LPU23X tools API

user manual

V4.1

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This document describes how to use the Application Programming Interface (API) to change the settings of the LPU237 card reader (MSR). This API needs that NDM(The Next Device Manager) is running.

API Basic information.

	value	etc
folder	%ProgramFiles(x86)%₩Easyset₩lpu230₩bin₩components₩x86	32bit mapper on 64 bits windows.
	%ProgramFiles%₩Easyset₩lpu230₩bin₩components₩x64	64bit mapper on 64 bits windows.
	%ProgramFiles%₩Easyset₩lpu230₩bin₩components₩x86	32bit mapper on 32 bits windows.
File name	tg_lpu237_tools.dll	version 4.1.
type	win32 regular dynamic linked library(dll)	
Sub component	tg_rom.dll is the sun component of tg_lpu237_tools.dll.	tg_rom.dll and tg_lpu237_tools.dll exist in the same folder.

The exported functions of API(tg_lpu237_tools.dll)

The exported name	prototype	Description.
LPU237_tools_on	DWORD WINAPI LPU237_tools_on()	Initialize the inner worker of dll.
LPU237_tools_off	DWORD WINAPI LPU237_tools_off()	terminates the inner worker of dll.
LPU237_tools_get_list_w	DWORD WINAPI LPU237_tools_get_list_w (WCHAR *ssDevPaths)	gets the connected MSR list. unicode type.
LPU237_tools_open_w	HANDLE WINAPI LPU237_tools_open_w (CONST WCHAR *sDevPath)	open the channel of MSR. unicode type.
LPU237_tools_close	DWORD WINAPI LPU237_tools_close (HANDLE hDev)	close the channel of MSR.
LPU237_tools_msr_get_id	DWORD WINAPI LPU237_tools_msr_get_id (HANDLE hDev, BYTE *sId)	Gets a device ID(16 bytes).
LPU237_tools_msr_start_get_setting	DWORD WINAPI LPU237_tools_msr_start_get_setting(const BYTE* sId, type_lpu237_tools_callback_get_parameter cb, void* pUser);	starts loading the setting values of MSR by async callback.
LPU237_tools_msr_start_set_setting	DWORD WINAPI LPU237_tools_msr_start_set_setting(const BYTE* sId, type_lpu237_tools_callback_set_parameter cb, void* pUser);	starts saving the setting values of MSR by async callback.
LPU237_tools_msr_start_get_setting_except_combination	DWORD WINAPI LPU237_tools_msr_start_get_setting_except_combination(const BYTE* sId, type_lpu237_tools_callback_get_parameter cb, void* pUser);	starts loading the setting values of MSR by async callback. (except combination setting)
LPU237_tools_msr_start_set_setting_except_combination	DWORD WINAPI LPU237_tools_msr_start_set_setting_except_combination	starts saving the setting values of MSR by async callback. (except

