



energyXT2.5

Digital Audio Workstation



- ✓ **Software and Hardware Setup**
- ✓ **The Basics**
- ✓ **Recording and Mixing Audio**
- ✓ **MIDI Recording Step by Step**
- ✓ **Building a Virtual FX Rack**

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Chapter 1 Introduction

What is energyXT?

EnergyXT is an integrated powerful music production environment. A one-stop solution for making music so to speak. Whether you are a song writer who wants to record "hand-made" music, a producer who wants to tap the full potential of a software-based production environment, a sound designer who wants to shape sound, or a podcaster who is looking for a solution to simply cut his casts: energyXT is for you.

EnergyXT comes with all components of a professional recording studio such as a modular mixer, versatile EQs, a MIDI sequencer and the potential to use an unlimited number of commercially and freely available VST instruments and effects — all powered by a pristine and streamlined audio engine. It even brings along its own integrated sound sampler and synthesizer. Record audio, incorporate external sound modules, play top-notch software synthesizers and create mixes in a mixer environment, where nearly every parameter can be automated. There's much more to discover in energyXT. Find out for yourself by reading this manual.

Main features at a glance

EnergyXT has unique advantages over other music production suites making your work much easier and more efficient.

First of all it's organized in views rather than in window layers. MIDI and audio events can be edited right within their residing tracks. In fact every parameter and function can be controlled in one of the three main views without having to switch between different windows.

EnergyXT supports drag & drop transfers of VST instruments, effects and audio files and makes setting up a new production environment just a matter of a few minutes.

Each component of energyXT is part of a modular environment where instruments and mixer channels can be freely connected to each other. This opens up a variety of applications in which some sequencers simply fail.

Best of all, you can take energyXT with you anywhere you want to. Just copy the application files to a USB flash drive and you're ready to make music within a minute on every computer without having to undergo lengthy installation and configuration procedures.

The Sequencer

The Sequencer is the heart of energyXT. That's where the music is being composed. The Sequencer supports MIDI and audio tracks for recording plus additional folder tracks for grouping. Events are clearly organized in Parts which can be freely distributed in a classic timeline view. Every Part features a powerful integrated piano roll editor for editing notes and controller events such as Modwheel or Pitch Bend. To avoid a high CPU load, tracks can be frozen to temporarily free up resources. Modern hooks and lines can be simply created with the multi-mode Arpeggiator and the Swing / Shuffle control, whereas rhythms can be easily imported as REX2-slices or WAV / AIFF files for a fast production process. The playback options for audio include high-quality timestretching, pitched and reverse playback.

The Drum Track

The Drum Track of energyXT is a special audio track with a built-in drum sampler and a powerful drum machine-like editor for easy rhythm creation. Trigger notes are created by placing note events in a grid which also grants direct access to volume, pan and filter cutoff parameters. Samples are organized in sampler cells and can be saved as a drumset preset for later use.



The Mixer

The Mixer is the control center of energyXT. It houses all audio signals as separate channels which can be added dynamically. Parameters can either be automated from the Sequencer or controlled remotely from an external MIDI controller. With an unlimited number of possible VST effects, both insert and send, 4-band channel EQs and additional submix groups, mixing is as comfortable as it gets.

The Modular environment

The Modular environment is the core of energyXT and all its components. It serves as a multi-functional patchbay where each synthesizer, audio input / output, audio channel and effect can be freely routed. This opens up some exceptional application scenarios which can be realized with energyXT.

The Synth / Sampler

The built-in Synth is a complex phase modulation synthesizer and sampler for creating complex sound layers. With 4 LFOs powered by a complex modulation matrix, a versatile multi-mode filter, 6 envelopes and phaser, chorus, flanger, delay and reverb effects it meets all requirements you'd expect from an all-in-one sound workstation.

The Browser

The built-in Browser grants quick access to all energyXT relevant sound samples, instruments, effects and presets and supports drag & drop functionality. With the quick search bar even large amounts of sound samples can be browsed within seconds.

About the manual

For easy understanding, all sections are supported by multiple screenshots. This concept helps you to get to know the software and its possibilities in a fast and easy way.

On the last pages you can find a glossary which contains a brief description of important terms used throughout the manual. Refer to these explanations for background information on selected terms.

Which aspects of the software are covered?

This manual covers all important aspects of music production with energyXT. From MIDI to audio recording and editing you will find all the information you require to get the most out of the software quickly. The chapters are specifically tailored to different user groups and tasks. It should be easy to find at least one of these topic-related chapters useful for your work.

However there is still a lot more to discover within energyXT. Find out for yourself once you know the basics. Don't miss the online tutorials and the community support at www.energy-xt.com.

Conventions used in the manual

Menu functions and energyXT terms

Functions that can be reached via menus are described as follows:

◆ *File > Open*

The first entry identifies the menu name. It is followed by one or more sub entries which name the menu function. Entries are separated with the ">" symbol.

➤ **For many functions you can also use the context menu (right-click).**

EnergyXT related terms are printed as they appear in the application, which is most often in Sentence case.

Feature	energyXT2.5	energyXT2.5 Compact
General		
Portable	Yes	Yes
VST version (for use with other hosts)	Yes	No
Max. bit / sampling rate	32-bit / 192 kHz	32-bit / 192 kHz
Number of tracks (Audio, Instrument, Drum, Folder)	Not restricted	8
Audio input / output channels	32 / 32	8 / 8
MIDI In / Out ports (16 ch, each)	Not restricted / 1	1 / 1
Mixer		
Available channels	Not restricted	Not restricted
Send effects	Not restricted	2
Insert effects	Not restricted	2 per channel
4-band EQ on all channels	Yes	Yes
Modular environment / Sequencer		
Modular environment view / edit	Yes	Yes
Number of Mixer / Sequencer Components	Not restricted	1 / 1
Simultaneously usable instruments	Not restricted	8
Sequencer		
Arpeggiator	Yes	No
Shuffle quantize	Yes	Yes
Track freeze / Bounce to track	Yes	No
eXT Synthesizer / Sampler, Multi-effect Drum sampler	Yes	Yes
Remote controller support	Yes	Yes
Offline mixdown	Yes	Yes
Supported audio formats	REX2 (Windows / Mac), WAV / AIFF (all OSes) MP3 import/export (if free 'lame.exe' installed (not included))	WAV / AIFF (all OSes) MP3 import only (if free 'lame.exe' installed (not included))
Resample	Re-pitch, Stretch	Re-pitch, Stretch
Edit MIDI controller events	Static, Envelope	Static
Full eq/fx strip per Drum sampler slot	Yes	No



File and folder names

File and folder names are put in quotation marks:

- ◇ "energyXT2.exe"

Shortcuts

Keyboard shortcuts can be used to trigger various functions of energyXT. They are displayed as follows:

- ◇ *Ctrl + S*

A key combination is separated by a "+". Press the keys simultaneously to trigger the function.

➤ **Shortcuts mentioned in this manual refer to the default keyboard shortcut scheme.**

Screenshots

In the manual all screenshots has been taken from the *Light* skin of energyXT. For more information on how to change the skin of your application, see chapter [Setting the look of the user interface](#).

User groups

Each application chapter begins with a list of target user groups. Use the list below to identify the user group profile that matches your interests. With this classification it should be easy to find the chapter(s) that are of interest to you.

The target groups covered in this manual are :

- ◇ **Podcaster:** cuts and fades audio snippets and prepares multiple tracks for mixdown.
- ◇ **Sound Designer:** cuts samples and creates new sounds by using VST effects, time stretching algorithms and sound layering.
- ◇ **Mastering Engineer:** cuts and creates mixdowns by using equalizers and shapes the dynamic level of signals by using VST effects.
- ◇ **MIDI-Producer:** records MIDI data and makes use of VST instruments and internal drum pattern creation.
- ◇ **Songwriter:** records instruments with simultaneous playback of previously recorded tracks and uses input signal processing with VST effects.
- ◇ **DJ:** re-organizes audio snippets and uses VST effects with remote control for live application.
- ◇ **Guitarist / Keyboardist:** uses VST effects for signal processing instead of outboard equipment.

Terminology

In the manual the term energyXT is used to describe both the full version energyXT2.5 and the light version energyXT2.5 Compact. Differences between these two versions are stated, if necessary. For details, refer to the table on the previous page.

Comparison between energyXT2.5 and energyXT2.5 Compact

EnergyXT2.5 is the full featured software suite. It is sold separately as a boxed version or can be downloaded from www.energy-xt.com.

EnergyXT2.5 Compact is the light version of energyXT2.5 with selected functionality (see table on page 6). It is sold with selected hardware (e.g. BEHRINGER). EnergyXT2.5 Compact users can explore all functions of the full version at any time by entering a special Demo mode (see page [Basic functions](#)).

Entering Demo mode in energyXT2.5 Compact

EnergyXT2.5 Compact users can explore all functions of the full version by entering a restricted Demo mode. In Demo mode, you can test the full potential of the software, but you can't save a Project.

As soon as you are about to use an exclusive energyXT2.5 feature you'll receive a notification.

Click on

◇ *Try* to enter Demo mode and test the function.

◇ *Cancel* to abort and go back to energyXT2.5 Compact mode.

➤ **Remember to always save your projects before entering Demo mode to prevent data loss.**



Upgrading energyXT2.5 Compact to energyXT2.5

Registered energyXT2.5 Compact users may upgrade to the full version of energyXT2.5 at www.energy-xt.com or by using the menu *XT > Upgrade now*



Chapter 2 Setup

EnergyXT has a unique feature that separates it from many other music production software — It can be used as a portable application which can be launched from removable devices like USB flash drives. This gives you the opportunity to take your whole setup with you and make music on different computers. Of course, you can also conventionally install the software on a single computer.

Portable (All OSes)

To launch energyXT without installation, you simply have to copy the complete energyXT folder to a target device (e.g. USB flash drives, hard disks) you wish the application to run from and execute the file "energyXT2". See chapter "Using energyXT on multiple systems" for details on how to use energyXT on different computers.

Installation

Windows / Mac OS / Linux

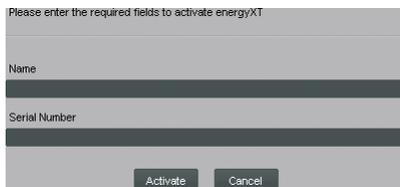
To install energyXT:

- i. Visit the online tutorial at www.energy-xt.com or refer to the Quick Start Guide for details on how to install energyXT on your operating system.

Activating your copy of energyXT

As soon as you launch energyXT for the first time, you will be prompted to enter your name and the serial number that came with your software. Provide the requested information to activate the software.

- If you choose not to enter the requested data, energyXT will run in Demo mode. You can enter your serial number when launching the program at any time.



Right after activation you will be prompted to register your product. Registration enables you to always receive the latest updates and news.

- The registration process requires an active internet connection.

Software and hardware setup

Setting up your audio interface and hardware MIDI controllers

Before you can start to make music you first have to configure the software, to ensure that your hardware works properly with energyXT. The list below notes required hardware for different applications.

If you

- ◊ are using external MIDI hardware, such as synthesizers, drum machines or samplers, you need at least a MIDI interface.
- ◊ are using VST software instruments you need at least a MIDI input device, such as a remote control or a keyboard and an audio interface.

◇ record and play back audio you need an audio interface.

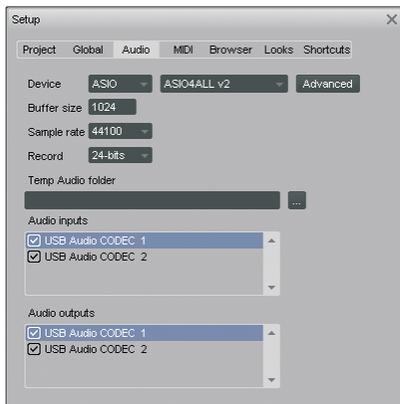
EnergyXT supports audio interfaces with DirectSound (DS) / ASIO on Windows, Core Audio on Mac OS X and ALSA on Linux operating systems.

- If you want to work with VST instruments or record audio, it is strongly recommended that you use a professional audio interface to ensure low latency audio.
- Connect and install all hardware before you enter the Setup of energyXT.

Setting up your audio interface

To set up your audio interface:

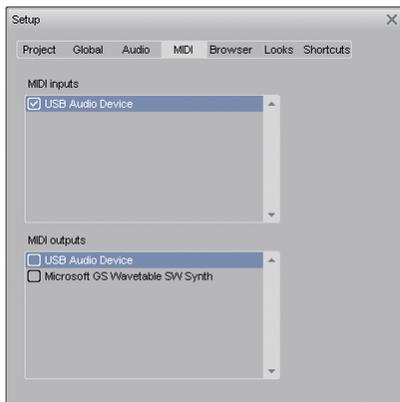
- i. Go to *File > Setup > Audio*.
- ii. Under *Device*, choose the appropriate driver type for your audio interface. EnergyXT automatically detects your audio interface and chooses the best driver type.
- iii. Identify your hardware in the subsequent field.
- iv. Under *Buffer size*, choose an adequate latency setting.
 - As a rule of thumb a low latency setting implies better audio performance, but the best setting for your system depends on your hardware. If you experience audio dropouts, try higher values. A reasonable entry to start with would be 1024 samples.
- v. Under *Sample rate* and *Record*, choose the recording and playback settings.
 - If possible, choose 24-bits for high-quality recordings.
- vi. Check the inputs and outputs of your audio interface you want to use under *Audio inputs* and *Audio outputs*.
 - Make sure that at least one pair of inputs and outputs is active.



Setting up your MIDI hardware

To set up your MIDI hardware:

- i. Go to *File > Setup > MIDI*.
- ii. Check your MIDI hardware under *MIDI inputs* and *MIDI outputs*.
 - Remember to connect and activate both inputs and outputs for devices which rely on a MIDI data loop to work properly (e.g. motorized fader remote control, keyboard with a tone generator).



Setting folder paths

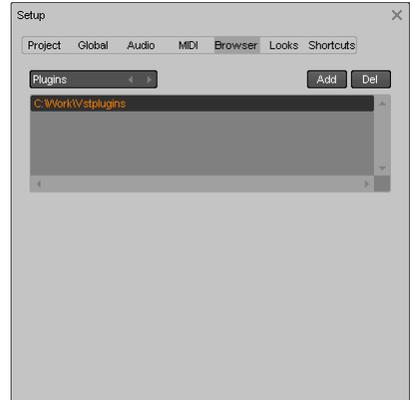
EnergyXT offers a file browser which grants quick access to plug-ins, presets, projects and samples. To use the Browser effectively, you have to set the necessary folder paths first.

To set the folder paths for the Browser:

- i. Go to *File > Setup > Browser*.
- ii. Select the entry for which you want to set the folder path.
- iii. Click on *Add* to add an entry to the list.
- iv. In the browser window, navigate to the folder which contains the respective files and confirm by clicking on *OK*.

➤ You can add multiple folder paths to each category.

- v. Repeat steps ii.-iv. to include all folders that contain relevant files.



Setting the look of the user interface

The user interface of energyXT can be set to either dark or light colors, according to your preference.

EnergyXT2.5 users can download additional skins from www.xt-user.com.

To set the look of the user interface:

- i. Go to *File > Setup > Looks*.
- ii. Click on the respective entry to set the user interface to either *Light* or *Dark* colors. Alternatively, click on *Open* to apply a downloaded skin.

➤ You may also customize the look of your interface. Use the browser to change the look of all elements within the application manually

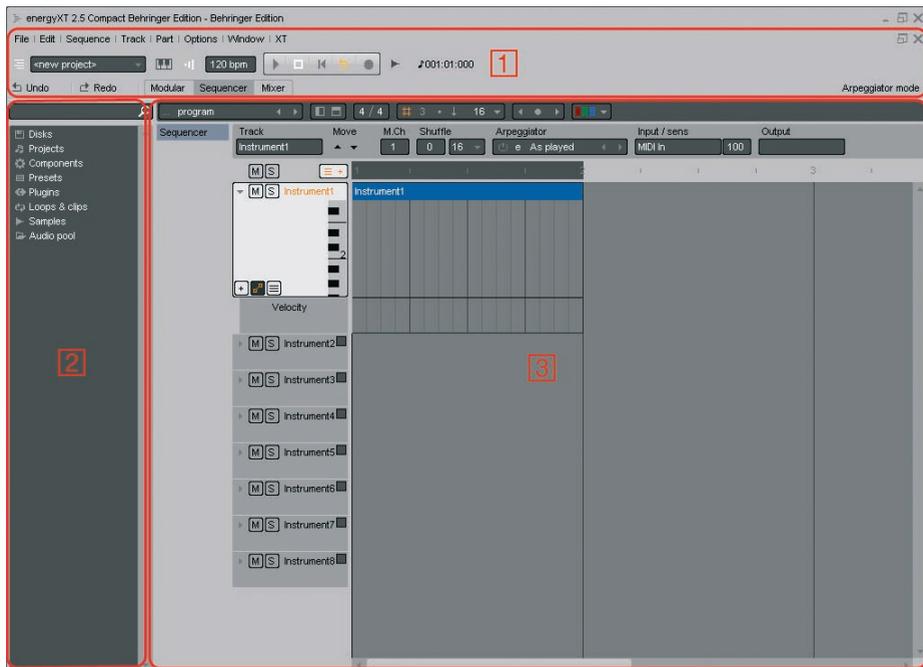
Chapter 3 The Basics

Target user: All users

Structure of energyXT

The main window

Before you can start making music you have to learn the basics of energyXT first. The basic structure of energyXT is simple but effective. The main window is divided into three areas.



1 The menu bar and global control area

The menu bar shows the options available for each of the three views (Modular, Sequencer, Mixer). Below you see from left to right the Recent Projects drop-down list, the MIDI input meter with the controller mapping options, the metronome icon, the tempo designation for the Project, the transport controls, the mixdown icon and the song position timer. The text to the bottom right (actually *Arpeggiator Mode*) changes according to the function where the mouse pointer actually hovers above. Always keep an eye on this needful information to identify the different functions, especially if you are not familiar with them.

2 The Browser area

With the Browser you can easily explore all plug-ins, presets, projects and samples on your computer, as long as you have located all relevant folders in the Setup beforehand. Each global entry in the Browser grants direct access to the deposited folders without cumbersome navigation. Via the *Disks* entry you can also explore all drives of your computer. The *Audio pool* entry lists all samples that are currently in use by your Project. Next to the magnifying glass is the search field which helps to locate files quickly.

3 The main working area

The content of the main working area depends on the active view. It either shows the Modular, the Sequencer or the Mixer view. You can switch views by clicking on the respective entry in the global control area. The actual screenshot shows the Sequencer view. You can easily add additional views for VST instruments and effects, by selecting *Add* from the context menu, which proves especially useful for laptop users.

Basic functions

Before we go into detail with the application chapters it's necessary to understand the basics of energyXT. Some functions apply to all views, others only apply to one of the three views. The following paragraph headings include the view to which the described function applies to in brackets.

