be accessed via the Object Editor or the Realtime Effects menu)
- **Wave Effects** (can be accessed via the Offline Effects menu)
- **Track Effects** (can be accessed via the trackbox plug-in selection button or the trackbox plugin)
- **Mixer channel effects** (can be accessed via the Insert section of the Mixer): These realtime effects affect track effects the same way as complete tracks.
- **AUX effects:** (accessible via the Track Editor and Track Box): These effects can be installed identically for several tracks, or individually.
- **Surround effects** (accessible via the Insert selection box of the corresponding surround bus channel, Track Editor and Track Box): These effects serve for editing surround material.
- **Master effects** (can be accessed via the Master section of the

Mixer): These effects are for editing the master sound.

Most of the effects modules - equalizers, compressors, reverb, echo, etc. - can be used in several of the above versions. However, they are only described at one position within this documentation. All effects and effect plug-ins that are NOT offline effects, and can be activated via the Offline Effects menu, are explained in the following sections of this chapter. The other effects that, amongst other things, can also be activated via the chapter "Offline Effects", are described in more detail in the "Offline Effects menu" chapter.

## **Saving Effect Parameters (Preset Mechanism)**

The effect dialogs contain Preset selection boxes. These presets are saved and recalled to/from the 'FX-preset' directory (a sub-directory of the main Samplitude Music Studio 14 program directory).

If a preset is not located in this directory, it still can be loaded via the 'Load Setup' function, but it will not automatically appear in the selection box, so you'll need to browse for it.

Effects that are added/launched from within the Mixer or Object Editor are pre-configured with the values assigned to the Virtual Project. If the Virtual Project is to adopt particular changes made to the settings in the effect dialog, you will need to click on the OK button to transfer them to the VIP.

You also have the possibility to apply the settings of the last destructive effect, a corresponding entry can be found in the Options box. If there is no destructive application of the effect, the parameters selected in the list entries will be applied to the default parameters for destructive editing.

## **Dehisser**

The Dehisser eliminates regular "white" noise, typically produced by analogue tape recordings, microphones, pre-amplifiers, or converters.

**Noise Level:** Set the Dehisser's input threshold as precisely as possible. Low settings result in incomplete deletion of the hissing. An incomplete deletion of the hissing produces artefacts and should be avoided. High settings produce dull results. Useful signals (e.g. the [www.magix.com](http://www.magix.com)

blow of a wind instrument) that are similar to hissing are also filtered away. If the level of the hissing is low, the setting is no problem.

**Audiotype:** Lets you set the audio material that is to be edited; the algorithm is adjusted accordingly.

**Noise Reduction:** Here you can set the attenuation of the hissing in decibels. Often it makes sense to reduce the hissing by only 3 to 6 dB in order to keep the audio material sounding natural.

**Removed Hiss:** To test your results, you can listen to the filtered-away part of the music prior to downloading or burning onto a CD. (Remember this is for test purposes only.)

**Quality:** The processing quality can be set in two stages. You can use this to precisely adjust the values in the dialog for standard quality adjustment without skipping playback, and can then select a higher quality for final burning.

**Adaptive:** The value for the noise level parameter is set automatically by determining the hiss contained in the signal. If the noise level value is changed, its effect is then relative, i.e. the resulting value is determined from the automation as well as the noise level fader settings.

One advantage is that you no longer have to set the noise level value manually and that this value can also be adjusted later if the noise share fluctuates, for example, if you use music tracks with differing hiss levels within one project.

If the noise level is constant, a better result may be obtained manually (Adaptive off). However, the noise level value must then be set precisely.

## Sound FX (object editor, mixer channels, mixmaster)

Sound FX features an Effects rack with the following virtual effects devices:



### Equalizer

The 10-track equalizer divides the frequency spectrum into 10 areas (tracks) and supplies them with separated volume controls, which allows you to achieve many impressive effects, from the simple rising of the bass, to total sound transformation. If you raise the low frequencies too much throughout the whole level, it can cause distortions. In this case, lower the master volume using the master volume control on the main screen.

**Thumb controls:** All of the 10 frequency areas can be raised or decreased separately by the 10 volume controls.

**Link Bands:** Using this switch you can match the frequency areas in a flexible way to avoid the overemphasizing of single frequency areas that sound artificial.

**A/B:** If you have selected a preset for the effect and later you change it manually, you can compare the original-preset-sound with the new adjustments using the A/B-switch.

**Reset:** Reset inserts the sound effect into the neutral starting position where no processing power is used and where no effect is calculated in the sound.

**Touch-screen (right EQ-Section):** This is the "sensor-field" of the EQ: Use your mouse to draw a curve that will be transferred immediately into the corresponding EQ control adjustment.

### Compressor

The compressor is essentially an automated dynamic volume control. Tune dynamics are limited, loud passages stay loud, low passages become louder. Compression is often used to make the material more powerful. The degree of compression is adjusted by the ratio control, and the "Threshold" determines the entry threshold. Rise and decrease of time can be influenced by Attack and Release.

The processing is realized "in advance" as occurs in high-quality studio equipment. This means that there won't be any overdriven peaks or other artefacts, as the algorithm can never be "surprised" by the peak levels.

**Sensor-Field:** The sensor-field of the compressor can be intuitively altered with movement of the mouse.,

**Ratio:** The parameter controls compression intensity.

**Threshold:** Here you can adjust the entry threshold, under the compression.

**Attack:** Here you can adjust the time in which the algorithm responds on the rising level. Short attack times can produce a "pumping" sound, as the volume is reduced or raised.

**Release:** Here you can adjust the time in which the algorithm responds to decreasing levels.

**A/B:** If you have selected a preset for the effect and later you change it manually, you can compare the original-preset-sound with the new adjustments using the A/B-switch.

**Reset:** Reset places the sound effect into the neutral starting position where no processing power is used and where no effect is calculated

in the sound.

**Load/Save:** Here you can store the current adjustments as an effect file in order to use them for other projects.

### **AmpSim**

The Ampsimulator is a newly-developed real-time effect that simulates tube amp sound properties. It is especially suitable for guitar sounds, but also for the organ or recordings of vocals.

**Amp Model:** Here you can select from a range of amplifiers whose sound can be simulated.

**Speaker Model:** Here you can select from a range of speakers whose sound can be simulated.

**EQ-Section:** A 3 band equalizer for setting the bass, mid-tones and treble.

**Bright:** The Bright button is for a particularly sharp sound display, that can be jarring when used with the following automatic controllers:

**Distortion:** Creates distortion in typical analog amplifier fashion.

**Volume:** Controls the entire volume of the amplifier module.

### **Echo / Reverb**

#### **Reverb**

Reverb supplies a high-quality reverberation which can be defined more closely with 'room size', 'time' and 'colour' and mixed into the original sound with 'mix'.

You can choose between various reverb styles in the presets.

**Room size:** This control button controls a room simulator which calculates the reverb effect in dependency on the room size. If the control is turned completely to the left, it sounds as if the audio object has been recorded in a tiny room, turned completely to the right, one can listen to the object as if it had been recorded in a cathedral.

**Time:** Here the length of the 'reverb trail' is determined, i.e. the fading phase of the sound.

**Colour:** Here it is possible to control the type of reverb – rather dull than high-pitched or vice versa.

**Mix:** This control determines the mixing ratio between the unedited original sound ('dry' signal) and the reverb portion ('wet' signal).

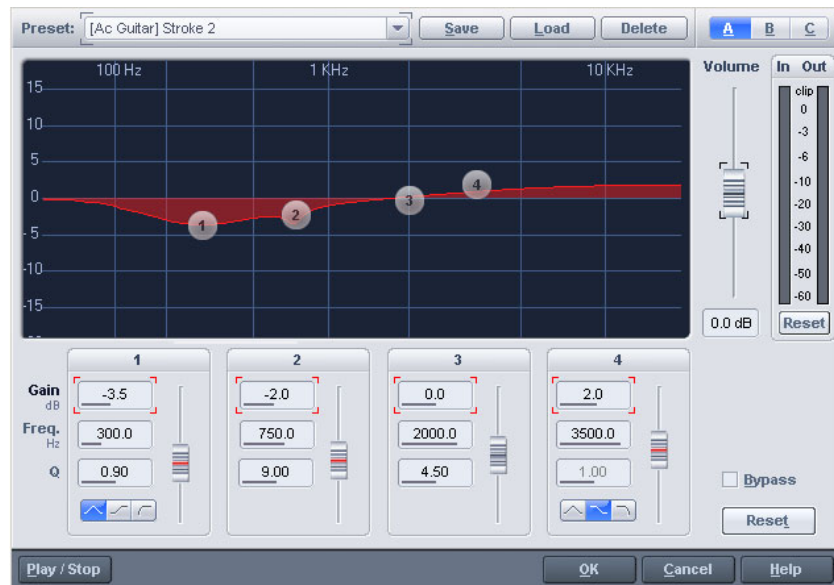
### Echo

**Echo:** The echo effect is defined more closely with 'delay' and 'feedback' and calculated into the original sound by means of 'mix'.

**Delay:** Here the period of time between the individual echos can be determined; the more you turn the control to the left, the faster will the echos follow each other.

**Feedback:** Here the number of echos can be adjusted. Turned completely to the left, there is no echo at all, turned completely to the right there are virtually endless repetitions.

## Parametric Equalizer (mixer channels, mix master)



This dialogue contains a 4-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.

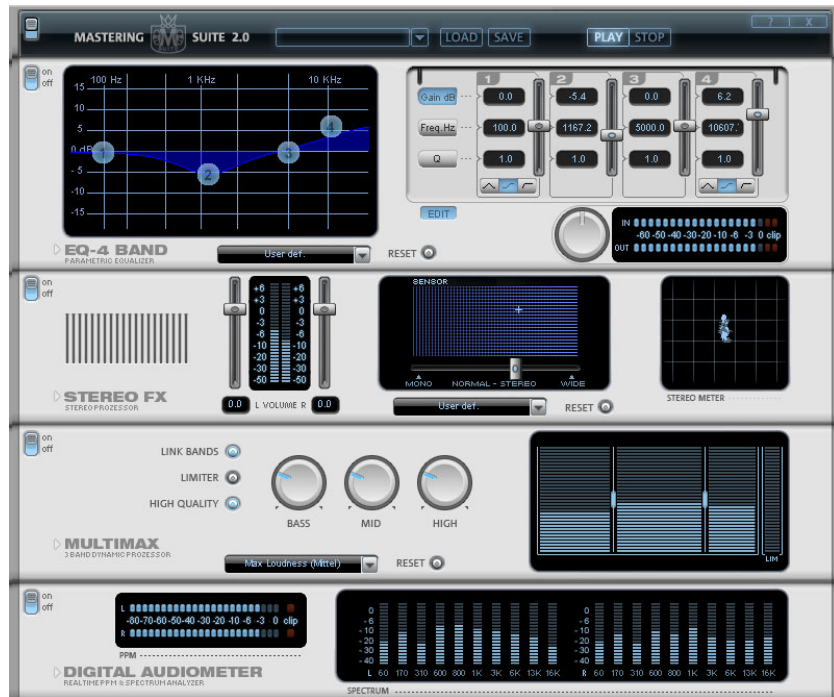
**Q:** Here you can set the frequency-spectrum of each filter between 10 Hz and 10 kHz.

**Gain:** 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.

**Setup A/B/C:** Here you can switch between three various setups so that an acoustic comparison between the various settings can be performed, for example, during the preview function (Play/Stop button).

## MAGIX Mastering Suite



### Parametric Equalizer

The parametric equalizer consists of four filter bands with which you can mainly form the sound of the music track. Each band is a filter with a typical “bell shape”. Within a certain frequency range around an adjustable middle frequency you can increase or reduce the signal level gain. The width of this frequency range is called bandwidth. The bandwidth is defined by the Q value. The higher the Q value, the narrower and steeper the filter curve.

You can influence the basic sound of the mix by increasing and decreasing the broadband so as to give it more “depth” (lower center 200-600 Hz) or more “air” (Highs 10Khz). You can also decrease the narrowband width (high Q-value) in the frequency response to remove, for example, disruptive frequencies.

**Graphic:** The resulting frequency path of the equalizer is displayed in the graphic. The frequency is spread out horizontally, the increase or decrease of the respective frequency, vertically. The blue bullets 1-4 symbolize the four wave bands. You can move them around with the

mouse until you find your desired frequency response.

**Peakmeter:** With the peakmeter you can control the output level of the equalizer. The adjacent master gain controller can be used to balance the level with the EQ.

**Edit:** The “Edit” button opens the fine-tuning for the four bands:

**Parameter selection:** With the buttons on the right you can select the parameter that can be adjusted with four faders of each band. Furthermore, there are number keys to enter every parameter of the bands.

**Gain dB:** These controllers allow you to raise or lower the filter. Setting the controller to 0 deactivates the filter and doesn't use CPU power.

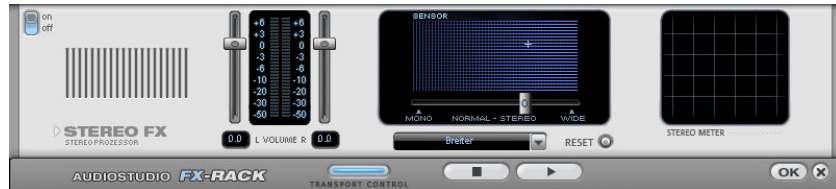
**Freq. Hz:** The center frequency of the individual filters can be set between 10 Hz and 24 kHz with the frequency controllers. Freely choosing the frequency enables multiple filters to be set to the same frequency in order to have a greater effect.

**Q (Bandwidth):** Here you can set the bandwidth of the individual filters to between 10 Hz and 10 kHz.

There is still a peculiarity among bands 1 and 4: Their filter curve can be changed from a normal “Peaking” EQ filter to “shelving” (this is the basic setting) and high (band 1) or high-cut (band 4). When using the “shelving” filter, a soft increase or decrease in all frequencies happens above or below the filter frequency, the Q parameter does not have a function here. With a low-cut or high-cut filter, all frequencies below (low-cut) or above (high-cut) the set frequency are filtered out.

### Stereo FX

The Stereo-FX-Enhancer allows you to reposition your audio material in the stereo panorama. Whenever a stereo recording sounds undifferentiated, the extension of the basic stereo-width can provide a more transparent sound.



**Basic stereo width controller:** Here you can adjust the width of the basic stereo panorama from mono (leftmost side), over unchanged (in the centre) to maximum width ("Wide", rightmost side). When setting the stereo panorama to smaller values, the sound level may rise. In an extreme case – it means that if the left and right channels contain identical audio material and the Basic stereo width controller is set to "mono" – the sound level increase can be as much as 3 dB.

While increasing the basic stereo width (values exceeding 100) the mono sound compatibility gets worse. This means, that recordings that have been manipulated in such a manner will sound hollow during mono playback.

**Volume fader:** Adjust the volume for each channel and the stereo panorama. The damping for the left and the right channel will be indicated in dB values under the controllers. This allows you to reposition an originally centred recording to the right or to the left inside the stereo panorama.

**Stereo-meter (correlation indicator):** This is a graphic display of the phase position of the audio signal. Here you can check the orientation of your signal inside the stereo panorama and the effects caused by the Stereo-Enhancer.

In order to achieve the best possible mono-compatibility, the graphic should resemble a diagonal line. If not, some frequency areas may eliminate each other when the stereo signal is played back on a mono player.

**Karaoke Preset:** This preset opens a special karaoke effect that more or less eliminates vocals during playback by deleting middle-range frequencies typical for the human voice when singing. This

allows someone else to take over the singing.

### Multimax

The MultiMax is a compressor with three independent frequency bands. The dynamic processing takes place separately for each band.

The main advantage of a multi-band compressor over a "normal" compressor is that warping and other bothersome side-effects are reduced drastically by the dynamic processing. This means, for example, that a single peak level in the bass section will not drag the level of the whole signal down.

Otherwise, the multi-band technology enables precise treatment of individual frequency bands.



**Frequency Band Settings:** Made directly in the graphic display. Simply click on the dividing lines to shift them.

**Bass/Mid/High:** Regulates the degree of compression for each frequency band.

**Limiter:** The MultiMax contains a limiter that harmonizes levels so that, for example, too high a level is automatically reduced, and quiet passages remain unaffected.

### Presets

Two further special functions can be called up by using the presets in MultiMAX.

**Dynamic expander:** Too high compression will result in audible noise (usually defined as a pumping sound). Particularly radio recordings are recorded with very high compression rates to increase the perceived volume. Unfortunately compression reduces the dynamics (interval between the quietest and loudest part). The Expander enhances the dynamics of the recording.

**Cassette NR-B decoder:** Samplitude Music Studio 14 simulates  
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decoding of Dolby B + C noise suppression if no Dolby player is available. Cassettes recorded with Dolby B or C sound more muffled and slurry if played back without corresponding Dolby.

**Noise Gate:** This Cleaning function suppressed noise entirely below a certain noise level. This lets you create, for example, song transitions that are entirely noise-free.

**Leveler:** This function brings the entire material up to a uniform volume automatically. The volume control handle is made void. Larger volume differences can therefore be adapted within a song. To balance volume differences between different songs, also use the function "Volume adjustment" function in the effects menu.

**De-Esser:** These special presets remove overemphasized "s" sounds in speech recordings. ezialpresets dienen zur Entfernung von überbetonten Zischlauten in Sprachaufnahmen.

Tip: The limiter can also be used independently of the MultiMax.

### **Digital Audiometer**

On the lower border of the MAGIX Mastering Suite there is a digital audiometer, which provides separate control method displays for every channel for 10 wave bands. This device is used for orientation, for example, for selective equalizer editing.

## Vintage Effects Suite

### Analog Delay



This delay offers creative playing along with common delay effects. "Analog" in this case means, for instance, that you can change the delay times while playing without the risk of typical, scratching artefacts developing. Instead, the times are softly faded out, similar to the old tape echo machines that used the tape speed to change the delay and where the system also had a certain sluggishness.

Analog Delay emulates the tape echo units of old, where the delay time was determined by the tape speed and speed changes were slow and affected the pitch. („Feedback"). The feedback has a two-band filter that can be used to create dark, high or mid repetitions depending on the settings.

You can use these characteristics to your advantage, creating for example 'out-there' dub/reggae-style delays that become less defined with each repetition and are slightly warbled. Here "Analog" means that you can not digitally overdrive the delay. Even in a


'looped' repetition the signal can not be distorted indefinitely but compressed by an increasingly slight degree and distorted similar to a tape.

### Analog delay parameter

Analog Delay has the following parameters:

#### Delay Type

**Delay Type (L + R):** Left and right delay times can be controlled separately (see below). You can choose a note value for the control pots to snap to. Even and syncopated note values from 1/2 to 1/32 are available. Note that the delay times are always in relation to the project's current tempo.

 **Link button (lock symbol):** Press this button to control the "Delay Type" pots for both channels simultaneously.


**Mix:** Adjusts the ration between the original signal and echo.


#### Modulation

**Speed:** The tape warble speed. Low values result in very light fluctuations, high values result in drastic warbling.

**Depth:** The warble intensity. When this control is turned all the way to the left, there is no pitch modulation. For a subtle 'analog' feel, we recommend a setting at the 9-11 o'clock position.

#### Filter

**"Low"**  This control progressively reduces the bass frequencies as it is turned to the right, making the signal sound 'thinner'.

**"High"**  All the way to the right, the control only attenuates the treble very lightly; turned to the left, the delay repetitions become progressively less treble.

#### Feedback

**Width:** This controls the stereo width of the delay repetitions. When you turn "Width" to the right, a further effect is achieved: the panning of the delays increases. This is commonly referred to as a 'ping-pong' delay.

**Drive:** When this control is turned all the way to the left, the delayed



signal is repeated only once. Turned all the way to the right, the feedback is seemingly endless and the repetitions continue for a long time.

The actual strength of the effect is dependent on the material as the feedback loop - as explained earlier - is addressed via compression and uses a "tape saturation" effect. If you send a "loud" signal to the delay, the feedback will sound longer than at a lower level as compression "brings it up" to a certain level. If you are used to "purely digital" delays you may require a short adjustment period. However, will most probably sound "livelier".

## Flanger



The "flanger" effect is similar to the chorus, although it has a different history: It was developed by coincidence: someone (according to a legend it was actually John Lennon) briefly slowed down one of the reels of two tape machines that were linked together. The result: the rather brief delay of the second signal compared to the first resulted in cancellations within the frequency spectrum, leading to a so-called comb filter effect (the sum of both signals creates "peaks" and "lows" in the spectrum that look familiar to the

teeth of a comb).

Flanging is basically a chorus effect that modulates a shorter delay time (under 10 ms). Flangers do not strive to double or disembodify a sound like a chorus but aim to manipulate its frequency range.

When the “Feedback” parameter is turned up, a familiar flanging effect is produced – the sound characteristics of a jet engine warming up.

**Flanger parameters**

**Speed:** Modulation speed.

**Depth:** The overall amount of modulation.

**Feedback:** The volume of the internal feedback loop.

**Mode:**

“**Normal**”: Flanging.

“**Dual**”: Two parts, panned left and right.

“**Quad**”: Four parts, alternatingly panned left and right.

“**Quad Pan**”: Like “Quad”, but the “Depth” control also sets the intensity of the signal’s pan movements between left and right.

## Filter




"Filter" is a modulation effect like Chorus and Flanger. However, it controls the frequency range and modulation source instead of the pitch. Therefore it has different filter types and modulation times.

The filter is particularly effective for synth sounds ('filter sweeps' on pads and atmospheres) and for creatively manipulating drum loops (such as for variations, fills etc.). It can also be used on guitars to produce the well-known 'wah' effect. Either with tempo modulation or a special mode, modulation via the current signal strength above the cut-in frequency of the filter.

### Filter parameters

**Speed:** The modulation speed is set by note values ranging from 1/1 to 1/16 (even or dotted). Like in the Analog Delay, the tempo information is automatically provided by the arrangement.

A peculiarity of the final position of the controller:  Tempo synchronization stops and modulation is controlled via the signal level.

**Freq:** This is the base frequency for modulating the filter. This generally takes place above this frequency, i.e. the modulation increases the filter frequency..

**Depth:** This control determines the modulation depth, that is, the amount by which the speed control (or envelope mode, as described above) increases the base frequency. For extreme effects, turn "Freq" all the way to the left and "Depth" all the way to the right.

### Filter Modes

#### Low-pass



A filter with a slope of 24 dB/octave and a small amount of resonance. Treble frequencies above the base frequency (cut-off frequency) are filtered steeply. This is great for filter sweeps on synth pads and drums.

#### Band-pass



Only the frequencies around the base frequency are passed (24 dB slope with resonance). Use this mode to create wah-wah guitars.

#### Band elimination („Notch-Filter“)



Two parallel filters (-36 dB) with linked base frequencies create a notch in the frequency spectrum. This allows you to create interesting effects, for example, guitar chords. This sounds similar to a phaser.

#### High-pass



This mode achieves the opposite effect to the low pass filter. Frequencies below the base frequency are filtered steeply. If you 'thin out' a track (for example, a drum track) with a tempo-based modulation, this sound very effective when contrasted with the full-range frequencies (for example, if the filter is turned off for the next object).

## Chorus



Chorus creates a 'floating' sound typically associated with guitars and synth pads. It can acoustically 'thicken' an instrument, making it sound fuller or creating the illusion that several instruments are playing.

The Chorus sound is created by using the so-called doubler effect. You probably have noticed this phenomenon daily life: The sound of an approaching ambulance sounds higher than when it is moving away. This effect is a result of the speed of the sound which first increases and then decreases, thus also changing the sound pitch. If there were a second siren at your location, an oscillation would develop between both sounds (just like when two instruments are out of tune).

Chorus also splits the signal in at least two: direct sound and effects part. The double effect is created by a short signal delay of the effect.

This delay is within the range of 10-30 ms (as in this one), this means that it is short enough to be perceived as an "echo". The times would also be similarly short if you were to double a guitar track for

instance. A short delay in the mix already sounds "doubled" but is not authentic. This is where the above-mentioned "out-of-tune" effect comes in: the pitch of the effect signal is slightly modulated by gently "drifting" forward and backward in the delay curve. The result is a floating effect where the speed is influenced by drifting.

### Chorus parameters

You can enter the following parameters to control the floating effect:

**Speed:** Modulation speed. Low speeds create an even, continuous development. High speeds produce vibrato-like qualities but can also result in an 'under-water' effect.

**Depth:** Modulation depth. This determines how strongly the speed affects the pitch modulation.

**Mix:** This sets the balance between the direct signal and the effects signal.

**Mode:** You can choose between **four operating modes** of the Chorus effect:

**"Normal"** is a combination of the direct signal and the detuned delay signal.

**"Normal, low cut"** is designed for bass-heavy signals such as bass guitar. The bottom end of the signal stays clear and well-defined, the effect is only audible for the mid and treble frequencies.

**"Dual"** makes the source sound more lively than a single 'part'. The sound is spread over the stereo panorama, which makes this mode seem 'wider'. This makes the character of the sound livelier than with a single voice only. It is also distributed over the stereo panorama so that this mode sounds "broader".

**"Quad, low cut"** is ideal for creating sounds such as deep synth pads with tight bass frequencies.

Tip: Like on the stomp boxes our vintage effects are modeled on, there is a 'footswitch' below the pedal's logo that can be clicked to turn the effect on or off for A/B comparisons. All the effects of the Vintage Effects Suite have been designed like this.

## Distortion



The distortion pedal is a “high gain” distorter for crunch and lead guitar sounds. If you like typically “British” amp sounds and want to quickly record a guitar track with little effort, this pedal is for you.

An entire valve pre-amp circuit has been modeled, including the typical EQ curve. The amplification is “valve-typical”, i.e. it doesn’t start quickly but is harmonic and soft. Even at full power the pedal still reacts softly to a guitar and its settings (e.g. pick-up choice and tone controller). For instance, you can influence the distortion even more by using the volume knob on the guitar.

There are only three parameters on this effect; however, these interact with each other and can thus generate quite a variable sound:

- **Low:** the “bass” controller. This allows you to set the share of basses, even after the distortion. The type of prefiltering is important for guitar amps in particular, and is characteristic for the basic sound. You should set the bass controller depending on the basic

sound of the guitar and the sound you are aiming for (“powerful” or “cutting”).

- **High:** Mainly controls the share of highs before and after the distortion. If you are not using an external guitar speaker as a monitor, we recommend setting the controller to the middle position or even moving it slightly to the right. This way the “sharp” highs disappear, which all guitar amps generate without the suitable loudspeaker. At the same time the mids stand out more, which gives the sound more “kick”. On the other hand you can further emphasize the highs if you want the sound to be more neutral.
- **Drive:** The level of distortion. This controls the amplification used to operate the “virtual valve circuit” (max. 60dB). As the level increases, the valve goes into overdrive and generates typical distortions. For a slightly distorted sound (“Crunch”) it is surely sufficient to set the controller to 10-11 hours at maximum. Furthermore the modeled circuit provides the usual “weight” for power rock chords and more. The further you turn this controller to the right, the more the mids of the signal move to the fore so that the “high-gain” lead sound is better heard.

You can also use the distortion effect in combination with the amp simulation.

### BitMachine (only available as a download after registration)



Audio material can always be edited into high quality with Samplitude Music Studio 14. Nevertheless, there are situations when, for example, a more imperfect lo-fi sound would perfectly suit a drum loop or a synthesizer sound.

Remember, for example, the first hardware samplers from the 80s that usually only ran in 8- or 12-bit resolution and at low sample rates. With the BitMachine, changing the sound with such an „antique“ device is no problem.



You can use the BitMachine to bring back to life the times when minimalist and scratchy sound chips in home computers were commonplace.

The BitMachine opens up a gateway to „acoustic time travel“ where you can encounter bit and sample rate reduction and downstream filters based on analog models.

Furthermore, the effect has a modulation section with which you can control individual parameters using an oscillator (LFO) or the input signal.

We have designed a range of „typical“ presets to demonstrate the time travel abilities of the BitMachine. These can be opened at the top right of the interface.

### **"Filter" section**

The filter in the BitMachine is a digital model of one of the most well-known filters in music electronics. The filter in question is the 'Chamberlin 2-pole' filter, which was used in old Oberheim synthesizers. These types of filters sound exceptionally musical. They can also be used in quite creative ways in the BitMachine and must not be called upon solely to smoothen out existing artifacts.

The filter works in the so-called high-cut mode, that is, it lets through deep frequency (or medium) material according to setting, and dampens the highs and medium areas.

#### **freq:**

With this dial, you can specify the cut-off frequency of the filter. Filtering starts above this frequency.

#### **reso:**

With this, the signal in the area around the cut-off frequency can be strongly elevated („resonance“: to just below the self-oscillation). Sharp, cutting sounds are now made possible. The effect becomes even clearer when you vary the cut-off frequency.

#### **drive:**

Both of the individual filters of the connections mentioned above have the ability to overmodulate themselves internally. With the „drive“ dial, you can regulate the amount of overmodulation. The more you turn up this dial, the more the signal is overmodulated. In this case, the [www.magix.com](http://www.magix.com)

parameters of the internal workings of the filter interact with one another. This way, for example, increasing drive weakens the resonance, but, at the same time, the signal gets more volume, more bass and becomes acoustically fuller.

Note: The two smaller dials from this section are explained under Modulation.

### "Modulation" section

You can automate your effects via the settings in the modulation section.

Here, you'll find the so-called low frequency oscillator (LFO), which resonates with adjustable speed. You can influence the speed and type of resonance.

To influence the resonance, use the two small dials in both the reduction and filter areas. These four dials display modulation targets.

**Example:** You've left the dial for the sample rate at its default setting. Change the small dial beneath from its middle position to either side. The modulation for the dial value is added to the sample rate: The LFO now controls these parameters proportionately and the sample rate reduction resonates at this modulation.

You can use this technique on other dials as well. You just have to make sure that the main dial isn't turned up to full, because, if this were the case, the modulation wouldn't have any effect. The modulation is always added to the set value.

**Example:** Turn the small dial beneath the 'bits' dial fully to the left (Value: -50) and the one beside it (beneath 'sample rate') to the right (+50). You've now assigned a modulation to both parameters with the LFO. They are not changed uniformly, but rather opposite to one another: A negative setting is nothing more than an inversion of the modulation, you're, effectively, turning down the control signal.

### Waveforms of the modulation section

We've already explained this example with the help of sine oscillation. The LFO can be in:

- Sine form
- Square wave (that is, only 0 or 1, no intermediate level)

- Random value (an internal randomizer will be queried at the set speed)

### Oscillator speed

The LFO speed is specified with the „speed“ dial. If the „sync“ button is active, the LFO adapts to the song speed, and the dial locks musical values into place (for example,  $\frac{1}{4}$  note). With it, rhythmic paths of the sound distortion are made possible. You can also switch off this synchronization and set the speed manually (in Hz).

### Modulation with the „Envelope follower“

In the modulation section, you'll find a fourth button, the audio input signal. If this mode is active, the signal itself can be called upon to extract "modulation tension": a so-called envelope follower continuously scans the volume of the input signal.

Note: The BitMachine doesn't recognize the type of audio signal automatically. For this reason, you should roughly set the input sensitivity with the „gain“ dial. To do this, use the control LED: With accurate detection of the signal dynamics, assigning the four small dials to modulation lows is easier and you can use the full control range.

In envelope mode, the „speed“ dial is used to control the response speed of the envelope (the display now switches to milliseconds). Lower times result in a faster response, higher times make the envelope rise (and fall) slower. You should experiment with the signal according to its complexity. The presets provided can only point in a rough direction.

### "Reduction" section

#### Bits

This dial controls the resolution of the audio material. Turning the dial to the left results in 16-bit quantization, and thereby CD quality. The further it is turned to the right, the lesser the signal dynamic becomes. In extreme cases (1-bit), there are only „on“ or „off“ states.

In the intermediate levels, you'll notice an increase in the background noise and a decrease in the dynamics. For example, 8-bit quantization will exhibit dynamics of only 48 dB. Quieter points in the material sound noisy and very quiet points sound „capped“. This

effect is amplified the more you turn the dial to the left, until it starts crackling or ‘groaning’.

### Sample rate

The audio material is ‘down-calculated’ with this dial, that is, the internal sample rate is reduced. Here, a new separation ratio between old and new rates is created. In relation to this ratio, a sample from the data stream will be „dropped“ at the various points.

Note: The two smaller dials from this section are explained under **Modulation**.

### Tape Simulation

Tape simulation lets you add an “analog touch” to your recordings by reproducing the typical aspects of an analog tape recording. Many studios today still use 1" and 2" tape machines that are believed to have a “warm” and “saturated” sound, which is in contrast to the rather neutral and analytical digital technology.

There are numerous factors that are decisive for the sound of tape-supported recordings. Some of these are:

- Distortions that occur when the tape is forced into the saturation range
- Changes in the frequency curve as the signal is edited at the recording and playback end. In addition, all machines more or less have distinctive frequency spectrum peaks, particularly in the bass range (so-called “head bumps”)
- Treble loss due to self-deletion as a result of the HF current (“bias”, pre-magnetization) and intermodulation between the signal and the HF signal.

**drive:** Specifies the input signal. You can specify when the “virtual tape” is saturated and how strong the effect of the tone coloring is. You simultaneously gain more “loudness”.

**eq low/hi:** Adjust the frequency curve (spectral balance controller). You can choose whether you would like to have an output signal with a heavy bass or whether it should rather include more trebles. The pre-filtering during “recording” and the equalization are adjusted.

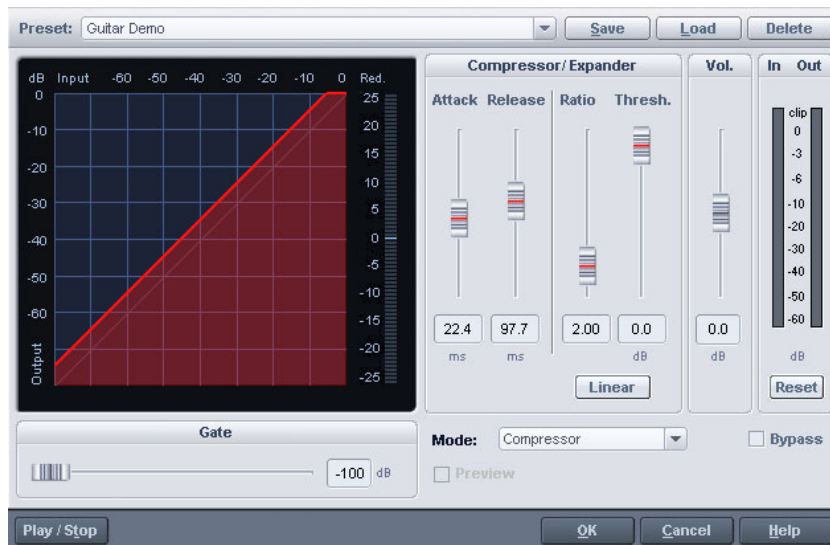
However, please observe that the frequency curve of the simulation will not be neutral even if the “eq low/hi” controller is set to the

neutral position: A frequency-selective amplification always occurs.

Using the distortions that occur during tape simulation can quickly lead to a state of “acoustic fatigue”, particularly with material including many highs. The differences can be heard more easily in a 1:1 comparison when the tape section is deactivated. In most cases minor editing using the simulation is sufficient to create a slight “analog touch”.

## Track Dynamics (track effects, mixer channels)

Samplitude Music Studio 14 provides two different dynamics modules: one that can be opened via the "Offline Effects" menu and which is talked about in further detail in the corresponding chapter, and a second one that is only available via the track effects and in the Mixer.



Use this Editor to edit the dynamics of a sample. All functions can be previewed in realtime.

The graphics display shows the corresponding resulting dynamics curve to improve the overview.

The following functions are available:

**Compressor:** The dynamics of a piece are limited, loud sequences  
[www.magix.com](http://www.magix.com)

are dampened, quiet sequences are retained. Compression is often used to add power to audio material or to increase the loudness. The level of compression is adjusted by the ratio controller, the activation threshold is determined by the threshold. You can also influence the attack and release.

**Limiter:** Only the loudest passages are limited (above the threshold). Quiet passages remain unedited. Limiters are used to reduce the occurrence of big level peaks without reducing the master dynamics. After the Limiter process, the master level can be increased using normalization without having to worry about overmodulation. The >Limiter< setup preset sets a threshold of -0.2 dB when using the Limiter as a Peak Limiter in the master range of the Mixer.

**Limiter 100%:** Performs the same editing as the Limiter; however, the level is immediately raised to 0 dB – this corresponds with normalization in one single step.

**Expander:** The dynamics of a piece are increased, loud sequences remain quiet, quiet sequences become even quieter. Dynamics expansion is often used for recording speech with a high noise level. The expansion causes the level of the speech to be raised which the noise is suppressed. Please note that a powerful denoising algorithm is also provided.

**Gate:** Very quiet passages (below the Threshold Level) are dampened or set to zero. This way, hissing can be effectively suppressed during pauses between individual takes. Using the Gate function also makes sense at high compression levels (ratio > 5), in order to raise the most quiet passages and prevent background noise.

**Ratio:** This parameter controls the strength of the corresponding effect, 1.0 means that there is no effect.

**Threshold:** Here, the volume threshold can be set, below or above the one which applies the effect.

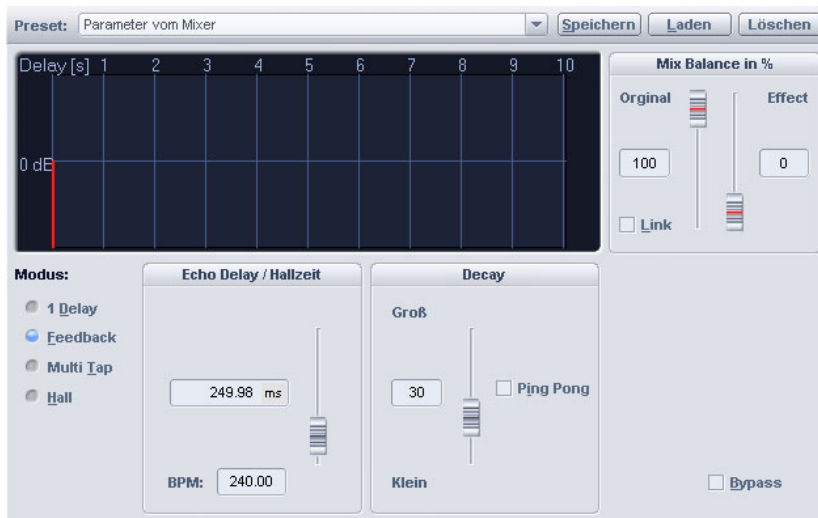
**Attack:** Sets how quickly the algorithm takes to react to increasing sound levels.

**Release:** Sets how quickly the algorithm takes to react to falling sound levels.

**Gate level:** This parameter specifies which levels should be set to 0.

## Track delay/reverb (track effects)

Samplitude Music Studio 14 provides two different dynamics echo/reverb modules: one that can be opened via the "Offline Effects" menu and which shall be talked about in further detail in the corresponding chapter, and a second one that is only available via the track effects and in the Mixer.



Use this Editor to calculate an echo effect into a sample. To avoid overmodulating the sample, there should be a certain volume control reserve, that is, the sample data should not be allowed reach the maximum/minimum. This can be accessed, if required, using the normalization function (some 70%).

**Echo Delay / Rev. Time:** This button displays the delay between the individual echoes/original signal and the first echo in seconds. You should note that the delay is dependent on the sample rate, that is, a change in the sample rate after creating the echo leads (logically) to a change in the echo delay.

**Reverb properties:** Here the values for the size of the simulated room and the reverb coloration can be specified numerically as well as by using the scroll bars.

**Wet/Dry Balance %:** Here the dampening between the individual echoes can be entered as a percent. A number close to 100% results in slower sounding echoes, a value under 40% has quick sounding

delays.

## Elastic Audio

### General information on the Elastic Audio Editor

Elastic Audio is a specialized editor with which the pitch of audio material can be changed. Resampling and pitch-shifting algorithms that can be automated as well as a basic frequency recognition enable the user to change around considerably the pitches of monophonic audio material.

Pitch-shifting algorithms are able to change a melody in the pitch without influencing the tempo. Samplitude Music Studio 14 provides various pitch-shifting algorithms that can be used based on existing material.

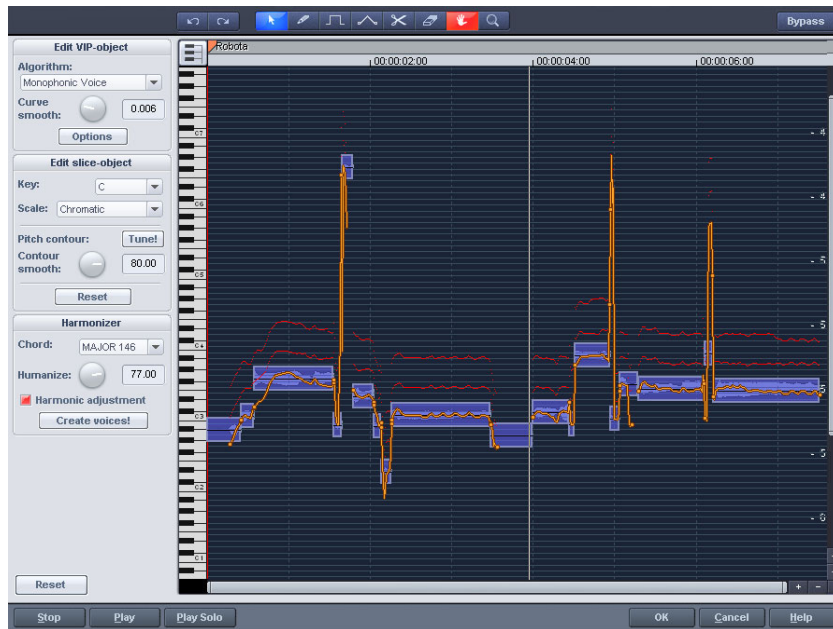
Elastic Audio has the following capabilities

- Recognition of the basic frequency in monophonic audio material.
- Automatic and manual correction of the basic frequency process in monophonic audio material.
- Manual correction of the pitch of notes from monophonic audio material.
- Changing melodies in monophonic audio material.
- Harmonizer for creating additional voices

**Note on time-stretching:** Time-stretching cannot be automated, but can continue to be used statically when using Elastic Audio.



## Edit Window



The pitch characteristic is shown in the editing window. To customize the pitch correspondingly, the original pitch of the audio material must, of course, be known. Fundamental to the functionality is therefore a preliminary pitch analysis of the material. This is basically only for tonal, monophonic material like solo vocals, solo instruments and speech.

The analysis function starts automatically when the editor is opened. The analysis can take up more time with longer objects. After the analysis is complete, the objects are split up into individual slice objects according to the recognized pitches. The medium pitches of a slice object determine its position in the graphic, independent of the set progression of the pitch curve inside the slice object. On the borders of the slice objects, two handles are created on the pitch curve. These handles can be moved in order to produce an increasing or decreasing pitch characteristic, but still keeping the small changes in the basic frequency (vibrato).

The “Tune” function for automatic pitch correction can be found beside the Draw pitch function.

### Axes labelling and legends

**Y-axis:** Pitches in notes. The notes can be deselected on the

keyboard. They won't be used in the automatic pitch correction or in quantized drawing. The corresponding guidelines for scales can be used by selecting the basic tone and scales in the box "Edit slice object".

**Orange line:** New pitch characteristic (editable)

**Grey line:** Original pitch characteristic (result of the analysis)

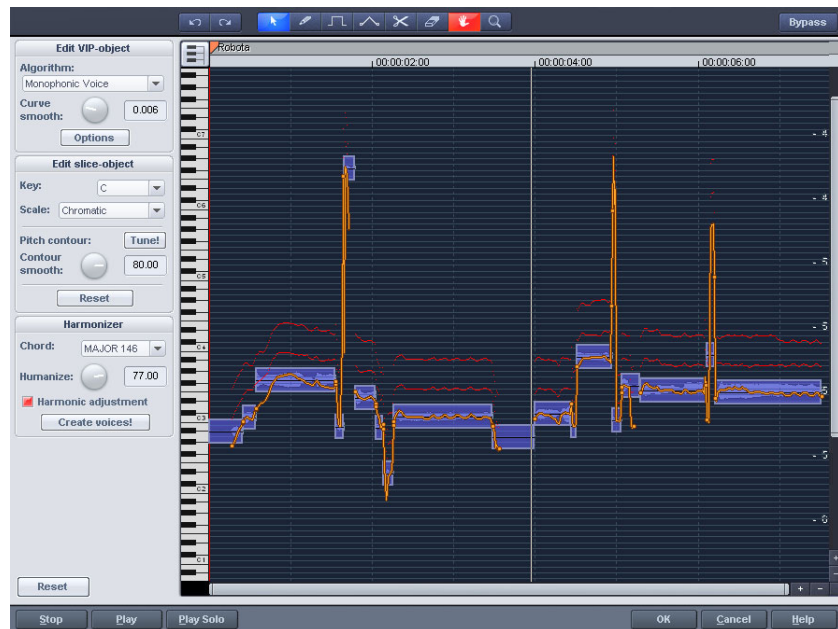
**Red line:** Harmonizer voices.

### Fundamentals of the Elastic Audio Editor Opening the Elastic Audio Editor

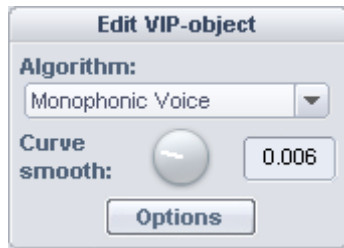
Select the object that should be edited in the Editor. The Elastic Audio Editor for a selected object is opened via Menu Effects -> Audio.

### Interaction between Elastic Audio Editor and objects

Temporal corrections to notes are not run in the editor itself, but rather by splitting and moving the objects in the VIP.



## Description of all control elements



Edit PROJECT OBJECT box

These options and parameters always effect the whole object loaded into the editor, and therefore all the slices.

**Algorithm:** You can choose between the modes: monophonic voice (preset), standard, smooth and beat marker slicing.

For more information on the algorithms, read the corresponding paragraph on the time processor!

**Curve smoothing:** This parameter brings about the smoothing of the given pitch curve using a time constant (in ms). When smoothing to a large extent, jump-like pitch-shifts change from a “kick” to a glissando.

**Formant control:** Selecting the Monophone Voice algorithm may result in so-called formants. Formants are sound components typical for the character of instruments or the human voice. With instruments they mainly result from the geometry of the resonance body. With humans the formants are created by the anatomy of the vocal tract.

With most algorithms the formants are also influenced by changing the pitch. With the Monophone Voice algorithm you can change the position of the formants independent of the pitch. Acoustically this corresponds with stretching or compressing the above-mentioned geometries, which can lead to interesting effects.



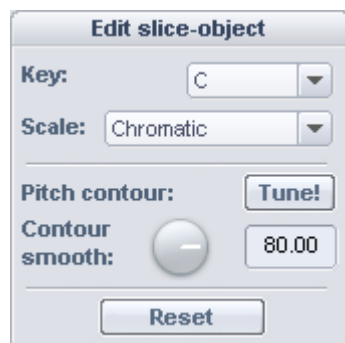
HARMONIZER box

**Chord:** Here you can set the chord that make up the parallel voices of the Harmonizer. A distinction is made between major and minor. The settings of the keyboard are taken into account unless the option lead voice has been activated.

**Humanize:** At a low setting this causes high quantization of the parallel voices. This makes the effect sound very artificial. If you select a very high humanize value, the pitches of the individual voices will vary and the cue will be shifted so that you get the impression of an amateur ensemble.

**Create voices:** This button generates voices.

**Harmonic adjustment:** Usually parallel voices are generated taking the keyboard and Humanize settings into account. However, if this option is deactivated, the voices are always kept exactly parallel to the orange curve.



Edit SLICE OBJECT box

### Options for automatic pitch correction

**Basic tone:** Basic tone of the scale. In the chromatic scale this setting is still not taken into account.

**Scale:** Type of scale. Major/minor or modes

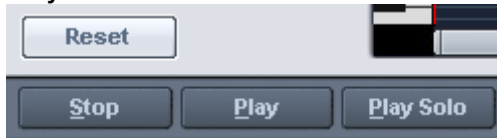
**Pitch characteristic tune!:** This button quantizes (“levels out”) the pitch characteristic of selected slices.

With **quantization smoothing** you can determine the “Strength” of quantization: Lower values are quantized the most. As a consequence, the small pitch fluctuations that always occur in natural sound sources, like, for example, Vibrato, disappear (“Cher effect”).

**Reset:** Resetting the selected slices. The orange curve is

superimposed over the grey curve and the slice is reset to the original medium pitch.

### Playback control



**Reset All:** Recalculates and resets the pitch curves of the loaded material.

**Stop/Play:** Stops/Starts the playback of the arrangement.

**Play solo:** Only the object loaded into the editor is played.

**Bypass:** Switches the effect on or off.

### Tools in the Elastic Audio easy Editor

You can use various tools when editing slices and the pitch curve. The two tools can be freely assigned to each mouse button. The tool assigned to the left mouse button is displayed in blue and the right mouse button in red. Click with the corresponding mouse button on the desired console button. An exception is the zoom tool with which can be assigned to both mouse keys.




### Selection tool (arrow)

 You can now move the slice objects up and down.

This modifies the pitch of slice objects as a whole. Slice objects and curve handles can also be selected. Multiple selection is possible with the Ctrl or Shift keys, as is the stretching of a slice object lasso.

### Free-hand draw function

 You can freely draw the pitch curve using the draw tool.

If you press the Shift key as well, a straight line will be drawn between the start position on drawing and the current mouse position. When the Ctrl key is pressed, the slice objects are combined when drawing.

### Drawing with quantization



This is the tool used for quantized drawing.

Quantized means that the line is horizontally free but the curve snaps onto the grid of the tones of the selected scale under "Tune".

Drawing a straight line using the Shift key and compiling slice objects with the Ctrl key is also possible in quantized draw mode.

### Rubber-band tool



Use the rubber-band tool to bend the pitch curves between two neighboring handles.

Here the middle of the curve is moved while the curve handles remain the same. In combination with moving the curve handles at the slice object edges you can also move the pitch characteristic and attain micro-tone structures (vibrato).

### Cut tool



This can be used to split audio material manually into slice objects (according to the notes).

If automatic recognition is not sufficient. Slice objects can be connected to one another with Ctrl + the drawing pens.

### Eraser



Use the eraser to reset the output value of the orange curve.

The pitch characteristic then corresponds to the original again and the curve corresponds to the recognized curve.

### Magnifying glass zoom tool



Zoom tool: Left mouse button "**Zoom**" zooms in and the right mouse button zooms out.

Left-clicking and dragging can stretch out a range which can then be zoomed entirely.

### Navigation tool



With the navigation tool, the visible clip can be moved vertically and horizontally.

## Applications of the Elastic Audio easy Editor

### Pitch correction (intonation correction) with monophonic audio material

#### Getting started (for all subsequent editing):

- Load objects into the Elastic Audio easy Editor.
- Set the desired selection state. All slices are selected directly after the analysis.
- Select suitable algorithms – you should test here to see if "monophonic voice" (see above) is the suitable algorithm.
- Now, the pitch can be edited with the mouse tools by editing the orange curve or the pitch of the slice objects.

#### **Manual correction of the whole pitch of a pitch slice**

- Select the slice with the Selection tool (arrow).
- Move vertically with the mouse.

#### **Automatic correction of the pitch characteristic**

- Select the slice objects with the Selection tool (arrow).
- Select the scale in the Edit slice objects group and, if required, unselect the tones which are not to be quantized in the keyboard by clicking on them.
- Press the "Tone pitch characteristics" button
- With the parameter "Quantization smoothing" you can reduce the "strength" of the quantization.

In principle, this editing process more or less levels off pitch characteristics inside a slice.

#### **Correction of the increase or decrease in the pitch.**

- Select the slice objects with the Selection tool (arrow).
- Click and drag the pitch curve by moving the two handles at each end of the slice objects or on the orange lines.

#### **Free redefinition of the pitch / Creation of frequency modulations like warblers and vibrato.**

- Select the slices with the Selection tool (arrow).
- Select the drawing tool (quantized or unquantized).
- Draw in the pitch modulations.

#### **Creating "Plastic voices" (Removing vibrato by strong quantization of the micro pitch characteristic)**

- Set the parameter Quantization smoothing to 0.
- Press the "Tone pitch characteristics" button
- If required, switch off format correction when using the "Monophone voice" algorithm.

#### **Creating "Robot voices" – quantizing to a pitch**

- Select the slice(s) with the Selection tool (arrow).
- Select the draw tool for quantized drawing.

- With artifacts: Increase the quantization smoothing parameter.

**Creation of parallel voices**

- Set desired chord.
- If necessary, change the Humanize parameter and press "Create voices" to generate the voices again.

**Pitch-sliced-objects and VIP objects**

In the basic-frequency analysis the objects in pitch-slices are taken to pieces that ideally correspond to one note in the melody in unison music or one syllable in speech. In speech the pitches correspond to the level of the vowels.

After the analysis all the slices are shown selected (blue)

The sub-division into slices can be corrected manually. The slices are cut apart with the scissor tool and merged together with the rubber band gripper tool with the Ctrl key held down.

The Blue Line represents the mid-range pitch for each object and results approximately from the average value of the pitches in the slice.

In selected pitch-sliced objects the functions can be applied that are to be found in the "Editing sliced-object" group: the correction of the pitch sequence and the mid-range pitch.

The possibility exists of resetting the corrections for selected slices.

**Selecting sliced objects**

Sliced objects can be selected and unselected. With Ctrl+a all slices are selected; clicking on the "empty space" unselects them.

**Fundamental frequency analysis correction****General options**

The fundamental frequency analysis and the related fundamental frequency-dependent pitch-slice-analysis may fail or cause errors for the following reasons:

- Reverbed material,
- Runtime stereophonics,
- False analysis,
- Voiceless vowels (sibilants...),



- Noisy sounds.

In the last two cases, analysis cannot return a result as the fundamental frequency is not available.

MAGIX Elastic Audio provides the user with the opportunity of achieving good results using many "manual" options whereby the fundamental frequency analysis does not or cannot deliver any results.

### Error in the fundamental frequency analysis

#### Symptoms:

**Sound:** The pitch varies strongly for a short period and does not correspond to the set value or characteristic.

When using the **monophonic voice** algorithm, additional strongly distorted noises arise. The algorithm, which depends on the fundamental frequency recognition itself, fails.

**Graphics in the Editor:** The curve exhibits a short strong jump and behaves in a very jerky manner.

#### Solutions:

- With the help of the eraser you can try superimposing the original curve at these points.
- If you set high values for the **curve smoothing** parameter, short "hiccups" can be reduced in severity or prevented completely.

### Correction of slice borders

So that the automatic or manual correction of the mid pitches of slices provides correct results, the slice borders have to match well with the note borders.

The slice borders can be manually changed by connecting two slices to one another with the pen and using the cutting tool to cut through at the correct position.

Ctrl +  or 



### Keyboard commands and mouse-wheel assignments

#### Navigation via mouse-wheel

Horizontal scrolling: mouse-wheel

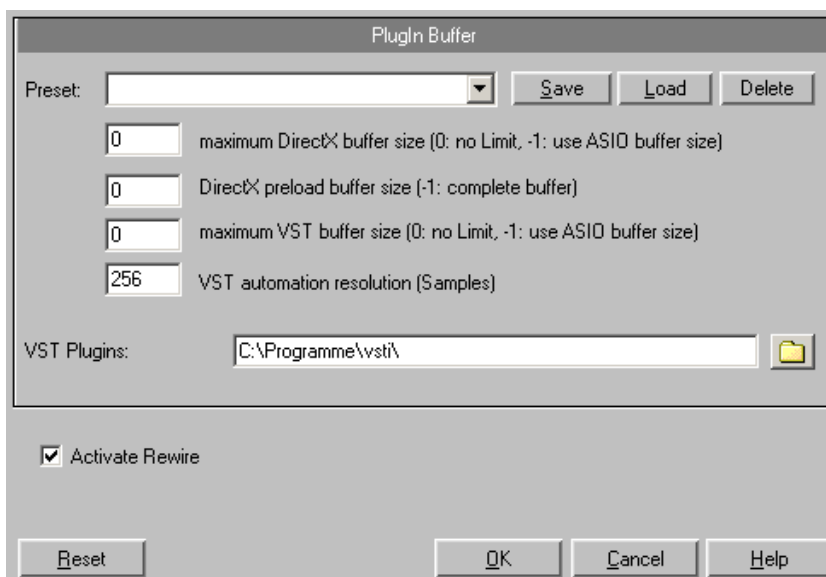
Vertical scrolling: Alt + mouse-wheel

|                     |  |
|---------------------|--|
| Vertical zooming:   | Shift+ mouse-wheel                                 |
| Zoom horizontal:    | Ctrl + mouse-wheel                                 |
| Zoom hor. + vert.   | Ctrl + Shift + mouse-wheel                         |
| Ctrl + space bar    | Play Solo/Stop                                     |
| Space bar           | Play/Stop  |
| Ctrl + A            | Select all   |
| A                   | Up-date view                                       |
| Ctrl + Z            | Undo   |
| Ctrl + 1-8          | Select tool for left-hand mouse button             |
| Ctrl + Shift + 1-8  | Select tool for right-hand mouse button            |
| Shift + Alt +P      | Show/hide pitch curve                              |
| Ctrl + Cursor up    | Enlarge wave form                                  |
| Ctrl + Cursor       | Enlarge wave form                                  |
| Cursor left         | Play cursor to the left                            |
| Cursor right        | Play cursor to the right                           |
| Home                | Jump to object start                               |
| End                 | Jump to object end                                 |
| Ctrl + Cursor       | Zoom in  |
| Ctrl + Cursor       | Zoom out   |
| Shift + R           | Alter scaling mood (Frequency for chamber note a). |
| Ctrl + NUMPAD 4,5,6 | Saves zoom snapshots 1,2,3                         |
| Alt + NUMPAD 4,5,6  | Loads zoom snapshots 1,2,3                         |
| NUMPAD 4,5,6        | without any vertical zoom                          |
|                     | zoom snapshots 1,2,3 with vertical zoom            |

## Installation of VST plug-ins

Install every VST instrument according to the instructions of the manufacturer. VST instruments and VST effects are not entered into the Windows registry, but must be saved in a certain directory.

Samplitude Music Studio 14 searches for installed VST instruments in the "VST Plug-ins" program subfolder. You can install your VST instruments either in this folder or use any other path. If you already have VST plug-ins installed on your system, use the already existing folder. You will, however, have to enter this foreign path in the system settings ("Y" key) in the "**Effects > VST / DirectX / ReWire**" subdialog (entering multiple paths is also possible). Simply enter one path after the other, all paths will be taken into consideration. Samplitude Music Studio 14 will automatically find newly installed plug-ins contained within the selected folders.



The first time the program is opened, a search for existing instruments and plug-ins is executed when the track settings are opened. Here, not only are all the plug-ins imported, but they are also checked for their usability within the program. This search is only necessary once, the next time it is opened, the track settings will be opened immediately.

**Tip:** For problems with your current configuration, you can reset all paths and installed instruments or plug-ins.

## Effect Calculations

When working with Samplitude Music Studio 14, audio material manipulation can be performed on five levels. The signal flows  
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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).

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 (De-hisser 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.

## **Samplitude Music Studio 14 as an external effects device**

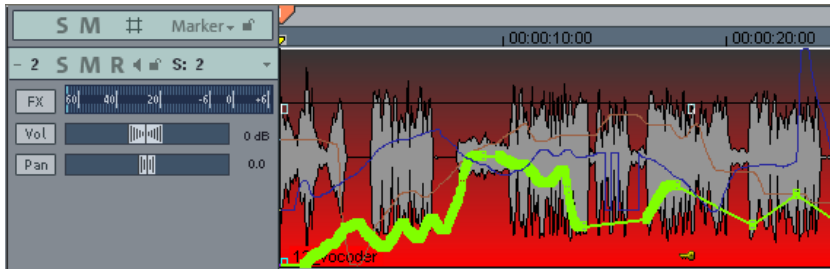
With the help of ASIO driver support, you can also use Samplitude Music Studio 14 as an external effects device. The signal is pushed through the real-time effects section by Samplitude Music Studio 14 and then re-issued. All real-time effects from the mixer can be used directly: MAGIX AmpSimulation , MAGIX multiMAX, reverb, echo, compressor, 4 band equalizer and vocoder. Requirements: You need an ASIO driver for your soundcard.

Here's how it works:

- In the system dialog (Y key), select the "ASIO Software Monitoring with Track Effects" option from the "Record options" card.
- Connect your instrument (e.g a guitar amp) to the soundcard.
- Select one or more real-time effects for the track activated for recording.
- Play it. The sound now has the selected effects added to it.

# Automation

Samplitude Music Studio 14 provides lots of comprehensive automation possibilities at track level. You can enter automation movements in realtime or draw them manually. The created automation data are visible as controller movements in the corresponding plug-in or as a curve in the automation track. For each track you have an indefinite number of automation curves at your disposal. The volume automation curve is set to 0 dB at the middle of the track and +6dB at the top of the track.



Dynamic automation of volume, panorama and plug-in control elements is available in every track.

## Automation – Context menu

To open automation, right-click on the "Vol" button in the track box or on button "A" in the "Automation" category.



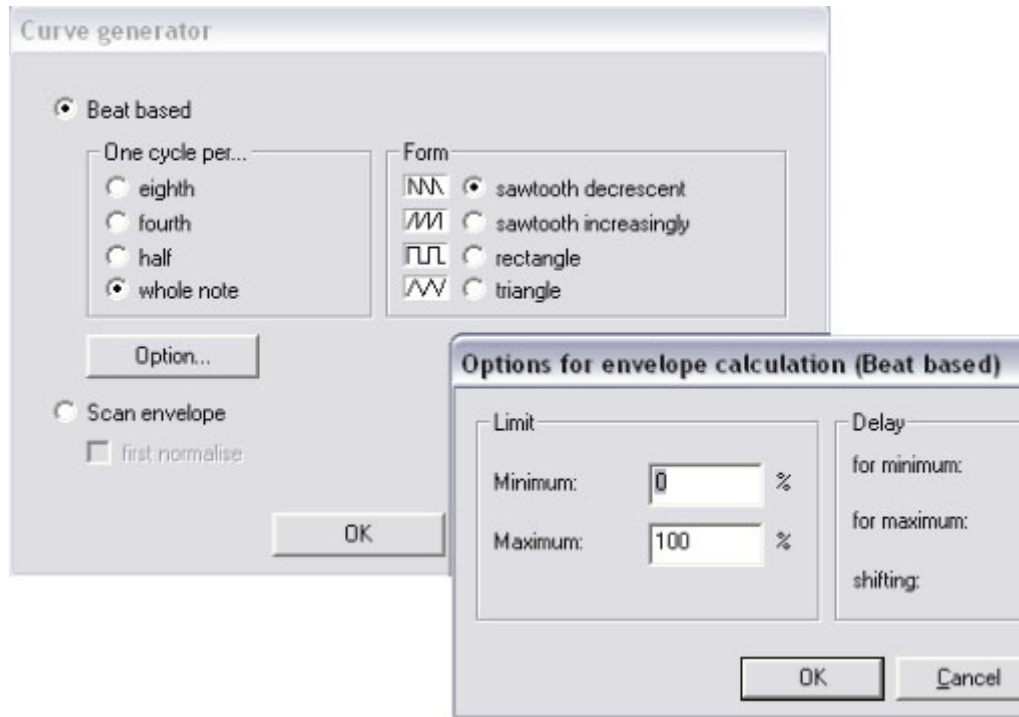
The first entry indicates which parameter you have automated, e.g. **Effect 0 Volume** or **Effect 1 Pan**. By checking the corresponding entry you can activate the corresponding automation curve. If you haven't activated an element, **No effect (Track)** will be displayed.