	(const BYTE* sId, type_lpu237_tools_callback_set_parameter cb, void* pUser);	combination setting)
LPU237_tools_msr_get_active_and_valied_interface	DWORD WINAPI LPU237_tools_msr_get_active_and_valied_interface(HANDLE hDev, BYTE* s_inteface)	Get all valid MSR interfaces and active interface.
LPU237_tools_msr_set_interface	DWORD WINAPI LPU237_tools_msr_set_interface(HANDLE hDev, BYTE c_inteface)	Set the active interface.(not be applied)
LPU237_tools_msr_set_interface_to_device_and_apply	DWORD WINAPI LPU237_tools_msr_set_interface_to_device_and_apply(HANDLE hDev, BYTE* pc_inteface)	Set the active interface. it is applied to MSR.
LPU237_tools_msr_get_buzzer	DWORD WINAPI LPU237_tools_msr_get_buzzer(HANDLE hDev, BYTE* pc_on)	Get the buzzer status.
LPU237_tools_msr_set_buzzer	DWORD WINAPI LPU237_tools_msr_set_buzzer(HANDLE hDev, BYTE c_on)	Set the buzzer status.
LPU237_tools_msr_get_language	DWORD WINAPI LPU237_tools_msr_get_language(HANDLE hDev, BYTE* pc_lang)	Get the current language.
LPU237_tools_msr_set_language	DWORD WINAPI LPU237_tools_msr_set_language(HANDLE hDev, BYTE c_lang)	Set the current language.
LPU237_tools_msr_get_track_status	DWORD WINAPI LPU237_tools_msr_get_track_status(HANDLE hDev, BYTE* s_status_3_byte)	Get the status of each ISO track.
LPU237_tools_msr_set_track_status	DWORD WINAPI LPU237_tools_msr_set_track_status(HANDLE hDev, const BYTE* s_status_3_byte)	Set the status of each ISO track.
LPU237_tools_msr_get_private_tag	DWORD WINAPI LPU237_tools_msr_get_private_tag(HANDLE hDev, DWORD dw_track_zero_base, BYTE b_prefix, BYTE* s_tag)	Get the pre/postfix of each ISO track.
LPU237_tools_msr_set_private_tag	DWORD WINAPI LPU237_tools_msr_set_private_tag(HANDLE hDev, DWORD dw_track_zero_base, BYTE b_prefix, const BYTE* s_tag, DWORD dw_tag)	Set the pre/postfix of each ISO track.
LPU237_tools_msr_get_ibutton_mode	DWORD WINAPI LPU237_tools_msr_get_ibutton_mode(HANDLE hDev, BYTE* pc_mode)	Get the ibutton mode.
LPU237_tools_msr_set_ibutton_mode	DWORD WINAPI LPU237_tools_msr_set_ibutton_mode(HANDLE hDev, BYTE c_mode)	Set the ibutton mode.

LPU237_tools_msr_get_ibutton_tag	DWORD WINAPI LPU237_tools_msr_get_ibutton_tag(HANDLE hDev, BYTE b_remove, BYTE b_prefix, BYTE* s_tag)	Get the pre/postfix of ibutton.
LPU237_tools_msr_set_ibutton_tag	DWORD WINAPI LPU237_tools_msr_set_ibutton_tag(HANDLE hDev, BYTE b_remove, BYTE b_prefix, const BYTE* s_tag, DWORD dw_tag)	Set the pre/postfix of ibutton.
LPU237_tools_msr_set_default	DWORD WINAPI LPU237_tools_msr_set_default(HANDLE hDev)	set to the default.
LPU237_tools_msr_is_support_msr	DWORD WINAPI LPU237_tools_msr_is_support_msr(HANDLE hDev, BYTE* pc_support)	if or not support a magnetic card reading.
LPU237_tools_msr_is_support_ibutton	DWORD WINAPI LPU237_tools_msr_is_support_ibutton(HANDLE hDev, BYTE* pc_support)	if or not support a ibutton reading.
LPU237_tools_msr_get_ibutton_start_zero_base_offset_of_range	DWORD WINAPI LPU237_tools_msr_get_ibutton_start_zero_base_offset_of_range(HANDLE hDev, BYTE* pc_offset)	Get the start-offset of i-button range.
LPU237_tools_msr_set_ibutton_start_zero_base_offset_of_range	DWORD WINAPI LPU237_tools_msr_set_ibutton_start_zero_base_offset_of_range(HANDLE hDev, BYTE c_offset)	Set the start-offset of i-button range.
LPU237_tools_msr_get_ibutton_end_zero_base_offset_of_range	DWORD WINAPI LPU237_tools_msr_get_ibutton_end_zero_base_offset_of_range(HANDLE hDev, BYTE* pc_offset)	Get the end-offset of i-button range.
LPU237_tools_msr_set_ibutton_end_zero_base_offset_of_range	DWORD WINAPI LPU237_tools_msr_set_ibutton_end_zero_base_offset_of_range(HANDLE hDev, BYTE c_offset)	Set the end-offset of i-button range.
LPU237_tools_msr_is_support_ibutton_range	DWORD WINAPI LPU237_tools_msr_is_support_ibutton_range(HANDLE hDev, BYTE* pc_support)	if or not support i-button range funcationality.

