

Nachtzug

Sequencer · Synthesiser

Operation manual

For Linux, macOS and Windows

NZ · 001

BEFORE YOU START

Einsteigen, bitte!



elcome aboard the *Nachtzug*! It's a small music machine for the kind of electronic music that's made of repeating synthesiser patterns: pulsing techno, squelchy acid basslines, rolling Berlin School sequences, slow pads and simple melodies on top, all carried along by a drummer who never gets tired.

You don't need to be able to play the keyboard and you don't need to know any music theory. Every note Nachtzug lets you place belongs to the song's scale, so nothing can sound wrong. Each track can come up with ideas of its own, the drummer plays by itself, and any change you make while the music is running politely waits for the next bar, so it always lands in time.

Don't worry about breaking anything, either! Every change can be undone, as often as you like, and while you work, Nachtzug quietly keeps a spare copy of your song in case something goes wrong.

This booklet follows the machine from the front panel inwards. I would recommend reading chapter 1 first: in about ten minutes, you'll have a song of your own playing. You can read the other chapters in any order, whenever you'd like to know more about one part.

> **NOTE**
>
> Almost every button, knob and corner of the window explains itself. Rest the mouse on it and a short description appears, both next to the pointer and in the status line at the bottom of the window.

About this manual

- Names of controls, as they're printed on the panel, look like this: NEW SOUND.
- Keys on your computer keyboard look like this: Space Ctrl+Z. On a Mac, Ctrl is ⌘.
- What the display shows is written like this: `BAR 1 · BEAT 1`.
- Menu entries are joined with arrows: **File → Export: sound file, tracks or MIDI...**

Have a good journey!

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Timetable

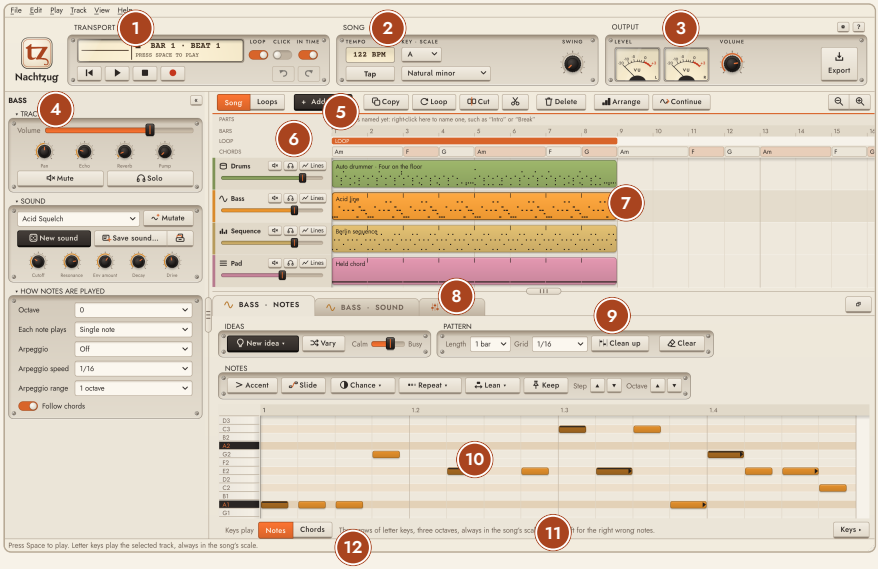
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Terminus · Patch sheets at the back

FRONT PANEL

Panel description

Nachtzug opens as a single window, laid out like the front of a hardware instrument. The top bar holds the machine's main controls. Below it, the **inspector** on the left shows the track you're working on at a glance, the **timeline** shows the whole song, and underneath it, the **Notes**, **Sound** and **Mixer** tabs show all the details.



1. **Transport**: the display, undo and redo, the play keys and the Loop, Click and In time switches. → 2
2. **Song**: tempo, tap, key, scale and swing. → 2
3. **Output**: the meters, volume, the **EXPORT** key, the settings ⚙ and the ? guide. → 2
4. **Inspector**: the selected track's level and sends, its sound, how its notes are played and, for drum clips, the auto drummer. → 3
5. **Song / Loops** and the **clip tools**: add a track, **Copy**, **Loop**, **Cut**, the scissors, **Delete**, **Arrange** and **Continue**. → 7
6. **Bars, Loop and Chords** rows of the timeline. → 7
7. **Tracks and clips**: one row per instrument. → 7
8. **Tabs**: Notes and Sound of the selected track, and the Mixer. ⧉ puts them in a window of their own. → below

9. **Ideas, Pattern, Notes**: buttons that write and change the pattern. → 3
10. **Note grid**: one row per note of the scale. → 3
11. **Keys play**: whether the letter keys play notes or chords. → 3
12. **Status line**: help for whatever is under the mouse.

Making room

On a big screen, everything fits comfortably. On a laptop, it can get a little cramped, so you can tidy up the window to suit you. Nachtzug remembers all of it for next time.

- **Fold a section shut.** Click the name of any section, in the inspector or on the Sound tab, and it folds away to a single line with a short summary, such as *Saw · Saw · Unison*. Click the name again to open it.
- **Put the inspector away.** The « key at its top right folds it away; the slim » tab on the left edge of the window brings it back. Ctrl + I does both. While it's away, its sections go back onto the Notes and Sound tabs, so nothing is ever out of reach.
- **Give the tabs a window of their own.** The ⧉ key at the end of the tabs puts Notes, Sound and Mixer in a separate window, which is handy with a second screen. Close that window and they come back.
- **Drag the dividers** between the inspector, the timeline and the tabs to give each part the room you'd like.
- The **View** menu has all of this too: **Inspector**, **Timeline on top** (untick it to have the timeline, or the loop grid, beside the tabs on the left instead), **Notes, Sound and Mixer in their own window** and **Reset the layout**, which puts everything back the way it was at the start.

If the whole window is still too large or too small, have a look at **SIZE** in the settings (9.3).

1 QUICK START
Your first song

Six steps, about ten minutes. A demo song is already waiting for you the moment Nachtzug starts, so you begin by listening and then change it one part at a time.

The very first time you start Nachtzug, it asks which **language** you'd like to use and how you'd like to begin. **I am new to this** gives the Sound tab a few big knobs in plain words and opens a short guide; **I know synthesisers** shows every knob. Below, you choose how the window looks: keys with a symbol and a word, or the symbols alone; the timeline above the notes or beside them; scroll bars hidden or shown; and Nachtzug's own cursors, which show what a click will do (a knob over knobs, a fader over faders, a pencil in the note grid, a rubber, scissors, the playhead over the bar ruler), or the system's. You can change all of it later in the settings.

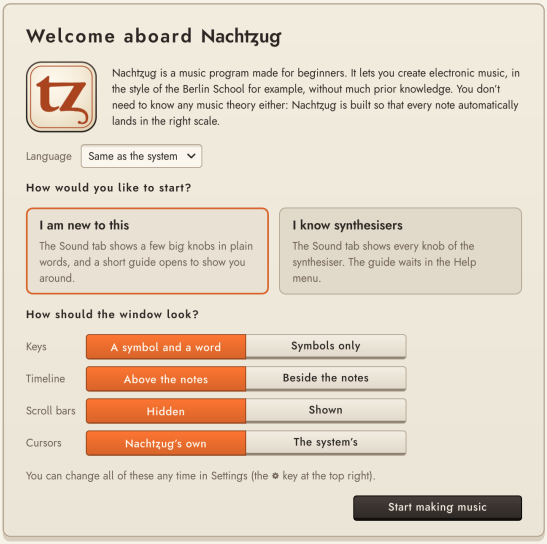


FIG 1 *The welcome window. You'll only see it on the very first start.*

What you'll do: listen to the demo, give it a new bass line and a new sound, add a melody, turn it into a whole song and save it.

Time: about ten minutes.

1 Listen

Press Space or the ▶ key. Drums, a bass line, a rolling sequence and a pad start to play. **You should see:** the display counting BAR 2 · BEAT 3 and the needles in the Output unit swinging along.

2 Get a new bass line

In the timeline, click the orange **Bass** clip. The NOTES tab now shows its pattern. Press NEW IDEA and choose **Acid line**; the new pattern starts on the next bar. Then press VARY a few times. Each press changes a note or two, so you can keep going until it sounds just right.

3 Change its sound

In the inspector on the left, press NEW SOUND (the die) until you hear one you like. Then turn CUTOFF and RESONANCE while it plays: that's the classic acid squelch! (On the Simple sound page, the same two knobs are called BRIGHTNESS and SQUELCH.)

4 Add a melody

Click the name **Lead** in the timeline, press NEW IDEA and pick **Melody**. Or play one yourself on the letter keys: the row A … ; is the middle octave, and every key fits.

5 Make it a song

Press ARRANGE above the timeline and choose **Medium**. Your patterns become an intro, a build-up, a main part, a break and an ending. Press ⏮ and listen from the start. (You can also do this by hand: drag the right edge of a clip, and its pattern repeats for as long as the clip lasts.)

6 Keep it

Press Ctrl + S to save the song. For a sound file you can play anywhere, press EXPORT at the top right. **You should see:** *Your song is ready*, with a **Play it** button that opens the file in your music player.

TIP

Not happy with a change? The ↶ key next to the display takes it back, as often as you like. Fancy a fresh start instead? **File → New song with fresh ideas** (Ctrl + N) writes a brand-new song with drums, bass, sequence and pad and a random chord progression. Press it a few times: every song is different!