### Editing curves

#### Creating

The curve generator will create a volume curve for you that is beat-based and pulses according to eighth, quarter, half or full notes. As an option for the beat-based envelope curve calculation you can

enter a minimum and maximum value or define delay values.



As an alternative you can also let the curve generator write an envelope curve scan.

### Invert

This command inverts the activated automation curves.

### Thinning out

This function thins out the activated automation curve by reducing the number of automation events. While recording, the automation events are placed in very short intervals. The command "Thin out" reduces the number of curve points. The course of the automation is then displayed and reproduced even more accurately.

### Copy/Paste/Delete

The activated automation curve can be copied, pasted into other tracks and deleted.

### Inactive

Use this command to deactivate the selected automation curve. This means it remains intact, but no longer affects the corresponding

parameter.

**Delete all curves**

This command deletes all automation curves of the corresponding track.

**Automation mode**

Specify the Automation mode (on page 120) here.

**Do not display automation.**

With this option you can deactivate the display of the automation curves for all tracks.

**Display track automation (default setting)**

If you select this display option only the track automation will be displayed.

**Display selected curves only**

With this option you can only view the selected curves of the corresponding track. This helps keep track if several automation curves have been created.

**Display unselected curves (cannot be activated) – Default setting**

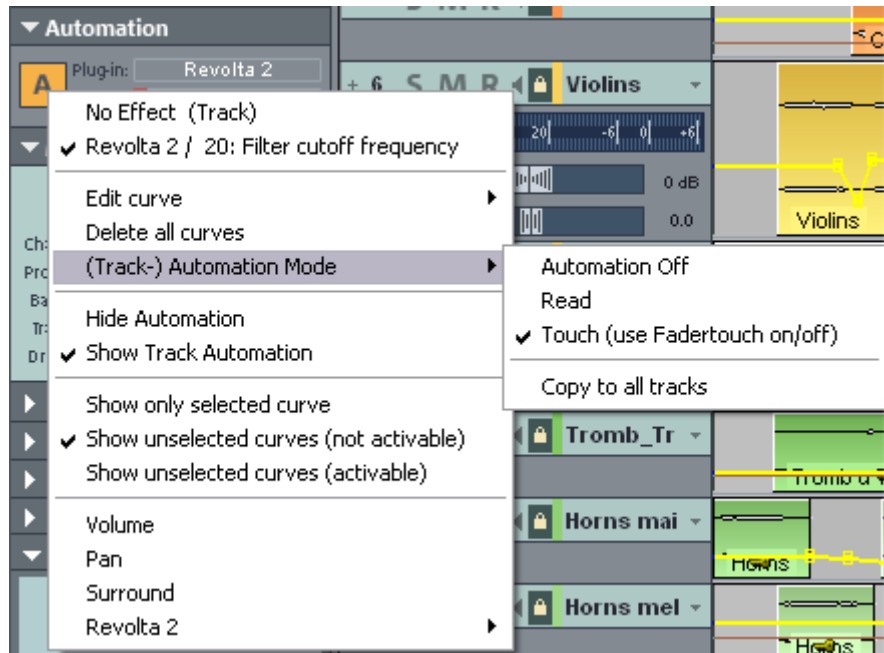
The unselected curves are shaded and can no longer be activated with the mouse.

**Display unselected curves (can be activated)**

The unselected curves are also shaded, but can now be activated with the mouse.

The last section of the context menu lists the ranges that are available in event of automation of the corresponding track of an object automation parameter.

## Automation modes



With the automation modes you can define how automation data should be saved or displayed. You can set the automation mode for each track. You can select the different automation modes by right-clicking on the automation button in the mixer channel. Clicking this button only once will toggle between the last activated mode and read mode. With the option **Transfer to all tracks** you can apply the currently selected automation mode to all tracks/channels.

### Off mode

All automation functions are deactivated on Off Mode, all already written automation sequences are ignored.

### Read Mode

All recorded automation parameters are played in Read Mode.

### Touch Mode

In Touch Mode automation data is only recorded as long as you touch the selected control element with the mouse or touch it from your external controller. Automation recording is stopped when you release the corresponding key. Once released the control element will



move back to the position previously recorded at this position. You can set the fader return time in the dialog MIDI Controller/FX Automation in **Settings > Time constant for user entry**.

## VST plug-in/VST parameter dialog

All parameters you would like to automate can also be selected and activated in the parameter dialog of the VST plug-in.

This allows you to directly record automations with the controllers of the parameter during playback.

You can open the parameter dialog from the plug-in panel via the **Plug-in** menu.

## Plug-in/instrument screen

The easiest way to also write automation in Read Mode is via the key combination Ctrl+Alt+Switch/Fader in the instrument interface. This way you can easily record an automation at any point in time. As long as you hold these key combinations you can also automate the selected parameters in Read Mode.

## Draw Panorama mode

To sketch an automation parameter curve or a MIDI controller, select **Panorama Draw mode** in the symbol list.



You can now draw the automation curve straight into the chosen track using the pen tool for the selected parameters.

## Edit automation curves

Alongside the normal mouse (create or delete curve point), a special



Curve Edit mode



or Object/Curve Mode

is provided.

In **Curve Edit mode** you can delete curve points after having selected them by pressing the "**Del**" button. If you move individual points using the "Alt" key, the bordering can be lifted using the neighboring points to the right.

Detailed information on the curve modes can be found in the "Screen elements -> Symbol lists -> Mouse Mode list" chapter.

## Move automation curve with audio/MIDI data

You most likely have to change the position of your audio material on the time axis every so often. If your created automation curve should also be moved to the new position, the automation curves have to be connected to the objects. This can be done using the "**Connect curves with objects**" mouse mode. To use it, click on the eponymous button in the mouse mode toolbar.



You can now move or copy objects together with your curve points.

**Note:** If you only wish to move or copy the curve points, follow the instructions above and simply delete the objects once moved/copied. The curves remain intact.

To copy the curve points simply use Curve Edit mode and drag out a rectangle by moving the mouse from right to left over a curve while holding down the mouse button, then copy the curve points with "Ctrl + C" and insert them into a different track with "Ctrl + V".

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# Mixer

## Overview

You can open the Samplitude Music Studio 14 mixer via "Window > Mixer". It strongly resembles a hardware mixer. As a result of the digital environment, however, it is by far more flexible than an analog mixer.

All settings made in the mixer are processed and edited in realtime. This includes track and master effects, panorama and level settings, device allocations for individual tracks/busses as well as device allocations for the master section.



## Operating the Mixer

Every VIP track has its corresponding Mixer track. However, you can hide any VIP or Mixer track in the Track manager.

### Alternative mixer skins

In System Audio (keyboard shortcut: "Y") in "Design > Skins" you can

select an alternative for the Mixer skin. A further option for changing the Mixer skins is to click on the System menu in the Mixer window (the symbol at the top left corner of the Mixer window).

### Using the keyboard

- Cursor keys: Select the active Mixer element (fader, button or switch)
- Page up/Page down: Changes the value of the active Mixer element
- Home: Resets the Mixer element to its preset (passive) initial value. When pressing Home again, the element is reset to the last value which allows for a simpler comparison between the changed and initial preset states.
- End: Opens the assigned sub-window of an element, e.g. the EQ window for one of the EQ buttons. This corresponds with right-clicking on a button.
- Return: Enables the numeric entry for a marked window box.

### Operating the Mixer with the mouse and keyboard

**Left-click:** A control element is selected.

**Ctrl & Left click:** Several control elements can be selected (multi-selection).

**Shift & Left click on buttons:** Permits changing of special functions such as mute single track or solo single track although they are members of an active group.

**Shift & Left-click on buttons or faders:** Reverses the link selection (negative selection)

**Ctrl & Left-click:** A single control element can be temporarily positioned within a group by pressing the “Alt” key and operating the element.

**Double-click on numbers:** Opens the entry box to allow manual entry of numeric values.

**Double-clicking on buttons:** Resets the control element to its preset (initial) value. Double-clicking again sets the value back to the changed value.

**Left-clicking on value displays,** below the faders or on the left button corners decreases the values. If the key is kept depressed, the value is automatically reduced until the key is again released or the end of the scale has been reached. (Keyboard: Page down).

**Right-clicking on value displays,** below faders or on the right  
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button corners increases the values. If the key is kept depressed, the value is automatically increased until the key is again released or the end of the scale has been reached. (Keyboard: Page up)

**Right-clicking on buttons** (e.g. Compressor) opens the corresponding window. (Keyboard: “End”)

**The level faders** can be adjusted very precisely. If you click on these, keep the mouse button pressed, move the mouse pointer away from the fader to the left or right. You can then adjust the settings by moving the mouse in a vertical direction. The steps of the settings become smaller as the mouse button is moved further away from the selected fader.

The step size of the fader movement also becomes smaller if you keep the “Shift” key depressed while moving a fader key.

There are two ways to change **knob** settings. After clicking on a knob you can either move the mouse around the knob this is the standard method - or move it up and down similar to moving the faders. You can reduce the step size of the value settings by keeping the “Shift” key depressed.

## Channel strips

Each track in the VIP is sent through a specific mixer channel, that is, the sound settings of the respective mixer channel are applied to the objects on the track.

Each channel strip provides the following setting options. Each individual section can be opened and closed by clicking on the corresponding arrow symbol.



Input: Specifies the audio input for the recording.

Gain: Controls the ratio of signal input to signal output of each channel.

Beside the panorama dial, you'll also find a switch to reverse the phase.

**Link:** This button connects the corresponding channel with the one to the right of it. All settings and adjustments affect both channel strips.

**Automation:** Use this function to record fade movements of the volume/panorama/AUX faders as Vol/Pan/Surround or AUX curves during playback. Curves that already exist are shown in the mixer by movements of the AUX bars, panorama faders, and volume faders.

**Solo:** The solo button switches off all tracks with the exception of the selected one. Right-clicking enables the selection of the output device for the track.

**REC:** Arms the track and starts recording.

**Mute:** The mute button mutes the track. Right-clicking enables the selection of the output device for the track.

**Volume Fader:** Controls the level of the tracks.

**Monitoring:** Click on the loudspeaker button to activate the monitoring function. This means that audio material is always passed through the inputs of the sound card and forwarded to the outputs.

If the "Hybrid Engine" is set up for monitoring, all mixer channel effects for the feeds can be used. This requires working ASIO drivers for the sound card. This way, Samplitude Music Studio 14 can be used as a live effect device.

Further information on monitoring can be found in the chapter "System Settings" > "Global audio options" > "Monitoring settings".

**Track name:** You can enter the name of the VIP track here. A mouse-click opens the track settings dialog where you can change the track name, among other things.

**FX:** This key activates each track's VST or DirectX extra effects from which you can configure and edit any number of effect sequences. This lets you specify the sequence in which the effects are used.

Find out more about this in the "Effects and Effect Plug-ins" chapter



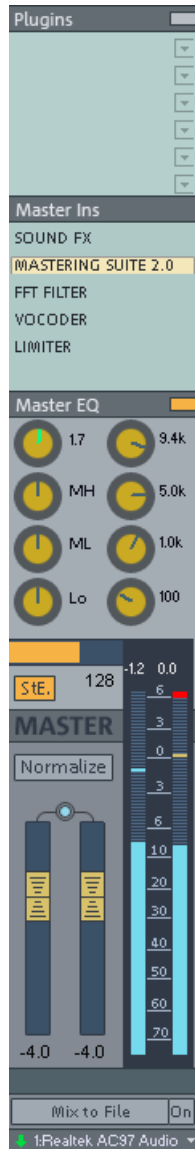
> "Order of Effect Calculations".

Right-clicking on the button opens the control dialog. This lets you add or delete effects and makes the individual track effect settings dialogs accessible. You can copy, insert, reset, save, or load your personal track effect settings. Specify your custom track effect settings in the program directory in "FX Presets > Track FX". Of course, you can also create new subfolders as well as "instruments" or "Mid Side Processing".

**Out:** Sets the audio output for the channel. This can either be a submix bus in the mixer or a wave out device.

## Master section

The master section can be found to the right beside the channel strips.



**Master Plug-ins:** This function lets you set VST or DirectX plug-ins for the master out signal. Right-click on the control button to show the plug-in dialog. If you wish to quickly switch the plug-in effects on or off, click the control button.

**DeHisser:** The effect master "DeHissing" helps you reduce existing distortions which often exhibit themselves as high-frequency hisses. You can open the DeHissing dialog with a right-click.

**FFT EQ:** A right mouse-click opens the FFT filter dialog.

**Vocoder:** Here you'll find the Vocoder for the entire signal. A right mouse-click opens the dialog.

**RoomSim:** Here you'll find the Room Simulator for the entire signal. A right mouse-click opens the dialog.

**Multi-band Dyn:** A right mouse-click opens the entire multi-band dynamics section.

**Dyn. /Limiter:** The limiter for the master signal opens with a right-click.

**Master Equalizer:** This Equalizer affects the sum signal.

**Stereo Enhancer (StE):** This Stereo Enhancer lets you modify the stereo picture of the entire signal.

**Mono:** This button plays the entire signal in mono. It serves to temporarily check mono compatibility.

**Normalize (N):** This is the master normalization. If you click on this button, the output faders are customized in such a way that the loudest sections reach 0 dB.

This function requires that the loudest sections in the VIP be found  
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and played. After clicking on the Normalize button, the program sets the peak value of the entire signal to 0 dB. To display the maximum values after having made changes, please use the Peak Reset button. This deletes the peak display. Clicking on the numerical display of the peak value when stopped sets the play cursor to the VIP position of this value.

**Link:** This key connects both faders. Please use this function if you wish to change the left and right faders simultaneously.

**Faders:** Both of these faders adjust the left or right master signal. Double-clicking on a fader resets the fader to 0 dB.

**FX:** Opens the effects/routing dialog with which you can configure and edit multiple effect groups. This lets you specify the sequence in which the effects are used. Find out more about this in the "Effects and Effect Plug-ins" chapter > "Order of Effect Calculations".

**Mix to File:** The entire VIP is calculated into a file with all the settings. You can find out more about this in the "Tools" menu > "Track Bouncing".

**On:** This function allows you to mix the entire signal every time a stereo WAV file is played. It comes in hand when you want to see the processed output signal of the mixer, e.g. when monitoring.

Make sure that the "On" button is deactivated if you don't wish to mix the master signal into a new file. Otherwise, the system creates a wave file every time the file is played.

**Hint:** You don't have to use the Mix-in-file function to record dynamic mixer movements during playback. It is usually better to control effects movements via the AUX busses, to record volume and panorama curves, and to then use the mixdown function.

**Device / Master Out:** Here the playback device for the entire signal can be entered, which can then be set in the System/Audio dialog under "Audio devices".

## Global Settings

Some further buttons for adjusting the global settings of the Mixer

window and Mixer handling can be found at the right side of the Mixer window.

This includes (clockwise from bottom left):

**Start Track:** If the VIP has many tracks, only a section of the corresponding Mixer channels are generally displayed in the Mixer window. The visible section can be moved using the scroll bar at the bottom of the Mixer.

Hold the “Shift” key down and click on one of the “Start Track” buttons to save the current view (a left-click is sufficient the first time).

You can recall the previously saved section by clicking again on the “Start Track” button.

**Preset:** Through clicking on the preset menu you can select various mixer setups.

In the menu reference "Options Menu", please read the section "Project properties > Mixer Setup"

**Setup:** A Click on the "Setup"-button opens the mixer setup dialog.

**Show-Functions:** Right of the Master Volume Fader, individual sections of the Mixer Window can be switched on and off. Particularly single Tracks, Master Section, Input Pad, AUX Section, Inserts, EQ and Visualization Display.

**+ Buttons:** Additionally, the category "Aux" contains a function with which the amount of Aux routes and Insert slots can be in- and decreased.

**Solo/Mute:** All solo and mute functions can be globally activated and deactivated using this button.

**BypassFX:** Bypasses all Mixer effects for comparing the settings.

**AutoRec:** This display indicates recording of automation data such as volume and panorama. Automation has to be enabled on at least one track.

**Play/Stop:** Playback of the VIP can be started and stopped using this

button. A right-click opens the transport controller.

**Group selected controls:** Those two buttons are used to to group elements of the Mixer and ungroup the when they are not needed anymore. Should you be wanting to create a group, select the desired elements holding down the Ctrl key and then click on the button "Group Controls". To ungroup, choose one of the Elements in the group and then press "Ungroup Controls".

**Snapshots:**The Snapshot Function is particularly useful to compare various Setups with each other. You can easily switch between the Setups. The naming of the Snapshots is possible through double-clicking the name field. The two buttons on the bottom of the last name field enable you to save and load Snapshots.

A right-click on a Snapshot opens a context menu from which Snapshots can be saved, loaded and deleted as well as switched between the banks of snapshots. Through that, up to 32 Mixer Snapshots can be saved.

In this menu, Mixer Settings can as well be stored to a separate file.

When loading a snapshot, the current Mixer settings are temporarily saved and can be restored by clicking on "Load last Mixer". This also allows for A-B comparison between the snapshot and the current settings.

**Reset (Mono):** Resets all Mixer settings to the default settings for mono tracks (when using mono or LR Wave Projects).

**Reset (Stereo):** Resets all Mixer settings to the default settings for stereo tracks (when working with Stereo Wave Projects).

**Reset Aux:** Resets all Aux shares of the channel strips to their default values (= no Aux share).

**Reset EQ:** Resets all equalizer settings.

**Reset Peaks:** Resets the LED peak meters (peak hold display).

**Reset FX:** Resets all effect parameters to the default settings so that effects can no longer be processed.

## Busses and Routing

### AUX busses

An AUX bus is a collecting bus combining all signals of the corresponding AUX Sends of the individual channels. AUX busses are usually used for controlling realtime effects via the volume curve. For this purpose part of the signal of the desired Mixer channel is sent to the AUX bus ("AUX Send") where effects are added. The fader of the AUX bus represents "AUX Return". This means: the higher the volume of the AUX bus, the more effects in the mix will be audible.

**Hint:** The AUX tracks contained in the VIP tracks are usually not objects. They only provide dynamic effects to other tracks.

### Working method

- An AUX/a Submix Bus can be created in the Mixer at any time. To insert a Submix Bus after all channels, for instance, right-click on the number of the last channel, shown in the mixer. In the appearing context menu, select "Insert Tracks -> new Submix Bus". If the output of several previous channels is now routed through this Bus, the Volume of all of these can be controlled centrally through the new Bus. In case you have created a AUX-Bus with "Insert Tracks -> New AUX Bus", you can the signals of the previously created AUX-Sections into the the newly created AUX-Bus. AUX-Busses are also the target for AUX-Sends with a lower channel number.
- Right-clicking the number of a channel gives the possibility to select between the properties "AUX-Bus", "Submix Bus" or even both for the according channel strip.
- Submix or AUX busses are always stereo busses.
- Submix busses can be fed from tracks with a lower channel number just as a physical output device.
- Submix and AUX busses can be used for all channel effects, including volume, panorama automation, and AUX Send. You can align your output to output devices or submix busses with a higher channel number the same way as any other channel.
- Automation of volume and panning for AUX and submix busses are the same as for all other channels.

### Submix busses

A submix bus combines several tracks. It controls the volume, panorama and effect settings of all tracks that are "routed" to the submix bus. For example, all drum tracks (Hi-hat track, bass drum track, etc.) can be combined to one submix bus so that the entire

drum kit can then be controlled via the volume controller of the submix bus.

### Effect Routing

The sequence of all realtime effects can be adjusted individually for each track. You can therefore individually specify the sequence in which the effects are used.

Find out more about this in the "Effects and Effect Plug-ins" chapter > "Order of Effect Calculations".

## Embedding external effects devices

In order to include external effects devices you require an audio interface with several in- and outputs, whereas one input/output pair is reserved for the external effects device.

### Routing the signal:

- You can loop in the signal either as an effect or insert.
- **Insert send:** Route the channel output directly to the physical output of the card that is to feed your external device.
- **Insert return:** Select a Mixer channel that is to act as an insert return channel. In the input section of the channel select the sound card input connected to the output of the device you want to loop in.
- **External send effect:** CreateS an AUX bus is to be fed from different channels of the corresponding AUX send. The output of the AUX bus has to be routed to a physical output of the sound card. Connect the output of the effects machine to the desired input of the sound card. The sound card input is connected to the Mixer channel by selecting the corresponding input section of the sound card of the AUX Return channel.

## Tips and tricks

- With Master Normalization the Mixer has a feature which allows you to quickly set the output level to 0 dB. If the limiter in the master section is active, the output level is also monitored thus preventing level clipping.
- Clicking on the displayed top peak level numbers of the master sets the cursor to the VIP peak position. This can be controlled with the function "Play over cut".
- The Mixer function "Mix in file" (to the right below the Mixer) writes

the master output of the Mixer to a WAV file (or HD wave project). If parameters are changed during playback, the sound that was changed live can be recorded. If you use the live input of Samplitude Music Studio 14, all Mixer effects can be used in the mix file while recording. Warning: the mix file is overwritten at every play start. Therefore, if you want to keep the result, you have to rename this file or save it under a different name.



# MIDI in Samplitude Music Studio 14

## What is MIDI?

A few words about MIDI: MIDI files do not contain the actual sounds like audio files, only the note control information which is first played by the synthesizer chip of the sound card. This has several advantages:

1. MIDI files need a lot less memory than wave files.
2. MIDI files can be adapted to any beat (BPM) without affecting the sound. Only the playback tempo is changed.
3. Similarly easy is the transposition of MIDI files to other pitches. When doing so, a section in a song does not have to be saved in several different keys. The version in C major is perfectly sufficient. It can then be transposed to any key by simply clicking on the right mouse button.
4. In Samplitude Music Studio 14 you can use VST instruments which play the notes contained in the MIDI files.

**The disadvantage of MIDI files:** The actual sound is not yet set. Only during playback by the synthesizer chip of the sound card from external MIDI synthesizers/virtual instruments (VST instruments) will it be produced. High-quality sound cards or external synthesizers will sound completely different and better than standard sound cards.

## Connect external equipment

### Interface Connection

Please consult your soundcard or MIDI interface manual for information on its correct connection. The most common ways to add MIDI functionality to computers are:

- Multi-port MIDI interfaces, including separate devices.
- Sound card with built-in MIDI interface.
- via a General MIDI module or keyboards' integrated interface, usually labeled as "To Host".

### MIDI Cabling

**MIDI Inputs/Outputs:** If your computer has an internal or external MIDI port, or has a MIDI-capable soundcard installed, connect your [www.magix.com](http://www.magix.com)

MIDI keyboard's "MIDI Out" to the computer's "MIDI In" (on the interface, soundcard etc.).

If your MIDI 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. Timing problems may occur in the chain if a lot of MIDI commands are sent in a short space of time. This is due to the slight delays introduced by each MIDI In to MIDI Thru transaction. If your computer also features several MIDI inputs, they can be used for the connection of MIDI expanders.

**MIDI Local Off:** If your keyboard features 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 internally connected to the sound generator. This behavior, however, is not what you want to happen when using your keyboard with Samplitude Music Studio 14. In this scenario, the keyboard is used as the computer's input device, and Samplitude Music Studio 14 is sending (i.e. playing) MIDI information to any connected tone generators, be they the keyboard's own sound generator, a soundcard or any other connected sound module.

If you wanted to control and record another sound module using your keyboard as the input device, its own sounds would play alongside those of the other tone generator— which is why the keyboard must be separated from its own internal sound generator. This function is known as "Local OFF", and is set directly on your keyboard. Refer to your keyboard's manual for information on how to do this. Don't worry about "breaking" the link between the keyboard and its internal sound generator—Samplitude Music Studio 14 will act as the "missing link" in this scenario.

## Convert MIDI objects into audio files

If you use VST instruments, you won't have to convert these MIDI objects into audio data before exporting your entire arrangement as it creates the sound on your computer and can be processed there.

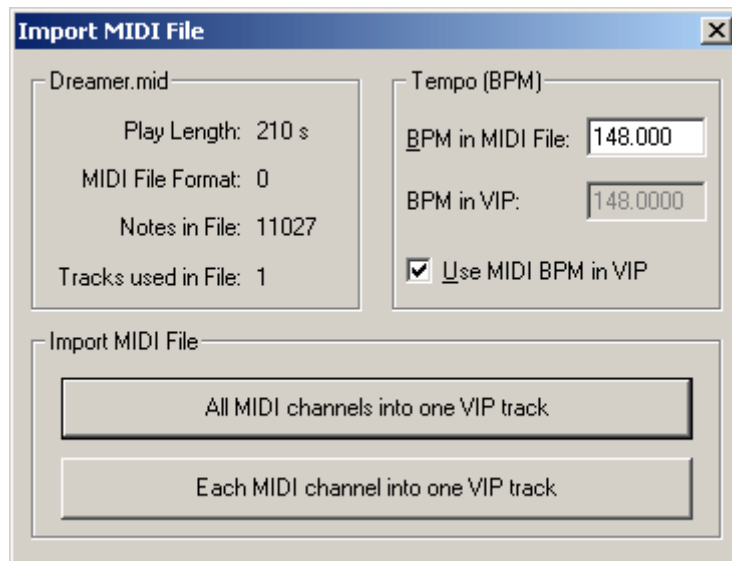
If you still wish to do so (for example, to free up processing power on your PC), switch the desired MIDI track to "Solo" and export the arrangement. Then add the exported file back into your arrangement and delete the MIDI objects in the exported track.

All MIDI objects which open external synthesizers via a MIDI interface will have to be converted into audio objects if you want them to be exported as well. They only contain control information for sound reproduction.

For this to happen, the output of the MIDI synthesizer (for example, the sound card) must be connected to the input of the sound card. The MIDI data can then be played and recorded simultaneously via the record function. The result is an audio file that can be edited, which can, as usual, be exported together with the multimedia files.

## MIDI settings

All global MIDI settings can be found in the System/Options window (keyboard shortcut: "Y") "MIDI" submenu.



Please read the chapter "System settings --> MIDI Settings".

## MIDI: Import, Record, Edit

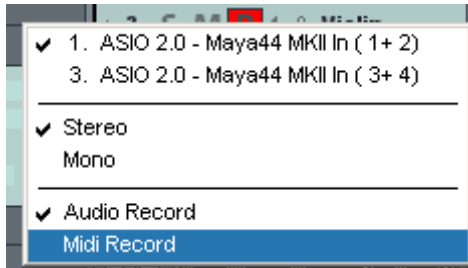
### Recording MIDI tracks

As with the routing settings of audio tracks you can tell the program which MIDI input is to be used.

To do so, open the "Track settings" dialog by right-clicking on the field that contains the track name (Track info box). In the "MIDI" section of the track settings, select your "MIDI recording device" (the MIDI input device you use, for example, MIDI IN of your sound card), to which your keyboard or external sequencer is connected. As the "Playback device" or MIDI output device, select the MIDI playback device you use (for example, MIDI OUT of your sound card or a VST instrument). In the same dialog, activate the "MIDI" radio button in the "Recording" section.

**Note:** You can activate the MIDI section of the Track Editor ("Menu Window > Track Editor") by clicking on the "MIDI" button in the track

box. Now right-click on the "Rec" key to select the MIDI input device as well as the instrument outputs of each selected playback device from the context menu. You should also check the instrument outputs if the MIDI signal in the level display can be seen, but no sound can be heard, and adapt this to the MIDI outputs device (VST instrument).



The following MIDI Record Modes are available: Normal, Overdub, Multi-Overdub, and Replace. These decide which of the newly recorded MIDI files will be added to the VIP.

You can specify the settings for MIDI Record Modes in the transport control. Click on the arrow on the left beside the "Close" button in the transport control to display this section.

Alternately, you can select the MIDI recording modes from "MIDI Record Mode" in the "MIDI" menu.

**Normal:** This Record Mode corresponds to that of the audio recording, that is, for each recording process, a new MIDI object is created over the existing object. The old object remains intact. This way you can record multiple takes of a passage and then compare them in the Take Manager later on.

**Overdub:** The data is recorded into an already existing object, available and newly recorded MIDI data is mixed together. If you record over several objects, these are combined into a single new object.

**Multi-Overdub:** The data is recorded into an already existing object, available and newly recorded MIDI data are mixed together. Existing objects, however, remain the same. This mode makes sense, for instance, for recording MIDI controller changes subsequently over several objects.

**Replace:** The data is recorded to an existing object, any MIDI data is

overwritten. Several existing objects are combined into a single object.

After selecting the mode, make sure that the recording is activated for the track. The record button, which is set to standby, changes to violet to signal that this MIDI track should record MIDI data.

Now you can now start the MIDI recording using the shortcut key "R". After recording you will be asked whether you want to keep or delete the recording. At the same time, and within this dialog, you have the chance to change the Record Mode for the recorded MIDI data. After confirming this with "OK", your newly recorded material will appear as a "MIDI take" in the VIP.

### **Importing MIDI data**

Already existing MIDI files can be imported into a Samplitude Music Studio 14 project as objects. However, you can also load a MIDI file as a separate object, the same way as a WAV, HDP or RAP project.

**Menu:** File/Open/MIDI (\*.MID) ...

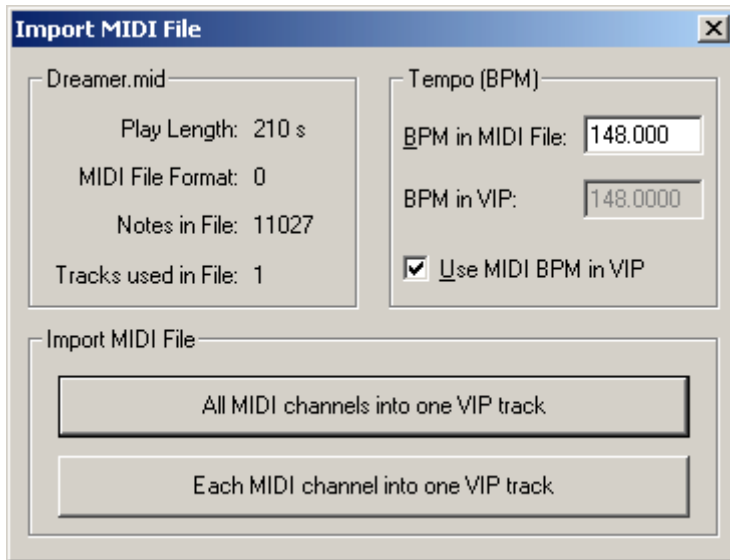
**Shortcut:** Shift + M

**Mouse:** Drag & drop from file browser or Windows Explorer.

If you import MIDI files, please note that only type 0 or 1 MIDI data is compatible with the import function. Each file should end with \*.MID so that it can be recognized as a valid format.

MIDI files are generally imported like a WAV file, irrespective of whether they are imported in a VIP window or a MIDI project window. For a VIP you can specify at which position you want to insert the new MIDI object. Set the play cursor at this position, select a range in the desired track or drag the file from the internal explorer or Windows Explorer directly into the track position via drag & drop.

**Hint:** The following dialog is automatically displayed if a VIP is already open as an active window. If you want to open the MIDI file in a separate MIDI project window without inserting the content into a VIP, please ensure that no VIP project window is active. Samplitude Music Studio 14 will also display the MIDI import dialog if only one range of a MIDI project window is dragged into a VIP track.



The Import dialog contains status information on the MIDI file you want to load:

Each standard MIDI file also contains tempo information. Samplitude Music Studio 14 displays this information in a separate section of the dialog. At this position of the import you can decide whether you want to adjust the VIP tempo to the tempo of the imported MIDI file. If necessary, a tempo marker is displayed in the VIP.

If you select the option "All MIDI channels into one track", Samplitude Music Studio 14 inserts the MIDI object into the currently selected VIP track. The created MIDI object then contains all MIDI channels of the MIDI file.

### Editing MIDI objects

Editing MIDI objects in Samplitude Music Studio 14 follows the same principle as editing audio objects: MIDI objects can be copied, split and trimmed, have fade handles for fading in or out, and a volume handle that scales the MIDI velocity. MIDI objects refer to the MIDI

data you have recorded while playing or importing, but are not saved on the hard drive as a MIDI file but are saved as a project file instead.

You can edit MIDI object in the MIDI object editor as well as in the different MIDI editors Piano Roll, Drum Editor, Controller Editor, Listen Editor and Score Editor.

## **MIDI Object Editor**

**“Object”** menu / Object Editor

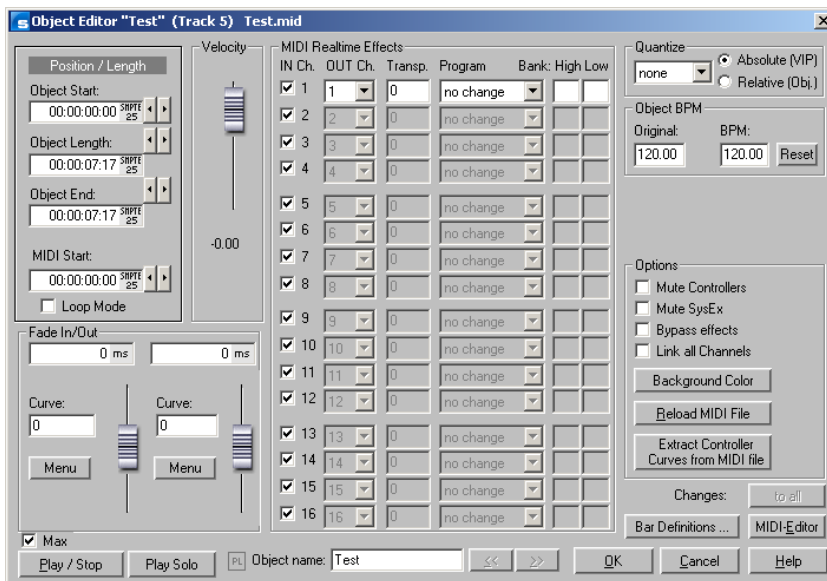
**Shortcut:** Ctrl+O

**Mouse:** Shift+double click

With the MIDI Object Editors, which is designed similar to the audio object editor you can easily edit the parameters for the MIDI objects. Here you can adjust sound, length, volume and program changes individually for each MIDI object.



A Samplitude Music Studio 14 MIDI object may contain up to 16 channels and up to 16 MIDI SMF tracks (initial track number in imported standard MIDI file). For instance, you can use a single object to control a multi output VST instrument via several MIDI channels. Within this object you can edit the notes in the corresponding MIDI Editor in all channels or only in a selected channel. You can use the max mode of the Object Editor to get an overview of which MIDI tracks or channels are within one MIDI Object. that, for example, may have been created from a General MIDI file (“Max” checkbox).



If there is only a single track in the MIDI Object, the settings are only available for this MIDI track.

You can use the MIDI Object Editor to quantize MIDI data in the MIDI Object. Please note that these settings affect the MIDI Object in real-time and not destructively. so that you don't see these changes in the MIDI Key or Drum Editor.

### Important functions and settings in the MIDI Object Editor:

#### Velocity

The velocity fader is comparable to the volume fader in the Wave Object Editor. Normally, each MIDI note has a velocity value which determines how “hard” the note is played. Changing the velocity value in the Object Editor scales the volume of the notes in the MIDI Object from its physical maximum or minimum values (0 to 127), and

is therefore included in the actual velocity note values. Changing the fader is identical to changing the middle handle of the MIDI Object in the VIP track.

### **Position/Length**

This sets the starting position of the MIDI Object as well as the length of the Object. The settings correspond to moving the Object in the VIP track or changing the length using the length handle at the bottom left and right of the Object.

### **Crossfades (Max Mode)**

You can set/get the global fade settings as global settings in the menus of the Fade In/Fade Range setting.

The Crossfade Editor allows you to make global settings for MIDI crossfades. However, this corresponds with the basic setting for all crossfades of the project. Crossfades between MIDI and audio Objects are possible. Create a crossfade between two Objects and press the “Set” key to save the crossfade. If the crossfade is set, you can use it for other Objects anytime by clicking on the “Get” key.

### **Fade In/Out (“Max Mode”)**

These settings determine the Fade In and Fade Out effects of an Object. If you add a fade effect to a MIDI Object, the changes are interpreted as a change to the velocity values of the affected notes. The fade lengths can be changed directly in the Object by using the upper left and right Object handles. In Max Mode the Object Editor provides a selection of different curves.

### **Object-Name**

Enter the name of the Object.

### **MIDI Real-time Effects**

All 16 possible MIDI channels are displayed in Max Mode. If the MIDI Object does not contain data for a channel, this is displayed in grey. Only settings for one MIDI channel can be found in the preset, reduced mode.

**MIDI IN Channel (Max Mode only):** Mutes the channel of the MIDI Object.

**MIDI OUT channel:** Routes the MIDI data of a channel to a different channel.

**Transp.:** Transposes all MIDI notes of this channel.

**Program and Bank change:** The values entered here are always transmitted if the Object is played back. Use these settings if different Objects of a MIDI track are to use different programs of a synthesizer.

### **Quantization**

This is a virtual quick quantization without further options, while the quantization settings changed in the MIDI Editor immediately affect the notes and adjust their starting positions.

### **Track selection**

Use this if you want to split a multi-track MIDI file into separate VIP tracks but still would like to change all MIDI Objects as a group. You should take into account that this function is only activated if several MIDI Objects are active in the VIP. Selecting several Objects with the Object lasso or individually using Shift+Mouse-click can also achieve this.

### **Mute Controllers**

Deactivates MIDI controller

### **Mute SysEx**

Prevents control via SysEx data

### **Bypass effects**

Deactivates all real-time effects for this MIDI Object.

### **Link all channels**

The settings are changed for all channels simultaneously.

### **Background color**

Changes the background color of the MIDI Object.

### **Reload Object**

It may be necessary to reload the MIDI data from the file from which the Object has at some point been created. Note: All previous changes are overwritten.

### **Bar definitions**

This allows you to make your own bar settings for the MIDI Object. The settings can differ from the rest of the Project or other MIDI Objects. The four values in the settings window (Numerator, Denominator, tempo and PPQ) can help you if you would like to increase the quality of the MIDI notes and data. For example, you can specify a different resolution (PPQ) to enable a finer quantization.

### **MIDI Editor**

[www.magix.com](http://www.magix.com)

Opens the MIDI Editor (Piano Roll), where you can easily set, edit and quantize MIDI events.

**Play/Stop**

Starts and stops playback from the current position.

# MIDI Editor

## Notation display, movement, zoom

The MIDI Editor features five main areas for editing:

- Matrix Editor (Piano Roll)
- Drum Editor (toggle between the Drum Editor and Piano Roll possible)
- Controller Editor (for example, velocity, MIDI volume...)
- List Editor (event list)
- Score Editor

Here various tools are available, for example, pencil or eraser. Exact values for each MIDI event can also be set in the edit fields via the Piano Roll.

Fundamentally, changes, for example, moving or deleting notes, always refer to all selected MIDI events (red) with just a few exceptions. Changes to the selection in a range always apply to every other range as well. You can, for example, select a group of notes in the Piano Roll and then change the velocity of these note groups which modifies all selected notes simultaneously.

### Notation display in Piano Roll and Controller Editor (with velocity curves)

Notes which are not selected within the Editor are displayed in blue. The intensity of the color symbolizes the velocity: the velocity increases while getting darker/stronger in color.

**Selected notes:** Multiple selected notes are displayed in red. Here too, a more intense color symbolizes increased velocity.

**Current event:** Appears in bright red with a red border. The properties of the currently selected events are displayed in the edit fields above the Piano Roll. If an event is selected with the mouse, it turns into the current event.

**Display of filtered events:** To get a better overview of the events of a MIDI object, you can filter specific events for the display.

**Example:** The MIDI object as notes in the MIDI channels 1, 2, and 5. You can now make all notes in channels 2 and 5 accessible for the selection and editing tools via the selection of the MIDI channels in [www.magix.com](http://www.magix.com)

the channel filter by selecting the two channels from the menu. All unselected filtered notes in channel 1 are displayed in gray in the Piano Roll and the List Editor.

Events in the filtered channels can be completely hidden using the "Hide filtered MIDI data" in the Options menu.

The List Editor provides additional display filters that only function within the list. The display filters are initiated with the settings of the playback filters (mute settings), but the filters can be set independently of one another.

**Display of muted events:** MIDI object settings (in the MIDI Object Editor, "Ctrl+O") can be used to mute notes and filter other MIDI events. This type of "muted" event is displayed lighter or paler in the Piano Roll and List Editor.

Events in front of or behind the beginning/end of the object (recognizable by the blue lines in the Editor or when the display is active and transparent as grayed-out ranges) appear similarly pale as non-muted events within the object borders.

**Events above and below the current picture section:** Two small red displays above and below the vertical scroll bar to the right-hand side of the MIDI Editor screen show in red if there are notes outside the screen's display.

### **Moving and zooming**

The vertical and horizontal view or zoom are adjusted with the Scroll bars just like in the project window.

**Mouse wheel:** Scroll horizontally

**Shift+mouse wheel:** Zoom vertically

**Shift+Ctrl+mouse wheel:** Scroll vertically

**Ctrl+mouse wheel:** Zoom horizontally

## **Synchronized MIDI Editor and VIP screen view**

If you change the horizontal display or zoom using the scroll bars, holding the Shift key changes the corresponding VIP window.

### **Play/Play Solo**

"Play Solo" only plays the MIDI Object that is currently opened in the MIDI Editor (corresponding with the filter settings in the "Options"

menu). “Play” plays the entire arrangement.

## MIDI Editor multi-object editing (MO-Editing)

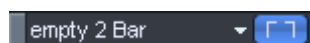
You can also load several MIDI objects simultaneously in the MIDI Editor. All MIDI objects selected in the arranger are added to the MIDI Editor by clicking on the MIDI Editor button in the Arranger.

In an already-opened MIDI Editor you can include additional MIDI objects by clicking on them while holding down the Shift key.

In MO editing there is always an active objects (and with it, an active track). New MIDI events will always be inserted into the active track – In Score mode the current note line will also be taken in consideration. When selecting notes or MIDI events or when clicking using the pen tool the active object and the current note line automatically reset.

The active object as well as the active track can be displayed and altered at the top right. In the selection fields all objects contained in the MIDI editor will be listed.

The **Current object area** can be highlighted using the button behind the object selection field. Areas lying outside the current object will be grayed-out and the notes of other objects will be paler, but still selectable.



In MO editing you can activate a display filter for the current track. Data from other tracks are then grayed out or made invisible.



In Score mode of the velocity editor only the velocity values for the current note line will be displayed.

In representing notes, the note system of the active track will be highlighted using blue note lines.

## Using the MIDI Editor: Selecting events

- Select event: Left-click on event
- Add/Remove event to/from selection: Ctrl + left-click on event
- Change/Set current event within multiple selection: Left-click on selected event
- Set current event, deselect all other events: Double-click on event
- Selection of events within a line or range: Click while holding down Shift-key
- Selection of all notes of a pitch: Double-click on the assigned key on the left keyboard
- Selection of all notes: Ctrl+A (functions for pitches selected with a key on notes with this pitch)
- Select next or preceding note: Cursor left, right

### Selection of MIDI events (Piano Roll, Drum Editor, Controller Editor, List Editor, Score Editor)

#### Special selection options in the Piano Roll

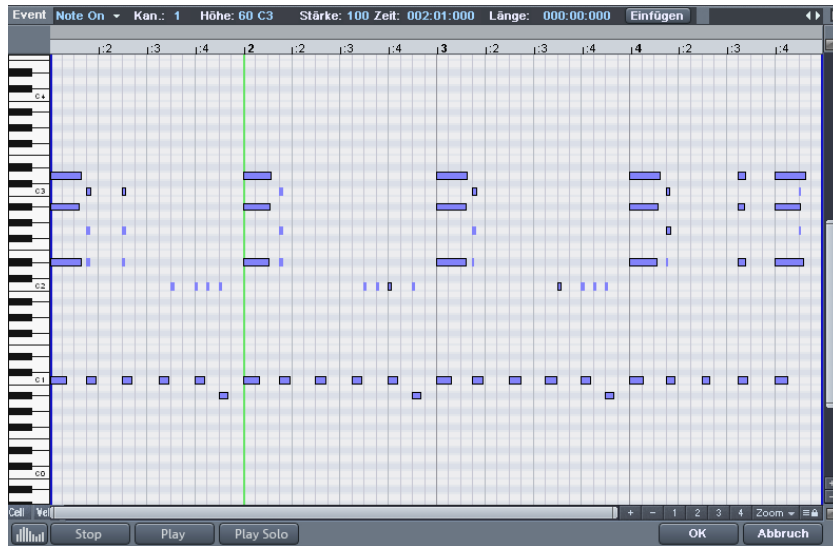
In order to directly select all notes of a certain pitch, double-click on a free section with this pitch in the Piano Roll Editor or in the keyboard. Hold down the <Alt> key to select notes with this pitch only from this click position.

Holding Shift and double-clicking on a free area selects all notes (all pitches) from the click position onwards.

**Note:** If you press <Ctrl> as well during any of these selection methods, the new selection is added to the current one (i. e. the previous selection is not canceled).



## Editing Events: Piano Roll



### Editing tools

There are several editing possibilities for notes within the Piano Roll; so-called Mouse Modes. The same functions for editing notes (except delete) apply in all modes, so that these modes only differ by their reaction to clicking in empty spaces.

#### Selection (1)

Lasso: You can draw a selection frame by holding down the mouse button.

A click in an empty space removes a selection.

#### Draw Pencil (2)

Left-clicking draws a note. The beginning and the length are determined according to the current quantization settings (Toolbar Editor).

#### Drum Pencil (3)

A sequence of notes is drawn. The length of the notes and the note intervals are determined by the current quantization settings.

When holding Alt: The pitch of the first note is also maintained for all notes drawn subsequently. Moving the mouse backwards (to the left) while depressing the mouse button removes drawn notes.

**Pattern Pencil (4)**

Draws a freely definable note pattern (Ctrl+P).

When holding Alt: The pitch of the first note is also maintained for all notes drawn subsequently. Moving the mouse backward (to the left) deletes just added notes again.

**Velocity change (5)**

If you hold the mouse key and drag the mouse vertically, the velocity values of the selected events are increased or decreased relatively to each other: The velocity values are changed absolutely, i.e. all changed events have the same velocity values after editing. In the graphic velocity display mode you can change several velocity values at once by clicking + dragging the mouse over the notes.

**Delete (6)**

Clicking on a selected note deletes all selected notes. Dragging the mouse deletes all notes underneath the eraser.

**Magnifying glass (7)**

Left mouse button: Zoom in

Right Mouse Button: Zoom out

Left mouse button + drag: The sketched area is always zoomed. The zoom mode can be temporarily accessed by holding a special key (Z). After releasing the key the mouse mode is active again.

**Glue notes (8)**

Glues the note with the next note of the same pitch.

**Split notes (9)**

A notation bar is split in the matrix at the next grid position by clicking.

**Mute (M)**

Individual notes or selected note groups can be deactivated or activated by clicking on them. Also available as a command in the "MIDI Functions" menu.

**Hints:**

- You can freely define the shortcut for switching the mouse mode (tool). The Delete mode can be activated anytime by clicking/dragging with the right mouse button. For instance, you can use the pen to insert new notes when left-clicking and remove already inserted notes with a right-click, without having to change

tools.

- Notes created in Draw mode contain the MIDI channel and velocity of the Edit boxes of the "New" section above the Piano roll.
- You can select the previous/next note with the cursor left/cursor right keys. With the cursor up/down keys you can adjust the note pitch step by step.

### Editing notes with the mouse

If you move the mouse over a note, the mouse cursor will change and, depending on the part of the note, the following options will be available:

- Change note start time: (grab note bar at the beginning), note end remains
- Change note length (Grab note length at end)
- Shift + set fixed note length (for multi-selection hold shift key and drag current reference note longer/shorter – all notes will have the same length)
- Ctrl + scale note length (for multi-selection hold "Ctrl" and drag current reference note longer/shorter – changes the note length relatively, i.e. the reference note will become twice as long and thus all other notes will be double length)
- Move note freely (pitch and start time is changed)
- Move note horizontally only, retain pitch (in free move mode, hold "Alt")
- Move notes vertically, keep position (hold "Shift" key in move mode)

### MIDI functions

The commands in the MIDI Functions menu always refers to all selected notes. If no notes have been selected, all functions are applied to all notes.

**Legato:** Notes may be prolonged to be played in legato:

**Remove overlaps (polyphonic):** Notes may be shortened so that there no longer are any overlaps. Chords (simultaneously played notes) are recognized and not corrected, i. e. chords are not split up.

**Remove overlaps (monophonic):** Notes may be shortened so that there no longer are any overlaps. Forces monophonic voice.

**Mute notes (Mute):** Mutes and unmutes notes or selected note groups with a click.

**Quantize:** Small irregularities when playing to record can be smoothed with the quantization function. In contrast, the "swing" [www.magix.com](http://www.magix.com)

function makes mechanically sounding sequences groovier.

Clicking on "Quantize" shifts all selected notes to a customizable quantization grid. All notes are quantized without previous selection.

1/4, 1/8, 1/16 and 1/32 notes can be selected as starting time (grid). (Uneven quantization values such as triplets can be created with "n-tole" (see table).

**Quantization options (menu options in the MIDI Editor):** "Strength" in %: "100" moves the event precisely to the quantization grid point "50" at the center between the current position and the quantization grid point, "0" does not mean movement = quantization off.

"Swing" activates "triplet" play mode. Specifies the division for uneven grid points before 50.

"50-50 division": The uneven 1/8 note is exactly half way between the even eighths ("even play" mode) 67..." triplet play, 3-2 division

"Window": Quantization window, events in the window are quantized, those outside remain at their position.

100 - Window covers the total range from the grid points of the quantization grid.

50 - The window covers half of the quantization interval. Events with gaps of 1/4 of the grid width left and right of the grid point are quantized - no window -> Quantization off.

"Offset": The entire quantization grid is moved: -100 is a half grid shift to the left (earlier), +100 is a corresponding shift to the right (later)

"N-toles": The grid is divided by the number of sections set as n-toles. You can enter any number you like, as well as the previously defined numbers.

"Reset": Restores the default values. If snap is activated, the notes "snap" to the quantization values when created or edited. In this case the quantization values are also taken into account. For instance, the notes snap to the corresponding positions within the quantization window.

**Editing selected events (Edit fields):** The properties of each event in the Piano Roll, Controller and List Editor can be edited by clicking on the edit tools below the edit buttons. The following buttons are

available for each note:

- Channel
- Byte 1 (or pitch)
- Byte2 (or velocity, attack)
- (Start-)time in bars:beats:ticks
- Length in bars:beats:ticks

The display of the ticks has a resolution of 384 PPQ (i.e. 384 ticks correspond with a quarter note).

To edit, click and drag the displayed value. Hold the left key and drag the mouse up or down to increase or decrease the value.

**Hint:** The value steps are greater if you press the Ctrl key.

You can also edit the value numerically via the keyboard. Simply mouse-click on figure.


A few special characteristics have to be observed when multi-selecting events:

You can relatively change the values by dragging the mouse, using the mouse wheel or entering numeric values and then confirming by pressing enter (for pitch and attack rate).

You can make permanent changes by simultaneously holding the shift key when dragging & dropping or confirming entry with Shift + Enter.

## Controller Editor

**Open:** The Controller Editor is located below the Piano Roll and can be hidden. It can display and edit up to 4 MIDI controller types or velocity values simultaneously.

It is opened by clicking either on the - Button below the keyboard or with the shortcut "ALT + V".

The values of existing events are displayed as colored bars in the Controller Editor, whereby darker and higher bars symbolize higher values. The bars are located vertically directly below the notes.

**Selection**

Combo tool, also used for value changes as well as freehand and line drawing. Select the controller bar by clicking and dragging or single-clicking in the range within a bar.

**Click on the bar end:** The controller value can be adjusted by dragging vertically.

**Shift+Drag:** Set all bars to the same value.

**Ctrl+Drag:** Scale (relative value change)

**Shift:** Draw curve (envelope)

**Alt:** Draw freehand (envelope)

**Freehand drawing:** Click and drag to draw a controller curve, click and drag backwards to correct the curve while drawing.

**Just one click:** Creates a single controller event.

**Shift + Click:** Draw line

**Hint:** If you edit velocity, no new notes are generated; only existing velocity values are modified.

**Draw lines:** Click and drag to draw a controller ramp.

**Just one click:** Creates a single controller event.

**Hint:** If you edit velocity, no new notes are generated; only existing velocity values are modified.

**Multi-view**

The four multi-buttons are used to display or hide the view of all possible controller curves. Clicking on the menu area of the buttons opens a menu which allows you to choose a MIDI Controller for this controller slot.

**Selecting and processing notes:** By clicking in the upper Range of a controller column, the controller value can be changed immediately by dragging the mouse. Clicking in the lower two thirds of the column selects the corresponding note, which is subsequently displayed in

the Editor in red.

**Tips:**

The size of the controller editor can be determined by the dragging the mouse to the top edge (directly below the horizontal scroll bar).

Several controller events can be shifted simultaneously. First select all values you want to move (hold Ctrl if necessary, to select different controller types together). You can now move the selection in the time box by entering a value and confirming with Enter, or by dragging the mouse.

Use the display filter function for velocity values.

Especially in multi-phonetic events the columns are located above each other, making it difficult to select the respective note. To edit only notes of a certain pitch, e.g. all C1 notes in the Controller Editor, click on the respective key on the keyboard. The key and the background of the selected pitch are highlighted. Only notes of this pitch are displayed in the Controller Editor.

Notes of different pitches, e.g. all C1, D1 and A1 notes can be displayed with Ctrl+Click (or Shift+Click for the area between the clicks, respectively). These are simply view options of the Controller Editor. Multiple note selection by double-clicking is not possible.

A further possibility is to selectively edit controller bars located on top of each other, which is based on the fact that the bar of the currently selected note is selected/edited using the mouse. Therefore, first click on the note within the Piano Roll, or click on the columns located on top of each other and then select the required note using the cursor keys. Then change the controller value by clicking in the upper third of the red (current) area of the column.

Besides directly changing the velocity values of a selected note you can change several velocity values at once by clicking in a free space and dragging the mouse over several velocity values while holding down the key. You can then also create sequences by moving the mouse in a curve. A previous (multi-)selection is ignored. For example, you can easily create a crescendo or decrescendo effect.

## List Editor (midi event list)

### Open List Editor

The MIDI Editor has an integrated display of all events in list format. This List Editor can be opened with the button above the keyboard or by using the “Alt+L” keyboard shortcut.

When the List Editor is opened and activated for editing it has a narrow red border. This is to make clear that certain functions, e.g. select next/previous event (cursor keys) or the “Select all” command, refer only to the List.

### Working with the List Editor

The List Editor does not only display Note Events, but also MIDI Controller and Sysex data. This controller and the data can be hidden and can even be filtered during playback (“mute”).

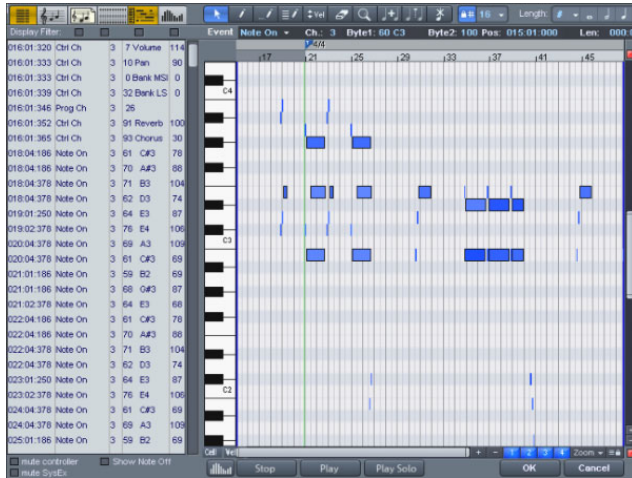
Double-clicking on a Sysex entry of the list opens a simple Editor for viewing and editing the Sysex information.

A note always has a Note On and Note Off event. These are always selected and edited in pairs (Note Off events are not displayed by default, but can be displayed by checking the box below the Editor).

New events can be created directly in the List Editor by using the “Insert Button”. The current values of the edit fields in the upper frame of the Piano Roll always apply. Therefore, before editing these fields please ensure that no event in the Piano Roll is selected.



**Tip:** If no current event has been selected, you can determine the insert position by setting the play cursor.



For editing certain events only, the List Editor has a view filter for each column. These are small checkboxes above the List Editor columns.

Select a representative format. For example, this could be a note of a certain pitch. Then click on the display filter of a specific column to display only events of this type, e.g. of the selected pitch. All other events are now hidden.

View Filters can be combined. For example, you can use the “Select all” command (Ctrl+A) to select and edit all Type 10 control change events (volume) of MIDI channel 6.

### MIDI Editor tips & tricks

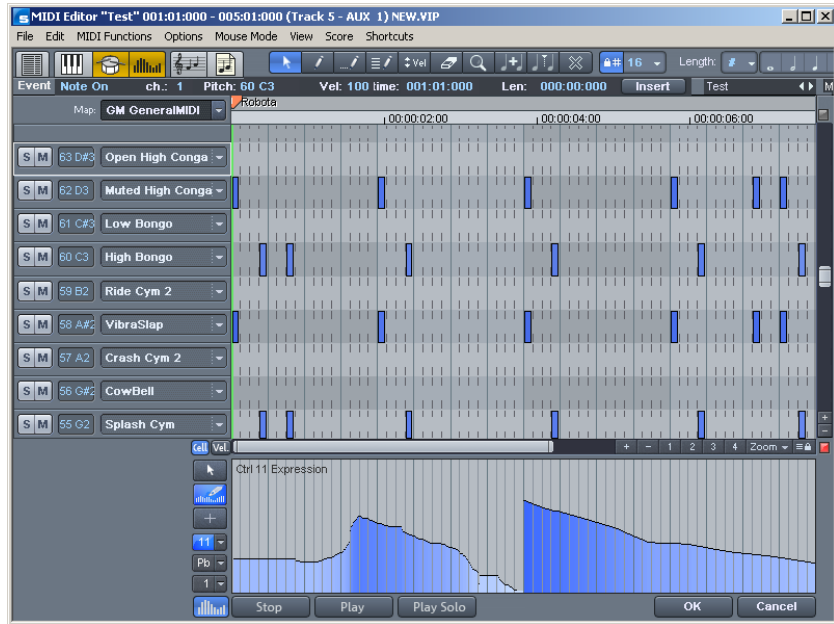
You can copy & paste MIDI data within the Editor and between different MIDI Objects. MIDI data is always inserted at the current position of the play cursor.

Duplicating: If the grid is activated (“Options” menu Quantization grid active), the selected notes are copied and inserted from the next grid point following the selection. They are otherwise inserted immediately after the selection.

## Drum Editor

After opening the MIDI Editor (double-click on the MIDI object), open [www.magix.com](http://www.magix.com)

its "Options" menu and select the "Drum Editor" entry. Instead of the piano keys to the left, you now see a list of drum instruments.



**Note:** If a drum map is active in a track (recognizable by the cross beneath "Drum" in the trackbox), the Drum Editor is loaded automatically when the MIDI Editor is loaded.

**Drum Editor:** In the trackboxes of the Drum Editor you can individually adjust MIDI channel, grid, quantization length, display width in cell mode and velocity scaling for each drum instrument.

**Velocity scaling:** The velocity value of each note is multiplied by the V value/100 entered here and adjusted to the MIDI velocity between 1 and 127. Scaling is audible but is not visualized further.

- Cell Mode: When the Drum Editor opens, Cell Mode activates by default. This is solely a view mode which permits an alternative view of the MIDI events.
- Notes are displayed as cells, that is, the note length is not displayed, but rather a specific display width can be set. In Cell Mode of the Drum Editor, the display width for each instrument can be set individually in each trackbox. (In Cell Mode of the Piano Roll, the length value sets the width).
- Cell Mode serves to improve the overview especially when editing

MIDI drums and permits a structured and efficient workflow. This is because the display can be limited to the most important information, starting note positions, and velocity.

### Mouse modes

The following modes are available for editing events, just like in the piano roll:

**Selection mode (1):** You can use this mode to select drum events, move or change the length of one or several events simultaneously.

**Draw Pencil (2):** In this mode you can draw drum events. If quantization is also activated, they snap to the grid immediately when you enter them.

**Drum Pencil (3):** This mode also entails a draw function. However, the quantization length is also taken into account when the events are drawn.

**Pattern Pencil (4):** This mode allows you to draw entire Drum Patterns (or melody patterns). If you want to create a new pattern, you have to select it first in "Selection Mode" and press the keys Ctrl+P simultaneously (or go to menu "Edit" in the MIDI/Drum Editor > Create pattern from selection"). If you have created a preset pattern, you can start drawing at any position. The lowest note in the pattern is then the pitch you are drawing.

**Velocity Tool (5):** This mode allows you to mark events and change the velocity values of all selected events in relation to each other. Absolute values are entered when you hold the Shift key, i.e. all changed events receive the same velocity value.

**Eraser (6):** This tool lets you delete events with a single mouse-click.

**Zoom mode/magnifying glass (7):** Sketch a rectangle to zoom in. The left mouse button is used to zoom in, the right one is used to zoom out.

### Velocity

If this button is active, the bar height is used when displaying the velocity value of the note. In all mouse modes (except for "Delete") the velocity can be changed by directly clicking on a note without have to switch to the Controller Editor.

### Drum Maps

Drum Maps specify individual instruments, for example, Bass, Drum, [www.magix.com](http://www.magix.com)

HiHat, Snare, etc. An individual output notes, MIDI channel, and velocity scaling can be set for each of these instruments. To split the drum names a "General MIDI" map is used by default.

The Drum Map can be set in the track info (should the track be set to MIDI recording), via the "Drum" field and via the Drum Editor itself by clicking on the "Map" field.

It may be the case that your synthesizer (regardless if real or virtual) uses a different mapping setup.

This means that when you play the drum event, the sound you wish to hear may not be heard (for example, instead of a bass drum, you get a High Tom). In this case you will have to re-sort your mapping setup.

### **Drum Map Editor**

This editor lets you route each played note to a different one and give them their own individual names. It's also possible to assign each individual instrument its own quantization and a new (MIDI) output channel.

