

Lpu230 API user manual

V1.0

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This document explain Application Programming Interface(API) of LPU23X magnetic card reader(MSR).
A user application can get a magnetic card data from msr by API easily.

API basic information.

Characteristics	value	etc
Position	[Program Files folder]W\EasysetW\lpu230WbinWcomponents	
File	tg_lpu237_dll.dll	version 1.0.0.0
Type	Win32 regular dll	

The exported function of tg_lpu237_dll.dll.

The exported name	prototype	Description.
LPU237_dll_on	DWORD WINAPI LPU237_dll_on ()	Create dll the internal worker thread.
LPU237_dll_off	DWORD WINAPI LPU237_dll_off ()	Remove dll the internal worker thread.
LPU237_get_list	DWORD WINAPI LPU237_get_list (LPTSTR ssDevPaths)	Get the connected MSR'path list.
LPU237_open	HANDLE WINAPI LPU237_open (LPCTSTR sDevPath)	Open MSR for commuication.
LPU237_close	DWORD WINAPI LPU237_close (HANDLE hDev)	Close MSR' commuication.
LPU237_get_id	DWORD WINAPI LPU237_get_id (HANDLE hDev, BYTE *sId)	Get the opened MSR' unique ID.
LPU237_enable	DWORD WINAPI LPU237_enable (HANDLE hDev)	Enable a magnetic card reading.
LPU237_disable	DWORD WINAPI LPU237_disable (HANDLE hDev)	Disable a magnetic card reading.
LPU237_cancel_wait_swipe	DWORD WINAPI LPU237_cancel_wait_swipe (HANDLE hDev)	Cancel the waiting status that a card swipe.
LPU237_wait_swipe_with_waits	DWORD WINAPI LPU237_wait_swipe_with_waits (HANDLE hDev)	Waits that a card swipe. Synchronous method.
LPU237_wait_swipe_with_callback	DWORD WINAPI LPU237_wait_swipe_with_callback (HANDLE hDev, type_callback pFun, void *pParameter)	Waits that a card swipe. Asynchronous method.
LPU237_wait_swipe_with_message	DWORD WINAPI LPU237_wait_swipe_with_message (HANDLE hDev, HWND hWnd, UINT nMsg)	Waits that a card swipe. Asynchronous method.
LPU237_get_data	DWORD WINAPI LPU237_get_data (DWORD dwBufferIndex, DWORD dwIsoTrack, BYTE *sTrackData)	Get the card data.

The definition of return value

Symbol	Heximal value(double word)	Description
LPU237_DLL_RESULT_SUCCESS	0x00000000	Processing success.
LPU237_DLL_RESULT_ERROR	0xFFFFFFFF	Processing error.
LPU237_DLL_RESULT_CANCEL	0xFFFFFFFFE	Processing have been canceled by user another request.
LPU237_DLL_RESULT_ERROR_MSR	0xFFFFFFFFD	Card reading error.
-	0x00000001 ~ 0x7FFFFFFF	Buffer size, the number of connected device, the buffer index or the number of data.

The basic progamming sequence.

1. call LPU237_dll_on(). - create dll' internal worker-thread.
 2. call LPU237_get_list(). - get the connected device path list.
 3. call LPU237_open(). - get device handle a MSR.
 4. call LPU237_enable(). - enable reading card.(If swipe a card, MSR send a card data to dll.)
 5. call LPU237_wait_swipe_with_x(). - If swipe a card, dll announce that a card data is available to application.
 6. swipe a magnetic card or call LPU237_cancel_wait_swipe().
 7. call LPU237_get_data(). - Get the available card data.
 8. call LPU237_disable(). - disable reading card.(Even if swipe a card, MSR doesn't send a card data to dll.)
 9. call LPU237_dll_off(). - delete dll' internal worker-thread.
- * you maybe execute the sequence 5,6 and 7 repeatedly for getting a magnetic card data repeatedly.

LPU237_dll_on

dll use the worker-thread for communicating to MSR internally. Therefore, To use dll, you have to run the worker-thread of dll first.

This function creates and run the worker-thread of dll.

This function don't have to be called in a DllMain() function.

Prototype

DWORD WINAPI LPU237_dll_on()

parameters

none

return

condition	value	etc
Success processing	LPU237_DLL_RESULT_SUCCESS	Always

LPU237_dll_off

Terminates dll' worker-thread for communicating to MSR internally.

This function don't have to be called in a DllMain() function.

Prototype

DWORD WINAPI LPU237_dll_off()

parameters

none

return

condition	value	etc
Success processing	LPU237_DLL_RESULT_SUCCESS	Always

LPU237_get_list

Get a connected MSR' path list.

Prototype

DWORD WINAPI LPU237_get_list(LPTSTR ssDevPaths);

parameters

ssDevPaths – [in/out] device path list buffer, unicode type, multi-string of the connected devices.

return

condition	value	etc
SsDevPaths is NULL	requested memory size of ssDevPaths buffer.	Unit byte
SsDevPaths isn't NULL. And success processing	The number of device paths	ssDevPaths format unicode, multi-string of zero-string.
error	LPU237_DLL_RESULT_ERROR	

ex) If the connected MSR is two, each MSR' path is "ab" and "12", then ssDevPaths is

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

LPU237_open

Open MSR.

