

MSRTool

User Manual

1 History of the document

<i>Version</i>	<i>Date</i>	<i>Edited by</i>	<i>Description</i>
1.0	04-Sept-2012		

2 Introduction

2.1 Definitions

MSR	Magnetic Stripe Reader

2.2 Overview

This document provides instructions to configure MSR for PS/2 keyboard emulation using MSRtool utility for Beetle Express and BA9x MSR.

3 Configuration

Before you use this MSRtool.exe, you must make a configuration file first. The file name is msrconfig.ini. It must be in the same path as MSRtool.exe.

The sample msrconfig.ini is shown as below:

```
[Mode]
JIS=disable
Track1=enable
Track2=enable
Track3=enable
Track4=disable

[Track1]
Header={escape}Trk1
Trailer=T

[Track2]
Header={escape}Trk2
Trailer={enter}

[Track3]
Header={escape}Trk3
Trailer={enter}

[Track4]
Header={escape}Trk4
Trailer={enter}
```

The Mode section defines the working mode of MSR legacy.

- Set ISO encoding by JIS=disable
- Set JIS encoding by JIS=enable

Default mode is ISO encoding (JIS disable.), enable 3 tracks
Track4 is for JIS type II track.

The Track section defines the header and trailer for each MSR track.

This tool can recognize keywords or characters. The keywords are listed in Appendix A.

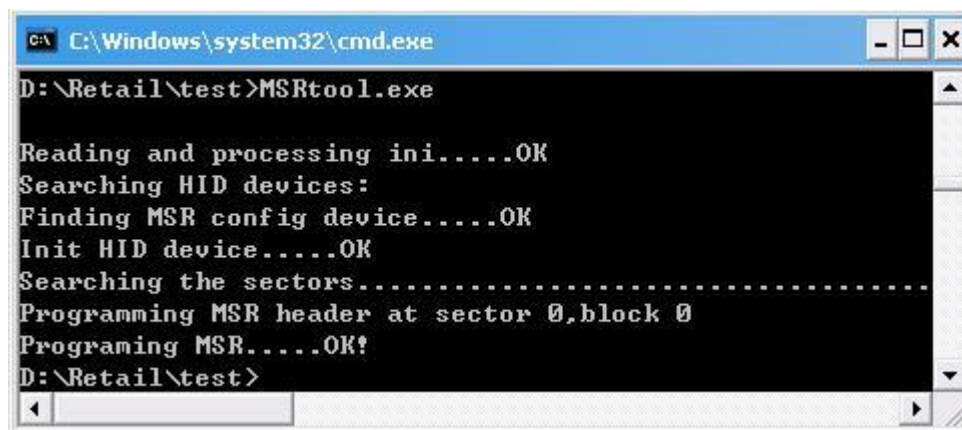
The characters are a to z, and 0 to 9.

User must follow the following rules when making the header and trailer:

- 1) Key words must put inside brackets, for example {escape}. These keywords are not sensitivity to case, so {ESCAPE} is same as {escape}.
- 2) Characters must put outside brackets.
- 3) Characters are case-sensitive. Hence, T is same as {RIGHT_SHIFT}{RIGHT_SHIFT}
- 4) The hex values of the key words and characters are listed in Appendix B.

4 Run the tool

Type and run the MSRtool.exe



```
C:\Windows\system32\cmd.exe
D:\Retail\test>MSRtool.exe

Reading and processing ini.....OK
Searching HID devices:
Finding MSR config device.....OK
Init HID device.....OK
Searching the sectors.....
Programming MSR header at sector 0,block 0
Programing MSR.....OK!
D:\Retail\test>
```

Remarks

Please wait when the tool is searching the sectors. It will take about 45 seconds to go through all sectors on the device if you run first time.

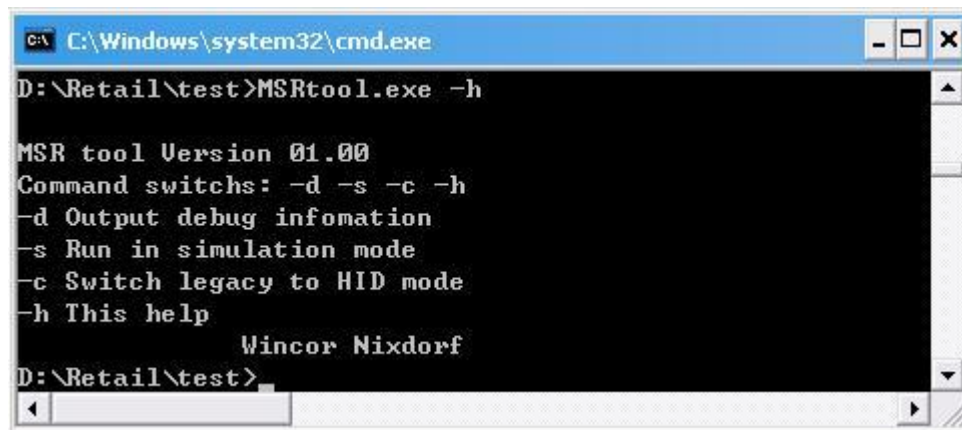
User can switch from legacy mode to HID mode by MSRtool.exe -c



```
C:\Windows\system32\cmd.exe
D:\Retail\test>MSRtool.exe -c

Searching HID devices:
Finding MSR config device.....OK
Initializing HID device.....OK
Searching the sectors.
Found MSR header at sector 0,block 0
Turn off legacy mode .....OK
D:\Retail\test>
```

The help command: MSRtool.exe -h



```
C:\Windows\system32\cmd.exe
D:\Retail\test>MSRtool.exe -h

MSR tool Version 01.00
Command switchs: -d -s -c -h
-d Output debug infomation
-s Run in simulation mode
-c Switch legacy to HID mode
-h This help

Wincor Nixdorf
D:\Retail\test>
```

For debugging and trace, user can type MSRtool.exe -d -s

Switch -d means print out debugging message.