**Pitch:** This is the incoming MIDI note.

**Instrument:** Here is where you can find the name of the drum instrument, for example, "Bassdrum 1".

**Grid:** If desired, you can set up a grid for the starting point of the drum event.

**Length:** In this field you can set the grid for the note length.

**Output note:** This is the note value to which the drum instrument (the incoming MIDI note in the "Pitch" field) should be routed or mapped.

**Channel:** You can set up an individual channel for each instrument here. Furthermore, you can select swing, window, and near quantization for each instrument in the Drum Editor.

### **Quantization**

The global quantization settings can be found in the menu "Options > Quantization options". Press "Q" to trigger global quantization. Each drum instrument can have its own quantization. To make the necessary settings, select the arrow next to the track name of the instrument you want to edit and open the quantization options.

## Score Editor

The Score Editor displays the MIDI data of a MIDI object as a score sheet. It "interprets" the available MIDI data into realtime. If you move or change the MIDI data, such changes are immediately reflected in the score image. If you insert a new note in the Score Editor, a corresponding MIDI Note On event is created immediately. Therefore, do not view the Score Editor as a score painting program but more as an interpreter for MIDI data.

For instance, it is not possible to insert or delete rest symbols directly. Samplitude Music Studio 14 automatically "registers" rests in the gaps between the MIDI notes. You will therefore always have a valid score sheet and "complete" bars, even if the MIDI object should only contain a single MIDI note: the necessary rests are automatically inserted into the bars.

The common controllers of the MIDI Editor in the Score Editor operate as usual, e.g. the eraser is used for deleting notes or the pen for creating, copying and inserting new notes. In this chapter you will learn how you can edit your MIDI objects within the regular score. While the Event Editor contains specific editing options for certain details (dynamics, note length), it is better to make MIDI changes directly in the score sheet as it guarantees a better overview.

### Opening the Score Editor

The Score Editor is integrated into the MIDI Editor window. If the MIDI Editor is opened, you can activate the linear score view by pressing the "Score Editor (linear)" button.



Score Editor (linear) button

**Navigation** : You can adjust the play cursor directly in the score by holding shift and clicking the desired position. You can set the playback range by holding the shift key and left-clicking the left border and right-clicking the right border of the range.

### Score Editor Modes

Samplitude Music Studio 14 offers two alternatives for viewing the score: linear display and page mode.

The linear note display can be combined with the matrix display which offers ideal MIDI Editing options, as the detail in depth of the matrix editor and overview can be supplemented by several score

systems. You can select the score in the score sheet and perform fine adjustments in the piano roll. Selection and zooms in all editor views (linear score, piano roll, event list, velocity editor) are always synchronized.

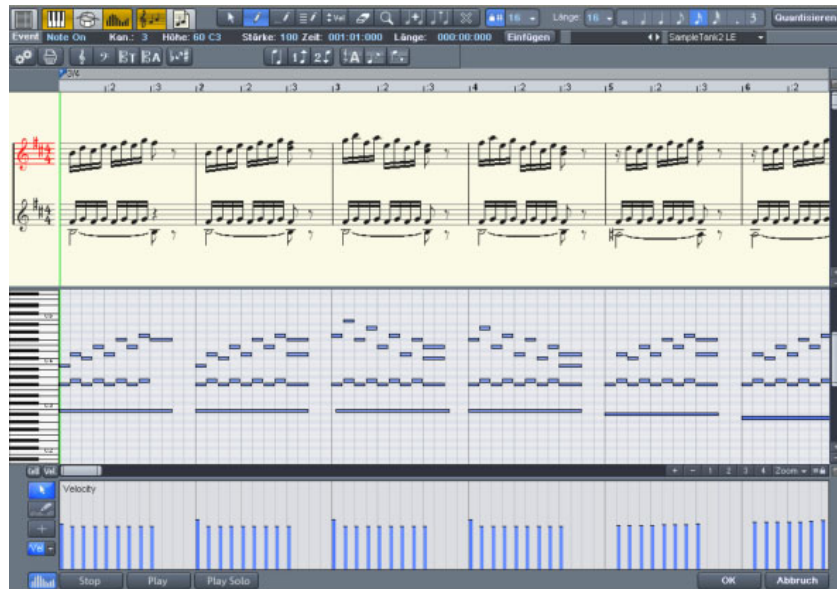
### Linear view



Score Editor (linear) button

For detailed editing of the MIDI data in the score you should preferably select linear view mode as both matrix and velocity display are available. All parameters such as pitch, note length, and velocity are displayed.

Please note: Only the notes of the currently active system are displayed in the Velocity Editor if notes and velocity are parallel. The red bar mark indicates the currently active system.



Notation view in Linear mode (move bar between score and matrix)

The horizontal zoom above the scroll bar zooms parallel to the matrix view.

In linear mode details can no longer be displayed correctly if you  
[www.magix.com](http://www.magix.com)

zoom out horizontally as the note symbols overlap. It may then be necessary to reduce the size of the notation symbols (+/- buttons on the right). Despite the no longer correctly displayed details, zooming out can still provide you with a good overview, particularly in large scores. Samplitude Music Studio 14 can adjust the notation symbols automatically. To do this, please select "Automatic zoom" in the Score menu.

### Page view

This page mode displays the notes just like on a musical score sheet, which also serves as a print preview. Here you can select notes and allocate them to voices/staves and delete them, although you cannot move them with the mouse or pen.



Score Editor page mode

Page view is not only useful for preparing a score sheet (e.g. for titles, borders), but also for editing longer sequences. The staff break allows you to display considerably more bars than with the linear display.

**Scrolling in full view mode:** Use the vertical scroll bar to scroll from page to page.

**Page mode as print preview:** You should first change the page  
[www.magix.com](http://www.magix.com)

format (in the Score Properties dialog) to the paper format of your printer before setting up the page for printing as the display depends on the page format. You will then see your score exactly as it will be printed.

### The score

The automatic conversion of MIDI data into score is usually sufficient for editing MIDI data as efficiency is required here instead of a perfect, ready-to-print display. However, it may still be necessary to adjust some of the display options while editing. The display options can be found in the MIDI Score Properties dialog, which you can open by clicking on the "Print" button.



Opens the Score sheet settings dialog for notation and page properties.

This is also where the presets are stored. These are pre-programmed standard settings for certain instruments or instrumentation such as strings or orchestra. Selecting a preset improves the score display and its readability.



Treble clef view (preset)



Switch notation display by selecting the piano clef preset.

Further explanations of the notation system can be found below.

### Editing MIDI data in the score sheet

#### Selection

As usual you can select notes by clicking them. You can select a group of notes (e.g. a chord) by sketching a frame over them while



holding down the mouse key. Select multiple single notes by pressing the Ctrl key.

### Note parameters

The parameters pitch, velocity, and length can be changed for one or several selected notes. If you have selected one or several notes the data of the current note will appear in the info bar above the score view. Changing a parameter may have a comparable effect on all selected notes, just like in the Matrix Editor.

### Move and transpose

To move notes, first select and then drag them to the desired position. Here the info box can help you keep track of the pitch or position. The step size when moving is determined by the selected quantization raster in the MIDI Editor.

### Copy

Select the desired notes and copy them by holding down the Ctrl key and dragging the mouse. Alternatively you can also use the copy function of the Edit menu.

### Insert new notes

You can also insert new notes in the score editor by using the pen. Click on the desired position with the pen, hold down the mouse key and, if necessary, correct the position and pitch. If you let go of the mouse key, Samplitude Music Studio 14 will add a new note of the same length as the selected length quantization value. You can only insert new notes into the active stave. For instance, to insert a note in the lower part of a piano system, first click on the lower staff in the system on the left.

Only notes are inserted that correspond with the current pitch. Non-scale notes or chromatic intermediate steps are skipped. When you enter conventional music material with the mouse, diatonic insert mode increases the chances of hitting the correct note. If a new prefix is to be added to the note, you can move the note chromatically with the arrow key. This way an inserted F in C-Major can be transformed into an F# by pressing the "Page Up" key.

### Delete notes

You can delete notes by

- selecting them and pressing the "Del" key or
- by clicking on them with the eraser (or the right mouse button).

**Insert notation symbols**

Clef symbols can be inserted at the current cursor position by pressing the corresponding clef symbol in the active system.

**Delete notation symbol**

Notation symbols such as clef and pitch cannot be selected as they are meta information for the notation display and no MIDI Events have been allocated to them. They can also be deleted by clicking on them with the eraser (or the right mouse button).

**Adjusting and optimizing the score.**

Samplitude Music Studio 14 automatically generates a notation display from the MIDI events contained in the MIDI object. This is always correct as regards pitch and position. However, this does not mean that the notation can be optimally read as displaying note lengths also plays an important role in this context. In this case the notation permits more interpretation flexibility so that the user usually has to intervene. The illustration shows a typical example of how poor a readable transformation of a sixteenth note piano sequence would look in notation.

This representation may be correct; however, it is not readable. Why is that? The MIDI events contain very precise information on the start of a note, its length and pitch, which has to be taken into account during playback. It may influence the groove of a song if the notes always are slightly shorter than sixteenth notes. If this were to be displayed correctly in the notation, the score would be unreadable as in the example above. The MIDI events also do not contain information on whether the gap between two notes is a real rest, its harmonic correlations (pitch), and the characteristics of the dynamic sequences. This is why automatic processing of notation always differs from what would be ideal. Samplitude Music Studio 14 includes an number of automatically and manually controllable functions for making it easier to read the notation. The reworked version of the the above score illustration shows how big the difference can be.

**Note allocation in multiple staves**

The term "Stave" refers to an individual line within a stave as well as all staves of a score. In cases where it is important to be able to differentiate a score and a staff from one another, we use the term "Stave" for the score and "staff" for a single system.

What is meant by a "Stave" can often be interpreted from this relation, for example, in a two-handed piano piece, "upper" or "lower"

systems are referenced.

Samplitude Music Studio 14 provides multiple systems, for example, for piano notation or entire scores, which can be comprised of up to 16 individual systems.

To manually assign notes to a system, click on



to move the selected notes one line on a staff higher and correspondingly on



to move them one line lower. This results in the note being connected to the line (independently of the MIDI channel or pitch). This manually set allocation can be undone by clicking on



"Automatic staff allocation"

When transcribing a MIDI piano recording, splitting the notes into a two-line piano system using the split point is recommended. The points where individual notes are placed incorrectly in a line can be corrected easily by assigning the notes manually with a click to the desired stave.

The automatic allocation of the score to a specific line is flexible: either the MIDI channel of the note event, the pitch or even a combination of the two can make up the criteria. This permits simpler and faster distribution of MIDI notes in the score line.

Example: It's often the case that, with some standard MIDI files, the notes of a lower system of a particular piano piece have a different MIDI channel to that of the notes of the upper stave. Let's assume the notes for the right hand are on channel 1 and the notes for the left hand are on channel 2. In this case you should set up two staves for the stave in the note stave settings. The easiest way to do this is with the "Piano" preset. For the first staff, set the MIDI channel allocation to "Ch. 1" in the "Channel" selection box and "Ch. 2" for the second staff. Deactivate allocation according to pitch by setting the split point to 0 (see MIDI Score Settings dialog).

The rules for allocation are as follows:

If the (preset) option "Automatic stave allocation" is set for the note, the staves will be played through until the MIDI channel corresponds with it and the pitch is over or equal to the split point.

**Note:** It may happen that some notes are not shown at all as they are not yet allocated to a stave.

### Multi-voice notation

Up to two independent voices can be annotated for each staff. The voices differ in the direction of the note stems: the first voice is always with the stem pointing upwards, the second with the stem pointing downwards. Rests are displayed individually for each voice.

Multi-voice notation can simplify the score considerably and enable multiple instruments or parts to be displayed in one staff together.



You can set the voice by selecting the notes and clicking on the button or menu command "Assign first voice" or "Assign second voice".



Here, the stem direction of the notes, and therefore the voice itself, are set.

This assignment can be undone by clicking on



"Automatic staff assignment for notes".

For automatic voice assignment, the note's MIDI channel has to be analyzed.

To do this set up a MIDI channel for the second voice in the "Stave properties" dialog. This can be set individually for each staff. All notes of a stave whose MIDI channel has not yet been assigned to a second voice, are added to the first voice.

Voice assignment via the MIDI channel can be practical when displaying standard MIDI files with multi-voice piano pieces if the

voices of the right hand are set to the first and second MIDI channels and the voices of the left hand are set to MIDI channels three and four. In this case, apply the following settings:

**System Setup**

Number of staves:  Presets:

| Up | Name | Clef          | Key              | Trp. | Chan. | 2. Voice | Quant. | Splitpoint |
|----|------|---------------|------------------|------|-------|----------|--------|------------|
| 1  |      | treble cle... | 2# D Major / ... | 0.00 | Ch 1  | Ch 3     | 16th   | 0 C-2      |
| 2  |      | -12 trebl...  | 2# D Major / ... | 0.00 | Ch 2  | Ch 4     | 16th   |            |
| 3  |      | (inaktiv)     |                  |      |       |          |        |            |
| 4  |      | (inaktiv)     |                  |      |       |          |        |            |

**Note:** If there is no MIDI channel selected for voice assignment, only one voice will be annotated (if manual voice assignment does not occur).

### MIDI Score Settings dialog



Open Score Settings dialog for stave and page properties

Here, note stave and page format settings can be set. None of the settings have any influence on the MIDI data itself, but rather only on the display of the score.

The screenshot shows the 'System Setup' dialog box in a MIDI editor. It is divided into 'Score settings' and 'Page settings' tabs. The 'System Setup' section includes a 'Number of staves' field set to 2, a 'Presets' dropdown, and a table for configuring individual staves. The table has columns for 'Up', 'Name', 'Clef', 'Key', 'Trp.', 'Chan.', '2. Voice', and 'Quant.'. Stave 1 is active, showing 'treble cle...', '2# D Major / ...', '0.00', 'Ch 1', 'Ch 3', and '16th'. Staves 2, 3, and 4 are inactive. Below the table are 'Apply changes to all staves' checkboxes for 'Options', 'Key Signature', and 'Display Quantize', and an 'Options (current staff)' section with checkboxes for 'simplify note lengths (interpretation)', 'hide note overlaps', 'automatic staccato articulations', 'recognize triplets', 'strict measure beat/pulse division', 'larger beam groups', 'recognize grace notes', and 'force polyphonic notation'.

**Note:** The affected stave settings are always applied to all MIDI objects situated on the current track. The page format settings are global and valid for every VIP.

### Stave settings

All settings for the stave and display parameters/options can be accessed via this dialog page. Here you can enter the clef.

Samplitude Music Studio 14 provides MIDI files with up to 16 staves on one track. For each staff, the clef, display transposition (for instruments that transpose, for example, a saxophone), and display quantization can be specified individually.

Furthermore, an instrument's prefix ("Name") can be set as well as the MIDI channel for automatic stave/voice assignment.

Similarly, the split point serves automatic stave assignment: Notes above the split point are added to the upper stave, while those under the split point are added to the stave beneath it (as long as the MIDI

channel matches).

The active staff is recognizable via the index marked in red. The list of 16 staves can be scrolled vertically using the arrow buttons (up/down). In the lower range the display options of the active staff are shown.

Optionally, all changes to settings, display options, clef, and display quantization are always transferred equally to all staves.

### **Note display: Interpretation options**

None of the options have any influence on the MIDI files or playback.

#### **Simplify note lengths (Interpretation)**

Displays rests and slurred notes in such a way that the score is as legible as possible without influencing playback.

#### **Automatic staccato articulations**

A staccato symbol is added to a note whose value is considerably longer than the "real MIDI note". This is practical when working with simplified length display.



Option: "Simplify note lengths (interpretation)" selected.

Additional option: "Automatic staccato articulations".

#### **Hide note overlaps:**

Prevents the overlapping of sequential notes which, for example, arises as a result of playing legato:

#### **Recognize triplets**

Activate this option if triplets are present in the MIDI object.

**Please note:** The display quantization value always has to be one step finer than the smallest discernible triplet value. To recognize one eighth triplets, display quantization has to be set to at least one sixteenth (or to 1/64 for 1/32 triplets).

### Strict measure/pulse division:

There are no note or rest values longer than a beat subgroup (pulse). Longer notes are displayed as multiple slurred notes. This can simplify the legibility of the score.

### Larger beam groups:

Beam groups are partially compiled across beat subgroups. This can simplify the legibility of the score.

### Recognize grace notes

Note values which are much shorter than the display quantization value are annotated as flam notes as long as a base note is present.

### Notation symbols

#### Clef



There are four clefs available in Samplitude Music Studio 14: violin, bass, tenor, and alto clef. Samplitude Music Studio 14 differentiates between base clef and clef change. The base clef can be set up for every staff in "Score settings" (and applies to all MIDI objects on the current track). A clef inserted from the tool bar, will be interpreted as a clef change. Clef changes are possible any number of times in a song and also within beats.

Insert: Activate the staff into which the clef should be inserted (by clicking on the staff signature to the left).

Position the play cursor at the desired insert point and click on the desired clef in the symbol bar. Move the playback cursor to the desired insert position and click on the desired clef in the symbol bar. The clef will be inserted musically, not graphically, that is, with a clef change at position 10:01:000 (the beginning of the tenth beat) the clef symbol at the end of the ninth beat will be displayed according to



note set rules.

Clef changes can also be deleted by clicking on clef symbol with the eraser (or the right mouse button).

### Beat signature

The metric and beat signature symbols are created automatically from the tempo markers of the VIP project.

Beat changes are possible at every full beat border. In addition, you might want to create a beat count measure marker with the new signature (for example, 6/8) at the desired position. If there are no beat count measure changes, it's enough to set the bar type of the piece (for example, 3/4) in the transport control.

### Accidental



Enharmonic change

Samplitude Music Studio 14 sets the sharps and flats according to the clef description you selected. It is often the case, however, that enharmonic change can considerably optimize the legibility of certain passages. In this case you can act manually. To change one or more selected notes enharmonically, click on the corresponding button. The function transforms flats into sharps and vice versa.

### Page format settings

You can select the page format independent of the printer settings so that it always has the same note layout regardless of workplace and independent of the printers installed in Windows.

In the score–page format setting, texts for tempo description, composer, and an additional text can be entered. Similarly, you can choose which layout elements should appear on the page (checkboxes for beat numbers, page numbers, and texts).

### Printing score

Samplitude Music Studio 14 automatically creates the layout of the score and caters for optimal division of staves and staves on the page. You only need to specify the page size, orientation, and page borders.

- **Note size:** Here you can scale the size of the note symbols/the printout. This is actually irrelevant for working with the monitor's display as you can zoom whenever you want anyway. However, the size of the notes does influence at which position a line or page break occurs.
- Set a value smaller than 100% to get more beats/staves onto one piece of paper.
- Set higher values than 100% in order to keep larger note symbols on the printout.

### Print notes

Activate the print process in the Score > Print Notes menu or via the

Print button. Furthermore, a printer dialog window appears which appears differently for each printer or printer driver. Depending on the printer there are various options, for example, the selection of pages you wish to print and the number of copies. Make sure that you have set up the same paper format for the printer as for the page mode, otherwise the printout may be scaled and the page ratio changed.

The following won't be printed, it's only visible on the monitor.

- The lines which highlight the page borders on the monitor
- Mouse pointers
- The color display of the currently selected notes and playback areas.

When printing a file (e.g. as a PDF file with a special printer driver) please note that you have to activate the option "Save fonts in document" in the printer driver so that the notation symbols will be displayed correctly in the document.

## Quantize

Irregularities when importing can be corrected using the quantization function. Clicking on "Q" shifts all selected notes to a customizable quantization grid. All notes are quantized without previous selection. As a quantization value for the length display of the individual MIDI events, note values of whole notes up to 1/64, and n-tuplet and dotted values can be selected. Quantization options (Options menu in the MIDI Editor):

- Strength of the quantization in % (Strength 0... 100):
- "100" moves the event precisely onto the quantization snap point,
- "50" moves it into the middle between the current position and quantization snap point,
- "0" means there is no movement > Quantization off

### Swingin % (Strength 0...100)

Starts swinging, groovy playback (for example, triplet). Specifies the division for uneven grid points.

- 50 ... "50-50 division": The uneven 1/8 note is exactly half way between the even eighths ("even play" mode)
- 67... triplet play, 3-2 division

**Window in % (Strength 0... 100)**

Quantization window, events in the window are quantized, those outside remain at their position.

- 100: Window covers the total range from the grid points of the quantization grid.
- 50: The window covers half of the quantization interval. Events with gaps of  $\frac{1}{4}$  of the grid width left and right of the grid point are quantized.
- 0: No window -> Quantization off

**Offset**

- Value range: -100...+100
- Offset moves the entire quantization grid:
- -100 is a half grid shift to the left (earlier), +100 is a corresponding shift to the right (later)

**N-Tuplet (off, 3, 5, 7, 9)**

The grid is split into n-tuplet quantization values (for example, 8T, 16T). You can enter any number you like, as well as the previously defined numbers. Please note that you can only work either with the swing setting or n-tuplets.

**Reset**

Restores the default values.

**MIDI Editor shortcuts**

Apart from few exceptions such as "Space" for stop/playback the keyboard shortcuts can be defined freely with the keyboard shortcut, menu and mouse editor. For some basic functions such as scrolling and zooming, all keyboard shortcuts from the VIP are applied. You can explicitly define shortcuts for all commands that are available in the MIDI Editor menu.

**Hint:** The mouse wheel settings are also applied from the VIP, as is the switch for the temporary zoom mode (special) which is predefined with the Z key

|                                     |           |
|-------------------------------------|-----------|
| Playback/Stop                       | Space bar |
| Close MIDI Editor (apply changes)   | Return    |
| Close MIDI Editor (discard changes) | Esc       |

**File**

|             |        |
|-------------|--------|
| Import MIDI | Ctrl+I |
| Export MIDI | Ctrl+E |

**Edit**

|                               |                     |
|-------------------------------|---------------------|
| Undo                          | Ctrl+Z              |
| Redo                          | Ctrl+Y              |
| Cut                           | Ctrl+X              |
| Copy tracks                   | Ctrl+C              |
| Insert                        | Ctrl+V              |
| Duplicate                     | Ctrl+D              |
| Select all                    | Ctrl+A              |
| Create pattern from selection | Ctrl+P              |
| Delete selected MIDI data     | Back, Del           |
| Delete all MIDI data          | Ctrl+Back, Ctrl+Del |
| Select next event             | Arrow right         |
| Select previous event         | Arrow left          |

**MIDI functions**

|                |        |
|----------------|--------|
| Legato         | Ctrl+L |
| Quantize notes | Ctrl+Q |

**Options**

|                                      |        |
|--------------------------------------|--------|
| Scroll mode                          | F      |
| Show Event list                      | Alt+L  |
| Show Velocity/Controller Editor      | Alt+V  |
| Play clicked notes                   | Alt+P  |
| Quantization grid active             | Ctrl+G |
| Show quantization grid               | Alt+G  |
| Quantization options                 | Alt+Q  |
| MIDI Object Editor editor            | Ctrl+O |
| Audition Panic-End played edit notes | Ctrl+F |

**Mouse mode**

|                        |   |
|------------------------|---|
| Selection              | 1 |
| Draw                   | 2 |
| Drum (-draw)           | 3 |
| Pattern (-draw)        | 4 |
| Change velocity        | 5 |
| Delete                 | 6 |
| Magnifying glass       | 7 |
| Glue note mode         | 8 |
| Split note mode        | 9 |
| Mute notes (Mute) mode | M |

|   |                   |
|---|-------------------|
| Select next event                         | Arrow right       |
| Select previous event                     | Arrow left        |
| Event pitch higher                        | Arrow up          |
| Event pitch lower                         | Arrow down        |
| Select next grid quantization value       | Alt + Arrow down  |
| Select previous grid quantization value   | Alt + Arrow up    |
| Select next length quantization value     | Alt + Arrow right |
| Select previous length quantization value | Alt + Arrow left  |
| Move play cursor forward                  | Page down         |
| Move play cursor forward (fast)           | Ctrl + Page down  |
| Move play cursor backward                 | Page up           |
| Move play cursor backward (fast)          | Ctrl + Page up    |
| Velocity/controller selection             | Ctrl+1            |
| Velocity/controller draw freehand         | Ctrl+2            |
| Velocity/controller draw freehand         | Ctrl+3            |

## Software/VST instruments

Samplitude Music Studio 14 provides the option of integrating software instruments as well as MAGIX Synths (for example Roboto Pro) into a virtual project according to VSTi standards (for example, Sample Tank) and can be controlled via the internal MIDI functions and editors. All instruments as well as their multiple outputs are seamlessly integrated into the Audio Engine with all of their effects and routing options. The maximum number of instruments is limited by the performance power of your processor. You can increase this number by using the integrated freeze function.

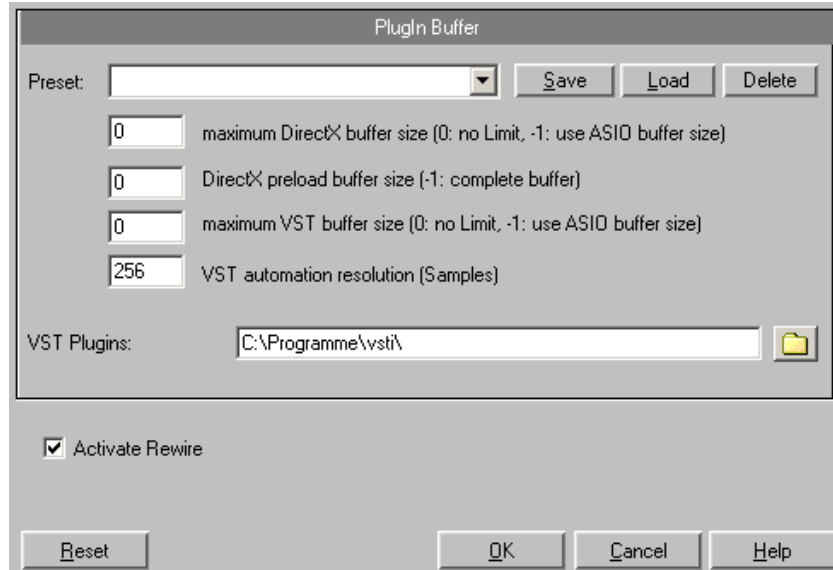


Software Instrument Robota Pro

### Installation of instruments and path settings

Install every VST instrument according to the instructions of the manufacturer. Samplitude Music Studio 14 searches for installed VST instruments in the "VST Plug-ins" program subfolder. You can install your VST instruments either in this folder or use any other path to an already existing folder, for example, to another host application. You will, however, have to enter this foreign path in the stave settings ("Y"

key) in the "Effects > VST / DirectX / ReWire" subdialog (entering multiple paths is also possible). Simply enter one path after the other, all paths will be taken into consideration. Samplitude Music Studio 14 will automatically find newly installed plug-ins contained within the selected folders.



The first time the program is opened, a search for existing instruments and plug-ins is executed when the track settings are opened. Here, not only are all the plug-ins imported, but they are also checked for their usability within the program. This search is only necessary once, the next time it is opened, the track settings will be opened immediately.

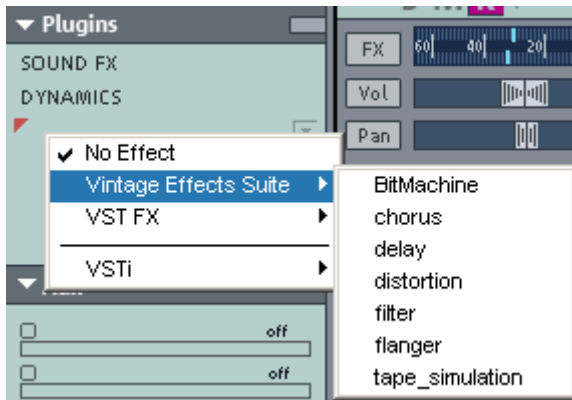
**Tip:** For problems with your current configuration, you can reset all paths and installed instruments or plug-ins. To do this, delete the "VST Plug-ins.ini" file in the Samplitude Music Studio 14 folder. All paths will have to be newly entered. Plug-ins which were removed from the program prior to this will still be shown.

## Load instruments

These are managed in Samplitude Music Studio 14 under "Track menu -> VST Instrument Editor". You can also assign an instrument to each track – the instrument is selected as a MIDI playback device.



Selected instruments or their individual outputs are shown directly in the first VSTi Plug-in/Insert slot of the track box and mixer track and can also be muted (left-click) and opened (right-click) from there.



- Load an instrument by selecting a "New instrument" in the project window as a track output. This can happen at various points:
- Playback device menu (right-click on "Mute" button -> MIDI -> New instrument)
- Plug-ins slot -> VSTi in the Track Editor
- Insert effect slot of the mixer -> VSTi: You will only find this option in the top Insert slot of the individual mixer channels.
- "Out" slot -> New instrument in the MIDI section of the Track Editor.
- "Out" slot -> MIDI -> New instrument in the Audio section of the Track Editor.

## Adjust instrument parameters

The instruments editor (panel) is then opened when an instrument is loaded and can be opened again at any later date by right-clicking on the VSTi slot in which the instrument name is displayed. Alternately, the VSTi Editor can also be opened by right-clicking on the record button on the track -> Instrument output -> VSTi Editor.

The graphical interface opens by default. If the selected instrument (or plug-in) does not have its own interface, the parameter dialog will open. This display mode is limited to just a few control elements and can only be opened via the menu of the instrument window. Use this mode if you find the panel of the plug-in too unclear or if it takes up too much space on the screen. In this dialog eight freely selectable parameters of the instrument are clearly and numerically displayed.

Bar controls can be used to adjust the parameter values.

Alongside the combi-boxes for the selection of all instrument parameters, the "Auto" checkbox is also of importance. Once activated, the automatic processes of the selected parameters are started. The automation curve is shown in the project track and can be edited. The parameter can be automated using the fader.

Activate automation parameters by checking the "Auto" control box.

The parameter selection is saved for each plug-in so that the next time you use the same plug-in in a different project, the same parameters are used. This way you have the advantage that every frequently used parameter of the corresponding instrument is available immediately after it has been opened.

### Instrument panel and parameter dialog

The instruments editor (panel) is opened when an instrument is loaded and can be opened again at any later time by right-clicking on the VSTi slot displaying the instrument name. Alternatively, the VSTi Editor can also be opened by right-clicking on the record button on the track -> Instrument output -> VSTi Editor.

The graphical interface opens by default. If the selected instrument (or plug-in) does not have its own interface, the parameter dialog will open. This display mode is limited to just a few control elements and can only be opened via the menu of the instrument window. Use this mode if you find the panel of the plug-in too unclear or if it takes up too much space on the screen. In this dialog eight freely selectable parameters of the instrument are clearly and numerically displayed. Bar controls can be used to adjust the parameter values.

The parameter selection is saved for each plug-in so that the next time you use the same plug-in in a different project, the same parameters are used. This way you have the advantage that every frequently used parameter of the corresponding instrument is available immediately after it has been opened.

### Dialog menu

Further options can be found in the menu of the Instrument window:

**Bypass:** Deactivates the instrument and mutes it. Note that some instruments use up processing power if bypass is switched on but are still located in the Insert slot. In such cases, the instrument should be removed completely from the Insert if it is no longer required.

**Monitoring:** This option must be switched on if you wish to be able to hear the instrument when it is being played or recorded. If you wish to always have monitoring active when the track's REC button is pressed, please select the "Tape Monitoring" option in the System/Global Audio Options ("Y" key, Audio setup tab) dialog.

**Loading/Save patches/banks:** Here you can save an instrument's settings and sounds. The standard formats for this are: \*.fxp for patches or \*.fxb for whole banks. Some instruments have their own patch/bank format, settings are then loaded and saved directly via the instrument's interface.

**Set parameters randomly:** Use this function to set all parameters of an instrument to a random value. For synthesizers, this option can lead to surprising results and provides interesting results for the sound design thanks to the random generation of a new sound. Here you should note, however, that parameters can only be set when they are accessible via the interface. With some very complex virtual synthesizers, like, for example, modular systems, some parameters may not be modifiable using this option. Please note that thanks to the random placement of various parameters, very extreme sounds can be generated. This may lead to no sound being produced at all or extremely loud volumes and frequency ranges being reached. For this reason you should keep an eye on the preview volume when experimenting with this function.

## Play and monitor instruments live

### Monitoring

In order to play virtual software instruments you require a device to enter the data. Typically this would be a MIDI keyboard. Of course you can also use any other PC that transmits MIDI data or a hardware synthesizer.

For direct monitoring while playing you will in any case require an audio interface with ASIO drivers. Simply playing instruments, however, is also possible with MME or WDM drivers.

- For live monitoring you also have to make the following settings:
- ASIO drivers (System/Options > System/Devices > Global audio options > Playback devices > Driver system)
- Activate global record monitoring in the Transport Control ("Rec M" button)
- Activate the track monitoring button (loudspeaker symbol)
- Software Monitoring or Hybrid Engine (Options > System/Global

audio options > Audio setup)

**Tip:** You can also select monitoring mode by right-clicking on the Record Monitoring button on the Transport Control.

**Latency:** Please note that a system-dependent delay between pressing the key and the instrument sound occurs when you play virtual software instruments. This so-called latency time is mainly determined by the buffer size set for the ASIO drivers. For playing in an acceptable manner we recommend a buffer size of 1024 samples max. This corresponds with 23ms at 44.1 kHz. For many users, however, a latency of 3ms, i.e. 128 samples, is optimum. Please note that the CPU load also increases at a lower buffer size. The "live" delay only occurs when an instrument is played, playback latency of an already recorded MIDI track over a virtual instrument is compensated later.

As software instruments are fully integrated into the audio engine of the program, the signals can be routed, mixed and equipped with plug-ins any way you like. There may be some restrictions when playing, but all functions are fully available during playback.

**Hint:** Please note that "Track FX Monitoring Mode" or "Mixer FX Monitoring/Hybrid Engine" have to be activated.

### Recording and playback of an instrument

An instrument is recorded much in the same way as a normal MIDI track. Make sure that the MIDI recording is active in the desired track and then press the record button in the transport control. The recording begins immediately.

When playing already recorded MIDI tracks, track monitoring should be switched off.

### Route MIDI instrument inputs

Nearly all software instruments require MIDI data in order to be heard. To route the MIDI input onto a specific track which contains the MIDI data, click on the VSTi button in the Track Editor of the corresponding track and select the instrument from the "Out" slot which you wish to activate. Already loaded instruments are

mentioned in this list.

To open a completely new instance of an instrument which works independently of already existing instruments within the project, select its name from the "New instrument" submenu.

## **Instruments with multi-channel outputs**

The number of available individual outputs generally depends on the instrument where it also can be adjusted. Outputs can be available in stereo and mono versions.

### **Two examples of typical handling of individual outputs:**

#### **Addressing an instrument on a MIDI channel and distributing sounds over several tracks**

This approach, for example, is ideal for all drum samplers if you want to address an entire drum set, but prefer to mix and edit the drum sounds individually.

#### **Addressing an instrument on several MIDI channels**

Several MIDI tracks are typically used for so-called multi-timbral synthesizers which can play several sounds on different MIDI channels simultaneously, whereby each addresses a specific sound program (part) on a specified MIDI channel. This also has the advantage that such instruments only require one instance of the plug-in for several sounds. Multi-timbral software instruments often have separate audio outputs. Please remember to route the individual parts to the desired outputs within the VST instrument (panel).

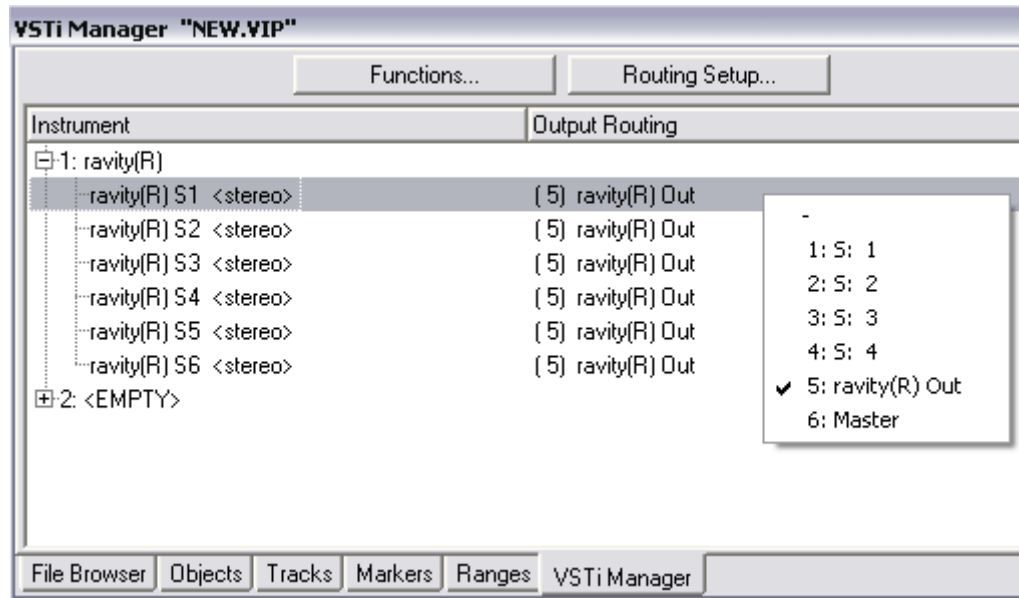
## **Routing of VST instruments using the VSTi manager.**

There are many flexible methods for signal routing of instruments.

As described in the previous paragraph, an instrument can be fed from several MIDI tracks, and the outputs of an instrument can also be sent to several tracks.

### Routing instrument outputs

Instrument outputs can be easily routed in the VSTi Manager. To do this, open the VST instrument to view the individual outputs and **right-click on the "Output to track"**.



Now search for the track which should be fed the corresponding individual output. The assigned output then appears in the plug-in slot of the target track.

Alternatively, you can also **route directly to the track box of the arranger**:

To play the output of an already loaded (or installed) instrument on a specific track, **right-click on the record button** of the track, go to "Instrument Outputs" and select the output of an instrument available in the project you want to sound on this track by adding a check. Several outputs of an instrument can also be used simultaneously in one track. You can even combine the outputs of several different instruments into one track.

Deactivating the instrument outputs works the same way. Remove the instrument output by removing the check in front of the corresponding output in the "Instrument output" submenu.

Please note that you can also use the entire routing options of the Mix Engine. You can route any track containing the return of any

instrument to any bus, AUX bus or Master.

### **Route MIDI instrument inputs**

Nearly all software instruments require MIDI data in order to be heard. To route the MIDI input onto a specific track which contains the MIDI data, click on the VSTi button in the Track Editor of the corresponding track and select the instrument from the "Out" slot which you wish to activate. Already loaded instruments are mentioned in this list.

To open a completely new instance of an instrument which works independently of already existing instruments within the project, select its name from the "New instrument" submenu. Multiple instances of the same VST plug-in can be noted from the count (index) in front of the name of software instruments.

### **Solo playback of VSTi instrument outputs**

To preview solo instrument outputs, switch the track to which signals are added by the corresponding instrument to solo. Even if the MIDI objects, which in effect are responsible for the sound, are not present in the track, you will still hear the selected track solo. The program automatically recognizes from which MIDI track the output is fed and lets the instrument continue to receive MIDI data to all allocated tracks.

## **Preset management**

If an instrument has presets, these are displayed in the "Program Slot" ("Prg") with their internal name (if MIDI mode is activated).

This flip menu can be used to easily "step through" the presets of your instrument. These presets can also be selected using the "Program" menu of the instrument window.

If your MIDI input device can send "Program change" commands, you can also directly select programs of this instrument. The program slot is automatically updated in the track, so you have an overview of the program all the time.

## **Freezing instruments (Freeze)**

Software instruments require CPU power for playback, which at some point can be quite considerable and is required during every playback. Therefore, please use the Freeze function to release the [www.magix.com](http://www.magix.com)

CPU power for VSTi tracks temporarily. You retain full control over the MIDI Objects of this track, which can be restored (“de-frozen”) at any time.

To “freeze” an instrument, select the “Track Freeze” option in the track menu (keyboard combination: Ctrl+Shift+F). After a short processing time, all MIDI and audio Objects are replaced by a single, resource-friendly 32bit stereo audio Object, which is now played back instead of the original Object and the instrument. The existing automation data and track effects are already included in this Freeze Object.

The actual instrument of this track is no longer addressed by MIDI files of this track and can even be deactivated, provided that it is not used by other MIDI tracks.

Select “Track Unfreeze” (Ctrl+Shift+U) to change the original MIDI data at a later point in time that was 'frozen'. The track is now returned to the state in which it was 'frozen', but again requires the initial CPU power for processing the instrument.

Alternatively, you can use the feature “Edit Track Freeze”. In this case a new single-track VIP is opened with the original track. This track cannot be played together with your arrangement. As soon as you save this project, a new Freeze Object is processed and included in the original project.

Freeze also works with single outputs in different tracks than the main output track (Instrument outputs 1+2). You can also freeze these tracks if they do not contain MIDI information and do not hold Objects. The MIDI data that has been routed to the track or to the individual output of the instrument automatically creates an audio file that is now played instead of the original instrument. In order to prevent double playback of the data, deactivate the single output of the instrument manually in the frozen track.

To edit Freeze data you cannot only use the Track Freeze Edit Function as there are no MIDI data available on this track that could be edited. Therefore, “unfreeze” the track and edit the MIDI data of the send track. You can then refreeze the track.

**Note:** As long as the instrument is not entirely unloaded from the track it remains loaded into the RAM memory of the system. Samplers or instruments that require considerable amounts of memory also require this when their Insert Tracks have been frozen.



## Tips on handling virtual instruments

- You can realize so-called stack sounds (i.e. sounds that use several synthesizers and play these in unison) by opening several instruments and activating monitoring for all channels.
- To program beats, you can create and save individual drum maps in the MIDI Editor that match the respective instruments.
- If an instrument can limit the amount of voices, you can use this option to save CPU power if you do not require the full number of voices.
- Some instruments use sound sets according to the General MIDI standard. You can use these instruments for playing back MIDI files according to the GM standard. Please import the entire MIDI file to a single track including all channels. Please ensure that virtual instruments can also receive program change commands that are also saved in such a file, so that the correct sounds are played during playback.

## ReWire

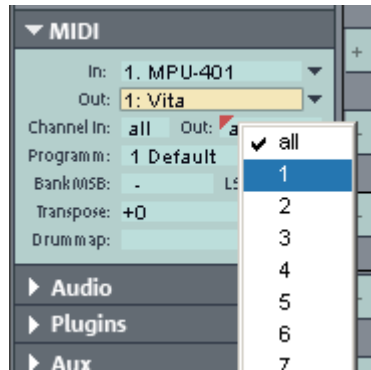
If this option is activated, ReWire-compatible client applications (like, for example, Propellerheads Reason) can be integrated into Samplitude Music Studio 14 as synthesizers.

Activate ReWire functionality in the program settings ("Y" key). Afterwards, installed ReWire applications can be loaded as instruments into a MIDI slot. All ReWire client applications appear as individual sections in the selection menu of the plug-in slot of the track and are loaded as software instruments (VSTi). The client application should always be launched after Samplitude and should be closed before exiting Samplitude. Some client applications can be opened automatically by right-clicking on their name in the MIDI slot (red) – just as you can open the plug-in window for VST instruments by right-clicking.

The ReWire application can then be accessed like a software instrument via MIDI, the audio output signal of the ReWire client can be routed to the Samplitude Music Studio 14 tracks. (-> more details on loading the software instruments). The client application runs, starts, and stops synchronous to the time position of Samplitude.

ReWire supports up to 4096 MIDI busses. A ReWire client only registers the MIDI busses that are actually available with the host (Samplitude Music Studio 14). You can therefore select the bus within [www.magix.com](http://www.magix.com)

the track in the MIDI channel menu (e.g. the receiving instrument for Reason):



The "classic" MIDI channel of MIDI notes and events is not important, it is replaced by the ReWire MIDI bus system. For each track a MIDI object is able to control a ReWire MIDI BUS. This means that all events of a MIDI object apply to the track for this ReWire bus, independent of the channel number the events originally had. Multi-timbral MIDI objects, like those created in the MIDI file import, cannot be played correctly with ReWire. You can, however, access the ReWire client across multiple tracks on various ReWire MIDI busses.

Only a few ReWire clients support the direct opening of the client application via the host application (Samplitude Music Studio 14). In this case, you will have to start the client application manually. You can do this by starting your client application as you would normally. It then automatically recognizes the host and starts in a special client mode.

# Synth Objects

Samplitude Music Studio 14 supplies several synthesizer plug-ins to create your own drum pattern, bass or melody lines. The synthesizers produce 'synth objects' which are arranged on the tracks together with the other objects.

## DF

### Opening the synthesizers

The software synthesizers can be found in a special folder which is copied to your hard disk on installation. To open it, click on the synth button.

You can find all available synthesizer plug-ins in the selection box.

### Object synths and track synths

In Samplitude Music Studio 14 there are two different types of software synthesizers.

**Object synths:** These synths build individual synth objects in Samplitude Music Studio 14. A corresponding synth object can be moved onto any track without anything changing on the synthesizer settings. Object synths are the Drum & Bass machine, BeatBox, Atmos, Vita, LiViD, Robota, SilverSynth, and CopperSynth.

**Track synths:** These synths do not build any individual synth objects in Samplitude Music Studio 14, rather "normal" MIDI objects. They correspond to functional external hardware synthesizers or VSTi plug-ins, which are similarly controlled by MIDI. Like all MIDI objects, they are dependent on the track, that is, the corresponding track synth is specified in the MIDI track settings. Correspondingly, the track synths can also be selected in the Track Editor and modified. Vita, SampleTank, and Revolta belong to this type of software.

### Programming the synth object

Depending on the plug-in, various functions to create and control sound can be applied via the operating console. Please read the following chapters pertaining to the individual synthesizers in this regard.

To monitor programming, playback can be started and stopped at any time with the space bar while the operating console is open. If the synth plug-in has its own play button (e.g. the beat box), it will  
[www.magix.com](http://www.magix.com)

start the plug-in solo, without playing the other tracks of the arrangement as well.

### Arranging the synth object

Once you have finished programming the melodies or rhythms of the synth object, you can close the operating console and arrange the synth objects on the tracks. They can be stretched or compressed, faded in and out, turned down or up etc. with the help of handles: These steps are the same for all objects.

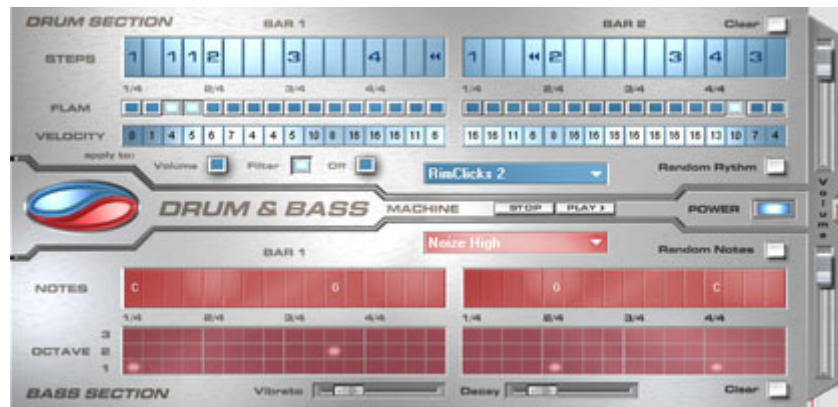
The operating console of every synth object can be reopened at a later stage by double clicking or via the synth button if you would like to reprogram the object. In addition, you can drag as many other synth objects of the same software synthesizer as you like onto the tracks and program them separately.

## Drum & Bass machine 2.0

The Drum & Bass machine is a dual synthesizer, uniting both distinct styles of Drum'n'Bass in one piece of equipment: fast beat crashes and rumbling bass lines. With the Drum & Bass machine you need no special skills to create authentic sounds for your Drum'n'Bass songs.

A tip: The typical speed for Drum'n'Bass is usually around 160-180 BPM. The Drum & Bass machine also fits in perfectly with other music styles, e.g. BigBeat (120 BPM) or Trip-Hop (80-90 BPM).

### Set-up



The top half of the synthesizer controls the rhythm section, the

bottom half controls the bass section. Between the two, on the left side you will see a symbol, where both sections can be turned on and off individually. You can, for example, turn off the bass section, so that you take only the drum section break beat into the arrangement. The Samplitude Music Studio 14 arrangement mixdown will then only include the drum section in the mixdown file.

The volume control is on the right border, controlling the volume for both sections. The play and stop buttons allow you to listen to your Drum'n'Bass creations up front in Samplitude Music Studio 14.

The 'Drum'n'Bass' label covers a menu containing functions to load and save 'Drum'n'Bass' patterns (Load Machine State/Save Machine State) and functions to delete or generate patterns (Clear All/Random All). The submenu 'Velocity Presets' contains some help functions for the programming of the velocity row.

### **The rhythm section (top half)**

Here you can easily create complex and authentic jungle break beat sounds. In a professional recording studio, jungle backbeats are created by dividing any given drum loop into several small 'bits' and putting them back together in a different order. This lengthy process is significantly simplified by the Drum & Bass machine. You just design your own new play sequence.

You set up the new sequence in the top ('Steps') row. The blue cells indicate the individual sections ('notes') for the subdivision of the loop.

A left mouse click on one of the blue cells allows you to select one of six possible symbols. Each symbol represents a different note or other way of playing the note. Every time you click on one of the blue cells, the next symbol is chosen.

Rely on your own intuition and creativity when programming your beats. It is not absolutely necessary to know the exact meaning of each individual symbol in order to create cool and authentic beats.

Summary symbol description:

- 1:** Play drum loop from beginning
- 2:** Play drum loop from the second note
- 3:** Play drum loop from the third note

4: Play drum loop from the fourth note

**Backward symbol:** Play backwards from this point

**Stop symbol:** Stops play

The right mouse button allows you to delete the step cells individually. The 'Clear' button on the right deletes all step cells; the drum loop is played in its original sequence. The 'Random Rhythm' button generates a random sequence. You can then alter the rhythm as you wish.

By clicking on the blue field in the bottom part of the rhythm section you open a pop-up menu where you can select the drum loop sound. If you select a different drum loop, it will be loaded and played as programmed by you.

In the "Flame" row you can set the note to be played twice quickly in succession instead of only once, allowing you to program rolls and fill-ins.

The 'Velocity' row allows you to set intensity values between 0 and 16 with the mouse (left mouse-click increases value, right mouse-click decreases value). Use the three buttons under the 'Velocity' row to determine how these values will affect the sound of your loop. If you select 'Volume', the velocity value alters the volume for this cell (16 = loud, 0 = quiet). If you select 'Filter', the velocity value alters the filter strength for this cell (16 = sharp, 0 = muffled). The 'None' button blocks use of the velocity values.

### The bass section (bottom half)

The bass section allows you to create the right bass lines for your rhythm quickly. As in the rhythm row, there are two-step rows.

- With the first 'Notes' row, you determine the sequence of the notes, i.e. the sound sequence.
- By clicking on a cell with the left mouse button, you open a pop-up window, where you can select the notes.
- By clicking with the right mouse button, you delete a cell.
- If you click on an empty cell with the right mouse button, you will see a 'Stop' symbol. This function is similar to that in the rhythm section: it stops the bass sound play at this point.
- In the 'Octave' row you can determine the bass octave sound. Octave 1 creates a deep tone, Octave 3 a high tone. You can only set the octave values if there is a note in the row above.
- As in the rhythm section, there are also buttons for 'Clear', 'Random

Notes' and a red selection field at the top border of the bass section. The red selection field allows you to set the bass sound.

- Underneath the step rows, you will also find two sliding controls for sound adjustment. You can use the 'Vibrato' control to make the bass tone 'swing' at its pitch. If the control is pushed all the way to the right, the swing will be stronger; all the way to the left will have no effect on the pitch.
- With the 'Delay' controller you can set a time for the sound to completely fade out. All the way to the right makes the sound fade out quickly (after approx. ¼ second); all the way to the left means ongoing sound.

## Beatbox 4.0



The BeatBox is a high quality drum computer plug-in. It can be used to generate completely new rhythms and drum grooves.

### Programming

Each line of the Drum Matrix corresponds with a percussion instrument, e.g. bass drum or hi-hat. Each column corresponds with a bar unit (a 16th note is preset)

The drum sounds are played as soon as you click into the Drum Matrix with the mouse. A note in the lowest line (bass drum) at bar positions 1, 5, 9, and 13 creates a straight bass drum rhythm to

which you can add more great percussion instruments.

### **Drum kit**

Click on the drum kit button to open a list of available drum kits. A drum kit is a collection of percussion instruments with matching sounds, e.g. rock kit or electronic drums à la TR 808. By changing the drum kit you can add an entirely different sound to the rhythm you have already created.

New drum or effect sounds can be added to the current drum kit by drag & drop from the Media Pool.

This does not mean that you are restricted to drum sounds. Any WAV file can be dragged & dropped into the drum kit from the Media Pool and can thus form part of the rhythm. Try it with the rap voice samples or your own recorded wave files.

### **Track Effects**

To the right of the Drum Matrix you can find the track effects. This lets you specify the settings for each active drum instrument. The active instrument is selected by clicking on the drum kit, which then highlights the instrument.

### **Buttons**

**Play:** Here playback of the current rhythm pattern starts in solo. Only the BeatBox can be heard, any other tracks which may be in the Arranger will not be heard. If the entire arrangement is to be played, the play start position must occur above the transport functions.

**Stop:** Ends playback or recording process.

**Record:** Here the realtime recording function of the BeatBox starts. Up to 16 drum sounds can now be imported using the computer keys 1...0 above the letter keys on your keyboard or 1...6 on the number pad. A drum sound is played for each key and the corresponding note is activated in the Drum Matrix.

**Random Rhythm:** This button creates a random rhythm for the selected instrument.

**Random Velocity:** This button randomly changes the Velocity (volume) of the individual beats. This way, a rhythm can be made much more lively than when the volume is set to the same for all beats.



**Volumes:** Here you can set the volume of the current instrument.

**Pitch:** The pitch of the current drum instrument can be set here. You can access great effects, for example, by downpitching the bass drum.

**Pan:** Here the stereo panorama of the current drum instrument can be set. Add the same instrument (for example, Snare) to two tracks, one panned to the left, the other to the right. Rhythms, which alternately use both tracks, now sound much more interesting.

**Reso:** You can set the filter resonance here. The higher the value, the more clearly the filter frequency can be heard, including resonating whistling sounds, which we already know from analog synthesizers.

**Cut-off:** This fader sets the filter frequency. The sound of the drum beat is increased at the set frequency position. Frequencies above it are dampened which creates the typical filter sound.

**Distortion:** This fader controls a distortion of the current drum sound. This can be used to create really "dirty" sounds as well as for distortion sound effects.

**Shuffle:** This fader changes the timing of the BeatBox. If the fader is turned to the right, the eighth of a rhythm is played more and more like a triplet. If that sounds a bit too abstract – simply try it out, ideally with a pure 1/16 Hi-Hat figure; you'll soon see what the shuffle fader is capable of.

**Note Velocity:** Use this fader to set the volume of individual drum notes. If multiple notes are selected, they will be edited together.

**Bars 1-2-4:** With this button you can set the length of a loop of the BeatBox in bars. You can choose from 1 bar, 2 bars, and 4 bars.

**Auto Draw:** If more than one bar has been activated as a loop length, the Auto Draw mode makes sure that the drum notes which are set automatically in the first beat are set in the subsequent beats. This also makes it easy to create a continuous beat, even with a loop length of four bars. Notes set in the bars further back are not affected by the Auto Draw function, which, for example, makes faint variations detectable only in the fourth bar.

**Quant:** Here you can set the tempo of the BeatBox. You can choose from 1/8 notes (only for very simple rhythms), 1/16 (default), 1/32 (for more refined constructions) and "free". In this case, the timing is set  
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by the exactness of the mouse click – ideal for the more lively design of fixed rhythms by moving individual notes here and there.

**Playing BeatBox on your computer keyboard**

The lower octave is on the keys: < **z x c v b n m** ; the upper octave is on the keys: **q w e r t y u i**.

The black keyboard keys are in between, i. e. the "A" key for #C (C sharp).

**Playing BeatBox on the MIDI keyboard**

There is not a lot you need to take note of here. You can start playing away once the proper MIDI driver has been selected! The sounds listed in the column on the left can be accessed with the keys of the C0 octave.

**Effect automation**

The new version "BeatBox 4.0" enables the automation of all BeatBox effects. Click on "Automation" at any time during playback. All effect settings will be recorded from now on and will be taken into account when playing the synth object in the arrangement.

The recorded effect automation can be deleted via the Options menu of the BeatBox.

**Atmos**

Upon registration of Samplitude Music Studio 14 you will receive the Atmos synthesizer as a free download.

Atmos is a comprehensive tool which can be used to easily create realistic nature sounds in no time. From thunder and lightning to animal sounds and traffic noise, Atmos helps you design natural-sounding atmospheric noises for your projects.




- At the upper border window select the upper category "Scenario". Here, you can select a desired nature sounds category (for example, "Thunder and Lightning").
- In the middle of the window appears a collection of control elements with which the desired "Ambience" can be designed. Each element has its own description (for example, "Thunder") and two faders "Volume" and "Intensity".
- The "Intensity" fader controls the behavior of the sound – depending on controller element. For example, with "Thunder" you can set how often thunder and lightning should sound; with "Rain", the strength of the rain can be regulated (if moved to the far left, light rain can be heard, while if moved to the far right, a downpour with loud splashing noises is audible).
- At the bottom right border you will find a master volume fader with which the master volume of the synthesizer can be set. Furthermore, the setting "Randomize" can also be found there. This way you can change the settings of the control elements by yourself.

## Vita

MAGIX Vita Synthesizer specializes on realistic playback of "real" instruments for which it uses sampling technology. This means that short samples of real instruments in different pitches, playing techniques and volumes are used, combined, and played again at the

correct pitch.

The VITA synthesizer is controlled via the MIDI objects. If you load Vita via the Media Pool, a preset MIDI object will appear first. You can then load different Vita sounds via the Output menu at the top of the MIDI Editor.

You can adjust the sounds of Vita via the instrument menu of the trackbox. 

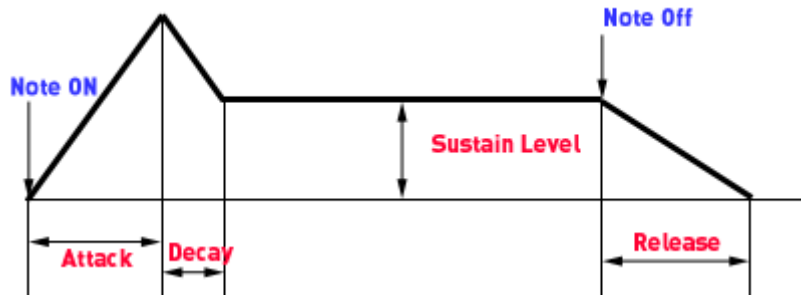
### The Vita interface



**1. Layer selection/Peak meter:** The Vita sounds, also known as layers, can be selected here using the arrows. Right-clicking on the display opens the layer menu.

**2. Main parameter:** Here the volume, panorama position, pitch characteristics ("transpose") and the fundamental frequency ("master tune") can be set.

**3. AMP:** This is the volume envelope. Here you can influence the temporal progression of a track's volume. **A**(ttack) stands for the volume increase at the start, **D**(ecay) for the length of time the decrease in volume takes on a section set with **S**(ustain) at the maximum volume. **R**(elease) is the length of time it takes for the sound to ring out.



**4. FILTER:** Here you can switch on a filter which influences the sound. With FILTER TYPE, you can select a filter type. "Cut-off" regulates the filter frequency, "Resonance" controls the strength of the amplification of the filter frequency. "Velocity" specifies how strongly beat should influence the filter frequency, while the volume can be balanced using the "Gain" controller. The filter envelope (ADSR slider) influences the filter frequency depending on the time.

**5. DELAY:** Here you can switch on an echo effect, "Time" controls the delay time, "Level" controls the strength of the echo sound.

**6. REVERB:** Here you can switch on a reverb effect, "Time" controls the delay time, "Level" controls the strength of the echo sound.

**7. VALUE DISPLAY:** The value display shows the exact value of the parameter which was just modified.

**8. DYNAMIC RANGE:** Usually, the relationship between the created volume and MIDI velocity is proportional. Since some MIDI keyboards produce a velocity which is too hard for loud sounds or the other way around, this behavior can be balanced out with the "MIDI Input Curve". With "dynamic" and "dynamic curve" the dynamics of the sound can be influenced, that is, the relationship between the quietest and loudest sounds.

**9. Voices:** Here you can control the amount of voices played simultaneously. If notes are no longer played during fast passages, you can increase the amount of voices here (performance will not be

as good).

**10. Keyboard:** Here you can preview the Vita sounds. This only works during playback or recording.

## LiViD - Little Virtual Drummer

MAGIX LiViD helps you to turn your ideas into songs. Enter a few basic details and LiViD will play a full drum track, complete with intro, verses, choruses, fills, bridges etc.; the entire song structure is laid out for your convenience. Brilliant stereo drum samples recorded by professional studio musicians and a freely adjustable “Humanize” function create an authentic drum feel with perfect sound quality.

LiViD features four styles (Pop, Rock, Funk, Latin), each of which is subdivided into four further substyles, as well as six song sections for each substyle (Intro, Verse, Bridge, Chorus, Outro, Fill-in).

**Scramble:** A random sequence of four one-bar patterns is generated internally for each style/substyle/song section. “Scramble” generates a new pattern order.

**Shuffle:** Shifts the second and fourth 16th note of a beat back by a freely definable amount (100% = triplet rhythm).

**Humanize:** Randomly shifts all events backwards or forwards or leaves them unaffected. Note: these shifts are very subtle and not always immediately perceptible!

**Snare:** Sets the snare stick style to “normal”, “side stick” (stick hits the rim while resting on the skin) or “rim shot” (sticks hits the rim and skin simultaneously). Exception: the snare’s quietest velocity level (the ‘ghost notes’) is always “normal”.

**Hi-hat:** Sets the hi-hat sound to “soft” (fully closed) or “hard” (half-open). Exception: completely opened hi-hat (Pop, Type1, Verse).

**Ride:** Sets the ride cymbal sound to “ride” (cymbal is hit on the rim) or “ride bell” (cymbal is hit on the bell at the center).

## SampleTank 2 MX (SE)

### What is SampleTank 2 MX (SE)

SampleTank 2 MX (SE) is a polyphonic, multi-timbral sample  
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workstation with multi-effects units and proprietary sound banks, all combined into a unique plug-in instrument. SampleTank 2 MX (SE) uses samples as oscillator waveforms, but the synth engine is much more flexible than conventional hardware samplers. This makes SampleTank 2 MX (SE) a more complex workstation than a traditional sampler, with 32-bit floating-point processing, providing you with superior quality.