Many functions are assigned to keyboard shortcuts. Refer to the function list under *File > Setup > Shortcuts* to look up or change shortcuts.

Navigation

Navigating through energyXT works in the same way as in every other application. However there are a few things you need to know.

Using the mouse wheel to zoom and navigate (All views)

You can use the mouse wheel to navigate through each view horizontally. Turning the mouse wheel with the *Ctrl* key depressed affects the horizontal zoom in the Sequencer view.

Entering values (All views)

You can change value entries in energyXT by either double-clicking on an entry and making a numeric entry with the keyboard or by click-holding the entry and dragging the mouse up to increase and down to decrease the value. A few entries can also be changed via context menus with a right-click.

Scrolling editor windows (All views)

You can scroll any editor window by dragging the mouse, with the right mouse button depressed, in any direction.

The transport controls (All views)

EnergyXT has five transport buttons which are similar to those you can find on most hi-fi recording units (e.g. MD recorder and tape deck). From left to right, the buttons are as follows:

- ◊ Play: to start the song playback
- ◊ Stop: to stop the song playback
- ◊ Rewind: to go back to the beginning of a song
- ◊ Loop: loops the selected range for playback or recording
- ◊ Record: to start a recording with the selected tracks



The song position pointer and timer (Sequencer)

The song position pointer shows the actual playback position. It is represented by a vertical bar in the Sequencer view. By default, the position pointer causes the track view to scroll with the actual position during playback. You can place the song position pointer by clicking into the bar line above the displayed tracks.

The song position timer shows the actual position of the song position pointer.

It is located next to the transport controls. You can change the format from bar count to time count by clicking on the display.



Edit functions



Setting a playback / recording range (Sequencer)

You can define a playback / recording range in the bar line. Click on the bar line and, with the mouse button depressed, draw the range from beginning to end. Once set, you can alter the range by moving the left and right edges with the mouse.

EnergyXT can loop the selected range for playback or recording. You can use this feature for overdub recordings. Click on the arrow next to the Record button in the transport controls to switch between loop and forward mode.

The Quick add button (Sequencer)



The Quick add button gives you quick access to all available tracks in energyXT. Click on the button and select a track template to easily add a new track to your project. Choose between Synthesizer, Drum sampler, Audio, Guitar Amp and VST tracks.

The grid snap function (Sequencer)

EnergyXT has a convenient grid function which causes the song position pointer to snap to predefined note values. This is especially useful to make exact selections and move Parts and notes on a musically time basis to rasterized positions.



You can activate / deactivate the grid function by clicking on the hash. Use the triangle to the right to set the grid value. To select triplet and dotted note values, set the 3 and the dot next to the hash active (orange). To switch between absolute and relative snap positions, use the arrow. The grid snap setting likewise defines the grid for the note quantization.

Editing Parts (Sequencer)

In energyXT, the content of each track is displayed as Parts on a timeline. Parts may have any size. A reasonable length would be a few bars, e.g. for chorus and verse. Smaller Parts may represent short musical phrases which can be easily reused throughout the whole Project.

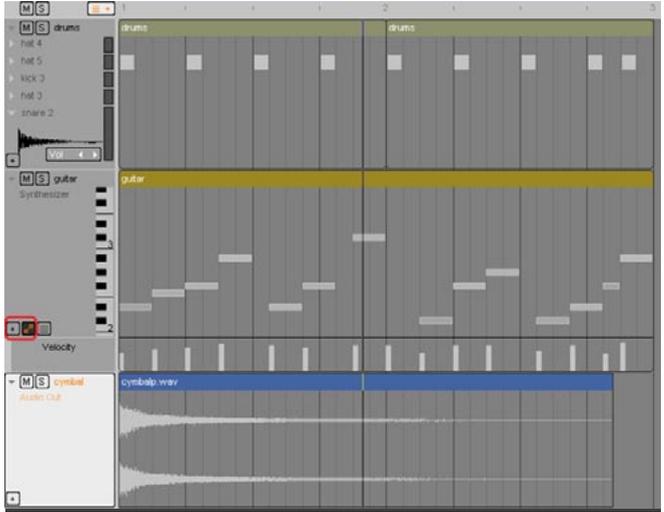
EnergyXT creates a new Part ranging from the beginning of the recording to the end with every new recording. You can move Parts by grabbing the Part with the mouse and dragging it with the mouse button depressed to a new location on the same or another track. To make a copy of a Part, hold down the *Ctrl* key while dragging the Part. The length of each Part can be altered by moving the left and right edges with the mouse. You can select multiple Parts by clicking on the Parts' name with the *Shift* key depressed or by clicking into the track view and with the mouse button depressed drawing a selection rectangle.

- Make use of the grid snap function to place Parts at musical positions.

Edit mode for tracks (Sequencer)

You can switch each track into edit mode by double clicking on its name. In edit mode, you see a more detailed view of the track content for editing. The view depends on the track type.

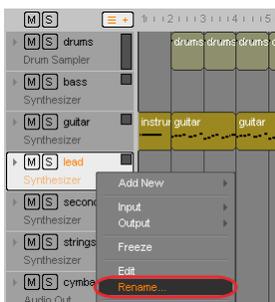
- ◊ Instrument Tracks display note events in a piano roll editor.
- ◊ Audio Tracks display a detailed view of the waveform.
- ◊ Drum Tracks display note events with additional drum specific controller data entries.



All track types support the display of additional MIDI controller data.

To change the vertical size of the edit view, grab the bottom of the track with the mouse and drag it upwards or downwards.

Naming tracks (Sequencer)



You can name tracks by right-clicking on the track and choosing *Rename*.

Rendering Project (All views)

Once you finished your song you'd probably want to export the Project to a sound file. EnergyXT offers a downmix function to finalize your music with all settings and effects. Choose *File > Export Project (wav, aif, mp3)* or use the quick button next to the transport controls to render a WAV, AIFF or MP3 file (energyXT2.5 only).



Under *Format*, choose the quality and file type of your mixdown. You can either export the complete project or the selected playback / recording range. Click on *Start* and choose a destination and a proper name to complete the operation.

- Exporting your project to MP3 format requires an MP3 encoder/decoder to be installed. For more information, refer to the energyXT2.5 Quick Start Manual or visit www.energy-xt.com.

Global settings

Song tempo / Signature (All views)

The song tempo and signature indicators show the current tempo in beats per minute (bpm) and the song's metric scheme. You can change both by clicking into the appropriate fields.



Info panels (Sequencer)

EnergyXT provides two info panels which show important options for the selected track or Part. The panels can be activated / deactivated by using the symbols next to the signature indicator.

- ◇ The horizontal panel grants access to important track and Part options
- ◇ The vertical panel displays the mixer channel strip of the track and gives full access to all mixer functions.



➤ **Make sure that both panels are visible as they provide valuable information and edit options.**

Channel filters (Mixer)



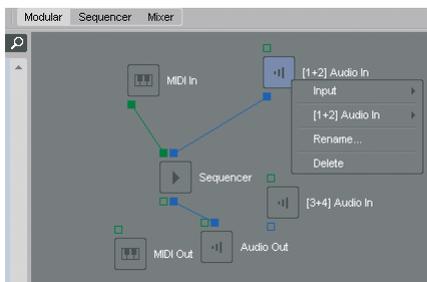
In the Mixer view, you have access to all audio channels. By default all types of channels (Inputs, Outputs, Sends, Groups, Components) are displayed. You can choose which type of channel you want to see by clicking on + and checking the appropriate entries.

Mute and solo functions (Sequencer / Mixer)

You can switch tracks in the Sequencer view and channels in the Mixer view to Solo or Mute. You activate either entry by clicking on *S* (Solo) or *M* (Mute).

- ◇ When you activate Solo only the selected track(s) / channel(s) are played back.
- ◇ When you activate Mute the selected track(s) / channel(s) are not played back.

Accessing Components in energyXT (Modular)



EnergyXT features a powerful Modular view which can be regarded as a virtual patchbay. It allows for free signal distribution of MIDI and audio signals between physical inputs / outputs of hardware, virtual inputs / outputs of plug-ins and energyXT's Sequencer. Each element is called a Component and appears in the Modular view.

You can change the routing for each Component by right-clicking on its symbol. The context menu lists all possible input and output connections. Alternatively, you can connect the inputs / outputs of each Component by drawing a direct connection with the mouse. To do so, click on a connector square and, with the mouse button

depressed, drag the mouse pointer to the square of the Component to which you want to connect the selected Component. You can always break an established connection with a right-click on an occupied connector square.

The number of independent inputs and outputs for each Component is represented by a corresponding number of connector squares. Audio connections and connectors appear blue, MIDI connections appear green. Connections to physical inputs / outputs of your hardware are not displayed.



Chapter 4 Multitrack Audio Recorder

Target user: *Podcaster, Songwriter, Sound Designer, Mastering-Engineer*

EnergyXT offers extensive capabilities for recording audio signals. Audio signals are generated by microphones when you record an acoustic instrument or a vocalist. Most commonly the signal of the microphone will pass a mixer and enter the computer through the audio interface. Some audio interfaces even allow for microphone signals to be plugged in directly. If so, you don't have to use an additional mixer unit. Another source of audio signals originate from guitars and keyboards. These instruments output an audio signal directly.

All audio signals that enter your computer can be recorded on Audio Tracks. Each Audio Track can be either mono (1-channel) or stereo (2-channel). The possible sample rate for audio signals complies with all professional standards across the world as long as your audio interface lives up to the specs of energyXT. Audio signals can be recorded either one instrument after the other or you may record a group of signals simultaneously (e.g. a live band).

The Mixer of energyXT lets you create mixes of your audio recordings with additional effects and equalizer settings.

The setup

Basically there are three different setups for recording audio signals in energyXT.

With a 2-channel (stereo) audio interface, you can either

- ◇ record up to two mono signals on two dedicated Audio Tracks or one stereo signal on a single Audio Track. Each Audio Track then carries the dedicated input signal.
- ◇ record several signals as a mix on a stereo track. The Audio Track then carries a mixed version of the input signals.

With a multi-channel audio interface, you can also

- ◇ record several input signals on dedicated Audio Tracks. Each Audio Track then carries the dedicated input signal.
- **The maximum number of independent record signals depends on the number of input channels of your audio interface and the energyXT version you are using (compare with table on page 6).**

If you want to record instruments (either mono or stereo) one after the other, it's sufficient to use a 2-channel audio interface.

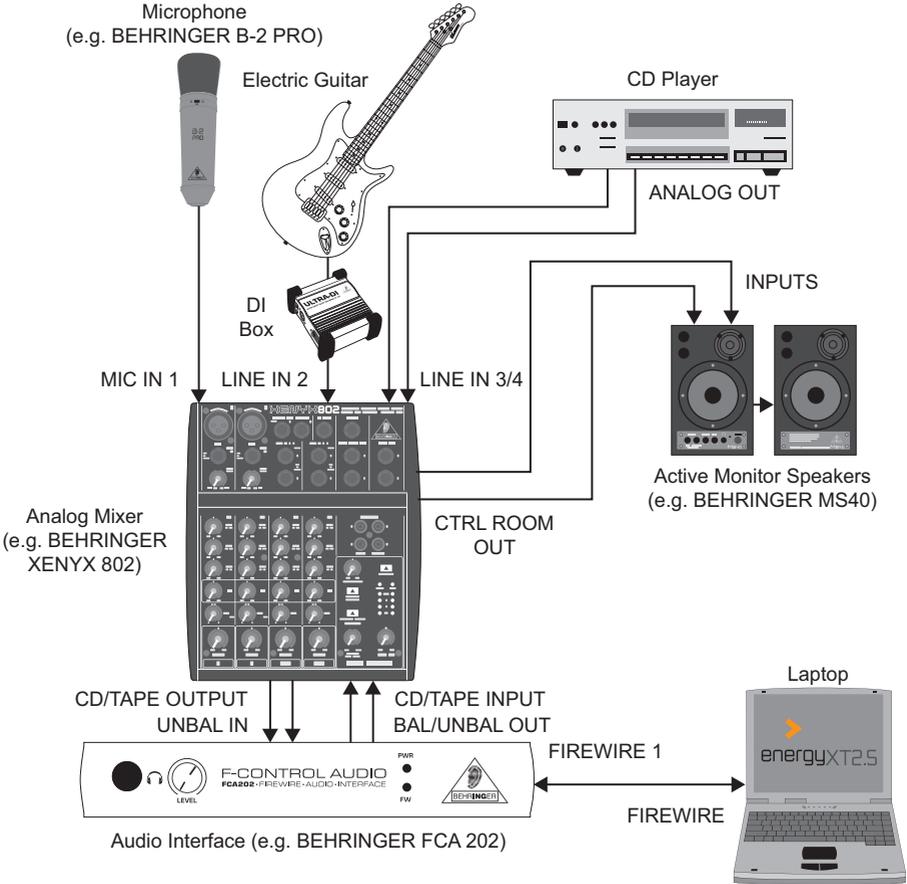
If you want to record a live rehearsal (e.g. band performance) and like to create a mix later on, you should record each input signal on a dedicated Audio Track with a multi-channel audio interface.

See the application examples on how to make the necessary connections for 2-channel and multi-channel recordings.

2-channel setup

You need

- ◊ a 2-channel audio interface with microphone inputs
 - or
 - ◊ a 2-channel audio interface with line inputs and a mixer.
- A suitable combination of an audio interface and a mixer is always desirable as it gives way more flexibility for different recording purposes. Actually it is a prerequisite if you want to record a signal mix with a 2-channel audio interface.

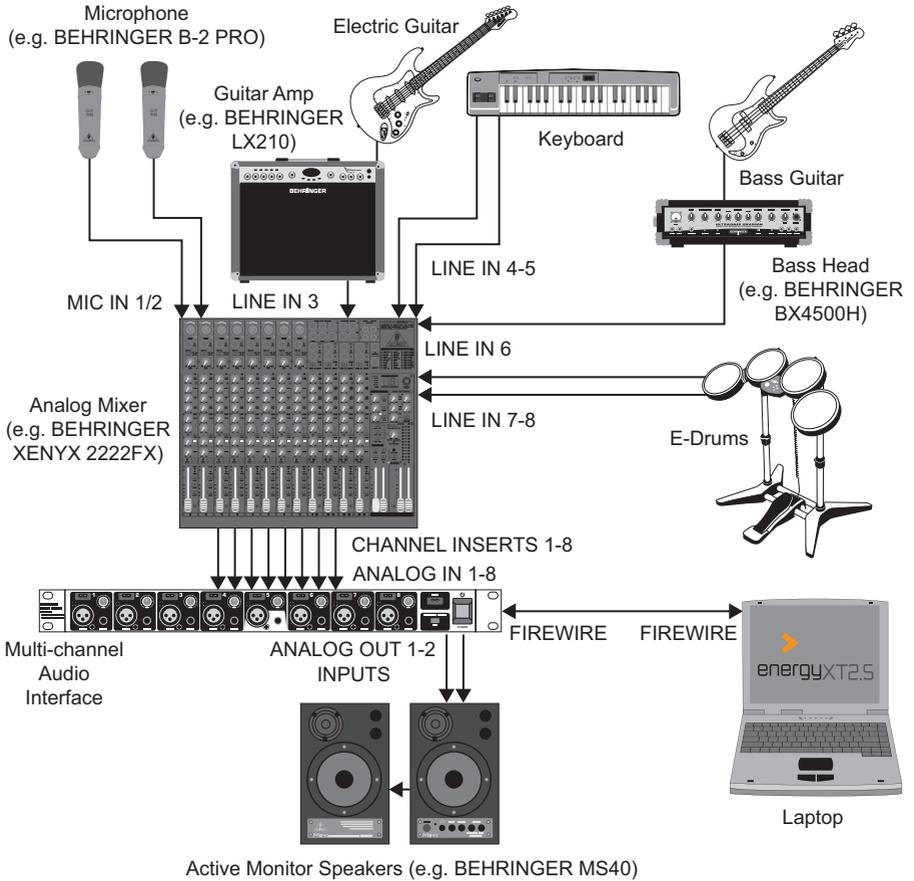




Multi-channel setup

You need

- ◊ a multi-channel audio interface with microphone inputs
- or
- ◊ a multi-channel audio interface with line inputs and a mixer with direct outputs.



Audio recording step by step

The following section will show you how to make use of the full audio potential of energyXT. On the basis of a typical recording application, all important aspects of audio recording are covered from adjusting input signal levels up to the final mix.

➤ **Before you follow the instructions below, make sure you've already set up your computer and energyXT properly. See chapter "Setup" for details.**

Each paragraph heading outlines the main steps you need to undergo to perform a typical audio recording. You may follow all of the paragraphs or simply pick the ones that are of interest to you. However, it might be useful to read all texts to get to know all the possibilities energyXT has to offer.

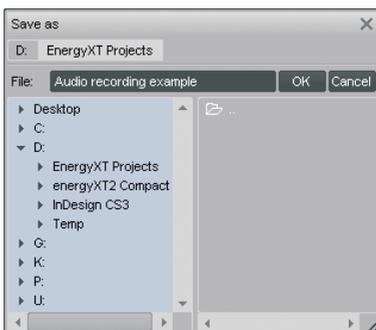
For better understanding, the guide reflects a real-life recording example by recording two acoustic instruments (guitar, vocals) one after the other and then adding a drum loop. You will learn how to record audio signals and mixdown all recorded tracks with effects. Later on, you may want to take this demo Project as a starting point and tailor it to your needs. Keep track of the demo Project's progress by reading the text after each diary icon.

Creating a Project

Before you can make a recording you have to create a Project. The Project is the foundation for your song and holds all musical data, settings and parameters.

To create a Project:

- i. Go to *File > New Project*.
Alternatively choose the respective template from the Welcome screen.
- ii. Choose *File > Save as...* to call up the save dialog.
- iii. Choose a folder for your Projects.
The save dialog of energyXT is similar to that of the Windows Explorer user interface. The left column shows the folder tree of your drives and the right column lists all subfolders and energyXT related files that are present in the selected folder. The selected folder path is displayed at the top of the window.
- iv. Under *File:*, enter a reasonable name for your Project.
- v. Click on *OK* to save the Project.



➤ **You must save your Project before you start a recording.**

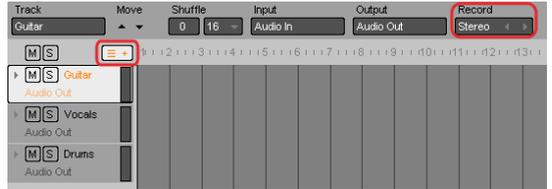
 In our example we created a new Project called *Audio recording example* and saved it to *D:\energyXT Projects*.

Adding Audio Tracks

Audio Tracks in energyXT either carry a mono or a stereo signal. The quality of the recorded audio signal depends on the settings in the Setup. See chapter "Setting up your audio interface" for details. Common sample settings include 24-bits / 96000 Hz for DVD-A / SACD and 16-bits / 44100 Hz for CDDA.