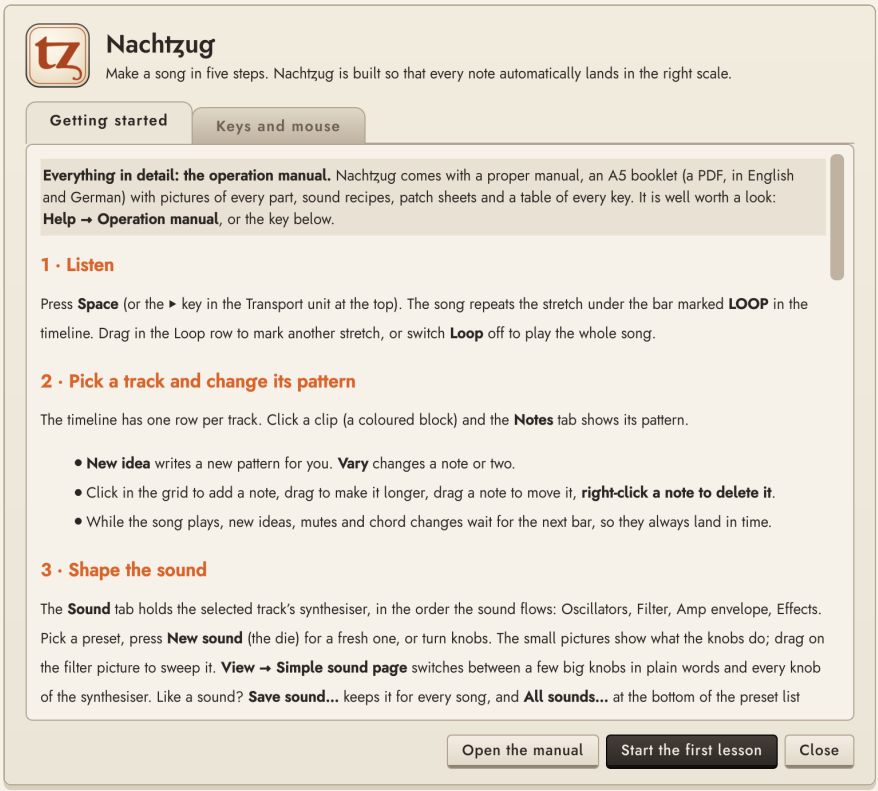


FIG 2 *The same steps also live inside the program: press ? or F1. If you chose* I AM NEW TO THIS *, the guide opens by itself after the welcome window.*

Lessons: learning by doing

Help → Lessons holds five short guided tours: **Your first acid line**, **Build a beat**, **Make it move**, **Berlin School: play the chords** and **From loop to song**. A soft shade lies over the window, with a lit hole around the one thing to use next and a card beside it that tells you what to do. You're working the real program the whole time: every click goes through, and the lesson moves on by itself once you've done the step. SKIP

goes on without it and **END LESSON** stops. The guide (F1) has a **START THE FIRST LESSON** button, too.



FIG 3 *A lesson points at* **NEW IDEA** *and waits until you've tried it.*

The start window: starter songs and your songs

From the second start on, Nachtzug opens with a small window that asks **What would you like to play?** On the left are the **starter songs**, one for each style: **Acid**, **Berlin School**, **Motorik**, **Electro** and **Half time**. Each is a short, finished song of two or three minutes, made with Nachtzug's own ideas and Arrange for me, with its tempo and key printed beside it. Press its ▶ key to hear a few bars from the middle first (press it again to stop), and click the card to open it. A starter opens as a **new song** of its own: change whatever you like, and Ctrl + S asks for a name, so the starter itself always stays as it came. The starters are free to use in any way, like everything that comes with Nachtzug.

On the right are **your songs**, the ones you opened or saved lately, newest first; one that is no longer where it was is greyed out. **OPEN...** picks any other song, **EMPTY SONG** starts from nothing, and **CLOSE** carries on with the demo song. The window doesn't open on the very first start (the welcome window has its turn then), nor when Nachtzug offers to bring back a song after a crash, nor when you open Nachtzug with a song. If you'd rather not see it, switch off **SHOW THIS WINDOW WHEN NACHTZUG STARTS** at its foot or in the settings; **File → New from a starter song...** opens it any time.



FIG 4 *The start window: a starter song for each style, each with a key to listen first, and your own songs beside them.*

2 MAIN CONTROLS
The top bar

The top bar is made of three units, screwed into the panel like the modules of a rack instrument: **Transport** runs the song, **Song** sets its speed and its notes, and **Output** shows and sets what comes out of your speakers.



2.1 Transport

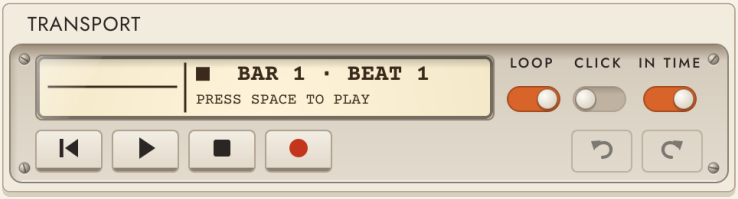


FIG 5 *The Transport unit: the display, the keys and the switches.*

The backlit **display** shows where the song is on its top line. Below that, it tells you which track the letter keys play, or shows short messages such as `CHANGE LANDS ON THE NEXT BAR`. The little trace on its left is the sound itself.

CONTROL	WHAT IT DOES
⏮	Goes back to the start of the loop, or of the song when Loop is off. Home
▶	Plays. Space starts and stops.
■	Stops; the echo and the reverb ring out. Pressed again, it goes back to the start and silences everything still ringing.
●	Records. While it's lit and the song is playing, the notes you play and the knobs you turn are written into the song. Ctrl + R
LOOP	Repeats the stretch marked in the timeline's Loop row. When it's off, the whole song plays. Ctrl + L
CLICK	A metronome: a tick on every beat and a higher one at the start of each bar. Ctrl + K
IN TIME	Pulls the notes you play by hand onto the beat while the song plays.
↶ ↷	Undo and redo, next to the display. Rest the mouse on them to see what they'd take back, such as *Undo: New idea*. Ctrl + Z, Ctrl + Shift + Z

After a big change, such as a new idea, a rolled sound or a deleted track, a small note rises at the bottom of the window with an UNDO button on it. It fades away by itself, and you can switch it off in the settings if you'd rather not see it.

2.2 Song



FIG 6 *The Song unit. Key and Scale are readouts you click to change.*

CONTROL	WHAT IT DOES
TEMPO	The speed in beats per minute, from 40 to 240. Click it and type, or turn the mouse wheel over it.
TAP	Tap along with a beat, four times or more, and the tempo follows you.
KEY, **SCALE**	The notes the whole song uses. Every pattern is fitted to them, so changing the key moves the whole song with it. While the song plays, the change lands on the next bar.
SWING	Plays every second sixteenth note a little late, for a rolling feel.

Eight scales are built in: Natural minor, Dorian, Phrygian, Harmonic minor, Phrygian dominant, Minor pentatonic, Major and Lydian.

> **TIP**
>
> For dark acid and Berlin School music, I would recommend starting with **Natural minor**, **Dorian** or **Phrygian**. **Phrygian dominant** sounds exotic, and **Lydian** sounds bright and floating.

2.3 Output

The two needle **meters** show the level of the left and right channel. When a needle reaches the red mark, the limiter at the very end of the chain is holding the sound back, so it never crackles.



FIG 7 *Output.*

VOLUME sets the level of everything you hear. **EXPORT** saves the song as a sound file (Ctrl + Shift + E, 9.2). The ⚙ key opens the settings (9.3) and the ? key opens the short guide (F1).

THE INSPECTOR AND THE NOTES TAB

3 Tracks and patterns

3.1 Tracks

Each track is one instrument: a synthesiser or the drum machine. There are five kinds, and each one arrives with a fitting sound and a ready-made pattern, so you can hear it straight away.

KIND	TYPICAL USE
Bass	Acid lines and low pulses. It plays one note at a time and can glide between notes.
Sequence	The repeating run at the heart of Berlin School music.
Pad	Long chords in the background.
Lead	A melody on top.
Drums	The drum machine, played by the auto drummer or by you.

- **Add** a track with **+ ADD TRACK** above the timeline, or from the **Track** menu. A song can hold up to twelve.
- **Select** a track by clicking its name in the timeline, the loop grid or the mixer. The letter keys then play it, and the inspector and the tabs show it: **BASS · NOTES**, **BASS · SOUND**.
- **Rename** a track by double-clicking its name. Right-click it to duplicate, move or delete it, or to choose whether it follows the chords.
- M mutes a track and S (solo) lets you hear only that track. While the song plays, both switch on the next bar. The slider under the name is the track's volume.

The inspector

The column on the left of the window always shows the selected track. Its sections fold shut when you click their names (Making room), so you can keep open only what you need.

- **Track**: the volume, **PAN**, how much goes to the shared **ECHO** and **REVERB**, **PUMP** (9.1), and **MUTE** and **SOLO**.

- **Sound**: the preset, **NEW SOUND**, **MUTATE** and the five knobs you'll probably turn the most: **CUTOFF**, **RESONANCE**, **ENV AMOUNT**, **DECAY** and **DRIVE**. A drum track shows its kit here instead (chapter 5).
- **How notes are played**: the octave, chords and arpeggios (3.4).
- **Auto drummer**, when a drum clip is selected (chapter 4).

3.2 Getting ideas

A **clip** is a coloured block in the timeline. It holds a **pattern** that repeats for as long as the clip lasts and it carries the name of the idea that wrote it. Click a clip and the Notes tab shows its pattern.

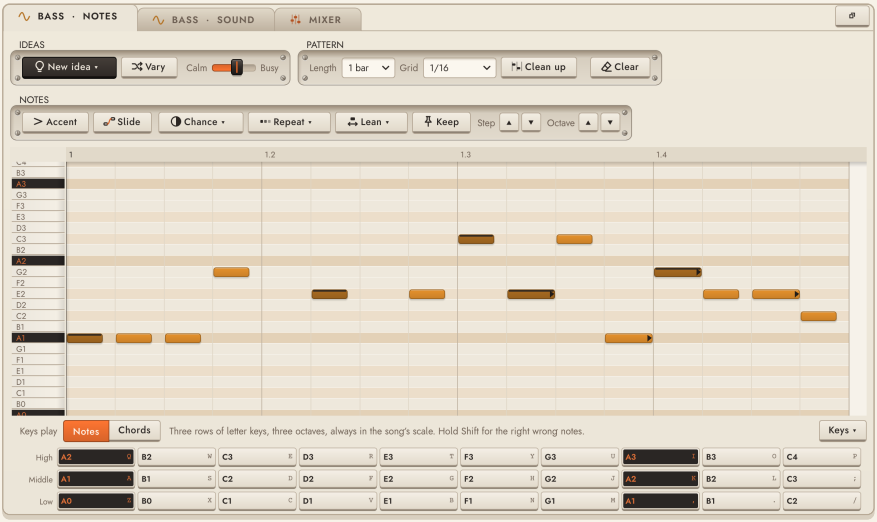


FIG 8 *The Notes tab of a bass track. The tinted rows are the notes of the current chord.*

CONTROL	WHAT IT DOES
NEW IDEA ▾	Writes a new pattern. The choices depend on the kind of track (see below).
VARY	Changes a note or two. Press it again for more change.
CALM — BUSY	How many notes new ideas have.
LENGTH	How long the pattern is before it repeats: from half a bar up to eight bars.
GRID	The step that notes snap to, from quarter notes to thirty-seconds, triplets included.
CLEAN UP	Tidies up what you played in (see 3.4).
CLEAR	Removes every note of the pattern.