Prototype

HANDLE WINAPI LPU237_open(LPCTSTR sDevPath)

parameters

sDevPath – [in] device path, unicode type, zero-string

return

If the function succeeds, the return value is an open handle to the specified device.

If the function fails, the return value is INVALID_HANDLE_VALUE.

condition	value	etc
success processing	MSR handle	
error	INVALID_HANDLE_VALUE	

LPU237_close

Close MSR.

Prototype

DWORD WINAPI LPU237_close(HANDLE hDev)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

return

condition	value	etc
success processing	LPU237_DLL_RESULT_SUCCESS	
error	LPU237_DLL_RESULT_ERROR	

LPU237_enable

Change to MSR to ready for reading a magnetic card.

If MSR is disable, MSR dosen't send a magnetic card data to PC(dll).

Prototype

DWORD WINAPI LPU237_enable(HANDLE hDev)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

return

condition	value	etc
success processing	LPU237_DLL_RESULT_SUCCESS	
error	LPU237_DLL_RESULT_ERROR	

LPU237_disable

Change to MSR to ignore reading a magnetic card.

Although a card is swiped, MSR dosen't send a magnetic card data to PC(dll).

Prototype

DWORD WINAPI LPU237_disable(HANDLE hDev)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

return

condition	value	etc
success processing	LPU237_DLL_RESULT_SUCCESS	
error	LPU237_DLL_RESULT_ERROR	

LPU237_cancel_wait_swipe

Stop operation of LPU237_wait_swipe_with_waits(), LPU237_wait_swipe_with_callback() or LPU237_wait_swipe_with_message().

Prototype

DWORD WINAPI LPU237_cancel_wait_swipe(HANDLE hDev)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

return

condition	value	etc
success processing	LPU237_DLL_RESULT_SUCCESS	
error	LPU237_DLL_RESULT_ERROR	

LPU237_wait_swipe_with_waits

Waits to swip a magnetic card on lpu237.
this function dosen't return until swiping a magnetic card on lpu237.

Prototype

DWORD WINAPI LPU237_wait_swipe_with_waits(HANDLE hDev)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

return

condition	value	etc
success processing	buffer index number of magnetic card data.	this buffer index number is parameter of LPU237_get_data()
error	LPU237_DLL_RESULT_ERROR	

LPU237_wait_swipe_with_callback

Wait to swip a magnetic card on lpu237. this function return immediately. and when user swipe a magnetic card on lpu237, execute the callback funtion(pFun) with parameter(pParameter) .

Prototype

DWORD WINAPI LPU237_wait_swipe_with_callback(HANDLE hDev, type_callback pFun, void *pParameter)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

pFun - [in] callback funtion' poniter.

pParameter - [in] callback funtion' parameter(pFun' parameter)

return

condition	value	etc
success processing	buffer index number of magnetic card data.	this buffer index number is parameter of LPU237_get_data()
error	LPU237_DLL_RESULT_ERROR	

LPU237_wait_swipe_with_message

Wait to swip a magnetic card on lpu237. this function return immediately. and when user swipe a magnetic card on lpu237, post user defined meesage(nMsg) to window(hWnd).

Prototype

DWORD WINAPI LPU237_wait_swipe_with_message(HANDLE hDev, HWND hWnd, UINT nMsg)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

hWnd - [in] window handle.

nMsg - [in] user defined meesage.

return

condition	value	etc
success processing	buffer index number of magnetic card data.	this buffer index number is parameter of LPU237_get_data()
error	LPU237_DLL_RESULT_ERROR	

LPU237_get_data

Getting the magnetic card data.

Prototype

DWORD WINAPI LPU237_get_data(DWORD dwBufferIndex, DWORD dwIsoTrack, BYTE *sTrackData)

parameters

dwBufferIndex - [in] buffer index number of magnetic card data. (return value of LPU237_wait_swipe_with_waits(), LPU237_wait_swipe_with_callback() or LPU237_wait_swipe_with_message().)

dwIsoTrack - [in] magnetic card' track number - 1, 2 or 3

sTrackData - [in/out] A pointer to the buffer that read the magnetic card data. this value can be NULL(0).

return

condition	value	etc
success processing	The number of a track data	
error	LPU237_DLL_RESULT_ERROR	May be error between your PC and MSR.
error	LPU237_DLL_RESULT_ERROR_MSR	A magnetic card reading error.
cancelled	LPU237_DLL_RESULT_CANCEL	A magnetic card reading operation is canceled by LPU237_cancel_wait_swipe(), LPU237_wait_swipe_with_waits(), LPU237_wait_swipe_with_callback() or LPU237_wait_swipe_with_message().

ex) card data' ISO1 track – "ABC", ISO2 track – "123", ISO3 track – "456".

dwIsoTrack is 1. sTrackData format

offset	value	etc
0	0x41	ASCII code 'A'
1	0x42	ASCII code 'B'
2	0x43	ASCII code 'C'

dwIsoTrack is 2. sTrackData format

offset	value	etc
0	0x31	ASCII code '1'
1	0x32	ASCII code '2'
2	0x33	ASCII code '3'

dwIsoTrack is 3. sTrackData format

offset	value	etc
0	0x34	ASCII code '4'
1	0x35	ASCII code '5'
2	0x36	ASCII code '6'

LPU237_get_id

Get MSR' unique ID.