- the exported function must be used in the unicode project. If you use in MBSC project, the function with "_w" have to be converted to unicode.

The defintion of return value.

This values are the return of API function. Or the second parameter of callback funtion. The callback function is parameter of LPU237_tools_msr_start_x() .

Symbol	Hexcimal value(double word)	Description
LPU237_TOOLS_RESULT_SUCCESS	0x00000000	Success processing
LPU237_TOOLS_RESULT_ERROR	0xFFFFFFFF	Error
LPU237_TOOLS_RESULT_CANCEL	0xFFFFFFFE	Processing is canceled.
LPU237_TOOLS_RESULT_NO_MSR	0xFFFFFFFB	None MSR

The defintion of Interface

Symbol	Hexcimal value(double word)	Description
LPU237_TOOLS_INF_USBKB	0	USB keyboard interface.
LPU237_TOOLS_INF_USBHID	1	USB hid interface.
LPU237_TOOLS_INF_USBVCOM	2	USB vitual COM interface.(new v4.0)
LPU237_TOOLS_INF_UART	10	USB uart interface.

The defintion of language

Symbol	decimal value(double word)	Description
LPU237_TOOLS_LANG_USA_ENGLISH	0	US keyboard.
LPU237_TOOLS_LANG_SPANISH	1	Spanish keyboard
LPU237_TOOLS_LANG_DANISH	2	Denish keyboard
LPU237_TOOLS_LANG_FRENCH	3	Frenich keyboard
LPU237_TOOLS_LANG_GERMAN	4	Germany keyboard
LPU237_TOOLS_LANG_ITALIAN	5	Italian keyboard
LPU237_TOOLS_LANG_NORWEGIAN	6	Norwegian keyboard
LPU237_TOOLS_LANG_SWEDISH	7	Swedish keyboard
LPU237_TOOLS_LANG_UK_ENGLISH	8	U.K keyboard
LPU237_TOOLS_LANG_ISRAEL	9	Hebrew keyboard
LPU237_TOOLS_LANG_TURKIYE	10	Turkiye keyboard

The defintion of Ibutton mode

Symbol	decimal value(double word)	Description
LPU237_TOOLS_IBUTTON_MODE_NONE	0	when a ibutton is disconected, sends the setting value(firmware v5.21 , 3.22 or later) or nothing.
LPU237_TOOLS_IBUTTON_MODE_ZEROS	1	when a ibutton is disconected, sends "0000000000000000". zeros 16 times
LPU237_TOOLS_IBUTTON_MODE_F12	2	when a ibutton is disconected, sends F12 key.
LPU237_TOOLS_IBUTTON_MODE_ZERO7	3	when a ibutton is disconected, sends "0000000" zeros 7 times
LPU237_TOOLS_IBUTTON_MODE_ADDMIT	4	when a ibutton is disconected, send the data that is defined by addmit codestick spec.

example https://blog.naver.com/elpusk/222928056691

The defintion of callback function.

type_lpu237_tools_callback_get_parameter

The second parameter of LPU237_tools_msr_start_get_setting() and LPU237_tools_msr_start_get_setting_except_combination(). The prototype is

DWORD WINAPI lpu237_tools_callback_get_parameter(void*, DWORD, DWORD, DWORD)

- 1'st parameter – user memory pointer
- 2'nd parameter – the result of current step.(LPU237_TOOLS_RESULT_SUCCESS, LPU237_TOOLS_RESULT_ERROR or LPU237_TOOLS_RESULT_CANCEL)
- 3'rd parameter – the index of current step. This value is 0~ (4'th parameter-1) .
- 4'th parameter – the numnber of total step.