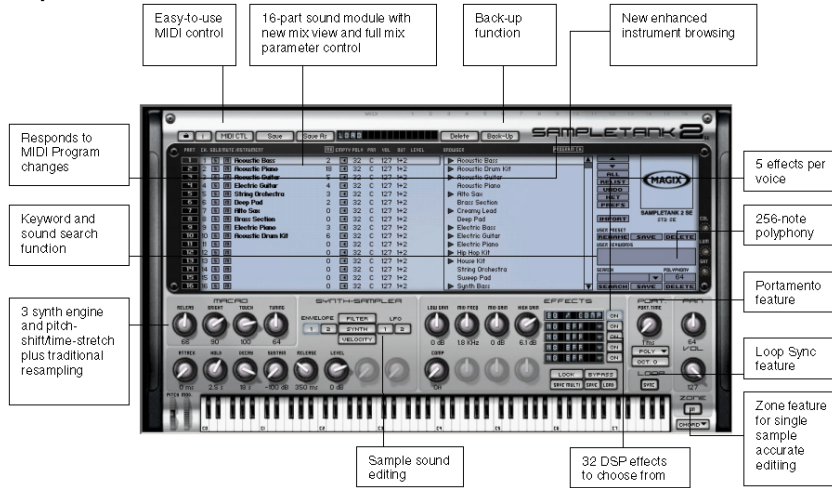
SampleTank 2 MX (SE) lets you browse through hundreds of the highest-quality natural and synthesized. With one click, select a sound in a flash and have it ready for you to play in a fraction of the usual time. Many professional high-quality sounds are included with the software, and as such are immediately at your disposal.

6 sounds (deLuxe version: 10) are included and ready for use: Superb pianos, guitars, basses, strings, orchestral sounds, drums and other percussion instruments made with the finest samples and accurately programmed. SampleTank 2 MX (SE) offers the widest selection of high quality playable sounds with a variety you cannot find anywhere else!

Furthermore, you can purchase new instruments from the Catooh straight from within your MAGIX program.

SampleTank 2 MX (SE) will be automatically integrated into your MAGIX software. A suitable audio card (with low latency drivers) and a master MIDI keyboard are strongly recommended in order to play it like a hardware musical instrument.

## Explanation of the user interface



## Loading sounds and controlling instruments

The available instruments are displayed at the center of the SampleTank 2 MX (SE) interface in the browser window. The scrollable list of instruments shows 6/10 instruments (classic/deLuxe) and also displays the number of available instruments you can simultaneously load into SampleTank 2 MX (SE) module (16 parts).

The browser list of folders and instruments reflects the same folder and instrument structure of the hard disk folder where your sounds are located. This folder is called “root” and is stored in the SampleTank 2 MX (SE) preferences (which you can access and change by clicking the PREF button).

Folders are indicated with a white triangle. To open a folder, click on its name in the list or on the triangle. Opened folders display the list of available instruments. To close a folder, re-click on its name or on the triangle.

To load an instrument in SampleTank 2 MX (SE) simply double-click on it. It will be loaded onto PART 1 (if it's the first to be loaded).

All the SampleTank 2 MX (SE) parameters on the interface will now reflect those of the loaded parts. The MIX window allows you to load up to 6/10 SampleTank 2 MX (SE) instruments per module, every instrument will be loaded into a PART. To select the PART where you want to load an instrument simply click on the PART number or in the middle of the part window.



Once a PART is selected, the instrument will be loaded into that PART. If it already contains an instrument, the newly loaded instrument will replace the previous one (you can UNDO this operation with the UNDO button).

Every PART responds to a MIDI channel (CH). By clicking and dragging on the CH number of each PART you can easily select the MIDI channel that this PART belongs to. Assigning the same MIDI channel to more than one PART will have all the PARTs responding to the same MIDI channel for building sounds with layers of up to 16 parts.

You can now play the instrument using a master keyboard connected to the sequencer, a MIDI sequence in the track or by playing the SampleTank 2 MX (SE) mini-keyboard. MIDI activity in the PART is indicated by an LED which lights when MIDI data is received.

Once an instrument is loaded into a PART, the image of the LIBRARY to which the instrument belongs, will appear on the right side of the interface. Clicking on the LIBRARY image will display further information such as instrument data, copyright and MACRO controls (if these are included with the instrument).

### **The MIX window**

All the controls included in the MIX window are designed to give you immediate control over your mix of instruments. Here you have several controls at your disposal:

- You can change the MIDI channel associated to that PART.
- You can SOLO and MUTE instruments.
- You can see the amount of RAM that the instrument is using (MB). By clicking on the MB button at the top you can also display the entire amount of RAM used by all the loaded instruments.
- You can set the maximum polyphony for each specific instrument (by clicking and dragging the mouse on the POLY number).
- You can EMPTY the PART with the EMPTY button.

**You can control the VOLUME and PAN of each specific PART (by clicking and dragging the mouse on the VOL and PAN number).**

- You can control which STEREO OUT is used for playing a PART (the max number of stereo outputs is set in PREFERENCES by clicking the PREF button) by clicking and dragging the mouse on the OUT value.
- You can see the output level of the instrument playing in the LEVEL

display.

### Effects

One or more pre-defined effects will be loaded and displayed in the EFFECTS section of the SampleTank 2 MX (SE) interface.

Each SampleTank 2 MX (SE) instrument can be programmed with 5 effects. The effects are displayed in the effects slots. The first effect slot always contains an EQ compressor. The other 5 effect slots can contain one of 32 DSP effects.

To view the list of available effects once you've loaded an instrument, click on the arrow at the right in each of the 5 effects slot. A pop-up menu will appear displaying all the 32 DSP effects which are available in SampleTank 2 MX (SE) in your MAGIX software.

Now move the selection with the mouse and click on an effect to load it. The selected effect name will now show in the effects slot. To empty an effects slot, simply select the NO EFFECT option.

To view and change each effect's parameters, click on the desired effect's slot. A frame will appear around the slot indicating that that effect is selected. Only the selected effect will be shown on the interface at any time. Effect knobs are labeled corresponding to the effect's parameters.

Unused knobs will be shaded in gray. Above each effect knob you can read a label corresponding to its function. Below the effect knob is its current value.

**To activate an effect, click on its ON button to the right. The button is highlighted and the effect is active. All active effects are inserted in the instrument chain according to a patch order from top to bottom of the effect window. To deactivate an effect, click on the ON button again. The button will revert to 'normal'.**

You can BYPASS all effects at once (that is, hear the sound dry) by clicking on the BYPASS button. You can also LOCK effects into SLOTS preventing them from changing when a new instrument is loaded. This way you can prevent instrument effect settings overriding your own settings.

You can also save multiple or single effect settings and load these settings with the SAVE MULTI, SAVE and LOAD buttons. The effect settings are saved as .STFX file. A dialog window will appear when you click one of these buttons asking whether the files should be

saved or not.

## Robota

The Robota is a four-part drum computer with virtual analog and sample-based sound production. Virtual analog sound production means that the sounds are synthesized in real-time, i.e. produced with a synthesizer – therefore recreating the typical analog sounds of the classical drum computers, such as the Roland Tr-808 and Tr-909, or more recent devices such as the Korg Electribe or the Jomox x-cousin. Sample sound production uses drum sound recordings (or even other recordings) as the basis for sound production.

After selecting the elementary sound production technique, the sounds of each of the 4 parts (or instruments) can be edited using modulators.

The step sequencer programmed with incident lighting helps Robota to play. 4 beats in sixteenths (or 2 beats in thirty-seconds) are processed as a loop. At each beat position, the playing positions can be set by clicking a button. In Event mode, the instruments are distributed within the beat pattern. In Snapshot mode you can adjust additional instrument sound settings.

### Sound synthesis

The four instruments of the Robota are built identically. Each instrument can create all kinds of drum sounds – from hissing hi-hat to phat bass drums.

During elementary sound production, you can choose between an oscillator with selectable wave shape (sine, triangle or saw tooth) or a sample. In addition, you can add a noise generator can be added. The oscillator has a pitch envelope (pitch env.) and a volume envelope (attack/decay). It can also be frequency and ring-modulated. The depth of the modulation can be controlled via an envelope parameter (Fm/rng dcy). There's also a "Lo-Fi" section consisting of distortion (Rectify), bit rate reduction (Crush) and sampling rate reduction (downsample).

Temporal control via an envelope (lofi dcy) will get the best out of the Lo-Fi effects. A multi-mode filter (low-pass/band-pass filter/high-pass) with 12/24 dB steep-side. A comb filter can be inserted. The filter frequency can be likewise modulated via an envelope. For extra pressure, an adjustable compressor (compressor, comp resp) is

included, as well as tube amplifier simulation (tube).



**Parameter (1)** To simplify matters, not all parameters can be changed on a sound - only those that are meaningful for the selected drum sound may be changed (snare, kick, high etc.). There are four selected variable parameters coordinated exactly with the selected preset sound.

**Oscillator Waveform (2):** The fundamental waveform of the Oscillators is selected here. You can choose from sinus/triangle/sawtooth/sample. If you have selected "Smpl" you can use the rotary knob to select a sample, i.e. a previously recorded drum sound. These samples are saved in the folder /Synth/robota/samples/. If select custom samples, they will appear in the selection list.

**(3):** For each part you can regulate: Filter Cutoff, Resonance, Tube, Volume and Panorama (on page 213).



With **select** choose the instrument for editing in the step sequencer.



"M" mutes the instrument, "S" makes it solo



The **Loudspeaker** button allows you to hear a preview.

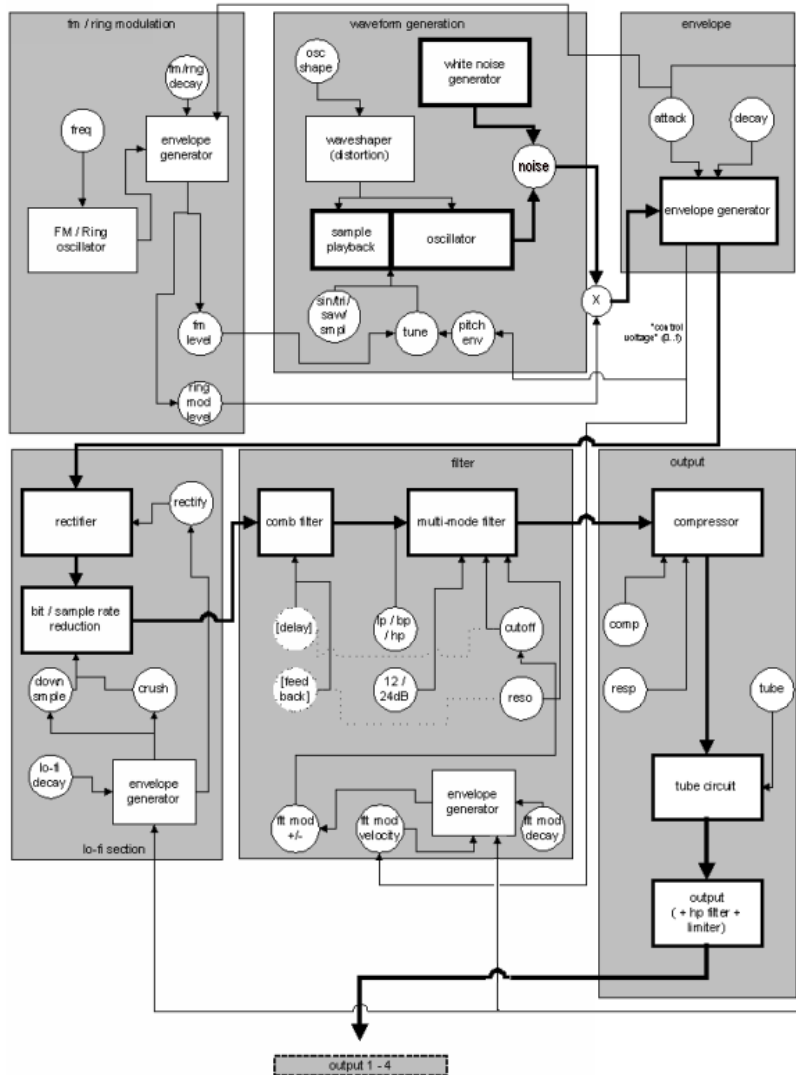
### Master Section

**Volume** regulates the total volume of the Robota. **Distortion** adds an adjustable tube distortion to make the sound "dirtier" and more powerful. The peak meter helps control the output level - when it enters the red area, reduce the total volume.

## Schematic illustration of the Robota synthesis



instrument 1 - 4 signal flow



Here you will find a detailed circuit diagram of a Robota voice with a description of all control parameters.

### Pitch Envelope (pitch env)

Controls the pitch envelope level.

**Tune**

Tunes the instrument.

**Oscillator Shape (osc shape)**

The shaper adds additional frequency shares to the basic sound of the oscillator by artificially reshaping the wave shape. A sine wave (shape = 0) can be reshaped up to a square curve (shape = max).

**Oscillator Waveform**

The fundamental wave form of the oscillators is selected here. You can choose from sine/triangle/sawtooth/sample. If "Sample" is selected, you can use the controller to select a sample, i.e. a previously recorded drum sound. These samples are saved in the folder /Synth/robota/samples/. If you select custom samples, they will appear in the selection list. If you are playing your own samples, they will appear in the selection list.

**Noise**

Adjust the ratio between the oscillator sound and the noise generator.

**Attack**

Adjusts the attack time. The greater the set value, the softer the attack of the sound. The attack rate is also applied to the LoFi and filter envelope curves.

**Decay**

Adjusts the decay curve. The greater the value, the slower the instrument will decay.

**FM/Ringmodulation frequency (Fm/rng frq)**

The fundamental frequency of the frequency or ring modulation.

**FM Level (fm lvl)**

At a low frequency FM first adds vibration to the sound, at high frequencies and low levels it creates bell-like sounds, as the level increases metal sounds, and finally noise.

**Ring modulation level (rng lvl)**

Ring modulation creates typical auxiliary frequencies.

**FM/Ring modulation decay (Fm/rng dcy)**

Time constant of by-product of FM/ring modulation. Only the beginning of the drum sound is affected by the modulation.

**Rectify**

Distorts the audio signal

**Crush**

Bit rate reduction. Digital artefacts become audible with higher settings.

**Down sample (dwnsmple)**

Sample rate reduction. Ideal for creating the "old school sound" of older digital drum machines. As it is increased, the result becomes darker.

**Lo-Fi decay (lofi dcy)**

Time constant of the by-product of the three lo-fi effects for making the sound "dirty". Only the beginning of the drum sound of the lo-fi effects is affected if the decay is low. For instance, this makes the kick of a kick drum sound more interesting.

**Filter modes (flt mode)**

Filter mode: High cut – sound portions above the cut-off frequency are filtered out. Band pass (BP) – Sound portions above and below the cut-off frequency are filtered out. Low cut - All sound portions below the cut-off frequency are filtered out. This mode is set as a preset and can not be changed.

**Filter frequency (flt freq)**

The cut-off frequency of the filter.

**Filter resonance (flt reso)**

Filter resonance which increases the sound portions at the cut-off  
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frequency of the filter. If the resonance is high, the filter itself can also be used as an oscillator.

**Filter modulation +/- (flt mod +/-)**

Regulates how much and in which direction the filter envelope curve moves the filter frequency in which direction.

**Filter-Modulation decay (flt mod dcy)**

Decay time of the filter curve. Smaller values with high resonance create a "zapping" sound of the filter, greater values create the typical sweep sound.

**Filter modulation velocity (flt mod vel)**

Specifies how much the filter modulation depth depends on the velocity. If this value is increased, louder beats will generate higher filter curves than quieter ones.

**24 dB**

The filter can operate with a slope of 12 dB or 24 dB. This mode is set as a preset and can not be changed.

**Comb filter (comb filt on)**

You can activate a comb filter, a feedback delay that creates resonance-like sounds comparable to a plucked string. The delay time and feedback levels are permanently linked to the filter parameters (frequency and resonance). This comb filter is set as a preset and can not be changed.

**Compressor**

Controls the compressor strength. This lets you increase the "power" of the drum sound.

**Compressor response (comp resp)**

Controls the compressor time. The lower the value, the faster the compressor follows the volume.

**Tube**

Controls the level of the tube amp simulation. It "saturates" the  
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output signal of the voice and adds warmth to the sound if the settings are moderate. Increasing the settings makes the sound "dirtier".

### Volume/Pan

Controls the volume and panorama position of the drum instruments.

### Sequencer



Incident lighting is used to control the drum patterns just like in all classical drum computers and groove boxes. The step sequencer consists of 16 individual step buttons with LEDs corresponding to the appropriate partitioning of a beat:

16ths or 32nds (a half beat is in each case displayed). A button lights up to indicate the releasing of the instrument at this point in the beat (= step).

A left click turns on the step, a further left click deletes the step again.



A pattern can be a maximum of 4 beats long. The length can be modified using the fader on the button bar.



The beat to be edited can be selected with the applicable "edit" button. The "Follow" button specifies whether the Step of a beat is in time.

**„1>2-4" Auto Draw:** If more than 1 beat is activated as the loop length, the Auto Draw mode ensures that the drum notes set in the first beat is set automatically for the following beats. This makes it very simple to produce a continuous beat from a loop length of 4 beats. Notes set in the rear beats are not affected by the Auto Draw function.

### How to program a drum pattern:

- Select the pattern length with the fader.



- select “Event” mode.

- If you edit during playback, turn off “Follow”. Select the beat with the “Edit” buttons.



- Use “Select” to choose an instrument to edit.



- Use the “Clear bar” button to delete all steps in the selected instrument.



- Turn on the appropriate **step** buttons, and use the “Velocity” controller to adjust the beat velocity.

- Repeat the procedure with the other instruments

### Snapshots

In addition, you can automate programming of the editable sound parameter of a drum sound via so-called "snapshots". You can thereby save the sound parameters of a drum instrument on the step buttons of the sequencers.

Automating the Drum Instrument with Snapshots.:



- Put the Edit mode to “Snap”.
- If you edit during playback, turn off “Follow”. Select the beat with the “Edit” buttons.
- Select an instrument and edit the sound. You can control the sound of an instrument even when playback has stopped by using the loudspeaker button.
- Save the sound as a Snapshot to one of the step buttons.
- Change the sound of an instrument and save the settings to other step button

**Warning:** The parameters are not changed abruptly but are faded internally instead, in order to avoid crackling. If two snapshots with

extreme parameter differences are too close together, the drum sounds will sound differently when the pattern is played.



- Using the arrow keys, you can jump between the individual snapshots during stopped playback.

- Press “on” to activate snapshot automation.

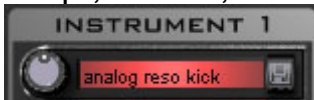
### Groove Control

The secret behind “groove” beats lies in delay. That is, individual beats are either anticipated or delayed according to patterns. For example house beats use the “shuffle” whereby straight 1/16s are delayed at certain times.

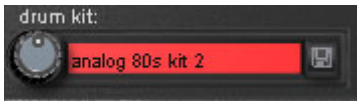


In the Robota there are **Groove Velocity** and **Groove Swing** presets. Groove Velocity presets contain for each step of a beat a certain offset to increase or reduce the original beat velocity. Groove Swing presets contain for each step a time alignment that is either anticipated or delayed. The result is a livelier-sounding sequence. The strength of the effect can be adjusted with the % regulator.

### Setups, Drumkits, Presets and Patterns



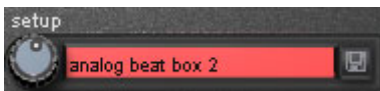
A single instrument sound is saved as a Preset.



Presets containing all four instruments are saved as Drumkits.




All note information plus the snapshots are saved as a Pattern.



Together (Drumkit + Pattern) they are know as a Setup.

### Load/Save

Presets, drumkits, patterns and setups can be selected with the continuous rotary regulators next to the display area. For storing,

click on the  "Save" button. Then specify a new name in the input field. To store, press "Enter".

Note: A drumkit stores only the names of the presets, not the actual parameters. If you want to store your own drum sounds that were created by changing existing presets, you must first store them as new presets and then as a new drumkit! The same applies to the setups, which contain only the pattern and drumkit names.

**If necessary, always store in this order:** preset > drumkit > pattern > setup. This applies only when creating your own "templates". If you store your arrangement normally, the complete current status (Synthesizer + Sequencer) of the Robota is always stored and correctly loaded later with the arrangement.

## SilverSynth Pro

'SilverSynth pro' is a virtual, analog synthesizer that was based on the legendary Roland-TB303. This machine appeared in the early 1980s. It was initially intended as an electronic bass accompanier; however, it was at first hardly taken seriously due to its "unrealistic" characteristics.

The device suddenly became useful later, when Techno Music was just becoming popular. The brute force and screeching sounds that this unit produced suddenly belonged to the major style elements of an entire musical style. Today's Techno productions still use the minimalist, synthetic but warm and unmistakable sound of this synthesizer.

'SilverSynth pro' is the follow-on to the SilverSynth. The user now has more influence on the sound. It features an "EnvMod" controller that makes the typical 303 sound even squeakier. It also features a distortion controller for adjusting the sound distortion, as well as an integrated echo.

Furthermore, SilverPro has a "Shuffle" controller for adding "groove" to your synthesizer sequences. Finally, you can use the "MasterVolume" controller to adjust the synthesizer volume.

On the "SilverSynth" symbol is a menu that loads, saves, generates

or deletes (Clear all / Random).

### Programming

On the left of SilverSynth there are four knobs and a switch to control the sound of the synthesizer. On the right there is a step sequenced which you can use to program the melodies.

### Filter Automation

The SilverSynth pro offers automation for the rotary button controllers with which the filter and sound modulation can be set. Each movement of the automatic controllers can be recorded.

**Play/Stop:** The sequence of the step sequencers is played and/or stopped, including recorded rotary button movements.

**Record:** Records the rotary button movements. The sequence of the step sequencer is played while you record the results of real-time buttons movements.

**Clear Record:** Deletes the recording of the rotary button movements. Please remember that the notes of the sequence in the step sequencer are re-set, changed or deleted.

### Turning knobs

**Waveform:** You can chose from basic waveforms that represent the main proportion of the sound. It is possible to switch between a rectangular waveform and a saw-tooth waveform.

**Cutoff:** The Cutoff control steers the synthesizer's low pass filter. This control is used to determine the brightness of the sound. At the upper limit the synthesizer sounds brightest, at the lower limit of the rotary button, the synthesizer sounds very hollow.

**Resonance:** Technically speaking, the resonance control sets how much the low pass filter resonates at its cutoff frequency. This is the frequency that is controlled by the cutoff control. This control largely determines the warmth of the sound.

**Decay:** This control is used to control whether the cutoff filter remains at the same frequency or whether the filter frequency changes when a note is played back. If Decay is set to the upper limit, then every new note initially sounds a little bright and then changes its sound as it progresses so that it loses more and more of its brightness.

**Tune:** This control raises or lowers all sounds.

**EnvMode:** This control determines the flow of the envelope curve. The further right the control is turned, the more high sounds will be added.

**Distortion:** Here you can override the sounds.

**Delay:** Delay can be used for reverb and echo effects. There are two controls. 'Feedback' (number of sounds repetitions) sets the intensity of the echo; 'Length' sets the length of the echo. The length of the echo is set in relation to the bars; it adjusts to the current BPM value.

**Master:** The overall volume can be set in this section.

**Shuffle:** This control lends more 'groove' to the Synth sequences.

### Step Sequencer

sequence on a 16x12 grid. A note cell can be occupied by the left mouse key; the right mouse can be used to delete note cells. You can only set one note per column. To assist you, a scale of notes appears at the lower edge.

If you click repeatedly on one and the same note cell, then you change the octave for this note. The color of the cell changes according to the octave. Blue corresponds to octave 1, red corresponds to octave 2 and green corresponds to octave 3.

The lower rows (**Accent and Slide**) determine the further behavior of individual notes. Accent increases the volume of the note a little. If a cell is placed in the "Slide" row, then this note will not be struck again, only the pitch will be modified.

## Copper Synth

Just like the SilverSynth, the CopperSynth is a step sequencer, it looks very similar and functions quite similar too. The most important difference is the sound.

The sound is created by use of an additive procedure that resembles a mini moog. There are between two and three oscillators are used for the basic wave shape. The sound of the synthesizer corresponds to that of the typical bass synthesizers of the eighties. The SilverSynth is mostly used for higher pitches; Silver Synth and

CopperSynth make an excellent duo.

For the programming please refer to the chapter Silver Synth pro (on page 220)!

## Revolta

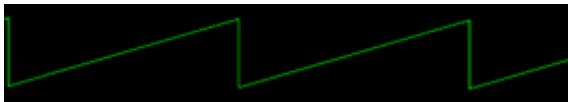
### OSCILLATORS

REVOLTA consists of two oscillators that function as synthesizers. These produce the **ground waveforms: sine, sawtooth, and pulse**.

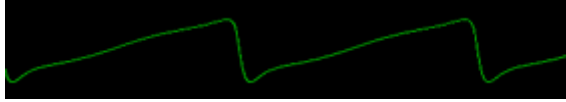
The **sine wave** does not contain any harmonies and consists purely of its own basic oscillation. The sound (also known from the dial tone) is correspondingly dull, clear, and pure. At deep positions it can be used very well to "beef up" a second waveform because of the lack of harmonies (for example, one octave deeper). "Purity" guarantees that the sound gets a clear feel as only the basic tone is used. Sine oscillations (that is, without any other elements) are used a lot in Drum&Bass music where low booming sound and sonic transparency are important style elements.

**Sawtooth**, on the other hand, sounds very full as it contains quite a comprehensive selection of harmonies. In relation to this "Harmonics" refer to the whole-numbered variations in the basic frequency. A sawtooth wave contains an equal amount of even-numbered and odd-numbered harmonies. This means that the standard pitch A (440 Hz basic frequency) is superimposed with sections at 880 Hz, 1320 Hz, 1760 Hz, 2200 Hz, etc. Here the drop in volume increases exponentially, each harmony is 6 dB quieter than the last. This is the case in signal theory at least.

In practice, however, analog synthesizers behave somewhat differently. The waveform sometimes looks a little bit rounder on an oscilloscope. In addition, the used circuits contribute to a modification of the spectrum as a result of distortions and component tolerance.



Ideal sawtooth wave



"Analog" sawtooth wave of REVOLTA

Sawtooth is the classic waveform for simulating string sounds. Bass sounds can also be created using this if you want them to have a bit of a bite. The famous TB-303 Acid Basses are usually sawtooth waves (when working with just one oscillator). The sound character of sawtooth is usually associated with "warmth".

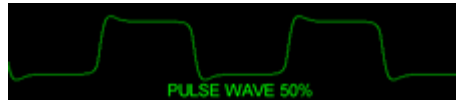
The **rectangle/pulse wave** is often made from two sawtooth waves in analog – as in REVOLTA. Theoretically, a rectangle wave should only have two states: a minimum and maximum value, that is a constant back and forth between the corresponding frequencies. The harmony series is similar to that of the sawtooth waves, but the rectangle signal only contains uneven harmonies (for example, at A 440 Hz, 1320, 2200 Hz, etc., always the octave after the next octave). This gives the waveform a more hollow or "nasal" sound. A classic example of this is in wooden wind instruments like the oboe or flute.

Usually an analog rectangle wave can be implemented quite easily via a so-called flip-flop circuit. In instruments however, people usually use two sawtooth waves: the second sawtooth is mixed into the first, but the waveform is inverted and delayed (phase shift). By adding the two waves, a rectangular signal with variable "pulse width" (**PW, see graphic**) can be achieved. The pulse width is set up according to the delay of the second sawtooth wave and effects the sound of the harmony series: the smaller it is, the more harmonies are achieved and the lesser the basic tone appears. Smaller pulse widths make the sound a bit "thinner".

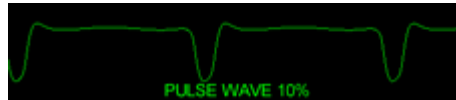


A pulse wave is composed of two sawtooth waves (A = normal, B = inverted + phase-shifted)





Pulse waves (50% and 10%) in REVOLTA



The pulse width can be modulated which can create "floating" sounds (PWM, pulse width modulation). The Roland JP-8000 is famous for this type of PWM sound, which can be heard on numerous dance tracks. For this type of "phat" floating sound you will need a "Modulator"/LFO. We'll talk about this later...

What's unusual about the waveform selection in REVOLTA is that it's not restricted to the mere selection of the waveforms as would be expected. It's much more likely that you can run through the selection with the "**waveform**" fader on this synthesizer and create a mix out of sawtooth and rectangle. Running through the waveforms can even be automated. We'll talk about this later on as well...

When working with two oscillators, interesting sounds can be created via **frequency modulation (FM)**. You will no doubt be familiar with this from the well-known digital synths like the Yamaha DX7 or the OPL chips of older sound cards. FM synthesis is also possible in analog. In REVOLTA, oscillator 1 is modulated via oscillator 2. Frequency modulation usually means that one oscillator controls the pitch of the other. Since the sound created during this process no longer follows the usual chromatic scale and sounds a bit chaotic, the phase of the oscillator is modulated instead of the pitch in almost all FM synthesizers. As a result, only the sound's color changes, not the pitch, which in most cases is more likely to be more usable musically. The correct term for this is actually **phase modulation (PM)**. Most manufacturers still refer to this as **FM** however and since this is an established term in music electronics, we use it too.

With "**mix**" you can specify the mix ratio for each oscillator.

### Options for oscillator 2

The pitch of the second oscillator can be influenced relatively to the first. Here, the "**semitone**" parameter specifies by how many halftones up or down oscillator 2 is out of tune with the first. What's interesting here is when it's used to produce bass sounds for [www.magix.com](http://www.magix.com)

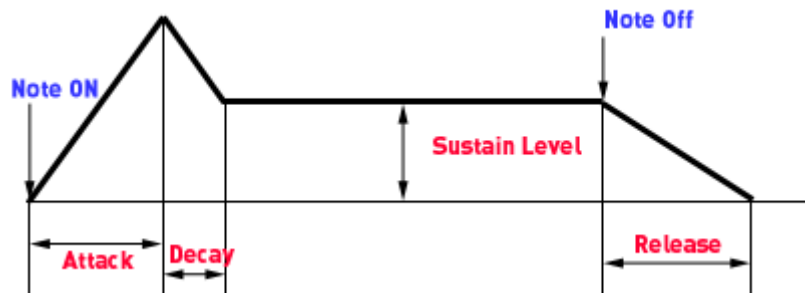
creating a more booming sound (as mentioned above with Drum&Bass). A kind of double unanimity can be achieved here by tuning oscillator 2 up by 3, 5, or 7 halftones, thereby creating classic chord intervals. Or you can simulate a drawbar organ via two sine waves and modifying the second by 5 halftones...

The "**detune**" fader modifies the second oscillator by one halftone max. For this reason, at lower values, light oscillations can be created. Perfect for "beefing up" bass & lead sounds...

## ENVELOPE

Here the signal is actually "packed" into a temporal volume progression.

If you were to grip the signal located directly behind the oscillator module, a long-lasting tone will sound, like with a synthesizer for measuring purposes. Not only would it be quite static, but it would be quite boring as well. "Real" instruments/sounds always have a characteristic volume progression. For example, in piano music, we hear a different transient oscillation process than with bowed string instruments. To specify such processes, synthesizers contain a so-called Envelope Generator. This can be started ("triggered") by pressing a key, which then runs it through multiple stages. These stages are usually called "**ADSR**": "**attack**" (velocity duration), "**decay**" (duration of the sound decrease when the key is held), "**sustain**" (hold after the end of the decay phase) and "**release**" (the time it takes for the sound to ring out after releasing the key).



With synthesizers the ADSR curve is often very different to the audible result. One of the reasons for this is that the volume progression is implemented with suspense modifications and the suspense is interpreted differently. In this sense a short attack time in Synth A may sound completely different to what Synth B produces. In the ADSR module of REVOLTA, the circuit simulation functions with a "virtual" network of capacitors which are loaded and unloaded

independent of the level and time. We have placed a lot of emphasis on achieving this "analog feeling". The tuning tends to be viewed as "weak" or "round".

REVOLTA has two ADSR Generators: the first specifies the volume progression (**AMP**, "amplifier") as described above. The second is located in the filter module and controls the temporal filtering progression from there when required to do so.

A setting which all envelopes has is the "**legato**" parameter. If this button is pressed, the envelopes will no longer be restarted for new notes as long as keys are still pressed. The sounds will be bound together, as the word "legato" implies.

## **FILTER**

The REVOLTA filter is not a normal digital filter as you often find when using software synths, but rather a precise simulation of a design from the "real world".

We use a so-called Sallen key circuit, which has similarities to the low cut and high cut of the Korg MS 20 device. This is fundamentally an amplification block with two 6 dB filter networks and one feedback path. Here the circuit achieves a slew rate of 12 dB/octave and is capable of achieving high resonance or feedback (well-known whistling sounds) with enough internal amplification. The REVOLTA filter functions in the feedback part with an additional active step which limits the feedback signal. This can enable the filter, unlike with normal digital types, to be given a deep saturated sound, which produces typically analog sounds, from light keying to screeching to noises reminiscent of frequency modulation.

### **The filter parameters**

**Type:** Here you can specify the filter type. The selection consists of high cut, band pass, and low cut. The low cut filter is a series connection of two filter modules used in order to reach a skew rate of 24 dB. For the other modes, the 12 dB supplied is usually perfectly sufficient, meaning that only one module is used.

**Cut-off:** Filter trigger frequency

**Resonance:** Amplification factor of the circuit and the related internal feedback. When there is feedback, please take note of the monitor volume.

**Drive:** The filter behaves quite cleanly when turned down. At higher resonance, typical whistling sounds will be audible. The more "drive"  
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there is, the more the saturation level in the feedback path appears, changing the behavior of the filter. The entire circuit is turned up at the same time.

**Env Mod:** The filter has its own envelope with attack, decay, sustain, and release faders. This envelope can often be quite important for lively sounds. Unlike with the amp envelope, it doesn't control the volume progression, but rather the cut-off parameter. With the Env Mod fader (envelope modulation) you can specify how strong the envelope affects the cut-off. In the middle position, Env Mod does not have any effect. If turned to the right, the virtual "control voltage" of the envelope will be added to the cut-off fader, and if turned to the left it is subtracted.

### LFOs (Low Frequency Oscillators)

Most synthesizers usually have a so-called low frequency oscillator. In REVOLTA, there are two. LFOs are fundamentally normal oscillators which do not oscillate in the normal frequency ranges relevant to music, but rather at very low frequencies. Its output cannot be perceived directly by the human ear (like a normal oscillator), but rather is used to modulate other parameters, that is, to change to the rhythm of the LFO. Usual LFO targets are the pitch (-> vibrato), the volume (voltage-controlled amplifier) for a tremolo effect (volume modulation) or the cut-off frequency of a filter.

### The parameters of LFO 1 & LFO 2

**Type:** Here you can select the oscillation form of the LFO. Sine, rectangular, and "Sample&Hold" (random function) are available.

**Sync:** This button enables the synchronization of the song tempo in order to create exact rhythmic modulations. The following parameter controls the interval:

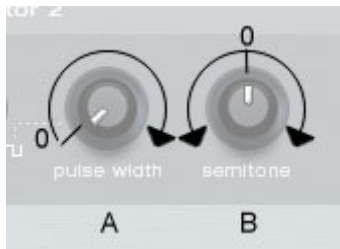
**Freq:** The frequencies of the two LFOs of REVOLTA can be set over a long range. If the Sync Button is active, the fader will "snap" only with rhythmic intervals (for example, one quarter, one eighth, one eighth triplet or dotted). When the tempo sync is switched off you can control the frequency in Hertz directly from here. This goes deep into the audible range, enabling drastic effects like "Filter FM".

**Delay:** This fader specifies the time span which the control voltage of the LFO takes to grow from 0 to its maximum value (a kind of "fade in"). The underlying "Timer" will be restarted every time a key is pressed. This way you can, for example, make a pitch modulation audible only when tones are held for longer, similar to the way a

singer's vibrato only develops after time.

If set to the left, delay is switched off. In this case, the LFO is constantly active and oscillates at maximum amplitude.

**Destination:** When you click on this list, a selection menu appears with (almost) all accessible synthesizer parameters. The choice you make here is the so-called target modulation. Most of these targets are additively modulated by the LFO, that is, the control voltage will be added to the corresponding fader position. Here, the LFO suspense is positive (Case A in the graphic below), only the stereo panorama, the semitone and detune parameters of OSC 2 will be modulated with symmetrical suspense (positive & negative centered around the start position) so that deflection only occurs to the left and to the right of the fader position (Case B).



**Depth:** This fader specifies the maximum amplitude of the LFO. It influences the strength of the modulation.

### Master module / global parameters

On the left-hand side of REVOLTA you will find the following faders:

**Volume:** The master volume of the synthesizer. The fader controls the amplification factor of the output level with a soft distortion characteristic. The step makes sure that the output level never exceeds 0 dB by leading the signal softly into the saturation. When a signal is too loud (as a result of strong resonance) internal distortions arise which sound softer and more musical than if they had overmodulated the next levels or the master outside the instrument. You may have to monitor the audible level and use the supplied presets as a reference for the volume.

**Pan:** The stereo panorama. With a single-voice synth it is not usually required, but we mentioned it: You can automate this parameter to make interesting stereo effects possible.

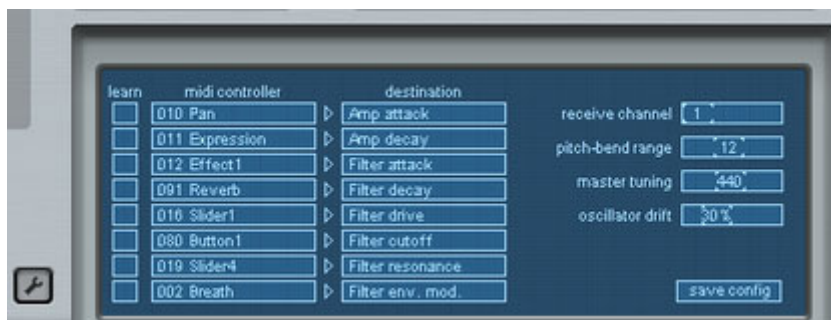
**Transpose:** Here you can adjust or set the octaves of the global

tuning for the currently selected preset in half-tone steps. You can use this, for example, to test out whether an octave sounds better one octave higher or lower without having to transpose the MIDI data.

**Glide:** This parameter is also known as "Portamento" in some synthesizers. The fader specifies the time to glide from the last tone played to the tone currently playing. The more turned up it is, the longer the process lasts. By automating the parameter, very lively bass runs and solo passages can be played. Even statically, a short glide for basslines can sound good. This can be implemented by turning the fader up so far that the tone sounds a little bit distorted.

### SETUP / CONFIG VIEW

When you click on the spanner symbol the LFO section disappears (but is still active) and the so-called config view (or "setup") opens.



Here you can set an entire series of global parameters as well as specify whether or not REVOLTA should react to incoming "MIDI Control Change" messages (MIDI CC) and how strongly.

The settings are independent of the selected presets. They apply to the entire instrument. Should you have loaded multiple instances in one project, they will all share the same setup.

### Parameters

**Receive Channel:** REVOLTA usually responds to the MIDI channel 1: Should you wish your data to be sent to a different channel, you can change it here.

**Pitch bend range:** Here you can set by how many half-tones the sound should be bent when you turn the pitch wheel on your keyboard.

**Master Tuning:** In most cases all instruments can be set to the standard pitch A, 440 Hz. If you have an arrangement that differs

from this, you can use REVOLTA to globally tune to between 400 and 480 Hz.

**Oscillator Drift:** Something that differentiates older analog synthesizers from digital ones, is the lack of tuning stability. Many transistor-based circuits have difficulties keeping their operating parameters for longer periods of time. The problem is often thermal, as an increase in temperature can influence the behavior of the movement of electrons and the properties of certain semiconductor materials. Modern analog synthesizers usually have temperature-resistant integrated circuit, but they too are susceptible to the "random principle", making the oscillators constantly susceptible to small fluctuations. Use the "Oscillator Drift" parameter to specify how much "analog behavior" you wish to permit. At maximum, occasionally stronger tuning discrepancies are audible. Values in the mid field or in the first third are especially suited to making sounds with two oscillators sound less static and somewhat warmer, especially when OSC 2 was not detuned relative to the first one. The drift parameter, of course, has a large influence on the entire sound when REVOLTA is used with other instruments in a very large arrangement.

### **MIDI Controller / Destination**

Almost all available parameters in REVOLTA are not only controllable via direct manipulation on the interface, via LFO, but also externally via the MIDI Control Change function. Should you own a hardware controller or a keyboard with the corresponding faders, you can use it for realtime control of this synth.

Since any unified classification of source or target is not possible, it's important to know what the connected device transmits with specific faders. You need to find out a few things to do this:

- Which of the eight externally adjustable parameters would you like to modify? To do so, make your selection in the "Destination" list one after the other, i. e. Filter cut-off, Filter resonance, etc.
- Which MIDI CC number should externally control this parameter? If you already know which fader/button sends which number to your device, you can select it directly from the list. If not, setup provides a Learn mode: To access this, click on the corresponding field in the "learn" column. Now when you move a fader on your computer, etc., the corresponding type (its CC number) is included and appears in the list. You can go through the list one by one and assign 8 controllers max.

**IMPORTANT:** If you wish to save the setup, don't forget to press the "Setup" button before leaving the view or closing the entire interface.

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This permanently saves your changes.

If you should leave the setup prematurely, the changes will be discarded and its previous state will be active once again.

## Revolta 2

The Revolta 2 is a further development of Revolta 1. It is polyphone and playable with up to 12 tones, including an additional noise generator, a step sequencer and an extra flexible modulations matrix. An own effects section with 9 different effects and presets, which have been designed from a famous designer, make its a full-fledged synthesizer for all kinds of lead, sequence and pad sounds.

REVOLTA 2 has a whole array of presets. The sounds have been created by professional sound engineers and demonstrate the huge potential of this instrument from the word "go". First off, however, we would like to encourage you to try out the various control functions and to experiment around as much as you like. The sky's the limit to your creativity.

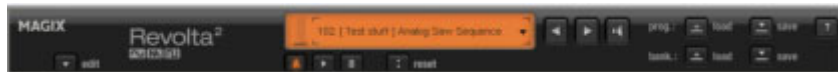
### Revolta2 interface

Warning: Here you will find only a short description of the Revolta 2 interface.



For a comprehensive documentation of this complex synthesizer please click the help button on the Revolta 2 interface!

The Revolta 2 interface can be displayed in two sizes. In rack mode only the elements necessary for preset loading are visible:



By clicking the edit button you can open the complete interface.





**1. Main parameter:** Here the volume, panorama position, pitch characteristics ("transpose") and the play modes (POLY, MONO, LEGATO) can be set. GLIDE regulates the portamento time.

**2. Oscillator section:** Two oscillators are available with smoothly adjustable curve form and a noise generator. Both oscillators can be tuned to each other and used to modulate frequencies.

**3. AMP:** This is the volume envelope. Here you can influence the temporal progression of a track's volume. **A**(ttack) stands for the volume increase at the start, **D**(ecay) for the length of time the decrease in volume takes on a section set with **S**(ustain) at the maximum volume. **R**(elease) is the length of time it takes for the sound to ring out. **VEL** specifies how much the envelope curve depends on the velocity.

**4. FILTER:** Here you can switch on a filter which influences the sound. With FILTER TYPE, you can select a filter type. "Cut-off" regulates the filter frequency, "Resonance" controls the strength of the amplification of the filter frequency. "VEL" indicates how much the velocity influences filter frequency, with "KEY" the filter frequency will be changed depending on the note pitch ("Keytracking"). The filter envelope (ADSR slider) influences the filter frequency depending on the time. "Env mod" controls the strength of the filter envelope curve, and with "drive" the filter can be overmodulated.

**5. FX1/FX2:** Here you can mix in 2 different effects out of a total of 9 available effects.

**6. LFO1/LFO2/STEPSEQUENCER:** Two LFOS and the step sequencer can be used to modulate single parameters of Revolta 2.

**7. Options and modulations matrix:** The two buttons open the options page of the Revolta for general and preset-specific settings and modulation matrix. In the modulation matrix modulation sources are connected with modulation targets. Simple modulations like the Oscillator, where the pitch will be modulated via an LFO (Vibrato), can be set quicker directly on the interface. Much more complex modulations are possible in the matrix because the matrix offers more modulation sources (for example MIDI controller, oscillators) and the modulation source can influence more targets.

**8. VALUE DISPLAY:** The value display shows the exact value of the parameter which was just modified. In addition, you can find out the load of the twelve voices.

**9. Preset section:** Here you can select Revolta presets. Every sound can be listened to, and an A-B comparison between two sounds is also possible (for example, an edited and an unedited sound).

## Auto Jam Session

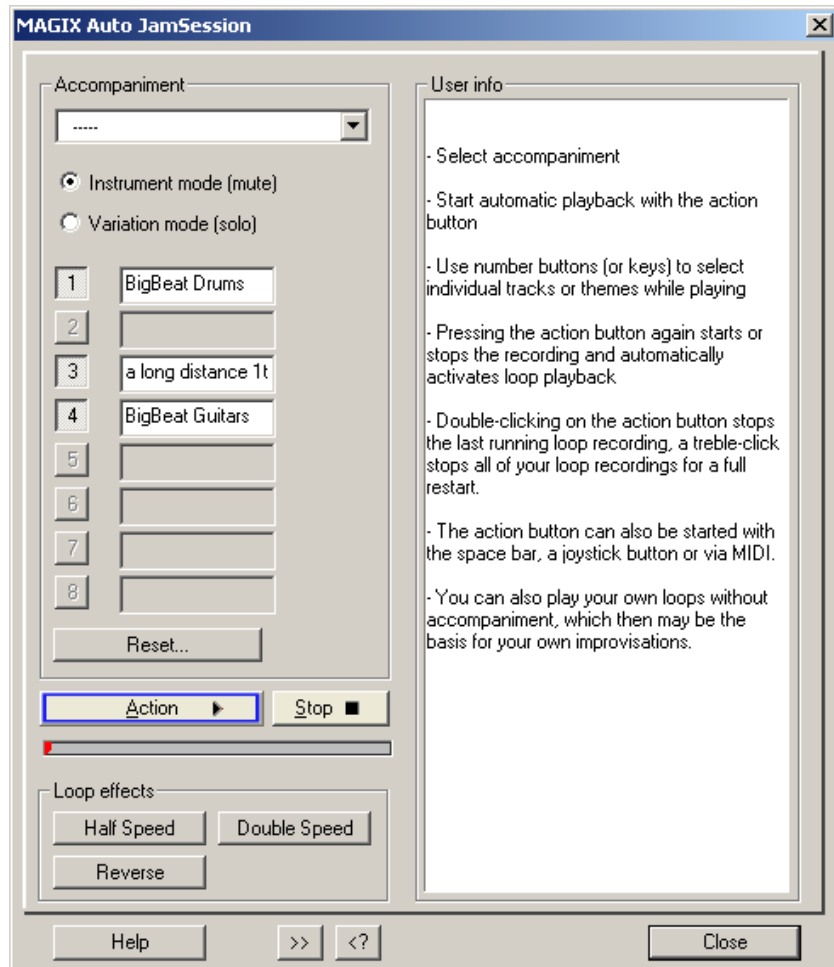
The Auto Jam Session lets you create complete songs single-handedly. Begin with a simple idea, a small riff, or a chord progression. This is then recorded and put straight into an endless loop after the recording. Now, you can record a melody on a different track. The program simulates working with hardware „Looping delays“, like, for example, the Gibson Echoplex. The difference is that Samplitude Music Studio 14 creates an arrangement which can later be edited and compiled into a complete song.

During an Auto Jam Session, everything you do is recorded.

### Open

1. Start Samplitude Music Studio 14 and choose „New Auto Jam Session“ from the start selection or
2. Create a new arrangement.

The Auto Jam Session can be started via the „Playback/Record“ menu or via the button in the upper toolbar.



## Handling

After start-up you'll see, at first, the simple view of the Auto Jam Session. In the right half you'll be given useful hints on how to use the program, without resorting to the Help file by pressing the „F1“ key or Help button.

**Action:** The most important handling element is displayed as an Action button (bottom left), which can also be controlled using the

space bar or via MIDI/joystick.

1st click: Playback begins. Nothing is recorded yet.

2nd click: The first recording starts. Record your first beat(s). As a sign that it's recording, the action button turns red.

3rd click: Ends the recording. The recorded part is inserted into the arrangement as a loop and then played repeatedly. It serves as a speed measure for the next loop.

4th click: In the next track, the recording starts. You'll begin hearing the previously recorded loop. Now you can add an additional voice to it.

5th click: The recording ends, playback of the first and the newly recorded loop continues.

The next clicks start and end other recordings (Clicks 4 and 5 repeat). Every restart of the recording, starts in a new track. All loops recorded up until now are played continuously.

Double-clicking on the action button stops the last loop recorded. Clicking three times ends all running loops. You can use it to separate various song parts from one another.

By clicking on stop, the playback/recording is stopped immediately

## Auto Jam Session modes

There are many ways to record a song:

- Record everything by yourself. Here, the loop that was recorded first is set as a measure for the speed of the song in BPM (beats per minute). The buttons 1-8 function as mute or solo buttons depending on their set modes (see below).
- You can choose from one of the accompaniments provided. Here, the speed of the song is taken from the template. There are two types of mode:
- Instrument mode (mute): The accompaniments consist of multiple individual instruments that can be muted using the buttons 1-8 (or the corresponding keys on the keyboard).
- Variations mode (solo): These accompaniments contain multiple variations of the same instrument, between which you can switch

during playback.

**Reset:** Reverts every button to their original states and selectively stops the last loop recorded, every self-recorded loop, all loops or deletes the entire project.

## Loop effects

You can change your arrangement with these real-time effects. The loop effects affect either every track or just the last track recorded (see below).

Technically, these effects are object effects. Switching the effects on and off creates separate objects from the loops.

**Half speed:** The speed factor is halved when this button is pressed. (If you press the button twice, it will be played at a quarter of its speed, etc.)

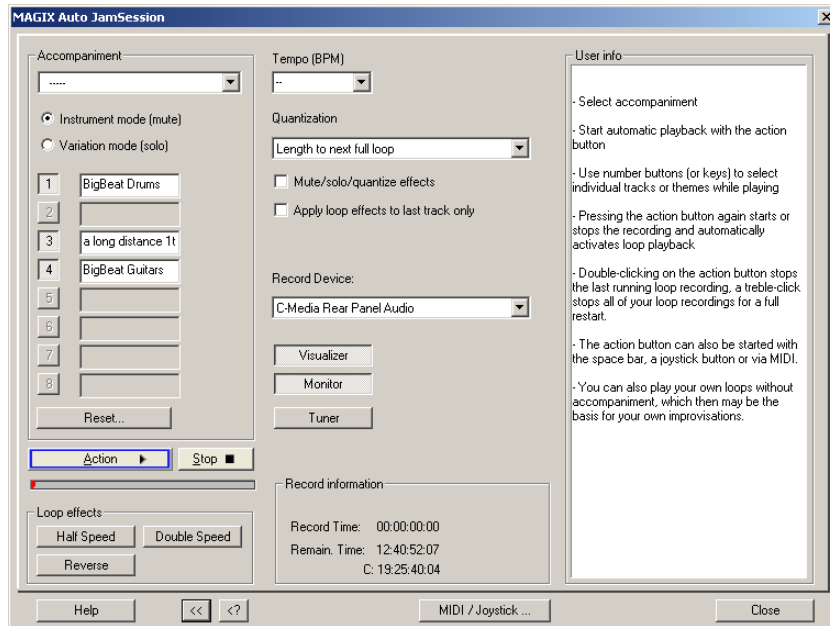
**Double speed:** The speed factor is doubled when this button is pressed.

An application of this effect is, for example, playing „impossible“ guitar solos. Switch your existing arrangement to half speed, record your guitar solo and then click on double speed. Your accompaniment plays in original speed again and your solo now sounds twice as fast and an octave higher.

**Reverse:** This effect plays the whole arrangement backwards. Opening it again resets it.

## Enhanced Auto Jam Session dialog

Clicking on the „>>“ button opens the enhanced Auto Jam Session dialog.



### Tempo

Here, you can select the tempo from the list or enter one of your choice.

„—“ means that the speed adapts to that of the first recorded loop or of the accompaniment (if chosen).

### Quantization

Quantization guarantees that newly recorded loops fit into the existing arrangement by recording loops whose lengths are exactly four times that of the first recorded loop or the loops begin or end on the bar or loop borders.

There are multiple options for optimizing:

**Length of the next whole loop:** The new loop is recorded with the same length or a whole-numbered multiple (2x, 3x, 4x...) of the original loop length. The loops always remain synchronous, but mustn't have the same starting point. This is the preset quantization

mode.

**Start + length of the next whole loop:** It's only after the next loop border that recording starts. The length is quantized like in „Length of the next whole loop“. The starting points of the loops are all at the same positions.

**Length to previous whole loop:** The loop end is shortened to the last exceeded loop border. This is useful when, while recording, you always only get around to clicking on the action button (space bar) after the next loop.

**Start + length to next bar:** The starting point of the recording and the loop length are adapted to the bar. This is useful if you have recorded the first loop over multiple bars.

**Start + length to the next beat:** The starting point of the recording and the loop length adapt to quarter beats. This is useful if you want to record very short or uneven loops (for example, only  $\frac{3}{4}$  bar).

Both of these options are useful if the speed has been set (specified in tempo or by the accompaniment)

**Freestyle:** Quantization is deactivated. No more loop starts or loop lengths are adapted when recording. It's only recommended if you want to create chaos or are very „precise“.

**Quantize mute/solo/effects:** This option also quantizes the control of solo, mute and other effects (double speed, half speed, reverse).

**Only use loop effects on the last track:** The loop effects are always used on the last track.

### Record Device

You can select the desired soundcard or soundcard input in the flip menu.

**Visualizer:** This button switches the visualization on or off.

**Monitor:** This button activates or deactivates monitoring. This means that the incoming signal is displayed in the visualizer and played by the soundcard output.

**Tuner:** This button opens an additional visualization in the „tuner“ mode with which you can tune your instrument (for example, your



guitar).

**Recording information**

**Recording time:** Shows how long you've been recording.

**Remaining time:** Here, you can see for how long your hard disk can record. If you have multiple hard disks or hard disk partitions, the recording capacity of these are also shown.

**MIDI / Joystick ...**

This button opens the Shortcut Editor of the Auto Jam Session. More information can be found under „Shortcut Editor“ > „Auto Jam Session“. Here, you can also „learn“ MIDI commands.

## The Managers

The Manager brings frequently needed administrative and control functions together inside one window, including those of markers, grooves, and tracks. This also includes a file browser with which media data can be found, sampled, and loaded.

The Manager can be opened inside or outside the main window and does not block it. The Manager window has a multi-monitor capability and notes its last position when it is closed. A number of Managers can be opened simultaneously in various different views and independently of one another.

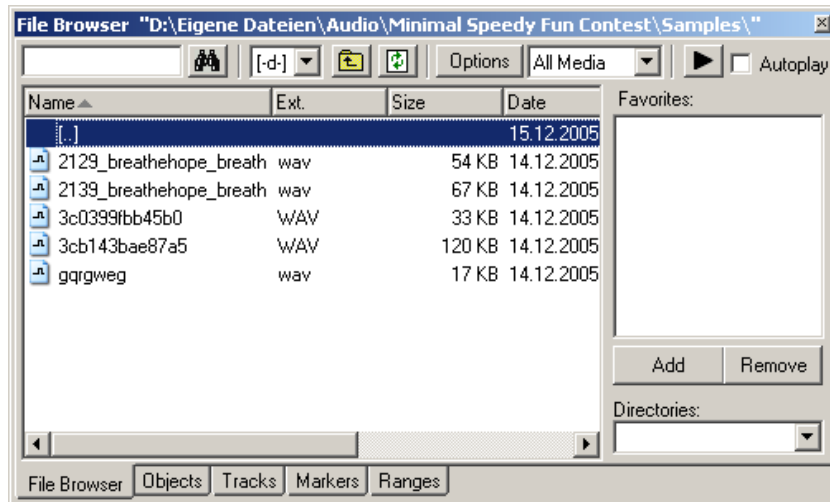
The Manager integrates the following sub-windows (with the Shortcuts keyboard)

- File browser (on page 243)
- Objects (on page 245)
- Tracks (on page 248)
- Markers (on page 249)
- Ranges (on page 251)
- VSTi (on page 253)

To open the Manager, click on the “Manager” entry in the toolbar or select the entry “Open new Manager” in the “Tool menu”. With this menu entry you can also open further manager windows in addition to the one already open.

Click with the mouse on the window tab at the bottom edge of the Manager window in order to open the required sub-window.

## File browser



Samplitude Music Studio 14 contains a file browser integrated into the Manager with which the files can be sampled and directly loaded into projects. The browser allows favorite folders to be defined and provides access to the folders that were last opened.

In order to display the file browser, click on the "Manager" button in the toolbar and then select the "File browser" tab on the bottom edge of the Manager window.

Menu: Tools / Manager / File browser

### Navigation/Favorites

The file manager works in a similar way to Windows Explorer. Directories and files are displayed with directory and file symbols in the form of a list.

Navigation is achieved with the help of the mouse or keyboard. A drive selection menu found in the toolbar lets you quickly switch between all data storage devices connected to the workstation.

A display filter located in the toolbar lets you limit the display to certain media types, e.g. .WAV, MIDI or project files, only. "All media files" is displayed by default.

As known from other Manager windows, the Search option lets you search the current window for directories or files. Enter a search item

into the input box and click on “Enter”. Found directories or files are highlighted. You can find and highlight several entries that meet this search criterion by entering one or several first letters.

The File Browser opens as a tiled window by default. The right box hosts the favorites list, which you can fade out using the “Options” toolbar. Use “Add” or “Remove” to add and remove directories from the list of favorites.

There is a combo box below the favorite list displaying the last used paths and which lets you change the current project directory.

### Preview audio files

You can use the Play icon in the toolbar to preview a marked audio file. In contrast, every highlighted audio file is played immediately if the “Autoplay” box is checked. This way you can listen to a complete list using the cursor keys only. Clicking on the play button again stops continuous playback again.

**Hint:** During playback the controls of the transport console are allocated to the media file. Playback and positioning functions are fully available.

Playback is not routed through the Mixer or internal effects. In contrast to the playback features of the “Load” window, which uses routines of the operating system, playback uses the audio device selected in the Play Parameters (“P”). This can be a MME, WDM or ASIO device. If no playback occurs, first check that the settings and routing of this device is correct.

**Note:** To preview certain media data, e.g. in WMA format, you have to convert these files to .Wav format. Conversion is carried out automatically in the background.

### Load files from the browser into projects

Some media files can be inserted from the browser into an opened project at the desired time position via drag & drop. If the File Browser list is in the foreground, pressing “Enter” leads to the same result.

If an audio file is dragged from the clip list and dropped into an empty space or into the title bar of the program window, it is opened in

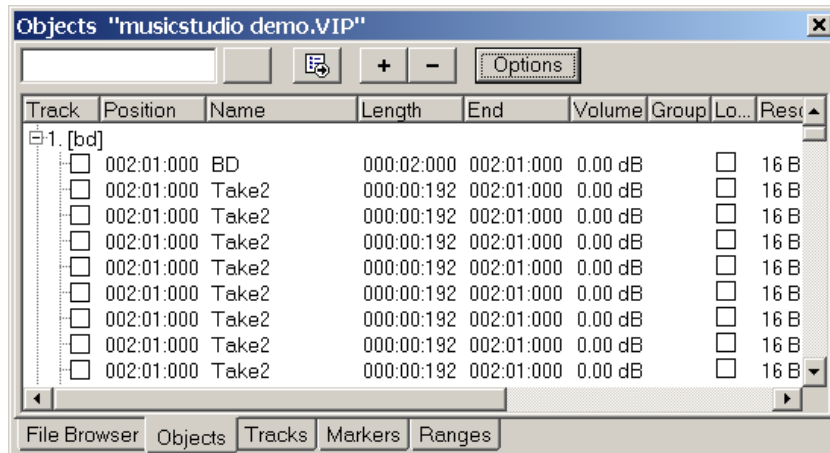
Wave Editing Mode.

If several files are selected in the list, all files will be inserted at the current cursor position as new objects, with the loading options ("Options") will be taken into account. This way you can specify whether all files should be inserted into the current project one after the other, one underneath the other, alphabetically or according to their time stamp positions. The load option settings are valid also for files loaded via the "Load" dialog of the program.

There are further options in the context menu of a media file (right-click):

- Load file
- Delete file: Physically removes file from data carrier. Warning! This process cannot be reversed!
- Highlight all files
- Open via standard link: The file is opened in the Windows application that is linked to this file type. This can be an MP3 player or a different .Wav editor.
- Open in Windows™ Explorer: Opens the current directory as a new Windows Explorer™ window.

## Object Manager



The object manager integrated into the Manager lists all the objects contained in the current project and enables selected object parameters to be edited.

To display the Object Manager, click on the “Manager” button in the toolbar and then select the “Objects” tab on the bottom edge of the Manager window.

Menu: Tools / Manager / Object Manager

You can export information from the Object Manager as a text file. Click on the “Export text” button in the toolbar. The Windows Text Editor opens with an extract from the Object Manager list. The following information is saved:

- Project name and path
- Track and object name(s)
- Start position in the project
- Path of source file.

You will find this file afterwards in your project folder (Project name.txt).

### **Object view and selection**

Objects are displayed in a tree structure and sorted according to tracks, whereby only tracks are listed that actually contain Objects. As an option you can choose to display Objects of the current tracks only (Toolbar: “Options”).

You can use the +/- keys of the toolbar to open and close the track Object display in the entire window. Click on the “+” symbol left of the track number to explode the view of a single track.

**Selecting Objects:** A square checkbox next to the Object name lets you select single or multiple Objects, which then appear in the Project Window as “selected”. If an Object is selected that is part of an Object group, the other Objects of the selection are also selected in the Project Window and Object Manager. You can recognize grouped Objects by the number of the Object groups in the Object Manager group bar.

**Search for Objects:** As in other Manager Windows, the Object Manager also provides a search option that allows you to search for Objects in the current window. Enter a search item into the box and press “Return”. Found Objects are highlighted, but are not selected in the Project Window.

**Edit object parameters**

You can edit the following object parameters in the Object-Manager:

- start position
- length
- end
- volume
- lock

To edit a parameter, double-click on the relevant value and enter a different value. Numerical values can be changed by Drag&Drop with the mouse, whilst Ctrl+Shift allows larger or smaller value changes. “Tab” switches on to the next editable value. The up and down cursor arrows permit vertical navigation within a column from one text box to another.