TRACK	IDEAS ON OFFER
Bass	Acid line · Octave bounce · Root pulse · Berlin sequence
Sequence	Berlin sequence · Arpeggio run · Acid line
Pad	Held chord · Chord stabs
Lead	Melody · Sparse melody · Arpeggio run
Drums	Auto drummer · Four on the floor · Acid house · Motorik · Broken beat

> **NOTE**
> While the song plays, a new idea or variation starts on the next bar, so it always lands in time.

3.3 Editing notes

Every row of the grid is a note of the song's scale. The dark rows are the key note, for example every A in A minor. Click a note name on the left to hear it. On tracks that follow the chords, the rows of the current chord are **tinted**: they're the safest choices and always fit. An empty pattern tells you in the grid itself what to do.

TO DO THIS	DO THIS
Add a note	Click an empty spot. Hold the button and drag to the right to make it longer.
Move a note	Drag it: up and down for the pitch, left and right for the timing.
Change its length	Drag its right edge.
Delete a note	Right-click it. Hold the right button and sweep to delete several at once.
Add a bar of arpeggio or chord	Right-click an empty spot and choose an arpeggio (up, down, or up and down), a rolling sequence or a chord: a bar of it starts at that note, built from the scale. On a drum row, you get a bar of hits instead.
Select several	Hold Shift and drag a box. Ctrl+click adds or removes one.
Zoom	Ctrl + mouse wheel.

NOTE

Which part do Delete and copy act on? The note grid and the timeline both answer to Delete, Ctrl+C, Ctrl+V and Ctrl+D. The one you clicked last has a thin coloured line along its top edge.

The buttons of the **NOTES** group act on the selected notes. **STEP** and **OCTAVE** move every note when none are selected.

- **ACCENT** makes notes louder and brighter. Accented notes are drawn deeper, with a line along the top.
- **SLIDE** glides a note into the next one: the classic acid bassline effect. Sliding notes end in a small arrow. Slides work best on a sound set to **Mono**.
- **STEP** ▲ ▼ moves notes one scale note up or down, and **OCTAVE** ▲ ▼ a whole octave.

Four more buttons only act on selected notes. On a drum track, you select hits with Shift + drag or Ctrl+click (a plain click removes a hit).

- **CHANCE** ▾ sets how often a note plays: **always**, **often** (three times in four), **half the time** or **now and then** (one time in four). Each pass through the loop decides again, so even a short pattern keeps changing. Try it on a few hi-hats or on the last notes of a bass line! Such notes look faded, with a dashed edge and the percentage.

- **REPEAT** ▾ plays a note two, three or four times in quick succession over its length: a drum roll, or the stutter of a 303 note. The note shows its repeats as small marks. A note with a chance plays either all of its repeats or none.
- **LEAN** ▾ turns notes into "right wrong notes" (see 3.4). **The right wrong note** lets Nachtzug pick the side that sounds right; you can also choose a semitone lower (♭) or higher (♯) yourself, or put the notes back **in the scale**. Such notes carry a small ♭ or ♯.
- **KEEP** locks notes: **VARY** and **NEW IDEA** leave them as they are and write around them. Kept notes carry a small padlock. Press it again to let them go.

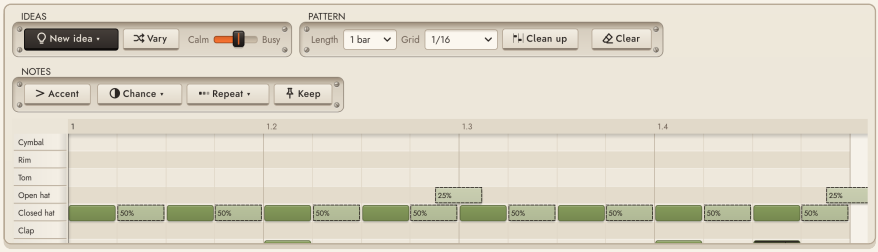


FIG 9 *Hats that play half the time, a snare roll played three times and two kept snares (the padlocks).*

3.4 Playing along and recording

Your computer keyboard is the instrument! Three rows of letter keys play the selected track: three octaves of the song's scale. Every key is a note of the scale, so any key you press fits. In A natural minor, the keys play:



The octave numbers shift with each track's **OCTAVE** setting; the dark keys are always the key note. On a drum track, Z to , play the eight drums.



FIG 10 *The on-screen keys under the note grid show the same map. They light up as you play, and you can click them, too. When the Notes tab is short, they make way for the grid; the* **KEYS** *button at the right end of the row above them brings them back or puts them away (so does* **VIEW → ON-SCREEN KEYS UNDER THE NOTES** *).*

Under **HOW NOTES ARE PLAYED** in the inspector, you can change what a single key does. **EACH NOTE PLAYS** a single note, octaves, fifths, a triad, a seventh chord, an open triad or stacked fourths, all built from the scale. **ARPEGGIO** plays held notes one after another: up, down, up and down, at random or in the order you pressed them, at a speed of your choice and over one to three octaves.

With **IN TIME** on, a note you play a little late sounds at once, and a note you play a little early waits for the beat.

The right wrong notes

Sometimes the best note is one that doesn't fit, as long as it's the *right* wrong note. Hold Shift while you play, and each key plays a note a semitone outside the scale that leans into the key's own note: usually the semitone just below it, which pulls upwards, and otherwise the semitone above. Play it just before the key's own note and you'll hear it fall into place. While Shift is down, the on-screen keys show which notes you'll get, and recorded notes keep their ♭ or ♯.

In Chords mode, Shift plays each key's chord a semitone lower, a chord that slides up into the real one. You can also write one into the chord row (7.2).

Chords mode: moving everything at once

Under the note grid, switch **KEYS PLAY** from **NOTES** to **CHORDS** (or press Ctrl+J). Now each letter key is a chord of the scale, and every track that follows the chords moves to it at once while it keeps playing its pattern. That's how the sequencer of an old synthesiser is transposed from its keyboard, and it's the trick behind a lot of Berlin School music. The chord stays when you let go, and Esc goes back to the song's own chords. With record on, the chords you press are written into the chord row of the timeline, bar by bar.



FIG 11 *In Chords mode, the pads name the chords, and arrows mark the octave above or below. The chord that's playing stays lit.*

A **MIDI keyboard** plays along, too (9.6): every key plays the nearest note of the song's scale, notes you strike hard are accented, and in Chords mode its keys change the chord.

To record

1. Press ● so that it lights up, then ▶.
2. Play the keys. The notes go into the clip under the playhead; if there isn't one, one is made for you.

3 With **Play → Snap recorded notes to the grid** switched on (it is to begin with), recorded notes are lined up with the grid. Ctrl+Z takes a note back.

Played it a little wobbly? Press **CLEAN UP** in the **PATTERN** group. It puts every note onto the grid chosen beside it (**GRID**), turns doubled notes into one and removes a tiny note you pressed by accident next to the real one. When your pattern goes round three times or more and the rounds are mostly the same, it also fills in a note you missed in one round and puts a wrong key right. A change in the last round is left alone, because that's usually on purpose, and so are kept notes. The status line says what it changed, and Ctrl+Z brings back what you played.

RHYTHM

4 The auto drummer

Drum clips start with the auto drummer switched on. It writes the drum hits from a handful of settings, and it writes them again the moment you change one, so you can steer the groove while it plays. Select a drum clip and you'll find the drummer in the inspector on the left.

There are seven styles: **Four on the floor**, **Acid house**, **Motorik**, **Broken beat**, **Half time**, **Electro** and **Berlin pulse**.



FIG 12 *The auto drummer appears in the inspector when you select a drum clip.*

SETTING	WHAT IT DOES
THE DRUMMER PLAYS THIS CLIP	Switch it off to place the hits yourself. The hits the drummer wrote stay, as a starting point.
NEW TAKE	The same settings, played a little differently. It sits at the top, so it's always in reach.
STYLE	The kind of beat.
ENERGY	How hard the drummer plays. Every bit of it counts: from a bare pulse at the bottom, through ghost notes and extra kicks, up to busy hats, crashes and long fills at the top.
PLAYFULNESS	How many ghost notes and small surprises are added.
SHUFFLE	Plays every second sixteenth a little late.
FILLS	Never, or every 2, 4 or 8 bars. A fill always comes at the end of the clip, too. The more energy, the longer and busier the fills.
BACKBEAT	Which drum plays on beats 2 and 4: the style's own, clap, snare, rim or none.
HI-HATS	The style's own, eighths, sixteenths, offbeats only, or none.
OVER THE CLIP	Steady, **Build up** (soft to hard) or **Wind down**. These are great for the start and the end of a song.
CRASH AFTER FILLS	A cymbal crash on the first beat after each fill.

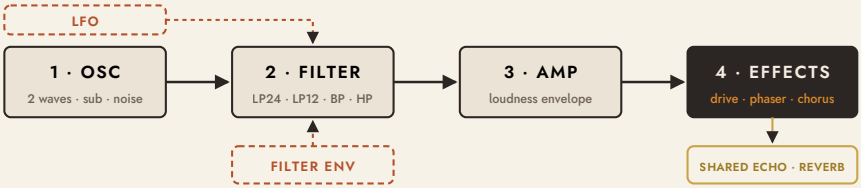
> **TIP**
>
> Try building a song from three drum clips: one set to **Build up** at the start, a steady one in the middle with fills every 8 bars, and one set to **Wind down** at the end.

To place hits by hand, switch the drummer off, then click in the grid to add a hit and click a hit to remove it. The eight drums are Kick, Snare, Clap, Closed hat, Open hat, Tom, Rim and Cymbal.

5 THE SOUND TAB
The synthesiser

Every synth track has a synthesiser of its own. The Sound tab lays it out in the order the sound travels: the **oscillators** make a raw tone, the **filter** shapes its colour, the **amp envelope** shapes its loudness and the **effects** add space and grit. Small windows of graph paper show you what the knobs are doing.

The sections wrap onto as many rows as the window needs, so on a narrow screen the tab simply gets longer and you scroll down. Click a section's name to fold it shut (Making room); a folded section keeps a one-line summary, such as *Low-pass 24 dB*.



Knobs

Drag a knob up or down. Hold Shift for small steps and double-click to reset it. Rest the mouse on a knob to read its value and what it does. A small red dot on a knob means a line is moving it over time (chapter 6).