This callback is executed by the inner worker thread(WTH).

type_lpu237_tools_callback_set_parameter

The second parameter of LPU237_tools_msr_start_set_setting() and LPU237_tools_msr_start_set_setting_except_combination(). The prototype is

DWORD WINAPI lpu237_tools_callback_set_parameter(void*, DWORD, DWORD, DWORD)

- 1'st parameter – user memory pointer
- 2'nd parameter – the result of current step.(LPU237_TOOLS_RESULT_SUCCESS, LPU237_TOOLS_RESULT_ERROR or LPU237_TOOLS_RESULT_CANCEL)
- 3'rd parameter – the index of current step. This value is 0~ (4'th parameter-1) .
- 4'th parameter – the numnber of total step.
- 5'th parameter – reserved the future.

This callback is executed by the inner worker thread(WTH).

The basic progamming sequence.

1. Call LPU237_tools_on() - initialize dll.
2. Call LPU237_tools_get_list() - gets the MSR path list.
3. Call LPU237_tools_open() - open a channel.
4. Call LPU237_tools_msr_get_id() - gets 16 bytes ID of MSR.
5. Call LPU237_tools_msr_start_get_setting() or LPU237_tools_msr_start_get_setting_except_combination() - starts the loading MSR paramters. And waits the end of loading.
6. Call LPU237_tools_msr_get_x() - gets a setting value.
7. Call LPU237_tools_msr_set_x() - changes a setting value.
8. Call LPU237_tools_msr_start_set_setting() or LPU237_tools_msr_start_set_setting_except_combination() - starts the saving MSR paramters. And waits the end of loading.
9. Call LPU237_tools_close(). - close the channel.
10. Call LPU237_tools_off(). - terminate the inner woker of dll.

The important component.

- **Inner worker thread** - API use WTH(inner worker thread) for supporting async-IO. LPU237_tools_on() and LPU237_tools_off() are that starts ot terminates WTH. Therefore LPU237_tools_on() must be called before another function. And LPU237_tools_off() have to be called after terminating your work.

LPU237_tools_on

Creates and executes WTH. You must be called before another function.
If this function is called in DllMain(), it may occur the deadlock.

Prototype

DWORD WINAPI LPU237_tools_on()

parameters

none

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	

LPU237_tools_off

Terminates WTH. You must call this function before terminating main program.

Prototype

DWORD WINAPI LPU237_tools_off()

parameters

none

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	Always

LPU237_tools_get_list_w

Get the path list of MSR (VID 0x134B, PID 0x0206). Path list is multi-zero string type.

Prototype

DWORD WINAPI LPU237_tools_get_list_w(WCHAR *ssDevPaths) - unicode version.

parameters

- ssDevPaths – [in/out] the buffer that saves MSR path. If this is zero, return the size of buffer.(byte unit)

return

condition	value	etc
ssDevPaths is 0	the buffer that saves MSR path	Byte unit
SsDevPaths isn't zero and process is success.	The number of MSR.	ssDevPaths is multi-zero strinf type.
error	LPU237_TOOLS_RESULT_ERROR	

- zero string – A way to mark the end of a string as 0 . In Unicode, each character is 2 bytes, so 0 is entered twice. (Standard form of string in Windows API and C language)
- multi-zero string - A method of concatenating multiple zero strings consecutively and adding 0 to the end to indicate the end of the strings. In this method, 0 for the last string and 0 to indicate the end of the string appear consecutively at the end. In Unicode, each character is 2 bytes, so the last zeros goes in 4 times.

ex) if the numbr of MSR is two and each MSR path are "ab" and "12", ssDevPaths value is unicode version

offset	value		etc
0	0x61	Unicode 'a'	
1	0x00		
2	0x62	Unicode 'b'	
3	0x00		
4	0x00	Unicode NULL	The end of "ab" string
5	0x00		
6	0x31	Unicode '1'	
7	0x00		
8	0x32	Unicode '2'	
9	0x00		
10	0x00	Unicode NULL	The end of "12" string
11	0x00		
12	0x00	Unicode NULL	The end of multi-zero string.
13	0x00		

LPU237_tools_open_w

Open channel.