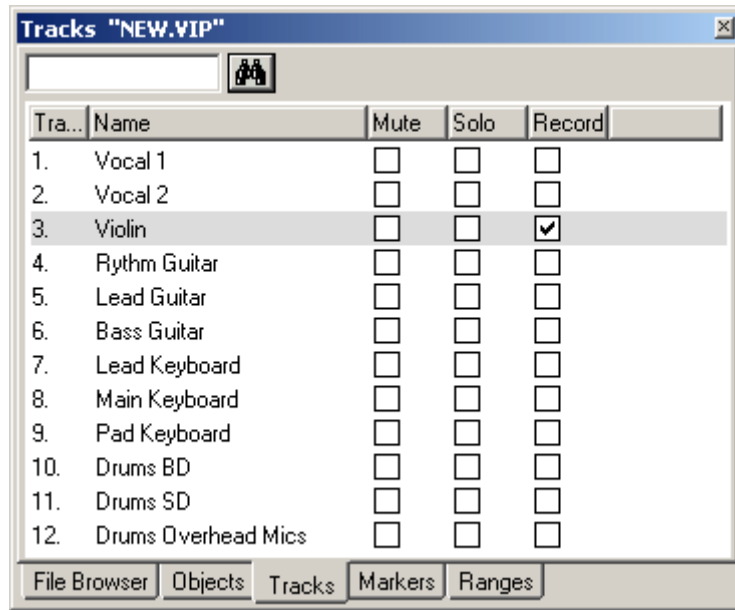
**Deleting, renaming and editing objects**

You can delete Objects directly in the Object Manager by selecting one or several Objects simultaneously and pressing the “Del” key. Alternatively, you can delete an Object via its context menu.

You can rename Objects by double-clicking on the Object names and entering a new name. The procedure of changing a marker position directly in the list is the same.

To edit an Object directly from the Object Manager, right-click on the Object you want to edit and start the Object Editor.

## Track Manager



The Track Manager represents all the tracks contained in the current project and not only provides direct access to solo, mute, and record but also hides tracks in the project window and mixer.

To display the Track Manager, click on the “Manager” button in the toolbar and then select the “Tracks” tab on the bottom edge of the Manager window.

Menu: Tools / Manager / Track Manager

### Track view and selection

The Track Manager contains all tracks of the current project. You can double-click on the track number to select a track. The track will be displayed in the project window. If the track is outside of the visible display, the project window will scroll to this vertical position.

**Search for tracks:** As in other Manager Windows the Track Manager also provides a search option that allows you to search for tracks in the current window. Enter a search item into the box and press “Return”. Found tracks are highlighted.

### Rename, delete and insert tracks.

You can delete tracks via the Manager by selecting one or several of



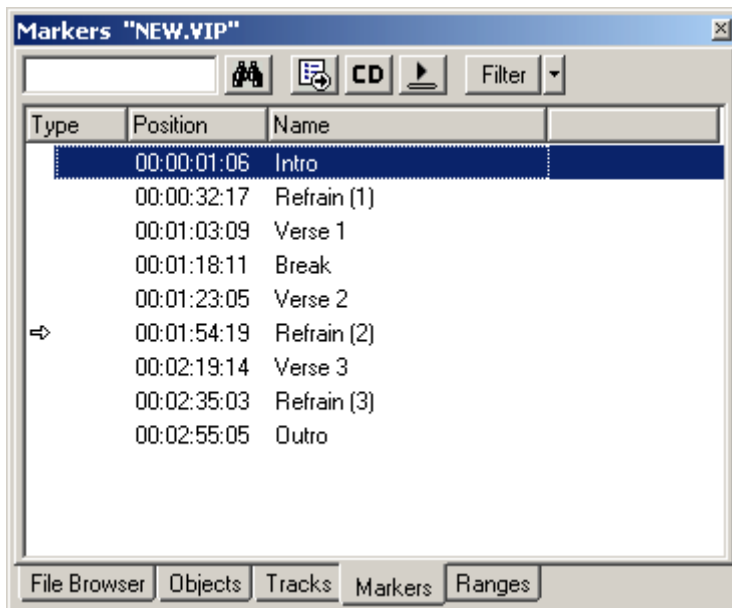
these tracks and pressing the “Del” key. Alternatively, you can also use the context menu to delete a track.

You can rename tracks by double-clicking on the track names and entering a new name. The procedure of changing a marker position directly in the list is the same. “Tab” moves on to the next editable value. “Cursor up/down” navigates you vertically within a column if this is a text column.

To edit an Object directly from the Object Manager, right-click on the Object you want to edit and start the Object Manager. Here, all functions are present in the same way as they would be, had you opened the Object Manager from the Project window.

You can also insert new tracks directly in the Track Manager. Right-click on a track entry and select “Insert track” from the context menu. A new track is added after the final track of the project.

## Marker Manager



The Marker Manager represents all the markers contained in the current project, regardless of type, and makes it possible to jump to or start playing them directly from the list.

To display the Marker Manager, click on the “Manager” button in the [www.magix.com](http://www.magix.com)

toolbar and then select the “Marker” tab at the bottom edge of the Manager window.

Menu: Tools / Managers / Marker Manager

You can export information from the Marker Manager as a text file. Click on the “Export text” button in the toolbar. The Windows Text Editor opens with an extract from the Marker Manager list. The following information is saved:

- Project name
- Marker type
- Marker name
- Marker position in the project

You will then find the file in your project folder (Project name.txt).

### **Marker view and selection**

In the Marker Manager you can display all markers of the current project.

**Searching for markers:** As in other Manager windows, the Marker Manager also provides a search option that allows you to search for markers in the current window. Enter a search item into the box and press “Return”. Found markers are highlighted.

### **Jump to and play from marker position**

Double-click on a marker in the type column to position a playback marker on a different marker position.

**Playing markers:** Select a marker and click on the “Play marker” button in the toolbar. A Range surrounding the selected Marker is created and playback is started.

### **Deleting markers, changing marker name, position and type**

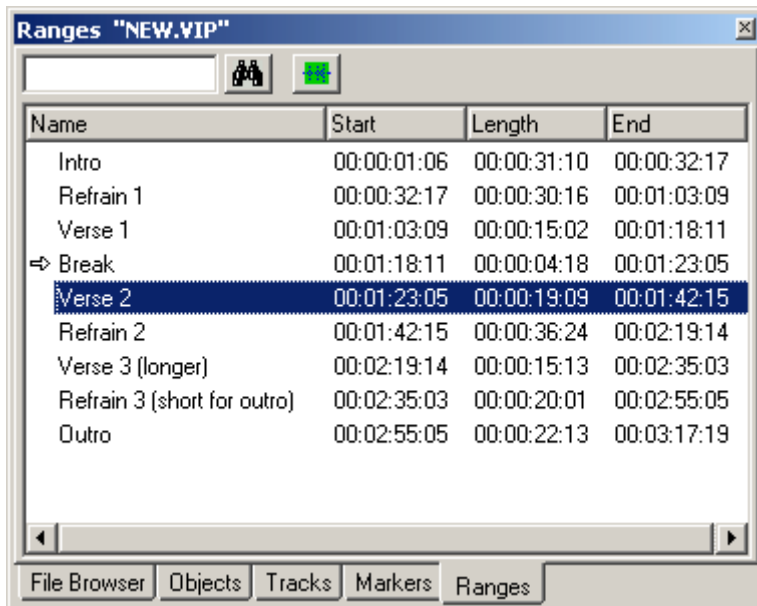
You can delete Objects directly in the Object Manager by selecting one or several Objects simultaneously and pressing the “Del” key. Alternatively, you can also use the context menu to delete a track.

You can rename markers by double-clicking on the marker names and entering a new name, or you can use the context menu. The procedure of changing a marker position directly in the list is the same. Please use the same method to change a marker position directly from the list. “Tab” moves on to the next editable value. “Cursor up/down” navigates you vertically within columns if these are

name columns.

**Tip:** You can change the type in the context menu of the respective marker anytime, for example, if you want to change a position marker into a CD track marker.

## Range Manager



The Range Manager represents all ranges contained in the current project and makes it possible to select them directly from the list.

In order to display the Range Manager click on the “Manager” button in the toolbar and then select the “Ranges” tab on the bottom row of the Manager window.

Menu: Tools / Managers / Range manager

### Defining and search for ranges

**Defining Ranges:** To save a Range in the Manager, you first have to define a Range in the Project Window. Next, click on the “Define new Range” button in the toolbar of the Range Manager.

Ranges that are saved using the program's “Save Range” feature

(Alt+F2, Alt+F3, etc.) appear in the list with the F2, F3, etc. indicators.

**Searching for Ranges:** As in other Manager windows, the Range Manager also features a search option that lets you search for Ranges in the current window. Enter a search item into the box and press “Return”. Found Ranges are highlighted.

#### **Edit range parameters**

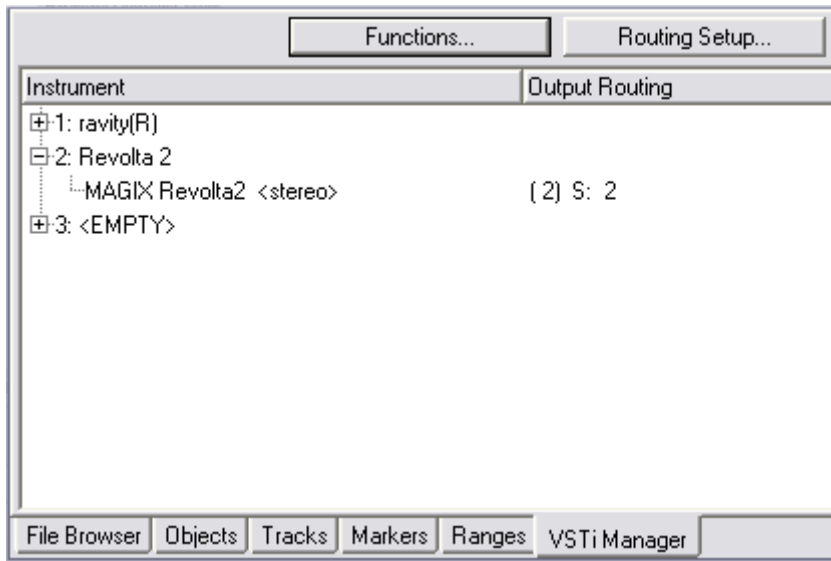
You can edit the following parameters in the Range Manager:

- Name
- Start
- Length
- End

To edit a parameter, double-click on the respective entry and enter a different value. Numeric values can be changed by drag & drop, whereby Ctrl+Shift allows for larger or smaller value changes. “Tab” moves on to the next editable value. “Cursor up/down” navigates you vertically within a column if these are name text boxes.

## VSTi Manager

The VSTi Manager facilitates easy display, inserting and deleting of MAGIX, VST, and Rewire instruments in the current project. If the instruments are opened, the outputs to the assigned tracks are displayed. Right-clicking on the selected instrument opens the plug-in dialog of the selected VSTi. Instrument outputs are routed in the VSTi Manager in "Routing Setup". In the appearing dialog you can specify how many outputs you want to route. You can either route all outputs to the current track or, if you like, create new mono or stereo tracks. Pressing the Del key removes a selected instrument completely from the project. If only individual output signals were selected, routing to a track is cancelled by pressing the "Del" key.



Detailed information on the routing settings of instruments as well as on managing the outputs can be found in the chapter "Software/VST instruments > Routing instruments (on page 189)".

# Surround Sound

## Surround Panorama Module

In the Surround Panorama module the panning of a track or an object is set and edited on the Surround bus.

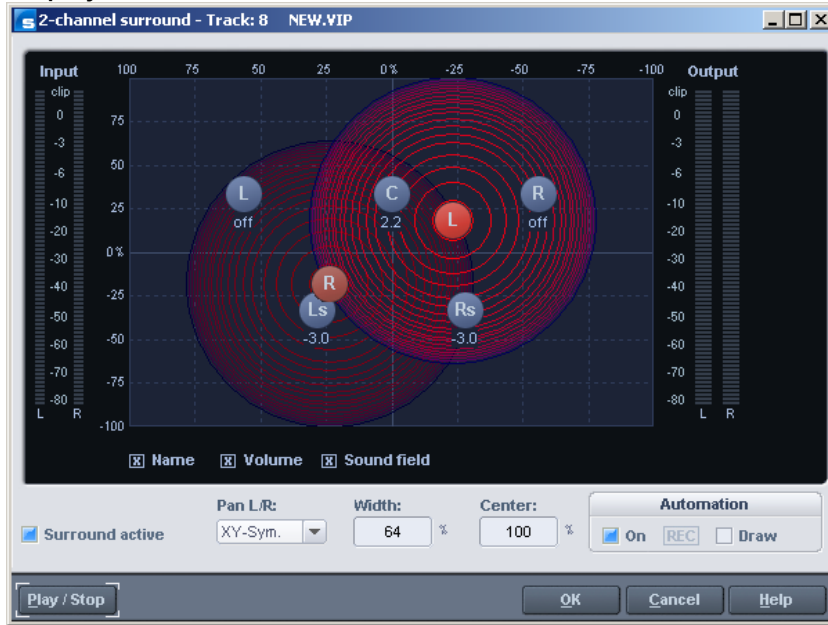
### Open the dialogue

- Mouse right-click on the Surround Pan Display of the relevant channel line in the mixer (this is only possible if the twin-channel Surround mode is already active), or
- Mouse right-click on the button or regulator in the relevant track in the VIP, or
- Open the track menu of the VIP in the track information with a mouse right-click and select “Pan / Surround editor”, or
- Select the required track in the VIP and select “Track” -> “Surround panorama-module”

In the title line of the Surround panorama module the track is stated that it is currently being edited.

Example: “Surround panorama module: Track 4”

## Display elements



In the panorama display the loudspeaker channels of the Surround set-up are shown as blue dots. Activating the options underneath the panorama display allows the following information to be displayed in addition:

### Name

The loudspeakers are designated with defined abbreviations: “L” (left), “C” (center), “R” (right), “Ls” (left surround), and “Rs” (right surround).

### Volume

A level indicator appears next to each loudspeaker and shows the value of the level share that the sound source is transmitting on this Surround bus. For the stereo modes the total of the level of both sources is always shown. If the shift key is held down and the mouse is clicked on a source, the value for only this source will be shown briefly.

### Sound field

The input signal is presented as a field made of concentric circles. Each red line corresponds to a level-gradient of 3 dB in the sound field. The loudspeakers are arranged in such a way that the distance between each loudspeaker and its neighbor is constant. This arrangement makes a uniform distribution of the sound source

possible to all channels. Level relationships are created between the channels that cannot be achieved in other modes.

### **Settings**

#### **Surround active**

Activates the twin-channel Surround mode.

In the deactivated state the stereo position can only be determined via the control elements in the track box or the mixer.

#### **Pan L/R**

This determines the way in which the left-hand or the right-hand channel is placed in the Surround field. For the individual cases please read the section on “Stereo and mono signal processing with twin-channel Surround”.

#### **Width**

Affect the extension range of the loudspeakers (sinking).

#### **Center**

The parameter controls the share of the center in the distribution of the sound source to the front channels. In certain working ranges (e.g. film sound) it is customary to reserve the center channel for dialog and to mix music and noises without share in the center. A signal positioned exactly in the middle is reproduced in the 5.1 format with Center = 100% exclusively through the center channel, or with 0% exclusively as a phantom sound source through the channels L and R. This parameter is often also described as divergence.

#### **Automating Surround**

This section of the dialog is described in the section on “Automation of twin-channel Surround”.

## **Stereo and mono signal processing with twin-channel Surround**

### **Mono**

**The following applies to stereo signals:** A mono total is formed from the signal that is positioned as a single mono sound source in the



panorama.

**The following applies to mono signals:** The signal is positioned as a single mono sound source in the panorama.

### **X-Sym.**

**The following applies to stereo signals:** The left-hand and right-hand channels are aligned symmetrically to the x-axis. This, for instance, enables a stereo signal to be panned very easily from Front L to Surround L.

**The following applies to mono signals:** In addition to the original mono source a second (mono) mirror sound of this signal is positioned.

The mirror axis is the x-axis.

### **Y-Sym**

**The following applies to stereo signals:** The left-hand and right-hand channels are directed symmetrically to the y-axis. This enables, for instance, a stereo signal to be panned very easily from Front L to R.

**The following applies to mono signals:** In addition to the original mono source a second (mono) mirror sound source of this signal is positioned.

The mirror axis is the y-axis.

### **XY-Sym.**

**The following applies to stereo signals:** The left-hand and right-hand channels are aligned symmetrically to the x and the y-axes. This enables, for instance, a stereo signal to be panned very easily from Front L / Surround R.

**The following applies to mono signals:** In addition to the original mono source a second (mono) mirror sound source of this signal is positioned. This is mirror-symmetrical to the original course with regard to the x and y-axes.

### **Parallel**

**The following applies to stereo signals:** The left-hand and right-hand channels are kept at a constant distance to one another and shifted parallel to one another during movements. If the Ctrl key is held down the distance between the two sound sources can be altered.

**The following applies to mono signals:** The original and the mirror  
[www.magix.com](http://www.magix.com)

sound sources are kept at a constant distance to one another and shifted parallel to one another during movements. If the Ctrl key is held down the distance between the two sound sources can be altered.

### **Stereo Thru**

**The following applies to stereo signals:** The same level shares as with a mono source are sent to the various channels, depending on the position of the sound source. However, for all left-hand channels only the left-hand signal is used, for the right-hand channels only the right-hand signal, and for the center and LFE channels the mono proportion.

**The following applies to mono signals:** No special function, identical with mono-mode.

## **Automation of twin-channel Surround**

### **Surround-Panorama-module**

Panning movements in track-related Surround panning can be automated. For this purpose first the automation is switched on in the Surround panorama module. This can also be done by pressing the button of the relevant track in the VIP window. If the sound source is moved during the playing process, this movement is recorded and shown in the VIP as a curve. Later editing of this curve is possible with the Panorama drawing mode of the mouse in the VIP.

### **Drawing**

For this automation mode a range first has to be marked in the VIP within which the change is to take place. The drawing mode is now switched on in the Surround panorama module. Now any required series of movements of the sound source can be drawn in the Surround panorama. This series of movements is carried out in the previously marked time range the next time the VIP is played. Later editing of the curve is possible with the curve editing mode in the VIP.

### **Processing the Surround Sound automation**

#### **Possibility 2: Drawing mode in the Surround panning dialog**

In order to prepare the drawing and movement for a Surround sound placement of the source signal, a range first has to be selected in the VIP track in which the automation is to take place. Then the "Drawing mode" function likewise has to be switched on in the Surround panning dialog. After that you can simply put the source signal in the panning dialog into a new position. Samplitude Music Studio 14 generates the automation events automatically in order to generate

this movement for the automation curves.

**Possibility 3: Drawing automation curves in the VIP track**

Samplitude Music Studio 14 allows you to draw new Surround Sound automation curves in a VIP track or to change existing curves. Make sure that the button for the corresponding VIP track is activated. In the Surround panning dialog the “Automation on” function can also be switched on. As the next step the Panorama drawing mode has to be selected from the toolbar. You can draw new curve events with it in the VIP track. Place the mouse pointer close to an existing curve and click the left-hand mouse button. While this button is held down you can create new events for this curve.

## Burning CDs

Burning Redbook compatible audio CDs is a vital feature of Samplitude Music Studio 14. You therefore won't require any other software for writing a CD. You can also write CDs "On the fly", whereby all processing is performed in realtime during the write process. As trackbouncing was not performed first and no image is created, no extra space is required on the hard disk.

However, sufficient system resources must be available for processing while writing. If your PC is too slow and writing is interrupted, you can of course revert to the conventional method, trackbouncing.

### 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. The term "Redbook" is common language for the Compact Disc Audio Standard. The requirements listed here have to be observed for industrial CP production. Audio CD players only read CDs created according to the Redbook format. It is therefore necessary to first convert PC files into this format before writing them onto an audio disc compatible with any audio CD player.

### Writing

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.

Samplitude Music Studio 14 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 Samplitude Music Studio 14 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.

## **Burning CDs in Samplitude Music Studio 14**

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.

2. Mix your recordings by means of the real-time 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.

3. Set the track indexes to mark the starting position of each song. If the VIP window contains but one stereo track in which each song is created as separate object, you may cause Samplitude Music Studio 14 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 Samplitude Music Studio 14 at discretion. Thus rest intervals may be continuously adjusted, and indexes may be set without any rest either. Samplitude Music Studio 14 is one of the few audio programs permitting this.

4. When you have made all settings you can write the CD in realtime, or you can use the offline function if your PC is not powerful enough. 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 real-time.

Create complete new files. Samplitude Music Studio 14 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.

5. One click onto the button "OK" starts the writing process, and Samplitude Music Studio 14 starts searching for available CD-R drives. If several drives are connected to the system you will be  
[www.magix.com](http://www.magix.com)

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 real-time 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 real-time 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 |

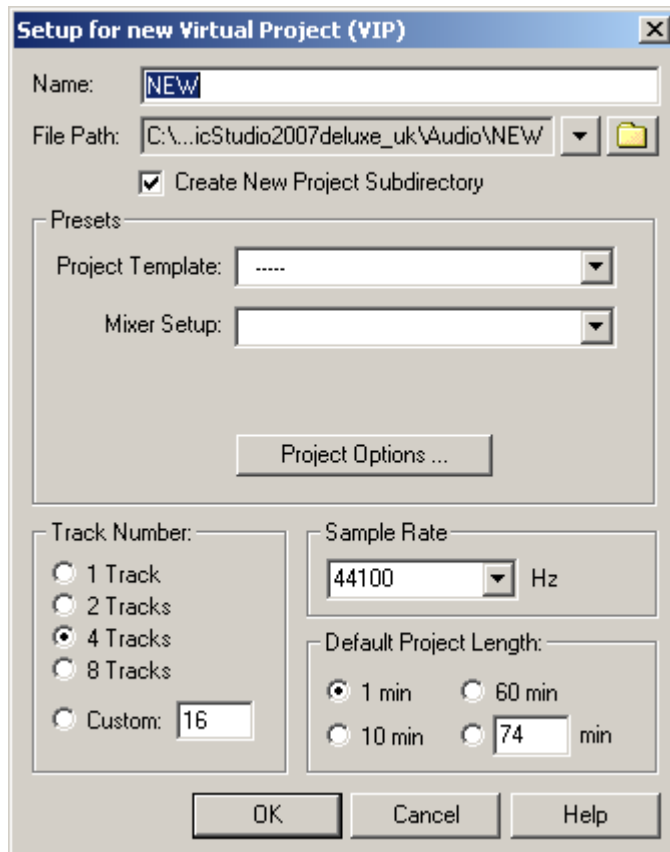
Particularly when first using a new and unknown computer system it is recommended to simulate the writing process at first to check the limit performance of the system. Should the system become overloaded, a reduction of the number of tracks or real-time effects will help by combining parts of the VIP window by track bouncing.

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.

## File menu

The project menu contains wide-range functions for generating, managing, loading and saving projects.

### New Virtual Project (VIP)



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.

**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 (on page 280)

Keys:            E

## Open

You can open various file types here and load them into Samplitude Music Studio 14.

Key:            L for RAM Wave Projects

Key:            Shift + L for HD Wave Projects

Key:            o for Virtual Projects

Key:            W for WAV files

Key:            ALT+S for sessions

### Virtual Project

Virtual Projects are multi-track projects in Samplitude Music Studio 14, which make 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.

### **HD Wave Project**

HD Wave projects contain audio data, which is directly loaded from the hard disk, together with the graphical information, marker position information, etc. The audio format used for these files is the WAV format.

### **RAM Wave Project**

RAM Wave projects contain audio data in Samplitude Music Studio 14's proprietary format. These files are loaded into the RAM memory of your computer, including their associated graphic files, marker position information, etc.

### **Object**

Contains playback instructions (link to a Wave project, track, time position, parameters, etc.) for audio data. Objects are used in virtual projects.

### **Session**

A previously saved Samplitude Music Studio 14 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.

## **Load / Import**

### **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. Samplitude Music Studio 14 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.

### **Import Audio**

Samplitude Music Studio 14 gives you the option of importing Wave, AIFF, MPEG, MP3, MS audio (.wma), audio from .avi files or Sample Dump files into a Samplitude Music Studio 14 project. You will need to specify which type the project is going to be, a RAM Wave Project, or a HD Wave project.

## Load Audio CD Track(s)

This option is located in the menu “CD” too.

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 on 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 track-list 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!

**Unselect 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 Samplitude Music Studio 14 can correct these differences using this algorithm.

**Copy Mode Burst:** Optimizes the speed of the copy process, no  
[www.magix.com](http://www.magix.com)

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, Samplitude Music Studio 14 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. Samplitude Music Studio 14 will not generate a copy of it for reasons of conserving space on your hard drive.

Keys:            Shift + S

## Save complete VIP in

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 Template

This option allows you to create project-patterns, where all project settings such as the number of tracks or the type of gate 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).

## **Burn Project Backup on CD**

This option lets you easily create data CD backups of the whole project. For this purpose, the external Samplitude Music Studio 14-CD burning software is started.

## **Save Object**

An object can be saved. This file only contains realtime data (wave files, fades, names, etc.), not the actual audio data. The wave project referenced by the object also has to be available if you want to reload the object.

## **Save session**

Here you can save an entire Samplitude Music Studio 14 session. In addition, if you save a session with the name “startup.sam” and place it into the directory with the Samplitude Music Studio 14 program file (default installation would be c:\MAGIX\Samplitude Music Studio 14 ...), Samplitude Music Studio 14 will load that session the next time you start the program.

## **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.

## **Delete HD-Wave Project**

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 [www.magix.com](http://www.magix.com)

graphic files related to the project files.)

## Delete Virtual Projects

With the command Delete Virtual Projects you can comfortably delete VIPs and all wave projects used in the VIP. All files belonging to a multi-track project (the WAV file containing the audio files, files with the graphics data, and the HDP file with the project information) will be lost.

Warning: There will be no further security query. The data will be deleted immediately after pressing OK.

## Convert audio

### Save in Format

Use this function to convert wave projects between the various Samplitude Music Studio 14 formats for wave projects.

This can be useful, for instance, if you want to convert RAM-wave projects in HD wave projects or L&R wave projects (2 connected mono samples) into stereo wave projects.

### Stereo Wave> Mono

A Stereo Wave Project is copied and converted into a Left Mono Wave Project and a Right Mono Wave Project .

### 2Mono > Stereo/LR-Wave

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.

Here you can connect two mono wave projects to one L&R wave project. You can then perform common operations and apply them to all samples.

After applying the command you will be prompted to activate the second mono wave project that you want to connect to the active mono wave project. To do this, click on the title bar of the corresponding window. Please note that only mono projects can be linked to mono wave projects of the same bit and sample rate. The lengths of both projects are adapted to each other.

### **L&R-Wave - 2 Mono**

L& R Wave projects can be split into two independent mono projects using this function. This way you can break the fixed connection of the samples to one another and edit them individually. If you wish to edit them again together, select the function 2 Mono > L&R Wave.

### **L&R-Wave - 1 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.

### **1 Mono - L&R-Wave**

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**

Here you can export VIPs, HD wave, or RAM wave projects in the formats WAV MPEG (1:10), Dump, MS-Audio, AIFF with Quicktime, 16-bit AIFF and Real Audio or MP3.

**Note on exporting audio:** The audio data from HD Wave Projects can be further processed or imported directly as WAV files from HD Wave Projects. The use of the "Export sample" function is only necessary when the data is to be copied. The storage space required on the hard drive is not increased; of course, copying requires considerably more time.

## **Make podcast**

Podcast is the name for a relatively new Internet transfer form. It is made up of "**pod**" from "iPod", the name of a popular portable MP3 player, and the term "casting" for broadcasting content to a wide group of listeners/viewers.

A podcast is therefore something like an online radio station. "Broadcasting" webradio stations means you can only listen to and record the currently broadcast radio station. Podcasting is different. You as the listener can subscribe to the podcast and the files will be downloaded at a specific time and you can listen to them whenever

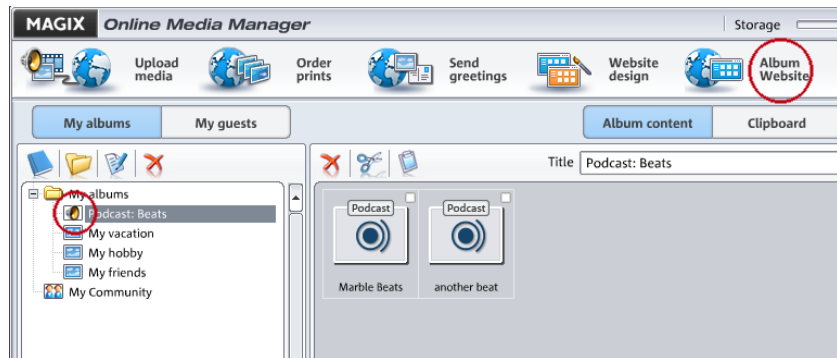
you like, for example, on the move with your portable player. The shows are pre-produced and placed on an Internet server for download.

Select the "Upload arrangement as podcast show (audio)" in the @Services > MAGIX Podcast Service menu and the exciting journey of your podcast to the pages of the largest podcast providers begins.

The first stop is your personal MAGIX Online Album, the place your podcast will call its online home. From here it can be accessed from anywhere in the world. Login with your password or register.

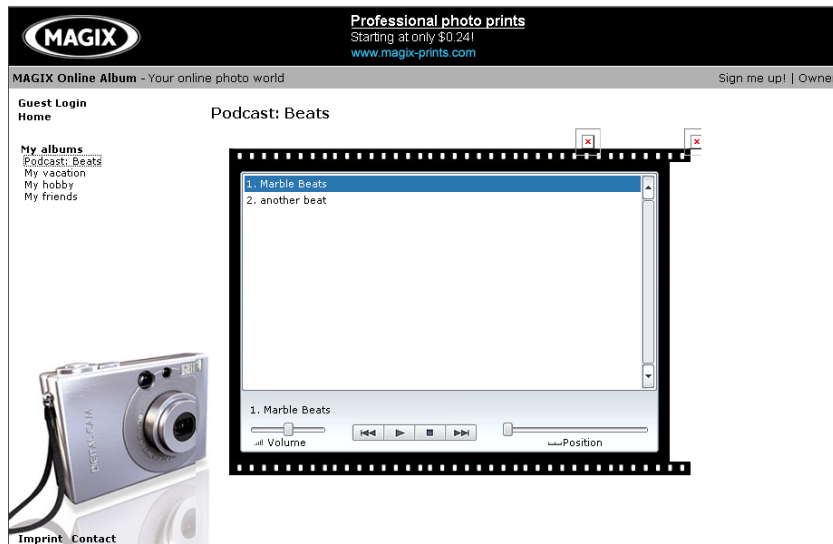
Your free MAGIX Online Album with 128 MB webspace can be set up at any time. It will then be available to you from anywhere in the world.

When uploaded via the "Make podcast" button the podcast will be sent to your personal MAGIX Online Album. In the MAGIX Online Media Manager of your MAGIX Online Album the cast can now be found in its new format in the newly created folder "My podcasts".





Now take a look at your album website: Here you can listen to the cast on your own website. You will immediately notice the small button "Subscribe to RSS feed" which allows any user of your MAGIX Online Album to automatically receive podcasts now and in future.



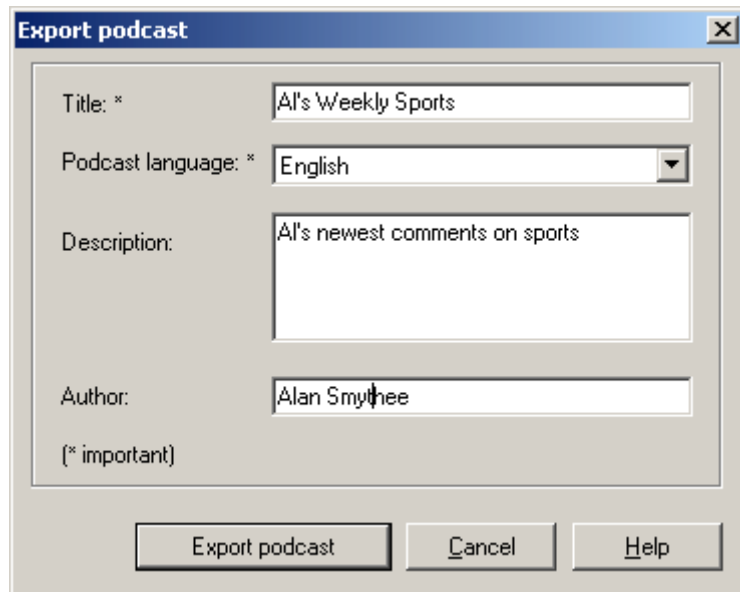
### How is your podcast distributed?

Your RSS feed - the technology behind a podcast - will automatically guarantee that your podcast will be sent from your MAGIX Online Album to many large podcatchers, including MAGIX Podcast Service. Here your podcast can now be subscribed to by a worldwide audience. Currently, a podcast created with Samplitude Music Studio 14 and uploaded to MAGIX Online Album is sent to 10-20 international podcatchers. The distribution depends on the topic of the podcast.

You may even find your podcast via a search engine without knowing how long the journey of a cast over the web may be.

With **Make podcast** you can publish your project as a track on your podcast.

The **Export podcast** dialog now opens. Here the required information for your podcast track has to be entered.



**Title:** This is the title of your podcast. A podcast typically contains several tracks, and new ones are added regularly. This is **not** where you enter the name of the podcast to which the track belongs. You can enter the name when you upload to MAGIX Online Album. A podcast then corresponds to an album.

**Export podcast:** The project is encoded as an MP3 and then uploaded to the MAGIX Online Album. You can only upload one contribution at a time (one file).

**Description:** It is important to enter a unique name and description so that other listeners will find your podcast.

**Person responsible:** Here you enter your email address so that you can be contacted.

## Batch-processing

Batch-processing lets you automate work processes. You can stretch out a specific editing function of a wave project in the same way onto a file list of any size (the "batch"). The files are then

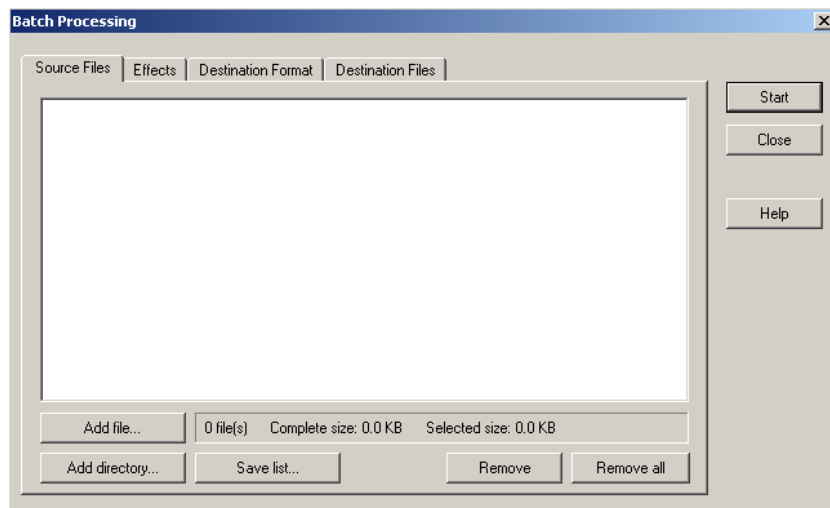
executed automatically, for example, over night.

Possible editing processes include:

- Normalization
- Linear fade in and out
- All realtime effects available in the Mixer master
- Format conversions: Word width (16/24/32 float), sample rate, stereo/mono/left/right
- Save in all available export formats.

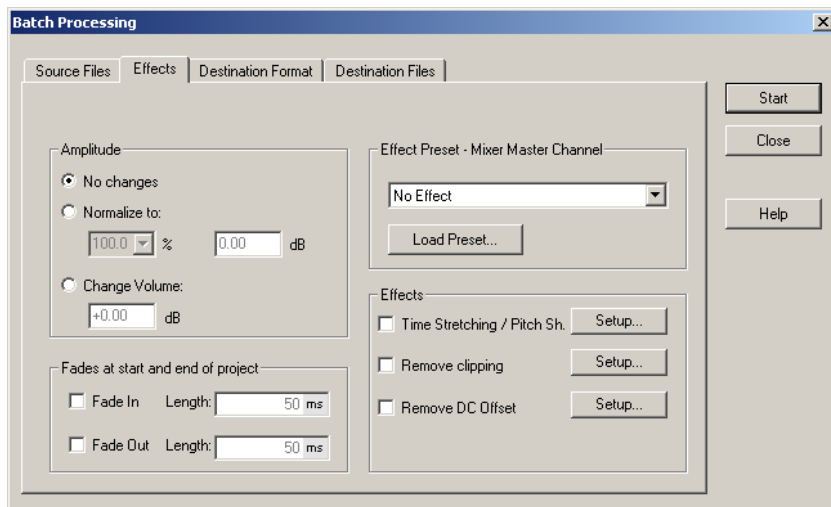
For example, you can normalize an entire folder of 24-bit wave files to 96%, add 5ms fade to the beginning and end of each, compress with the multi-band compressor, convert to 16-bit, resample at 22kHz, and save as MP3.

### Source files



Here you can create the list of the files you wish to edit with the "Add file" button. Multiple selection is possible. With "Load folder" all audio files in a folder as well as all subfolders are added to the list. All audio formats that Sequoia can import can be loaded. With "Save list" you can create a playlist (in the widespread \*.m3u format) so that you can use your file selection once again. Use "Delete" to remove all selected list entries. "Delete all" removes the entire list.

## Effects



**Amplitude:** You can normalize to a specific maximum value in %/dB or sink/raise the level by a certain value. Read more on this in the "Effects" menu chapter > Amplitude/Normalize.

**Effect presets – Mixer master channel:** So that you don't have to list out innumerable effect settings in the batch processing dialog again, the effects can be integrated using mixer preset files.

In the Mixer it's possible to export all settings of the Mixer in a Mixer preset (\*.mix). This happens via the "Save Mixer Preset" button in the Mixer.

When you load the \*.mix file into the batch-processing function ("Load preset") all effect settings of the master channel will be calculated into the file batch. (All other data from the Mixer preset, for example, channel strips, groups, etc. will be ignored). With "Edit preset", you can open a special FX routing dialog from which you have access to all effect parameters.

(More information on FX routing can be found in the Effects chapter).

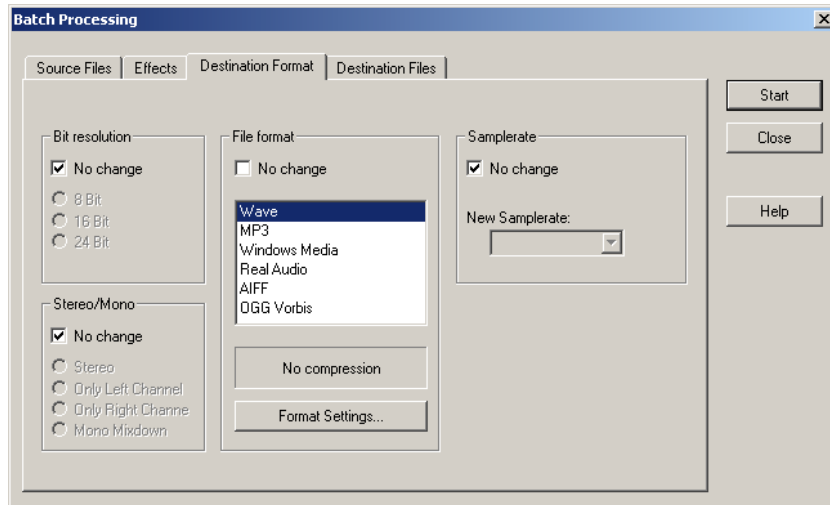
Mixer presets which were saved in the "/fxpresets/batch" folder can be selected directly from the list box.

**Effects:** Beside the master effects of the Mixer preset the non-realtime effects "Resampling/Timestretching", "Remove DC offset", and "Remove modulation" (DeClipping) can be used. "Settings"

opens the corresponding effect dialog.

**Fades at the beginning and end of projects:** Linear fades of any length can be added to the beginning and/or end of files.

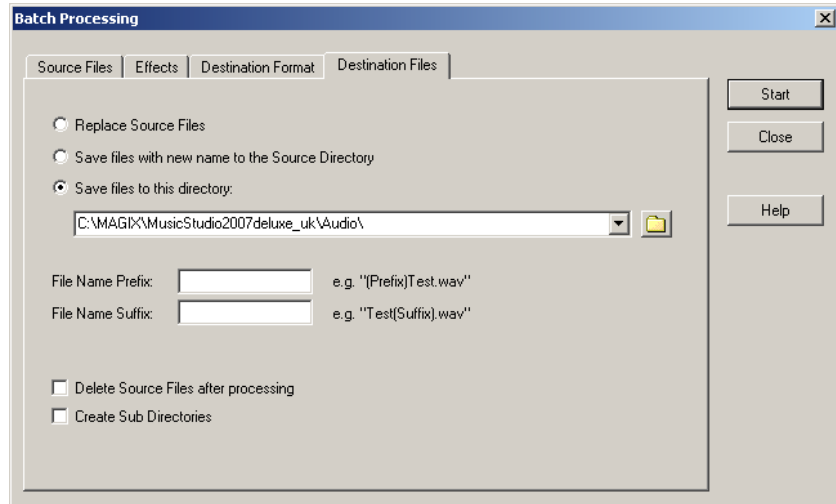
### Destination format



All settings on this page can be saved as presets. You can freely choose the bit resolution (16/24/32-bit), the sample rate, stereo/mono/left/right as well as the save format with the corresponding format options. You can find out more about the sample rate in the "Offline Effects" menu > "Change Sample Rate..."

Read more about export formats in the "File" menu > "Export".

## Destination files



There are various options for saving the files you edited:

- Replace files: The original file is replaced by the edited one. If the file is used in a VIP, the VIP is closed first.
- "Save files in source directory with changed name/Save files in directory": The edited file is saved in the source directory or in any chosen directory. The specified suffix/prefix is added to the file name. Optionally, the source files can be deleted after editing.
- Keep source directory structure: This option saves all files including the source path. This allows you to keep folder structures of CDs.

## Connect to the Internet

This menu item allows you to terminate an existing Internet connection directly from within Samplitude Music Studio 14. You will have to enter the necessary connection details and a modem should be installed correctly. To restore the Internet connection, click the "Dial" button.

**Warning:** the Internet connection only works if you have registered with an Internet provider or have the necessary access data.

## **FTP Download**

This option allows you to build up a direct connection to any FTP-server on the Internet in order to download sound material directly into your Samplitude Music Studio 14 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.

## **Send project via email**

This option compresses your VIP to an audio file in WMA format. Then your mail program is opened and the project is added to a new, empty message as an attachment. All you have to do is enter the address and click on "Send".

## **Close Project**

Closes the arrangement.

## **Exit**

Closes Samplitude Music Studio 14.

## Edit menu

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.) In virtuellen Projekten kann eine spurselektive Bereichsmarkierung erfolgen, so dass nur bestimmte Spuren von den Schnittpoperationen erfasst werden.

## Undo

Samplitude Music Studio 14 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. Samplitude Music Studio 14 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.



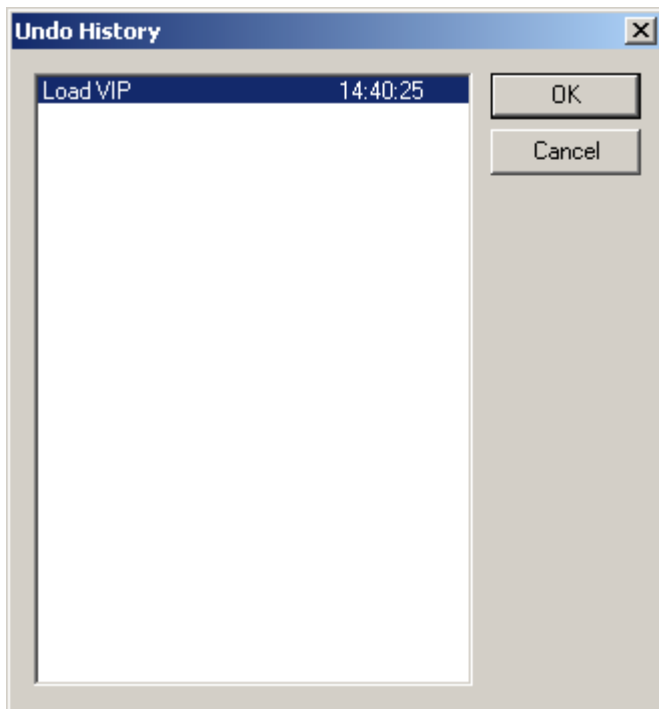
Keys:           Ctrl+Z

## Redo

Redo revokes the latest undo command.

Keys:           Ctrl + A

## Undo-History



Displays the Undo History dialog.

## 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, Samplitude Music Studio 14 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.

Key: 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 or C

## Paste from 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.

| Clip   | Project | Clip Channel | Project Channel |
|--------|---------|--------------|-----------------|
| Mono   | Mono    | Channel 1    | Channel 1       |
| Stereo | Stereo  | Channel 1    | Channel 1       |
| Mono   | Stereo  | Channel 2    | Channel 2       |
| Stereo | Mono    | Channel 1    | Channel 1       |
|        |         | Channel 1    | Channel 2       |
|        |         | Channel 1    | Channel 1       |

Keys: Ctrl + V or V

## Extract

This function is the counter part of the 'Cut' function.

**Wave projects:** The current range is retained, the data before and after the range is irrevocably deleted. The length of the sample is thus reduced and the content of the clip remains.

**Virtual projects (VIP):** All tracks of the VIP keep the length of the selected range, irrespective of the position of the range.

This function does not work track-specifically. Here, the objects before and after the range are deleted. This function does not influence the VirtClip.

## More

### Insert Silence

The 'Insert Silence' option will insert 'blank' data at the current play cursor position or the starting position of the currently selected range.

### 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.

### Set Silence

Copies the selected VIP Range into the Clip and clears it in the VIP Project. The Project length is not changed. Please note that the previous Clip contents are deleted.

This is a good way to remove a section of a VIP for use elsewhere without affecting the length of the Track(s) from which the material was removed.

Keys:                    Alt + Delete

**Copy and Silence**

Replaces the selected Range with silence (VIP). This command is useful when you want to remove material without changing the length of the VIP Track(s).

This command will not save the deleted data to the Clip. If you want to preserve the deleted data in the clipboard, use the Edit > Copy+Clear command.

Shortcut:        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.

Keys:            Shift + C

**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.

Keys:            Alt +v or Insert Key

**Mix with Clip**

The range contents and the Clip contents are mixed. Much like with the "Insert" function, the rules for channel assignment between project and clip also apply here. The clip itself remains unaffected. Please note that with this function both components (i.e. the sum of both) are entered into the mix at 100%. On the one hand, it guarantees that the volume of the project sample doesn't drop suddenly, while on the other hand, there is the danger of overmodulation. You may have to adjust the amplitude of the project prior to this (see Edit menu).

**Crossfade with Clip**

The content of the range is crossfaded with the content of the clip.

## Delete curve 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.

### 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.

### Volume/Pan curve active

This option has the same functionality as the corresponding buttons in the track info box: the corresponding curve is activated so that it can be edited.

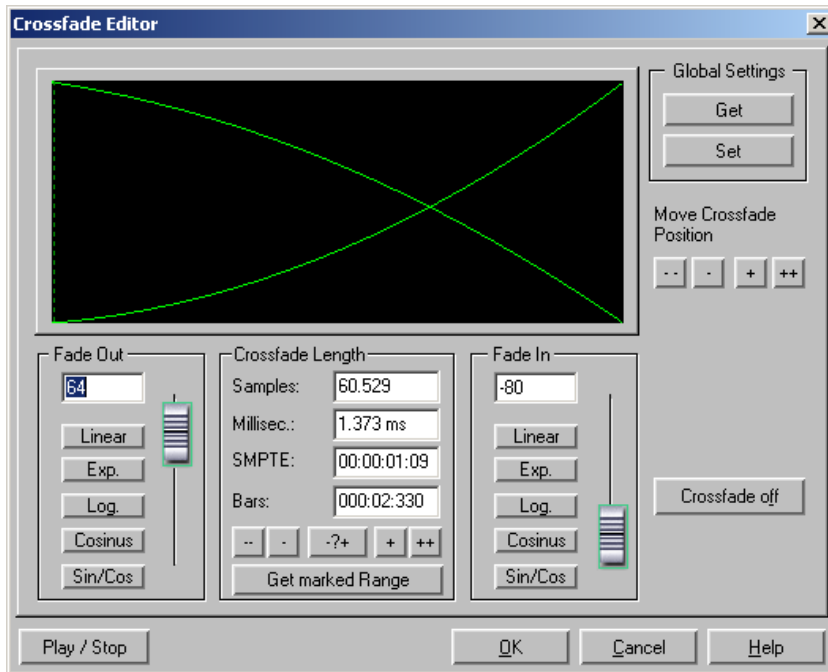
## Delete Undo Levels

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.

## Crossfade Editor

### Crossfading with the Crossfade Editor

In the VIP select the objects into which you wish to fade and open the Crossfade Editor.



The following editing options are available for selection:

**Crossfade Length:** The length of the crossfade can be set in varyingly large steps. A click on the "+" / "-" buttons increases/decreases the length in small steps, the "++" / "--" buttons in larger steps. Use the button "-/+ " to customize these step effects to your needs. The crossfade length can also be defined by a selected range in the VIP by clicking on the "Get Range Length" button in the "Range" menu. This range has to be selected before opening the Crossfade Editor.

**Fade In / Fade Out:** There are lots of different curve types available for selection for the crossfade:

Linear (0)

Exponential

Logarithmic

Cosine

Sine/Cosine

The faders can still be used to change the curves in the corresponding available range. Linear curves require less computer power than non-linear.

Note: The settings for fade in/out in the Crossfade Editor are applied to the selected object if it does not overlap any other object.

### **Global settings: Place**

The current settings are defined as preset. This is useful, for example, when an object is split with the "T" key and you wish to create a crossfade between the two objects. When opening the Crossfade Editor, the specified settings are set as default.

### **Global settings: Get**

Use this button to get the presets of the Crossfade Editor.

**Get Range Length:** The range length of the range selected in the VIP is set as the crossfade length.

**Fade Offset:** Here you can specify how much of the fade should be outside of the object border. Usually, the entire fade can be found within the borders of the object, that is, the fade starting point is at the start of the object (0%) as is normal with fade ins/outs of individual objects. If the fade becomes part of a crossfade, it may be necessary to modify it. If, for example, the second object starts with a drum beat, it would be better to execute the crossfade beforehand in order to keep the "attack" of the drum beat.

The value can be changed from 0% (fade within the object borders) to 50% (fades symmetrical to the object borders) to 100% (fade outside the object borders) – the object is then stretched by the percentage of the fade length. The "actual" beginning of the object is displayed as a dashed line.

With a fade offset of over 0% make sure that the corresponding audio material is available in the wave project, otherwise it may be the case that an object with a modified fade offset cannot be faded in or out. If, for example, the object starts at the exact beginning of the wave project, you will no longer be able to crossfade if the fade offset rises



above 0%.

**Crossfade off:** The "Crossfade off" button deactivates the crossfade of the selected object. The fade out time of the first object is set to 0.

**Play / Stop:** This button starts playback in the selected range or at the cursor position.

**Move crossfade position:** The end of the first object and the end of the second object are moved equally. The ++/--/+/- buttons are used to set the crossfade length.

**Permit asymmetrical crossfades:** The fade offset settings of both objects are no longer connected to one another and can therefore be set independently of one another.

## 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.

## View menu

This menu contains tools for manipulating the display of Samplitude Music Studio 14.

### 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

Samplitude Music Studio 14 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”, Samplitude Music Studio 14 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. Samplitude Music Studio 14 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 Samplitude Music Studio 14 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.

## Hide SubMix/Aux Busses

With this function you can hide or minimize the tracks of the mixer busses. Please read the corresponding notes in the Mixer chapter.

## Show Grid

With this option, you can define the type of grid that is used for the Show Grid option. Select between several line styles.

Key: #

## Grid Lines

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

In this submenu you can adjust the various measurement settings. They will affect the start and length details of the current range in the project window, the grid measurement and the position details of the play cursor (position line). Measurement units such as samples, milliseconds, SMPTE (with different frame rates), bars and CD-MSF are commonly used.

## Snap to Grid

This function switches the Grid on and off.

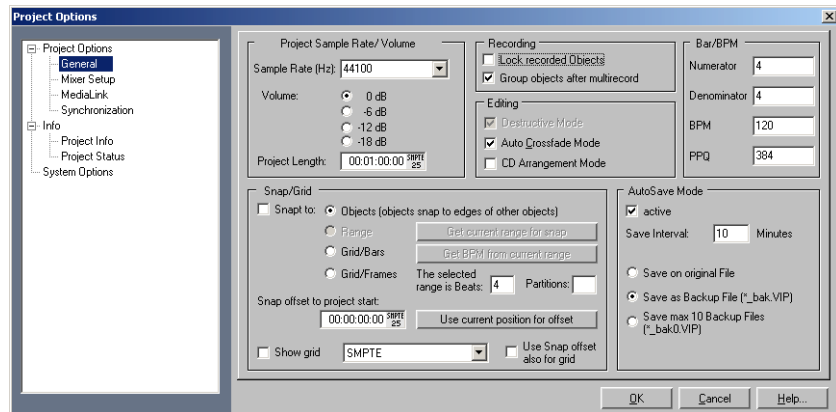
When working with virtual objects the Virtual Grid becomes available. Objects can only be shifted to the beginning, the end, or the hot spot of another object. The reference point is usually the beginning of the object to be shifted to. A hot spot when defined will be used as a reference point as well.

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 and Grid 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 button “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

### Definition

Opens the General Settings dialog in Design > Display options (on page 457).

### Mode 1

Mode 1 has been selected for displaying virtual projects

### Modus 2

Mode 2 has been selected for displaying virtual projects

This mode also includes an enlarged display of volume and panorama points. This means you can quickly switch between normal and enlarged display modes with the Tab key.

### Change mode

Switches the display of virtual projects between both modes.

Key:                 Tab

## Store 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 [www.magix.com](http://www.magix.com)

Virtual project window allow you to save four setups.

### **Get position and zoom level**

Opens the saved screen section including the zoom level.

### **Horizontally**

This menu contains all the functions of the horizontal (red) position bar.

### **Vertical**

This menu contains all the functions of the vertical (blue) position bar.

# Track menu

## Insert new tracks

### Add one Track

The virtual project is expanded by one empty track.

### Add several Tracks

The virtual project is expanded by one empty track, which is inserted below the selected track.

### Insert empty Track

The virtual project is expanded by one empty track, which is inserted below the selected track.

### New SubMix/Aux Bus

In menu item "New submix bus" you can add a new submix bus as a new track again. The option "New AUX bus" is identical. The new bus is always inserted after the active track.

### New track folder

Inserts a new folder track in front of the marked track. If a range across several tracks was highlighted before creating the folder track, each of these tracks will be added to the folder.

Tracks can be moved into the folder with drag & drop, by clicking on a free area in the Track box. The mouse pointer turns into a hand. Similarly, tracks can be removed from the folder via drag & drop and out of the Track box.

Certain actions can also be grouped. This means an action performed on a folder track affects all contained tracks. Tracks in a folder can be:

- faded out with the Reduce track button. All tracks included in the folder track are displayed in reduced size.
- switched to mute, lock, monitoring, and solo.
- volume controlled. The individual volume faders of the tracks are scaled relative to another, independent of the current function of the track volume fader (MIDI, CC, or audio level)
- can be activated (the displayed condition corresponds to the first track of the folder, joint switching is only possible with different/multi-track recording devices)

If the folder track display is enlarged (opened up), all included tracks are displayed as well with a frame in the color of the folder track. The track color can be selected in the track settings. If the folder track is minimized, the tracks included in the VIP are hidden. They continue to be available in the Mixer. They are also available in the Mixer.

Normally all the tracks can be seen with the objects they contain in the folder in a smaller display. Section marking in the folder track is carried out across all tracks. Use this view mode for section-based cut operations across all tracks of the folder track.

By right-clicking on the Track box of the folder track, the contained track can be used as a reference track. The objects of this track are displayed in the folder and can be used for simultaneous object-based cutting operations for all objects of the other tracks in the folder track that are grouped with these objects. Object groups like these typically originate from multi-track recordings.

The usual method of working with folder tracks would be as follows:

1. Initiate a multi-track recording. This creates several grouped objects, one below the other.
2. Select an area over all the objects that you wish to edit together. You can now create a folder track!
3. Minimize the folder track and choose one of the contained tracks as a reference track.
4. The object of the reference track now appears in the folder track instead of the emblematic display of all contained tracks. All object editing, cuts, fades, and Object Editor effects of this object are now applied to all objects of the folder tracks! (Changes in the Object Editor take effect only after Apply/OK)

Folder tracks are not visible in the Mixer.

## **Cut Track(s)**

Cuts out the complete tracks that have been selected by the range.

## **Copy Track(s)**

All selected tracks in the VIP are copied into the VirtClip.



## Insert track(s)

The clip is inserted from the track with the current range setting. New tracks are created in the VIP.

## Delete Track(s)

All selected tracks are deleted from the actual VIP.

## Track Properties

Here you can edit the properties of the active track. These are:

**Mute:** The mute button mutes the active track.

**Solo:** Switches the active track to Solo mode.

**Solo exclusively:** This setting switches the active track to Solo exclusive mode, i. e. you will only hear the activated track. All other tracks are muted, unlike solo mode.

**Record:** Activates Record mode.

**Lock:** Locks the activated track.

**Volume/Pan-curve active:** Displays the volume or pan curve of the activated track.

**Submix/AUX bus:** If the activate track is a bus, it can be defined as a submix and/or AUX bus.

## Track Effects

Please read the chapter "Menu Effects"!

### Copy/Paste Track Effects Settings

With this command you can copy the complete effects settings of the active track into the clipboard.

### Copy/Paste Track Effects Settings

With this command you can copy the complete effects settings of the

active track into the clipboard (to paste it on another track).

### **Reset Track Effects settings**

Reset all Track effects settings to its defaults, i.e. no effects are applied at all.

## **Surround Editor**

Please read the chapter "Surround".

## **DirectX Plug-Ins**

Please read the corresponding explanations in the "Effects" chapter.

## **Maximize Track**

This Option minimizes all tracks except the selected track.

## **Minimize none**

This Option un-minimizes all tracks.

## **Track Freeze**

The selected track is rendered into a wave file which replaces all objects on the active track. Here, object and track effects are added to reduce the PC's processor strain of having to process effects and plug-ins.

The advantage of Track Freeze is that the frozen track is saved in a separate VIP and can be edited/recalled at any time. This way it's also possible to work flexibly and to keep resource usage at a minimum even when working with less powerful computers.

### **Track freeze for AUX busses/submix busses**

Bus/Aux bus tracks can be frozen just like regular tracks. This enables a complete group of tracks to release the required CPU load including all effects, fades, crossfades, and automation settings in one step.

### Submix bus

- Tracks routed onto the submix bus are not changed but remain instead.
- The submix bus is muted ("Track" menu > "Track options" > "Mute bus input").
- The file created while freezing is inserted into the AUX track as an audio object.
- Changes made to the tracks after freezing which are routed to the submix bus have no effect on the signal output while playing.

### AUX bus

- Only AUX send settings in tracks are taken into account (not in objects).
- Tracks routed onto the frozen AUX bus are not changed but remain unchanged instead.
- The AUX bus input is muted ("Track" menu > "Track properties" > "Mute bus input").
- The color of the AUX send fader (mixer) in the affected tracks is blue.
- An asterisk is added before the name above the AUX send faders (mixer).
- The file created while freezing is inserted into the submix track as an audio object.
- Changes made after freezing to the tracks transmitting to the AUX bus are not updated in the file created while freezing. Therefore, if objects are moved into tracks transmitting to an AUX bus, the audio signal on the corresponding AUX will remain the same.

## Track Unfreeze

This menu item removes the wave file created during "Track Freeze" and brings back the track that was saved in the temporary trackbouncing VIP.

Changes made in this project are applied to the track as well.

**Note:** If tracks were added in the reference project (the project created while freezing), "Track Unfreeze" is not possible.

**Activate next /previous Track**

The next (lower) or previous (upper) track in the VIP from the view of the currently activated track is activated. With the Cursor keys you can conveniently scroll up or down.

Key:

Activate next track                      Cursor down

Activate previous track                Cursor up

## Object menu

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.

### 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.

### New Synth Object

Please read the Synth Object chapter!

## Cut 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.

### 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.

### 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 [www.magix.com](http://www.magix.com)

portions of the already existing 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

### **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!

### **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.

### **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.

#### **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 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

## Group objects

Builds a new object from the ones selected. Here, trackbouncing is used.

## 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.

In the Options menu you can specify the functions you want to lock.

### Unlock objects

Here an object can be unlocked, which lets it be moved again. All selected objects will be unlocked

### 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.

## Move Object

This menu contains functions for moving the objects themselves and also for moving the wave project within the object and there are also



other functions for moving a cross-wire between two objects and for changing the object loudness..

This menu mainly exists for issuing keyboard commands that can be seen next to the entries themselves in the menu and can be changed with the “Keyboard shortcuts and menu editing” function.

In the picture shown here the menu contains the standard settings for the keyboard commands.

Commands for moving objects can also be found in the lower toolbar (range bar).

## **Object to Playcursor Position**

This moves the selected object to the actual playcursor position.

## **Object to Original Time 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 Time Position**

The current object position is used to reset the Original Position attribute for the object. This is also used in the Take Manager.

## **Mute objects**

The selected objects will be muted.

## **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!

## 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.

## Select Objects > 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 color/name

### Object Foreground Color

After selecting the desired color, all selected objects in the project will

have the same foreground color.

### Object Background Color

The background color selected in the color grid is applied to all objects.

### Object Name

The selected new name is applied to all selected objects.

## Object Editor



### The Object Effect Window

#### FX Inserts

The AudioStudio FX Inserts supports the following high-end audio effects:

- Clean FX (Denoiser, Dehisser)
- Sound FX
- Vocoder (also contains a real-time freehand correction filter to filter out dissonant frequencies)
- FFT-EQ with SoundCloner

These effects are assigned to each audio object in real-time.

In the Volumen/Pan section you edit panorama and volume-specific settings.

With the on keys you can switch plug-ins on or off.

#### Plug-ins

The plug-in section offers you a very effective dialog for plug-in processing. With one click on an effect slot a menu opens in which you can select DirectX and VST plug-ins. This menu also contains an entry for the effects from the "Vintage Effects Suite".

The practical "On" button makes it possible to switch the plug-ins on and off in a flash for comparison purposes. The "Edit" key makes it possible to configure the selected plug-ins and their settings. More detailed information can be found in the section on "Plug-ins".

### **The Position/Fades Window**

Length and End of an object numerically in a number of formats.

For all entry fields regarding duration, you can select a duration length from a list on the right.

### **Position/Length**

**Object Start/End:** Numerical entry field in the VIP

**Object Length:** Numerical object length.

**How to move an object in increments:** Here the increments for shifting the object is numerically edited. The object is then shifted according to the selected increment when you press the arrow key behind the input field.

**Wave Start:** Shifts the wave content within the object.

**Wave Project:** Allows you to exchange wave projects and objects.

### **The Pitchshifting/Timestretching Window**

Pitch and duration of an object can be changed independently at the same time. In this window you can adjust pitchshifting and timestretching parameters for the selected object. For more details (in particular regarding the modes used) please read Resampling / Timestretching / Pitchshifting in the "effects" section.