5.1 Simple or Full

The Sound tab has two pages. You can switch between them with **View → Simple sound page** or on the General page of the settings, and Nachtzug remembers your choice. **Full** shows every knob, as described from 5.3 on. **Simple** shows eight big knobs in plain words instead, and a ninth, TONE, with a LOW CUT switch under it. Each one moves several knobs of the Full page at once, from wherever they happen to be, so a preset keeps its character.



FIG 13 *The Simple page. The pictures on the left move as you turn the knobs.*

BIG KNOB	WHAT IT MOVES
BRIGHTNESS	Dark to bright: the filter **CUTOFF**.
SQUELCH	The acid sound: **RESONANCE**, **ENV AMOUNT** and **ACCENT** together.
LENGTH	Short plucks to long notes: amp and filter **DECAY**, and **RELEASE**.
THICKNESS	Thin to fat: unison copies, the sub oscillator and detune.
GRIT	Clean to dirty: **DRIVE**.
SPACE	Dry to far away: how much goes into the reverb and the echo.
MOVEMENT	Still to moving: a slow filter wobble from the LFO, and chorus.
GLIDE	Jumps to slides between notes.
TONE	Darker to brighter: the equaliser's **LOW** and **HIGH** (5.6), turned against each other. In the middle the sound is as it is.

Beside the octave, the Simple page also has the shared **ECHO TIME** (5.6): the one echo setting heard at once. **SPACE** sets how much of the sound is echoed.

The **LOW CUT** switch takes away the deepest rumble below about 100 Hz, so a pad or a lead leaves room for the bass and the kick drum. Leave it off on the bass itself.

For a drum track, the Simple page has a level knob for each drum, a ▶ to hear it, its sample button (9.4) and **GRIT**, **ECHO**, **SPACE**, **TONE** and **LOW CUT** for the whole kit.

5.2 Finding a sound quickly

- **SOUND**, in the inspector or at the top of the Sound tab, picks a ready-made preset, grouped by use. In the open list, **rest the mouse on a preset to hear it**: a short phrase in the song's key and tempo, a bass line for a bass and a chord for a pad. The same works in the list of drum kits.
- **NEW SOUND** (the die) builds a brand-new sound that suits the kind of track. Keep pressing it: it's a great way to find something you'd never have thought of!
- **MUTATE** nudges every knob a little, for a close relative.
- Ctrl + Z brings the previous sound back.

GROUP	PRESETS
Bass	Acid Squelch · Rubber Square · Deep Bass · Zap Bass
Sequence	Berlin Sequence · Glass Pluck · Pulse Wanderer · Hollow Band
Pad	String Machine · Supersaw Pad · Phase Choir · Night Drone · Thin Air
Lead	Mellow Lead · Saw Lead · Wide Unison Lead
Bells and effects	FM Bell · Sample and Hold

Keeping a sound of your own

Found a sound you like? **SAVE SOUND…**, beside **NEW SOUND**, keeps it under a name as one of your own, outside the song, so every song can use it. Give it a name, a group and, if you like, a few words to find it by, and star it to have it listed on top of the preset list.

The preset list shows your starred sounds and the ones you used lately under **My sounds**. All the others are in the **sound library**: **ALL SOUNDS…** at the bottom of the list, or **File → Sound library…**. The shelves on the left hold your own sounds, the starred ones, each group and the ready-made sounds; the search finds a sound by its name or its words. The ▶ on a card plays a short phrase with that sound without changing anything, and **USE ON THIS TRACK** puts it on the track. The arrow keys choose a card, Space listens and Return uses it.

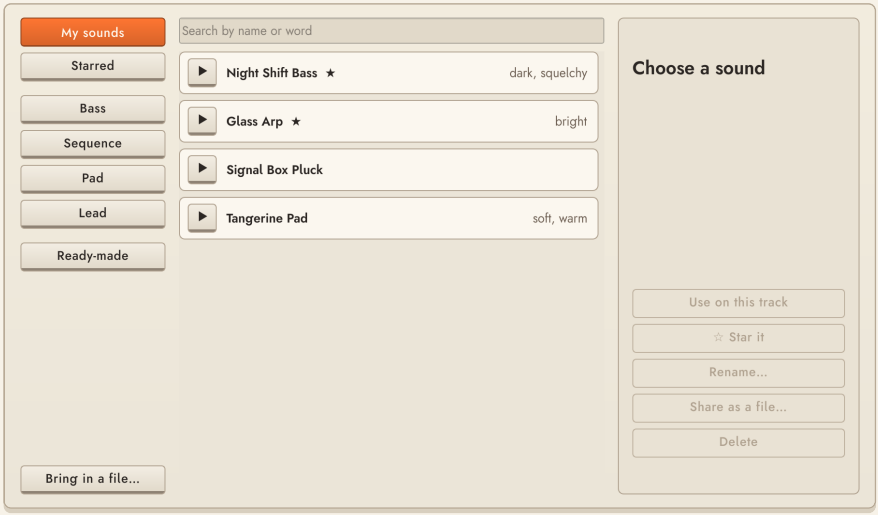


FIG 14 *The sound library: shelves, the cards with a key to listen first, and the chosen sound with what you can do with it.*

5

Every sound of your own is a small file (`.nzsound`). **SHARE AS A FILE…** saves a copy wherever you like; a sound someone gave you comes in with **BRING IN A FILE…**, or by dropping the file on the library.

5.3 Oscillators, unison and voices



FIG 15 *Section 1: the two oscillators, with the sub oscillator and noise.*

CONTROL	WHAT IT DOES
WAVE 1, 2	Saw, pulse, triangle or sine. The window shows the mixed wave.
OSC 2	Tunes the second oscillator an octave down, in unison, a fifth up or an octave up.
OSC MIX	Blends the two.
DETUNE	Makes them beat slowly against each other.
FM	Lets the second bend the first: bells and metallic tones.
PULSE WIDTH	Thins out the pulse wave.
SUB, NOISE	A deep tone an octave below; hiss.
VOICES	Unison: stacks up to seven slightly detuned copies for a huge sound. **UNISON DETUNE** sets how far apart, **STEREO SPREAD** spreads them left and right.
PLAY	**Poly** plays chords (up to eight notes); **Mono** plays one note at a time, as acid basslines do; a chord from **EACH NOTE PLAYS** still sounds whole, its notes sliding together.
GLIDE	Slides the pitch from one note to the next.

5.4 Filter



FIG 16 *The curve shows which pitches get through, with the cutoff marked in Hz. Drag on it to set cutoff and resonance together.*

The filter takes part of the sound away. Sweeping it is the gesture at the heart of acid music, so this is the section I'd play with first.

CONTROL	WHAT IT DOES
TYPE	Low-pass 24 dB or 12 dB (the classic dark-to-bright sweep), band-pass (thin and nasal), high-pass (removes the low end), notch (takes out a narrow band at the cutoff and keeps the rest: a hollow, phaser-like sweep when you turn the cutoff).
CUTOFF	Where it cuts.
RESONANCE	Adds a squelchy peak at the cutoff.
ENV AMOUNT	How far each note opens the filter.
KEY TRACKING	Makes high notes brighter.
ACCENT	How much accented notes stand out.

TIP

The acid recipe: **Mono**, low-pass 24 dB, **CUTOFF** low, **RESONANCE** high, **ENV AMOUNT** about halfway, short filter **DECAY**, and a pattern with accents and slides. Then turn **CUTOFF** slowly while it plays.

5.5 Envelopes



FIG 17 *Drag the round points in either window to shape the envelope directly.*

An envelope is a shape that every note follows. The **filter envelope** opens and closes the filter on each note with **ATTACK**, **DECAY**, **SUSTAIN** and **RELEASE**; **TO PITCH** bends the pitch along with it, for zaps and laser sounds. Its **RELEASE** starts all the way down, at **As amp**: then the filter closes as slowly as the note fades, as it always did. Turn it up to let the filter close on a time of its own, for example quickly, so long notes go dark as they fade. The **amp envelope** sets how loud each note is over time: a short attack and decay for plucks, long ones for pads. **RELEASE** is how long a note rings on after it ends.

5.6 LFO, effects and equaliser

The **LFO** is a slow, repeating movement: a triangle, a square or random steps. You can send it to the filter (**LFO TO FILTER**), the pitch (**VIBRATO**), the pulse width (**LFO TO WIDTH**), the volume (**LFO TO VOLUME**, a tremolo; with the square shape it chops the

sound) or between the speakers (**LFO TO PAN**). The dot in its window travels at the LFO's speed.

With **TIMING** set to **Free**, **LFO RATE** is a speed in hertz. Set to **In time**, the LFO follows the song's tempo instead, and **LFO RATE** picks how long one movement lasts, as a note value from **8 bars** to **1/32**. While the song plays, the movement keeps to the bars: a one-bar sweep always starts on the first beat, and it stays in time when the tempo changes. **LFO FADE-IN** lets each note begin still and the movement grow over up to five seconds: a delayed vibrato, as a singer or a violinist plays it.

Effects: **DRIVE** (distortion), **PHASER** with its rate, **CHORUS**, and how much of the track goes into the shared **ECHO** and **REVERB**.

The **equaliser** makes parts of a track's sound louder or quieter, from the deepest on the left of its picture to the highest on the right. **LOW CUT** takes away everything below its pitch (off all the way down), **LOW** and **HIGH** lift or lower the deep and the top end, and **MID** does the same for the middle, at the pitch **MID PITCH** sets. Every knob is flat in the middle; double-click it to put it back. You can also drag the points in the picture: up for more, down for less, the low cut and the middle point sideways too. With the keyboard, Tab picks a point, the arrow keys move it and Delete puts it back. A track whose equaliser is flat sounds exactly as it did before there was one.

> **TIP**
>
> When a song sounds muddy, try **LOW CUT** on everything except the bass and the kick drum, and a little less **MID** on the pad. The mixer has **LOW**, **MID** and **HIGH** for every track too (9.1).

The whole song shares one **echo and reverb**; each track's **ECHO** and **REVERB** knobs set how much of it that track gets. **ECHO TIME** is a note value – 1/16, 1/8, a dotted 1/8, a quarter, the triplets and a half note – so the repeats stay in time with the song, even when the tempo changes. **ECHO REPEATS** sets how many repeats there are before they fade away; however far it is turned up, the echo never builds up into a howl. **ECHO TONE** makes each repeat a little darker than the one before, as on an old tape echo (to the left), or keeps them bright (to the right). With **PING-PONG** on, the repeats bounce between the left and the right speaker; off, they all come from the middle. **REVERB SIZE** and **REVERB DAMPING** set the room's character.

