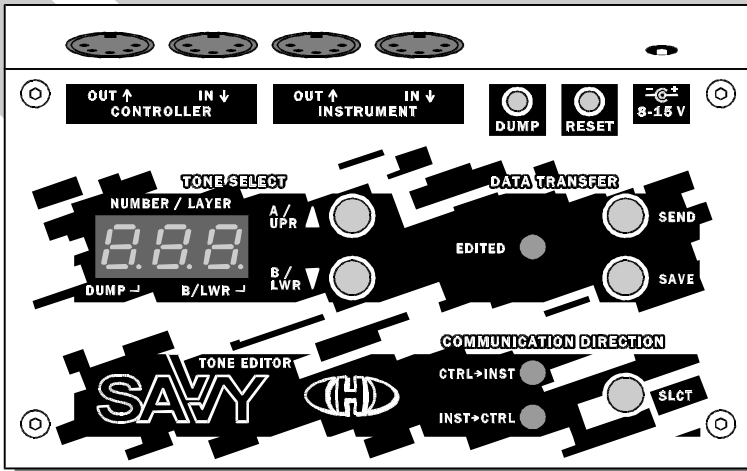


SAVVY

Tone Parameters Editor & Controller



MIDI System Exclusive Communication
Roland JX-10, MKS-70 - Super JX - V4PWM

OS 005 ver. 2.0



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1 SYSEX MESSAGES STRUCTURE

For Roland JX-10 / MKS-70 (Vecoven's upgrade v. 4), SAVVY receives / transmits own specific SysEx messages with the following structure:

[hex]	[bin]	Byte	Range [dec]
F0	11110000	Start SysEx	
00	00000000	Manufacturer ID (always 3 byte)	
20	00100000		
21	00100001		
ii	0iiiiiii	Device ID ¹⁾	0 ~ 15 (MIDI Chnl) / 127 (Universal)
41	01000001	Model ID	
cc	0ccc0000	Command ²⁾	16 / 32 / 48 / 64
05	00000101	Instrument ID = Roland JX-10	
20	00100000	Version ID = OS ver. 2.0	
d1	0ddddddd	Data Bytes ³⁾	
..		
dn	0ddddddd		
xx	0xxxxxxx	Checksum ⁴⁾	
F7	11110111	End SysEx	

Remarks:

¹⁾ The 'Device ID' byte is equal to a number of active MIDI channel (00h for channel Nr. 1, 01h for channel Nr. 2 etc.) for both received and transmitted messages. For messages sent to SAVVY, universal ID 127 can also be set – "Universal ID" message will be always recognized independently on the active MIDI channel number.

²⁾ The 'Command' byte specifies the message type i.e. the SAVVY activity after the whole SysEx message is received – see next chapters.

³⁾ Number of databytes and their structure is variable in dependence on 'Command' byte. Length of the datablock can be 12, 111, 107 or 3 bytes.

⁴⁾ The 'Checksum' byte confirms the validity of the SysEx message. It must be calculated as 7-bit complement of the sum of bytes from 'Model ID' to 'Data Bytes'. By other words, seven-bit sum of bytes from the 'Model ID' to 'Checksum' must be equal to zero (for the 'Checksum' calculation see also chapter 2.2).

1.1 BULK DUMP LOAD SYSTEM PARAMETERS COMMAND

By transmitting of the "**Bulk Dump Load System Parameters**" message to the device, it is allowed to change the content of system parameters memory bank saved in the device's user memory. This type of SysEx message is also sent from the device as immediate response to received "**Bulk Dump Request System Parameters**" SysEx command (see chapter 1.4). When **DUMP** button on the device's panel is pressed, "**Bulk Dump Load System Parameters**" message is sent from the device as one part of stream of SysEx messages.

Value of "cc" (Command) byte is 16 (i.e. 10 hex) for "**Bulk Dump Load System Parameters**" command.