Timestretching and pitchshifting can be employed independently of each other (except when resampling).

**Pitchshifting:** pitch re-alignment can be entered either as a factor relative to the initial value or absolutely in semi-tones and percentages.

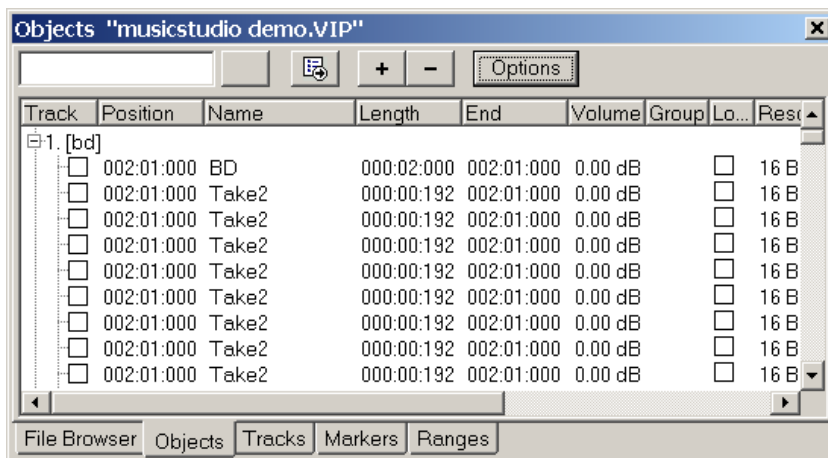
**Timestretching (change of speed):** speed re-alignment can be  
[www.magix.com](http://www.magix.com)

entered either as a factor relative to the initial value or absolutely as a new object length. You can also enter a completely new tempo so long as the original speed of the object is entered. This is read either directly from the wave project, from the Loop length, or determine automatically by stretching a range over the object.

Note: One of most frequent applications of the object editor is the organization of your own CDs. Each song can be a separate object. This creates an extremely flexible working environment that is fast and efficient.

## 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. If you press play, a range over the selected object is applied. 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).

Particularly productive in the object manager is the search function :

You can look for certain objects with it in full text mode rather than just the graphical representation of the objects. For example you could 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

The description can be found in the "Tools" menu.

## Wave Editing

Opens the wave project (contains audio files) belonging to an object and displays it in the wave window.

The range corresponds precisely to the part of the audio data which the object accesses.

You can carry out destructive (offline) editing in the wave window.

Cut and copy functions are available for destructive editing (Edit menu) as well as complex effects (Effects menu).

Destructive editing is not necessarily a recommended method.

If you have duplicated objects, i.e. several objects are using the same audio data, all these objects will have changed once you have changed the wave project.

Please note that the cut and copy processes, fades, crossfades, etc. can be performed much more elegantly and more quickly as non-destructive virtual projects.

Almost every effect can be used on objects directly in the virtual project.

Please also note that it is better to work in single-track virtual projects even if you only want to edit WAV files in Samplitude Music Studio 14. You can quickly and conveniently perform all editing operations here. If you have to use longer WAV files, for instance, you have to wait after each editing sequence until the audio data has been copied to the hard drive. However, you can work considerably faster if you

use virtual projects.

With the Trackbouncing function (Tools menu) you can create a new WAV file from the virtual project.

## Range menu

This menu contains many functions for managing selected ranges. You can easily save, burn and reopen ranges and marker positions via the function and number keys.

### 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

This submenu command sets the start position of the play cursor (position line) to the following position of the project:

|                           |                  |
|---------------------------|------------------|
| To start                  | Home             |
| To end                    | End              |
| to Start of Section       | Ctrl + Home      |
| to End of Section         | Ctrl + End       |
| Move left in side mode    | Cursor left      |
| Left move in scroll mode  | Alt+Cursor left  |
| Right move in page mode   | Cursor right     |
| Right move in scroll mode | Alt+Cursor right |
| Object edge left          | Ctrl+Q           |
| Object edge right         | Ctrl+W           |
| Track marker left         | F2               |
| Track marker right        | F3               |

### Edit Range

In this submenu you will find options and keyboard shortcuts for adjusting the play and edit range in the VIP.

#### Range start to left/right

Moves the start of the range to the left (right)



Shortcut: Alt + NumPad / (left)

Alt + NumPad \* (right)

### **Move range end to left/right**

Moves the end of the range

Keyboard shortcut:

Left: Alt + "-" (NumPad)

or Shift + Arrow left

Right: Alt + NumPad "+"

(or Shift + Arrow right)

### **Range to beginning**

The beginning of the range will be extended toward to the beginning of the project.

Keys: Shift + Home

### **Range to end**

The end of the range will be extended toward the end of the project.

Keys: Shift + End

### **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

### **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

### **Beginning of Range -> 0**

This function shifts the beginning of range to the right of the next zero position.

Keys: Page Up

### **Beginning of Range <- 0**

This function shifts the beginning of the range to the left of the next zero position.

Keys: Shift + Page Up

### **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.

Keys: Ctrl + Page Down

### **End of Range <- 0**

This function shifts the end of the range to the left of the next zero position.

Taste: Shift + PageDown

### **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.

Taste: Shift + PageDown

### **Set range start to left marker**

Moves the range start to the next marker on the left, i.e. the range will be expanded.

Keyboard shortcut: Shift + F2

### **Start of range to left object edge**

Moves the range start to the next marker on the left, i.e. the range will be extended up to the end of the next object on the left.

### **Set range start to right marker**

Moves the range start to the next marker on the left, i.e. the range will be extended.

Shortcut: Shift + F3

**Set the end of the range to the right object edge**

Moves the end of the range to the next marker on the left, i.e. the range will be extended up to next object on the right.

**Range length**

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.

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.

In order to revert splitting the display setting has to be changed to a section again ("Menu View > Sections > 1" or "Shift + B).

Key: B

Deactivate: Shift+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 Samplitude Music Studio 14 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

## Get Range

By selecting this option, you can choose one of the defined ranges as the current range.

Samplitude Music Studio 14 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.

Keys: Ctrl + Shift + F2 ... F10

## Save markers

You can store an unlimited number of markers wherever the play cursor is placed at. This lets you set markers.

Keys: SHIFT + 1 ... 0

## Get Marker

The new start position of the play cursor (position line) is set to the saved position of the corresponding marker number. Playback starts at the jumped-to new start position. 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: 1 ...9, 0 (via the Alpha keyboard)

## 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 makes sense, for instance, if the adjacent marker was accidentally deleted with a mouse-click.

## Range Editor

Here you can change the start and end position of the selected range numerically in different measurements.

| Range Start |             | Range Length |             | Range End  |             |
|-------------|-------------|--------------|-------------|------------|-------------|
| Samples:    | 308.905     | Samples:     | 0           | Samples:   | 308.905     |
| Millisec.:  | 7.005 ms    | Millisec.:   | 0 ms        | Millisec.: | 7.005 ms    |
| SMPTE:      | 00:00:07:00 | SMPTE:       | 00:00:00:00 | SMPTE:     | 00:00:07:00 |
| Bar:        | 002:01:000  | Bar:         | 000:00:000  | Bar:       | 002:01:000  |

OK Cancel

### 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.

## Range Manager

In the Range Manager all saved ranges of the current project are displayed.

A colored bar highlights the current range.

By selecting a range name, the corresponding range in the project is selected/activated.

In the lower line you can enter/modify the range name. Furthermore you can delete ranges and save new ranges in the Range Manager.

With the "Play once" button you can play the selected range once, "Play loop" activates looped playback. This makes the Range Manager particularly useful as a jingle player.

## Edit time display

Here you can numerically enter various parameters of the range, for instance range start, range length, etc. - in the currently set measurement unit.

## Object Lasso

The normal way to select several objects at once would be to click on the free space on the right of the object in the lower area of the track and to pull a frame around the selected objects.

Sometimes, however, there is not enough space between the objects. The object lasso solves this problem.

Once activated, you can click on an object and pull up a selection frame, without moving the object you clicked on (which would be the [www.magix.com](http://www.magix.com)

case in the standard mode).

Once you selected your objects the mouse returns to the standard mode, that means that you will have to reactivate the object lasso each and every time you want to use it.



## Realtime effects menu

This menu entry permits fast access to the relevant real-time effects at Object level. Correspondingly, menu entries are provided here which can be controlled via the Object Editor. For more details on these effects please read the relevant articles in the chapter entitled Offline Effects Menu (on page 322).

## Offline effects menu

In this menu you'll find many high quality audio effects, to get the professional sound of a modern music production on your recordings.

### Important tips regarding the effects functions

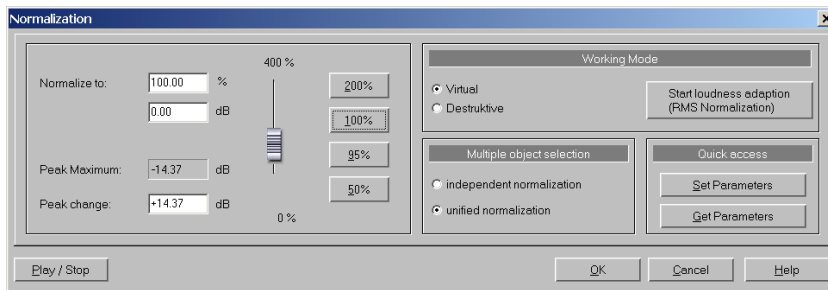
- The following effects can be directly applied to VIP Objects:
- Please note that in Wave projects most functions are only available for selected ranges. If the complete audio file is to be processed with the DSP function, the whole file needs to be selected as a range in the Wave project (also see 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.
- 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 icon-ized 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.
- Clicking the right mouse button on the respective effects knob of a channel can also access the real time effects dialogs in the Mixer window. The corresponding effects dialog will appear, which can be

used to make detailed adjustments to the settings.

## Amplitude/Normalize

### Amplitude/Normalize > Normalize

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%). Sample Music Studio 14 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 normalized, 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.

**Editing mode:** In virtual projects, a virtual normalization function is available. Sample data remain unchanged — the object volume is adapted in such a way that the loudest passage in the object equals 0 dB (corresponding to 100%). This virtual normalization is non-destructive and extremely fast!

**Selecting several objects:** If you have selected several objects, you can decide here whether you want to normalize objects individually or as a whole.

**Quick access:** This section allows you to set the parameters for quick access. Instead of having to open the dialog each time you want to normalize, simply press the “n” key.

Keys:                      Shift + N

#### **Amplitude/Normalize > Loudness adaption**

This function raises the sound volume of all objects to the maximum level without the material over-steering. Unlike the master normalization function, each object is normalized separately. It serves the purpose of reconciling finished songs (each as one object) in volume. This makes the volume of the songs uniform.

All according to the producer, however, titles each with full volume control can still sound different because a crucial factor in the perception of sound volume is also the relationship between the soft and the loud parts of a piece of music. The average loudness (RMS) of the song therefore has to be identified in addition to the absolute level (which is the loudest part of the song) and the object level has to be adjusted accordingly.

It can thus perfectly well happen that songs with high peak values but a lower level of loudness are normalized onto a value above 0dB (full volume). In order to avoid over-steering nevertheless, the Limiter (see MultiMax) is therefore activated automatically.(see MultiMax).

Tip: Volume fluctuations within a song can be removed with the “Leveler” presets in MultiMAX.

**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%. Of course you can also try other values and thus achieve interesting results. The transitions can be created with different curve types - from logarithmic to exponential.

However, please note that high-performance realtime fade and crossfade options exist in virtual projects, which normally eliminate the requirement of using destructive fade routines.

Key:            F

**Amplitude/Normalize > Set Zero**

Sample data values in a selected range are set to zero. Noise and imperfections in a sample can thus be eliminated. Diese Funktion ist reversibel.

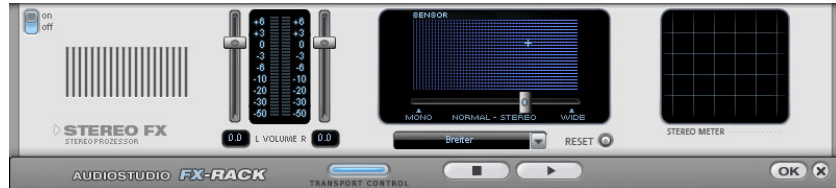
**Switch Channels**

With this function you can switch left and right stereo channel.

This is useful to correct recordings with switched channels. This function can be reversed, that is, if you don't re-select the range, opening it again will bring back the original material.

## Stereo FX

The Stereo-FX-Enhancer allows you to reposition your audio material in the stereo panorama. Whenever a stereo recording sounds undifferentiated, the extension of the basic stereo-width can provide a more transparent sound.



**Basic stereo width controller:** Here you can adjust the width of the basic stereo panorama from mono (leftmost side), over unchanged (in the centre) to maximum width ("Wide", rightmost side). When setting the stereo panorama to smaller values, the sound level may rise. In an extreme case – it means that if the left and right channels contain identical audio material and the Basic stereo width controller is set to "mono" – the sound level increase can be as much as 3 dB.

While increasing the basic stereo width (values exceeding 100) the mono sound compatibility gets worse. This means, that recordings that have been manipulated in such a manner will sound hollow during mono playback.

**Volume fader:** Adjust the volume for each channel and the stereo panorama. The damping for the left and the right channel will be indicated in dB values under the controllers. This allows you to reposition an originally centred recording to the right or to the left inside the stereo panorama.

**Stereo-meter (correlation indicator):** This is a graphic display of the phase position of the audio signal. Here you can check the orientation of your signal inside the stereo panorama and the effects caused by the Stereo-Enhancer.

In order to achieve the best possible mono-compatibility, the graphic should resemble a diagonal line. If not, some frequency areas may eliminate each other when the stereo signal is played back on a mono player.

**Karaoke Preset:** This preset opens a special karaoke effect that more or less eliminates vocals during playback by deleting middle-

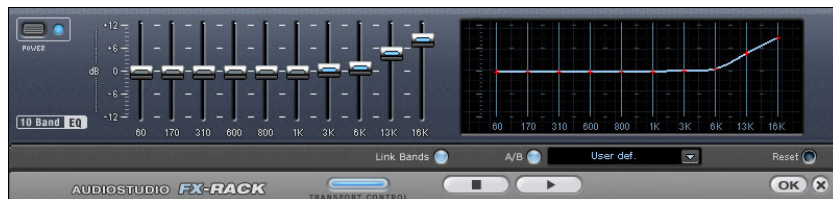
range frequencies typical for the human voice when singing. This allows someone else to take over the singing.

## 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.

## Equalizer

The 10-band-Equalizer splits the frequency spectrum into 10 areas ("bands") and provides them with separate volume faders. This offers a whole spectrum of impressive effects, from a simple bass boost to complete alienation of your sound. However, raising the levels too much, especially in the case of the lower frequencies, will also increase the general sound level, and distortions may appear. In this case you should lower the main sound level using the "Master Volume"-controllers in the main menu.



**Slider:** Each of the 10 frequency areas can be raised or lowered separately using the corresponding 10 volume sliders.

**Link Bands:** This switch links the different frequency areas in a flexible way, avoiding override of isolated frequency areas that would result in artificial sound.

**A/B:** If you chose a preset value for an effect and want to change that value manually, you can compare the original preset sound with the new settings by pressing the A/B button.

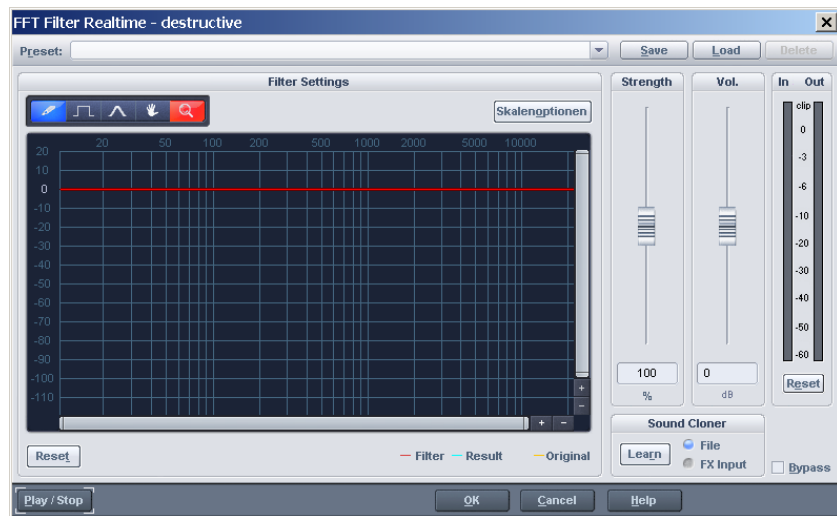
**Reset:** Resets the equalizer to its original (neutral) settings where no

system resources will be used and no effect will be added to the sound.

**Touchscreen (right EQ section):** This is the "sensor field" of the EQ: draw a frequency curve using your mouse, and it will be immediately translated into the corresponding slider positions on the left side of the EQ.

## FFT Equalizer

This audio effect allows you to draw the wildest filter effects with the mouse.



A red line is drawn in the graphic area with the mouse. The left side of the graphic represents the low tones, the right the high tones.

Real-time replay can be switched on with the "Test" button. As of now, you will be able to hear all changes in the red line. A 'hill' in the left part of the graphic results in a strong increase in the bass, a 'hill' on the right side considerably increases the treble. Great effects are frequently achieved if a filter curve is initially deleted over the entire area (if everything in the display is set to low values). This removes almost all the sound. Now, only individual frequency ranges can be made audible in the upper section of the display with a few clicks of the mouse. This rapidly turns a normal drum loop into Science Fiction noises! The filter curve can quickly be reset to its original condition with the Reset button. The option "Prevent clipping" attempts to automatically prevent an over-addressing of the audio material. The



"volume" control controls the volume of the material.

## Dynamics

The Compressor is basically an automatic, dynamic volume controller. The dynamics of a track will be limited, loud passages will stay loud whereas the volume of silent passages will be raised. The compression is normally useful, if you want to make your material sound more powerful and smashing. The grade of compression can be adjusted using the Ratio-controller. The threshold is controlled by the Threshold button and attack and release can also be controlled by the corresponding buttons.



The processing of the track is as "prospective" as with high-end professional studio equipment. This means that there are no peak overrides (blasting, clipping) or other disturbances, as the algorithm can not be "surprised" by sudden peaks.

**Sensor field:** The sensor field of the compressors can be manipulated intuitively, just by a movement of the mouse, which will change the colour of the graphic and the effect settings.

**Ratio:** This parameter controls the compression ratio.

**Threshold:** Adjusts the threshold above or below the active compression.

**Attack:** Adjusts the delay, in which the algorithm responds to increasing levels. Short attack times can result in a "pumping" sound, as the volume will be raised or lowered very quickly.

**Release:** This value controls the delay in which the algorithm reacts to falling levels.

**A/B:** If you chose a preset value for the effect and then changed it manually, you can compare the original sound settings with the new ones pressing the A/B buttons.

**Reset:** Resets the Compressor to the original values. In this state no

system resources are used and no effects are added to the original sound.

**Load/Save:** This option allows you to save the actual settings as an effects file, so that you can use them for other projects.

## Multimax

The MultiMax is a compressor with three independent frequency bands. The dynamic processing takes place separately for each band.

The main advantage of a multi-band compressor over a "normal" compressor is that warping and other bothersome side-effects are reduced drastically by the dynamic processing. This means, for example, that a single peak level in the bass section will not drag the level of the whole signal down.

Otherwise, the multi-band technology enables precise treatment of individual frequency bands.



**Frequency Band Settings:** Made directly in the graphic display. Simply click on the dividing lines to shift them.

**Bass/Mid/High:** Regulates the degree of compression for each frequency band.

**Limiter:** The MultiMax contains a limiter that harmonizes levels so that, for example, too high a level is automatically reduced, and quiet passages remain unaffected.

### Presets

Two further special functions can be called up by using the presets in MultiMAX.

**Dynamic expander:** Too high compression will result in audible noise (usually defined as a pumping sound). Particularly radio recordings

are recorded with very high compression rates to increase the perceived volume. Unfortunately compression reduces the dynamics (interval between the quietest and loudest part). The Expander enhances the dynamics of the recording.

**Cassette NR-B decoder:** Samplitude Music Studio 14 simulates decoding of Dolby B + C noise suppression if no Dolby player is available. Cassettes recorded with Dolby B or C sound more muffled and slurry if played back without corresponding Dolby.

**Noise Gate:** This Cleaning function suppressed noise entirely below a certain noise level. This lets you create, for example, song transitions that are entirely noise-free.

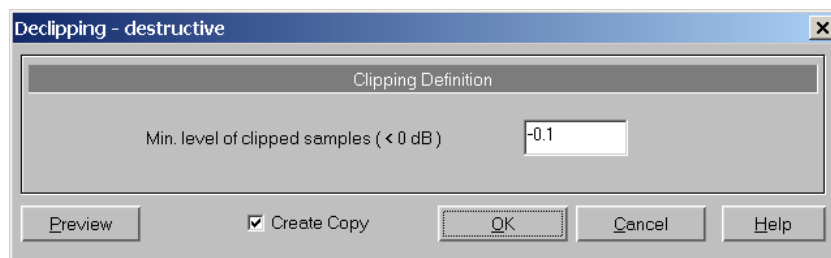
**Leveler:** This function brings the entire material up to a uniform volume automatically. The volume control handle is made void. Larger volume differences can therefore be adapted within a song. To balance volume differences between different songs, also use the function "Volume adjustment" function in the effects menu.

**De-Esser:** These special presets remove overemphasized "s" sounds in speech recordings. ezialpresets dienen zur Entfernung von überbetonten Zischlauten in Sprachaufnahmen.

Tip: The limiter can also be used independently of the MultiMax.

## Declicking

Samplitude Music Studio 14 contains a one of a kind 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!



Samplitude Music Studio 14 uses high-grade algorithms to  
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interpolate the passages containing the clipping. The algorithm uses the material before and behind the clipping as a reference point. Once processed, the total volume level for the material can be reduced to prevent further clipping.

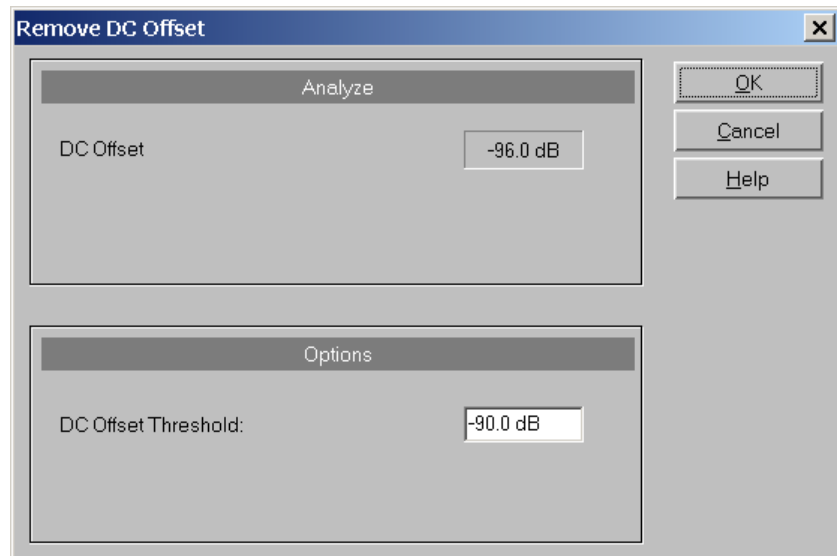
The declipping algorithm is especially useful for material that contains obvious clipping, such as a piano or voice recording. Distorted drumbeats are normally not salvageable.

### 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!

## Dehisser

The Dehisser was especially designed to eliminate the band noise, which is all so typical for analogue tape recordings, micro-preamps or AD-transducers.



**Noise Level:** Here you will have to determine as exactly as possible the noise level at which the Dehisser starts to work. If you choose a level that is not high enough, the band noise will not be completely eliminated. In such a case you will notice tweeting sounds (the so called "melodic band noise"). An excessive value will result in a dull sound as part of the band noise and part of the original audio signal recording will be eliminated by the Dehisser as well (for example: air intake sounds of brass instruments) (see Artifacts)

If the noise level on your recording is low, you should experience no problems while adjusting it.

**Noise Reduction:** this option allows you to adjust the damping of the band noise in decibel units. In many occasions it is the best solution, not to eliminate the noise completely, but to damp it only -3 - -6 dB, hence maintaining the natural sound of the original material.

**Removed Hiss:** This option allows you to listen to the music that would be filtered away by the Dehisser.

## Amp Simulation

The Amp simulator is a newly-developed real-time effect that simulates tube amp sound properties. It is especially suitable for guitar sounds, but also for the organ or recordings of vocals.



**Amp Model:** Here you can select from a range of amplifiers whose sound can be simulated.

**Speaker Model:** Here you can select from a range of speakers whose sound can be simulated.

**EQ-Section:** A 3 band equalizer for setting the bass, mid-tones and treble.

**Bright:** The Bright button is for a particularly sharp sound display, that can be jarring when used with the following automatic controllers:

**Distortion:** Creates distortion in typical analog amplifier fashion.

**Volume:** Controls the entire volume of the amplifier module.

## Vocoder

The principle of the Vocoder is as follows: Carrier material (e.g. a surface sound or a synth chord) is affected by a modulator (e.g. language or singing) so that one gets the impression that it is speaking or singing. Rhythmic surface sounds can also be developed if modulated with a drum loop.

This is done via the transmission of the frequency characteristics of the modulator (speech) on the carrier (chord).



### Carrier Input

Here you have to select the desired carrier sample. Some special carrier samples that have been loaded automatically from the "Vocoder" directory are listed.



You can use the "Carrier Sample" checkbox to load any number of samples of the current project or predefined carrier sample.



Here you can play the carrier on its own for test purposes.

**Noise:** This controller lets you add noise to the carrier sample. This makes sense if the carrier material can not be modulated sufficiently or is irregular. It's good for "filling" drum loops with too many pauses between the beats.

Material containing all frequencies in equal amounts are particularly suitable, such as strings, orchestra chords, broad synthesizer pads, hissing or wind noise.

### Filter

**Dynam:** Influences the dynamics of the modulator signal to reduce the modulation depth of the vocoder.

This prevents two often undesired side-effects of modulation: On the one hand the volume change of the modulator signal is added to the output signal in a slightly more moderate form which may improve the power of the vocoder voice. On the other hand the low-level share of the modulator signal is ignored in order to prevent modulation of the carrier by breathing or noise.

**Smooth:** Affects the speed at which the Vocoder adjusts to the modulator spectrum. The greater the value, the "lazier" the Vocoder follows the modulator and the "smoother" the sound changes in the carrier sound.

### Filter graphic

Exactly as with the freely drawable filter, here any frequency characteristic can be drawn in to optimize the results of the Vocoder.

For example, simple disturbing bass frequencies can be eliminated as the curve is corrected downwards to the left. Likewise, weak heights can be strengthened as the curve is raised to the right.

### Mixer

In the Mixer you can also mix parts of the carrier and modulator signal to the vocoder output signal (**Out**).

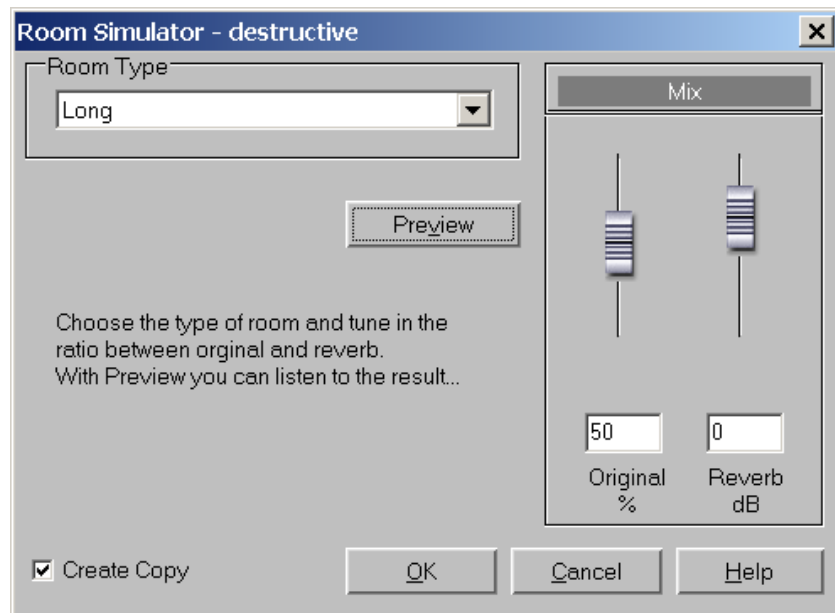
If the output signal of a track is used as a carrier in the vocoder, this track will first be muted. In the vocoder mixer you can then make it audible again.

### Presets

In the "**Preset**" list window you can select predefined vocoder settings. The disk system is used to all custom presets. The presets all contain vocoder settings, except the selected carrier signal. **Reset** restores the vocoder default settings.

## Room Simulation

This function lets you add a high-quality room simulator to the audio material.



**Reverb type:** Here you can choose between a short, medium and



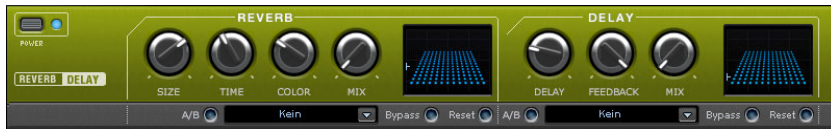
long sustain.

**Reverb share:** Here you can set the balance between the original signal (without reverb) and the actual reverb.

**Volume:** Here you can adjust the master volume.

**Test:** This button activates the preview function. A short reverb section is calculated and then played so that you get an impression of the settings.

## Echo/Reverb



The reverb effect device offers newly developed and very realistic reverb algorithms to add more room depth to your recording.

### Reverb

Reverb supplies a high-quality reverberation which can be defined more closely with 'room size', 'time' and 'colour' and mixed into the original sound with 'mix'.

**Room size:** This control button controls a room simulator which calculates the reverb effect in dependency on the room size. If the control is turned completely to the left, it sounds as if the audio object has been recorded in a tiny room, turned completely to the right, one can listen to the object as if it had been recorded in a cathedral.

**Time:** Here the length of the 'reverb trail' is determined, i.e. the fading phase of the sound.

**Colour:** Here it is possible to control the type of reverb – rather dull than high-pitched or vice versa.

**Mix:** This control determines the mixing ratio between the unedited original sound ('dry' signal) and the reverb portion ('wet' signal).

### Echo

The echo effect is defined more closely with 'delay' and 'feedback'

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and calculated into the original sound by means of 'mix'.

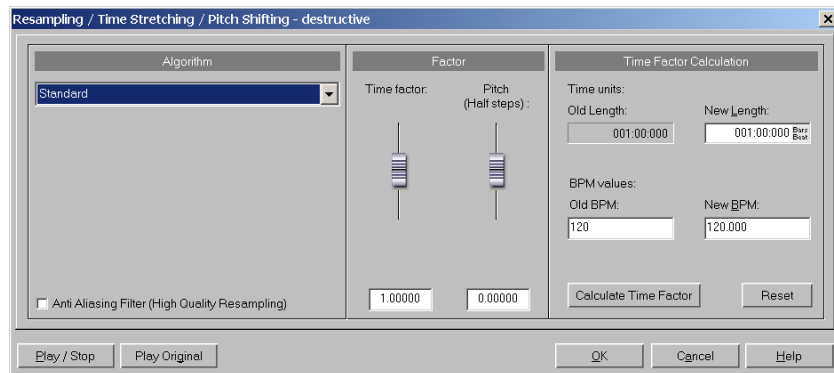
**Delay:** Here the period of time between the individual echos can be determined; the more you turn the control to the left, the faster will the echos follow each other.

**Feedback:** Here the number of echos can be adjusted. Turned completely to the left, there is no echo at all, turned completely to the right there are virtually endless repetitions

## Resample / Time stretching

Opens the Timestrechting/Resampling/Pitchshifting-Editor.

Note: If you only want to change the sample rate of an audio file, use the Adjust sample rate option from the Effects Menu.



All algorithms in this dialog use the time factor parameter and pitch as input parameter.

The time factor calculation (from the original length/original speed and the length required / speed required) can be comfortably activated on the right side of the dialog.

### Resampling

Samplers and PCM Synthesizers transpose samples during this procedure. Time factor and pitch are dependent upon each other: the shorter the audio material, the more higher the pitch. The effect is comparable with changing the playing speed of record players or tape recorders.

The effect is relatively loss-free, the sound loss is smaller than with all Timestretching/Pitchshifting procedures. If pitch change is justified by changing the speed (and vice versa), use this algorithm.

When lengthening the audio material by resampling, very small aliasing effects may occur. the anti- aliasing filter helps in this regard. Alternatively, since this filter requires additional CPU load, it can be activated for the computation and the real-time preview. The filter is also available for the other algorithms that use resampling internally when pitchshifting.

### **Default**

An algorithm is used that usually delivers very good results with factors from 0.9 to 1.1, that works in phase-locked mode, thereby, keeping the room effect of stereo signals. For drum loops or other "beat heavy" material, this algorithm is only partially suitable as it can change the groove and, in rare cases, can fade out or double beats.

Time compression (sample length is reduced) is more successful with this algorithm than timestretching, i.e. it is better to reduce the longer sample than vice versa when adjusting two samples to another.

### **Smoothed**

Here a considerably more complex algorithm is used which requires more processing time. The material can now also be used on very large factors (0.2...50) without bringing about strong artifacts. The material is "smoothed", which makes the sound softer and emits it at an adjusted phase level. This smoothing is hardly audible, for example, with speech, singing or solo instrumentation. Problems may arise with more complex spectra (sound mixes from various instruments or finished mixes). This algorithm is not very well-suited for drum loops and other material with strong transients. The groove remains intact, but because of phase shifting the attacks are slurred. With small corrections (factor ca. 0.9 – 1.1) the setting of the smallest possible smoothing value should be used.

Recommended for:

- Orchestra instruments: String instruments, wind instruments...
- Speech, single voice and multi-voice song
- Speech with background noise like, for example, video sound
- Synthesizer areas, guitars...

Not suited for:

- Stereo mix
- [www.magix.com](http://www.magix.com)

- Drum loops, percussion

CPU strain: very high

### **Beat marker slicing**

This mode is centered especially around customizing drum loops, but can also be used on other material like monophonic bass runs or sequencer lines. The algorithm splits the material into individual components, individual notes, or beats, which are then selected via the beat marker.

These "snippets" are then compiled into the new temporal measure: If the tempo is increased, individual beats begin overlapping, if it is slowed down, short pauses between the beat become audible.

If this algorithm can be used, it should be used because, in this case, the time change occurs without any loss of quality at low CPU strain.

Recommended for:

- Samples which can be split into individual notes or beats
- Drum loops, if the beats do not overlap and there is not much reverb

Definitely not suited for:

- Everything else where beat markers do not exist, the algorithm fails completely and silence is the result.

CPU strain: minimal

### **Beat marker stretching**

This algorithm works similar to the standard algorithm. Unlike the previous algorithm, this one synchronizes the stretched material with the beat markers. This way the groove remains perfectly intact and doubled or faded out beats do not occur. Unlike the "Beat marker based slicing" algorithm, this algorithm doesn't fail fully when there are no markers or wrongly placed markers, but rather, the synchronization quality is reduced or has errors. In practice, automatic marker generation is usually enough for good results. You should avoid having beat markers which follow one another very closely (<1000 samples).

### **Monophone voice**

This is a special time-stretching and pitch-shifting function for vocal solos, speech or solo instruments. The material must not contain background noise, and excessive reverb may also be detrimental to

the use of this method. With suitable material the audio quality is very high.

With the "Use formant correction" option the formants remain the same when pitchshifting, that is, the "Mickey Mouse effect" does not occur. This way, realistic background choirs can be "composed" from just one solo voice. The formants, however, can be shifted by +- 12 half tones. Here, vocal distortions can be achieved.

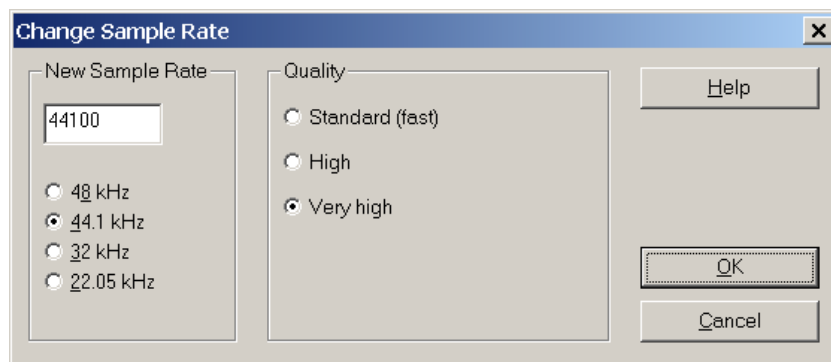
Typical usage of this algorithm:

- Intonation correction (the note with the imprecise pitch should be cut out as an object, so that it can be manipulated independently of the other notes).
- Harmonizer effects: An object with vocals can be copied and moved down. If the pitch is now changed, the second voice has been changed, etc.
- Generating background vocals from existing vocal samples
- Timestretch/Distortion of a speech sample, for example, to make a grandfather voice.

Recommended for: Speech, single voice vocals, single voice instruments without overlapping, with low reverb and low background noise.

## 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 Vari-speed 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.

## **Reverse**

The sample data in the selected range is reversed along the time axis ie the file will now play backwards with the end now placed at the beginning. This allows for very interesting effects, not to mention the ‘backwards masking’ hidden messages frequently rumoured to be 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.

The option is only available when working in Destructive Editing mode ie directly on an HD Wave file.

## **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, Samplitude Music Studio 14 will create a ‘smooth’ transition between loop-end and loop beginning.

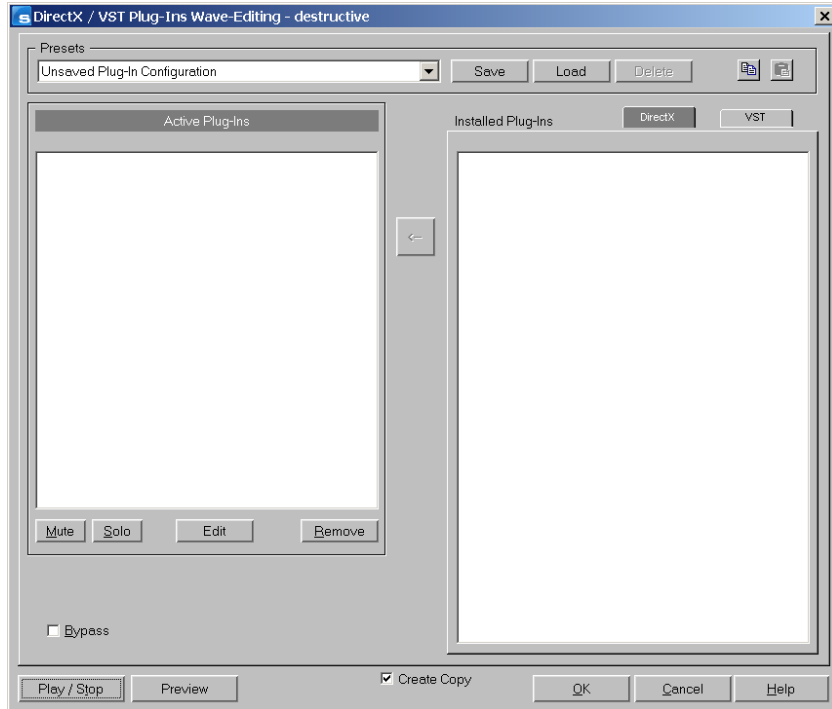
When a marker is set in front of the selected range, the range between the marker and the beginning of the loop will be used for the crossfade. This offers you a feature found in professional hardware samplers. To achieve a short crossfade set the marker close to the loop beginning. To receive a long 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.

## DirectX Plug-Ins

With the aid of this dialog it is possible for Microsoft DirectX and VST compatible plug-ins to be used for effect calculation in Samplitude Music Studio 14. This opens up the possibility to you of using almost any effect algorithms from third-party suppliers in addition to the integrated effects in Samplitude Music Studio 14.

In the mixer in Samplitude Music Studio 14 plug-ins can be included as real-time effects. Here, however, the plug-ins have to be capable of processing audio data blocks immediately and completely, and without any change in length. This is the case with most plug-ins, e.g. hall, echo, dynamic compressors). Other algorithms such as Timestretching plug-ins fail at this point because of the associated length change.



### Working method and use

When you open the plug-in dialog you will see on the right-hand side a list of the DirectX and VST compatible plug-ins that are installed on your computer. Activate one of them and press the arrow in the middle; the activated plug-in is transferred to the left, into the list of active plug-ins. At the same time the surface of the plug-in is opened in which specific effect settings can now be made. You can set up a chain of effects in this way, but it is important to ensure that the plug-ins are all compatible with one another. For instance, stereo and mono plug-ins must not be coupled together. The plug-in selected in each case in the list on the left can be deleted again with the "Remove" button.



### Pre and Post in the plug-in dialog

The plug-in dialog in the VIP tracks and in the mixer enable you to loop in the effects “pre” or “post”. Mark them on the left in the plug-in list as “pre” or “post” before you load them. The plug-in will then be looped in “pre” or “post” accordingly.

### Drag&Drop of VST plug-ins

If you have installed various different VST plug-ins in other folders than in Samplitude Music Studio 14 you can simply pull the relevant dll-files out of the Explorer and directly onto a track in Samplitude Music Studio 14. This VST plug-in will be additionally registered and from now on will turn up in the plug-in dialog as a VST effect.

Removing available VST plug-ins from the list

VST plug-ins that you no longer want to see displayed with the available ones can be easily removed if you click on them and take them out of the list with the “Del” key..

### Buttons in the dialog

**Save/Load:** With these two buttons in the top right-hand corner of the dialog field you can save and insert and complete plug-in set-up (the sequence of the plug-ins with all the set parameters). Plug-in set-ups can thus be transferred conveniently if the various possibilities for plug-in use in Samplitude Music Studio 14 are utilized.

**Copy/Insert:** This enables complete plug-in configurations to be transferred quickly between tracks or objects.

**Play/Stop:** This button activates the real-time preview with the active plug-ins in the left-hand list. This function is ideal for testing the settings of a plug-in if this runs quickly enough for the real-time calculation.

**Remove:** The selected plug-in is removed from the effects plug-in list.

**Settings:** opens this dialog...

### Direct X / VST plug-in set-up

- The “Write DirectX-logfile” option only serves support purposes and should normally be switched off.
- Here the “Start all object-related plug-ins” option can be activated at Play-Start. Some plug-ins cause delays when switched on, and in this case they should be switched on at Play-Start because otherwise there can be a failure when the relevant object starts to play.

- Deactivate all DirectX effects during the scrubbing/jogging: Under certain circumstance DirectX plug-ins can cause errors during the scrubbing/jogging or simply break down. With this option the link to the DirectX plug-ins can be deactivated and thus circumvented.

### **Process only left (right) stereo channel**

Only the right / left channel of a stereo Wav project will be affected by effects when activating "Left/Right processing only". This options is only available when in Wavediting /destructive Editing mode.

The same effect have the L/R buttons in the lower left corner of the WAV project window.

# Tools menu

## Track Bouncing

The current virtual multi-track project (VIP) can be converted into a WAV file or Samplitude Music Studio 14 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: i).

There are two variations for the track bouncing implementation:

**Only selected Range:** Samplitude Music Studio 14 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, Samplitude Music Studio 14 displays a dialog with the maximum amplitude value.

## Range trackbouncing

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 [www.magix.com](http://www.magix.com)

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.

## 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.

## Delete Freeze Data

### Freeze Data Administration

When saving freeze files, a considerable amount of data may accrue. Automatic freeze data administration therefore becomes necessary.

The principle is simple: As mentioned previously, freeze data and freeze VIP's are stored in a special directory within the current project directory. After completion of the current project, all freeze data no longer required is deleted in the background.

Data requiring an unfreeze is preserved, as long as the respective frozen tracks or objects are found within the current project.

There is, however, one limitation: If freeze data exists at the moment that the current project is temporarily stored, all freeze data existing at this point in time is also kept, even if it is no longer required for

unfreeze after project completion.

**Example:**

Track 1 and Track 2 are frozen. Track 2 is unfrozen before completion of the current project. The project is then saved and brought to completion. During completion, the freeze data and freeze VIP of track 2 is deleted. Freeze data and freeze VIP of track 1 remains unchanged.

If, however, the current project is stored temporarily before track 2 is unfrozen, the freeze data of track 2 is also kept.

**Deleting freeze data manually**

There is a special command to get rid of data that is no longer required: Delete freeze data (tools menu).

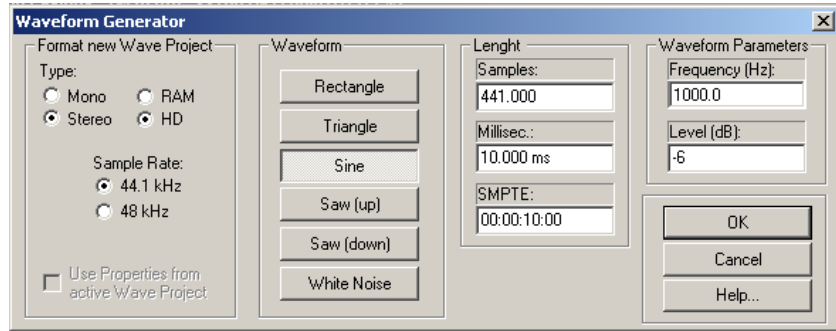
If no freeze data (yet) exists in the current project, this command is disabled and cannot be selected.

Hereby all freeze audio data no longer required in the current project is deleted.

Existing freeze projects, however, remain unaffected. As the original state prior to the use of the freeze command is found in a freeze VIP, it can be re-established, as long as the necessary audio data is still found in its original position.

## 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**

**Length:** Use these boxes to enter the desired length of the generated tone in samples, milliseconds and SMPTE.

**Wave shape parameter:** The wave shape parameter determines the pitch and volume.

Once you've made all your settings, click on the OK button or press the ENTER key.

The generated signal will then appear in a new window and is available for further editing.

## Open new Manager

This menu point opens a new Manager window. Several Managers can be opened simultaneously.

## Manager

Please also read the corresponding chapter The Managers (on page 242).

## Take Manager

The Take Manager is another powerful feature of Samplitude Music Studio 14. It is especially for those who work with many different recording takes and need to manage them.

Samplitude Music Studio 14 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 Samplitude Music Studio 14. 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.

## **Timestretch Patcher**

This tool enables wave files used in Samplitude Music Studio 14 and other MAGIX programs (e.g. MAGIX music maker) to be patched.

Additional information and settings are written into the wave project to make them easier to find, thus ensuring better Timestretching or Pitchshifting results.

The following can be patched:

- Algorithms for Timestretching/ Pitchshifting
- BPMs
- Beat markers

#### **Algorithms for Timestretching/ Pitchshifting**

Different algorithms (besides the standard algorithm) can be used for real-time Timestretching and/or Pitchshifting for better results. Check

[www.magix.com](http://www.magix.com)



Resampling/ Timestretching/ Pitchshifting for more details. With the Patcher you can store the optimal Timestretching algorithm in the wave project. This ensures that the "correct" algorithm is used automatically when Timestretching/Pitchshifting is used on these projects as object effects (e.g. with the Timestretch mouse mode).

### **Beat marker**

Beat markers are also saved in the wave project when using beat marker-based algorithms.

In contrast to the Timestretching dialog, the patcher is non-modal, meaning that if the patcher is open, you can move beat markers in a wave project while checking out the Timestretching result.

### **BPM value**

Patches the BPM value (beats per minute). This is useful for when the Timestretching factor must be determined later in order to adapt the wave project to the tempo of an existing arrangement.

### **Patches in brief**

Patches only work if you have opened the wave project in destructive wave editing mode and if it is not open in a VIP simultaneously.

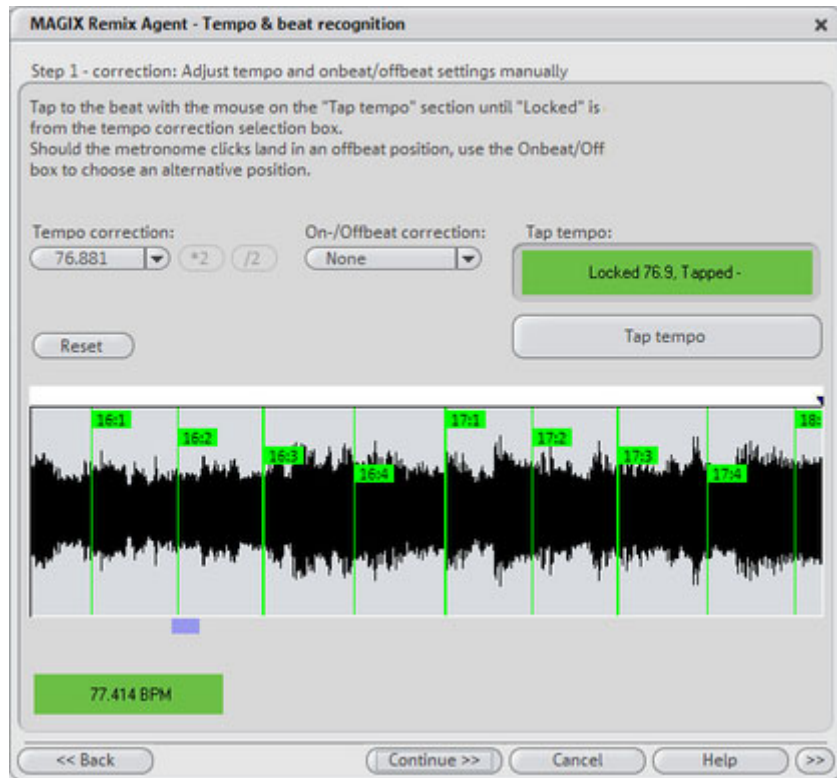
On the right of the dialog (Patch) you can select the algorithm to be used and specify the wave file tempo. On the left side (Test) is the control element from the Timestretching/Pitchshifting Dialog.

It allows you to test the selected algorithm in connection with the Play/Stop and Play original buttons. Patch saves the information in the wave file.

## **Remix Agent**

Samplitude Music Studio 14 offers Remix agents for automatically determining the tempo in BPM (Beats per minute) as well as for creating remix objects. Use the context menu and/or the effects menu.

## Remix Agent – Tempo and Beat Assignment



The Auto Remix Assistant is a powerful tool that determines the tempo (measured in beats per minute, or BPM) as well as the timing of the beats for songs' quarter notes. This is important. For example, when an audio CD title is imported into Samplitude Music Studio 14 and you then wish to mix in sounds such as drum loops, effects or synthesizer voices.

### When to use the Auto Remix Assistants

- When the tempo of the arrangement must be adapted to the tempo of the song.
- When the tempo of the song must be adapted to the tempo of an existing arrangement.
- When the song is to be cut up precisely to create a remix object, which can then be re-arranged as desired.

### Requirements

- The song must be longer than 15 seconds.
- The songs have to contain "rhythmic" music.

- The song must be in stereo.

### **Preparation: Setting the Start Marker and Object End**

Before opening the Auto Remix Assistant one should set the start marker at the position in the song object in the Arranger where detection is to start. If the song contains a long intro without beats, set the start marker after the intro. As a rule of thumb, the Auto Remix Assistant should always be "fed" with "dance" music.

- The start marker should be set before a quarter note beat or, better still, briefly before a beat at the start of a bar.
- If the start marker lies before the song object, the object is examined from the beginning.
- If detection is not performed by the end of the song, the object can be shortened accordingly with the object handle at the end of the object.

### **Checking the automatic tempo and bar recognition**

After Ex opens, the selected track object will be analyzed. Following the analysis the track will be played. During playback a metronome corresponding to the computed result will sound, and vertical tick marks will visualize the quarter note positions in the wave form display.

The following will be indicated:

- Position of the start of the measure (one): red lines.
- Position of the other quarter notes (two, three or four): green lines.
- Reliably recognized positions: thick lines.
- Unreliably recognized positions: thin lines.
- Tapping is indicated by additional blue lines.

If the tempo and beat information is already available, dots above the display at the corresponding positions will appear. To the left underneath the waveform display the metronome volume can be adjusted. To the right the calculated BMP value will appear. If the BPM value is valid, the display will be green.

If the metronome clicks match the rhythm of the music, the bar starts will then be determined. If not, you can correct the tempo manually.

### **Correction - Manual Tempo and Onbeat/Offbeat setting**

If the result is incorrect, you can help the Auto Remix Assistant with a few mouse clicks on the correction buttons.

There are two possibilities: On the one hand, the "Tempo correction"  
[www.magix.com](http://www.magix.com)

list offers alternative BPM numbers, which could also fit with the music. The adjustable BPM values are detected automatically – the total number of BPM can therefore deviate from song to song.

**Tap Tempo:** With difficult audio material we recommend the use of the Tapping Input mode. Either the T key must be pressed or the Tap Tempo button must be clicked with the mouse in time with the music. With repeated tapping of the tempo correction button, one should keep an eye on the color in the BPM display. In the “unlocked” condition (red) the tapping is not in time with the music. One should tap until the “locked” condition is displayed. After a short time one hears if the result is correct through the metronome.

Subsequently, Offbeat correction takes place - if required. If the detected quarter notes beats lie around the length of an eighth note (transferred behind the real positions of the quarter note beats), one or more alternatives can be selected from the Onbeat/Offbeat correction list.

#### **Set the start of the bar**

Start bar correction takes place next. The beat at the start of the bar should coincide with the high sound of the metronome, or the red line in the wave form display.

Correction is achieved in one step: If the start of the beat can be heard, click on "Tap One" once using the mouse or press the "T" key on the keyboard. Alternatively, you can also choose by how many quarter notes the "One" is to be moved back.

If the start marker is set right before the first beat of a bar, no correction is necessary.

**Hint:** After every adjustment, the metronome and tick mark visualization react with a delay.

#### **Step 3: Use of the BPM and beat recognition**

With this last step you determine what is to be done with the material that is currently being analyzed. You have three possibilities:

1. You want to generate remix objects from the song (the analyzed material)
2. You want to bring your project tempo into line with the tempo of

the song or vice versa

3. You initially only want to save the tempo and beat information in the audio file and to edit them later.

### Generating remix objects

The song is cut up beat by beat into individual objects that can then be used and re-edited in any required way in the VIP.

Some examples of this use:

- Generate loops out of complete songs that you can then use with your own material from complete songs that they can then use with their own material.
- Remix songs, i.e. change the sequence of the remix object, cut and double the individual parts or beats of the songs, or enhance the song with any other loops, samples, etc.

Caution! The “Generate remix objects” option can only be selected if the remix agent was opened from a VIP.

**Audio quantizing:** The new objects are fitted exactly into the beat grid of the arrangement

In the case of hand-made music there are slight tempo fluctuations that can result in different bar lengths. In order to ensure that the objects still fit into the rigid beat grid of the arrangement the object-timestretching option is activated and used in such a way that the differences in lengths are corrected.

For small corrections use resampling. If the necessary corrections are very small the higher-quality resampling technique can be used instead of timestretching.

Note: if you later decide to alter the tempo of your multi-track object and to adjust the audio object in the VIP to the new tempo value, clearly audible pitch changes will appear in the remix.

**Remix objects in Loop mode:** The new objects are put into loop mode. When the objects are lengthened with the right-hand object mouse gripper the object keeps being played at its original length.

**Setting arrangement tempo at object tempo:** The arrangement (VIP) takes over the BPM value it has found. If you want to use the

dissected song as the basis for a new composition, as with remixing, this option should be active.

Note: the time correction is allocated to the objects by setting the object real-time timestretching and can therefore be corrected in the Object Editor. Conversely, timestretching settings that have already been set can be over-written.

**Grouping:** The remix objects are grouped.

**Use cross-fades:** The remix objects are superimposed. The parameters of the superimposition can be set in the Cross-fade Editor.

**Exit:** The dialog is closed without the changes being saved.

**Adjust tempo:** This option offers you the possibility of adjusting the song tempo to your project speed or the project speed to your song tempo.

Caution! The “Adjust tempo” option can only be selected if the remix agent has been opened from a VIP.

Set object tempo to arrangement tempo: This adjusts the object length to the existing arrangement. Three different procedures are possible:

**Timestretching:** the pitch of the song remains constant but under certain circumstances the sound quality may suffer.

**Resampling:** Resampling changes the pitch, in the same way as changing the speed on a gramophone, but very largely retains the sound quality of the song.

Note: if you later decide to alter the tempo of your multi-track object and to adjust the audio object in the VIP to the new tempo value, clearly audible pitch changes will appear in the remix with objects edited with resampling.

**Audio quantizing:** In audio quantizing the tempo adjustments are calculated into the audio file. This is done in such a way as if initially remix objects (see below) were being produced and immediately compiled into a new audio file. If the recognition is uncertain the

result can include extreme tempo fluctuations. It is particularly important here to set the start marker before calling up the Remix Agent in such a way that the tempo is recognized with certainty.

The advantage of audio quantizing is that small tempo fluctuations are evened out in the music. The bar starts of the music always match the bar starts of the arrangement and therefore do not tend to wander away from one another.

**Set arrangement tempo at object tempo:** The arrangement (VIP) takes over the BPM value it has found. If you want to use the dissected song as the basis for a new composition, as with remixing, this option should be active.

**Change global setting:** The BPM value of the arrangements (VIP) is set at the calculated value.

**Adjust tempo map:** From the position of the Play cursor to the final position of the remix object, a tempo marker is set for each bar in the arrangement (VIP).

**Generate bar marker in the current range:** This option enables markers to be set at start of each bar in the song (the positions of the lines marked in red in the wave form display).

**Generate quaver markers in the current range:** Select this option in order to set markers at the positions of the starts of the quaver-bars (the positions of all lines presented in the wave form display).

#### **One example of the use in both cases:**

Mixing two songs:

1. First adjust the project tempo to the song over which you intend to dub in the second song (“Set arrangement tempo to object tempo”, “Alter global setting”).
2. Then adjust the tempo of the second song to the project tempo (“Set object tempo to arrangement tempo”).
3. As the project tempo and the tempo of both songs now match exactly it will be possible to fade from one song to the other without any problem.

**Save only tempo and beat information:** If this option is selected the tempo and beat information is transferred to the audio file. The objects in the VIP and the VIP itself remain unchanged.

**Generate beat markers in the current range:** With this option markers are set at the start of each bar in the song (the positions of the lines marked in red in the wave form display).

**Generate quaver markers in the current range:** Select this option in order to set markers at the positions at the start of each quaver-bar (the positions of all the lines marked in red in the wave form display)



## Playback/Record menu

### Play once

The project or the range is played once.

Key:           Space

### Play loop

The project or the range is played in a loop.

Key:           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.

Key:           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 synchronization must be started in manual mode and an exact start has to be performed.

Keys:   Shift + Space

### Play only selected objects

Play only selected objects

Only selected objects will be played. All unselected objects will be muted temporarily. If the playcursor is not on the first selected  
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object's time position, it will be replaced to it

Key:                    Alt + Strg + P / Alt Gr + P

## **Stop**

The playback is stopped for all projects types.

## **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 that appears after selecting this menu option is designed to quickly enter playback parameters.

Stop at position

Check Space key for playback stop also in background

Enable Ctrl+Space for Play Selected Objects in Arranger

Pre-roll time (seconds):

maximum Reverb time for objects without Fadeout:

**Autoscroll**

active  soft

active for Zoom <1s  Page

**Scrubbing (numeric 0)**

Speed:   1 Track

Global Play Device:

OK Cancel Help

**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.

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 re-draws.

You can choose between page and soft scrolling. But be careful: Scrolling requires CPU power (depending on the processor, graphics adaptor and resolution), so that the CPU may be overloaded in critical situations which may result in playback dropouts. You should then deactivate autoscroll mode.

**Scrubbing:** If you press the Insert key (Insert or 0 on the number pad), Samplitude Music Studio 14 will switch to “Scrubbing Mode”. This means that the playback speed can be controlled directly by the mouse. The further to the right the mouse goes, the faster Samplitude Music Studio 14 plays.

In comparison to many HD recording systems, this even works in a virtual multitrack project.

Use the Scrubbing Mode to find passages, crackling, etc. in material – the older generation of sound engineers are, no doubt, very familiar with this method from analog tape editing.

There are two scrubbing modes (in playback parameter window - key p):

**Relative:** The relative distance between the play cursor (positions bar) and the mouse position can be used to control the speed. The play cursor follows the movement of the mouse.

**Absolute:** You can also use the absolute position of the mouse in the window to control the speed:

**Left border** = double speed backwards

**Center** = no movement

**Right border** = double speed forwards

A Tip Using Scrubbing: The scrolling becomes “softer” when using  
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small buffer sizes (2000, 4000 samples). You may need to test your system for error free playback with

**Tip for scrubbing:** For buffer sizes (4000, 2000 samples) scrolling is "softer". Test if your computer functions at this buffer size without any playback errors.

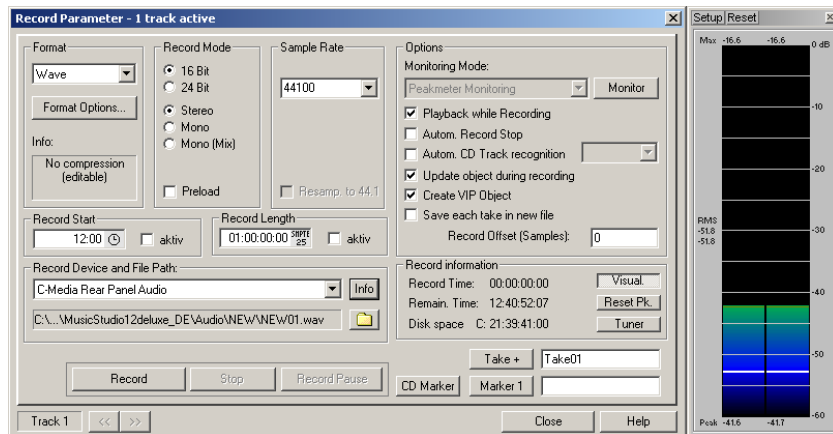
Combined with the Soft Scroll mode, editing becomes very convenient on faster computers.

## Record

Starts recording.

## Record options

This menu option opens the Record window. All necessary settings for the recording can be performed here. If once set, you don't need to open the dialog again, just start record by the record button at the transport control or clicking the toolbar icon



**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 Samplitude Music Studio 14 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 Samplitude Music Studio 14 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. Samplitude Music Studio 14 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 its capabilities.

**Info:** Dialog for detailing soundcard properties. If your soundcard supports 24 bit recording, you can activate this recording mode via the Info dialog.

**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.

**File Name / Browse:** The name of the audio file to be produced and the pre-set index path are displayed at the bottom of the Recording Window—both can be changed by clicking on the File Button.