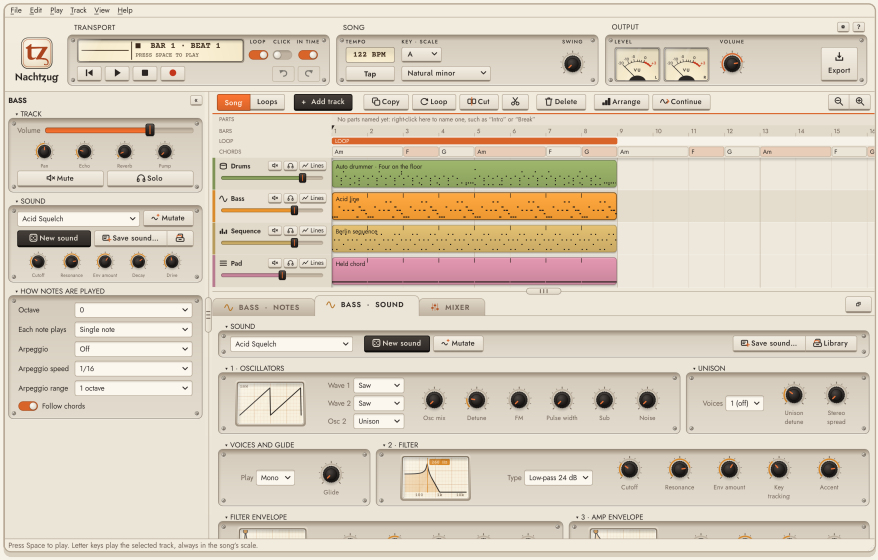


FIG 18 *The whole Sound tab: sections numbered 1 to 5 in the order the sound flows.*

5.7 The drum kit

For a drum track, the Sound tab shows the drum kit instead: a kit preset (**Machine kit**, **Soft boom kit** or **Tight acid kit**) and **LEVEL**, **TUNE** and **DECAY** for each of the eight drums, with a ▶ to hear each one. The whole kit has an **equaliser** too, which works as the synthesiser's does (5.6). The inspector keeps the kit and its **DRIVE**, **ECHO** and **REVERB** close at hand.



FIG 19 *The drum kit. The button under each* ▶ *says* **BUILT-IN** *, or the name of the sample that drum plays.*

Every drum can play **a sound of your own** instead: click **BUILT-IN** under it and pick a sample, import a sound file or record one (9.4). With a sample, **TUNE** plays it faster or slower, up to an octave either way, and **DECAY** shortens it; turned all the way up, the whole sample plays. Four kits are made of samples from the Nachtzug library (9.4): the **Night train kit**, **Tape kit**, **Electro kit** and **Hand percussion kit**. Choosing another kit brings that kit's sounds, but a drum that plays one of your own samples keeps it.

AUTOMATION

6 Sounds that move

A filter that slowly opens over sixteen bars makes a repeating pattern come alive. Any knob can follow a line, and drawing one only takes a moment.

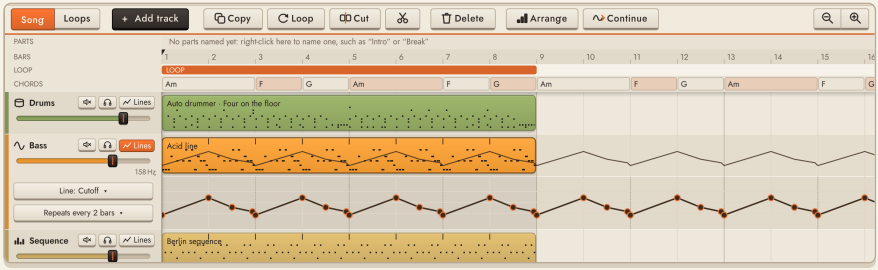


FIG 20 *A cutoff line drawn under the bass track. Lines also show as thin red curves over the clips.*

6.1 Drawing a line

1. Press **LINES** on the track in the timeline. A lane opens underneath it.
2. Click **LINE:** … at the left of the lane and pick the knob, for example **Cutoff**. (Or right-click a knob in the Sound tab: **Draw a line for … in the timeline**.)
3. Click in the lane to add points. Drag points to move them, right-click a point to remove it, and hold Shift for fine steps.
4. Click **FOLLOWS THE SONG** to choose how the line repeats: one long line over the whole song, or a short shape every half bar, bar, or 2, 4 or 8 bars.

6.2 Recording knob moves

Press ● so that it lights up, press ▶ and turn a knob. Your movement is written down as a line.

A knob on a **MIDI controller** records just the same once it has learned its knob on screen (9.6).

MIND THIS

Setting a knob by hand pauses its line, so you can try things out without losing it. **RESUME LINES** on the Sound tab brings the lines back. To delete a line, right-click the knob and choose **Erase the line**.

7 ARRANGING
The song timeline

In **SONG** mode, the timeline shows your whole song. Time runs from left to right in bars, with one row per track. Four rows sit at the top:

- **Parts**: the named parts of the song, such as **Intro** or **Break** (see below).
- **Bars**: click or drag to move the playhead.
- **Loop**: the coloured bar marks the stretch that repeats while **LOOP** is on. Drag in the row to mark another; click it to switch looping on or off. **LOOP** puts the loop around the selected clips.
- **Chords**: the chord of each bar.

7.1 Working with clips

TO DO THIS	DO THIS
Make a clip	Double-click an empty spot in a track's row.
Select	Click. Ctrl+click adds more.
Edit its notes	Double-click it.
Move	Drag it, also onto another track of the same kind.
Make it longer	Drag its right edge. Ticks along the top show where the pattern repeats.
Cut in two	The scissors (✂) on, then click where to cut; or **CUT** (Ctrl+E).
Copy	**COPY** (Ctrl+D) puts a copy right after it. Ctrl+C / V paste at the playhead.
Delete	**DELETE**, or the Delete key.
Fade in or out	Right-click → **Transition at the start** or **at the end**: a fade, a filter sweep, or both, one beat to four bars long. A dark wedge shows it.

Moves snap to whole beats; hold Shift for sixteenth steps. Ctrl + wheel or the two magnifying-glass keys at the right end zoom in and out. And remember: ↶ or Ctrl + Z undoes anything.

7.2 Chords

Each bar has a chord. Tracks set to **FOLLOW CHORDS** (bass, sequence and pad, to begin with) move their notes along with it, so a single one-bar pattern can play over a whole progression.

- Click a bar in the **Chords** row and pick a chord. Only chords built from the song's scale are offered.
- **Repeat the first bars across the whole song** copies a short progression over everything.
- **Surprise me with a new progression** writes a fresh one.
- **Lean into the next chord** plays the next bar's chord a semitone lower, outside the scale, so the music slides up into it at the bar line. It's a right wrong chord (3.4), best on the last bar before a change.

When you've zoomed out a long way, each stretch of the same chord is one block in the chord row, and the blocks alternate in colour, so the changes are always easy to see. Rest the mouse on a bar to see its chord.

> **NOTE**
> Whether a track follows the chords is set with **FOLLOW CHORDS** under **HOW NOTES ARE PLAYED** in the inspector, or by right-clicking its name. Leads and drums don't follow to begin with.

7.3 Arrange for me

Turning a loop that sounds good into a whole song is often the hardest part. **ARRANGE FOR ME** does it for you: the **ARRANGE** key above the timeline, or the **Edit** menu. It takes each track's pattern at the loop and lays the song out in parts:



FIG 21 *Short, medium or long; the length at the current tempo is shown.*

PART	WHAT PLAYS
Intro	A soft drummer, the pad fading in, the sequence fading in as its filter opens.
Build-up	The bass comes in with its filter opening; the drummer builds up.
Main part	Everything.
Break	No drums and no bass: pad, sequence and the lead.
Main part 2	Everything again, with the lead, a busier drummer and slightly varied patterns.
Outro	The drummer winds down; the parts fade out with their filters closing.

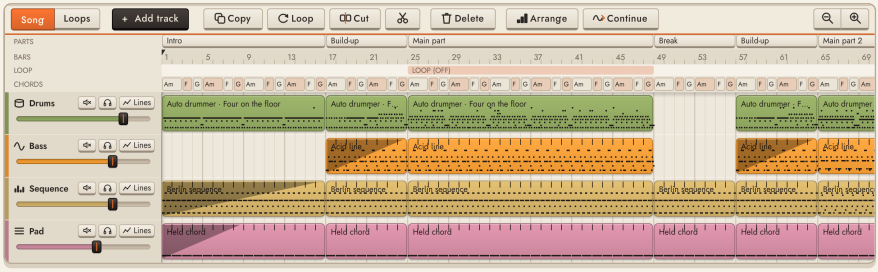


FIG 22 *A song after* **ARRANGE FOR ME** *: its parts are named along the top, and the wedges are fades and filter sweeps.*

If the lead track is still empty, it gets a melody of its own. Whatever was in the timeline before is replaced, but ↶ brings it back. Afterwards, everything is made of ordinary

clips: move them, lengthen them and change them as you like, and use the loop to work on one part at a time.

The parts

Each part **Arrange for me** makes is named in the **Parts** row at the top of the timeline, so the song's shape can be seen at a glance; the display shows the part the song is in while it plays. The names are only labels: they change no note, and deleting one leaves the bars and clips as they are. A song of your own can be given parts just the same.

TO DO THIS	DO THIS
Select a part	Click it. Its clips are selected and the playhead goes to its start (while the song plays, at the next bar line, so the music stays in time). **LOOP** then repeats exactly that part, and **DELETE** or Ctrl + C work on its clips.
Rename it	Double-click it, and choose a name (Intro, Build-up, Main part, Break, Drop, Breakdown, Outro...) or type your own.
Move where it begins	Drag its left edge; it snaps to whole bars.
Add a part	Double-click an empty spot of the row, or right-click → **New part from bar ...**. A part runs until the next one; the last runs to the end of the song.
Repeat it	Right-click it → **Repeat this part**, or press **COPY** with the part selected. A copy of the part, with its clips, chord changes and knob lines, is put straight after it; everything after it moves right by its length, so nothing is covered. The copy is named like the part with a number (Break 2) and is selected; one **Undo** takes it back.
More	Right-click a part: **Rename...**, **Play from the start of this part**, **Loop this part**, **Repeat this part** and **Delete this part**.

> **NOTE**
> To export a single part, loop it (click it, then **LOOP**) and choose **The loop** in the export window.

7.4 A LONG JOURNEY

Berlin School pieces often last twenty or thirty minutes, and they hold the listener by changing slowly: a sequence turns one note at a time, a filter opens over minutes, parts come in and leave again. **CONTINUE**, beside **ARRANGE** above the timeline (or **Edit** →

Continue the song for a long journey...), lets the song go on in that way for as many minutes as you like, growing out of the patterns that are already there.