The data block "**d1...dn**" always contains 12 bytes with the following structure:

Byte	[hex]	[bin]	Range [dec]	Parameter
d1	xx	0xxxxxxx	0 ~ 15	Global Parameter: MIDI Channel
d2	00	00000000	0 ¹⁾	not used
d3	00	00000000	0 ¹⁾	not used
d4	xx	00f00cba		Inst → Ctrl Data Transfer Parameters:
			a: 0 ~ 1	Select Device ID for Bulk Dump
			b: 0 ~ 1	Send All CCs (Tone Change)
			c: 0 ~ 1	Send One CC (Parameter Change)
			f: 0 ~ 1	Send Manual Tone Slct as Pgm Chng



Byte	[hex]	[bin]	Range [dec]	Parameter
d5	xx	000e0cba		Ctrl → Inst Data Transfer Parameters:
			a: 0 ~ 1	Cache Modifications in Edit Buffer
			b: 0 ~ 1	Cache Macro Settings in Edit Buffer
			c: 0 ~ 1	Cache Random Setting in Edit Buffer
			e: 0 ~ 1	Accept Pgm Chng from Ctrl
d6	0x	0000dcba		Global Parameters:
			a: 0 ~ 1	MIDI Errors Auto Reset
			b: 0 ~ 1	Remember Last Tone
			c: 0 ~ 1	Tone Number Format
			d: 0 ~ 1	Use Bank Select Command
d7	00	00000000	0 ¹⁾	not used
d8	00	00000000	0 ¹⁾	not used
d9	00	00000000	0 ¹⁾	not used
d10	00	00000000	0 ¹⁾	not used
d11	00	00000000	0 ¹⁾	not used
d12	0x	0000xxxx	0 ~ 15	Global Parameter: Display Brightness

Remarks:

¹⁾ These bytes must be always equal to 0! If not, the SAVVY will not work correctly.

1.2 BULK DUMP LOAD INSTRUMENT PARAMETERS COMMAND

By transmitting of the "Bulk Dump Load Instrument Parameters" message to the device, it is allowed to change the content of instrument parameters memory bank saved in the device's user memory. This type of SysEx message is also sent from the device as immediate response to received "Bulk Dump Request Instrument Parameters" SysEx command (see chapter 1.4). When DUMP button on the device's panel is pressed, "Bulk Dump Load Instrument Parameters" message is sent from the device as one part of stream of SysEx messages.

Value of "cc" (Command) byte is 32 (i.e. 20 hex) for "Bulk Dump Load Instrument Parameters" command.

The data block "d1...dn" always contains 111 bytes with the following structure:

Byte	[hex]	[bin]	Range [dec]	CC Assignment to a Parameter
d1	7F	01111111	127 ²⁾	not used
d2	7F	01111111	127 ²⁾	not used
d3	7F	01111111	127 ²⁾	not used
d4	7F	01111111	127 ²⁾	not used
d5	7F	01111111	127 ²⁾	not used
d6	7F	01111111	127 ²⁾	not used
d7	7F	01111111	127 ²⁾	not used
d8	7F	01111111	127 ²⁾	not used
d9	7F	01111111	127 ²⁾	not used
d10	7F	01111111	127 ²⁾	not used
d11	7F	01111111	127 ²⁾	not used
d12	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[11] DCO-1 RANGE
d13	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[12] DCO-1 WAVEFORM
d14	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[13] DCO-1 TUNE
d15	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[14] DCO-1 LFO MOD DEPTH
d16	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[15] DCO-1 LFO SOURCE
d17	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[16] DCO-1 ENV MOD DEPTH
d18	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[17] DCO-1 DYNAMICS
d19	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[18] DCO-1 ENV SOURCE
d20	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[21] DCO-2 RANGE
d21	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[22] DCO-2 WAVEFORM
d22	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[23] DCO-2 TUNE
d23	xx	0xxxxxxx	0 ~ 126 / 127 ¹⁾	[24] DCO-2 LFO MOD DEPTH