Switch -s means run under simulation mode (run on any machine).

Appendix A:

Key words

LEFT_CTRL
RIGHT_CTRL

LEFT_SHIFT
RIGHT_SHIFT

LEFT_ALT
RIGHT_ALT

LEFT_GUI
RIGHT_GUI

ENTER
SPACE
RBRACKET
BQUOTE
CAPSLOCK

ESCAPE
MINUS
BSLASH
COMMA

BACKSPACE
EQUAL
SEMICOLON
PERIOD

TAB
LBRACKET
FQUOTE
FSLASH

F1
F5
F9

F2
F6
F10

F3
F7
F11

F4
F8
F12

RIGHT_ARROW
KEYPAD_SLASH
KEYPAD_PLUS
KEYPAD_3
KEYPAD_7
KEPAD_PERIOD

LEFT_ARROW
KEYPAD_STAR
KEPAD_ENTER
KEYPAD_4
KEYPAD_8

DOWN_ARROW
KEYPAD_MINUS
KEYPAD_1
KEYPAD_5
KEYPAD_9

UP_ARROW
KEYPAD_2
KEYPAD_6
KEYPAD_0

Appendix B:

Key words and its hex value Table

HID Keyboard modifiers

LEFT_CTRL	0x01
LEFT_SHIFT	0x02
LEFT_ALT	0x04
LEFT_GUI	0x08
RIGHT_CTRL	0x10
RIGHT_SHIFT	0x20
RIGHT_ALT	0x40
RIGHT_GUI	0x80

HID Keyboard Usage ID

A	0x04	1	0x1E	ENTER	0x28	F1	0x3A	RIGHT_ARROW	0x4F
B	0x05	2	0x1F	ESCAPE	0x29	F2	0x3B	LEFT_ARROW	0x50
C	0x06	3	0x20	BACKSPACE	0x2A	F3	0x3C	DOWN_ARROW	0x51
D	0x07	4	0x21	TAB	0x2B	F4	0x3D	UP_ARROW	0x52
E	0x08	5	0x22	SPACE	0x2C	F5	0x3E	KEYPAD_SLASH	0x54
F	0x09	6	0x23	MINUS	0x2D	F6	0x3F	KEYPAD_STAR	0x55
G	0x0A	7	0x24	EQUAL	0x2E	F7	0x40	KEYPAD_MINUS	0x56
H	0x0B	8	0x25	LBRACKET	0x2F	F8	0x41	KEYPAD_PLUS	0x57
I	0x0C	9	0x26	RBRACKET	0x30	F9	0x42	KEYPAD_ENTER	0x58
J	0x0D	0	0x27	BSLASH	0x31	F10	0x43	KEYPAD_1	0x59
K	0x0E			SEMICOLON	0x33	F11	0x44	KEYPAD_2	0x5A
L	0x0F			FQUOTE	0x34	F12	0x45	KEYPAD_3	0x5B
M	0x10			BQUOTE	0x35			KEYPAD_4	0x5C
N	0x11			COMMA	0x36			KEYPAD_5	0x5D
O	0x12			PERIOD	0x37			KEYPAD_6	0x5E
P	0x13			FSLASH	0x38			KEYPAD_7	0x5F
Q	0x14			CAPSLOCK	0x39			KEYPAD_8	0x60
R	0x15							KEYPAD_9	0x61
S	0x16							KEYPAD_0	0x62
T	0x17							KEYPAD_PERIOD	0x63
U	0x18								
V	0x19								
W	0x1A								
X	0x1B								
Y	0x1C								
Z	0x1D								

Appendix C:

The shaded regions of the following ASCII table are the valid characters for use in the header and trailer.

	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
0_	<u>NUL</u> 00	<u>SOH</u> 01	<u>STX</u> 02	<u>ETX</u> 03	<u>EOT</u> 04	<u>ENQ</u> 05	<u>ACK</u> 06	<u>BEL</u> 07	<u>BS</u> 08	<u>HT</u> 09	<u>LF</u> 0A	<u>VT</u> 0B	<u>FF</u> 0C	<u>CR</u> 0D	<u>SO</u> 0E	<u>SI</u> 0F
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1_	<u>DLE</u> 10	<u>DC1</u> 11	<u>DC2</u> 12	<u>DC3</u> 13	<u>DC4</u> 14	<u>NAK</u> 15	<u>SYN</u> 16	<u>ETB</u> 17	<u>CAN</u> 18	<u>EM</u> 19	<u>SUB</u> 1A	<u>ESC</u> 1B	<u>FS</u> 1C	<u>GS</u> 1D	<u>RS</u> 1E	<u>US</u> 1F
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2_	<u>SP</u> 20	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3_	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
	30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4_	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5_	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
	50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6_	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
	60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7_	p	q	r	s	t	u	v	w	x	y	z	{	 	}	~	<u>DEL</u> 7F
	70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F
	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127