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Kawai K4 synthesizer patch editor:

To use this program You need a K4 synthesizer, MS-Windows 3.1 or later and Windows multimedia MIDI driver. Please, refer to Windows manuals how to install MIDI driver. K4 Patch Editor is in public domain. You may copy and distribute it freely as long as You don't change anything in these files. Author will appreciate Your contributions, please send any suggestion or patch sets created with this program to author.

Your program disk should include following files:

K4.EXE	Patch editor program
K4CALL.DLL	Library routines to handle asynchronous MIDI events.
K4.HLP	This file
K4.INI	Initialisation file
DRUM.DYN	Nine description files for different dialogs. These
EFFECT.DYN	files are interpreted by K4.EXE and they should
MULTI.DYN	be in same directory as K4.EXE.
SINGLE.DYN	
SCROLL.DYN	
DCF.DYN	
SOURCES.DYN	
DCA.DYN	
COMMON.DYN	

To get started:

Create a subdirectory for K4 under Your Windows directory (or where you like):

```
MD C:\WINDOWS\K4
```

Copy all files on the program diskette into You K4 directory:

```
COPY A:*. * C:\WINDOWS\K4\*. *
```

Copy initialisation file into Your **WINDOWS** directory:

```
COPY A:K4.INI C:\WINDOWS\*. *
```

Start MS-Windows. Add K4 icon into one of Your Windows Application Groups (or possible MIDI apps group) and run K4.EXE.

Using K4 patch editor

K4.EXE is a realtime patch editor. First You download desired patch bank from the K4 synthesizer and You can start edit the sounds. Each time You touch (with mouse) any scrollbar, a MIDI message will be sent to Your K4 synthesizer. Please, read following description of each menu command:

Open a disk patch file and read it into memory. Each filename should have *.SND extension. Filesize is always 15123 bytes (i.e. one full patchset. It is a full sys ex message. You can use it in Your other programs. **New** clears all patch (in PC memory, not in K4). Use **Save** to save Your creations to disk (filenames should use MS-DOS conventions).

From **Edit** You open all edit windows: single,multi, effect and drums. In **Commands** You will find **Upload -> PC** to load data from K4 into Your PC, **Download -> K4** to send data from PC into synthesizer. With **Immediate** set, if You edit single, drum or effects, Your edit parameter will be transferred immediately into K4 editing buffer (not permanently) for all single, drum and effect parameters; Kawai did not implemented a realtime edit for multi parameters (K4 version 1.3 ROM). If **Permanent** flag is set, Your edited parameters will be saved permanently into K4. Saving will occur when You e.g. chance from editing patch A1 to A2 and so on. K4 do not always update it's own little edit screen but if You travel through K4 screens, You'll find that value has changed. You can, of course, verify the change with Your ear. When **Link** is selected and all edit windows are open, You can see how Your editing effects into other parameters. All single, multi, drum and effect dialogs will be messaging to each other about changes in parameters. This option is highly useful if You have large enough screen.

Misc menu has quick-select **Files** command: It shows You all patch files in Your working directory and by doubleclicking an item in a list it is read into memory. If **Immediate** mode is selected this file also is sent to Your K4. Use **Index** to view all single patchnames in patch set files in Your working directory. You can see a list of wave names with **Waves** command. **Debug** shows You what's going in and out to Your K4. **General** open a general SysEx sender-receiver dialog. At the upper combobox You'll give the requests for uploads to PC:

Description of command, size of the returning message, request in hexadecimals

E.g.

Kawai K4 all data request, 15123, F0 40 00 02 00 04 00 00F7

In lower combobox You have to give filename where all results are saved e.g.

MYPATCH.SND

There is also a listbox which shows all the files in Your working directory. By doubleclicking a file You can send it to Your synth. Program assumes that it is a full SysEx message and Your synth can handle it as it is. You can **Save** or **Delete** the commands and filenames You have typed in.

With **Test** You open a midi test keyboard. This is valuable for all K4r rack model owners. You can define how many keys are visible with **Keyboard** command and show the key number with **Label**. To select the patch and input / output channel, open **Program** window. The **Input** command doesn't do much yet, You can see Your playing animated on screen keyboard. There is also provided a panic button: All **Notes off**.

With **Bank** You can select **Internal** or **External** patch set. In **Settings** menu You'll use **Midi** to select input and output midiports. Even though the program shows You all ports,some of them can be midiports which are only applicable to Your installed soundcard. Also, be aware that with some midi device drivers there can be problems with real time editing. The reason is that real time editing can consume a great deal of available midi bandwidth. You may also encounter problems if You are using Your serial port connected to some synthesizer device which has both serial and midi interface. Because of the speed difference (38.4 KBaud vs. 31.25 KBaud) Your Synthesizer have to have large enough buffer to handle SysEx messages. With **Dir** command You define Your patch file directory (**Drive:\Path**), extension for patch file names (*.SND)and editor, which will be used to show single patch name list. Default Notepad.exe can only show files which are smaller than 32 KBytes. You can select background with **Color** command.

Some Synthesizer Terms Definitions

Sound Quality	Technical term	Parameter
Overall timbre	Harmonic content	Oscillator waveform
Brightness	Amplitude of high frequency harmonics	Filter cutoff
Tone changes	Dynamic filtering	VCF or DCF envelope
Volume changes	Dynamic amplitude	VCA or DCA envelope
Vibrato	Pitch modulation	LFO to pitch
Tremolo	Amplitude modulation	LFO to VCA or DCA
Pitch	Frequency	Oscillator tuning
Note-on speed	Attack time	VCA or DCA envelope attack
Note-off speed	Release time	VCA or DCA envelope release
Percussiveness	Attack transient	VCA or DCA envelope decay