To add an Audio Track:

- i. In the Sequencer view from the menu, choose *Track > Add New > Audio Track*. Alternatively, use the context menu on the empty track column or select an already present Audio Track and double-click into the track column to add a new track.
- ii. You may name each track to identify it easily. See chapter "Naming tracks (Sequencer)" for details.
- iii. From the info panel, choose a recording format. Select *Stereo* for signal sources such as CD players and keyboards. Select *Mono* for signal sources such as a microphone and guitar signal.



Alternatively, you can use the Quick add button next to the bar line to add a new track.

In our example we created two stereo tracks named *Guitar* and *Drums* and a mono track for the *Vocals*.

Routing audio inputs and outputs

By default each AudioTrack is connected to an available input / output Component of energyXT. See chapter "Accessing Components in energyXT (Modular)" for details on Components. The actual routing appears in the *Input* and *Output* fields of the info panel.

If you have a 2-channel audio interface:

or only activate two channels of a multi-channel interface in energyXT's Setup:

- i. Choose *Audio In* as *Input* and *Audio Out* as *Output*, if not already preselected.



If you have a multi-channel audio interface:

- i. Choose the *Input* and *Output* of your audio interface from the drop-down list. The entries are named consecutively in pairs, e.g. [1+2] *Audio In*, [2+3] *Audio In*. Choose the *Input* and *Output* according to the connections you made to your audio interface.

It is possible to mix input signals by activating more than one Audio In Component of an Audio Track. The same goes for the output.

In our example we set all Audio Tracks to the default *Audio In* and *Audio Out* routing.

Monitor settings

The monitoring determines whether the input signal can be heard or not. By default the input signal is always active. However, you may want to change the option depending on your hardware setup to prevent audio feedback loops.

The monitoring options in energyXT are as follows:

- ◊ *Off*: Disables monitoring.
- ◊ *Auto*: Enables monitoring anytime (Default setting).
- ◊ *Record*: Enables monitoring only during recording.
- ◊ *Manual*: Enables monitoring only if the monitoring for each track is activated in the track column.



To adjust the monitoring settings:

- i. From the menu, choose *Options > Monitor* and select the appropriate setting.



In our example we chose the default setting *Auto*.

Setting the input signal level

Setting a proper signal level for the input signal is very important in order to avoid annoying artifacts.

If the level of the input signal is

- ◊ too high the signal will distort.
- ◊ too low the signal probably will be covered with noise and results in a falsified sound.

You can adjust the level of the input signal in the Mixer view. The Mixer is organized in channel strips.



To set a proper input signal level, you need to be familiar with the following elements:

- ◊ The Trim for boosting or lowering the input signal level at the top.
- ◊ The level fader with the corresponding level meter at the bottom.

To adjust the level of the input signal properly:

- i. In the Mixer view, identify the input channel strip to which your signal is connected (e.g. *Audio In*, [1+2] *Audio In*). The channel name corresponds to the input Component you selected for the recording track in the Sequencer view (*Audio In* in Sequencer view = *Audio In* in Mixer view). See chapter "[Routing audio inputs and outputs](#)".
- ii. Make sure that you set the Monitor setting correctly if you hear no input signal. See chapter "[Monitor settings](#)".
- iii. Play your instrument or playback the signal you have connected to your audio interface and observe the level meter next to the level fader.
- iv. Adjust the level of the input signal at your audio interface according to the user manual of the unit in case your audio interface includes a control for trimming the signal level.
- v. Adjust the level of the input signal further with the Trim so that the peak amplitude of the signal barely causes the level meter to reach the top.
- vi. Reduce the recording level with the level fader, if needed.



In our example we adjusted the input signal level with the Trim to +12 dB and left the level fader at its default 0.00 dB position.



Configuring the metronome

If you want to record several instruments one after the other it is critical that you perform your music as exactly as possible to a given song tempo when recording. In energyXT, you can use a metronome which, like its real counterpart, produces an audible click, the beat.

To set the tempo:

- i. Input the song tempo into the field next to the transport controls.

To configure the metronome:

- i. Right-click on the metronome icon.
- ii. Choose the number of beats per bar (1 to 8 beats).
E.g. 4 *beats* to count quarter notes for a 4/4 time signature.
- iii. Check the *Count-In* entry if you want to have a one bar precount before the recording starts.
- iv. Check the *Playback* and *Recording* entries if you want to hear the metronome's click during playback and recording.
- v. Select a volume for the click under the *Volume* entry.
- vi. Check the *Enable* entry to activate the metronome.
Alternatively, you can left-click the metronome symbol to enable / disable the metronome.



In our example we chose a song tempo of 100 bpm and enabled the metronome with a one bar precount to count quarter notes during a recording.

Recording takes

Among musicians a recording is most commonly known as a take. A take can be just a few bars of length or even cover the whole song. For each take energyXT creates a Part from the beginning of the recording to its end. Parts can be modified later on in various ways as described in chapters "Editing Parts (Sequencer)" and "Working with patterns".

To record a take:

- i. In the Sequencer view, select an Audio Track for recording.
- ii. Set a recording range in the bar line if you know the length of your musical performance. Alternatively, turn off loop mode and set a zero range, if you can't predict the length of your recording.
- iii. Place the song position pointer at the very beginning of the song or at the beginning of your recording range.
Remember to use the grid function to place the song position pointer exactly at musical units (see chapter "The grid snap function (Sequencer)").
- iv. Click the Record button in the transport controls to start the recording.
If you have activated the metronome's Count-In, the recording starts with the secondly counted bar.
- v. Perform your music.
EnergyXT creates a Part for your recording.



- vi. Click on the Stop button in the transport controls to stop the recording.
The Part ends as soon as you stop the recording.



In our example we recorded a 4 bar Guitar take from the beginning of the song.

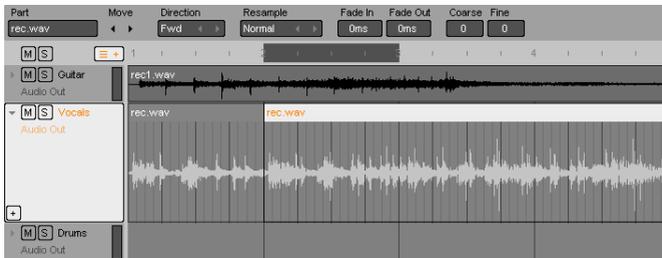
Exchanging a part of a recorded take with a new recording

Assuming that you have recorded a good take with just a small mistake you don't necessarily have to record the whole performance again. In fact you could pick a musically reasonable slice of your take (e.g. two bars) which includes the mistake and replace just this small slice with a new recording. Audio engineers call this a punch recording, as you jump in with your new recording for just a predefined range.

However, this course of action is only possible if the signal contains enough silence (signal pauses) at which you can cut the audio material properly without getting annoying artifacts such as a truncated sound. A signal pause in the waveform view appears flat.

To exchange a slice of a recording with a new recording:

- i. In the Sequencer view, enter the track's edit view.
- ii. Disable the grid snap function.
- iii. In the recorded Part you wish to exchange a few bars, locate a signal pause at the beginning of the range you wish to re-record and place the song position pointer. Use the zoom function for easy navigation.
- iv. From the menu, choose *Part > Split* to split the Part into two pieces.



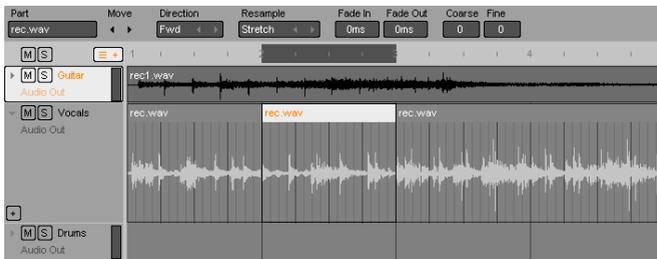
- v. Locate a signal pause at the end of the range you wish to re-record and place the song position pointer.
- vi. From the menu choose *Part > Split* to isolate the slice.



vii. Select the isolated Part (slice) and choose *Part > Delete* to delete it.



- viii. Activate the grid snap function and set the grid to *Bars*.
- ix. Set the recording range in the bar line to the range of the now missing slice.
- x. Place the song position pointer at the beginning of the recording range.
- xi. Redo the recording.
If you activate the loop mode, you may record several takes one after the other.
- xii. Adjust the edges of the newly recorded Part to match the gap between the surrounding Parts.
It might be useful to overlap the surrounding Parts slightly if otherwise the sound gets truncated. Disable the grid snap function to freely adjust the edges of the Parts. Overlapping Parts will be mixed.



In our example we replaced a slice of the vocal take (bars 2-3) with a new recording.

Working with patterns

EnergyXT displays recordings as Parts in a timeline. This concept facilitates a pattern oriented workflow as you can reuse musical phrases throughout the song. This is extremely useful if you have a traditional song layout with verse and chorus. Even if you do not have a traditional song structure it is at least useful to use short phrases, riffs or elements again.

To create a reusable pattern:



- i. Split your recorded takes to musically reasonable Parts (e.g. verse, chorus, riff, solo).
Make use of the grid snap function to split Parts from bar to bar.
- ii. Select the Parts you wish to reuse.
- iii. Hold the *Ctrl* key, grab the Parts with the mouse and drag them to a new position in the timeline.



In our example we created a copy of the Guitar and Vocal Parts from bars 1-5 and moved this pattern to bars 9-13.

Creating dynamic volume changes (energyXT2.5 only)

You can use dynamic envelopes to control certain parameters of the mixer for each Part. The parameters include volume, pan, mute, EQ and parameters of VST effects, if any are being used in the Audio Track. An envelope describes the parameter setting at any given song position.

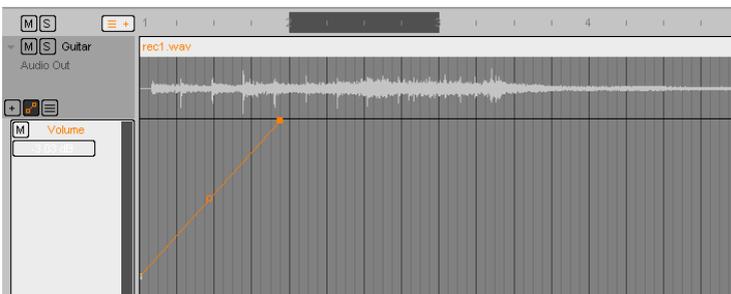
Each envelope parameter can be edited in its own window. Possible applications range from simple volume fades (e.g. fade in / out) to a fully fledged dynamic mixer automation with changes in panorama, volume and effect parameters.

To create a volume envelope:

- i. In the Sequencer view, enter the track's edit view.
- ii. Click on the + symbol and check the *volume* entry.
At the bottom of each Part appears an edit window for the volume parameter.

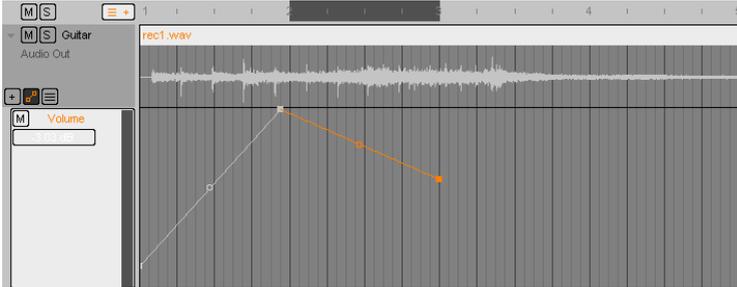


- iii. Set the grid snap function to 4 to place nodes at quarter note values.
You may choose smaller note values to create more envelope nodes for more detailed envelopes.
- iv. Add two envelope nodes by double-clicking into the *Volume* edit window of a Part to create a fade in. Place one node at the very beginning and the second a few quarters behind.
Envelope nodes are indicated by small squares and can be positioned horizontally and vertically by dragging them to the wanted position.

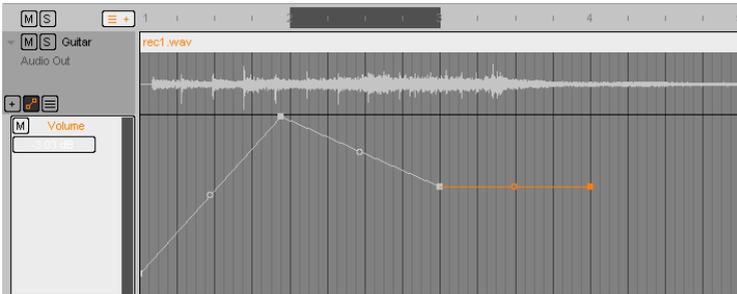




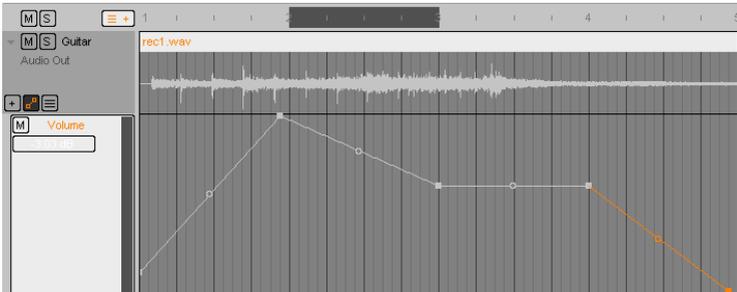
- v. Use the mouse to drag the first node to the bottom (minimum volume) and the second to the top of the edit window (maximum volume).
- vi. Create another node at an intermediate volume position to slowly lower the track's volume.



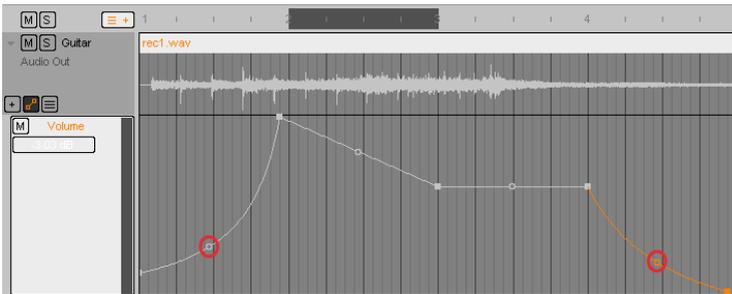
- vii. To hold the reduced level, create another node.



- viii. Add a final node at the end of your Part to create a fade out.



- ix. Curve the fade in / out by dragging down the circle in between the nodes with the mouse to create a smooth fade.



These are the basics on how to work with envelopes. From this example you may go ahead and create your own envelopes for various parameters (e.g. Pan, EQ).



In our example we created a simple volume envelope with a curved fade in and fade out in the Guitar track.

Embedding loop samples

With loop samples you can easily create songs of professional sound quality. A loop sample appears as a Part in the timeline and can be used throughout the song just like any other audio Part.

As we speak of pre-recorded phrases it goes without saying that every phrase comes with a predefined tempo which most likely does not match your song's tempo. To address this problem, energyXT offers convenient options to change the tempo of loop samples so that each perfectly syncs to your song's tempo. This is commonly known as resampling.

There are two basic modes to resample loops in energyXT:

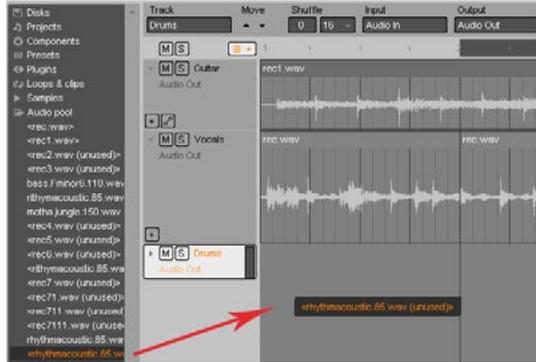
- ◇ Stretch: alters the tempo of the loop sample, without changing the pitch.
- ◇ Re-pitch: alters the pitch and the tempo of the loop sample.
- **Stretch should be your first choice if you want to change the length of a loop sample, as it conserves the original sound and harmony.**

Although quite powerful, you should only use these modes to adapt loop samples that already are close to your song's tempo. Changing the length of the original sample too much will lead to a poor and deteriorated sound.

Alternatively you may want to use resampling to create special effects by changing the length of the sample loop drastically.

To resample a sample loop that doesn't match your song's tempo:

- i. In the Sequencer view, select the name entry of a loop sample from the Browser window and, with the mouse button depressed, drag it onto an Audio Track.



- ii. Set the grid snap function to *Bar*.
- iii. Select the Part with your loop sample and move it to the beginning of a bar.
- iv. Choose *Stretch* as the resample mode from the info panel.



- v. Move the right edge of the Part to the next bar where you wish the loop sample to end. EnergyXT automatically adjusts the end of the Part to the nearest bar. However, you may alter the length manually, according to your needs.



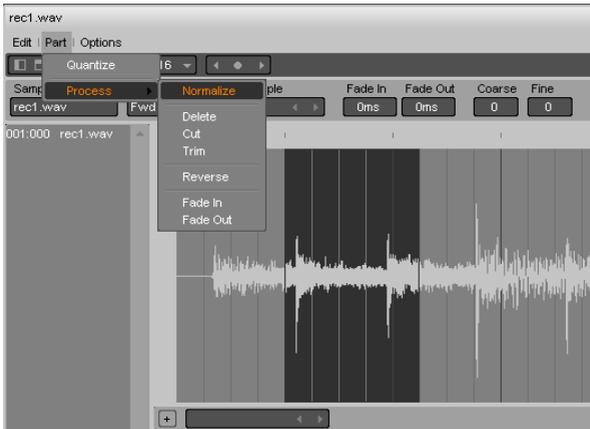
- vi. Use the *Coarse* and *Fine* parameters in the info panel to adjust the pitch of the loop sample.



In our example we imported a loop sample with a tempo of 120 bpm into a song with 100 bpm and used the Stretch mode to extend the sample to fit into two bars.

Editing audio

You can edit your audio material directly within energyXT. Just double-click on the Part you wish to edit and you get access to common audio editing functions, such as *Normalize*, *Fade In/Fade Out*, *Delete*, *Cut*, *Trim* and *Reverse*.



Functions of the Audio editor:

- ◊ *Normalize*: Adjusts/increases the amplitude of the audio signal without introducing distortion.
- ◊ *Delete*: Deletes a selected range within the waveform and inserts silence.
- ◊ *Cut*: Deletes a selected range within the waveform and glues the remaining parts at the point of intersection.
- ◊ *Trim*: Deletes the parts of the waveform left and right to the selected range.
- ◊ *Reverse*: Reverses the audio material of the selected range within the waveform.
- ◊ *Fade In/Out*: Fades in or fades out the volume of the selected range.

Crossfade

You can also create Crossfades with energyXT. A Crossfade makes a smooth transition between two overlapping audio Parts.

- i. Select two overlapping Parts.
- ii. Right-click and select *Process > Crossfade*.