**Set CD Track Marker:** While the recording is running, you can set Track Markers, by clicking on the Set CD Track Marker tab in the Recording Dialogue.

**Automatic Recording Stop:** When this field is activated, the

recording stops automatically after approximately 16 seconds of silence. This allows you to make, for instance, a record recording without having to worry about stopping it at the end.

**Automatic CD Track Recognition:** When this field is activated, Track Markers will be set automatically at the end of pauses between songs.

**Create VIP object with name:** Samplitude Music Studio 14 allows you to choose whether you want to automatically create objects in a VIP once you are done with the recording.

**Monitor:** This checkbox activates the VU meters. Please note that the correct recording device must be selected prior to beginning this. While recording, the LED control displays move slower, do, however, show each maximum level.

**Recording level:** This display indicates that the signal level to be digitized is correctly set. Play the loudest part of the material to be recorded and watch the display.

Low-level recording leads to a loss in sound quality, while high-level recording can produce unpleasant "clipping" sounds.

You can adjust the record level either on the sound source or with the mixer of your sound card.

**Osci./Correl:** Here you can open the oscillograph or phase correlator. The oscillograph displays the wave form at the input in a scaleable window.

The phase correlator displays the phase level of a stereo signal. A vertical line corresponds to a mono signal, and a horizontal line corresponds to a 180° phase-inverted signal which usually indicates an incorrect cable connection.

**Tuner:** For "tuning" guitars and other string instruments. A calibrating line appears when the A0 note is played. If deviating tones are played, the deviation can be read on the basis of the calibration line and the numerically indicated pitch is corrected accordingly.

**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  
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when the Playback while Recording feature is turned on. This option allows an adjustments if this occurs. Good values to start with are in the 20-2000 sample range. You can determine this value by playing a project with a distinct start in a multitrack VIP and recording it simultaneously. You can then measure the offset precisely using the zoom functions.

**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.

**Record:** Starts recording by activating this button.

**Stop:** Stops the recording process. Samplitude Music Studio 14 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)

## Record mode/Punch in

### Record without Playback

Use this option to record without playing the VIP.

### Play while recording

This option corresponds to the option in the recording options with the same name.

### 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.

Requirement 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:

- 1. 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.

**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. 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 Samplitude Music Studio 14 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 Samplitude Music Studio 14 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 Start Marker**

This function/button sets the punch-in marker

**Set End Marker**

This function/button sets the punch-out marker.

**Remove Punch Markers**

This function/button deletes the punch-in and punch-out markers.

**Live Input Mode**

This is another very powerful feature of Samplitude Music Studio 14 – the Live Input Mode! When working with this mode, Samplitude Music Studio 14 lets you use the real-time Mixer to mix live inputs from the sound card with recorded audio material.

This turns Samplitude Music Studio 14 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 Samplitude Music Studio 14 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.

Samplitude Music Studio 14 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 Samplitude Music

Studio 14. A live signal can be processed with the FFT Filter, the EQ's and the Stereo Enhancer. You may also use the many DirectX Plug-Ins available. There is no limit to your creativity!

Note: If you have an ASIO driver for your soundcard, you can pretty much switch the latency off. Please read the "Samplitude Music Studio 14 as external effects device" section of the "Effects" chapter.

## Monitoring

New, more flexible input signal monitoring is now available through ASIO driver support.

### Monitoring > Input monitoring on/off

This function activates/deactivates the input monitoring (corresponds to the "REC M" button on the transport console). When actively monitoring, the input signal of the tracks for active monitoring (loudspeaker button in the VIP or mixer is activated) are played according to the selected monitoring type at the output. Furthermore, the LED peak meters in the VIP and mixers react according to the input signal.

Note: If the REC button is activated on a track, then the loudspeaker button is activated simultaneously in order to switch on monitoring.

### Monitoring > Tape player monitoring

The preset method of monitoring as on a tape player and well-known from earlier Samplitude Music Studio 14 versions:

When STOP is shown, the input signal is rendered, PLAY renders the track contents, RECORD renders the input signal. If the option is deactivated, it is left to the user to choose whether the input signal is shown. Use the "Force monitoring" button (small loudspeaker symbol beside/above the peak meter in the VIP/Mixer).

### Monitoring > Peakmeter Monitoring

This corresponds with the normal characteristic of the VIP: The peak meter of the tracks displays the level at the sound card input.

### Monitoring > Software Monitoring / Software FX Monitoring

For cards with ASIO drivers, it is also possible to use software monitoring if the card does not support hardware monitoring (ASIO

Direct Monitoring).

Software FX monitoring also calculates the track effects into the monitoring signal with the exception of all high latency-afflicted FX Inserts such as FFT filters, Dehisser or Vocoder. The Amp simulator however is applicable. Samplitude Music Studio 14 is therefore also usable as an effects device with which one can play live directly.

If you need all of the mixer effects, use the conventional Live Input Mode, which functions without ASIO, but is afflicted with higher latencies.

Außerdem muss Software- oder Software FX-Monitoring aktiv sein, um VST-Instrumente live über den MIDI-IN-Port spielen zu können.

## **Auto JamSession**

Read more on this in the Auto DJ (on page 235) chapter.

Keyboard shortcut:                    J

# Menu tempo

## Tempo/Time Signature

Tempo and bar changes are an important expression criteria of all music. Samplitude Music Studio 14 offers comprehensive creation possibilities.

In this case the definition of tempo and time changes is done entirely by means of markers within the Project Window. Special tempo and bar markers can be defined using linear or immediate tempo or bar changes. The resulting tempo curves are calculated automatically. The display in the transport window serves as a visual control of the current tempo or time, which displays the current values when playing back or repositioning the current respective value.

The musical grid can also be adjusted by placing support points at certain time positions or already available audio and MIDI events, e.g. a reference drum track (so-called Advanced Tempo Mapping).

There are three types of markers:

- Tempo
- Time signature (musical signature)
- Bar position

Of course, tempo information can also be adopted when importing MIDI files into the current project. Samplitude Music Studio 14 creates the required tempo markers automatically.

If required, MIDI/audio events can be coupled with the musical grid and positioned precisely for tempo changes.

## Set new tempo marker

A new project first has a single “Master” tempo which can be defined in the Transport Control or in the project settings (Keyboard shortcut: “I”).

You can define unlimited tempo changes directly in the Project Window at anytime. The tempo marker is the most important tool as it can be used to define a tempo change at a precise position, which

can also be interpolated linearly to a previous tempo definition.

## Set new beat marker

The time signature marker changes the type of beat after the marker position, e.g. from a 4/4 beat to a 3/4 beat. A new project first has a uniform 4/4 beat that can be defined in the Transport Control or in the project settings (Keyboard shortcut: “1”).

Bar markers can only be inserted at the beginning of a bar. If an imported MIDI file contains bar changes, bar position markers are automatically generated.

## Set new beat position marker

Beat position markers assign a specific musical position to a specific time position. This way, the bar frame/grid and MIDI events can be easily synchronized with existing audio material.

### Bar position markers (Advanced Tempo Mapping)

The tempo of a piece of music is usually defined when it's composed. If you want to increase the tempo at a certain bar position, simply define a tempo marker, with tempo interpolation referring to the previous marker.

However, recorded audio material often does not correspond with the project tempo, e.g. a drummer's reference track to indicate the tempo of further recordings or additionally composed material with many timing nuances. Instead of placing tempo makers or even having to adapt the reference material using time-stretching, you can create the musical grid at certain time positions in the linear course of playback of the project using support points; so-called bar position markers. This way you can synchronize the bar grid, musical grid and the corresponding MIDI data with available audio material.

**Example:** The drummer has recorded a track using a metronome, but has deliberately not hit important beginnings of a bar precisely. The musical grid is adapted to keep the groove within this performance. By placing a bar position marker, the Project Beat of “20”, including the beginning of the chorus, is moved exactly to the first beat of the 20th bar played by the drummer.

This practical example shows that the bar position markers are used to combine the audio-based sample/time position (or SMPTE) with the musical bar position by means of defined support points. This allows for easy editing of projects with changing musical tempi when the musical grid is edited in the actual time course (“Bar 20 should begin at this point in time!”).

A tempo marker is different in that it defines a clear command: Faster (or slower) from here. A bar position marker, however, defines the tempo indirectly by adjusting the tempo before the marker in such a manner that the desired musical position (“Beat 20”) is met precisely at the marker position.

The grid, the grid display, the metronome and the events in the MIDI Editor are automatically adjusted according to the changed musical tempo.

**Note:** Bar position markers immediately following a tempo marker always create a tempo run. Instead of a tempo jump, a bar position marker is used to set a tempo run if there is a bar position marker immediately before the tempo marker. As the tempo before the bar position marker has already been defined, the adjustment of the musical position has to be carried out by decreasing or increasing the tempo to such an extent that the required bar position meets the required time position at the bar position marker.

## Working with tempo and bar markers

### Creating tempo markers

Tempo and bar changes in Samplitude Music Studio 14 are set directly in the Project Window using project markers.

So, you have to create a marker to insert a tempo change at a certain playback position. There are several ways to do this:

#### 1. Tempo/beat marker window

Set the playback cursor to the position where you would like the tempo or bar change to be. The option “Snap to grid” is very useful for placing the cursor directly on a bar or 1/4 bar. Click on the Snap button in the Transport Control (Tempo section). Open the tempo/bar marker window from the Marker Menu (right-click on time bar) or from the MIDI menu.

Click on the “New Marker” button in the window. A marker is inserted at the current position. You can now use the marker option to set the

properties of this marker. For a new tempo marker, enter the required tempo in BPM or the new bar for the bar marker.

Please observe that the settings are only valid for the markers currently selected in the marker list. For example, you cannot set the marker properties such as type or tempo after it has been created.

Please also observe that a beat marker only makes sense at the start of a new beat. If the play cursor is at a different position, the marker position is automatically moved to the beginning of the next bar.

## 2. Marker Menu

Tempo and bar markers can also be created using the marker menu context menu and the MIDI Menu of the program. You can of course assign shortcuts.

## 3. Timestretch Mouse Mode: Click on the time border

In Timestretch Mouse Mode you can create markers directly with one click on the required playback position.

Tempo-Marker: Shift + Click

Bar position marker: Alt + Click

### Edit marker/ tempo/bar marker window

If a tempo marker is changed or a bar position marker is moved, this influences the following markers and audio/ MIDI projects in the VIP.

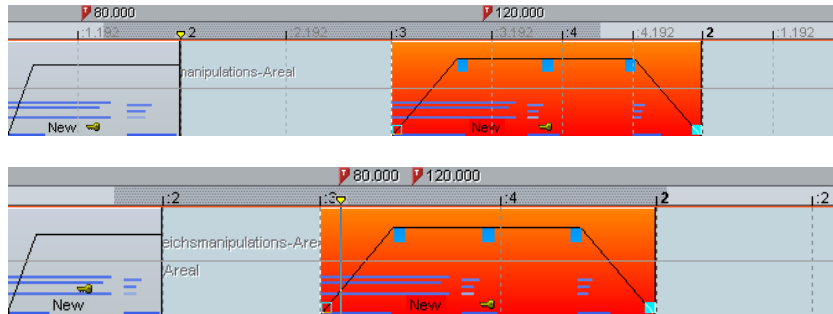
There are principally two possibilities: The time position either remains constant, or the musical position remains and the time position is adjusted (tempo/bar marker window).

Illustration: The time position in the VIP is the absolute position within the VIP. The musical position is flexible, which is made clear by the grid. Maintaining the musical position therefore means that the Objects or markers are adapted to the newly created grid and that their time position in the VIP therefore changes. If the time position is maintained, the musical position changes accordingly.

When tempo markers are manipulated, the behavior of the markers, audio and MIDI Objects can be controlled separately. With each presetting the musical (grid) positions are maintained for MIDI Objects and tempo markers, as is the time position for markers and audio Objects. The time position is always maintained if the "Alt" key is pressed while manipulating with the mouse.



The time position, however, is always maintained for fixed tracks (preset). This can be changed in the Tempo Marker Window.



In this example the first tempo marker in the second image has been changed. The MIDI Object and the second tempo marker were moved correspondingly so that the musical positions (3:01:000 and 4:01:000) are retained. The time position of the audio Object was not changed, so that its musical position has moved forwards (from 2:2:000 to 2:01:181).

#### Further options:

Each tempo and bar position marker can be ignored using the “Bypass” option. This occurs automatically for bar position markers if absurd bar positions are created while moving, e.g. if bar position markers are exchanged (bar 20 before bar 19) or are moved to a position within the project so that these bar positions that originate from a previous tempo marker cannot be met by tempo interpolation.

**Ignore all Tempo Markers:** In the Beat Marker window there is an option for ignoring all tempo markers. In this case only the set project tempo is used (“1”).

Manipulating the tempo marker in timestretch Mouse Mode.

The timestretch Mouse Mode simplifies working with tempo markers.

You can easily create tempo markers using Shift+mouse-click. Markers are then initialized according to the tempo. You can, however, adapt this tempo immediately by moving the mouse vertically holding Shift and clicking.

Bar position markers are created with Alt+mouse-click and can be moved by Alt+horizontal mouse movement (without adjusting the time position), e.g. to manipulate the bar grid and to adapt it to available

audio events.

### **Tips, examples of use**

Loading MIDI files that include tempo changes: The tempo changes are adopted by the current project and are accounted for during subsequent editing and in the MIDI Editor.

Tempo markers can be placed when composing in the MIDI Editor (these then apply to all tracks). Subsequent MIDI Objects and tempo markers retain their musical position (advanced setting).

The grid can be adjusted to available audio events, e.g. assigning beat numbers to certain time positions. You can either use the "Set new Bar Position Marker" menu command to create a marker at a position within the project and can assign the corresponding bar position or, for smaller changes, Alt+mouse-click on the respective bar grid position and immediately move it to the required time position, e.g. to the beginning of an Object.

If the project includes MIDI data, this is automatically adjusted (preset). The newly created tempo grid is used in the MIDI Editor for subsequent editing or for a new composition (e.g. quantization).

When working with MIDI files and complex tempo changes the tempo map can be deactivated and, if necessary, the tempo can be reduced before recording new MIDI files. After recording, the tempo map can be used again. The newly recorded MIDI data is now adapted automatically.

### **Ignore all tempo markers, use only project tempo**

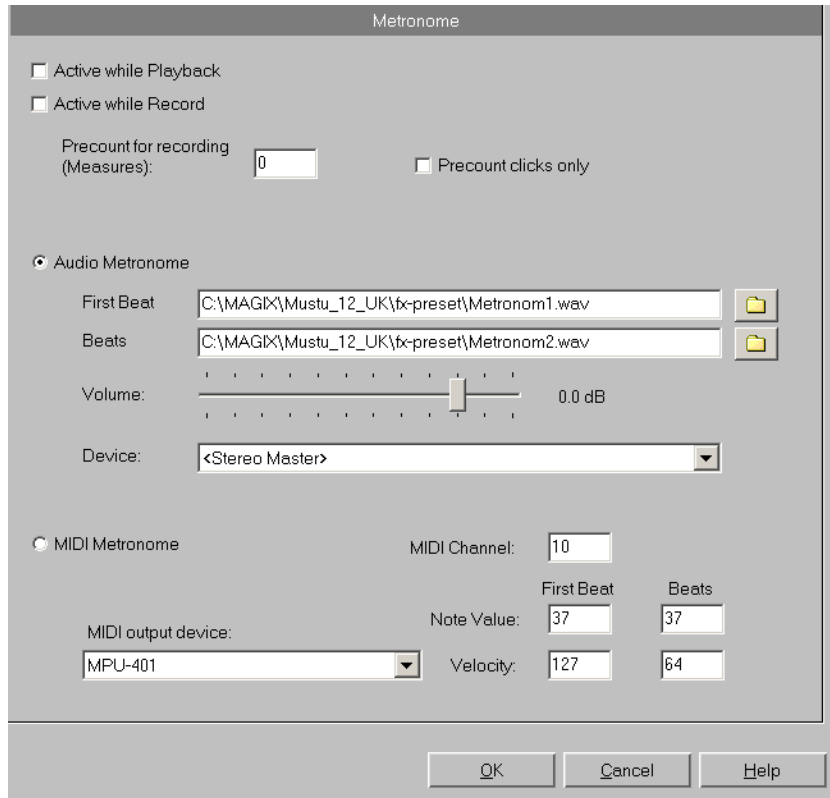
Ignore all tempo markers. Only the project tempo is used.

### **Metronome active**

Activates/deactivated the metronome. This function can also be activated via the "Click" button of the transport console.

## Metronome

Here you can set a metronome to help keep in time with the beat during recordings. You will require soundcard with MIDI functionality and/or an external MIDI instrument to provide the metronome click.



**Active during recording:** This option allows you to hear the metronome click during recording.

**Active while playing:** This option allows you to hear the metronome click while playing.

**Output device:** Selects the device that will provide the metronome click (usually the soundcard).

**MIDI Channel:** Sets the MIDI channel, through which MIDI commands are sent.

**Tact / Tact velocity:** Here you can set the various notes and velocities for the first beat of each tact and/or the subsequent tacts.

# MIDI menu

## New MIDI object

A new MIDI Object is created on the selected track. After choosing the command, you can select a prefabricated MIDI template (from the subdirectory "Templates" in the Samplitude Music Studio 14 directory) from a small pop-up menu. It deals with normal standard MIDI files which can be copied into this directory or directly exported from Samplitude Music Studio 14 as a template. If only one file is in the template listing, no menu appears the Object is created immediately.

## New MIDI track

Use this function to create a new track in MIDI mode to which you can add MIDI objects and edit them.

## MIDI Editor

This menu point opens the MIDI Editor. Here, the content of the MIDI object selected in the VIP can be displayed and edited. Here, you can choose from: Matrix Editor, Drum Editor, Score Editor, Event List, and Velocity/Controller Editor.

If a MIDI object is not selected, you will be asked if you wish to create one. If you confirm this with "YES", a MIDI object in the current track is created at the cursor position/start of the range.

Read more about the MIDI Editor in the "MIDI Editor" chapter.

## Object Editor

Use the Object Editor for object-oriented editing. This way you can quickly and easily edit each selected object independent of your general settings.

Shortcut:                      Ctrl+O

## Glue MIDI Objects

This command lets you glue together two or more subsequent MIDI Objects of a track.

**Shortcut:** Ctrl + Alt + G

## Trim MIDI objects

This function moves the object borders of a selected object to the edges of the current range. For this to occur, the range must be fully within the object's borders.

## MIDI bouncing

All selected MIDI objects are mixed into one object.

## Separate MIDI objects according to channels

If a MIDI Object contains several channels, you can use this menu item to split it up into several MIDI Objects.

**Hint:** Please note that the created tracks have to be allocated to the corresponding instrument/MIDI device.

## MIDI quantization (Start and length)

All note on and note off events are quantized in the selected object according to the settings.

## MIDI start quantization

Only the start positions of the Note on events are moved in the selected MIDI object. The note lengths remain.

## MIDI length quantization

The note lengths in the selected MIDI object are changed according to the quantization settings.

## Track information

To be able to adjust the settings for MIDI data, open the track info dialog. Here you can set, for example, the playback device for MIDI data.

Please also read the corresponding section in the chapter "Track menu".

Shortcut:                    Alt + I

## Track MIDI record

Activates MIDI record for the selected track.

## VST Instrument Editor

Software instruments as well as MAGIX synths (e.g. Robota Pro) can be integrated into a virtual project and controlled via internal MIDI functions and editors. All instruments are seamlessly integrated into all effects and routing options.

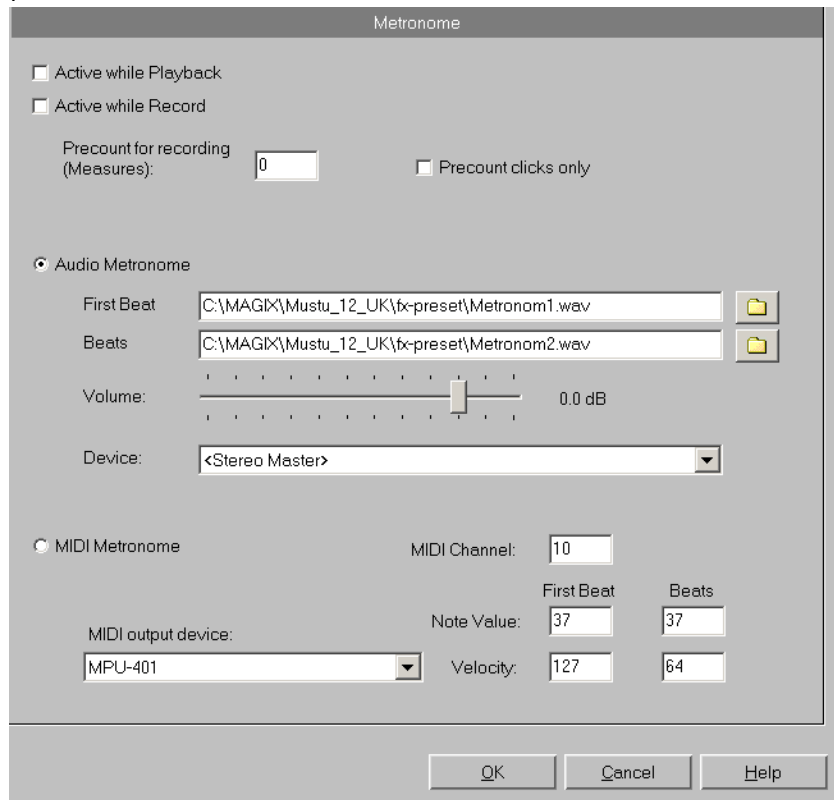
Please also read the chapter "MIDI in Samplitude Music Studio 14" in the first section of the manual.

## Metronome active

Activates/deactivated the metronome. This function can also be activated via the "Click" button of the transport console.

## Metronome

Here you can set a metronome to help keep in time with the beat during recordings. You will require soundcard with MIDI functionality and/or an external MIDI instrument to provide the metronome click.



**Active during recording:** This option allows you to hear the metronome click during recording.

**Active while playing:** This option allows you to hear the metronome click while playing.

**Output device:** Selects the device that will provide the metronome click (usually the soundcard).

**MIDI Channel:** Sets the MIDI channel, through which MIDI commands are sent.



**Tact / Tact velocity:** Here you can set the various notes and velocities for the first beat of each tact and/or the subsequent tacts.

## MIDI Options

Here you can specify which MIDI devices (on page 443) to use in Samplitude Music Studio 14.

## MIDI Record Modes

The MIDI Record modes define how the newly recorded MIDI data is inserted into the VIP if there are already MIDI Objects at the recording position.

### Normal

The MIDI data is recorded in the existing Object; the new data is mixed with the existing data. If a recording extends over several MIDI Objects, then these are combined into one.

### Overdub

The MIDI data is recorded in the existing Object; the new data is mixed with the existing data. If a recording extends over several MIDI Objects, then these are combined into one.

### Multi-Overdub

In Multi-Overdub the new data is also mixed into the existing Objects; however, individual Objects remain.

### Replace

Replaces the MIDI data of the existing object. If you record over several objects, these are combined into a single new object.

Unlike when recording audio, existing MIDI objects on the recording track are also played in "Playback while recording" mode. This way, you can choose one of the recording modes even after the recording was successfully ended.

## MIDI Panic – All Notes off

This command sends a Note Off command to all MIDI devices which are not deactivated in the MIDI Options for all 128 notes on all 16 channels. Furthermore Sustain (Controller 64) is switched off and the pitch wheel and modulation are set to 0. In addition, an All Notes Off  
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command is sent to all VSTi's used in the project.

If MIDI tracks or objects exist in the project, the same function is also accessible by clicking the stop button in the transport console or toolbar when the project is in STOP state.

## CD menu

The CD menu contains all special functions for audio CDs and CD mastering processes, e.g. setting CD tracks and subindexes as well as the "Create CD" function. The options at a glance:

### Load audio CD track(s)

See File menu (on page 263)!

### 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".

Key:            T

### 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  
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encountered.

## **Set CD end**

Use this function for setting an end marker for the CD you want to burn. Without the end marker, the CD you want to burn comprises the entire project to the project end.

## **Set Track Markers automatically**

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.

## **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), and then activate this function to delete it!

## **Remove all Indices**

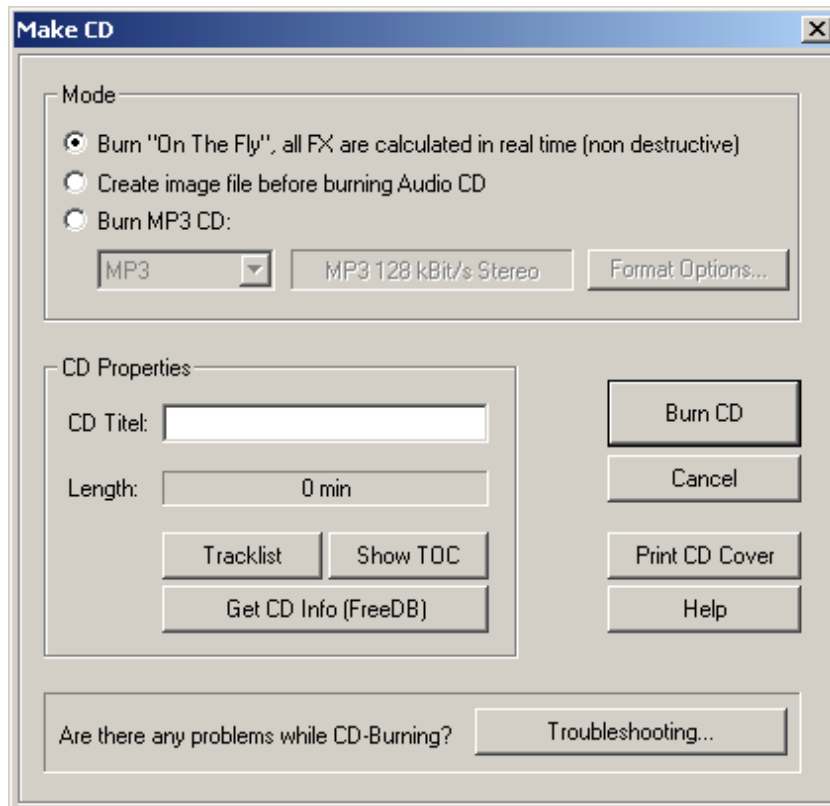
Use this function to remove all previously set track or sub-index markers. This can be helpful before calling the function "Set track markers on object edges"!

## Make CD

This dialog starts the CD writing process. Samplitude Music Studio 14 contains high-grade CD creation routines that are constantly updated. The software code is licensed from Point Software & Systems.

Samplitude Music Studio 14 creates a TOC (Table of Contents) file prior to starting the CD creation. The name of the current VIP is used and the extension \*.toc 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.

The "Make CD" menu in detail:



### 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!

### **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 cannot 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 Pre-emphasis, 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.

### **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.

## CD Text / MPEG ID3 Editor

This function allows you to supply data regarding a song or CD content – such as album, artist etc.

MP3 files do not only transport audio data, but also information about the coded music piece through so-called “ID3 tags”. These are file appendages into which an encoder can write standardized information. The ID3 tags are recognized by the decoders and displayed as music data by the MP3 player.

## 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.

## CD Arrange-Mode

If you activate this menu feature, Samplitude Music Studio 14 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
- 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.

## FreeDB Options

### Get CD info (FreeDB Internet)

Calls up FreeDB data for audio CDs. You have to register first before using FreeDB.

### Submit CD to FreeDB

Allows you to add a CD to the online CD database. The FreeDB™ project relies on user contributions to keep an updated database available.

If you own a CD that's not in the database, you may add it to the database.

- Lay CD in the drive..
- Select "Add CD to FreeDB"
- Enter data in the dialog. Please double-check your data.
- Press "OK"

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- Your contribution should be online after an hour or two

**Clear FreeDB cache**

The FreeDB™ online database assigns a cache to your hard disc containing all files that can be read online . This allows you to read files without having to go online. This option allows you to delete the cache.

**Audio ID**

With this function you can identify audio files. As opposed to the FreeDB search (on page 393), the audio file doesn't have to make up part of an album or CD, it doesn't even have to be a complete recording.

Samplitude Music Studio 14 analyzes parts of a song's typical sound characteristics and sends this information to an Internet server. The server then compares this "acoustic fingerprint" with song information in its database and responds with the track information.

# Options menu

## Project properties

### Mixer setup

Here you can open the dialog Mixer setup (on page 462). Use this to set the number of tracks, AUX busses and submix busses as well as the routing presets for the most frequent use cases.

### Playback Options

The Play Parameter window that appears after selecting this menu option is designed to quickly enter playback parameters.

Stop at position

Check Space key for playback stop also in background

Enable Ctrl+Space for Play Selected Objects in Arranger

Pre-roll time (seconds):

maximum Reverb time for objects without Fadeout

**Autoscroll**

active  soft

active for Zoom <1s  Page

**Scrubbing (numeric 0)**

Speed:   1 Track

Global Play Device:

OK Cancel Help

**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.

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 re-draws.

You can choose between page and soft scrolling. But be careful: Scrolling requires CPU power (depending on the processor, graphics adaptor and resolution), so that the CPU may be overloaded in critical situations which may result in playback dropouts. You should then deactivate autoscroll mode.

**Scrubbing:** If you press the Insert key (Insert or 0 on the number pad), Samplitude Music Studio 14 will switch to "Scrubbing Mode". This means that the playback speed can be controlled directly by the mouse. The further to the right the mouse goes, the faster Samplitude Music Studio 14 plays.

In comparison to many HD recording systems, this even works in a virtual multitrack project.

Use the Scrubbing Mode to find passages, crackling, etc. in material – the older generation of sound engineers are, no doubt, very familiar with this method from analog tape editing.

There are two scrubbing modes (in playback parameter window - key p):

**Relative:** The relative distance between the play cursor (positions bar) and the mouse position can be used to control the speed. The play cursor follows the movement of the mouse.

**Absolute:** You can also use the absolute position of the mouse in the

window to control the speed:

**Left border** = double speed backwards

**Center** = no movement

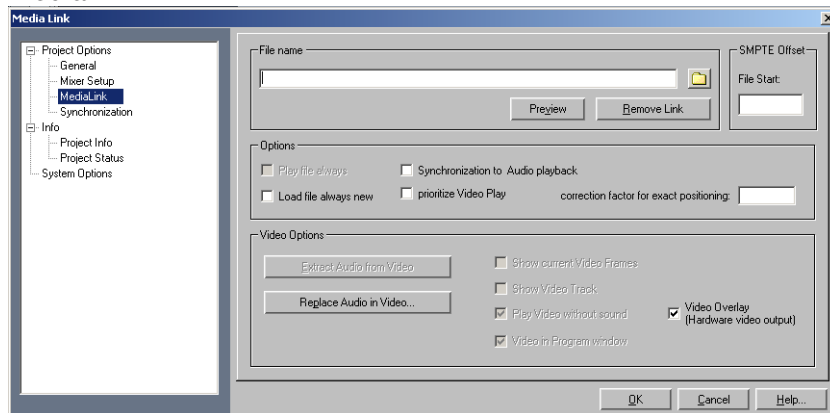
**Right border** = double speed forwards

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

**Tip for scrubbing:** For buffer sizes (4000, 2000 samples) scrolling is "softer". Test if your computer functions at this buffer size without any playback errors.

Combined with the Soft Scroll mode, editing becomes very convenient on faster computers.

## Media link



Nearly all other media files can be linked to Sequoia projects. These can be complete MIDI songs (.MID files), video clips (AVI or MPEG files), or other files for which an MCI is installed, practically all formats that the Windows Media Player can play back.

“Linked” means that the linked media files are played back simultaneously with the Sequoia project and that no synchronization occurs. The time position is not verified directly. Sequoia uses the Windows Media Player for playback, which merely starts and stops the selected file

### Linking Sequoia projects to videos

Media Link lets you add soundtracks to videos with Sequoia in real time without requiring additional synchronization hardware.

In theory it is possible to work with digital videos directly in the original resolution. However, to ensure optimum synchronization and a smooth workflow the following procedure is recommended:

1. Digitalize your source material with “MAGIX Move Edit Pro” video editing software (included in Sequoia) and export a pilot video of small size using a suitable codec which requires low decompression expenditure and only contains key frames if possible. (DivX or MPEG are not suitable). MAGIX's own MXV format is recommended, as this format is optimized for real-time processing.
2. Link the video to Sequoia and apply the soundtrack.
3. Remove the link again after track bouncing.
4. Replace or store the finished Wave Project in the video using the function “Replace audio in video”. You can then save the sound in the original high-resolution movie without requiring recompression (merely the soundtrack needs to be exchanged). More details available from “File” menu -> Export video sound...

**File Name:** Allows you to specify the file name, and source directory of the media file. Clicking on the folder button launches a file selection dialog that allows you to browse your hard disk(s) and specify the media file type. Once you have located the desired media file, simply click on OK, and Sequoia will make the link.

**Play always:** This button activates synchronized playback.

**Synchronization to Audio playback:** Synchronizes the new media link (e.g. AVI-Files) with the existing VIP.

**Always reload file before playback:** This button specifies whether the media file should be reloaded every time before each playback. This can make sense, for instance, if you are still editing a MIDI song in a simultaneously open MIDI sequencer. You then only have to save the file as a MIDI file from the sequencer - Sequoia will automatically reload it before it is played back the next time. If the media file is not yet complete, this option should not be activated. The file will be loaded only once, which particularly makes sense with AVI files: The window with the video will then continue to remain open. This lets you check the image content that matches each marker precisely.

Play start is faster.

## Video Options

**Get audio from video:** With this button the audio files from an AVI file can be extracted and converted into a wave file. This wave file can then be edited further in Sequoia in virtual projects.

**Replace audio in video:** This option can be opened using the "Export video sound" function to replace the existing soundtrack in a video or create a new video.

**Show current video frames:** This option opens a keyframe window that you can freely scale on the screen without any loss of space in the VIP.

**Show video track in the VIP:** This is an especially strong feature of Sequoia. In virtual projects a video timeline can be displayed above the audio tracks. A movie strip of any chosen size can be inserted, upon which the current video position can be perfectly recognized. With range and object selections the beginning and the end are displayed precisely according to the frame.

**Play video without sound:** This option makes Sequoia integrate the video without the sound so that the audio can be adopted by Sequoia.

**Video in Sequoia window:** This option opens the AVI window only on the Sequoia main screen. This is often more practical than a completely independent AVI video.

**Video Overlay (Video output of the graphics card):** Video overlay means that the graphics card itself takes care of the video display and the video picture is positioned on top of the actual windows screen (overlay).

## 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 status

This dialog displays various, project specific information such as name, path, the number of ranges as well as marker changes, and

time of creation, number of objects count and file size.

You will also find a list of all audio files used in the project.

Keyboard shortcut:                      Alt + I

### **CD arrange mode**

See “Menu CD”!

### **Destructive Wave Edit Mode**

Wave projects can be edited destructively as well as virtually. Please also read the corresponding descriptions in the first chapter of the handbook. You can select the desired editing method from the list.

### **Units of Measurement**

See “Menu View”!

## **Project options**

This menu entry opens the dialog with project-dependent options and information (on page 461).

## **Track Information**

Please refer to menu “Track”!

## **Synchronization**

Opens the Synchronisation dialog (on page 463). Here you can specify whether Samplitude Music Studio 14 should operate as master or slave, which protocol to use and which interface should be used to send or receive synchronization data.

## **Program settings**

### **VIP Mouse Mode**

This submenu features the same functions as the mouse mode bar. Please also read the chapter Mouse functions and mouse modes (on page 420).

### **Wave Mouse Mode**

You can select between five draw modes for Wave projects (HD and  
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RAM Wave projects):

Please read the chapter "Mouse functions and mouse modes".

### **Object mode**

#### **Link curves and objects**

In this mode, Volume and Panorama curves are attached to the objects beneath them so that they can be moved together. This can be useful if the curves are aligned exactly with the audio material of the object and the object has to be moved.

#### **Link all objects in one track**

In this mode, all objects following the current track are selected and moved together. This can be useful when the latter part of a project is already complete and a part further forward is still being edited. This way, the latter part remains in the front range even if it is moved or if something is added to it.

This also works if multiple objects are selected which then have to be on several tracks.

#### **Editing keyboard shortcuts and menus**

Here you can open the dialog for Editing keyboard shortcuts, menu entries and mouse functions (on page 454).

#### **Change Toolbar style**

You can change the style of the toolbars into 3-D or a flat look. You have to restart Samplitude Music Studio 14 if you changed the toolbar style.

#### **Edit Toolbars**

With this command you open the tool bar editor for the according toolbar. The same function can be called by right-clicking on the tool bar. All tool bars are customizable. You can customize any toolbar by adding or removing any command, which is available as a toolbar icon.

Inside the toolbar editor there is a context-sensitive pop-up help.

#### **Reset Toolbars**

This menu lets you reset several toolbars.

#### **Grid Setup**

See "Menu View>Snap setup"!

**Video Height**

If the option to display the AVI frames in the VIP window, the height of the AVI pictures is determined with this setting. Diese Auswahl ist auch mit Mausklick auf den Video-Track zu erreichen. Font Selection

**Font Selection**

Samplitude Music Studio 14 will also let you specify the font used for text display in the various objects.

**Font for Time Display**

This option lets you select the display font for the Time Display (Window->Time Display).

**MIDI settings**

Detailed information on this can be found in the menu reference under Options -> System/options -> "MIDI Options".

**Metronome Options**

Please read more on this in the chapter MIDI menu > "Metronome Options".

**Display mode**

Please read the explanations in the "View" menu

**Color Setup**

Here you can adjust the foreground and background color for displaying samples in wave projects, the colors of the volume and panorama curve, the grid, the oscillograph and the time display.

**Color selector**

The standard Windows color selector has its own integrated online help which can be accessed with the F1 button or the ? button in the dialog.

In addition to the mentioned function attributes, the sets of the user-defined colors can be saved onto a file and reloaded again.

Right-click in the color selector dialog to access a menu with all the saved user-defined color palettes. With „Current user-defined save as...“ you can save the current palette onto a new file which will then appear under Color palettes in the menu.

**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.

### **Object Lock Definitions...**

Here you can select which functions should not be permitted by locking the objects.

The choice consists of:

**Moving:** The objects cannot be moved unintentionally (default). This is especially useful for multi-track recordings to prevent inadvertent offset between each track from the beginning.

**Volume Changes:** Deactivates the volume handles of the objects.

## **System/Audio**

This menu item opens the dialog System/Options (on page 438) where most general project settings can be made for Samplitude Music Studio 14.

Keyboard shortcut: Y

# Window menu

## Cascade

This function arranges all open windows in a cascade style.

## Tile

All open windows are moved next to each other, making use of the whole display area. This is useful when dragging physical sample ranges into VIP's.

Keys:            Return/Enter

## Untile

This function will return the window order to the previous state.

Keys:            Shift + Return

## Arrange Icons

All icons are rearranged along the lower portion of the screen.

## Main Toolbar

Please use this command for hiding or unhiding the Main Toolbar (on page 426). Here you will find buttons for frequently used Samplitude Music Studio 14 commands.

A check behind the menu item indicates that the toolbar is visible.

## Position bar

Shows or hides the positioning bar on the lower portion of the display.

## Mouse Mode Toolbar

Shows or hides the mouse mode toolbar with buttons to select different mouse modes in VIPs.

## Range bar

Shows or hides the range bar on the lower portion of the display.

## Workspace bar

Displays or hides the workspace bar at the bottom part of the screen.

## Button bar

Shows or hides the button bar at the bottom part of the screen, which includes the 4 buttons Object Editor, Visualization, Transport and Mixer.

## Status bar

Shows or hides the status bar on the lower portion of the display. A tick behind the menu point shows that the status bar is visible.

The status bar is located at the bottom of the screen and describes the current status of the program.

## Mixer

Opens the mixer. Please refer to the Mixer chapter!

Key: M

## Time display

Shows or hides the time display window

This lets you read the current position, for example, while externally synchronizing, at large distances. Font and colors of the display can [www.magix.com](http://www.magix.com)

be selected in the context menu (right mouse-click on the time display).

In the context menu of the time display the number of lines/fields that are to be displayed can be set between 1 and 5. For each line/field the size that is to be displayed can be selected from the menu.

Double-clicking lets you edit the sizes (with the exception of the current mouse position and the current mixer value).

The most important options:

**Position/Start of range:** Displays the current position of the current play cursor or of the beginning of the range. When moving the objects you can see the starting position of the object here. Should you enter a negative number into the range when editing, the play cursor will be set to the end of the range.

**Range length:** in "Object -> "Object Length; negative number", instead of the start of the range, the end of the range is saved.

**End of the Range:** ->End of the Object, negative number -> Start of the Range

**Current Mouse Position:** not editable

**Current Mixer Value:** Value of the mixer fader/dial that was just changed or the volume or pan fader in the VIP; not editable.

## Visualization

The Visualization Meter is a floating control which enables you to meter (measure) the audio in a variety of ways.

You can choose between the following display options: Peakmeter, Oscilloscope, Phase correlator, Spectroscope and Spectrogram.

The settings of the Meter can be adjusted by right clicking on the Meter and selecting the appropriate adjustment. Use the mouse to click on setup. A context menu now opens in which you can set the value ranges, update speeds, drop times, and colors. You can also reset the peak values.

**Peakmeter:**

**Oscilloscope:**

**Phase Correlation:**

**Spectroscope:**

**Spectrogram:**

**Tuner:**

For “tuning” guitars and other string instruments. A calibrating line appears when the A0 note is played. If deviating tones are played, the deviation can be read on the basis of the calibration line and the numerically indicated pitch is corrected accordingly.

## Transport Control

The transport control window contains the most important commands for playback, recording, and positioning.

**Start / Stop / Forward / Rewind Buttons:** This allows positioning similar to that of a tape machine.

Right-clicking the Playback button opens the Playback Parameter window for the stereo master operation. This lets you determine the sample rate, playback device, and the Scrubbing/Varipitch options.

**Record button:** Starts the recording for all active tracks. This means that tracks with the red REC button enabled need to be configured with the proper recording devices prior to starting the recording. Right-click on the REC button for each track to select the device.

Right-clicking the Record button displays the Record Parameter window. This lets you make settings such as ‘Playback during recording’ and also lets you record material directly from the Record Parameter window.

**Time Display:** This displays the current playback position of the project. Double-clicking on the window lets you numerically enter a new playback position. Clicking the green arrow lets you set various units of measurement.

**L/R Time Display:** This displays the length of a selected range and is editable by double clicking the display.

**Marker Buttons 1-12:** Clicking on one of the marker buttons saves the current playback position to the button. If it already contains a previously saved position (marker appears in light color), the program will place the playback position to the saved position. A right click

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clears the button memory and allows you to store a new position to the button.

**Marker Button:** This button opens the Marker Manager for more detailed Marker editing.

**Punch Button:** This button switches Samplitude Music Studio 14 into punch record mode. This means that the recording process can be started any time during playback. This is also called 'On-The-Fly Recording'. This can be repeated numerous times. Punch In and Out markers are set automatically. You can stop a punch in recording process with another click on the Record button. However, this does not stop the playback of the project.

**Punch In Button:** This sets the punch in position.

**Punch Out Button:** This sets the punch out position. If both the punch in and punch out markers are set, the punch recording can be started with the Playback button. The program will play back the project until it reaches the punch in point.

**Sync Button:** This button opens the Synchronization window.

**Loop Button:** The loop button activates the Loop mode, meaning that playback continues to loop through a previously selected range.

**RCMON Button:** This button activates the Record Monitoring feature of Samplitude Music Studio 14. All tracks that have their REC buttons activated are monitored with the peak meters. The inputs of the audio device(s) are directly routed to the outputs of the soundcard, if the soundcard offers this functionality (check with your soundcard manufacturer). This offers the same functionality as with real tape machines.

**Scrub >> <<:** These buttons allow you to scrub through your project. During scrubbing the playback of the project continues with varying speed while the playback direction can be changed. This also offers a convenient way of finding audio sections such as clicks or mistakes in the audio material.

**Jog & Shuttle Wheel:** The transport control includes a Jog & Shuttle wheel which you can use to "scrub" over the files. The Scrubbing function behaves like the editing function of a tape player. The motor is switched off, the tape, however, remains at the sound head. With a digital system it is more difficult to realize scrubbing as there are no mechanical moving parts. Turning the tape reels manually moves the



tape slowly along the tape head. Using the scrubbing function in Samplitude Music Studio 14 is similar to using a tape player as playback follows the movement of the mouse. Quickly moving the mouse increases the playback speed, while slowly moving it decreases the speed accordingly.

**Tempo:** In the tempo section of the transport console you can change the playback speed and the beat of the whole arrangement. All objects in the VIP are adapted to the speed of your choice with timestretching.

The item "Tap Tempo..." opens a dialog where you can "tap in" the beat by clicking on the "Tap" button or by pressing the "T" key on your keyboard.

In addition, you can fade in the bar grid with the „SNAP“ button and switch on the metronome click with the „CLICK“ button.

## Manager

Please also read the corresponding chapter The Managers (on page 242).

## Close all Windows

Closes all opened projects. Before closing a window/project, Samplitude Music Studio 14 will ask you whether you would like to save the project.

Taste:            Taste:            h

## Iconise all waveprojects

This function will reduce all Wave projects to their icons to make room for the display of the virtual projects.

## Hide all wave projects

This function will hide all Wave projects to make room for the display

of the virtual projects.

## Half Height

The Samplitude Music Studio 14 screen is shown in the upper half of the display.

This is particularly useful if you want to simultaneously use a sequencer program so that both programs are operated simultaneously, without having to switch between programs with the Alt + Tab key.

## Jobs menu

In this menu you will find direct solution and short video explanations on how to perform tasks in different topics. Not only will you find step-by-step instructions for sound and pictures here, you also find quick access to lots of functions.

If you click on an entry with a camera symbol, you will open a short tutorial video which displays solution. Entries without camera symbols solve the problem immediately.

## @Services menu

### MAGIX Online Services

With MAGIX Online Services MAGIX offers a row of interesting new services for your photos, videos and music. Link up Samplitude Music Studio 14 to Services and enrich your projects with a whole world of multimedia.

You can read more on this topic at the iPACE Online Services center.

### MAGIX Community

The perfect place to discuss everything to do with photography with friends and the world, the MAGIX Community.

- Upload photos, comment on them, and have them rated by other users.

- Create your own profile & guestbook.
- Create your own photo groups & make friends.

As soon as you have registered for free, you can use all the features. Have fun with your pictures on the web!

## **MAGIX Blog Service**

YOU make the news: Share your thoughts, experiences, and news with a worldwide audience in no time with your own interactive online journal. With professional templates & 100% unique design, including photos, videos, and music – no previous design know-how required. Invite family, friends, and acquaintances to join in and enter their comments!

Advantage: With MAGIX you can manage multiple blogs per account. A free MAGIX Online Album belongs to the MAGIX Blog Service so that you always have full control over your comments.

## **Make podcast**

Podcast is the name for a relatively new Internet transfer form. It is made up of "**pod**" from "iPod", the name of a popular portable MP3 player, and the term "casting" for broadcasting content to a wide group of listeners/viewers.

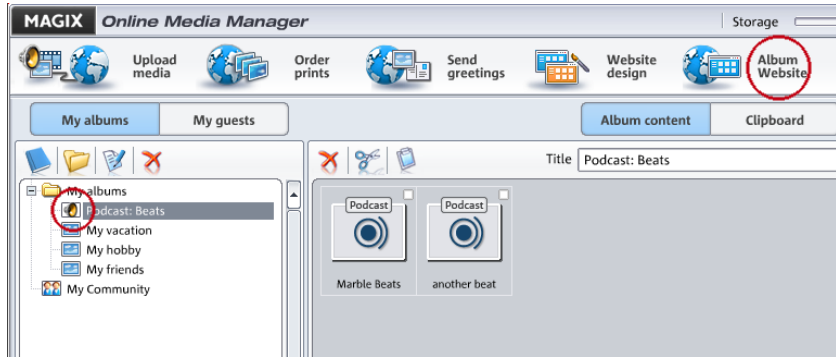
A podcast is therefore something like an online radio station. "Broadcasting" webradio stations means you can only listen to and record the currently broadcast radio station. Podcasting is different. You as the listener can subscribe to the podcast and the files will be downloaded at a specific time and you can listen to them whenever you like, for example, on the move with your portable player. The shows are pre-produced and placed on an Internet server for download.

Select the "Upload arrangement as podcast show (audio)" in the @Services > MAGIX Podcast Service menu and the exciting journey of your podcast to the pages of the largest podcast providers begins.

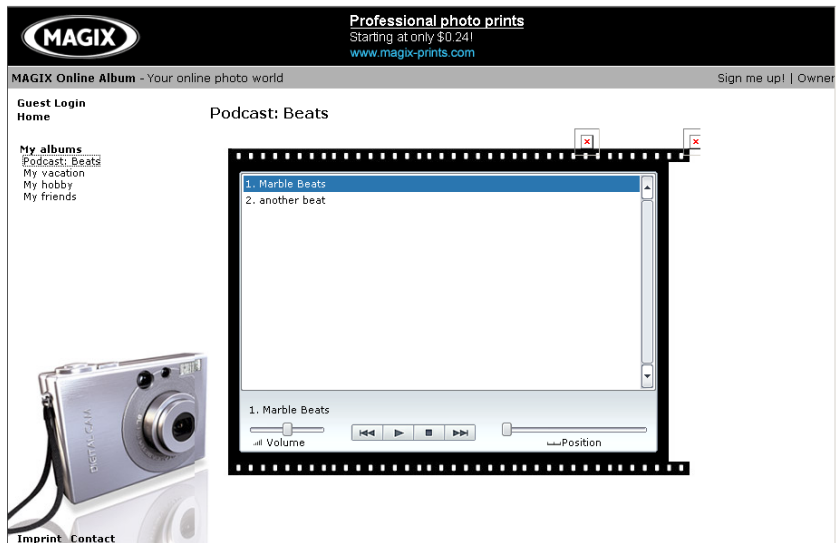
The first stop is your personal MAGIX Online Album, the place your podcast will call its online home. From here it can be accessed from anywhere in the world. Login with your password or register.

Your free MAGIX Online Album with 128 MB webspace can be set up at any time. It will then be available to you from anywhere in the world.

When uploaded via the "Make podcast" button the podcast will be sent to your personal MAGIX Online Album. In the MAGIX Online Media Manager of your MAGIX Online Album the cast can now be found in its new format in the newly created folder "My podcasts".



Now take a look at your album website: Here you can listen to the cast on your own website. You will immediately notice the small button "Subscribe to RSS feed" which allows any user of your MAGIX Online Album to automatically receive podcasts now and in future.



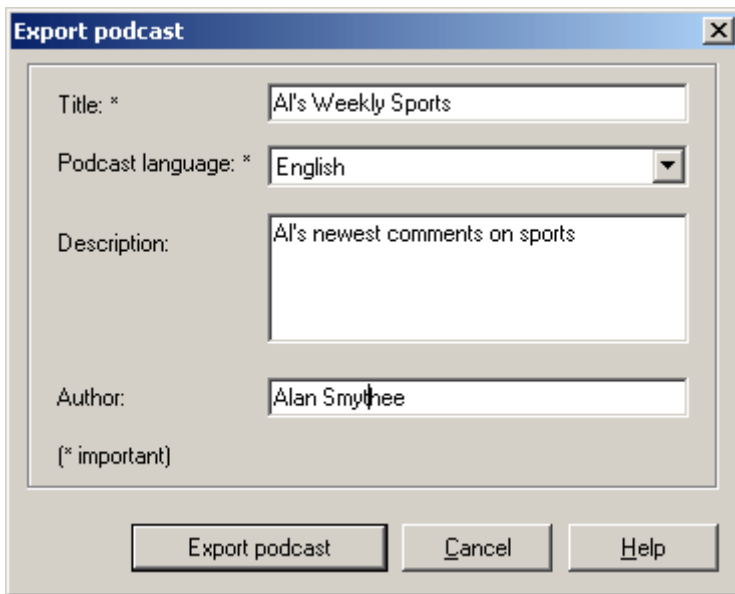
How is your podcast distributed?

Your RSS feed - the technology behind a podcast - will automatically guarantee that your podcast will be sent from your MAGIX Online Album to many large podcatchers, including MAGIX Podcast Service. Here your podcast can now be subscribed to by a worldwide audience. Currently, a podcast created with Samplitude Music Studio 14 and uploaded to MAGIX Online Album is sent to 10-20 international podcatchers. The distribution depends on the topic of the podcast.

You may even find your podcast via a search engine without knowing how long the journey of a cast over the web may be.

With **Make podcast** you can publish your project as a track on your podcast.

The **Export podcast** dialog now opens. Here the required information for your podcast track has to be entered.



**Title:** This is the title of your podcast. A podcast typically contains several tracks, and new ones are added regularly. This is **not** where you enter the name of the podcast to which the track belongs. You can enter the name when you upload to MAGIX Online Album. A podcast then corresponds to an album.

**Export podcast:** The project is encoded as an MP3 and then uploaded to the MAGIX Online Album. You can only upload one

contribution at a time (one file).

**Description:** It is important to enter a unique name and description so that other listeners will find your podcast.

**Person responsible:** Here you enter your email address so that you can be contacted.

# Help menu

## Help Index

Use this command to show the index of the help. From this page you can jump to specific commands or read through the instructions step by step.

## Context Help

Use this command, to get help about any part of Samplitude Music Studio 14. By pressing the Context Help button in the top tool bar the mouse indicator will become an arrow with a question mark. Then click on any button or menu in one of the tool bars. Information about this topic will then be displayed.

## About Help

Use this command for getting information about the online help system.

## About Samplitude Music Studio 14

Copyright notices and version numbers are displayed.

## Start selection / Tip of the day

Use this command to get the tip of the day and to display the start selection window.

For tips, the file >tips.txt< is required in the Samplitude Music Studio 14 folder.

## 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 [www.magix.com](http://www.magix.com)

disk drives, the used system resources utilized by Samplitude Music Studio 14 and the memory usage. Make sure the parameter for system memory used by Samplitude Music Studio 14 never grows larger than the displayed overall system memory available (physical RAM). If this happens, the performance of Samplitude Music Studio 14 is reduced caused by page swapping (virtual memory) done to compensate for the missing memory.

## **MAGIX Auto-Update**

Automatically searches the Internet for up-dates to Samplitude Music Studio 14. An Internet connection must first be provided for this purpose.

## **Encoder activation**

### **Why activate?**

For importing (decoding) or exporting (encoding) specific audio and video formats you require a suitable codec for importing or exporting such formats. Integrating third party de- and encoders usually incurs costs. By offering you such costs as an option and not including them in our programs in general, MAGIX will in future also be able to offer to you our software at good value for money.



### How does activation work?

Activation is fee-based and can be done online or via post/fax. The quickest and easiest way to order an activation code is via the Internet. Ordering the activation code takes just a few minutes via email. The order of your activation code via post/fax takes a few days.

**1** Register and obtain activation code

Order your personal activation code quickly and easily online: It will be sent to you in a few minutes by email.

You can also order your activation code by post or fax.

Activate online...      Activate by post/fax...

---

**2** Enter activation code

Please enter your activation code here and press "Activate".

     Activate

**This is how activation works:**

#### Order activation code online

Click on "Order online..." (Field 1). Your web browser will open where you can register your Samplitude Music Studio 14 first (if you have not already done so). You will then be forwarded to a website where you can request the corresponding activation to be carried out.

#### Order activation code via post/fax

After clicking on "Order via post/fax" (field 2) your user code will appear. This automatically assigns your personal activation code to your PC. Click on "Continue to order form" to transfer your user code automatically to the post/fax form. Now send the completed form as a print out to the address/fax no. mentioned. Once payment has been processed successfully, your activation code will be sent to you in the post/via fax in just a few days. Optionally it can also be sent by mail if an email address is stated.

#### Enter activation code

After receiving your personal activation code you can use the "...activate" option in the "Help" menu to open the activation dialog for the corresponding file format. Copy the activation code from your

email into the input field in the dialog and click on "Activate...".

### **Possible problems and their solutions**

#### **The MAGIX website won't open**

Check your Internet connection, you may have to use manual dial-up.

#### **The MAGIX website won't open**

Check your Internet connection, you may have to use manual dial-up.

#### **The form for post/fax ordering won't open**

- Check that an adequate text editing program is installed and activated (for example, MS Word).

#### **I still haven't received an email with the activation code**

- Check that your inbox isn't full.
- Have a look in your spam folder.

You can always send questions via email to our support whenever you like. Please have the following information at hand so that we can assist you as quickly and as specifically as possible.

- Complete product name
- Exact version number (to be found in the about box in the "About" menu item of the "Help" menu)
- Encoder/Decoder name

Your user code (accessible via the "Activate via post/fax" dialog)

#### **I installed my MAGIX program onto my new computer or built a new hard disk (sound card, memory...) into my old computer. Now my activation code is no longer accepted.**

Activation is linked to a specific computer. Changes to the computer's hardware, for example, integrating a larger hard disk can lead to the computer no longer being recognized as the one for which the activation code has been calculated. This will most likely happen if you install Samplitude Music Studio 14 on a new computer. If this is the case, simply request a new activation code. Since you're already registered as a MAGIX customer, you won't have to pay for another activation.

**Online:** When registering on the MAGIX website use your existing

---

MAGIX login details.

**Post/Fax:** Print out the order form again and send it to the addressee/fax number stated.

# Mouse functions and mouse modes

## Universal Mode

**Right Mouse Button:** Displays context sensitive pop-up menu.  
**Left Mouse Button:** In universal mode a distinction is made between the upper and lower half of a track in the VIP. More mouse functions are available for the left mouse button.

### Mouse functions for the upper half of the track:

- Stretch and move ranges (with Shift)
- Set the start position of the play cursor by clicking next to the object
- Reduce the horizontal zoom level by double-clicking next to a range
- Increase of the horizontal zoom level by clicking on a range

### Select Objects

Single click selects objects (or group of objects.)

Single click + Ctrl selects multiple single objects.

Single click + Shift selects multiple objects, including all objects between the two clicks.

If you click left next to an object, you can sketch a rectangle with the mouse button pressed down by dragging the mouse the right. All objects contained therein are selected (lasso function).

### Moving Objects

Objects (or a group of objects) are moved if you click into their lower half and drag them to the desired position while holding the mouse key.

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. To do this you also have to click the lower half of the object.

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

**Object lasso:** If you click left next to an object in the lower half of the track, you can sketch a rectangle with the mouse button pressed down by dragging the mouse the right. All included objects are selected.

**Volume and panorama lasso:** If you click left next to an object in the lower half of the track, you can sketch a rectangle with the mouse button pressed down by dragging the mouse the right. All contained volume and panorama points are selected.

## Volume and length of individual objects

You can individually adjust the volume and length with the five object handles.

**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.

**Side handles:** Fade-in oder fade-out. The fade curves used here can be set in the Crossfade Editor.

**Lower handle:** Adjusts the length of an object.

## Volume and Panorama Automation Curves

The volume and panorama curves can be used to graphically adjust the volume and stereo panorama curves of the tracks. Movable handle points are created on the curve.

Double-clicking on the automation curve creates a new curve event. Another double click on the same curve event deletes the event. Selected handles can also be deleted by selecting "Delete Curve Handles" from the Edit menu.

A volume or panorama handle is selected simply by clicking. Several handles are selected by holding the Ctrl key while clicking.

If you click right next to an object, you can sketch a rectangle with the mouse button pressed down by dragging the mouse the right. All  
[www.magix.com](http://www.magix.com)

contained volume and panorama points are selected (lasso function).

Selected volume and panorama points can be moved with the mouse. To move several points, you have to hold the Ctrl key while dragging.

## **Curves/Object mode**

This mode differs to the universal mode only in as much that the track is not split in two halves.

Play-cursor, fields and zooming are not set in the upper part of the track, but rather in the beat line above the first track. All other functions are handled by the universal mode (only, one needs to work with split tracks).

The curves/object mode is less complicated to use and is therefore a default setting.

## **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 cannot be changed by accident (therefore called 'Secure Mode').

### **Create ranges**

In Range mode, ranges are sketched by clicking and dragging the mouse pointer while holding the mouse button.

The "Range mode" is a saved mode as objects or curves can not be moved accidentally.

### **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.

### **Quick switch to other mouse modes**

Using the '.' (Period key) temporarily switches to the object mode,

which allows moving of objects.

Using the '-' (Minus key) temporarily switches to the curve mode, which allows moving and manipulating of automation curve events.

## 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 gradients 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.

## Cut Mode

**Right Mouse Button:** Context menu

**Left Mouse Button:** You can use the mouse cursor like a pair of

scissors to crop 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 center tab, the pitch can be altered using pitch shifting.

## 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.

## Wave Edit Mode (only wave projects)

**Right Mouse Button:** Context menu

**Left Mouse Button:** Free-hand drawing function for the wave format.

## Scrub Mouse Mode

**Right Mouse button:** Context menu

**Left Mouse button:** Scrub function. Click into project: Pre-listen with control over play tempo. The project will be played forward and back



controlled by the distance of the mouse pointer from the actual play cursor position. The larger the distance the faster the play tempo. You can set 3 individual scrub modes in the play parameter window .

## **Zoom Modus**

**Right Mouse Button:** Zooms out of the project

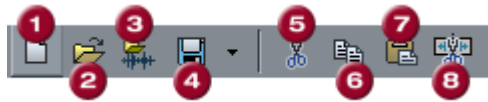
**Left Mouse Button:** Zooms into the project

## Button Overview

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 (left)



- 1 New multi-track project
- 2 Open VIP
- 3 Open Audio file
- 4 Export/Store project
- 5 Save Project
- 6 Cut
- 7 Copy
- 8 Insert

### Tools bar (right)



- 1 Set Marker
- 2 Set Track Index
- 3 Set Sub Index
- 4 Set Pause
- 5 Set CD End
- 6 Set indexes at object borders
- 7 Make CD
- 8 Play Once
- 9 Play Loop
- 10 Play into Range
- 11 Stop
- 12 Record Options
- 13 Multi-I/O-Recording
- 14 Mixer

## Mouse mode bar



- 1 Universal mode
- 2 Range mode
- 3 Curve mode
- 4 Object and curve mode
- 5 Cut mode
- 6 Pitchshift/Timestrech mode
- 7 Draw Volume mode
- 8 Draw panorama mode
- 9 Draw wave mode (wave projects only)
- 9 Scrubbing mouse mode
- 10 Zoom mode

## Positioning bar (left)



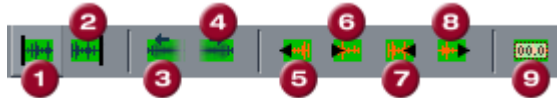
- 1 Cropping at start
- 2 Cropping to left
- 3 Half cropping to left
- 4 Half cropping to right
- 5 Cropping to right
- 6 Cropping at end
- 7 Object edge left
- 8 Object edge right
- 9 Range to last marker
- 10 Range to next marker
- 11 Zoom in
- 12 Zoom out
- 13 Zoom all
- 14 Range as clipping
- 15 1 Pixel = 1 Sample

## Positioning Bar (right)



- 1 Zooming range 1 sec, 10 sec, 60 sec or 10 min
- 2 free definable zoom sections
- 3 Zoom in vertically
- 4 Zoom out vertically
- 5 Zoom all vertically
- 6 Range as vertical clipping
- 7 Zoom in Waveform
- 8 Zoom out Waveform

## 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 start to previous zero crossing
- 6 Range start to next zero crossing
- 7 Range end to previous zero crossing
- 8 Range end to next zero crossing
- 9 Range editor

# Preset keyboard shortcuts

**Hint:** You can create, change and remove your own keyboard shortcuts in the menu Options > Program settings > Edit keyboard shortcuts and menus. Click on the "All" button to open an overview of all shortcuts defined in the menu. Shortcuts in brackets (<>) cannot be changed.

