

Hacking Protrekkr

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What is Protrekkr?

The screenshot displays the Protrekkr software interface, which is a digital audio workstation (DAW) designed for creating music. The interface is divided into several sections:

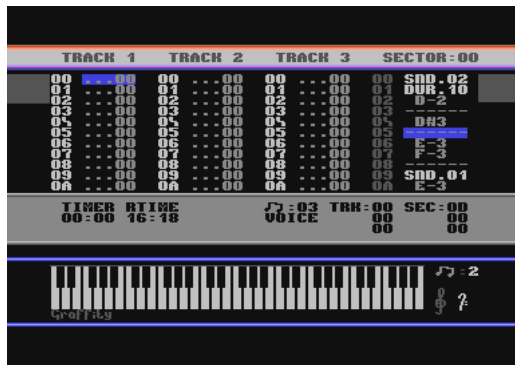
- Top Bar:** Contains various settings and controls, including a threshold slider, a ratio slider, a filter volume (Filt Vol) set to 75%, a shuffle button, and a BPM (Beats Per Minute) set to 80.
- Left Panel:** Includes a "Position" section with fields for Pattern (009), Tracks (08), Beats/Min (125), Song Length (022), and Pattern Lines (40). Below this is an "Instrument" section with a dropdown menu set to "music_composed_by" and a "Delete" button. A "Step Add" section shows a keyboard octave set to B4.
- Center Panel:** The main workspace, featuring a piano roll view with multiple tracks. The tracks are labeled with instrument names: "gignore", "polyphenix.lua", "backpack", "blackpink", "blatwiv", "blatwiv", "config.lua", and "co_test.lua". The piano roll shows a grid of notes and rests, with a time signature of 1/4 and a beat time of 128 ms.
- Bottom Panel:** Contains a "Sequencer" section with a list of tracks and a "Sample Ed." section. The "Sequencer" section includes buttons for "Clear Fill", "Clear Position", "Reset Fill", and "Reset Position". The "Sample Ed." section includes a list of samples (006, 007, 008, 009, 010, 011, 012) and a "Delete Position" button. The "Sample Ed." section also includes a "Save selection" button and a "Save" button.

The interface is dark-themed and features a grid-based layout for the piano roll. The piano roll shows a grid of notes and rests, with a time signature of 1/4 and a beat time of 128 ms. The piano roll is divided into 8 tracks, each with a different instrument name. The piano roll shows a grid of notes and rests, with a time signature of 1/4 and a beat time of 128 ms.

Protrekk is a music tracker

- ▶ Popular interface for music production in the 80s and 90s
- ▶ Kind of looks like a spreadsheet?
- ▶ Time moves top/bottom instead of left/right
- ▶ Rows denote equal divisions of time
- ▶ Columns denote instruments/notes/tracks
- ▶ Typically sample-based
- ▶ There are a **lot** of music trackers...

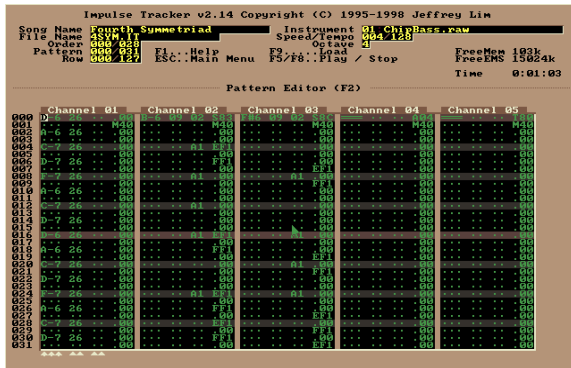
DMC (Commodore 64)



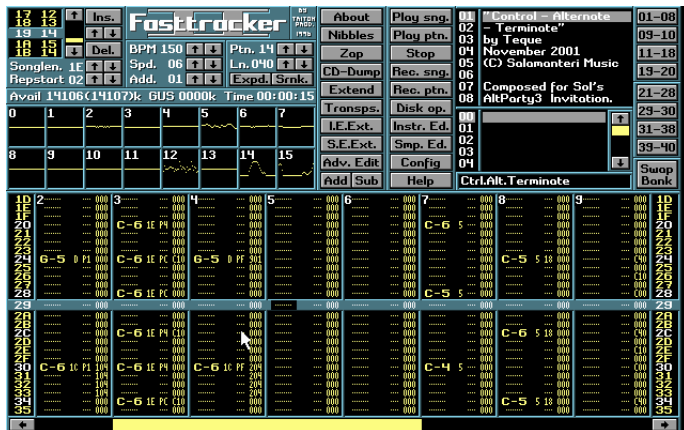
AHX (Amiga)