Byte	[hex]	[bin]	Range [dec]	CC Assignment to a Parameter
d24	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[25] DCO-2 LFO SOURCE
d25	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[26] DCO-2 ENV MOD DEPTH
d26	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[27] DCO-2 DYNAMICS
d27	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[28] DCO-2 ENV SOURCE
d28	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[31] DCO CROSS MOD
d29	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[32] DCO-2 FINE TUNE
d30	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[33] HPF CUTOFF FREQ
d31	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[34] CHORUS
d32	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[41] PWM-1 WIDTH
d33	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[42] PWM-1 ENV DEPTH
d34	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[43] PWM-1 LFO DEPTH
d35	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[44] PWM-1 LFO SOURCE
d36	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[45] PWM-1 DYNAMICS
d37	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[46] PWM-1 ENV SOURCE
d38	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[51] PWM-2 WIDTH
d39	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[52] PWM-2 ENV DEPTH
d40	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[53] PWM-2 LFO DEPTH
d41	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[54] PWM-2 LFO SOURCE
d42	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[55] PWM-2 DYNAMICS
d43	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[56] PWM-2 ENV SOURCE
d44	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[61] MIXER DCO-1
d45	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[62] MIXER DCO-2
d46	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[63] MIXER ENV MOD DEPTH
d47	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[64] MIXER DYNAMICS
d48	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[65] MIXER ENV SOURCE
d49	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[71] VCF CUTOFF FREQ
d50	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[72] VCF RESONANCE
d51	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[73] VCF LFO-1 MOD DEPTH
d52	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[74] VCF LFO-2 MOD DEPTH
d53	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[75] VCF ENV MOD DEPTH
d54	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[76] VCF KEY FOLLOW
d55	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[77] VCF DYNAMICS
d56	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[78] VCF ENV SOURCE
d57	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[81] VCA LEVEL
d58	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[82] VCA ENV SOURCE
d59	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[83] VCA DYNAMICS
d60	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[91] LFO-1 WAVEFORM
d61	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[92] LFO-1 DELAY TIME
d62	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[93] LFO-1 RATE
d63	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[94] LFO-1 LFO-2 DEPTH
d64	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[95] LFO-1 SYNC
d65	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[A1] LFO-2 WAVEFORM
d66	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[A2] LFO-2 DELAY TIME
d67	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[A3] LFO-2 RATE
d68	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[A4] LFO-2 LFO-1 DEPTH
d69	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[A5] LFO-2 SYNC
d70	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B1] ENV-1 TIME1
d71	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B2] ENV-1 LEVEL1
d72	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B3] ENV-1 TIME2
d73	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B4] ENV-1 LEVEL2
d74	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B5] ENV-1 TIME3
d75	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B6] ENV-1 LEVEL3
d76	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B7] ENV-1 TIME4
d77	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[B8] ENV-1 KEY FOLLOW
d78	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C1] ENV-2 TIME1
d79	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C2] ENV-2 LEVEL1
d80	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C3] ENV-2 TIME2
d81	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C4] ENV-2 LEVEL2
d82	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C5] ENV-2 TIME3



Byte	[hex]	[bin]	Range [dec]	CC Assignment to a Parameter
d83	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C6] ENV-2 LEVEL3
d84	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C7] ENV-2 TIME4
d85	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[C8] ENV-2 KEY FOLLOW
d86	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[D1] ENV-3 ATTACK TIME
d87	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[D2] ENV-3 DECAY TIME
d88	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[D3] ENV-3 SUSTAIN LEVEL
d89	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[D4] ENV-3 RELEASE TIME
d90	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[D5] ENV-3 KEY FOLLOW
d91	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[E1] ENV-4 ATTACK TIME
d92	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[E2] ENV-4 DECAY TIME
d93	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[E3] ENV-4 SUSTAIN LEVEL
d94	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[E4] ENV-4 RELEASE TIME
d95	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	[E5] ENV-4 KEY FOLLOW
d96	7F	01111111	127 ²⁾	not used
d97	7F	01111111	127 ²⁾	not used
d98	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: MOD RATE
d99	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: MOD DEPTH
d100	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: BRILLIANCE
d101	7F	01111111	127 ²⁾	not used
d102	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: ENV TIME
d103	7F	01111111	127 ²⁾	not used
d104	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV ATTACK TIME
d105	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV DECAY TIME
d106	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV SUSTAIN LEVEL
d107	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV RELEASE TIME
d108	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV-1 4-SEG ATTACK
d109	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV-2 4-SEG ATTACK
d110	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	RANDOM FUNCTION
d111	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	SELECT LAYER FUNCTION

Remarks:

¹⁾ Values 0 to 126 assign corresponding CC number to the parameter, value 127 means that no CC is assigned to the parameter.