FIG 23 *The Continue window: how many minutes, the character, where to start and whether to fade out; below, the bars, the length of the whole song and the parts the journey will have.*

- **Continue for ... minutes**: from 1 to 60, at the song's tempo. The window shows how many bars that is, how long the whole song will be, and the parts the journey will have.
- **Character**: **Calm** has long parts and changes rarely; **Evolving** changes a note every sixteen bars and lets parts rest now and then; **Restless** changes every eight bars, brings new ideas and sweeps the filters deeper.
- **Start**: **After the end** leaves the song as it is and adds the journey after the last clip. **After the selection** starts after the selected clips and replaces everything that came after them.
- **End with a fade-out**: at the end the parts leave one by one and the last ones fade away. Switched off, the journey stops at full strength, so it can be continued again later.

The whole journey follows one arc: it holds back at first, with fewer parts and darker filters, builds slowly to a single peak about two thirds of the way in, and then settles. On the way it passes through these parts, chosen afresh for every journey and never in the same order twice running, each named in the **Parts** row of the timeline after the parts already there (see The parts):

PART	WHAT HAPPENS
Drifting in	Only when starting from nothing: the sequence and the pad fade in with their filters closed.
Rising	Parts come in one by one, the bass with its filter opening, the drummer building up.
Cruising	The parts the arc allows play; a filter sweep goes up and back, and now and then a part rests for a while or the drummer plays more lightly.
New ground	The sequence takes a bigger step, the pad may step aside, and now and then the lead comes in with a phrase that changes each time it returns.
Breather	A short moment where only the drums, only the bass, or the pad steps out.
Breakdown	Once, just before the peak: the sequence alone, the pad joining halfway, the filter closed right down while the echo and the resonance rise.
Return, **Peak**	Everything comes back. At the peak the filters are at their brightest, the drummer at its busiest, and the lead plays.
Afterglow	After the peak the journey settles, a little calmer and darker with each part.
Fading out	The lead leaves first, then the drums, then the bass; the sequence and the pad fade away with their filters closing.

The key and the chords stay as they are, so every note still fits. The patterns change a note at a time and the changes add up, so the sequence late in the piece is clearly related to the one at the start, but no longer the same (each note stays within an octave of where it began, and the rhythm stays); once in the first half a part goes off on a new idea for a while and comes home at the peak. the filter, resonance and echo move along long knob lines (→ 6), which can be seen and changed with **LINES** on each track. Everything is ordinary clips and lines afterwards, and one ↶ takes the whole journey back. While the song plays, the journey begins at the next bar line, so the music doesn't stumble.

8 PLAYING LIVE
The loop grid

Press **LOOPS** next to **SONG** and the timeline turns into a grid. It's made for trying out ideas and for playing live: every track has a row of **cells**, and each cell holds a pattern.

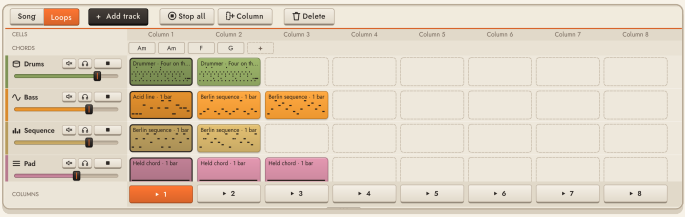


FIG 24 *The loop grid. Each cell is a pattern that repeats while it is on.*

- **Start** a cell by clicking it. It starts on the next bar and replaces whatever that track was playing. A cell that's waiting blinks.
- **Stop** it by clicking it again. **STOP** on the left stops a track and **STOP ALL** stops everything.
- **Edit**: the cell you clicked last has a ring around it and is the one the Notes tab shows. Shift+click a playing cell to edit it without stopping it.
- Click an **empty** cell for a new idea there.
- The ▸ 1, ▸ 2 … buttons along the bottom start a whole **column**; tracks with nothing in that column stop.
- The **Chords** row shows the progression, one box per bar, repeating in order; the current bar is lit. Click a box to change it, + to add a bar.
- Right-click a cell to copy it into the next column, copy it into the song timeline at the playhead, or delete it. **+ COLUMN** adds a column.

8.1 Turning a jam into a song

Press ● so that it lights up while you start and stop cells. Everything you launch is written into the song timeline as clips, from the bar it started to the bar it stopped. Switch back to **SONG** to see the result, and edit it like any other part of the timeline. A good jam is half a song already!

9 FINISHING
Mixer, export and settings

9.1 The mixer



FIG 25 *One strip per track, the Input strip, and the Whole song strip on the right.*

The **MIXER** tab shows one strip per track, each screwed into its own well: the equaliser's **LOW**, **MID** and **HIGH** in a row under the name (5.6), **PAN**, **ECHO** and **REVERB** knobs, a volume **fader** with the track's level next to it, and **MUTE** and **SOLO**. Double-click a fader to reset it. The **WHOLE SONG** strip holds the master volume, the echo repeats and the reverb size.

PUMP, on every track except the drums, ducks the track on each kick drum and lets it swell back within about a third of a beat: the breathing sound of so much dance music. Try it on a pad or a bass line, you'll hear it straight away! The kick drives it even when the drum track is muted.

The **INPUT** strip plays the sound card's input live through Nachtzug: a guitar, a voice, another synthesiser. Press **INPUT** to open it (the device is chosen on the Sound card page of the settings). **GAIN** sets how loud it comes in, **FILTER** and **SQUELCH** work like the synthesiser's filter, **WAH** opens the filter as you play louder, like a wah pedal, and **DRIVE**, **PUMP**, **ECHO** and **REVERB** do what they do on the tracks. The input is never part of an export.

> **MIND THIS**
>
> With a microphone, please use **headphones**! Through speakers, the sound would feed back into the microphone and howl.

> **MIND THIS**
> A limiter guards the output, so the sound won't crackle if the mix gets too loud, but it will be squashed. If the meters sit in the red, turn tracks down rather than up.

9.2 Saving and exporting

MENU ENTRY	WHAT IT DOES
New song with fresh ideas Ctrl + N	Drums, bass, sequence and pad, and a random chord progression.
New empty song	A song with no tracks.
New from a starter song...	The start window: a short song for each style to start from, and your recent songs (1).
Open... Ctrl + O	Opens a `.nachtzug` song.
Open recent	The last eight songs you opened or saved, newest first; with the menu open, the number in front of a song opens it. Point at a song to see its folder. A song that was moved or deleted is greyed out with *(not found)*; **CLEAR THE LIST** forgets them all (the songs themselves stay where they are).
Save Ctrl + S	Saves the song. Save as... adds Shift.
Export: sound file, tracks or MIDI... Ctrl + Shift + E	The same as the **EXPORT** key (below).
Sound library...	Every ready-made sound and every sound of your own, to listen to and choose from (5.2).
Settings... Ctrl + ,	Language, colours, size, sound card, samples and MIDI (9.3).

If there are unsaved changes, Nachtzug asks you before it closes or opens another song; the window title shows a * while there are.

While there are unsaved changes, Nachtzug quietly keeps a **spare copy** every half minute. If it ever closes without asking (a crash, say, or the computer switching off), the next start offers to **bring the song back**, including the changes you hadn't saved. When it closes normally, the copy is thrown away.

Exporting

Press **EXPORT** at the top right. Under **MAKE**, choose what you'd like to come out:

- **ONE SOUND FILE**: a WAV file with the whole song mixed, to play anywhere.

- **A FILE PER TRACK** (stems): every track that is heard in a file of its own (`01 Drums.wav`, `02 Bass.wav` …) in a new folder. They all start at the same moment and add up exactly to the song, echoes and reverb included, for mixing it in another music program.
- **MIDI NOTES**: a MIDI file with the notes of every track, without the sound, for other music programs and synthesisers. Chords, arpeggios, quick repeats, swing and notes with a chance are written out as you hear them; the drums use the General MIDI drum notes on channel 10.

Muted tracks are left out of all three.



FIG 26 *The export window shows how long the file will be and roughly how large. Ending and quality do not apply to a MIDI file.*

SETTING	CHOICES
WHAT	**THE WHOLE SONG** from bar 1 to the end of the last clip, whatever the loop; or **THE LOOP** alone, played 1 to 32 times, for a seamless loop or a practice track.
ENDING	**LET IT RING OUT**: the echo and reverb ring out, and the file ends once they have died away; or **FADE OUT** over the last bars.
QUALITY	**CD quality**, 44.1 kHz 16-bit, plays on everything. 48 kHz 16-bit suits video; 24-bit at 48 or 96 kHz is for further work in a studio program.
SAVE AS	The file name, in your Music folder to begin with; **CHOOSE…** picks another place. Nachtzug asks before replacing a file.

Once the file is written, **Your song is ready** shows its length and size, with **PLAY IT** and **SHOW IN FOLDER**. If you prefer the terminal: `nachtzug --render out.wav song.nachtzug`.

9.3 Settings and sound card

The ⚙ key in the Output unit, or **File → Settings...** (Ctrl+,), opens the settings. Every change counts straight away.

PAGE	WHAT YOU CAN SET
General	Language (from the next start), colours, **SIZE**, whether the Sound tab opens Simple or Full, **KEYS** (symbol and word, or symbols only), **WINDOW** (the timeline above or beside the notes), the on-screen keys, the Undo note, the scroll bars, Nachtzug's own cursors, the start window and the welcome window.
Sound card	**SOUND SYSTEM** (Automatic picks the best one; on Linux also PipeWire, PulseAudio, ALSA or JACK), **PLAY THROUGH** (which speakers or headphones), **SAMPLE RATE** and **BUFFER**. A line under them says what is running. **PLAY A TEST TONE** checks that sound comes out. **RECORD FROM** picks the input, for recording samples and for the mixer's Input strip.
Samples	Your sample library (9.4).
MIDI	Keyboards, controllers and clock (9.6).



FIG 27 *The sound card page.*

> **TIP**
>
> A smaller **BUFFER** makes the letter keys answer faster; if the sound crackles, choose a larger one. 256 samples is a good middle ground. If the sound card you chose is missing at the next start (unplugged headphones, for example), Nachtzug falls back to the default one and tells you so.

SIZE draws the whole window larger or smaller, from 80 to 200 %. On **Automatic** (the default), Nachtzug picks a size that fits your screen comfortably: on a laptop, that's usually 90 %, so nothing feels cramped. A new size counts from the next start, but **START AGAIN NOW** restarts at once (it asks about unsaved changes first). Sizes too large for your screen are shown but can't be chosen.