Beatslice

Beatslicing is a technique to 'slice' any audio Part (e.g. drum loops) into its specific (rhythmic) elements. EnergyXT offers an *Autoslice* function, that automatically detects the specific parts within the audio material. Alternatively you can use the *Beatslice* function, that allows you to modify the position of the slices yourself.

- i. Right-click on a Part you wish to beatslice.
- ii. Select *Beatslice* or *Autoslice* to slice the material.



Creating a mix

All audio signals run together in the Mixer. The Mixer view shows a channel strip for each input, output and Audio Track Component which grants access to volume and pan position. You may additionally manipulate the audio stream with any kind of VST effect and energyXT's EQ.

The channel strip shows (from top to bottom):

- ◊ The name of the input Component
- ◊ The eq band
- ◊ The insert effects for the channel
- ◊ The available send controls for the send effects
- ◊ The Pan control (panorama position)
- ◊ The level fader with the corresponding level meter and the mute (M) and solo (S) buttons
- ◊ The name of the output Component to which the channel is routed
- ◊ The name of the Component (e.g. name of the Audio Track or audio input)



Adjusting channel volume and Pan

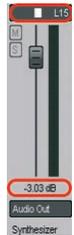
The most important controls to adjust the audio signal are volume and pan. Use the level fader to control the volume of each channel and the Pan control to place the signal to any position in the stereo field from fully left to fully right.

To adjust the volume and the panorama for a channel:

- i. In the Mixer view, grab the fader control with the mouse and drag it to the wanted position to set the level.
The value of amplification is displayed in dB above the fader.
- ii. Grab the Pan control with the mouse and drag the mouse up or down to move the signal off the center position to the right or left to set the panorama of a channel.



In our example we moved the Guitar slightly off center to a position of L15 to the left and lowered the channel's volume to -3.03 dB.



Using send / insert effects

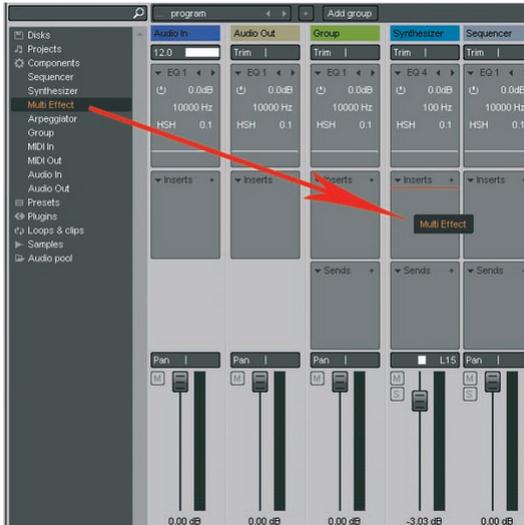
Each channel of the Mixer supports the use of effects. You can either use energyXT's own Multi Effect or use any type of VST compatible effect.

EnergyXT supports two types of effect integration:

- ◊ Insert effects are channel-only effects. They only affect the signal of the channel where they are applied to. Typical effect types to be used as an insert effect include chorus, compressor and noise gate.
- ◊ Send effects are global effects. They can be accessed by multiple channels in parallel. The input of a send effect comprises of the signal amount of channels that output their signal via a send control to the send effect. Typical effect types to be used as a send effect include reverb and delay.

To add an insert effect to a channel:

- i. In the Mixer view, select the name entry of an effect in the Browser window and, with the mouse button depressed, drag it into the insert effect's section. The insert effect is instantly active and will be displayed in the insert effect's section.



- ii. With the mouse button depressed, drag the FX level control up and down to adjust the wet / dry mix (ratio of effect signal to original signal). A setting of 100 (%) means the signal is fully conducted to the insert effect. A setting of 0 (%) means the signal fully bypasses the insert effect. Other settings define the mix between these two extremes.



- **Make sure to adjust the effect's wet / dry mix to output only the effect signal, in order to render the FX level control of energyXT effectively.**

iii. Click on the power symbol to bypass the effect quickly for monitoring purposes.

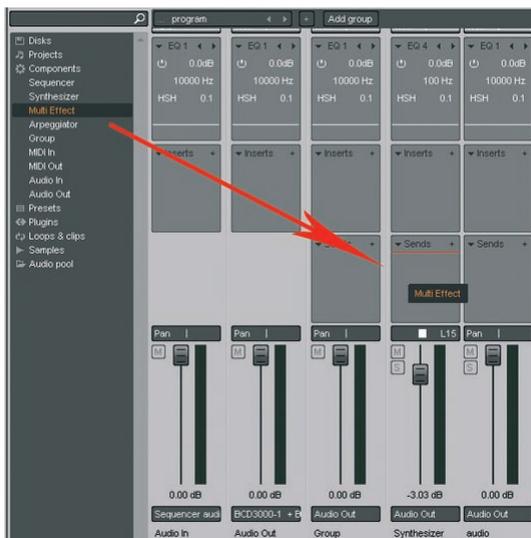


In our example we added energyXT's Multi Effect as an insert effect to the Guitar track.

To add a send effect to a channel:

- i. In the Mixer view, select the name entry of an effect in the Browser window and, with the mouse button depressed, drag it into the send effect's section.

The send effect is instantly active and will appear as an additional channel in the mixer. All audio channels now feature a FX Send level control.



- ii. With the mouse button depressed, drag the FX Send level control up and down to adjust the signal portion that will be send to the send effect.

A setting of 100 (%) means the signal is fully conducted to the send effect. A setting of 0 (%) means the signal fully bypasses the send effect. Other settings define the mix between these two extremes.

- **Make sure to adjust the effect's wet / dry mix to output only the effect signal, so that the wet / dry mix is the result of the FX Send level setting and the position of the level fader of the send effect channel.**

Shaping sound with the equalizer

EnergyXT features an internal equalizer for each channel. With the equalizer you can shape the sound of a signal. You may use the equalizer to eliminate unwanted signal frequencies (e.g. floor noise) or to shape the overall sound character of a signal.

For each of the four available frequency bands, you may choose one of five different filter types:

- ◊ Low Shelf (*LSH*): Shelving filter for low frequencies. It is used to adjust all frequencies below a set corner frequency.
- ◊ Parametric EQ (*PEQ*): Peaking filter which selectively adjusts frequencies around a set center frequency. It is used to shape the overall sound of a signal.
- ◊ High shelf (*HSH*): Shelving filter for high frequencies. It is used to adjust all frequencies above a set corner frequency.
- ◊ Low Pass Filter (*LPF*): Frequency pass filter for the lows. It is used to eliminate unwanted high frequencies above a set corner frequency.
- ◊ High Pass Filter (*HPF*): Frequency pass filter for the highs. It is used to completely eliminate unwanted low frequencies below a set corner frequency.

Choose the appropriate filter types (EQ1 - EQ4) for each channel according to your application. By default the equalizer includes a classic configuration of high-shelf filter, two parametric equalizers and a low-shelf filter.

The parameters for each filter type include:

- ◊ Frequency: to adjust the frequency for each frequency band
- ◊ Gain: to set the boost / cut for each frequency band
- ◊ Bandwidth (LSH, PEQ, HSH only): to adjust the width of the frequency band that should be affected by the filter (also known as Q factor)

To use the equalizer:

- i. In the Mixer view, choose the EQ frequency band (EQ1 - EQ4) in the channel strip.
- ii. Click on the power symbol to activate the frequency band.
- iii. Click on the abbreviation and choose the appropriate filter type from the drop-down list for each frequency band.
- iv. Choose a control and with the mouse button depressed move the mouse up and down to adjust frequency, bandwidth and gain.



In our example we added the equalizer to the Guitar track and used the original equalizer's setup with a high-shelf filter, two parametric EQs and a low-shelf filter.

Creating submix groups

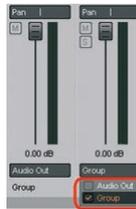
EnergyXT supports the use of submix groups. Channels which are assigned to a submix group will be pre-mixed and can be controlled easily as a group. This technique is often used to be able to control the volume of an instrument ensemble with a single level fader and concurrently maintain signal balancing. Moreover you can apply the same effect (e.g. compression) to the Group which is common practice when creating a final mix.

To use a submix group:

- i. In the Mixer view, select *Add group* to add a submix group.
A Group channel appears next to the Audio Track channels which is routed to the audio output Component by default.



- ii. From the context menu of the channel, select *Rename* to give a reasonable name to the Group.
- iii. From the drop-down list of an audio channel's output, check the name of the Group to route the channel to the newly created Group.
You may choose multiple output channels for your channels. However, the most common practice is to route the channel only to the relevant Group. Otherwise the signal is routed to the audio output twice.



In our example we created a submix group with the default name Group and routed the output of the Vocals channel to the newly created Group.

Remote mixing

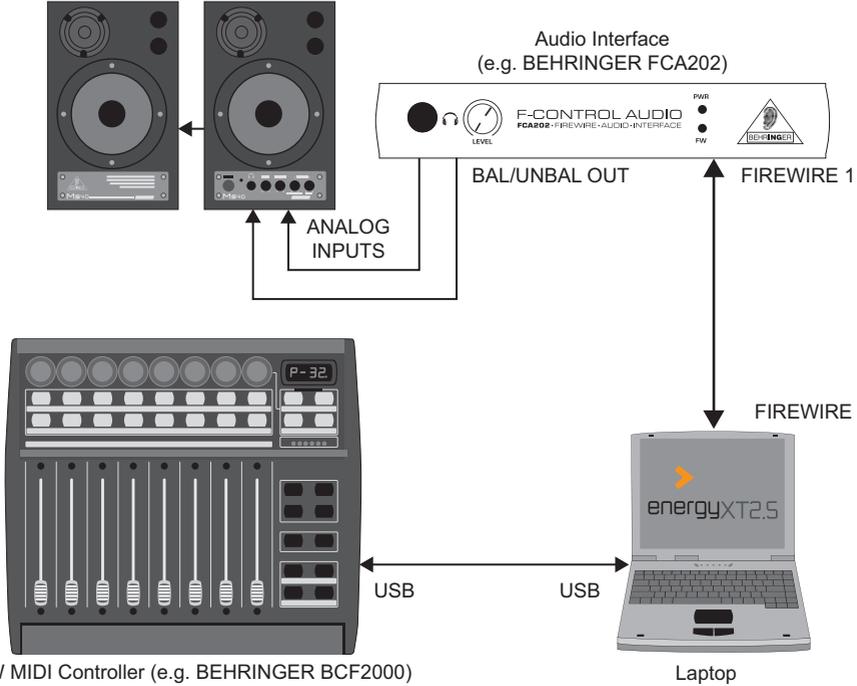
Many parameters of the Mixer can be controlled remotely with a suitable DAW controller. With a hardware controller it is much easier and more intuitive to control volume faders and changes than doing it with the mouse.

EnergyXT works with all types of DAW controllers, provided they output standard MIDI controller data and not system exclusive data. To adjust the Mixer's response to your DAW controller, it first needs to be calibrated. A MIDI learn function offers a convenient way to do so quickly.

Setting up your hardware

See the application example below on how to make the necessary connections.

Active Monitor Speakers (e.g. BEHRINGER MS40)



To calibrate the Mixer and your DAW controller:

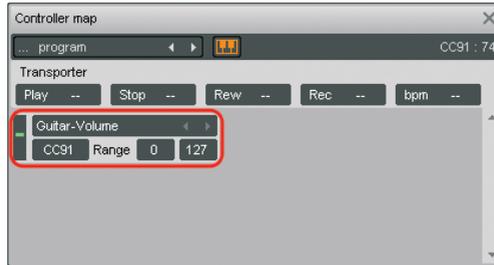
- i. Click on the MIDI indicator next to the metronome symbol to open the MIDI controller mapping dialog.



- ii. Click on the keyboard symbol to use the MIDI learn function. EnergyXT now waits for a control element to be moved as a control target.



- iii. Grab and drag the control element that you want to calibrate with the mouse (e.g. level fader). The Controller map dialog displays the parameter's name.
- iv. Turn the control of your DAW controller up and down to assign the control of your hardware to the control element of the software.

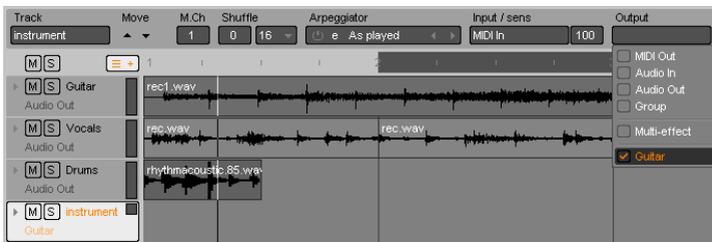


- v. Repeat steps iii.-iv. for every control you want to control remotely.
- vi. Click on the keyboard symbol in the Controller map dialog to finish the calibration.
- vii. Alter the values in the *Range* fields to restrict the control range for a more precise input, if needed.

➤ You can use the Controller map dialog in the same way if you want to assign hardware controls to the parameters of send / insert VST effects.

To create a track for recording the controller data:

- viii. Switch to the Mixer view.
 - ix. From the menu, choose *Track > Add New > Instrument Track* to add an Instrument Track.
 - x. Select the Instrument Track and, in the info panel under the entry *Output*, check all Audio Tracks for which you want to record controller movements.
- The Instrument Track is now ready to record and playback controller data. See chapter "Recording takes" for details on how to proceed with the recording.



 In our example we assigned MIDI controller CC91 to the level fader of the Guitar track, created an Instrument Track to record controller data and selected the Guitar track as the destination of the Instrument Track.

Multiple track recording

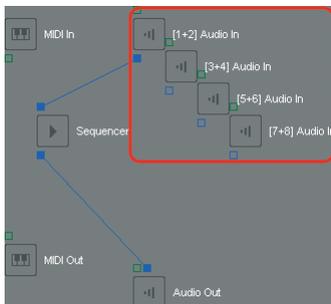
EnergyXT allows simultaneous recording of different signals on multiple tracks. There are a lot of applications where you may want to record several musicians at once, may it be in a concert situation or just two instrumentalists playing in your studio, and thus need the possibility to record multiple signals independently. EnergyXT smoothly supports this kind of workflow and simplifies things due to its portability.

Changing the configuration of Audio In Components

When recording on several tracks it is essential that you care about the routing for each Audio Track beforehand to determine which input signal reaches what track. By default every audio input pair of a multi-channel audio interface is represented by an Audio In Component named [1+2] Audio In, [2+3] Audio In and so on (see the picture of the Modular view for an audio interface with eight input channels).

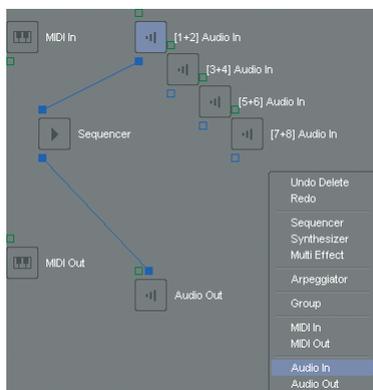
Each of the Audio In Components conducts the two respective signals (a stereo pair) of your audio interface's inputs by default. If you only record stereo signals the only thing you have to do is choose the correct Audio In Component as the input for each Audio Track in the Sequencer view as described in chapter [Routing audio inputs and outputs](#) and set the format of the Audio Track to Stereo.

However, if your source signals are of mixed mono and stereo type you have to re-configure the Audio In Components in the Modular view.



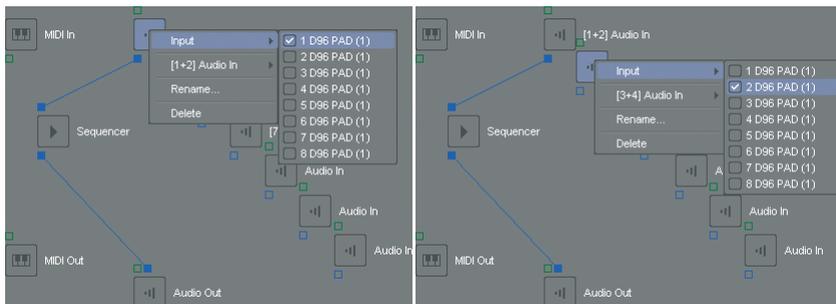
To change the configuration of an existing input Component for mixed mono and stereo applications:

- i. In the Modular view, choose the entry *Audio In* from the context menu and add the necessary amount of input Components for each mono input you want to use.
- By default the Modular view shows the inputs of your audio interface in groups of input Components ready for stereo use (e.g. four input Components for eight input channels).



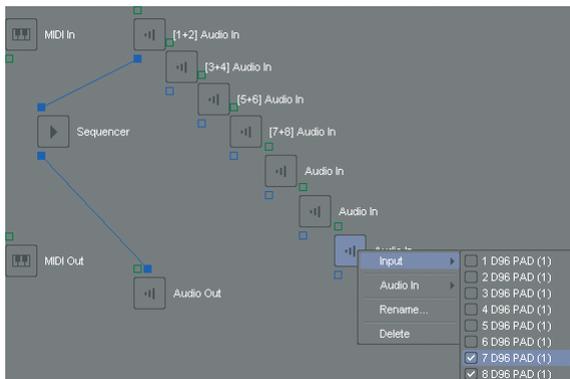
To create mono Audio In Components:

- ii. Choose one input channel as Input for each Audio In Component.

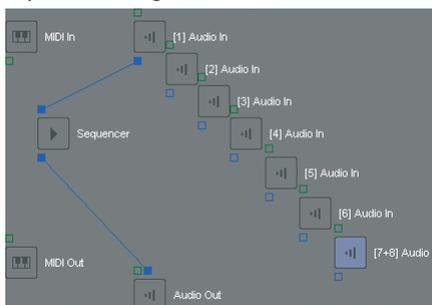


To create stereo Audio In Components:

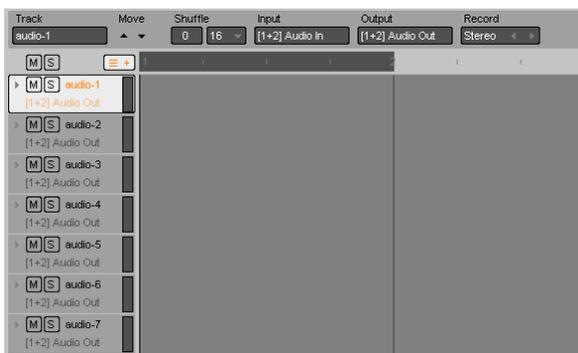
- iii. Choose two input channels as Input for each Audio In Component.



- iv. Via the context menu, rename all Audio In components such that the names correspond to the respective input channels for easy reference (e.g. [1] Audio In, [2] Audio In, ... [7+8] Audio In).