²⁾ These bytes must be always equal to 127! If not, the SAVVY will not work correctly.

1.3 BULK DUMP LOAD TONE DATA COMMAND

By transmitting of the "Bulk Dump Load Tone Data" message to the device, it is allowed to change the content of one part of tone data memory bank saved in the device's user memory. This type of SysEx message is also sent from the device as immediate response to received "Bulk Dump Request Tone Data" SysEx command (see chapter 1.4). When DUMP button on the device's panel is pressed, "Bulk Dump Load Tone Data" messages are sent from the device for each of stored tones as 128 parts of stream of SysEx messages.

Value of "cc" (Command) byte is 48 (i.e. 30 hex) for "Bulk Dump Load Tone Data" command.

The data block "d1...dn" always contains 107 bytes with the following structure:

Byte	[hex]	[bin]	Range	Tone Parameter
d1	xx	00000xxx	0 ~ 5	BANK NUMBER ¹⁾
d2	xx	0xxxxxxxx	0 ~ 127	TONE NUMBER ²⁾
d3	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR1)
d4	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR2)
d5	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR3)
d6	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR4)
d7	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR5)
d8	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR6)



Byte	[hex]	[bin]	Range	Tone Parameter
d9	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR7)
d10	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR8)
d11	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR9)
d12	xx	0xxxxxxxx	32 ~ 92 ⁵⁾	TONE NAME (CHR10)
d13	xx	00100000	32 ³⁾	not used
d14	0x	000000xx	0 ~ 3	[11] DCO-1 RANGE
d15	0x	000000xx	0 ~ 3	[12] DCO-1 WAVEFORM
d16	xx	000xxxxx	0 ~ 24	[13] DCO-1 TUNE
d17	xx	0xxxxxxx	0 ~ 99	[14] DCO-1 LFO MOD DEPTH
d18	0x	000000xx	0 ~ 3	[15] DCO-1 LFO SOURCE
d19	xx	0xxxxxxx	0 ~ 99	[16] DCO-1 ENV MOD DEPTH
d20	0x	000000xx	0 ~ 3	[17] DCO-1 DYNAMICS
d21	0x	00000xxx	0 ~ 7	[18] DCO-1 ENV SOURCE
d22	0x	000000xx	0 ~ 3	[21] DCO-2 RANGE
d23	0x	000000xx	0 ~ 3	[22] DCO-2 WAVEFORM
d24	xx	000xxxxx	0 ~ 24	[23] DCO-2 TUNE
d25	xx	0xxxxxxx	0 ~ 99	[24] DCO-2 LFO MOD DEPTH