9.4 Samples: the library and your own

Any of the eight drums can play a sample instead of its own sound. Nachtzug comes with a library of **65 sounds made just for it**, every one of them synthesised from oscillators, noise and filters: kicks, snares, claps, hats, cymbals and percussion, nine sounds of a night train (rail joints, the door chime, brakes, a distant horn), tones, effects and four long textures such as rain on the window. You'll find the whole list in A.4.

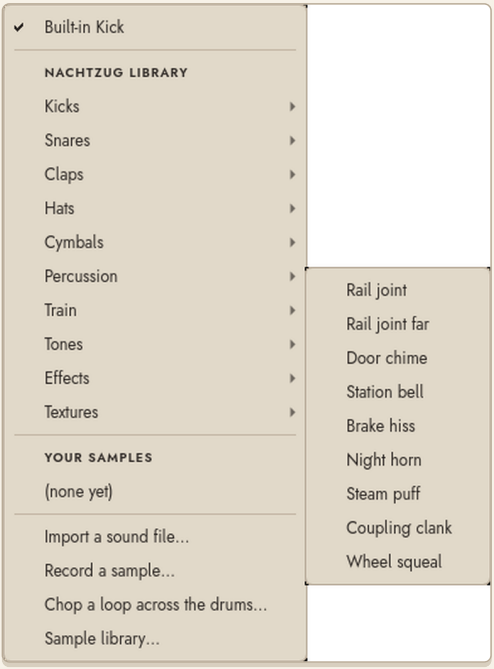


FIG 28 *The menu under a drum. Resting the mouse on a sound plays it.*

Click the button under a drum (it says **Built-in** until you choose something) and open a category. Rest the mouse on a sound to hear it and click to choose it; the drum then plays it at its own pitch and in full. The quickest way in is a sampled kit (5.7). My favourite is the **Night train kit**: the deep kick, a tape snare, the rail joint as the clap, a shaker as the closed hat, a puff of steam as the open hat, a low tom, the coupling clank as the rim and the door chime as the cymbal.

TIP

The textures last several seconds. Put one on a drum you play by hand, the tom for example, with one hit every four or eight bars, and turn its **LEVEL** down: rain or distant rails under an intro sound lovely.

The **Samples** page of the settings shows the library and your own samples.



FIG 29 *The sample library. Double-click a sample to hear it.*

- **IMPORT**… copies WAV or AIFF files (8 to 32-bit, mono or stereo, up to a minute) into the library, so songs keep finding them even if you move the originals. MP3, FLAC or OGG files can be turned into WAV with a free program such as Audacity.
- **RECORD**… records from the input chosen on the Sound card page: press ● **RECORD**, make the sound, press ■ **STOP**, give it a name and save. The level bar shows whether the input is too quiet or too loud; silence at the start and end is cut off. Nachtzug only listens while you record.
- **LISTEN**, **RENAME**…, **REMOVE** and **OPEN FOLDER** do what they say.

To use a sample, open a drum track's Sound tab and click **BUILT-IN** under a drum (5.7). The same menu can import or record a sample straight away. A song remembers the names of its samples; if one is missing when you open the song, its drum plays the built-in sound and Nachtzug says which sample it could not find.

Chopping a loop across the drums

A drum loop from somewhere else can be cut into pieces, one on each drum pad. Choose **Track → Chop a loop across the drums…** (or **CHOP**… on the Samples page, or the entry in the sample menu under a drum) and pick the loop.

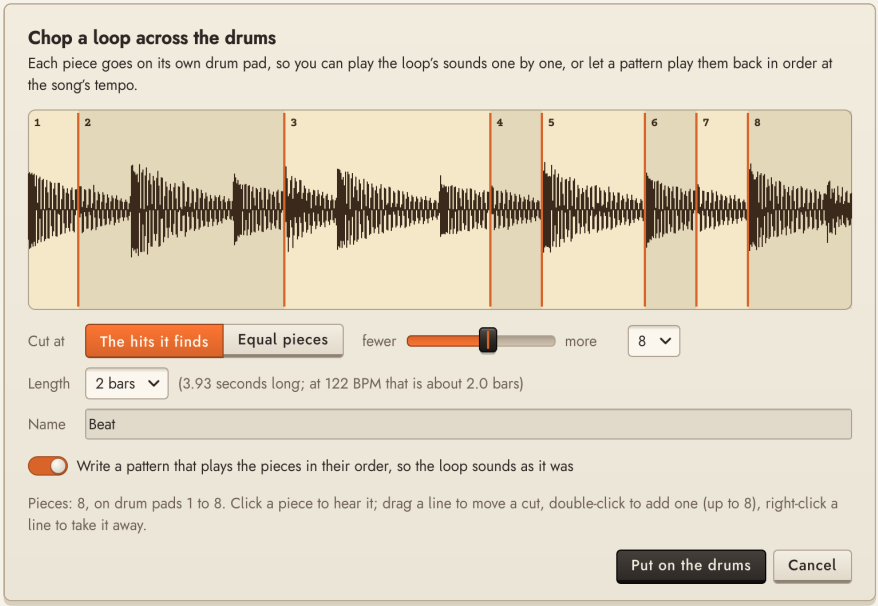


FIG 30 *The cuts sit on the hits Nachtzug finds; each piece goes to the drum pad with its number.*

- Under **CUT AT**, choose **THE HITS IT FINDS** (**FEWER … MORE** sets how faint a hit may be) or **EQUAL PIECES**, 2, 4 or 8, for a loop that is exactly in time.
- Click a piece to hear it. Drag a line to move a cut, double-click to add one (up to eight pieces), right-click a line to take it away.
- **LENGTH** is how many bars the loop lasts, guessed from its length at the song's tempo.
- With **Write a pattern …** switched on, a drum clip at the loop plays the pieces in their order, each on the nearest sixteenth, so the loop sounds as it was, at the song's tempo. Then change the pattern: leave pieces out, swap them, or give a hat a chance.

The pieces are saved in your sample library under the name you give them, numbered, so the song finds them again. The selected drum track gets them; if no drum track is selected, the first one does, or a new one is made. A single ↶ takes it all back.

9.5 Colours

View → Colours, or the General page of the settings, offers six themes and remembers your choice.

- **Bakelite**, the default: warm cream panels, screwed-in sections and ivory glass, as in this booklet.
- **Parchment**: flatter light cream.
- **Ember**: dark brown and amber.
- **Wine**: dark red.
- **Charcoal**: dark grey.
- **Blue panel**: the blue of old studio gear.



FIG 31 *The same window in Ember.*

9.6 MIDI: keyboards, controllers and clock

Nachtzug listens to every MIDI device that's plugged in, unless you choose one on the **MIDI** page of the settings; a line there shows what came in last.

- **A keyboard** plays the selected track like the letter keys, and records the same way. Every key plays the nearest note of the song's scale, so nothing sounds wrong; notes struck hard are accented. On a drum track the General MIDI drum notes play the

drums (36 kick, 38 snare, 42 closed hat …). In Chords mode the keys change the chord (3.4).

- **Controller knobs**: right-click a knob of the Sound tab, a knob or fader in the mixer, or VOLUME or SWING in the top bar, and choose **Learn MIDI control**, then turn a knob on your controller. From then on it turns that knob; a small ring at the knob's top left shows it has one. A knob of the Sound tab works on whichever track is selected, so one controller knob is always the cutoff of what you are working on. Each turn is one undo step, and with record on it is written as a line. **Forget MIDI control** unties it; FORGET THEM ALL on the settings page unties every one. The knobs of a drum kit cannot learn yet.
- **Clock**: to make a drum machine or another program follow Nachtzug, choose it under SEND TO and switch on SEND THE CLOCK, START AND STOP TO IT. To follow another device instead, switch on FOLLOW ITS CLOCK: Nachtzug takes its tempo, and starts and stops with it.

> **TIP**
>
> On Linux, MIDI needs your user to be in the `audio` group. If it isn't, the MIDI page tells you so: type `sudo usermod -aG audio $USER` in a terminal, then log out and back in.

10 PATCH BOOK Sound recipes

Three classic sounds, knob by knob. Pick the named preset to start from it, or set the knobs yourself after a press of **New sound** to learn what each one does. The knobs are drawn where they sit, and anything not shown stays as it is.

10.1 Acid squelch

Bass track · preset "Acid Squelch"



1. Give the bass an **Acid line** from **NEW IDEA**. Accents and slides are what make it talk.
2. While it plays, turn **CUTOFF** slowly up and back down. Then try **RESONANCE** higher for more squelch.
3. Make it move by itself: draw a **Cutoff** line over sixteen bars (chapter 6).

10.2 Berlin sequence

Sequence track · preset "Berlin Sequence"



1. Write a **Berlin sequence** and leave **FOLLOW CHORDS** on, so the run moves with the progression.
2. Set **ECHO TIME** to **Dotted 1/8**: the repeats fall between the notes and the line starts to ripple.
3. Add a slow **LFO TO FILTER** with the **LFO RATE** low, and let it breathe for minutes.

10.3 Supersaw pad

Pad track · preset "Supersaw Pad"



1. Give the pad a **Held chord**: one long chord per bar that follows the progression.
2. A slow **ATTACK** lets each chord swell in; a long **RELEASE** lets it overlap the next.
3. Raise **REVERB SIZE** in the shared echo and reverb for a wide night sky.

> **TIP**
>
> Found a sound you love? Write it down on one of the patch sheets at the back of this booklet, the way synth players have always done!

A REFERENCE Appendix

A.1 Keyboard shortcuts

KEY	ACTION
Space	Play or stop
Home	Back to the start
Letter keys	Play the selected track (3.4)
Ctrl + R	Record on or off
Ctrl + L	Loop on or off
Ctrl + K	Metronome on or off
Ctrl + J	Chords mode on or off (3.4)
Esc	Back to the song's chords; stop waiting for a MIDI knob
Ctrl + Z / Ctrl + Shift + Z	Undo / redo (also the ↶ ↷ keys)
Ctrl + C X V	Copy, cut, paste
Ctrl + D	Duplicate
Ctrl + A	Select all
Delete	Delete what is selected
Ctrl + E	Cut the selected clip at the playhead
Ctrl + N O S	New song, open, save
Ctrl + Shift + E	Export the song
Ctrl + ,	Settings
Ctrl + I	Show or put away the inspector (Making room)
F1	The How to guide

KEY	ACTION
Ctrl + wheel	Zoom the note grid or the timeline
Shift + drag	Fine steps for knobs, faders, notes, clips and line points

A.2 Troubleshooting

There is no sound.