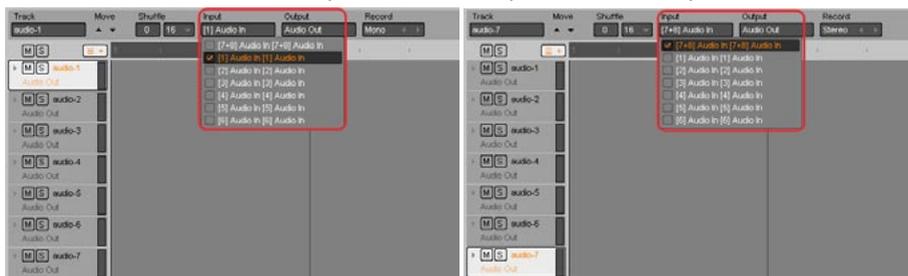
- v. Switch to the Sequencer view.
- vi. Create the necessary number of Audio Tracks (one track for mono and stereo signals) to record each input signal on a dedicated track.
E.g. for an 8-channel audio interface: Six tracks for mono signals, one track for a stereo signal.



- vii. Choose *Mono* as the record format for mono signals or *Stereo* as the record format for stereo signals for each Audio Track.



- viii. Choose the correct Audio In Component from the drop-down list as the input for each track.





- ix. Select all tracks by holding *Ctrl* and clicking on the name of each track consecutively.
- x. Click on the Record symbol in the transport controls to start the multi-track recording.



In our example we mapped the eight input channels of an audio interface to six mono and one stereo Audio In Components. After renaming the Components we created seven tracks in the Sequencer view and chose the appropriate Audio In Component such that all mono input signals are recorded on dedicated tracks and the stereo input signal shares another track.

Editing multiple Parts simultaneously

When you have recorded multiple tracks at once, each track is in timely correlation to each other. If you now want to cut or move the Parts you must make sure that all tracks remain in sync. Instead of editing Parts one after the other you therefore can select multiple Parts and edit them simultaneously.

To edit multiple Parts at once:

- i. Select the Parts you want to edit simultaneously.
- ii. Carry out the operation you want to apply to all selected Parts.

Chapter 5 MIDI Sequencer

Target user: *MIDI-Producer, Songwriter, DJ*

energyXT provides a wealth of functionality for editing and manipulating MIDI data to create state-of-the-art music compositions. There are several applications that might come to one's mind: Nowadays, the most common application would be to create a complete virtual studio setup solely with software plug-ins which is energyXT's major domain. A more traditional setup would be to use the software only for recording from and playing back MIDI data to hardware tone generators.

MIDI data is most commonly produced with a suitable hardware device such as a master keyboard, although you may also create a song solely by using the MIDI editors of energyXT. With an adequate DAW hardware controller you may control certain energyXT functions which proves especially useful to control several plug-in parameters or Mixer controls more comfortably and intuitively than with a mouse.

The setup

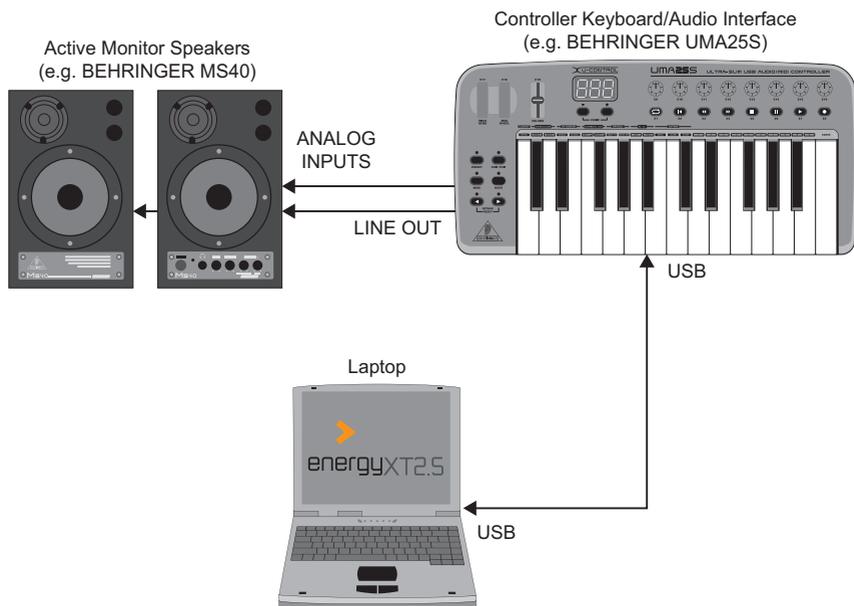
Basically, there are two different conceivable setups for working with MIDI. See the application examples on how to make the necessary connections.

MIDI setup with a master keyboard and virtual tone generators

In this application, the sound is merely produced from virtual tone generators (e.g. VST plug-ins). The controller keyboard is needed to input MIDI data. With an integrated solution, such as the depicted audio interface / MIDI keyboard combination, you have all necessary hardware for this application unified in a single unit.

What you need

- ♦ a master keyboard with audio capabilities or a master keyboard plus an external audio interface.





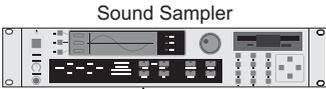
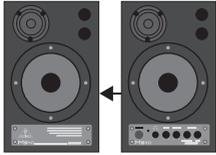
MIDI setup with hardware tone generators

In this application, the sound is solely being produced by external hardware tone generators (e.g. sound sampler and sound module). The MIDI keyboard is needed to input MIDI data.

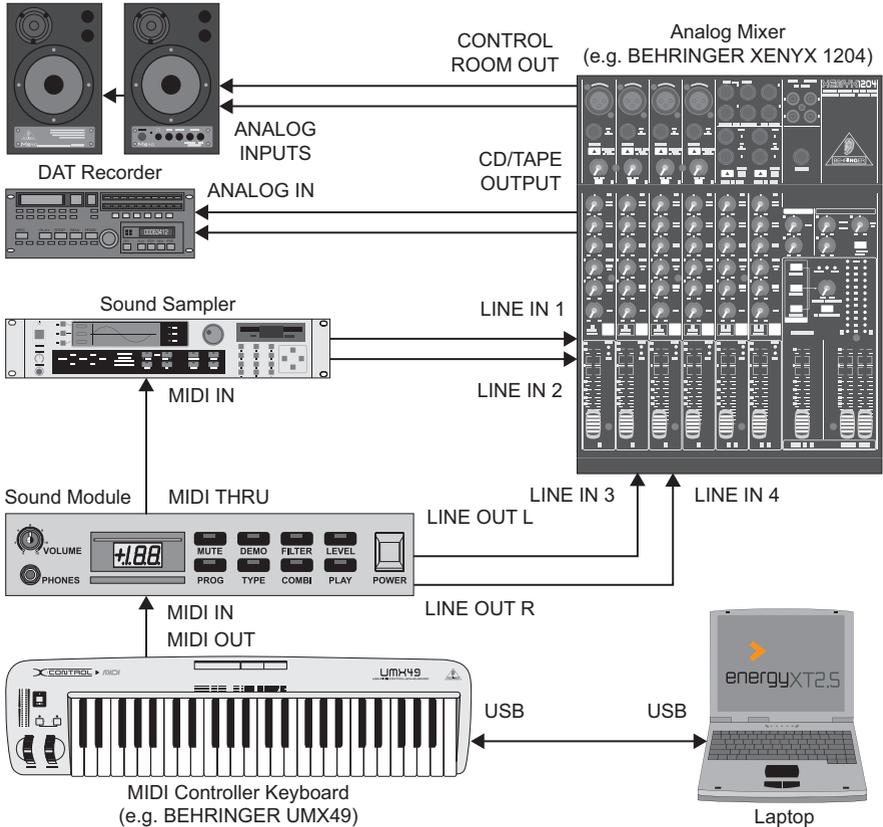
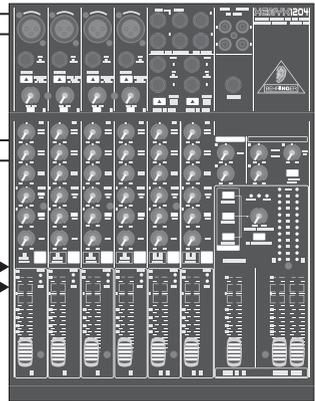
What you need

- ◊ a master keyboard with integrated tone generation to input and playback MIDI data or a controller keyboard plus external tone generators.

Active Monitor Speakers
(e.g. BEHRINGER MS40)



CONTROL ROOM OUT
Analog Mixer
(e.g. BEHRINGER XENYX 1204)



MIDI recording step by step

The following section will show you how to make use of the full MIDI potential of energyXT. On the basis of a typical recording application, all important aspects of MIDI-based music recording are covered.

- **Before you follow the instructions below, make sure you've already set up your computer and energyXT properly. See chapter "Setup" for details.**

Each paragraph heading outlines the main steps you need to undergo to do a typical MIDI recording. You may follow all of the paragraphs or just pick the ones that are of interest to you. However, it might be useful to read all texts to get to know all the possibilities energyXT has to offer.

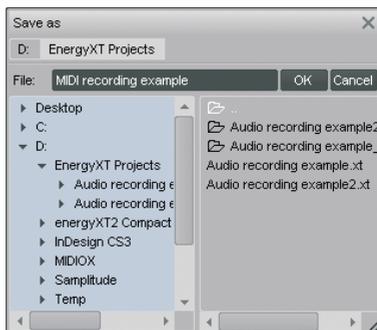
For better understanding the guide reflects a real-life recording example, which is to record two MIDI instruments one after the other and add some drums with the integrated Drum Sampler. You will learn how to record MIDI data, use virtual instrument plug-ins and edit and manipulate your recordings. Later on, you may take this demo Project as a starting point and tailor it to your needs. Keep track of the demo Project's progress by reading the text after each diary icon.

Creating a Project

Before you can make a recording you have to create a Project. The Project is the foundation for your song and contains all musical data, settings and parameters.

To create a Project:

- i. Go to *File > New Project*.
Alternatively choose the respective template from the Welcome screen..
- ii. Choose *File > Save as...* to call up the save dialog.
- iii. Choose a folder for your Projects.
The save dialog of energyXT is similar to that of the Windows Explorer user interface. The left column shows the folder tree of your drives and the right column lists all subfolders and energyXT related files that are present in the selected folder. The selected folder path is displayed at the top of the window.
- iv. Under *File:*, enter a reasonable name for your Project.
- v. Click *OK*, to save the Project.



In our example we created a new Project called *MIDI recording example* and saved it to *D:\energyXT Projects*.

Adding Instrument Tracks

The common track type for MIDI data in energyXT is the Instrument Track. It either carries only the recorded MIDI events for an external tone generator or it immediately hosts the tone generation by means of a virtual VST instrument likewise.

To add an Instrument Track:

- i. In the Sequencer view from the menu, choose *Track > Add New > Instrument Track*. Alternatively, use the context menu on the empty track column or select an already present Instrument Track and double-click into the track column to add a new track.
- ii. You may name each track to identify it easily. See chapter "Naming tracks (Sequencer)" for details.

➤ Alternatively, you can use the *Quick add button* next to the bar line to add a new track.

 In our example we created two Instrument Tracks named *Lead* and *Bass*.



Using virtual instruments

Each Instrument Track can host a virtual instrument plug-in. EnergyXT supports both common VST instruments and its own powerful Synthesizer plug-in.

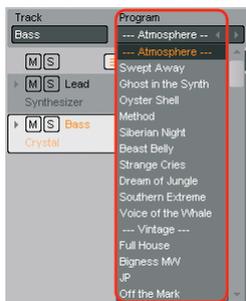
To add a virtual instrument to an Instrument Track:

- i. In the Sequencer view from the Browser window either choose a VST instrument or the energyXT Synthesizer. Select the name entry, and with the mouse button depressed, drag it onto an Instrument Track. The name of the virtual instrument appears below the track's name. By clicking on its name you can access the control page of the instrument.



➤ You can create a new Instrument Track with a virtual instrument already included by dragging the instrument's entry from the Browser onto the track column directly below the last track.

- ii. Choose an entry from the *Program* drop-down list in the info panel to select a preset sound for a virtual instrument, if available.



In our example we added energyXT's proprietary Synthesizer to the Lead track and the Crystal VST instrument to the Bass track.

Routing MIDI inputs and outputs

On each Instrument Track you can record MIDI data either from a single physical MIDI input device or from several MIDI input devices (energyXT2.5 only). Likewise, you can either play back to a single or to several external / virtual instruments and Mixer channels. The appropriate routing can be done in the Sequencer view.

To determine the routing for an Instrument Track:

- i. In the Sequencer view, select an Instrument Track.
- ii. From the info panel, check one or more Input Component(s) from the drop-down list. By default any physical MIDI input device is mapped to the basic MIDI In Component which is pre-selected for any Instrument Track.
- In energyXT2.5 Compact, you can only have a single physical MIDI device active.
- iii. Check the appropriate Output Component(s) from the drop-down list. External tone generators, which are connected to a physical MIDI input device, appear as MIDI In. You may also choose a Mixer channel as a target.
- Virtual instruments are assigned automatically to their Instrument Track.



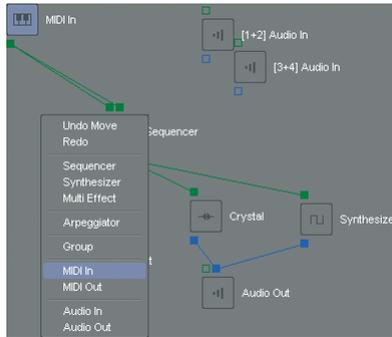
Creating additional MIDI In Components for multiple input devices

By default energyXT creates a single MIDI In Component to which all active physical MIDI input devices are assigned. That means, the MIDI signal of each device is merged in the MIDI In Component, which in most cases is useful.

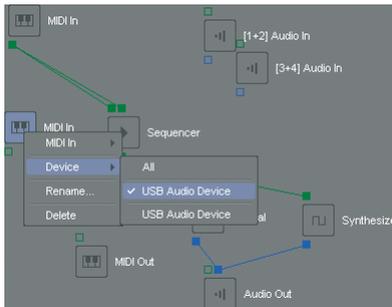
However, if you have several MIDI input devices connected you may want to individually assign these to different tracks. In this case, you have to create the needed amount of MIDI In Components in the Modular View and assign all physical devices accordingly.

To create MIDI In Components for multiple input devices:

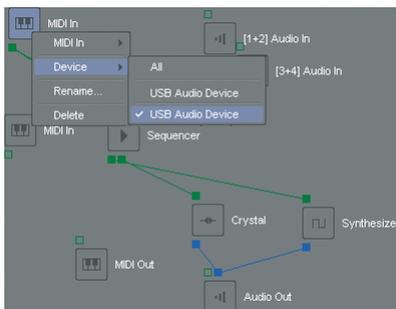
- i. In the Modular view from the context menu, choose *MIDI In*.
A new MIDI In Component appears.



- ii. In the Component's context menu under *Device*, check a physical MIDI input device.



- iii. In the context menu of the existing MIDI In Component, check another physical MIDI input device. Now each Audio In Component is assigned to a different physical MIDI input device.



- iv. Repeat steps i.-ii. for other MIDI input devices you want to use.
- v. From the context menu of a MIDI In Component, choose *Rename...* to name each Component properly.



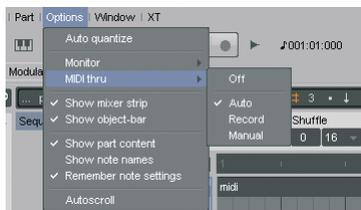
In our example we created a new MIDI In Component and assigned one of two available physical MIDI input devices to the newly created MIDI In Component and the second to the initially available MIDI In Component.

MIDI thru settings (MIDI monitoring)

The MIDI thru setting is the counterpart of the Monitor setting for audio signals. It determines the pass-through for MIDI input data, thus serves as a monitor function. In most cases the default setting Auto needn't be changed, especially not when working with virtual instruments. However, if you have a master keyboard with internal tone generation and switched the Local setting of the keyboard to On you may want to disable MIDI thru in energyXT to prevent the tone generation of your master keyboard from being triggered twice by the same MIDI data. See the user manual of your keyboard for details on the Local settings.

The MIDI thru settings in energyXT include:

- ◇ *Off*: Disables MIDI monitoring.
- ◇ *Auto*: Enables MIDI monitoring anytime (Default setting).
- ◇ *Record*: Enables MIDI monitoring only during recording.
- ◇ *Manual*: Enables MIDI monitoring only if the monitoring for each track is activated in the track column.



To adjust the MIDI thru settings:

- i. From the menu, choose *Options > MIDI thru* and select the appropriate setting.



In our example we chose the default setting *Auto*.

Configuring the metronome

If you want to record several instruments one after the other it is critical that you perform your music as exactly as possible to a given song tempo when recording. In energyXT you can use a metronome which, like its real counterpart, produces an audible click, the beat.

To set the tempo:

- i. Input the song tempo in the field next to the transport controls.

To configure the metronome:

- i. Right-click on the metronome icon.
- ii. Choose the number of beats per bar (1 to 8 beats).
E.g. 4 beats to count quarter notes for a 4/4 time signature.
- iii. Check the *Count-In* entry if you want to have a one bar precount before the recording starts.
- iv. Check the *Playback* and *Recording* entries if you want to hear the metronome's click during playback and recording.
- v. Select a volume for the click under the *Volume* entry.
- vi. Check the *Enable* entry to activate the metronome.
Alternatively, you can left-click the metronome symbol to enable / disable the metronome.



In our example we chose a song tempo of 100 bpm and enabled the metronome with a one bar precount to count quarter notes during a recording.

Recording takes

Among musicians a recording is most commonly known as a take. A take can be just a few bars of length or even cover the whole song. For each take energyXT creates a Part from the beginning of the recording to its end. Parts can be modified later on in various ways as described in chapters "Editing Parts (Sequencer)" and "Working with patterns".

To record a take:

- i. In the Sequencer view, select an Instrument Track for recording.
- ii. Choose the correct MIDI channel at which the Instrument Track shall output MIDI data. For virtual instruments you can also choose a preset sound.



- iii. Set a recording range in the bar line if you know the length of your musical performance. Alternatively, you can set a zero range if you can't predict the length of your recording.
- iv. Place the song position pointer at the very beginning of the song or at the beginning of your recording range.
Remember to use the grid function to place the song position pointer exactly at musical units (see chapter "The grid snap function (Sequencer)").

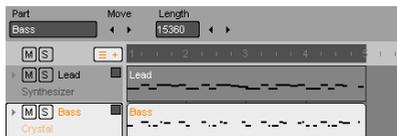
- v. Click on the Record button in the transport controls to start the recording.

If you have activated the metronome's Count-In, the recording starts with the secondly counted bar.

- vi. Perform your music.
EnergyXT creates a Part for your recording.

- vii. Click on the Stop button in the transport controls to stop the recording.

If you have predefined a record range, the Part length always matches the range. Otherwise, the Part ends as soon as you stop the recording.