## File menu

New Virtual Project (VIP)... E

### Open

Virtual Project (\*.vip)... O  
HD Wave Project (\*.hdp)... Umschalt + L

### Load / Import

Load audio file W  
Audio importieren... Ctrl + I  
MIDI (\*.mid)... Umschalt + M

Speichern Strg + S  
Speichern unter... Umschalt + S  
Export audio (WAV) Ctrl + E

## Edit menu

Undo Ctrl + Z  
Redo Ctrl + Y  
Cut X  
Delete Del  
Copy C / Ctrl + C / Ctrl + Ins  
Paste from clip V / Ctrl + V / Shift + Ins

### More

Set Silence Alt + Del  
Copy + Silence Ctrl + Alt + C  
Copy as... Shift + C  
Overwrite with Clip Alt + V / Ins

## View menu

### Sections

|                               |             |
|-------------------------------|-------------|
| 1                             | Shift + B   |
| Activate next section         | Page down   |
| Activate previous section     | Page up     |
| Grid                          | '           |
| Snap to grid                  | Ctrl + '    |
| VIP Display mode > Definition | Shift + Tab |
| Modus 1/2 Umschalten          | Tab         |

### Store position and zoom factor

|   |                    |
|---|--------------------|
| 1 | Ctrl + Numeric '1' |
| 2 | Ctrl + Numeric '2' |
| 3 | Ctrl + Numeric '3' |

### Store zoom factor

|   |                    |
|---|--------------------|
| 1 | Ctrl + Numeric '4' |
| 2 | Ctrl + Numeric '5' |
| 3 | Ctrl + Numeric '6' |

### Get position and zoom factor

|   |             |
|---|-------------|
| 1 | Numeric '1' |
| 2 | Numeric '2' |
| 3 | Numeric '3' |

### Get zoom factor

|    |             |
|----|-------------|
| 1  | Numeric '4' |
| '2 | Numeric '5' |
| 3  | Numeric '6' |

### Horizontal

|                        |  |
|------------------------|--|
| Half section left      | Ctrl + Alt + Cursor left               |
| Half section right     | Ctrl + Alt + Cursor right              |
| Section to play cursor | Ctrl + Alt + ,                         |
| Section to range start | Alt + Home,<br>Ctrl + Shift + Page up  |
| Section to range end   | Alt + End,<br>Ctrl + Shift + Page down |
| Zoom in                | Cursor up,<br>Ctrl + Cursor right      |
| Zoom out               | Cursor down,<br>Ctrl + Cursor left     |

|               |                          |
|---------------|--------------------------|
| Show all      | Ctrl + Alt + Cursor up   |
| Zoom to range | Ctrl + Alt + Cursor down |

**Vertical**

|                   |                     |
|-------------------|---------------------|
| Half section up   | Shift + Cursor up   |
| Half section down | Shift + Cursor down |
| Zoom out wave     | Ctrl + Cursor down  |
| Zoom in wave      | Ctrl + Cursor up    |

**Track menu****Track properties**

|                     |                        |
|---------------------|------------------------|
| Mute                | Alt + M                |
| Mute / Inactive     | Ctrl + Alt + M         |
| Solo                | Alt + S                |
| Solo exclusive      | Ctrl + Alt + S         |
| Record              | Alt + R                |
| Monitoring          | Ctrl + Alt + Shift + F |
| Lock                | Alt + L                |
| Volume curve active | Alt + K                |
| Pan curve active    | Alt + P                |
| Edit volume         | Ctrl + Shift + K       |
| Edit Pan            | Ctrl + Shift + P       |

**Object menu****Cut objects**

|                                     |                |
|-------------------------------------|----------------|
| Duplicate and move                  | Ctrl + D       |
| Separate with alternative crossfade | Shift + T      |
| Separate objects                    | T              |
| Trim objects                        | Ctrl + T       |
| Undo object split                   | Ctrl + Alt + T |
| Glue objects                        | Ctrl + Alt + G |

**Move/edit objects/crossfade****Object step size 1**

|                        |                |
|------------------------|----------------|
| (left) Object to left  | Ctrl + 1       |
| Right object to left   | Alt + 1        |
| (left) Object to right | Ctrl + 2       |
| right Object to right  | Alt + 2        |
| Object(s) to left      | Ctrl + Alt + 1 |
| Object(s) to right     | Ctrl + Alt + 2 |

|                                |                |
|--------------------------------|----------------|
| Object start to left           | Ctrl + 3       |
| Object start to right          | Ctrl + 4       |
| Object end to left             | Alt + 3        |
| Object end to right            | Alt + 4        |
| Crossfade to left              | Ctrl + Alt + 3 |
| Crossfade to right             | Ctrl + Alt + 4 |
| Object start offset to left    | Ctrl + 5       |
| Object start offset to right   | Ctrl + 6       |
| Object end offset to left      | Alt + 5        |
| Object end offset to right     | Alt + 6        |
| Increase left volume           | Ctrl + 8       |
| Reduce left volume             | Ctrl + 7       |
| Increase right volume          | Alt + 8        |
| Reduce right volume            | Alt + 7        |
| Increase volume                | Ctrl + Alt + 8 |
| Reduce volume                  | Ctrl + Alt + 7 |
| (left) object content to left  | Ctrl + 9       |
| (left) object content to right | Ctrl + 0       |
| right object content to left   | Alt + 9        |
| right object content to right  | Alt + 0        |
| Object content to left         | Ctrl + Alt + 9 |
| Object content to right        | Ctrl + Alt + 0 |

### Object step size 2

|                              |                        |
|------------------------------|------------------------|
| (left) Object to left        | Ctrl + Shift + 1       |
| Right object to left         | Alt + Shift + 1        |
| (left) Object to right       | Ctrl + Shift + 2       |
| right Object to right        | Alt + Shift + 2        |
| Object(s) to left            | Ctrl + Alt + Shift + 1 |
| Object(s) to right           | Ctrl + Alt + Shift + 2 |
| Object start to left         | Ctrl + Shift + 3       |
| Object start to right        | Ctrl + Shift + 4       |
| Object end to left           | Alt + Shift + 3        |
| Object end to right          | Alt + Shift + 4        |
| Crossfade to left            | Ctrl + Alt + Shift + 3 |
| Crossfade to right           | Ctrl + Alt + Shift + 4 |
| Object start offset to left  | Ctrl + Shift + 5       |
| Object start offset to right | Ctrl + Shift + 6       |
| Object end offset to left    | Alt + Shift + 5        |
| Object end offset to right   | Alt + Shift + 6        |
| Increase left volume         | Ctrl + Shift + 8       |
| Reduce left volume           | Ctrl + Shift + 7       |
| Increase right volume        | Alt + Shift + 8        |



|                                   |                        |
|-----------------------------------|------------------------|
| Reduce right volume               | Alt + Shift + 7        |
| Increase volume                   | Ctrl + Alt + Shift + 8 |
| Reduce volume                     | Ctrl + Alt + Shift + 7 |
| (left) object content to left     | Ctrl + Shift + 9       |
| (left) object content to right    | Ctrl + Shift + 0       |
| right object content to left      | Alt + Shift + 9        |
| right object content to right     | Alt + Shift + 0        |
| Object content to left            | Ctrl + Alt + Shift + 9 |
| Object content to right           | Ctrl + Alt + Shift + 0 |
| Object to position of play marker | Ctrl + Alt + P         |
| Object to original position       | Ctrl + Alt + O         |
| Arrange objects                   | Ctrl + Alt + Shift + A |
| Mute objects                      | Ctrl + M               |
| Create looped object              | Ctrl + L               |

### Select objects

|                        |                        |
|------------------------|------------------------|
| Select all objects     | Ctrl + A               |
| Unselect all objects   | Ctrl + Shift + A       |
| Select next object     | > / Ctrl + Alt + W     |
| Select previous object | < / Ctrl + Alt + Q     |
| Object lasso           | Ctrl + Alt + L         |
| Build group            | Ctrl + G               |
| Ungroup                | Ctrl + U               |
| Object name            | Ctrl + N               |
| Object editor          | Ctrl + O               |
| Object manager         | Ctrl + Shift + O       |
| Take Manager           | Ctrl + Alt + Shift + T |

## Realtime effects menu

|               |              |
|---------------|--------------|
| Elastic Audio | Ctrl+Shift+E |
|---------------|--------------|

## Offline effects menu

|                          |                  |
|--------------------------|------------------|
| Normalize...             | Shift+N          |
| Normalize (quick access) | N                |
| Manual declicker         | Ctrl + Shift + D |

## Range menu

|                                 |   |
|---------------------------------|---|
| Select all as range             | A   |
| <b>Move play markers</b>        |   |
| Marker at start                 | Home  |
| Set marker at end               | End   |
| Move left in side mode          | Arrow left                                  |
| Move left in scroll mode        | Alt + arrow left                            |
| Move right in side mode         | Arrow right                                 |
| Move right in scroll mode       | Alt + arrow right                           |
| Object edge left                | Ctrl + Q                                    |
| Object edge right               | Ctrl + W                                    |
| Track marker left               | F 2 / Alt + Q                               |
| Marker right                    | F 3 / Alt + W                               |
| <b>Manipulate range</b>         |   |
| Range start to left             | Alt + '/'                                   |
| Range start to right            | Alt + '*'                                   |
| Range end to left               | Shift + arrow left / Alt + '-'              |
| Range end to right              | Alt + '+' / Shift + Arrow right             |
| Fold range to left              | Ctrl + Shift + Arrow right                  |
| Fold range to right             | Ctrl + Shift + Arrow right                  |
| Range start -> 0                | Ctrl + Page Up                              |
| Range start <- 0                | Shift + Page Up                             |
| Range end -> 0                  | Ctrl + Page Up                              |
| Range end <- 0                  | Shift + Page Down                           |
| Set range start to left marker  | Shift+F2                                    |
| Set range start to right marker | Shift+F3                                    |
| Split range                     | B   |
| Remember range                  | Alt + F2 - F10 (exception: Alt + F4 and F9) |
| Other...                        | Alt + F11                                   |
| Get range                       | Ctrl + F2-F10                               |
| Get range length                | Ctrl + Shift + F2-F10                       |
| Save marker                     | Shift + 0-9                                 |
| Marker with name...             | ?   |
| Marker with automatic numbering | Shift + #                                   |
| Set marker to record position   | Alt + ?                                     |
| Get marker                      | 1 - 9, 0                                    |
| Restore previous range          | Shift + Backspace                           |
| Box 1                           | Alt + Numpad 1                              |
| Box 2                           | Alt + Numpad 2                              |

|       |                |
|-------|----------------|
| Box 3 | Alt + Numpad 3 |
| Box 4 | Alt + Numpad 4 |
| Box 5 | Alt + Numpad 5 |

## CD/DVD menu

|                    |                        |
|--------------------|------------------------|
| Set track index    | Ctrl + Alt + I         |
| Remove all indexes | Ctrl + Alt + Shift + I |
| CD Index Manager   | Ctrl + Alt + Shift + D |

## Tools menu

### Manager

|                |                        |
|----------------|------------------------|
| File Browser   | Ctrl + Shift + B       |
| Object manager | Ctrl + Shift + O       |
| Track manager  | Ctrl + Shift + S       |
| Marker manager | Ctrl + Alt + Shift + M |
| Range manager  | Ctrl + Alt + Shift + B |
| Take Manager   | Ctrl + Alt + Shift + T |

## Playback menu

|                            |               |
|----------------------------|---------------|
| Play                       | Space bar     |
| Replay                     | Space bar     |
| Play with preload          | Shift + Space |
| Play in range/loop         | Shift + P     |
| Only play selected objects | Ctrl + Space  |

|                                      |                   |
|--------------------------------------|-------------------|
| Stop and jump to<br>current position | Number block ', ' |
| Playback parameters                  | P                 |

### Playback mode

|                    |                          |
|--------------------|--------------------------|
| Auto scroll        | Scroll Lock              |
| Soft autoscroll    | Shift + Scroll           |
| Scrubbin activated | Alt + Shift + Arrow down |

|                |                          |
|----------------|--------------------------|
| Scrubbing left | Alt + Shift + Arrow left |
|----------------|--------------------------|

|                 |                           |
|-----------------|---------------------------|
| Scrubbing right | Alt + Shift + Arrow right |
|-----------------|---------------------------|

|  |   |
|--|---|
| Recording  | R |
| <a href="http://www.magix.com">www.magix.com</a> |   |

|                   |                 |
|-------------------|-----------------|
| Record options... | Shift + R       |
| Input monitoring  | Alt + Shift + M |

## MIDI menu

|                   |                |
|-------------------|----------------|
| Object editor     | Ctrl + O       |
| Glue MIDI objects | Ctrl + Alt + G |
| Track information | Alt + I        |
| MIDI Controllers  | Ctrl + Alt + A |

## Options menu

### Project properties

|                             |                    |
|-----------------------------|--------------------|
| Mixer setup...              | Ctrl + Shift + M   |
| Playback parameters         | P                  |
| Project status              | Shift + I          |
| Project options             | Ctrl + Shift + #/I |
| Track information...        | Alt + I            |
| Synchronization active      | G                  |
| Synchronization settings... | Shift + G          |
| Display options             | Shift + Tab        |
| System                      | Y                  |

## Window menu

|                   |                        |
|-------------------|------------------------|
| Tiled             | Return (Enter)         |
| Restore           | Shift + Backspace      |
| Mixer             | M                      |
| Time display      | Ctrl + Shift + Z       |
| Visualization     | Ctrl + Alt + Shift + V |
| Transport console | Ctrl + Shift + T       |
| Close all windows | Ctrl + H               |

## Help menu

|              |           |
|--------------|-----------|
| Help         | F1        |
| Context help | Shift+F 1 |

## Mouse

|              |                 |
|--------------|-----------------|
| Middle-click | Play Start/Stop |
|--------------|-----------------|

---

|              |  |
|--------------|--|
| Wheel        | Horizontal scrolling                         |
| Shift+Wheel  | You can fine-adjust<br>active buttons/faders |
| + Ctrl       | Horizontal zooming                           |
| + Shift:     | Vertical zooming                             |
|              | (Increase/reduce wave<br>shape size)         |
| + Ctrl+Shift | vertical scrolling in<br>VIPs (tracks)       |

## General settings

You can access the project-independent Samplitude Music Studio 14 settings this way. These settings are also global.

Keyboard shortcut: Y

### System/Audio

In the "System" menu, you have options to fine-tune Samplitude Music Studio 14.

In detail this is:

- Audio playback settings (Playback Devices)
- Audio record settings (Record Devices)
- Program Options
- Paths/Skins
- View options
- Color setup (colors)
- Metronome settings (MIDI options)

Most of the dialogs can also be activated separately via the different menus and are explained at a the corresponding position. In the following you can find the explanations on system settings directly via the "System/Audio" dialog.

## Playback Devices (audio playback settings)

The screenshot shows the 'Playback Devices (audio playback settings)' dialog box. It is organized into several sections:

- Driver System:** Contains three radio buttons:  ASIO,  MME, and  WDM (Multichannel).
- Buffer settings (sizes in stereo samples):** Contains four spinners:
  - VIP Buffer: 2048
  - Test Buffer: 2048
  - HD/Scrub Buffer: 1024
  - Buffer Number: 4
- ASIO Setup:** Contains:
  - ASIO Device: ASIO 2.0 - Maya44 MI (with a 'Control Panel' button)
  - Clock Source: Maya44 MKII Clock (with a '128 / 24 Bit' button)
  - Highest Program Priority
- Device:** Contains two radio buttons:  16 Bit and  24 Bit.
- Monitoring Setup:** Contains two dropdown menus:
  - Monitoring model: Tape Monitoring
  - Monitoring Mode: Software Monitoring

At the bottom of the dialog are three buttons: **OK**, **Cancel**, and **Help**.

## Device Resolution / Device Communication

Here you can specify the bit resolution for communicating with the audio driver for recording and playback. Usually, resolution selection is automatic. If the output device is not able to display at the desired resolution (e.g. 24 bit), an appropriate lower solution will be dithered automatically by Samplitude Music Studio 14 and sent to the driver. In certain circumstances, e.g. if the driver triggers error messages (because it registers certain resolutions but can not actually play/record them), you can force 16 bit driver address here.

## Driver system

You have the choice between MME, multi-channel MME, and ASIO.  
[www.magix.com](http://www.magix.com)

MME is the standard Windows multimedia driver system. If your sound card supports 24/32-bit audio playback, but still experiences problems when playing high-resolution audio files, try using these drivers.

### ASIO

However, if your sound card model uses ASIO drivers, you have some distinct advantages over MME:

MAGIX LoLa is supplied with the program. This is a universal ASIO driver that can be used for many sound cards that do not have their own ASIO drivers..

- Lower latency of the driver system. This results in considerably lower response times for real-time editing. This enables software monitoring of the inputs (and VST instruments). The CPU load of the system drops, more high-quality effects are possible without intermediate bouncing.
- Driver-side synchronization between recording and playback is available. This ensures that overdub recordings are 100 % stable regarding timing. This also allows for mechanisms for compensating latency for effects permitting software FX monitoring.
- ASIO also offers a general method for treating multi-channel audio. All bit-resolution and multi-channel problems which may appear with WDM drivers under Win2K/XP are avoided from the outset.
- Advanced hardware monitoring options via use of ASIO direct monitoring (flexible routing including Pan & Volume, irrespective of the sound card).

### ASIO settings

**ASIO driver:** The drivers of each ASIO device currently available in the system are listed here. "Settings" opens the settings dialog of the sound card driver. Please refer to the sound card manual for more information.

**ASIO software monitoring with track effects:** With this option you can use Samplitude Music Studio 14 as an external effects device. This requires that an ASIO driver is installed for the sound card.

### Buffer settings



**Play/Record buffer:** Specifies the buffer sizes for playback or recording of audio data.

In principle, the larger the buffer, the safer playback will operate on slower systems or at full load. The number of simultaneously playable tracks also increases. However, this reduces the reaction time of the CPU, which can particularly disturb realtime effects. We therefore recommend searching for an optimum compromise for your system.

When recording and playing simultaneously, the record and play buffer have to be the same size.

**RAM Buffer:** This parameter allows you to control the size of the RAM Buffer. The RAM Buffer is used to record and playback audio from RAM Projects. The default size is 4000 and will generally perform well, but you can try smaller sizes for quicker response time.

**HD /Scrub Buffer:** This parameter allows you to control the size of the HD (hard disk) / Scrub Buffer. This Buffer is used to playback audio from Hard Disk Projects (HD Wave). The default size is 8000 and will generally perform well. However, you can try smaller sizes for quicker response time, or larger sizes if you experience drop-outs or errors. T

**VIP Buffer:** This parameter allows you to control the size of the VIP (Virtual Project) Buffer. The VIP Buffer is used to playback and manipulate audio when in the VIP window. The default size is 16000 and will generally perform well. VIP Buffer: As error-free playback is usually more important than fast reaction times, this value should be possible be increased from 16000 to 32000 when playing many tracks. When playing virtual projects or using the mixer only these settings are relevant.

**Realtime Buffer:** Values of 8000 are set as default. This buffer is only used for realtime previewing the effects from the effects menu.

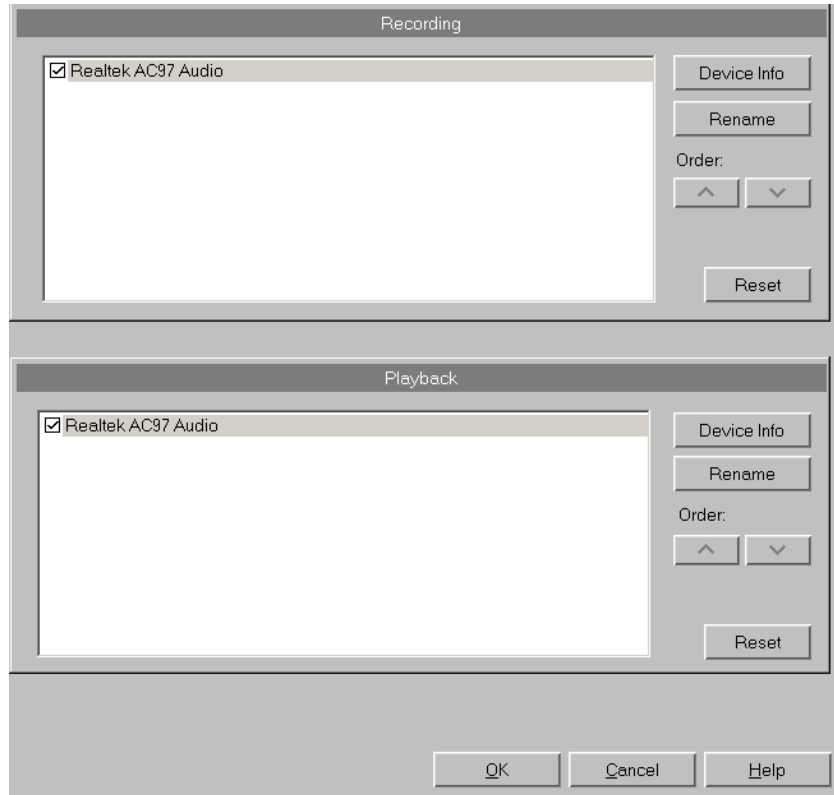
**Buffer Number:** Here you can specify how many of the buffers described above should be used. More buffers increase reliability, but also increase the memory requirements. Reaction times become longer. You can check the current buffer usage levels in the status bar to the bottom right.

**HD record buffer:** 16000 samples are set as a buffer, however, they are used for audio recording and indicate how much data should be written on a block of the hard drive.

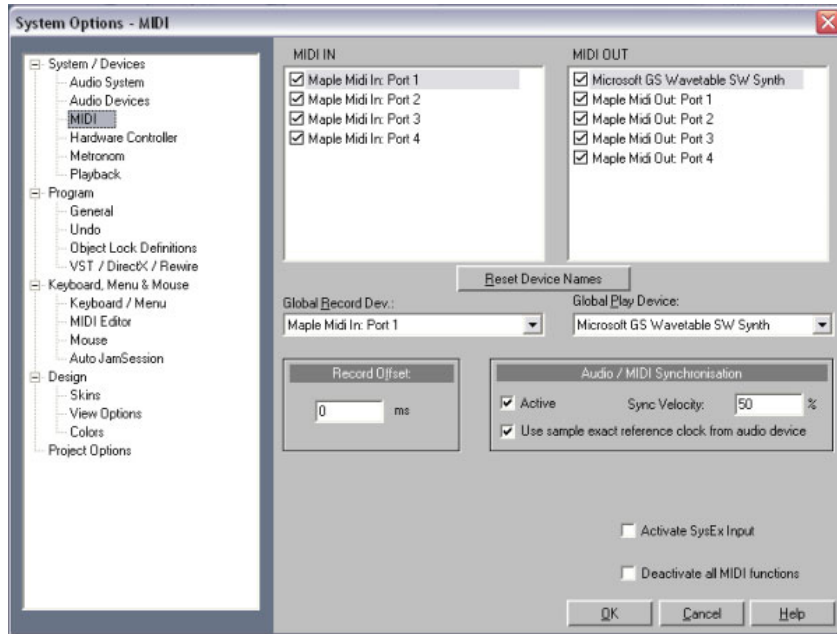
Deactivating non-reachable menus and buttons: If this option is activated, many menus only appear if projects are opened.

### Record Devices

The installed sound cards are listed in the large window at the top of the dialog. With the Device Info you can open the small dialog. There you will find information on the sound card activated in the adjacent window (supported sample rates, manufacturer, etc.).



## MIDI



**Playback devices:** Here you can define which devices are available in Samplitude Music Studio 14 and which are not.

**Global Play/Record Devices:** Here you can specify the driver that Samplitude Music Studio 14 should use to playback MIDI tracks by default. Of course an individual driver or one of the installed VST plug-ins can be selected for any VIP track (only in the VIP track).

**Global Play/Record Devices:** Here you can specify the driver that Samplitude Music Studio 14 should use to playback MIDI tracks by default.

You can also disable all MIDI functions for troubleshooting purposes by checking the option **“Deactivate all MIDI functions”**. Samplitude Music Studio 14 will then refrain from reproducing any MIDI data in any of its project windows.

**Recording Offset:** Here you can enter the delay in milliseconds to be used when starting recording.

**Audio/MIDI synchronisation:** If this box is checked you can specify the intensity of Audio/MIDI synchronization coupling.

0% Very low

50% Medium

100% Very high

### Hardware Controller

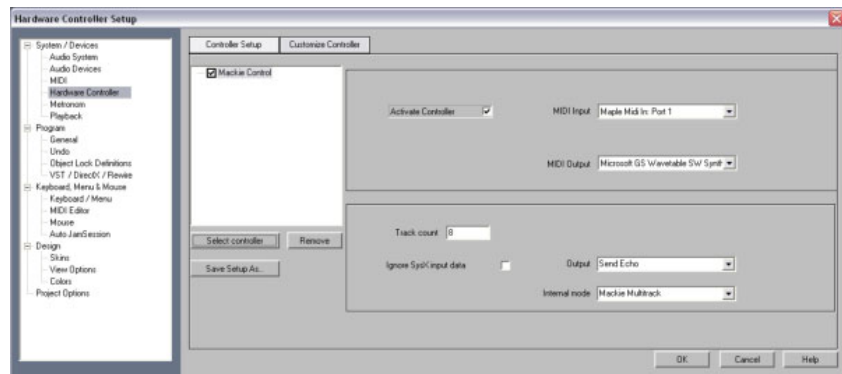
Samplitude Music Studio 14 lets you use external hardware controllers to conveniently control the software. Several presets for common controllers are included (.cps files). The number of supported devices is continuously being increased and adapted to new devices available on the market.

A MIDI interface is required for using a hardware controller. Please ensure that the MIDI functions of the program are not deactivated as they are necessary for addressing the MIDI controllers.

### Installing a hardware controller

Open the **Hardware controller setup** dialog by pressing the "Y" key. You are now in the System/Options dialog. Now open the subcategory Hardware controllers.

The Hardware controller setup contains two tabs. The first one is used for general settings while the second one is used for learning functions.



1. Press the button **Select controller**. Then select your controller or a compatible model from the list. With **Delete** or the Delete key you can remove selected controllers again. You can use the mouse to change the order of the controllers and their internal assignment. A controller that is indented corresponds to an expansion module. You can use the checkbox above the controller or the button **Activate controller** to temporary

- deactivate a controller.
2. On the right you can select the MIDI parts that are connected to your controller.
3. Your controller is ready for action after you have closed the dialog.

### Track number

Specifies the number of tracks in a bank available to the controller. These are usually 8 tracks. Mackie Control and HUI Protocol can only access 8 channels per bank. However, there are also controllers that have a native mode letting you learn several channels. Here you can set this value to 16 or 24 (max. 64). The value is set to "1" for single-track controllers.

### Ignore SysEx input data

SysEx data sent by the controller is not processed by Samplitude Music Studio 14.

### Internal mode

The internal modes are used to adapt Samplitude Music Studio 14 to different hardware controllers that have a different concept. Depending on the mode the controller display is addressed differently and the controller information is interpreted differently by Samplitude Music Studio 14.

**Hint:** If you are using a controller different to the one listed here you should select one from the list that is similar to yours in concept and design.

Internal mode description:

Mackie Multitrack

### Track mode (Standard)

**Activation:** Assignment Track

### Active Control Mode

**Activation:** 2 x Assignment Track

**Function:** Changes the value of the selected element in the mixer with the 1st fader.

### Panorama mode

**Activation:** Assignment Pan

**Function:** Panorama values are shown in the display.

**PhatChannel AUX mode**

Activation: Assignment AUX

Function: Controls all AUX sends in the selected channel.

**AUX track mode**

**Activation:** 2 x Assignment AUX

**Function:** Controls AUX sends of the different tracks in the selected slot.

The active slot can be selected with the used keys for "Mixer track 8 up" or "Mixer track 8 down".

**PhatChannel EQ mode**

**Activation:** EQ assignment

**Function:** Controls the EQ of the selected track using VPots.

The display page is toggled with the keys "Mixer track 8 up/down".

**PhatChannel EQ mode band type**

**Activation:** 2 x Assignment EQ

Function: Controls the EQ of the selected track using VPots in a different order.

**Plug-in mode**

**Activation:** EQ assignment

**Preset:**

- Select the plug-in by pressing the corresponding VPot, e.g. 2nd plug-in with 2nd VPot. ("Push VPot" can also be assigned to a different key).
- Now you can control all parameters of the corresponding plug-ins with the vpots. The display page is toggled with the keys "Mixer track 8 up/down".

Frontier AlphaTrack

**Panorama mode**

**Activation:** Assignment Track

**Features:**

- Panorama control
- Navigate to markers
- Move selected track

**Active Control Mode**

**Activation:** 2 x Assignment Track

**Function:** Changes the value of the selected element in the mixer with the fader.

**AUX mode**

**Activation:** Assignment AUX

**Features:**

- Select other track
- Select other slot
- Change AUX send of the selected track/selected slot

**EQ mode**

**Activation:** EQ assignment

**Function:** Controlling the input volume, frequency and quality bands of the selected EQs.

The bands are selected with "Mixer track up/down".

**Plug-in mode**

**Activation:** EQ assignment

**Features:**

- Select track
- Select plug-in slot in the track with "Mixer track up/down" key
- Now you can control 3 parameters of the corresponding plug-ins with the vpots. The display page is toggled with the keys "Mixer track up/down".

Frontier Tranzport

**Functions:** For transport only

JLCooper (MCS)

**Track mode (Standard)**

**Activation:** Assignment Track

**Active Control Mode**

**Activation:** 2 x Assignment Track

**Function:** Changes the value of the selected element in the mixer with the 1st fader.

**AUX mode**

Activation: Assignment AUX

Function: Controls all AUX sends in the selected channel.

**EQ mode**

**Activation:** EQ assignment

**Function:** Controls the EQ of the selected track using VPots.

**Output**

**Deactivate:** If your PC does not have a motor fader, you can use this

option to deactivate the transmission of controller data.

**Normal send:** The MIDI controller data is received and processed. Program data (e.g. fade changes in the Mixer) are sent to the controller.

**Send Echo:** The MIDI controller data is received and processed and forwarded straight back to the controller. Controllers need this for their displays (lamps, LEDs). Program data (e.g. fade changes in the Mixer) are sent to the controller. If your controller has difficulties with this (e.g. .Logic Control), activate "Normal Send".

**Send Echo (without Fadertouch):** The MIDI controller data is received, processed and returned to the controller. However, the fader values are not sent back while it is moved (activated fader touch). Only the last value is released to prevent increased data volumes. Program data (e.g. fade changes in the Mixer) are sent to the controller. If your controller has difficulties with this (e.g. Logic Control), activate "Normal Send".

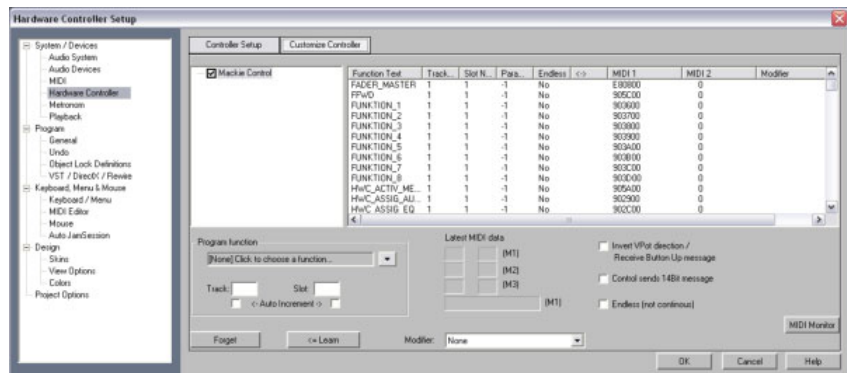
### Adjusting the hardware controller/creating your own set

Most devices available on the market understand protocols such as Mackie Control or HUI. If your device is not included in the list simply select the nearest compatible device.

If you can't find your device in the list or want to change the default settings, you should proceed as follows:

Before adapting an existing template to your controller you should save it under a new name using the **Save as...** option.

Now go to the tab "Adapt controller". The following dialog will appear:





Use Mackie Control if your controller can emulate this mode. In this case 7-bit values are transmitted. You can see this in the MIDI Input Monitor. Pressing a key displays a new line, another line is displayed upon key release. HUI receives 14-bit messages, i.e. two lines respectively.

In the parallel opened Mixer you can now select the element you want to program on your controller. The saved function is displayed in the section **Program function**, e.g. Fader Master for the fader in the Samplitude Music Studio 14 mixer. Alternatively you can open the context menu. It contains a list of all remotely controllable functions in Samplitude Music Studio 14. You can now assign them to your controller one after another. The upper commands are Mixer-only functions and intended only for connecting the controller. The lower ones represent the entire menu structure of Samplitude Music Studio 14. This allows you to assign any menu command to a controller key. Please note that the test LED of the controller is not active for menu commands.

Now move the fader or press the corresponding key on your controller. The MIDI data of this element is displayed in the section **Last MIDI data**. Press the **Learn** button to allocate the new data to the function.

**Note:** Hardware controllers with touch-sensitive faders transmit data to Samplitude Music Studio 14 when released again, so that the "learn" button has to be pressed after moving and before releasing a fader!

If you want to use a key/fader for multiple tracks, e.g. learn mute, select Mixer/Tracks/Track Mute" in "Samplitude Music Studio 14 functions". Now activate the check for "Track **Auto Increment**" and start programming the first track. After pressing **Learn** the value of the track is automatically increased by "1". All you have to do is to actuate the next element on your controller and press **Learn** again.

You can use the "Delete" button to unselect a function assignment. However, you can also simply overwrite the data by relearning.

If a controller should move in the wrong direction after programming, please repeat the programming sequence and activate **Invert Vpot direction upon button release**.

If you want to know which functions have been assigned to a key of

your controller, simply actuate this key. The data appears in the list of assigned functions.

This way you can let Samplitude Music Studio 14 learn individual control elements of your hardware controller.

**Hint:** If "Object Mode" is activated, you can jump to the next object with the Rewind/FastForward keys of the transport control of your hardware controller. The same applies to Marker Mode, where you can jump to the previous or next controller in the project.

### Metronome Options

Please also read the section "Menu Options > Program settings > Metronome options".

## Playback parameters

Stop at position  
 Check Space key for playback stop also in background  
 Enable Ctrl+Space for Play Selected Objects in Arranger

Pre-roll time (seconds):   
 maximum Reverb time for objects without Fadeout:

**Autoscroll**  
 active       soft  
 active for Zoom <1s       Page

**Scrubbing (numeric 0)**  
  
 Speed:        1 Track

Global Play Device:

Keyboard shortcut: P

The playback rate can be adjusted with **Samplerate**, as far as the sound card permits this. Use the varipitch feature to adjust the speed during playback or for non-supported sample rates.

**Device:** This allows you to define the device used for playback of if playback is to occur via a card. This is particularly important if you have several sound cards installed on your computer.

Use **Autoscroll** to activate a feature which is especially useful when working with long HD Wave Projects: The graphical display always changes when the Play Cursor (position line) leaves the visible section. This way you always have a good overview of the settings, whereby it has proven most sensible to display the current project in two sections (Setup > 2 sections), one displaying the entire project

and one in a useful zoom depth with Autoscrolling.

You can choose between page and soft scrolling. But be careful: Scrolling requires CPU power (depending on the processor, graphics adaptor and resolution), so that the CPU may be overloaded in critical situations which may result in playback dropouts. You should then deactivate autoscroll mode.

**Scrubbing:** If you press the Insert key (Insert or 0 on the number pad), Samplitude Music Studio 14 will switch to "Scrubbing Mode". This means that the playback speed can be controlled directly by the mouse. The further to the right the mouse goes, the faster Samplitude Music Studio 14 plays.

In comparison to many HD recording systems, this even works in a virtual multitrack project.

Use the Scrubbing Mode to find passages, crackling, etc. in material – the older generation of sound engineers are, no doubt, very familiar with this method from analog tape editing.

There are 2 scrubbing modes available (in the playback parameter window - Key P):

**Relative:** The relative distance between the play cursor (position bar) and the mouse position can be used to control the speed. The play cursor follows the movement of the mouse.

**Absolute:** You can also use the absolute position of the mouse in the window to control the speed:

- **Left border** double speed backwards,
- **Center** = no movement,
- **Right border** = double speed forwards.

**Tip for scrubbing:** For buffer sizes (4000, 2000 samples) scrolling is "softer". Test if your computer functions at this buffer size without any playback errors. Using Soft Scroll Mode guarantees that working on your computer is easy and fast.

### **Varipitch / Practice mode**

Samplitude Music Studio 14 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, and then you can change the playback speed in

various kinds:

**Practice mode:** When the Practice mode is activated the pitch remains regardless of the playing speed. This mode is suitable particularly for pieces that have to be played more slowly, for practice, e.g. a guitar accompaniment, because otherwise excessive demands might be made on the player.

**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.

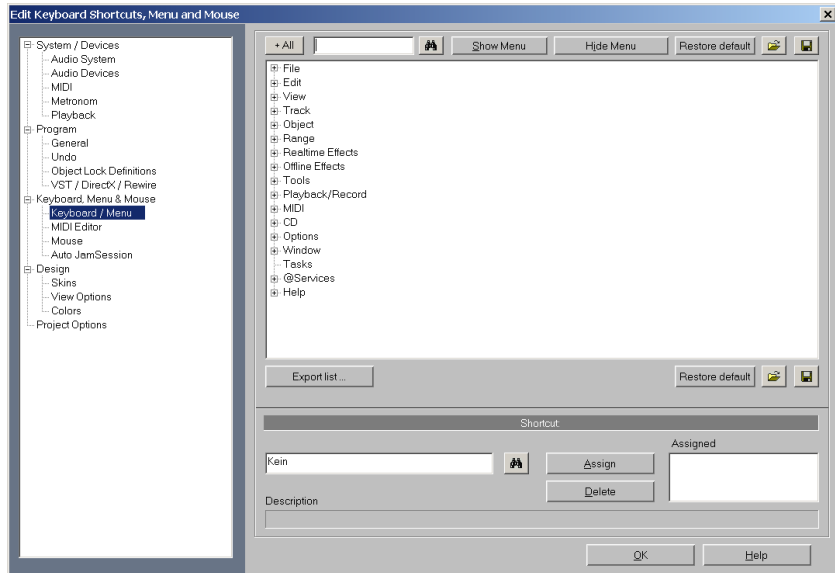
**Important:** Varipitch works also while recording! So you can set the pitch to -2 halftones, sing a song into the computer, then switch off the Varipitch – your track is transposed two halftones higher!

Then deactivate Varispeed and your voice will reach unknown highs. But be careful: You'll sound like Micky Mouse if you apply to much!

**Key:** P

## Editing keyboard shortcuts and menus

In this dialog, you can freely choose the keyboard shortcuts for every menu function in the main menu or for the Auto Jam Session of Samplitude Music Studio 14. This way, it's possible to set the commands you use most often to a special key combination so they can be opened quickly.



When you close Samplitude Music Studio 14, the shortcut settings are saved in the Windows folder file `MusStu40.ini`, so that they are automatically made available the next time the program is opened.

It is, however, also possible to export sets of shortcut keys or menu definitions in files.

The display of the entire menu tree is the key function of Samplitude Music Studio 14.

Here, you can select which menu point you want to create a new shortcut or if the menu point should appear in the main menu of Samplitude Music Studio 14.

### Shortcut list

**Export list:** You can use this to export the shortcut as a list in a text file in different formats. A window will open in the Shortcut Editor which displays a complete list of the current shortcuts. The included

Copy button can be used to copy this list to the Windows clipboard and then edit and print it using a text editor.

**Reset:** Activates all preset shortcuts again.

**Load/Save:** Previously saved shortcuts are loaded and activated or the current shortcuts are saved under a file name.

### Shortcut

To add a new shortcut, click on the desired menu item and then on the input box at the bottom. Then click on the shortcut key.

You can also use combinations of any key with Shift, Alt or Control. Please do not use the space bar, ESC or Insert key (0 in the number block), as the functions of these keys are permanently set in Samplitude Music Studio 14 and cannot be changed.

**Assign shortcut:** This button can be used to activate the key sequence on the left as a shortcut. A warning will be displayed if this command should already have been assigned. However, you can also check in advance whether the key combination has already been assigned. To do this, click on the Search button (binoculars) once the key sequence has been entered. An assigned menu command will then be displayed in the top list.

**Delete:** Deletes the selected shortcut.

**Assigned:** Shows all the shortcuts assigned to menu points. You can assign menu commands to multiple shortcuts.

### Auto JamSession

Editing this is basically identical to editing the main menu. However, you cannot set any keyboard shortcuts, but rather MIDI commands or joystick actions.

The commands listed here don't exist in any menu. For this reason, the buttons "Show/Hide menu point" and "Reset" (from show/hide menu command) are greyed out. Similarly, the list cannot be exported or saved.

**Reset:** Activates all preset shortcuts again.

Note: The MIDI input device can be set in the metronome options.

To assign a new shortcut to a command, enter the type of shortcut in the flip menu “Status”.

Note: MIDI commands can also be learned. If you should use control change events for remote controlling, you can choose between “CtrlUpDn” and “CtrlChg” in the “Status” menu.

- **CtrlUpDn:** This is a special adaptation for use with a sustain pedal from the MIDI keyboard. A command is activated only when the pedal is “tapped”lightly, because, when playing, the sustain pedal is typically held longer than it takes to actually activate an assigned command.
- **NoteOn:** Note On events are always transmitted when a key on the MIDI keyboard is pressed. It’s also possible for other keys of the MIDI keyboard to transmit Note On events. Please refer to the instructions of your MIDI device.
- **CtrlChg:** Control Change events are transmitted to the MIDI device. The MIDI device can also be programmed so that pressing a key will transmit such a Control Change event. Please refer to the instructions of your MIDI device.
- **PrgChg:** Program Change events are actually there to effect a sound change in the sound generator.
- **PitchWheel:** The Pitch Wheel normally serves to modulate the pitch of the sound played. When using it, a quick movement is all that’s necessary to execute an assigned command.
- **Joystick1/2:** Use the buttons 1-4 of your joystick to control the Auto Jam Session. In the field beside it, “Button”, enter the corresponding number of the desired button. Here, you cannot set the channel as joysticks don’t have anything to do with MIDI devices.
- **Channel:** MIDI Channel 1 is always set as the default. In case your MIDI device transmits to a different MIDI channel, you can set it here.
- **Assign:** With this button you can activate the specified MIDI event or set the joystick button as a new shortcut. A warning will be displayed if this command should already have been assigned.
- **Delete:** Deletes the selected shortcut.
- **Assigned:** Shows all the functions of shortcuts assigned to menu points. You can assign menu functions to multiple shortcuts.

### Learning MIDI commands

1. Select the function you want to remotely control via MIDI from the

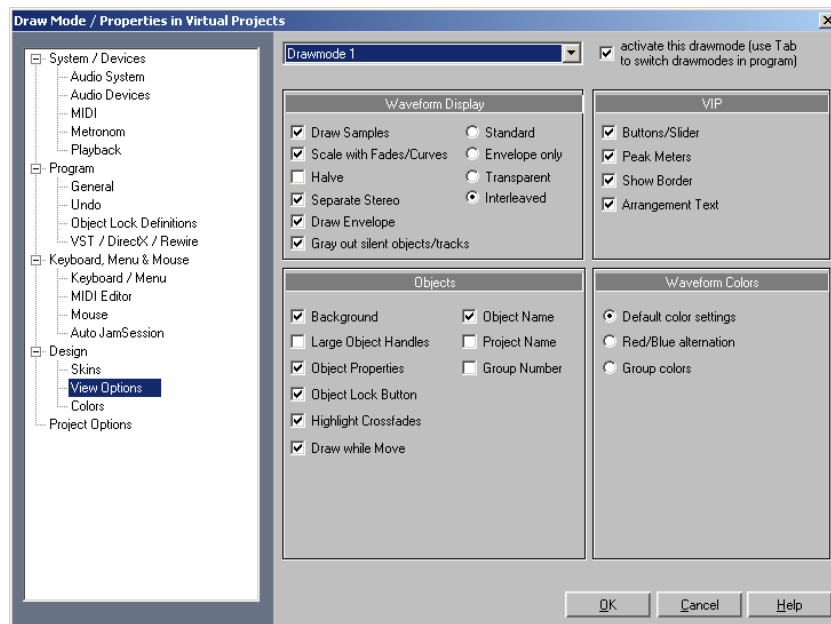


- list at the top.
2. Click on the “Learn” button. This now turns red.
3. From the MIDI device, activate the MIDI command to start the function.
4. In the dialog, click on the “Assign” button to complete the learning process.

## Definition

This dialog can be used to change and select both alternative display formats for objects in virtual projects.

Here the properties of the display for both formats can be selected.



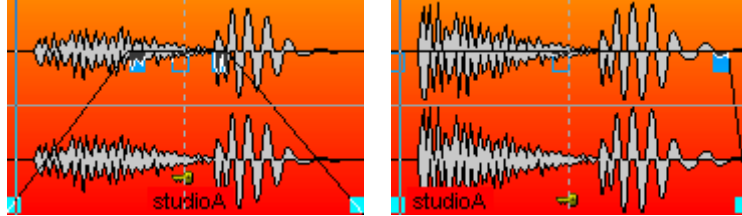
### Draw mode 1/2

Switching between the two modes is possible by pressing the Tab-key. You can also toggle between Mode 1 and Mode 2 by selecting the appropriate mode from the Menu item.

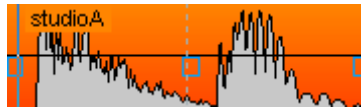
### Waveform Display

**Draw Samples:** The audio sample representation is switched on. Usually you will leave this on, but it can be advantageous to deactivate sample representation if you want to see the volume and pan curves more clearly.

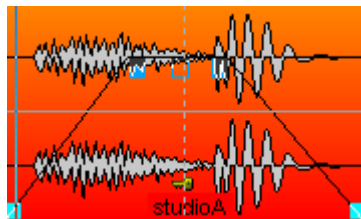
**Scale with Fades/Curves:** In this default representation mode the Waveform drawing is scaled according to the settings of the Fade In/Out or Volume curves. This way the decay of the sound during a Fade Out, or volume changes caused by a volume curve, are more obviously visible.



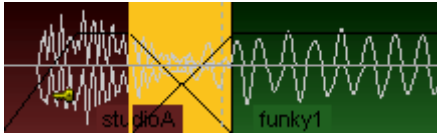
**Halve:** The graphical representation of the audio material can be displayed as a whole Waveform or half the form for higher definition. Checking this box will display the Waveform with half its information. This mode is recommended, because the Grid function (key #) and the vertical Zoom functions (Ctrl + cursor up/down) are perfectly adapted to this draw mode. Volume Curves results also display better in this mode.



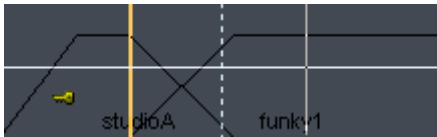
**Separate Stereo:** If this option is active, stereo tracks in VIP Projects are displayed with a two-channel Waveform. This allows you to expand the display to both channels rather than displaying just one composite channel display. Please keep in mind that this will also affect the Wave Project display for stereo Wave Projects.



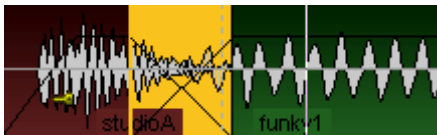
**Envelope only:** When this radio button is selected only the Waveform outline (envelope) is drawn. This can be useful when constructing crossfades, allowing for easier view of the overlapped Waveforms.



**Transparent:** When this radio button is selected the colors of both crossfade Waveforms are overlapped. This works best in front of a dark background (default). We recommend that you combine this mode and the Draw Mode option Waveform Colors > Red/Blue alternation to display the crossfade areas optimally.



**Interleaved:** When this radio button is selected a sample of the left Object and a sample of the right Object is drawn alternately within a crossfade. You can then visually assess the fade area, especially if the adjacent Objects have different colors.



## VIP

Various VIP components (Buttons/Slider, Peak Meters, Show Border, Arrangement Text, and Vertical Auto Zoom) can be activated and deactivated here.

### Objekte

**Background:** Each Object in the VIP Track can be assigned it's own color. The color is displayed if this option is checked.

**Object Name:** Objects in VIP windows can have their own name. If this option is checked, the Object name is displayed.

**Large Object Handles:** When selected, larger handles for Objects and volume / panorama curves will be displayed.

**Project Name:** Samplitude Music Studio 14 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.

**Object Properties:** This shows you which Object related effects are applied to 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.

**Object Lock Button:** When locked an Object cannot be moved. Setting this option will let you comfortably change the lock/unlock status of an Object by clicking on the key in the lower region of the Object.

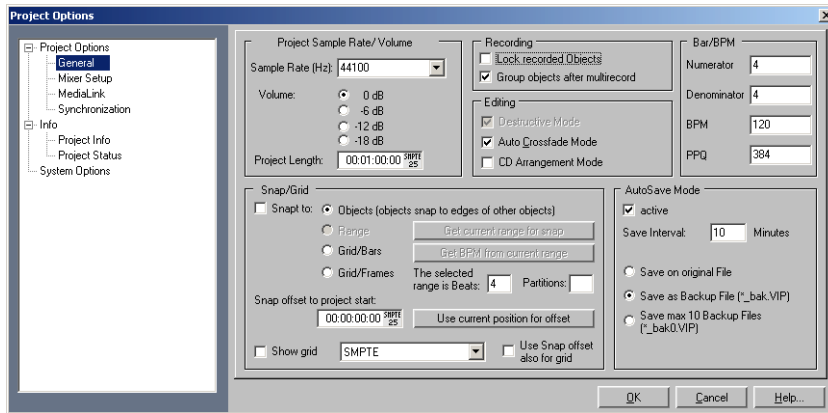
#### **Waveform Colors**

**Red/Blue alternation:** This representation mode colours the Waveforms of adjacent Objects alternately red and blue, to improve the visibility of crossfades in the Transparent and Interleaved drawing modes.

# Project settings

Here you will find all information regarding settings that are dependent of a WAVE project (.HDP) or Virtual Project (.VIP).

## Project Options



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:** In Project Information for virtual projects you can reduce the level in 6 dB steps. This volume reduction is necessary for multi-track virtual projects as the sum of all tracks in this case must not exceed 16 bit (0 dB) in this case. 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.

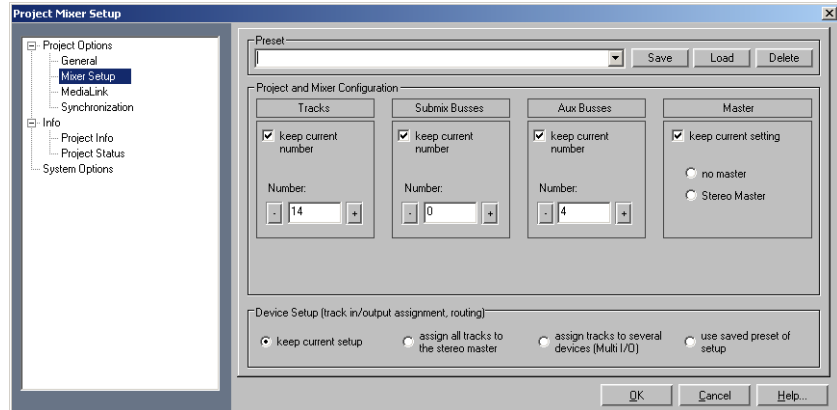
Please keep in mind that Samplitude Music Studio 14 reduces the volume of Wave Projects to the setting in the Virtual Project that uses the Wave Project. This allows you to switch between the VIP and the Wave Project without the usual encounter of volume differences between the Project types. If a Wave Project is opened by itself (without using the Wave Project in a VIP), Samplitude Music Studio

14 automatically uses the maximum volume playback.

Key: I

## Mixer Setup

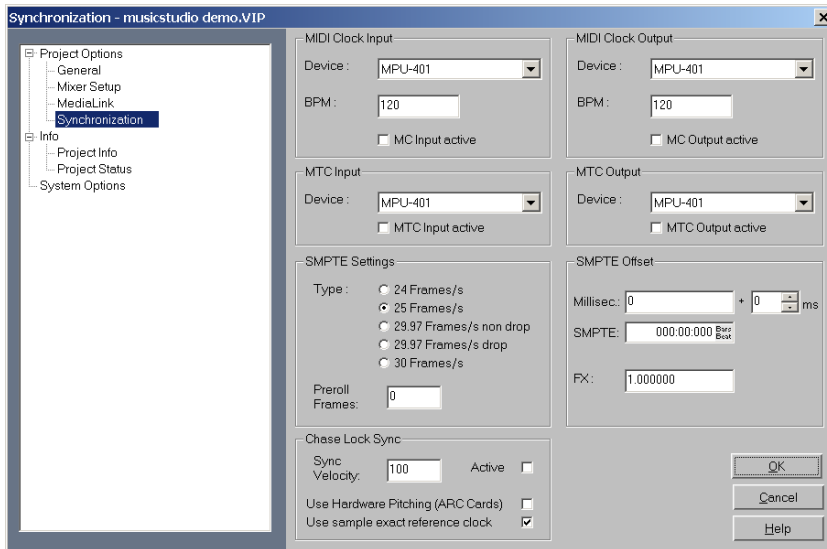
Opens the mixer setup dialog where you adjust the general settings for the mixer routing design.



**Project and Mixer configuration:** Here you can set the number of VIP and Mixer tracks as well as the submix and AUX busses.

**Device Setup:** Here you can set the various routings.

## Synchronization / Synchronization settings



**Master synchronization:** Samplitude Music Studio 14 will slave to SMPTE/MTC/MC and can act as the master for MIDI Clock and MIDI Time Code.

Sync output is directly linked to audio playback so that no delays occur between Samplitude Music Studio 14 and external devices, even with long tracks. This new synchronization technology was specially developed for connecting Samplitude Music Studio 14 with MIDI sequencers such as Cakewalk, Cubase, Logic, Evolution Audio, MIDI Connections, etc, that can run on the same PC in multitasking mode.

In this case you should use a virtual MIDI router for internally linking the programs, such as "Hubis MIDI Loopback" from the Samplitude Music Studio 14 studio CD-ROM.

Wherever possible please use MTC -25 frames/sec. as, unlike with MIDI clock, no tempo changes have to be taken into account.

If Samplitude Music Studio 14 is running as Master, please set the FX factor to 1.0.

**Slave synchronization with real "chase lock":** Samplitude Music Studio 14 supports real "Chase Lock" synchronization, i.e. audio [www.magix.com](http://www.magix.com)

playback can be controlled precisely by a received timecode signal (MC or MTC). In this case not only the starting point of audio playback is controlled externally, but sync also controls playback speed if "Chase Lock" is activated. This way Samplitude Music Studio 14 can follow the sync of analog tape machines or VCRs for quite some time, which always have a certain slip, without delay.

This is a very powerful feature which many "professional" systems only offer at a high price!

By entering the "Sync Velocity" you can influence the speed of the tempo adjustment. The greater the sync velocity, the faster Samplitude Music Studio 14 will follow a tempo change of the sync master; however, this also means that the pitch fluctuation in the audio material is greater.

Only use values greater than 100 if Samplitude Music Studio 14 does not synchronize precisely in standard cases.

The "Chase lock" synchronization uses a realtime resampling routine requiring a certain CPU power. Anything as fast as a Pentium 90 processor should suffice.

When using the hardware pitching feature, the Chase Lock synchronization uses direct access to the sample rate of the sound card in 1 Hz steps. This achieves particularly precise synchronization without additional CPU load. However, the sound card has to support this feature, as is currently the case with the ARC44 and ARC88 4 or 8 channel.

**MIDI Clock Input Device:** Here the driver must be selected from which Samplitude Music Studio 14 will receive MIDI Clocks for the synchronization.

**BPM:** Here you have to enter the tempo at which you want to receive MIDI clocks.

**MIDI Clock Output Device:** Here you have to select the driver via which Samplitude Music Studio 14 should send MIDI clocks for synchronization.

**BPM:** Here you have to enter the tempo you want to send MIDI clocks.

**SMPTE/MTC Input Device:** Here you have to select the driver via which Samplitude Music Studio 14 should receive MIDI timecode for



synchronization.

**Sync velocity:** The greater the sync velocity, the faster Samplitude Music Studio 14 will follow a tempo change of the sync master; however, this also means that the pitch fluctuation in the audio material is greater. Only use values greater than 100 if Samplitude Music Studio 14 does not synchronize precisely in standard cases.

**MTC Output Device:** Here you have to select the driver via which Samplitude Music Studio 14 should send MIDI timecode for synchronization.

**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.

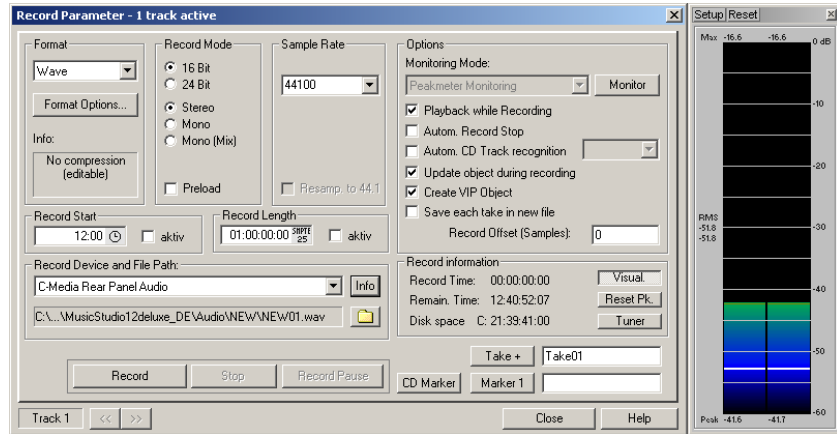
**Pre-roll-Frames:** You can specify, how many frames Samplitude Music Studio 14 is to ignore before the synchronization starts. Here you can account for the fact, that certain analog instruments need time to reach the correct speed. In order to have Samplitude Music Studio 14 link up to the proper time values, a certain pre-roll frame count can be specified.

**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 Samplitude Music Studio 14. 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. Samplitude Music Studio 14 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".

Key: G

## Recording options



Keyboard shortcut: R

**Record mode:** Here you can choose between stereo and mono, recording into the RAM via RAM Wave projects, or onto hard drive via WAVE projects.

**Preload:** The recording is prepared, all buffers will be loaded. A requester will appear enabling you to instantly start recording when the Record button is clicked. If disabled, there will be a short pause (depending on the size of the Buffers) before recording actually begins.

**Sample rate:** This option allows you to select the sample rate of the recording. Your audio card must support the selected sample rate or recording will not work.

**Resample to 44100 Hz:** With this button you can specify whether it should be recorded at 48 kHz or 32 kHz or even be converted into 44.1 kHz while recording. This is useful when recording from DAT recorders via a digital sound card if the material is to be used on CDs with 44.1 kHz.

**Rec. dev:** Here you can select the sound card driver that should be used for recording. If there is no entry here, or a wrong one, then your card is not installed on Windows correctly. Try to do this via System/Options > Driver.

**Info:** Here you can access a dialog that provides information on the

sound card properties. If your sound card supports 24-bit recording, you can activate this record mode via the Info dialog.

**Playback:** Playback while recording with record offset: Here simultaneous recording and playback can be activated if supported by the sound card(s). If you record and play through multiple sound cards, small differences may come about during playback of longer passages. This is as a result of sample rates of cards which are not 100% synchronous. Ideally you should use the same card for recording as you do for playback. Should your card have a delay between the start of recording and the start of playback, you can balance it out in the Record Offset field.

To do so, play a sample with a noticeable impulse at the beginning and record it using a loop from the sound card's output to the input. Then zoom into the VIP to such a depth that you can precisely pinpoint the delay and gauge it.

**File name/file path:** The name of the audio file that is to be created and the preset directory path are displayed in the bottom record window. Both can be changed by clicking on the folder button.

**Set CD Track marker:** While recording you can set track markers by clicking on "Set CD Track Marker" in the record dialog.

**Automatic record stop:** If this button is activated recording will cease automatically after approx. 16 seconds of silence. This means that you can record without having to stop when the recording comes to an end.

**Automatic CD track recognition:** If this button is activated track markers are automatically placed at the end of the pauses after a track.

**Create VIP project:** With this mode you can specify whether all recordings should be automatically integrated into a virtual project or not.

**Monitor:** Here the LED control displays can be activated. Please note that the correct recording device must be selected prior to beginning this. While recording, the LED control displays move slower, do, however, show each maximum level.

**Visual:** Indicates whether the level of the signal that is to be digitized is adjusted correctly. To set the level, play the loudest part of the

material you want to record and monitor the display.

Too low level settings result in lower sound quality, too high settings in so-called "clipping".

You can adjust the record level either on the sound source or with the mixer of your sound card.

**Osci./Correl:** Here you can open the oscillograph or phase correlator. The oscillograph displays the wave form at the input in a scaleable window.

The phase correlator displays the phase level of a stereo signal. A vertical line corresponds to a mono signal, and a horizontal line corresponds to a 180° phase-inverted signal which usually indicates an incorrect cable connection.

**Reset peak parameter:** Here you can reset the LED peak meter (Peak Hold Display).

**Tuner:** This option allows you to tune guitars and other string instruments (tune). The visualization will display a calibration line at note A0. If different tones are played, the deviation is indicated by the calibration line, and the tone pitch is displayed numerically and can be corrected accordingly.

**Record offset:** Here you can enter the offset in sample values. which may develop in "Record-while-play" mode between playback and record start of the sound card. This allows you to balance the delay between record and play start of some cards. Typical values are between 20 and 1000 samples. You can determine this value by playing a project with a distinct start in a multitrack VIP and recording it simultaneously. You can then measure the offset precisely using the zoom functions.

**Set Marker 1:** While recording you have the option of selecting a marker at the current position of the play cursor (position line), in order to, for example, correct an erroneous passage later.

**Record:** Click this button to start recording. Please note that with active external synchronization as a "Slave", the recording does not start immediately, but rather at the start of each master.

**Stop:** Ends a recording process. Should the computer be overloaded, for example, as a result of swapping or disk access, the recording can be cancelled by pressing the right mouse button.

**OK:** Closes the record window.

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