If the sound output couldn't be opened, Nachtzug tells you so when it starts. Open the settings (⚙), go to **Sound card** and press PLAY A TEST TONE, then try another PLAY THROUGH or SOUND SYSTEM. Also check that no other program is holding the audio device to itself, that your tracks aren't muted and that VOLUME is turned up. Bluetooth headphones sometimes get stuck; connecting them again usually helps.

The sound crackles or stutters.

Choose a larger BUFFER on the Sound card page of the settings and close other programs that use a lot of processor time.

A drum plays its own sound instead of my sample.

The sample isn't in the library any more (it was removed or renamed). Import it again and pick it under that drum.

The letter keys don't play anything.

A text field may have the keyboard: after typing a tempo, press Esc or click somewhere else. Also check which track the display says the keys play.

I can't edit the drum hits.

The auto drummer is writing that clip. Switch off THE DRUMMER PLAYS THIS CLIP in the inspector first.

A change didn't happen at once.

While the song plays, new ideas, mutes, chord changes and loop-grid launches wait for the next bar line, so they land in time. The display tells you while one is waiting.

A knob keeps moving by itself.

It's following a line. Turning it by hand pauses the line, RESUME LINES brings it back and right-clicking the knob lets you erase it.

The window does not fit my screen.

Set SIZE on the General page of the settings to **Automatic** or a smaller size and press START AGAIN NOW. Folding sections, putting the inspector away or giving the tabs a window of their own makes room, too (Making room).

My MIDI keyboard does nothing.

Open the **MIDI** page of the settings: it says whether Nachtzug may use MIDI at all (on Linux, see the tip in 9.6) and shows what came in last. After plugging a device in, press LOOK FOR DEVICES AGAIN.

Nachtzug closed by itself.

Don't worry! Start it again and it offers to bring the song back, including the changes you hadn't saved (9.2).

I can't find the inspector any more.

Click the slim » tab on the left edge of the window, press Ctrl + I or choose **View → Inspector**.

The sound distorts.

Several loud tracks add up. Turn some tracks down in the mixer, or lower DRIVE on the loudest one.

A.3 Specifications

TRACKS	Up to 12; bass, sequence, pad, lead or drums
SYNTH VOICES	8 per track, mono or poly, with glide
OSCILLATORS	2 per voice (saw, pulse, triangle, sine), sub, noise, FM, unison up to 7 copies
FILTER	Resonant ladder; low-pass 24 / 12 dB, band-pass, high-pass, notch; key tracking, accent
ENVELOPES	Filter ADSR with pitch amount (its release follows the amp's unless set); amp ADSR
LFO	Triangle, square, random; free or in time (8 bars to 1/32); to filter, pitch, pulse width, volume, pan; fade-in up to 5 s
EFFECTS	Per track: drive, phaser, chorus, equaliser (low cut, low and high shelves, a movable mid, ±12 dB). Shared: echo in note values (with triplets) with tone and ping-pong, reverb. Output limiter
DRUMS	8 synthesised drums, each can play a sample instead; 3 synthesised and 4 sampled kits; auto drummer with 7 styles; loops chopped across the pads
NOTES	Accent, slide, chance (100, 75, 50, 25 %), 1 to 4 quick repeats, keep
MIXER	Per track: equaliser low, mid and high, volume, pan, echo, reverb, pump (ducking from the kick), mute, solo. A live input strip with filter, wah, drive, pump and sends
PRESETS	18 synth sounds, plus a random sound generator
SCALES	8; every key
PATTERNS	½ to 8 bars; grid ¼ to 1/32 with triplets
TIME	4/4, 40 to 240 BPM, swing
EXPORT	WAV stereo, 44.1, 48 or 96 kHz, 16-bit (dithered) or 24-bit; whole song or loop, ring-out or fade; one file per track (stems); standard MIDI file
MIDI	Keyboards (scale-locked, accent from velocity, GM drum notes), learned controller knobs, clock in and out with start, stop and song position

SAMPLES	A library of 65 sounds made for Nachtzug; your own WAV and AIFF, 8 to 32-bit, mono or stereo, up to 60 s; recording from any input
SONG FILE	`.nachtzug` (plain JSON)
SYSTEM	Linux, macOS and Windows; Qt 6 and SDL2 (PipeWire, PulseAudio, ALSA, JACK; Core Audio; WASAPI); MIDI through ALSA, Core MIDI or Windows MIDI
LANGUAGES	English, German
NOT YET	Audio tracks, MP3 and FLAC import

A.4 The sample library

Every sound is synthesised by `tools/samplegen`, the program's own sample maker. The tonal ones say which note they play; **TUNE** moves them an octave either way.

KIND	SOUNDS
Kicks	**Deep boom**: Long and round, with a deep tail; **Punch**: Short and firm, cuts through a busy mix; **Analog thump**: Dry and woody, like an old drum machine; **Rumble**: Hard, with a dark rumbling tail, for techno; **Hard**: Distorted and tight, for acid; **Soft felt**: Muffled and gentle, for quiet songs; **Sub boom**: More felt than heard: a very low swell; **Click**: Very short, with a sharp click
Snares	**Tight**: Crisp and short; **Fat**: Deep and long, with a little room; **Tape**: Warm and worn, as if played from tape; **Brush**: The soft swish of a brush; **Electro**: Noise and a falling zap; **Rim snare**: A snare with a ringing rim
Claps	**Classic**: Several hands at once, like a drum machine; **Big room**: A clap in a large hall; **Snap**: A finger snap; **Crowd**: Many people clapping together
Hats	**Closed**: The everyday hi-hat; **Tight**: Very short and bright; **Open**: Opens and rings out; **Sizzle**: A long, sizzling open hat; **Pedal**: A soft chick from the foot pedal; **Shaker**: A shaker, back and forth; **Tambourine**: Jingles
Cymbals	**Crash**: A big crash; **Ride**: A ringing ride; **Ride bell**: The bell of a ride; **Reverse crash**: A crash backwards: it swells up to the next bar
Percussion	**Cowbell**: Two metallic tones; **Clave**: A bright wooden click; **Woodblock**: A hollow wooden knock; **Conga high**: A hand drum, high; **Conga low**: A hand drum, low; **Bongo**: A small hand drum; **Tom low**: A synth tom, low; **Tom mid**: A synth tom, middle; **Tom high**: A synth tom, high; **Rimshot**: A stick on the rim; **Triangle**: A long, clear ring

KIND	SOUNDS
Train	**Rail joint**: Wheels over a rail joint: ta-dum; **Rail joint far**: The same, far away; **Door chime**: Two tones before the doors close; **Station bell**: A small bell on the platform; **Brake hiss**: Air from the brakes; **Night horn**: A soft horn chord in the distance; **Steam puff**: A puff of steam; **Coupling clank**: Two carriages coupling; **Wheel squeal**: Wheels squealing in a curve
Tones	**Sub drop**: A deep tone falling away; **Zap**: A fast falling zap; **Laser**: A space laser; **Blip**: A short beep; **Acid stab**: One squelchy acid note, C; **Chord stab**: A short chord, C minor; **FM bell**: A glassy bell, A; **Pluck**: A plucked string, A
Effects	**Riser**: Noise rising for three seconds, before a drop; **Downlifter**: Noise falling away; **Impact**: A huge hit with a long tail; **Power down**: Like a tape machine stopping
Textures	**Night rain**: Rain on the window, seven seconds; **Vinyl crackle**: An old record, seven seconds; **Wind in the carriage**: Wind through a gap, with a faint whistle; **Rails at night**: A train far away: rail joints every 1.1 seconds

Settings live in `~/.config/Nachtzug/Nachtzug.conf`*, your own samples in* `~/.local/share/Nachtzug/Nachtzug/samples` *(on a Mac:* `~/Library/Application Support/Nachtzug/Nachtzug/samples`*).*

A.5 Credits and licences

The cover painting

Hans Baluschek (1870–1935), *"Großstadtbahnhof"*, 1904. Baluschek painted Berlin and its railways like no one else; this station at nightfall, its locomotives steaming under the lamps, is in the public domain. The only copy to be found is a small scan of a printed reproduction (Wikimedia Commons); for Nachtzug the printer's screen was taken out, the picture was enlarged with the AI upscaler 4xRealWebPhoto_v4_dat2 (Phhofm, CC BY 4.0) and its colours were freshened a little.

Fonts and software

WHAT	LICENCE
Nachtzug Antiqua, Grotesk, Initialen and Ornamente (our own, built on EB Garamond and Jost); Jost, EB Garamond, Courier Prime	SIL Open Font License 1.1
Qt 6: the window, the controls, text and pictures	LGPL 3.0
SDL 2: the sound card	zlib
The libraries in the Linux AppImage and the Mac and Windows downloads	MIT, BSD, zlib, LGPL; each licence is inside the download

Nachtzug's own licences

PART	LICENCE
The program	GNU GPL, version 3 or later
The sample library and the demo songs	CC0 1.0: public domain
This manual and the pictures (the cover painting excepted)	CC BY-SA 4.0

Everything you make with Nachtzug is yours, completely. Every licence in full, and every part Nachtzug is built on: **nachtzugmusic.com/licences.html**.

Copyright © 2026 Marvin Johanning. Nachtzug is free software, distributed in the hope that it will be useful, but without any warranty. Thank you to everyone whose work it is built on!

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A

Patch sheet

NAME _____ TRACK _____ SONG _____

1 · OSCILLATORS

Saw | Pulse | Triangle | Sine — Wave 1

Saw | Pulse | Triangle | Sine — Wave 2

−1 oct | Unison | +5th | +1 oct — Osc 2



UNISON

1 | 2 | 3 | 5 | 7 — Voices



2 · FILTER

LP24 | LP12 | BP | HP | Notch — Type



FILTER ENVELOPE



3 · AMP ENVELOPE



LFO

Tri | Sqr | Rnd — Shape

Free | In time — Timing



VOICES

Poly | Mono — Play





5 · EQUALISER



4 · EFFECTS



NOTES



Nachtzug

A sequencer and synthesiser for electronic music, made for people who love music but never learned an instrument.

- Every note in the song's scale: nothing can sound wrong
- Ideas on a button: acid lines, Berlin sequences, chords, melodies
- An auto drummer with seven styles and fills of its own
- A full synthesiser per track, with pictures of what each knob does
- Song timeline and live loop grid; a jam becomes a song

Cover: Hans Baluschek, "Großstadtbahnhof", 1904

For Linux, macOS and Windows

NZ · 001