In our example we recorded a 4 bar Lead take from the beginning of the song and another take on the Bass track of the same length.

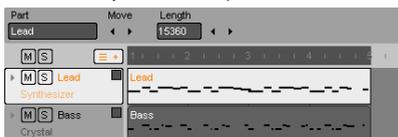
Quantizing MIDI events

Once you have recorded a MIDI performance, the note events in the Sequencer exactly mirror your performance with all timely looseness you may have performed with. It doesn't matter if you gave your best to play as accurately as possible to the click of the metronome, your timing will always be insufficient compared to the musical grid of the Sequencer. In some cases this variance in timing is volitional and is perceived as the human feel when you play back the music but in other cases (e.g. if you are not a good keyboard player or solely produce tightly timed electro music) these variances can lead to a very unstable and unsatisfying timing, especially when you play back several recorded tracks.

With energyXT, you can adjust your musical performance to a musical grid to make it more consistent. This function is called Quantization. When you quantize a performance each note is dragged to the nearest surrounding matrix dot of the grid which corresponds to a selected note value. In most cases the note value for the quantization grid results from the shortest notes that your performance contains.

To quantize your recording:

- i. In the Sequencer view, select the Part you wish to quantize.



- ii. Choose a suitable note value for the quantization grid.



- iii. From the menu, choose *Part > Quantize*.

After quantization you should play back your quantized Part and verify that the quantization was successful:

- ◇ If the original rhythmical idea is preserved, the quantization was succesful.
- ◇ If the original rhythmical idea has changed, you have to try a different setting for the quantization grid.

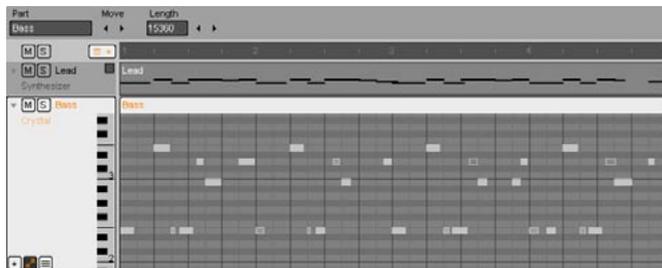
➤ If short notes appear displaced, you should try a smaller note value for the quantization setting.



Some performances can not be quantized with a single quantization setting properly. That's because they include too many diversified note values. In this case you need to apply different quantization values to individual passages.

To quantize individual passages:

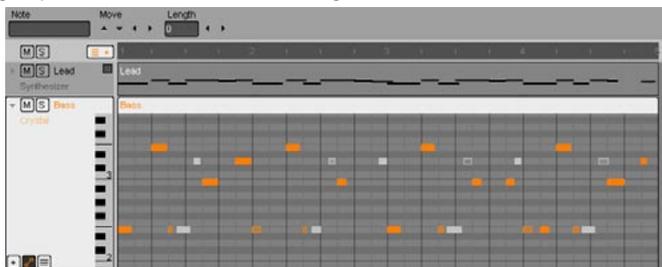
- i. In the Sequencer view, double-click on the track you wish to quantize to enter the edit view.
- ii. Resize and zoom into the track to see all recorded notes. You can scroll the view vertically when you place the mouse pointer on the clavature and turn the mouse wheel up and down. Alternatively, use the *Page Up* and *Page Down* keys.



- iii. Choose a suitable note value for the quantization grid.



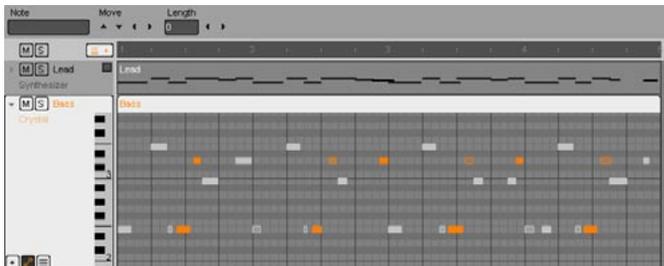
- iv. Identify a group of notes which are close to the grid lines and select them.



- v. From the menu, choose *Part > Quantize*.
- vi. Choose a suitable note value for the quantization grid that captures the remaining note values.



vii. Select the remaining notes that are close to the grid lines and select them.



viii. From the menu, choose *Part > Quantize*.



In our example we applied an eighth quantization to the Lead track Part, did the same with selected notes of the Bass track and quantized the remaining notes of the Bass track Part to sixteenths.

Auto quantize

You may also use Auto quantize to quantize your performance automatically.

i. In the Sequencer view, from the menu choose *Options > Auto Quantize* to enable / disable automatic quantization.

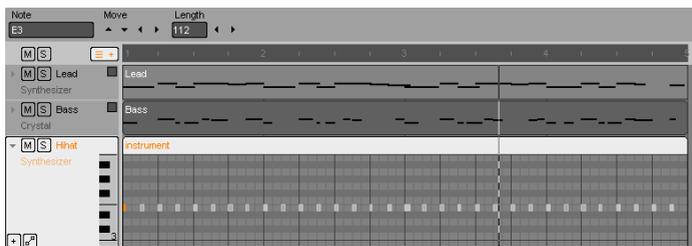
- In most cases it is best to record the performance as is and do the quantization later on. Thereby you are able to try different settings or select the right quantization setting for each passage separately. By Auto quantize activating, the original timing of your performance may be irretrievably distorted, depending on your quantization settings.

Shuffle quantize

You can use the quantize function intentionally wrong to change the rhythmic metrics of a binary to a ternary performance. You may do so to create the famous shuffle rhythms.

To add a shuffle quantization to a binary performance:

- i. In the Sequencer view, double-click on the track you wish to quantize to enter the edit view.
- ii. Resize and zoom into the track to see all recorded notes and select the notes you want to shuffle. You can scroll the view vertically when you place the mouse pointer on the clavature and turn the mouse wheel up and down. Alternatively, use the *Page Up* and *Page Down* keys.



- iii. Choose a quantization value and activate triplets.



- iv. From the menu, choose *Part > Quantize*.
All notes will be dragged to triplet quantization values forming a shuffle rhythm.



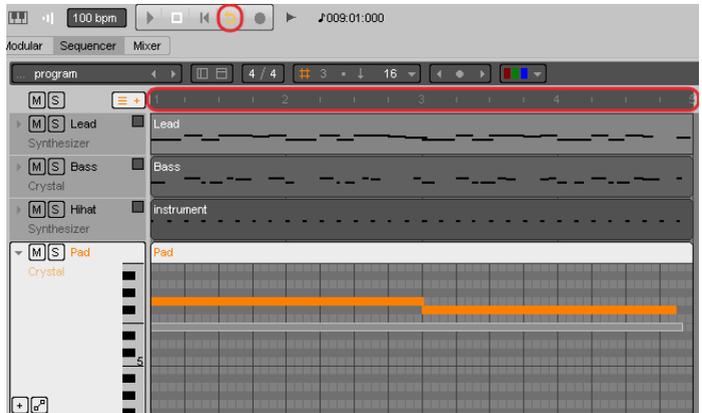
In our example we applied an eighth triplet quantization to the Hihat track.

Overdub recording

Overdubbing is a technique to add a musical performance to a previously recorded one. You can use this recording method to create harmonic lines without actually having to play the harmony at once. This is especially useful, if you are not so handy with playing the keyboard or you have a supplementary idea for a previously recorded take later on.

To perform an overdub recording:

- i. In the Sequencer view, set a recording range.
- ii. Activate loop recording.
- iii. Select a track and a previously recorded Part for recording.
- iv. Start the recording and perform your music.
You can add as many musical lines as you want with every loop cycle.



- v. Stop the recording when you are finished.
The recorded layers are added to the existing Part. You may have to quantize the newly recorded notes.



In our example we recorded a harmonic layer to the Pad track.

Punch recording

Instead of recording on top of a previously recorded take you can also exchange a small slice of a Part with a new take. You can use this method, for example, to exchange a bad take with a good one or to vary a take which is being repeated throughout your song to make it sound different with every repeat.

To perform a punch recording:

- i. Set the grid snap function to *Bar*.
- ii. Place the song position pointer at the beginning of the slice you wish to re-record.
- iii. From the menu, choose *Part > Split* to split the Part into two pieces.



- iv. Place the song position pointer at the end of the slice you wish to re-record.
- v. From the menu, choose *Part > Split* to isolate the slice.



- vi. Select the isolated Part (Slice) and choose *Part > Delete* to delete it.
- vii. Set the recording range in the bar line to the range of the now missing slice.
- viii. Place the song position pointer at the beginning of the recording range.
- ix. Redo the recording.
The newly created Part replaces the previous one.



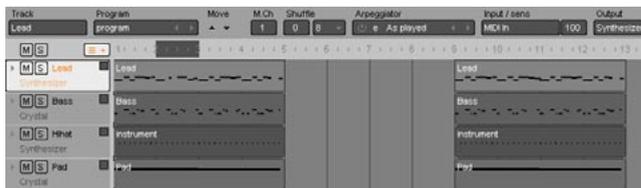
- x. Select all Parts and from the menu choose *Part > Glue* to unite all Parts again.



In our example we substituted a slice of the Lead Part with a new recording.

Working with patterns

EnergyXT displays recordings as Parts in a timeline. This concept facilitates a pattern oriented workflow as you can reuse musical phrases throughout the song. This is extremely useful if you have a traditional layout with verse and chorus. Even if you do not have a traditional song structure it is, at least, useful to use short phrases, riffs or elements again.



To create a reusable pattern:

- i. Split your recorded takes to musically reasonable Parts (e.g. verse, chorus, riff, solo).
Make use of the grid snap function to split Parts from bar to bar.
- ii. Select the Parts you wish to reuse.

To create a ghost copy:

- iii. Hold the *Ctrl* key, grab the Parts with the mouse and drag them to a new position in the timeline.
The created pattern is a Ghost of the original pattern. That means if you change the contents of either the change will be made in both patterns.

To create an independent copy:

- iv. Select all Parts and from the menu, choose *Part > Un-ghost*.

- **Make use of all Part edit functions (e.g. Split, Glue, Copy, Move, Resize) to create reusable patterns.**



In our example we created a ghost copy of all Parts from bars 1-5 and moved this pattern to bars 9-13.

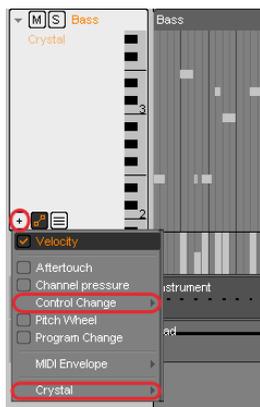
Editing MIDI events

An Instrument Track can host all types of MIDI events. A MIDI event results from either a recording or manually created entries. The most important events to trigger a tone generator (be it a virtual or an external instrument) are the note events which determine the pitch, the position, the volume (velocity) and the length of a tone. Other standard events to shape the tone include Aftertouch, Program Change, PitchWheel, Modulation Wheel (CC1), Volume (CC7) and Expression (CC11). Moreover energyXT complies to all MIDI controllers of the MIDI standard.

In edit view, each Instrument Track by default displays the note events and the corresponding Velocity controller data. Additional controllers can be displayed by clicking on the + symbol in each Instrument Track and checking the type of controller from the drop-down list. Controllers that do not appear by name can be found under the entry *Control Change*. The list includes all CC controllers from 0-127. Refer to www.midi.org for a list of important controllers that transmit Control Change events. If the Instrument Track hosts a virtual instrument, the available control element destinations of the plug-in can be selected as well.

- **Recorded controller events will always be played back no matter if the events are being checked to be displayed or not.**

Note event entries appear as horizontal bars with their length determining the note duration. Controller event entries appear as vertical bars with their maximum value at the top and their minimum at the bottom. For each controller you can create entries manually with the mouse. See the paragraphs below for details.



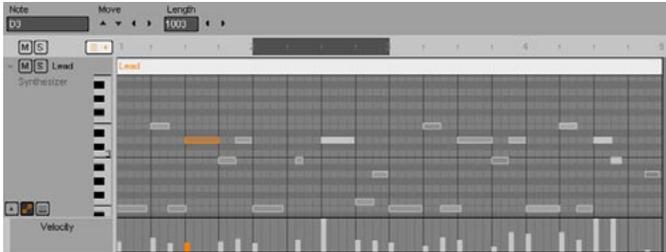
Editing note events

In the edit view of a track, you can edit note events in the same way as Parts.

To edit note events:

- ◆ Click a note event to select it.
- ◆ Click a note event and, with the mouse button depressed, drag it in any direction to change its position.
Remember to use the grid snap function to place note events at musical positions.
- ◆ Use the mouse to grab the beginning or end of a note event to alter its length.
- ◆ Double-click to create a new note at the position of the mouse pointer.
- ◆ Right-click a note event to delete it.

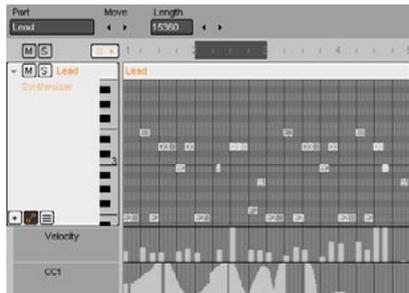
To identify the pitch of each note easily, it is useful to let the note names be displayed for each note event. Choose *Options > Show note names* from the menu to activate the feature. You can also use the clavature to the left for orientation. You can scroll the clavature up and down when you turn the mouse wheel while the mouse pointer hovers above it. Alternatively, use the *Page Up* and *Page Down* keys.



Note events are intrinsically tied to the Velocity controller which determines the volume of each note. You can alter each entry by clicking on the event and, with the mouse button depressed, drag it up and down. A new Velocity entry is created with every new note event.

Editing other controller data

All controller data appear as individual entries in the timeline. Unlike the Velocity controller they are not tied to note events. Due to a low zoom factor, very frequently recorded entries (e.g. ModWheel and Pitch-Bend) may appear as a connected curve. You can edit both individual events and a group of events that form a curve.



To edit the value of individual events:

- i. Click on the event, and with the mouse button depressed, drag it up and down.

To edit a group of subsequent entries that, due to their high density, appear as a curve:

- i. With the mouse button depressed, draw a curve over all events.
You may have to zoom in to access all events properly.

To create events manually do the following:

- i. In the edit window, double-click at the time position where you want the event to be created.
The exact position of the entry depends on the setting of the grid snap function and the actual zoom factor.

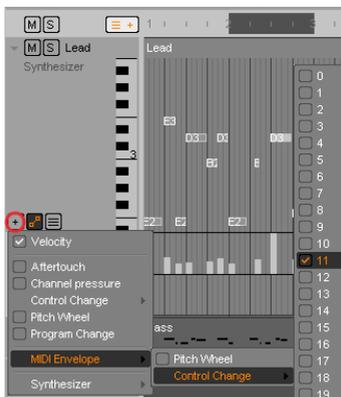
Editing MIDI envelopes (energyXT2.5 only)

Instead of painfully placing and editing individual events to form a curve you can alternatively use MIDI envelopes to define a curve shape for a controller. With MIDI envelopes, it is easy to continuously change parameters over time. That's because they are created with only a few nodes which are automatically connected and form a curve. A curve can be freely bend from linear to exponential.

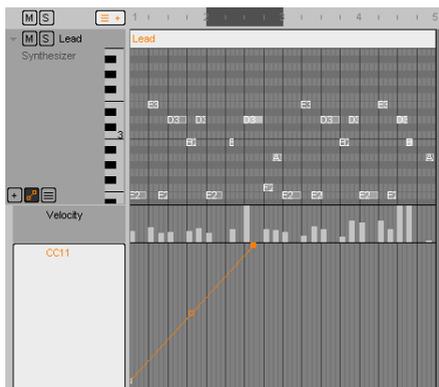
Reasonable standard MIDI events to control with MIDI envelopes include PitchWheel, ModWheel (CC1), Volume (CC7), Panorama (CC10) and Expression (CC11), plus any other controller that is being used to produce continuous parameter changes.

To create a MIDI envelope:

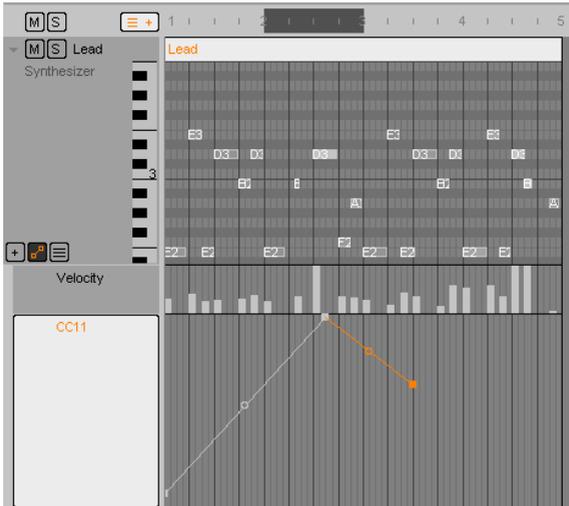
- i. In the Sequencer view, set the grid snap function to 4 to place nodes at quarter note values. You may choose smaller note values to create more nodes for more detailed envelopes.
- ii. Check the controller entry (e.g. Expression CC11) to display the MIDI envelope edit window.



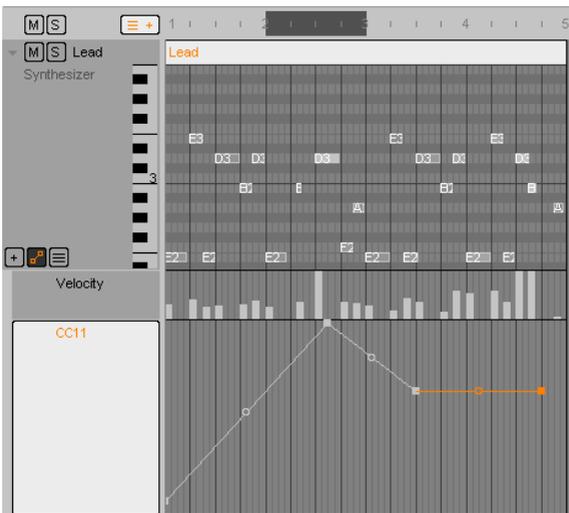
- iii. Add two envelope nodes by double-clicking into the edit window of the controller to create a fade in. Place one node at the very beginning and the second a few quarters behind. Envelope nodes are indicated by small squares and can be positioned horizontally and vertically by dragging them to the wanted position.