d26	0x	000000xx	0 ~ 3	[25] DCO-2 LFO SOURCE
d27	xx	0xxxxxxx	0 ~ 99	[26] DCO-2 ENV MOD DEPTH
d28	0x	000000xx	0 ~ 3	[27] DCO-2 DYNAMICS
d29	0x	00000xxx	0 ~ 7	[28] DCO-2 ENV SOURCE
d30	0x	000000xx	0 ~ 3	[31] DCO CROSS MOD
d31	xx	0xxxxxxx	0 ~ 100	[32] DCO-2 FINE TUNE
d32	0x	000000xx	0 ~ 3	[33] HPF CUTOFF FREQ
d33	0x	000000xx	0 ~ 2	[34] CHORUS
d34	xx	0xxxxxxx	0 ~ 99	[41] PWM-1 WIDTH
d35	xx	0xxxxxxx	0 ~ 99	[42] PWM-1 ENV DEPTH
d36	xx	0xxxxxxx	0 ~ 99	[43] PWM-1 LFO DEPTH
d37	0x	000000xx	0 ~ 3	[44] PWM-1 LFO SOURCE
d38	0x	000000xx	0 ~ 3	[45] PWM-1 DYNAMICS
d39	xx	00000xxx	0 ~ 7	[46] PWM-1 ENV SOURCE
d40	xx	0xxxxxxx	0 ~ 99	[51] PWM-2 WIDTH
d41	xx	0xxxxxxx	0 ~ 99	[52] PWM-2 ENV DEPTH
d42	xx	0xxxxxxx	0 ~ 99	[53] PWM-2 LFO DEPTH
d43	0x	000000xx	0 ~ 3	[54] PWM-2 LFO SOURCE
d44	0x	000000xx	0 ~ 3	[55] PWM-2 DYNAMICS
d45	0x	00000xxx	0 ~ 7	[56] PWM-2 ENV SOURCE
d46	xx	0xxxxxxx	0 ~ 99	[61] MIXER DCO-1
d47	xx	0xxxxxxx	0 ~ 99	[62] MIXER DCO-2
d48	xx	0xxxxxxx	0 ~ 99	[63] MIXER ENV MOD DEPTH
d49	0x	000000xx	0 ~ 3	[64] MIXER DYNAMICS
d50	0x	00000xxx	0 ~ 7	[65] MIXER ENV SOURCE
d51	xx	0xxxxxxx	0 ~ 99	[71] VCF CUTOFF FREQ
d52	xx	0xxxxxxx	0 ~ 99	[72] VCF RESONANCE
d53	xx	0xxxxxxx	0 ~ 99	[73] VCF LFO-1 MOD DEPTH
d54	xx	0xxxxxxx	0 ~ 99	[74] VCF LFO-2 MOD DEPTH
d55	xx	0xxxxxxx	0 ~ 99	[75] VCF ENV MOD DEPTH
d56	xx	0xxxxxxx	0 ~ 99	[76] VCF KEY FOLLOW
d57	0x	000000xx	0 ~ 3	[77] VCF DYNAMICS
d58	0x	00000xxx	0 ~ 7	[78] VCF ENV SOURCE
d59	xx	0xxxxxxx	0 ~ 99	[81] VCA LEVEL
d60	0x	000000xx	0 ~ 3	[82] VCA ENV SOURCE
d61	0x	000000xx	0 ~ 3	[83] VCA DYNAMICS
d62	0x	00000xxx	0 ~ 4	[91] LFO-1 WAVEFORM
d63	xx	0xxxxxxx	0 ~ 99	[92] LFO-1 DELAY TIME
d64	xx	0xxxxxxx	0 ~ 99	[93] LFO-1 RATE
d65	xx	0xxxxxxx	0 ~ 99	[94] LFO-1 LFO-2 DEPTH
d66	0x	000000xx	0 ~ 2	[95] LFO-1 SYNC
d67	0x	00000xxx	0 ~ 4	[A1] LFO-2 WAVEFORM

Remark⁵⁾: TONE NAME CHR Values

Value	Character
48	0
49	1
50	2
51	3
52	4
53	5
54	6
55	7
56	8
57	9
65	A
66	B
67	C
68	D
69	E
70	F
71	G
72	H
73	I
74	J
75	K
76	L
77	M
78	N
79	O
80	P
81	Q
82	R
83	S
84	T
85	U
86	V
87	W
88	X
89	Y
90	Z
47	\ (slash)
92	/ (backslash)
42	* (asterisk)
45	- (dash)
46	, (comma)
32	(space)