Abyss																Dexter.									
POS	027	↑↑	024	016-00	018-00	007-00	005-00																		
LEN	068	↑↑	025	017-00	022-00	012-00	000-00																		
RES	012	↑↑	026	013-00	023-00	011-00	006-00																		
TRL	032	↑↑	027	026-00	024-00	010-00	006-F4																		
SS	001	↑↑	028	016-00	018-00	007-00	005-00																		
SSN	000	↑↑	029	017-00	019-00	008-00	000-00																		
SSP	000	↑↑	030	013-00	020-00	009-00	006-00																		
NAME			A New Beginning														LOAD								
PLAY STOP INS			01	↑↑	Moz(Ic)Art / GT												LOAD								
STATUS: Playing...																05% 00:44/07									
↑↑	1	026	↑↑	024	↑↑	010	↑↑	006	↑↑																
01	--	000000	A-408000	C-100302	--	000000																			
02	A-105000	--	000000	--	00302	--	000000																		
03	--	000000	E-408000	--	00301	--	000000																		
04	--	000000	--	000000	301	--	000000																		
05	--	000000	--	00A0F	302	--	000000																		
06	A-1	000000	A-408C00	--	302	--	000000																		
07	--	000000	--	000000	301	--	000000																		
08	C#307000	E-408C00	--	00301	C#403918																				
09	--	000000	--	00302	--	000000																			
10	--	000000	C#416000	--	00302	--	000000																		
11	--	000000	--	00301	--	000000																			
12	A-205000	C#516000	--	00301	--	000000																			
13	--	000000	--	00302	--	000000																			
14	G#106009	--	000000	--	00302	--	000000																		
15	A-100309	--	000000	--	00301	--	000000																		

Impulse Tracker (DOS)



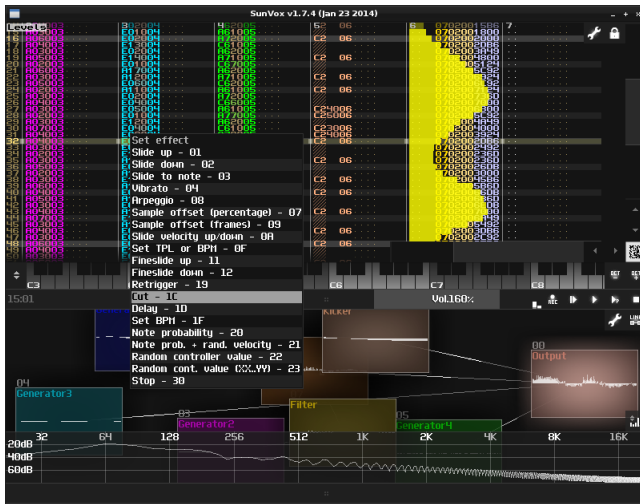
Fasttracker (DOS)



LSDJ (Gameboy)

song				wavinstrument 10				pul			
	PUI	PUI2	WAV	NOI							
00	7f	7f	7f	7f	name						
01	0b	55	00	0c	type		noise				
02	0e	12	0d	0c	#132			#132			
03	03	14	0f	1f	envelope		c2				
04	1a	1b	10	1f	output		1r	1f	6		
05	03	14	3c	0c	length		unl	m	2c	6	
06	08	15	3d	00	shape		9f		w		
07	30	36	19	00	s cmd		free		n		
08	37	38	1c	00							
09	04	02	01	00	automate		off				
0a	20	07	09	00	table		04				
0b	21	13	0a	0c							
0c	06	16	01	1d							
0d	06	16	18	1d	p			s			
0e	06	16	01	1d	scpit			scpit			
0f	46	47	48	2d	g			g			
phrase 0c				pulwave 10							
	NOTE		INSTR	CMD							
0	d#6		i1f	-00	cp0						
1	c 6		i---	-00							
2	g 6		i---	-00	#132						
3	c 6		i---	-00							
4	d#6		i---	-00	1d#6		55aeeeeeca822669				
5	c 6		i---	-00	2c 6						
6	g 6		i---	-00	w						
7	c 6		i---	-00	n						
8	d#6		i---	-00							
9	c 6		i---	-00							
a	g 6		i---	-00							
b	c 6		i---	-00							
c	d#6		i---	-00							
d	c 6		i---	-00							
e	g 6		i---	-00	w						
f	c 6		i---	-00	scpit			scpit			
					g			g			

Sunvox (Linux/Mac/Windows/Android/iOS)



Renoise (Linux/Mac/Windows)



Milkytracker (Linux/Mac/Windows/Android/iOS)