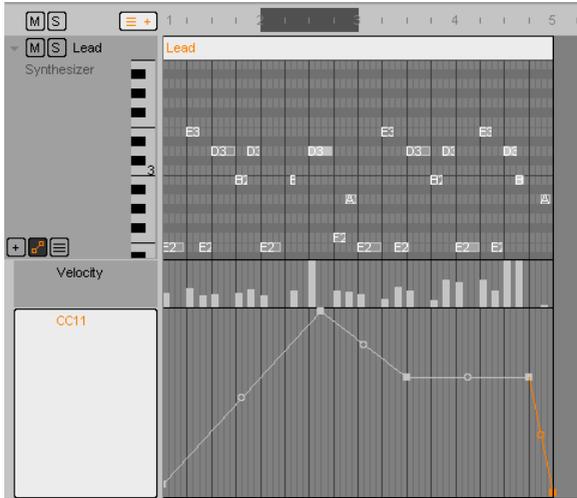
- iv. Use the mouse to drag the first node to the bottom (minimum value) and the second to the top of the edit window (maximum value).
- v. Create another node at an intermediate value to slowly lower the Expression.



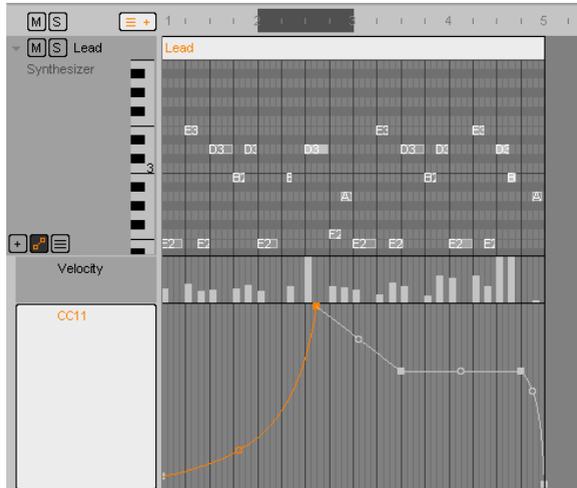
- vi. To hold the reduced Expression level, create another node.



- vii. Add a final node at the end of your Part to create a fade out.



viii. Curve the fade in / out by dragging down the circle in between the nodes with the mouse to create a smooth fade.



These are the basics on how to work with envelopes. From this example you may go ahead and create your own envelopes for various parameters (e.g. Pan, EQ, VST effect controls).



In our example we created a MIDI envelope for the Expression controller in the Lead track.

Remote controlling Instrument Tracks

Parameters of virtual instruments can be mapped to hardware controls of a MIDI controller unit or a master keyboard. Many virtual instruments already react on the basic MIDI controllers, e.g. ModWheel, PitchBend, Aftertouch and Expression, to name just a few. Refer to the user manual of your VST plug-in for details. Other parameters / controls can be freely mapped to react to specific MIDI controllers. You can also map a control of the virtual instrument's channel strip of the Mixer to a MIDI controller sent from a hardware unit.

A mapped MIDI controller can be recorded to an Instrument Track and edited just as explained in chapter "Editing MIDI events".

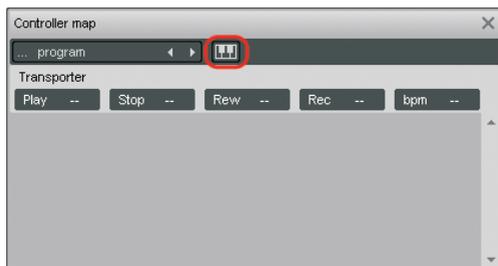
- **If you do not own a MIDI controller unit, you can move the controls of energyXT's Mixer and virtual instruments with the mouse and record the movement.**

To map the parameters of a virtual instrument to a MIDI controller unit:

- i. Click on the MIDI indicator next to the metronome symbol to open the MIDI controller mapping dialog.



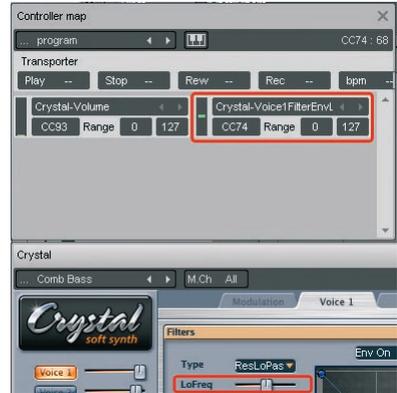
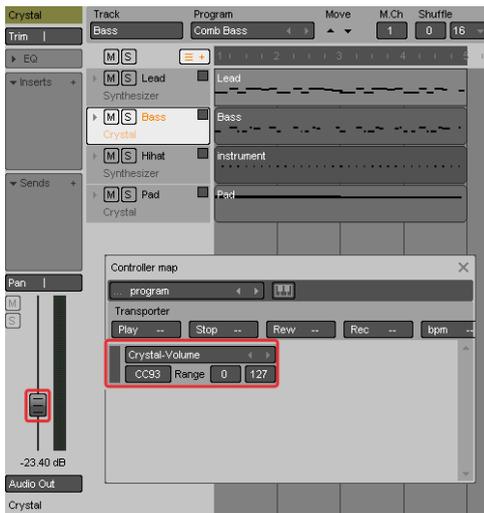
- ii. Click on the keyboard symbol to use the MIDI learn function. energyXT now waits for a control element to be moved.



- iii. Make sure that the control you wish to control remotely is displayed on the screen. To control a parameter of a VST instrument, you have to bring up its user interface.
- iv. Grab and drag the control element that you want to calibrate with the mouse (e.g. level fader, control element of a VST instrument). The Controller map dialog displays the parameter's name.

- **The parameters of energyXT's Synth / Sampler can only be automated from the plug-in's MIDI page.**

- v. Turn the control of your DAW controller up and down to map the control of your hardware to the control element of the software.



- vi. Repeat steps iv.-v. for every control you want to control remotely.
 - vii. Click on the keyboard symbol in the Controller map dialog to finish the calibration.
 - viii. Alter the values in the *Range* fields to restrict the control range for a more precise input, if needed.
- You can use the Controller map dialog in the same way if you want to assign hardware controls to the parameters of the instrument's Mixer channel.



In our example we mapped the volume fader of the instrument's Mixer channel to CC93 and the parameter LoFreq of the virtual instrument to CC74.

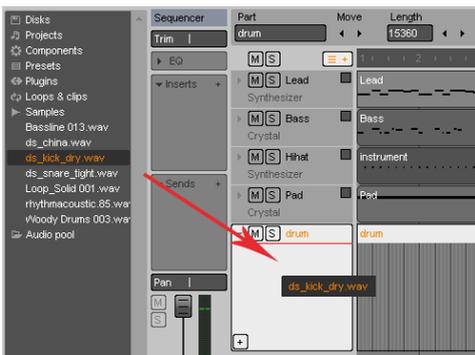
Using the Drum Track

EnergyXT features its own Drum Sampler, which is part of each Drum Track. The Drum Sampler can host several drum samples. Note events of the Drum Track appear in a special drum grid editor. Although the editor has a different look compared to the Instrument Track's editor, event editing is handled equally.

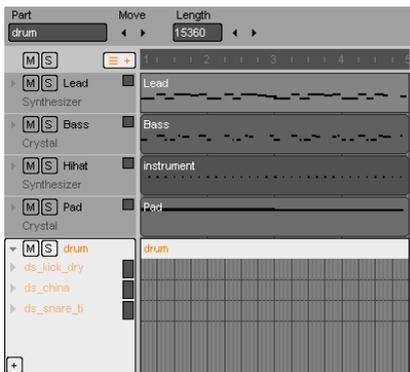
To create a Drum Track:

- i. In the Sequencer view, from the menu choose *Track > Add New > Drum Track*.

- ii. From the Browser window, select the name entry of a sample file and, with the mouse button depressed, drag it onto the Drum Track.



- iii. Repeat step ii. for all samples you want to include in your Drum Track.
- iv. In the bar line, set a recording range in which you want to create a Drum Part.
- v. Double-click into the Drum Track to create a drum Part.



- vi. Set the grid snap function to the note value at which you wish to place the drum note events.
- vii. Double-click the drum Part to place a note event for each sample. You can use the same edit functions for editing drum note events as for editing the note events of an Instrument Track. Refer to chapter "Editing note events" for details.



viii. Click on the triangle next to each drum sample's name to edit the volume (*Vol*), panorama (*Pan*) or filter frequency (*Cutoff*) parameters for each note. You can use the same edit functions for the parameters of the Drum Sampler as for the velocity controller of an Instrument Track. See chapter "Editing note events" for details.

Alternatively, you can set the parameters in the Drum Sampler's user interface to fixed settings if they need not change with every note.



➤ Instead of manually placing the drum note events you can also record the drums like any other Instrument Track. See chapter "Recording takes" for details.

📖 In our example we created a basic drum Part with a bass drum, a snare drum and a hi-hat.

From the user interface of the Drum Sampler, you can change the playback options for each sample separately. To bring up the Drum sampler's user interface, click on any sample name in the track column.

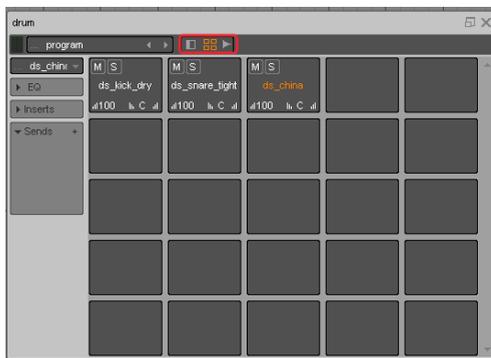
The available parameters for each sample slot are as follows:

- ◊ *Volume*: to change the volume.
- ◊ *Pan*: to change the position in the stereo field.
- ◊ *Effects*: to apply eq, insert and send effects to each drum slot (energyXT2.5 only).
- ◊ *Sample cell*: to identify the key with which the sample is triggered from a keyboard.
The first drum sample is always mapped to C1. Other samples are mapped consecutively to the next half tone above.
- ◊ *Tuning*: to alter the pitch.
- ◊ *Waveform view*: to change the start and stop locators for the sample playback.

By default the sample is played back from beginning to end.

If you want to change the starting point, drag the S flagged locator with the mouse to the right. If you want to change the ending, drag the E flagged locator with the mouse to the left.

➤ Use the buttons next to the program selector to activate / deactivate the different views (e.g. mixer, waveform)



Using track Arpeggiator and Shuffle quantization

The Arpeggiator (energyXT2.5 only)

Each Instrument Track in energyXT2.5 features a powerful MIDI Arpeggiator which you can use to easily create a variety of different rhythmical patterns. With a monophonic input, the Arpeggiator simply repeats the played note and thus creates a rhythmical pattern. With a polyphonic input, the Arpeggiator can either do the same with all notes being played back as a chord or a sequence. The use of Arpeggiator patterns for bass lines, pads and lead voices is very popular in modern music production.

To activate the Arpeggiator:

- i. In the Sequencer view select a track.
- ii. Click on the power symbol.
- iii. Click on **e** to bring up the user interface.



The Arpeggiator has nine different operation modes and several parameters to control the shape of the arpeggio patterns.

The operation modes are as follows:

- ◇ *Up, Down, Up-down, Up and down, Down-up, Down and up:* to play back the notes in the selected order depending on their pitch.
- ◇ *As played:* to play back the notes in the order in which the notes were played.
- ◇ *Chord:* to play back the notes simultaneously.
- ◇ *Random:* to play back the notes in random order.



Important parameters for the pattern control are as follows:

- ◇ *Step:* to define a note value for the arpeggio pattern.
- ◇ *Gate:* to set a value to cut the sustain of the notes.
- ◇ *Shuffle:* to set a value for ternary pattern playback.
- ◇ *Rnd. velo:* to randomize the velocity of the notes.
- ◇ *Oct:* to spread the pattern over several octaves.

Additional controls are as follows:

- ◇ *Hold switch:* to continue pattern playback even if the trigger notes are not held any longer.
- ◇ *3-switch:* to switch the pattern from binary to ternary playback.

The Shuffle quantization

With the Shuffle quantization, you can force a track to be played back with the famous ternary shuffle feel. This option does basically the same as the Quantization function (see chapter "Shuffle quantize") when set to triplets, but with the advantage that it can be revoked any time, as the basic quantization remains unaffected by the Shuffle quantization.



To define a shuffle amount for an Instrument Track:

- i. In the Sequencer view, select a track for shuffle quantization.
- ii. Select a note value.
- iii. Adjust the amount of quantization.



Freezing tracks (energyXT2.5 only)

Tracks can be frozen to free up system resources. A frozen track will be played back like an Audio Track with all VST instruments disabled to save CPU power. As long as a track is frozen, it does not reflect any changes that you made unless you unfreeze it again. Use the freeze option if you encounter problems with your system performance.

To freeze an Instrument Track:

- i. In the Sequencer view, select a track to freeze.
- ii. From the menu, choose *Track > Freeze*.
The track name shows *frozen //* to show the actual status of the track.

If you want to make changes to the track again:

- iii. From the menu, choose *Track > Freeze* to unfreeze the track again.

Chapter 6 Virtual FX Rack

Target user: *Guitarist / Keyboardist, Sound Designer*

Due to the versatile concept of energyXT, it is possible to use the software also for building virtual effects racks. This application has become very popular over the last years for reproducing the sound of a guitar effects rack. With energyXT, you can use whatever VST effect you can buy or find in the net and create your very own personal effects rack.

By chaining several effects, you can create a powerful multi-effect to substitute an expensive amp / stomp box hardware combination. You can play live with a guitar / keyboard amp but you can also record state-of-the-art sounds into your computer. As a Sound Designer you may use this technique to create very complex new sound scapes with various input signals as well.

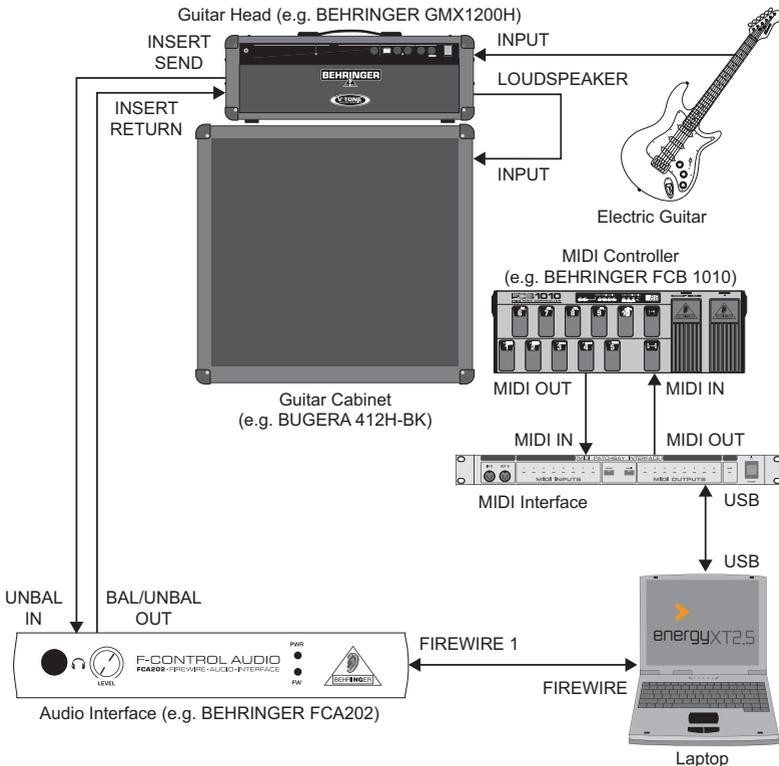
The setup

Basically, there are two different conceivable setups for live and studio use.

Guitarist / Keyboardist live setup

You need:

- ♦ a 2-channel audio interface and an amplifier (or an amp head / cabinet combination)

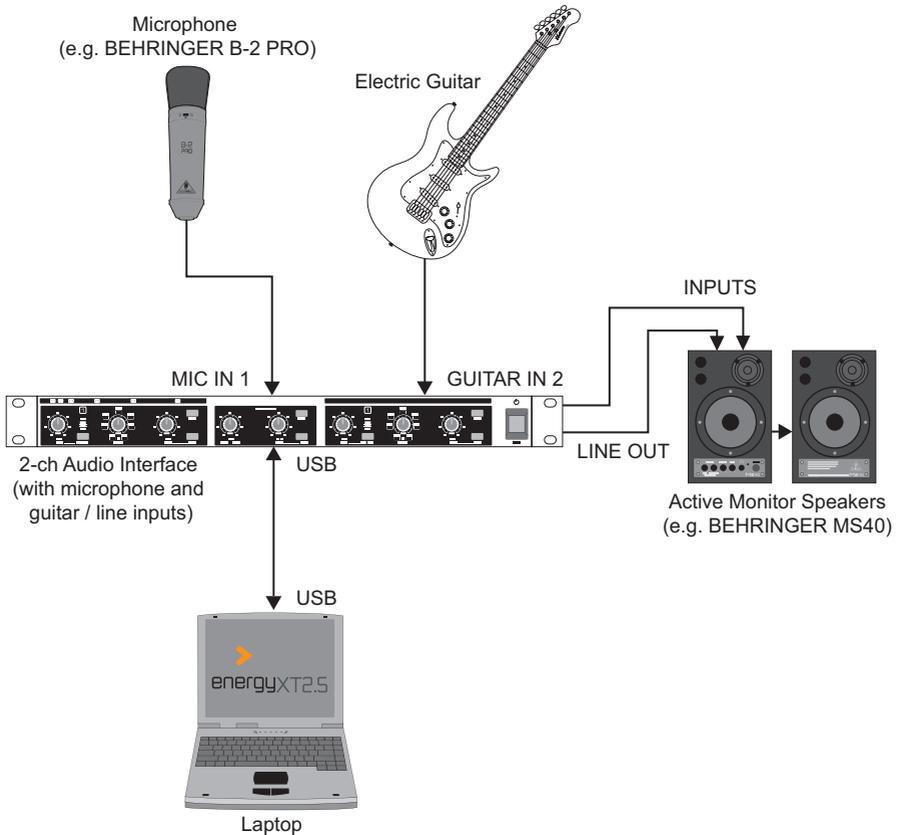




Guitarist / Sound Designer studio setup

You need:

- ◊ a 2-channel audio interface with microphone and guitar / line inputs
- or
- ◊ a 2-channel audio interface with line inputs and a mixer



Building a virtual FX rack step by step

The following section will show you how to configure energyXT as a virtual effects rack.

- Before you follow the instructions below, make sure you've already set up your computer and energyXT properly. See chapter "Setup" for details.



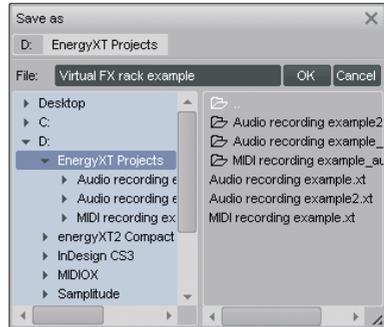
You will learn how to use virtual effects plug-ins (e.g. the built-in Guitar Amp), interconnect all plug-ins to build an effect chain and output or record the signal to an amp or Audio Track. Later on, you may take this demo Project as a starting point and tailor it to your needs. Keep track of the demo Project's progress by reading the text after each diary icon.