Prototype

HANDLE WINAPI LPU237_tools_open_w(CONST WCHAR *sDevPath) - unicode version.

parameters

- sDevPath – [in] MSR path, zero-string type.

return

condition	value	etc
success	The handle of MSR.	
error	INVALID_HANDLE_VALUE	long type address value(-1. Defined by Microsoft)

LPU237_tools_close

Close channel.

Prototype

DWORD WINAPI LPU237_tools_close(HANDLE hDev)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_id

Get 16 bytes ID.

Prototype

DWORD WINAPI LPU237_tools_msr_get_id(HANDLE hDev, BYTE *sId)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- sId – [out] the buffer point that saves th 16 byets ID.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
success	If sId is zero, return 16.	
error	LPU237_TOOLS_RESULT_ERROR	

Each MSR have a unique ID.

LPU237_tools_msr_start_get_setting

Starts loading the setting value by callback async.

Prototype

DWORD WINAPI LPU237_tools_msr_start_get_setting(const BYTE* sId,
type_lpu237_tools_callback_get_parameter cb, void* pUser)

parameters

- sId – [in] MSR ID. (from LPU237_tools_msr_get_id())
- cb – [in] callback function. This callback is called by WTH, and announce the status of loading data.
- pUser – [in] 1'st parameter of cb.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	
error	LPU237_TOOLS_RESULT_NO_MSR	None MSR that have the given ID.

LPU237_tools_msr_start_set_setting

Starts saving the setting value by callback async.

Prototype

DWORD WINAPI LPU237_tools_msr_start_set_setting(const BYTE* sId,
type_lpu237_tools_callback_set_parameter cb, void* pUser)

parameters

- sId – [in] MSR ID. (from LPU237_tools_msr_get_id())
- cb – [in] callback function. This callback is called by WTH, and announce the status of saving data.
- pUser – [in] 1'st parameter of cb.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	
error	LPU237_TOOLS_RESULT_NO_MSR	None MSR that have the given ID.

LPU237_tools_msr_start_get_setting_except_combination

Starts loading the setting value by callback async except combination pararmeters. For increasing performance.

Prototype

DWORD WINAPI LPU237_tools_msr_start_get_setting_except_combination(const BYTE* sId, type_lpu237_tools_callback_get_parameter cb, void* pUser)

parameters

- sId – [in] MSR ID. (from LPU237_tools_msr_get_id())
- cb – [in] callback function. This callback is called by WTH, and announce the status of loading data.
- pUser – [in] 1'st parameter of cb.

return

condition	value	etc
succcess	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	
error	LPU237_TOOLS_RESULT_NO_MSR	None MSR that have the given ID.

LPU237_tools_msr_start_set_setting_except_combination

Starts saving the setting value by callback async except combination pararmeters. For increasing performance.

Prototype

DWORD WINAPI LPU237_tools_msr_start_set_setting_except_combination(const BYTE* sId, type_lpu237_tools_callback_set_parameter cb, void* pUser)

parameters

- sId – [in] MSR ID. (from LPU237_tools_msr_get_id())
- cb – [in] callback function. This callback is called by WTH, and announce the status of saving data.
- pUser – [in] 1'st parameter of cb.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	
error	LPU237_TOOLS_RESULT_NO_MSR	None MSR that have the given ID.

LPU237_tools_msr_get_active_and_valied_interface

Get all valid MSR interfaces and active interface.