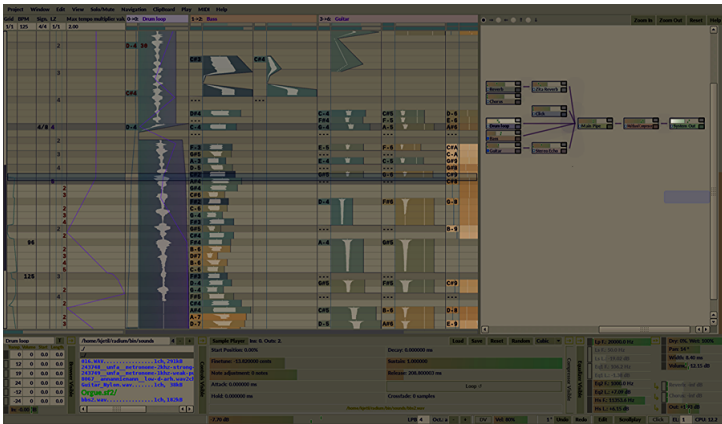
Goattracker (Linux/Mac/Windows)

```
GOATTRACKER v1.4b (reSID + SDL) F12 = HELP

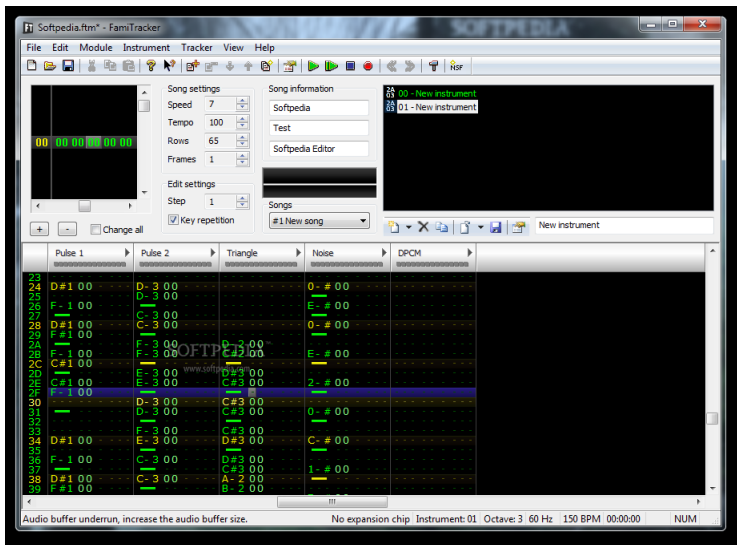
CHN1 PATT00  CHN2 PATT01  CHN3 PATT02  CHN ORDERLIST (SUBTUNE 00, POS 00)
00 C-201000  00 ===000D8  00 ===00708  1 00 04 07 0D 09 RST00
01 ---00000  01 ---000D8  01 ---00000  2 01 05 08 0C 0A RST00
02 ---00000  02 ---000D8  02 ---00000  3 02 03 0B 0E 06 RST00
03 C-403000  03 G-4020D8  03 ---00000
04 ===00000  04 ---000D8  04 ---00000  INSTRUMENT NUM. 01 Bass Guitar
05 C-301000  05 ---000D8  05 ---00000  Attack/Decay 02 W 81 C4 N POS
06 C-201000  06 ===000D8  06 ---00000  Sustain/Release 88 A 41 00 0 01
07 ---00000  07 ---000D8  07 ---00000  Pulse Width 40 V FF 00 T
08 ---00000  08 ---000D8  08 ---00000  Pulse Speed 20 E 00 00 E
09 C-403000  09 G-4020D8  09 ---00000  Pulse Limit Min 20 T 00 00 T
10 ---00000  10 ---000D8  10 ---00000  Pulse Limit Max 60 B 00 00 B Hardres.
11 ---00000  11 ---000D8  11 ---00000  Filter To Use 01 L 00 00 L ON
12 C-201000  12 ===000D8  12 ---00000  FILTER NUM. 00
13 ---00000  13 ---000D8  13 ---00000  Filt Control 80 Filt Freq/Spd 00
14 ---00000  14 ---000D8  14 ---00000  Filt Type/Time 0F Filt Next Step 00
15 C-403000  15 G-4020D8  15 ---00000
16 ===00000  16 ---000D8  16 ---00000  NAME:
17 C-301000  17 ---000D8  17 ---00000  MW Title Remix
18 G-201000  18 ===000D8  18 ---00000

OCTAVE 2 STOPPED CHN1 CHN2 CHN3
JAM MODE 00:00 000/00 000/00 000/00
```

Radium (Linux/Mac/Windows)



Famitracker (Windows)



and several others...


- ▶ Jeskola Buzz
- ▶ Modplug
- ▶ Schism
- ▶ Psycle
- ▶ Klystrack
- ▶ Adlib Tracker 2
- ▶ Soundtracker
- ▶ Cheesetracker
- ▶ OpenMPT

Protrekk is a good start

- ▶ "What is dead may never die..."
- ▶ Relatively small project
- ▶ Out-of-the-box JACK support (Linux)
- ▶ (some) Realtime DSP effects already implemented
 - ▶ Subtractive synthesizer
 - ▶ Track/Global Effects: compressors, EQ + filters, reverb
 - ▶ Two programmable TB303 units!



What has been done thus far



PaulBatchelor
173 commits / 43,618 ++ / 44,742 --

#1

- ▶ Refactoring
- ▶ Sporth + live coding server
- ▶ Lua Scripting
- ▶ Some vi-ish keybindings (hjkl ftw!)
- ▶ Better CLI

More info

- ▶ Project Page: pbat.ch/proj/protrekkr
- ▶ Github: www.github.com/paulbatchelor/protrekkr.git