Creating a Project

Before you can make a recording you have to create a Project. The Project is the foundation for your song and contains all musical data, settings and parameters.

To create a Project:

- i. Go to *File > New Project*.
Alternatively choose the respective template from the Welcome screen.
- ii. Choose *File > Save as...* to call up the save dialog.
- iii. Choose a folder for your Projects.
The save dialog of energyXT is similar to that of the Windows Explorer user interface. The left column shows the folder tree of your drives and the right column lists all subfolders and energyXT related files that are present in the selected folder. The selected folder path is displayed at the top of the window.
- iv. Under *File:*, enter a reasonable name for your Project.
- v. Click *OK*, to save the Project.



In our example we created a new Project called *Virtual FX rack example* and saved it to *D:energyXT Projects*.

Using the Modular view to build effect chains

The Modular view enables nearly unrestricted interconnection of Components, such as inputs, outputs, effects and instruments. This is where you can make the necessary connections for an effects chain. There are two ways of interconnecting effects:

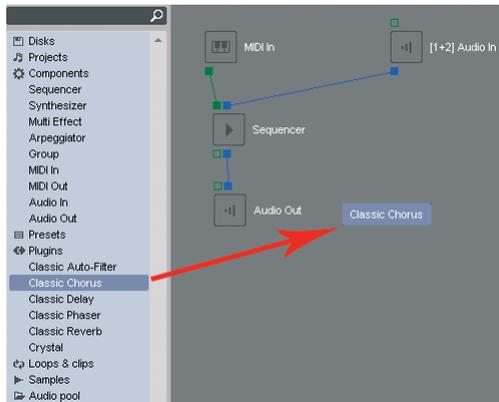
- ◇ **Serial connection:** the input signal consecutively travels from effect to effect. This creates a very powerful effect, as the output of every effect plug-in is fed to the input of the next effect in the chain.
- ◇ **Parallel connection:** the original input signal simultaneously travels through all effects. This signal path gives more control over volume levels and effect details, as the original input signal is fed to the input of each effect and output levels can be controlled separately.

Of course, you can combine both connection types, if needed.

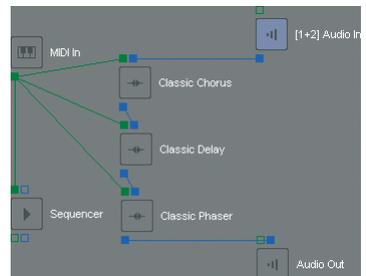


To make the connections for a serial effects chain.

- i. In the Modular view, select the name entry of a VST compatible effect or energyXT's Multi Effect from the Browser window and, with the mouse button depressed, drag it into the Modular view. The plug-in will appear as a Component which is automatically connected to the Audio Out and the MIDI In Components.



- ii. Repeat step i. for every effect you want to use.
- iii. Break the connection of the Audio In Component to the Sequencer Component.
See chapter "Accessing Components in energyXT (Modular)" for details on how to make connections in the Modular view.
- iv. For every effect Component break the output connection to the Audio Out Component.
- v. Connect the Audio In Component to the input of the first effect.
- vi. Connect the output of the first effect Component to the input of the next effect.
- vii. Repeat step vi. for every effect Component.
- viii. Connect the output of the last effect Component to the input of the Audio Out Component.
- ix. Double-click on each effect Component to bring up its user interface and edit its parameters.

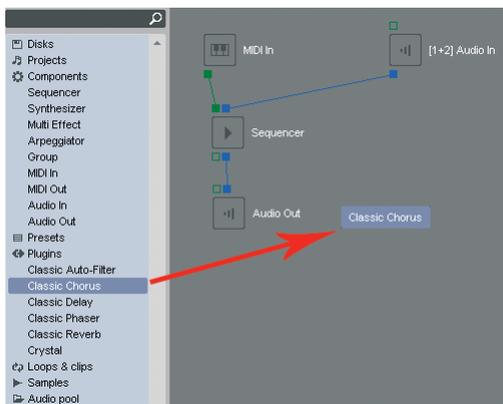


➤ Use the dry / wet control of the applied effect to control the mix.

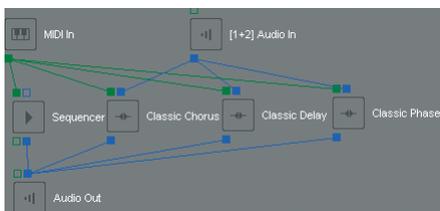
 In our example we created a serial effect chain with three VST effects.

To make the necessary connections for a parallel effects chain.

- i. In the Modular view, select the name entry of a VST-compatible effect or energyXT's Multi Effect from the Browser window and, with the mouse button depressed, drag it into the Modular view. The plug-in will appear as a Component which is automatically connected to the Audio Out and the MIDI In Components.



- ii. Repeat step i. for every effect you want to use.
- iii. Break the connection of the Audio In Component to the Sequencer Component. See chapter "Accessing Components in energyXT (Modular)" for details on how to make connections in the Modular view.



- iv. Connect the Audio In Component to the input of the first effect.
- v. Repeat step iv. for every effect Component.
- vi. Double-click on each effect Component to bring up its user interface and edit its parameters.

- Use the dry / wet control of the applied effect to control the mix.
- You can individually adjust the level of each effect in the Mixer view by using the respective level faders.

 In our example we created a parallel effect chain with three VST effects.

Setting the input signal level

Setting a proper signal level for the input signal is very important in order to avoid annoying artifacts.

If the level of the signal is

- ◊ too high, the signal will distort.
- ◊ too low, the signal probably will be covered with noise and result in falsified sound.

You can adjust the level of the input signal in the Mixer view. The Mixer is organized in channel strips.

To set a proper input signal level, you need to be familiar with the following elements:

- ◊ The Trim for boosting or lowering the input signal level at the top.
- ◊ The level fader with the corresponding level meter at the bottom.

To adjust the level of the input signal properly:

- i. In the Mixer view, identify the input channel strip to which your signal is connected (e.g. *Audio In*, [1+2] *Audio In*).
- ii. Play your instrument or whatever signal you have connected to your audio interface and observe the level meter next to the level fader.
- iii. Adjust the level of the input signal at your audio interface according to the user manual of the unit, if your audio interface includes a control for trimming the signal level.
- iv. Adjust the level of the input signal further with the Trim so that the peak amplitude of the signal barely causes the level meter to reach the top.
- v. Reduce the recording level with the level fader, if needed.



In our example we adjusted the input signal level with the Trim to + 8.1 dB and left the level fader at its default 0.00 dB position.

Effect racks (Guitar Amp)

Another way of building virtual effects chains is to use the built-in effect racks in energyXT, such as *Guitar Amp*. This virtual amplifier offers guitarists complete musical versatility to achieve the authentic sound and feel of a good analogue hardware amp - in software.

To insert a Guitar Amp track, proceed as follows:

- i. Use the *Quick add* button and choose *Guitar Amp*.
- ii. Select a sound from *Clean* to *Dirty* under *Channel*.
- iii. Adjust the parameters *Bass*, *Mid*, *Treble* and *Volume* to tailor the sound to your needs.
- iv. Press the + button to add multiple effects to your rack (e.g. Bit Crusher, Chorus or Compressor).





Remote controlling effect parameters

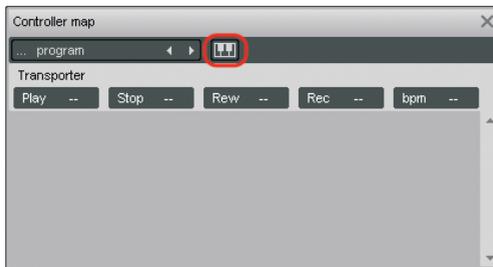
Parameters of virtual effects can be freely mapped to hardware controls of a MIDI controller unit.

To map the parameters of a virtual instrument to a MIDI controller unit:

- i. Click on the MIDI indicator next to the metronome symbol to open the MIDI controller mapping dialog.



- ii. Click on the keyboard symbol to use the MIDI learn function. EnergyXT now waits for a control element to be moved.



- iii. Make sure that the user interface of the VST you wish to control remotely is displayed on the screen.
- iv. Grab and drag the control element that you want to calibrate with the mouse. The Controller map dialog displays the parameter's name.

➤ The parameters of energyXT's Multi Effect can only be automated from the plug-in's MIDI page.

- v. Turn the control of your MIDI controller up and down to map the control of your hardware to the control element of the software.



- vi. Repeat steps iv.-v. for every control you want to control remotely.
- vii. Click on the keyboard symbol in the Controller map dialog to finish the calibration.
- viii. Alter the values in the *Range* fields to restrict the control range for a more precise input, if needed.



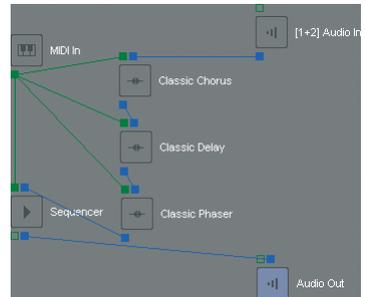
In our example we mapped the parameters Chorus-Fine and Chorus-Rate of a chorus plug-in to controllers CC74 and CC71.

Routing the input signal to an Audio Track

If you want to record the signal to an Audio Track you have to reconfigure the signal path in the Modular view.

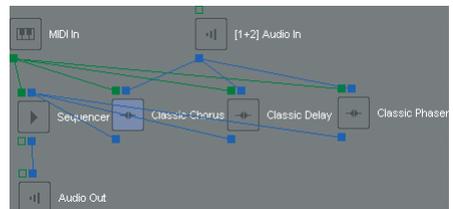
To route a serial effect chain configuration to an Audio Track:

- i. In the Modular view, break the output connection of the last effect Component in the chain to the Audio Out Component.
- ii. Connect the output of the last effect Component in the chain to the input of the Sequencer Component. The basic Audio Track in the Sequencer view is now prepared to record the input signal.
- iii. See chapter "[Recording takes](#)" for details on how to record Audio Tracks.



To route a parallel effect chain configuration to an Audio Track:

- i. In the Modular view, break the output connection of each effect Component to the Audio Out Component.
- ii. Connect the output of each effect Component to the input of the Sequencer Component. The basic Audio Track in the Sequencer view is now prepared to record the input signal.
- iii. See chapter "[Recording takes](#)" for details on how to record Audio Tracks.



In our example we routed the output of the last effect Component in the serial chain to the input of the Sequencer Component. For the parallel configuration we routed the output of each effect Component in the chain to the Sequencer Component.

Chapter 7 Appendix

Using energyXT on multiple systems

With energyXT you can work on different computers. For this purpose you should keep the application on a removable device (e.g. flash drive) together with all necessary files:

Keeping Project data together

If you want to transfer Projects to another computer, it's essential to keep the Project data and all embedded audio files in a single location. Audio recordings will always be stored with your Project in a dedicated folder, though additional audio files (e.g. loops) remain in their source folders unless you save the Project with a new name. So it's a good idea to save your Projects by choosing *File > Save as...* to the media you use for transfer to ensure that all files are included.

Transferring data and restoring paths

- ◇ Copy your Projects including the corresponding audio folders to the removable device.
- ◇ Transfer all VST plug-ins to the removable device.
- **Many VST plug-ins require an installation in order to work on your system. These plug-ins rely on different system settings to be launched and won't work if you simply copy them with your VST plug-ins folder. Use freeware plug-ins instead that require no installation and no registration.**

In energyXT, make sure that all path settings point to the correct location on the removable device, otherwise plug-ins and audio data cannot be found. Check the settings under *File > Setup > Browser* before you try to open existing songs (see chapter "[Setting folder paths](#)"). Alternatively, you may open your song and tell energyXT the correct location of your files upon request.

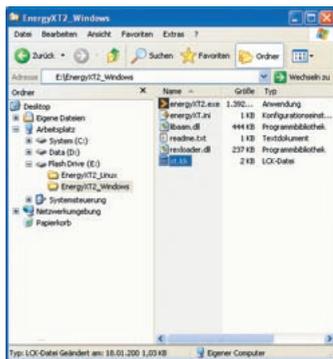
- **Notice that even if you keep all data on a removable device it might be necessary to adjust path settings due to the fact that the drive letters might differ from computer to computer.**

Switching between OSes

If you want to switch from one OS to another, e.g. from Windows to Linux, you should copy the two OS versions to different folders on a FAT32 formatted removable device (refer to the example picture).

You then have to

- ◇ activate one version, if not done already (see chapter "[Activating your copy of energyXT](#)" for details).
- ◇ copy the file "XT.Ick" from the root folder of the activated OS version to the energyXT folder with the secondary OS' files so that both folders contain the activated key file.





Glossary

ALSA

Advanced Linux Sound Architecture. A basic driver interface used in Linux operating systems for audio input and output.

ASIO

Audio Stream Input / Output. A professional driver interface which offers much better latency performance than DirectSound on Windows operating systems.

CDDA

Compact Disc Digital Audio, commonly known as (Sony / Philips) Audio CD.

Component

The Modular view of energyXT displays devices and channels as Components. There are two types of Components in energyXT:

- ◆ The input / output Components which represent physical hardware devices.
- ◆ The internal Components (Sequencer, VST effects / instruments) which represent software devices.

Controller

Describes either a hardware controller which outputs MIDI data or a MIDI command to control parameters.

Core Audio

A professional driver interface used in Mac OS X operating systems for audio input and output.

DAW

Digital Audio Workstation. Synonym for a software that turns your computer into a complete audio recording environment.

DirectSound

A basic driver interface used in Windows operating systems for audio input and output.

DVD-A

Digital Versatile Disc Audio. Multi-channel audio disc. Competitor to SACD.

Locator

Marker with which a playback / recording range can be defined.

Loop sample

A short pattern of a performance (e.g. guitar pattern, baseline, drum beat) with a length of usually 4-8 bars that most often comes as an audio file (e.g. WAV and AIFF) on a CD-ROM.

Master keyboard

A controller keyboard without tone generation.

Mixer

A mixer hosts all audio signals and grants access to individual signals.

Modular

The term describes a system that can be freely configured and extended.

Pan / Panorama control

A control to position a signal in the stereo field. Defines the left / right alignment between the two loudspeakers.

Part

An element in the Sequencer view with varying length that contains musical data (e.g. MIDI note events, audio)

SACD

Super **A**udio **C**ompact **D**isc. Successor of the CDDA with multi-channel audio and higher quality.

Sampler

A device for recording sounds which can be triggered for playback via a keyboard or a MIDI sequencer.

Sequencer

A system that is capable of recording and playing back multiple audio and MIDI tracks.

Synthesizer

A device that generates sounds on a synthetic basis.

Tone generator

A device that outputs sounds either on a synthetic basis (synthesizer) or by playing back recorded sounds (sampler).

View

EnergyXT is organized in three different views: the Modular, the Mixer and the Sequencer view.

VST instruments (virtual instruments) / VST effects

Software instruments and effects that support the popular VST standard for software plug-ins. A wealth of plug-ins can be downloaded from: www.kvraudio.com.

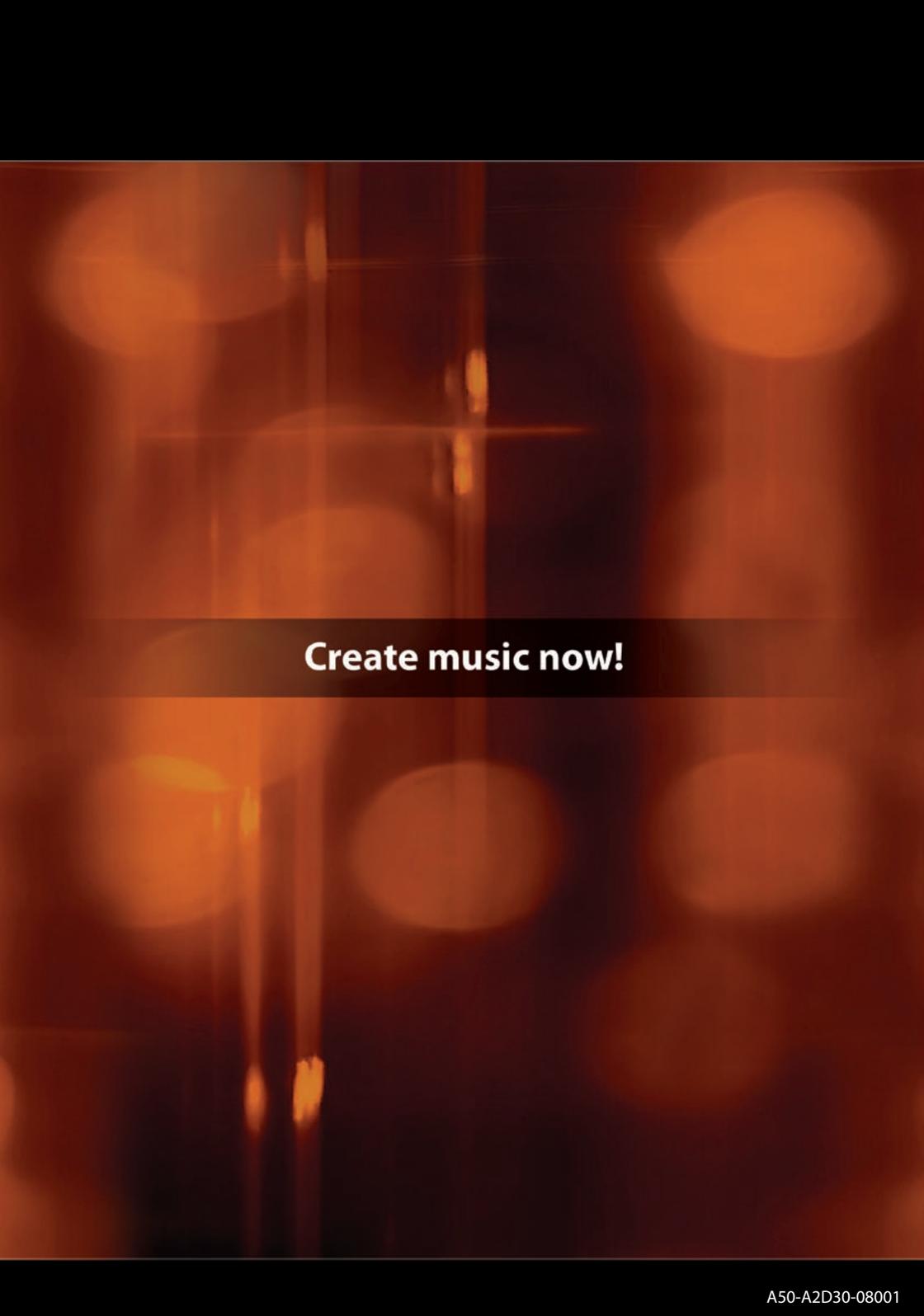
Support

If you have any problems with energyXT, check the online tutorials and the community pages on www.energy-xt.com or e-mail to support@energy-xt.com for help. Registered users may download the latest updates for free.



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