Byte	[hex]	[bin]	Range	Tone Parameter
d68	xx	0xxxxxxxx	0 ~ 99	[A2] LFO-2 DELAY TIME
d69	xx	0xxxxxxxx	0 ~ 99	[A3] LFO-2 RATE
d70	xx	0xxxxxxxx	0 ~ 99	[A4] LFO-2 LFO-1 DEPTH
d71	0x	000000xx	0 ~ 2	[A5] LFO-2 SYNC
d72	xx	0xxxxxxxx	0 ~ 99	[B1] ENV-1 TIME1
d73	xx	0xxxxxxxx	0 ~ 99	[B2] ENV-1 LEVEL1
d74	xx	0xxxxxxxx	0 ~ 99	[B3] ENV-1 TIME2
d75	xx	0xxxxxxxx	0 ~ 99	[B4] ENV-1 LEVEL2
d76	xx	0xxxxxxxx	0 ~ 99	[B5] ENV-1 TIME3
d77	xx	0xxxxxxxx	0 ~ 99	[B6] ENV-1 LEVEL3
d78	xx	0xxxxxxxx	0 ~ 99	[B7] ENV-1 TIME4
d79	0x	00000xxx	0 ~ 7	[B8] ENV-1 KEY FOLLOW
d80	xx	0xxxxxxxx	0 ~ 99	[C1] ENV-2 TIME1
d81	xx	0xxxxxxxx	0 ~ 99	[C2] ENV-2 LEVEL1
d82	xx	0xxxxxxxx	0 ~ 99	[C3] ENV-2 TIME2
d83	xx	0xxxxxxxx	0 ~ 99	[C4] ENV-2 LEVEL2
d84	xx	0xxxxxxxx	0 ~ 99	[C5] ENV-2 TIME3
d85	xx	0xxxxxxxx	0 ~ 99	[C6] ENV-2 LEVEL3
d86	xx	0xxxxxxxx	0 ~ 99	[C7] ENV-2 TIME4
d87	0x	00000xxx	0 ~ 7	[C8] ENV-2 KEY FOLLOW
d88	xx	0xxxxxxxx	0 ~ 99	[D1] ENV-3 ATTACK TIME
d89	xx	0xxxxxxxx	0 ~ 99	[D2] ENV-3 DECAY TIME
d90	xx	0xxxxxxxx	0 ~ 99	[D3] ENV-3 SUSTAIN LEVEL
d91	xx	0xxxxxxxx	0 ~ 99	[D4] ENV-3 RELEASE TIME
d92	0x	00000xxx	0 ~ 7	[D5] ENV-3 KEY FOLLOW
d93	xx	0xxxxxxxx	0 ~ 99	[E1] ENV-4 ATTACK TIME
d94	xx	0xxxxxxxx	0 ~ 99	[E2] ENV-4 DECAY TIME
d95	xx	0xxxxxxxx	0 ~ 99	[E3] ENV-4 SUSTAIN LEVEL
d96	xx	0xxxxxxxx	0 ~ 99	[E4] ENV-4 RELEASE TIME
d97	0x	00000xxx	0 ~ 7	[E5] ENV-4 KEY FOLLOW
d98	40	01000000	64 ⁴⁾	not used
d99	40	01000000	64 ⁴⁾	not used
d100	xx	0xxxxxxxx	0 ~ 127	Modifier: MOD RATE
d101	xx	0xxxxxxxx	0 ~ 127	Modifier: MOD DEPTH
d102	xx	0xxxxxxxx	0 ~ 127	Modifier: BRILLIANCE
d103	40	01000000	64 ⁴⁾	not used
d104	xx	0xxxxxxxx	0 ~ 127	Modifier: ENV-1 TIME
d105	xx	0xxxxxxxx	0 ~ 127	Modifier: ENV-2 TIME
d106	xx	0xxxxxxxx	0 ~ 127	Modifier: ENV-3 TIME
d107	xx	0xxxxxxxx	0 ~ 127	Modifier: ENV-4 TIME

Remarks:

- ¹⁾ The 'Bank Number' byte specifies what tone data memory bank will be affected by the SysEx message.
- ²⁾ The 'Tone Number' byte specifies what part of selected tone data memory bank (i.e. what tone number of active tone bank) will be affected by the SysEx message.
- ³⁾ This byte must be always equal to 32! If not, the SAVVY will not work correctly.
- ⁴⁾ These bytes must be always equal to 64! If not, the SAVVY will not work correctly.