Prototype

DWORD WINAPI LPU237_tools_msr_get_active_and_valied_interface(HANDLE hDev, BYTE* s_inteface)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- s_inteface – [in/out] the buffer that saves interfaces. 1'st byte is active interface. the supported interfaces starts from 2'nd byte. If this value is zero, return the size of buffer.(byte unit)

return

condition	value	etc
success	The size of saved interfaces/	If active interface is USB keyboard and , the supported interfaces are USB keyboard, USB hid and Uart, the returned value is 4, the saved interfaces are s_interface[0] is 0 s_interface[0] is 0 s_interface[1] is 1 s_interface[2] is 10
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_interface

set active interface.

Prototype

DWORD WINAPI LPU237_tools_msr_set_interface(HANDLE hDev, BYTE c_inteface)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- c_inteface – [in] active interface (from LPU237_tools_msr_get_active_and_valied_interface())

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_interface_to_device_and_apply

Set active interface.it is applied to MSR. This function will be used to change the current interface temporarily.

Prototype

DWORD WINAPI LPU237_tools_msr_set_interface_to_device_and_apply(HANDLE hDev, BYTE* pc_inteface)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_inteface – [in/out] the new active interface in "in". The old active interface in "out".

return

condition	value	etc
succcess	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_buzzer

Get buzzer status.

Prototype

DWORD WINAPI LPU237_tools_msr_get_buzzer(HANDLE hDev, BYTE* pc_on)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_on – [in/out] the one byte buffer that saved the buzzer status.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	If the save value is zero in pc_on, the status of buzzer is off. If the save value is one in pc_on, the status of buzzer is on.
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_buzzer

Set buzzer status.

Prototype

DWORD WINAPI LPU237_tools_msr_set_buzzer(HANDLE hDev, BYTE c_on)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- c_on – [in] the new status of buzzer . 0 - off, 1 - on.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_language

gets the language

Prototype

DWORD WINAPI LPU237_tools_msr_get_language(HANDLE hDev, BYTE* pc_lang)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_lang – [in/out] the one byte buffer that saved the language.
  (LPU237_TOOLS_LANG_USA_ENGLISH ~ LPU237_TOOLS_LANG_TURKIYE.)

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_language

Sets the language.

Prototype

DWORD WINAPI LPU237_tools_msr_set_language(HANDLE hDev, BYTE c_lang)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- c_lang – [in] the new language(LPU237_TOOLS_LANG_USA_ENGLISH ~ LPU237_TOOLS_LANG_TURKIYE).

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_track_status

Get the status of each ISO track.

Prototype

DWORD WINAPI LPU237_tools_msr_get_track_status(HANDLE hDev, BYTE* s_status_3_byte)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- s_status_3_byte – [in/out] 3 bytes buffer.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	s_status_3_byte[0] – the status of ISO1 track. s_status_3_byte[1] – the status of ISO2 track. s_status_3_byte[2] – the status of ISO3 track. value is 1 - enble, 0 - disable.
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_track_status

Set the status of each ISO track.

Prototype

DWORD WINAPI LPU237_tools_msr_set_track_status(HANDLE hDev, const BYTE* s_status_3_byte)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- s_status_3_byte – [in] 3 bytes buffer. s_status_3_byte[0] - ISO1 track. s_status_3_byte[1] - ISO2 track. s_status_3_byte[2] – ISO3 track. The value is 1 - enable, 0 - disable.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_private_tag

Get the pre/postfix of each ISO track.

Prototype

DWORD WINAPI LPU237_tools_msr_get_private_tag(HANDLE hDev, DWORD dw_track_zero_base, BYTE b_prefix, BYTE* s_tag)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- dw_track_zero_base – [in] ISO track. 0 - ISO1, 1 - ISO2, 2 - ISO3.
- b_prefix – [in] 1 - prefix, 0 - postfix.
- s_tag – [in/out] the buffer that will be saved the pre/postfix. If this value is zero, returns the size of buffer(byte unit). The save structure - see tag part of https://blog.naver.com/elpusk/221987287359 . In this description, ignore '['and ']'(these are separator.)

return

condition	value	etc
success	The size of saved data. In s_tag.	Unit byte
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_private_tag

Set the pre/postfix of each ISO track.