1.4 BULK DUMP REQUEST COMMAND

When the "**Bulk Dump Request**" SysEx message is sent to the device, the device responds immediately with "**Bulk Dump Load**" message (see above). This message contents data from requested memory bank saved in the device's user memory.

Value of "**cc**" (Command) byte is 64 (i.e 40 hex) for "**Bulk Dump Request**" command.

The data block "**d1...dn**" always contains 3 bytes the following structure:

Byte	[hex]	[bin]	Range	Meaning
d1	01	00000001		Sub-command: Bulk Dump Request
d2	xx	00xx0000	16 / 32 / 48 ~ 51 ¹⁾	Bank Type
d3	xx	0xxxxxxx	0 or 0 ~ 127 ²⁾	Bank Part Number

Remarks:

¹⁾ The 'Bank Type' byte specifies the memory area for the command processing: 16 (i.e 10 hex) is for System Parameters Bank, 32 (i.e 20 hex) is for Instrument Parameters Bank and 48 ~ 51 (i.e 30 hex to 33 hex) is for a Tone Data Bank Nr. 1 to 4.

²⁾ If Bank Type byte is 48 to 51 (i.e. Tone Data Bank Nr. 1 to 4), the 'Bank Part Number' byte specifies number of requested tone in the selected bank exactly (0 to 127). If 'Bank Type' byte is 16 or 32, the 'Bank Part Number' byte must be always equal to 0.

1.5 BULK DUMP INITIALIZE COMMAND

When the "**Bulk Dump Initialize**" SysEx message is sent to the device, data in requested memory bank in the device's user memory are rewritten with default "factory reset" data . Original data are lost!

Value of "**cc**" (Command) byte is 64 (i.e 40 hex) for "**Bulk Dump Initialize**" command.

The data block "**d1...dn**" always contains 3 bytes the following structure:

Byte	[hex]	[bin]	Range	Meaning
d1	00	00000000		Sub-command: Initialize
d2	xx	00xx0000	16 / 32 / 48 ~ 51 ¹⁾	Bank Type
d3	xx	0xxxxxxx	0 or 0 ~ 127 ²⁾	Bank Part Number

Remarks:

¹⁾ The 'Bank Type' byte specifies the memory area for the command processing: 16 (i.e 10 hex) is for System Parameters Bank, 32 (i.e 20 hex) is for Instrument Parameters Bank and 48 ~ 51 (i.e 30 hex to 33 hex) is for a Tone Data Bank Nr. 1 to 4.

²⁾ If Bank Type byte is 48 to 51 (i.e. Tone Data Bank Nr. 1 to 4), the 'Bank Part Number' byte specifies number of requested tone in the selected bank exactly (0 to 127). If 'Bank Type' byte is 16 or 32, the 'Bank Part Number' byte must be always equal to 0.

2 SYSEX MESSAGES CREATING

2.1 SYSEX MESSAGES GENERATORS

As a support for the users we have made special software generators to create any SysEx messages to control the SAVVY editor. Usage of these generators is very easy for any user. Please see Manual Supplement for detailed description of SysEx Messages Generator.

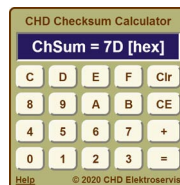
2.2 CHECKSUM CALCULATOR

If you want to create a SysEx message yourself, you need to calculate the 'Checksum' byte. This is difficult for most musicians because calculation with hexadecimal / binary numbers is necessary. For easy calculation of the checksum, special software **Checksum Calculator** is prepared.

The Checksum Calculator is based on Java scripts so it can run on any computer with web browser (Windows, OSX, etc.). Note that scripts and ActiveX elements must be enabled in the web browser for proper function of the calculator.

The Checksum Calculator is available at our website (www.chd-el.cz) on Support page.

The Checksum Calculator works on-line or it can be downloaded to your computer and then launched from it.



Tone Parameters Editor & Controller
 Model TPE-1 Nr. 8-361 / Bios v. 1.00 / OS Nr. 005 v. 2.0
 Document: 8361100-00520_sysex

Manufacturer:
 CHD Elektro servis, Czech Republic
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SAVVY

Tone Parameters Editor & Controller