Prototype

DWORD WINAPI LPU237_tools_msr_set_private_tag(HANDLE hDev, DWORD dw_track_zero_base, BYTE b_prefix, const BYTE* s_tag, DWORD dw_tag)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- dw_track_zero_base – [in] ISO track. 0 - ISO1, 1 - ISO2, 2 - ISO3.
- b_prefix – [in] 1 - prefix, 0 - postfix.
- s_tag – [in] the new pre/postfix, If this value is zero, pre/postfix is removed. s_tag structure is https://blog.naver.com/elpusk/221987287359 . In this description, ignore '['and ']'(these are separator.)
- dw_tag – [in] the size of s_tag. If this value is zero, pre/postfix is removed. The max value is 14. (max key is 7).

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_ibutton_mode

Get the ibutton mode

Prototype

DWORD WINAPI LPU237_tools_msr_get_ibutton_mode(HANDLE hDev, BYTE* pc_mode)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_mode – [in/out] one byte buffer.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	pc_mode is LPU237_TOOLS_IBUTTON_MODE_NONE ~ LPU237_TOOLS_IBUTTON_MODE_ADDMIT.
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_ibutton_mode

Set the ibutton mode.

Prototype

DWORD WINAPI LPU237_tools_msr_set_ibutton_mode(HANDLE hDev, BYTE c_mode)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- c_mode – [in] the new ibutton mode. LPU237_TOOLS_IBUTTON_MODE_NONE ~ LPU237_TOOLS_IBUTTON_MODE_ADDMIT.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_ibutton_tag

Get the ibutton pre/postfix.

Prototype

DWORD WINAPI LPU237_tools_msr_get_private_tag(HANDLE hDev, DWORD dw_track_zero_base, BYTE b_prefix, BYTE* s_tag)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- b_remove – [in] 1 – the pre/postfix of disconnecting ibutton.(only firmware v5.21 ,v3.22 or later). 0 – the pre/postfix of connecting ibutton.
- b_prefix – [in] 1 - prefix, 0 - postfix.
- s_tag – [in/out] the buffer that will be saved the pre/postfix. If this value is zero, returns the size of buffer(byte unit). The save structure - see tag part of https://blog.naver.com/elpusk/221987287359 . In this description, ignore '['and ']'(these are separator.)

return

condition	value	etc
success	The size of s_tag	Unit byte
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_ibutton_tag

Set the ibutton pre/postfix.

Prototype

DWORD WINAPI LPU237_tools_msr_set_ibutton_tag(HANDLE hDev, BYTE b_remove, BYTE b_prefix, const BYTE* s_tag, DWORD dw_tag)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- b_remove – [in] 1 – the pre/postfix of disconnecting ibutton.(only firmware v5.21 ,v3.22 or later). 0 – the pre/postfix of connecting ibutton.
- b_prefix – [in] 1 - prefix, 0 - postfix.
- s_tag – [in] the new pre/postfix, If this value is zero, pre/postfix is removed. s_tag structure is https://blog.naver.com/elpusk/221987287359 . In this description, ignore '['and ']'(these are separator.)
- dw_tag – [in] the size of s_tag. If this value is zero, pre/postfix is removed. The max value is 14. (max key is 7).

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_default

Set to default.

Prototype

DWORD WINAPI LPU237_tools_msr_set_default(HANDLE hDev)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_is_support_msr

if or not support a magnetic card reading.

Prototype

DWORD WINAPI LPU237_tools_msr_is_support_msr(HANDLE hDev, BYTE* pc_support)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_ support – [in/out] one byte buffer

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	pc_support is 0, not supports MSR pc_support is 1, supports MSR.
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_is_support_ibutton

if or not support a ibutton reading.

Prototype

DWORD WINAPI LPU237_tools_msr_is_support_ibutton(HANDLE hDev, BYTE* pc_support)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_ support – [in/out] one byte buffer

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	pc_support is 0, not supports i-button pc_support is 1, supports i-button.
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_ibutton_start_zero_base_offset_of_range

Get the starting offset of i-button range.

Prototype

DWORD WINAPI LPU237_tools_msr_get_ibutton_start_zero_base_offset_of_range(HANDLE hDev, BYTE* pc_offset)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_offset – [in/out] the one byte buffer that saved the starting offset of i-button range.(maybe 0~15), this pointer cannot be NULL.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_ibutton_start_zero_base_offset_of_range

Set the starting offset of i-button range.

Prototype

DWORD WINAPI LPU237_tools_msr_set_ibutton_start_zero_base_offset_of_range(HANDLE hDev, BYTE c_offset)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- c_offset – [in] 0~15, the startig offset of i-button range. This value cannot greater then the ending offset.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_get_ibutton_end_zero_base_offset_of_range

Get the ending offset of i-button range.

Prototype

DWORD WINAPI LPU237_tools_msr_get_ibutton_end_zero_base_offset_of_range(HANDLE hDev, BYTE* pc_offset)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_offset – [in/out] the one byte buffer that saved the ending offset of i-button range.(maybe 0~15), this pointer cannot be NULL.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_set_ibutton_end_zero_base_offset_of_range

Set the ending offset of i-button range.

Prototype

DWORD WINAPI LPU237_tools_msr_set_ibutton_end_zero_base_offset_of_range(HANDLE hDev, BYTE c_offset)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- c_offset – [in] 0~15, the ending offset of i-button range. This value cannot less then the starting offset.

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	
error	LPU237_TOOLS_RESULT_ERROR	

LPU237_tools_msr_is_support_ibutton_range

if or not support a ibutton range functionality.

Prototype

DWORD WINAPI LPU237_tools_msr_is_support_ibutton_range(HANDLE hDev, BYTE* pc_support)

parameters

- hDev – [in] MSR handle(from LPU237_TOOLS_open())
- pc_ support – [in/out] one byte buffer

return

condition	value	etc
success	LPU237_TOOLS_RESULT_SUCCESS	pc_support is 0, not supports i-button range functionality. pc_support is 1, supports i-button range functionality.
error	LPU237_TOOLS_RESULT_ERROR	

Log file

API can generate the log file.
It generates in a special condition. tg_lpu237_tools.dll generates a new log file when is loaded into memory.

Log file generation condition.

1. In Logon user document folder, "Easyset₩lpu230" folder exist
2. In Logon user document folder, "Easyset₩lpu230₩log" folder exist.
3. In "Easyset₩lpu230" folder, lpu230_tools.ini exist.
4. In lpu230_tools.ini , [LogSetting] session exist.
5. In [LogSetting] session, the value of logenable key is 1 .

the folder of Log file

A log file is generated at "Easyset₩lpu230₩log". If tg_lpu237_tools.dll is loaded to memory at 2017/12/25, PM3H 45MIN 12SEC, log file name is tg_lpu237_tools_071225154512.txt (at version 1.0, tools071225154512.txt), log file format is text.

lpu230_tools.ini file

For setting log-file.

[LogSetting] session	Log setting session
logenable key	1 – generation log. Else not be generated.
loglevel key	This value must be 3.
logtimestemp key	1 - [MM-dd hh:mm:ss] is added to each log line.
logtimetick key	1 – the systemtick is added to each log line.
[control] session	etc session.
io ᄀᆡ	0(default) - If NDM is detected, a device-io operation is processed by NDM. Else, a device-io operation is processed by direct(windows API). 1 – a device-io operation is processed by direct(windows API). 2 - a device-io operation is processed by NDM.

History

- 2022.11.25 – the first release. V1.0
- 2023.09.21 – release. Version 4.0. For mangement, V2x and 3.x is not used. Supporting lpu238 device.
- 2023.10.12 - release. Version 4.1. For supporting i-button range funcationality.