Unique ID is always 16 bytes.

Prototype

DWORD WINAPI LPU237_get_id(HANDLE hDev, BYTE *sId)

parameters

hDev – [in] A valid handle to an open object.(return value of LPU237_open())

sId - [in/out] A pointer to the buffer that save the device ID. this value can be NULL(0).

return

condition	value	etc
success processing	the size of ID.	Unit byte
error	LPU237_DLL_RESULT_ERROR	

The detail programming sequence.

Using LPU237_wait_swipe_with_waits() function.

Application			dll		MSR	User
Thread1 Process another.	Thread2 LPU237_dll_on()	->	Create dll' worker-thread.		idle	idle
	Thread2 LPU237_get_list()	->	Get a connected MSR list for selecting using MSR.			
	Thread2 LPU237_open()	->	Open MSR for communication.			
	Thread2 LPU237_enable()	->	Send request to MSR.	->	Enable MSR.	
	Thread2 LPU237_wait_swipe_with_waits()	->	Checks MSR' response.	<-	Waits to swipe a card.	
			Checks MSR' response.	<-	Waits to swipe a card.	
		<-	Announce that a card is swiped.	<-	Send card data.	Swipe card
	Thread2 LPU237_get_data()	<-	Send card data		Waits to swipe a card.	idle
					Waits to swipe a card.	
	Thread2 Process another.		idle		Waits to swipe a card.	
				<-	Send card data.	Swipe card
					Waits to swipe a card.	idle
	Thread2 LPU237_wait_swipe_with_waits()	->	Checks MSR' response.	<-	Waits to swipe a card.	
			Checks MSR' response.	<-	Waits to swipe a card.	
			Checks MSR' response.	<-	Waits to swipe a card.	
Thread1 LPU237_cancel_wait_swipe()		->	Be Canceled Checking MSR' response by Thread1		Waits to swipe a card.	
	idle			Waits to swipe a card.		
Thread1 Process another.	Process another.		idle		Waits to swipe a card.	
					Waits to swipe a card.	
					Waits to swipe a card.	
	Thread2 LPU237_disable()	->	Send request to MSR.	->	Disable MSR.	
	Thread2 LPU237_close	->	Close MSR for communication.		idle	Swipe card
Thread2	->	Delete dll' worker-thread.		idle		

	LPU237_dll_off()				
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Using LPU237_wait_swipe_with_callback() function.

Application		dll		MSR	User
Thread1 LPU237_dll_on()	->	Create dll' worker-thread.		idle	idle
Thread1 LPU237_get_list()	->	Get a connected MSR list for selecting using MSR.			
Thread1 LPU237_open()	->	Open MSR for communication.			
Thread1 LPU237_enable()	->	Send request to MSR.	->	Enable MSR.	
Thread1 LPU237_wait_swipe_with_callback()	->	Checks MSR' response.	<-	Waits to swipe a card.	
Process another.		Checks MSR' response.	<-	Waits to swipe a card.	
		Checks MSR' response.	<-	Waits to swipe a card.	
		Run the callback function that is parameter of LPU237_wait_swipe_with_callback(). It maybe notify that a card is swiped to Application	<-	Send card data.	Swipe card
		idle		Waits to swipe a card.	idle
Thread1 LPU237_wait_swipe_with_callback()	->	Checks MSR' response.	<-	Waits to swipe a card.	
Process another.		Checks MSR' response.	<-	Waits to swipe a card.	
LPU237_cancel_wait_swipe()	->	Run the callback function that is parameter of LPU237_wait_swipe_with_callback(). It maybe notify that waiting status is cancelled.		Waits to swipe a card.	
Process another.		idle		Waits to swipe a card.	
Thread1 LPU237_disable()	->	Send request to MSR.	->	Disable MSR.	
Thread1 LPU237_close	->	Close MSR for communication.		idle	
Thread1 LPU237_dll_off()	->	Delete dll' worker-thread.			

Using LPU237_wait_swipe_with_message() function.

Application		dll		MSR	User
Thread1 LPU237_dll_on()	->	Create dll' worker-thread.		idle	idle
Thread1 LPU237_get_list()	->	Get a connected MSR list for selecting using MSR.			
Thread1 LPU237_open()	->	Open MSR for communication.			
Thread1 LPU237_enable()	->	Send request to MSR.	->	Enable MSR.	
Thread1 LPU237_wait_swipe_with_message()	->	Checks MSR' response.	<-	Waits to swipe a card.	
Process another.		Checks MSR' response.	<-	Waits to swipe a card.	
		Checks MSR' response.	<-	Waits to swipe a card.	
		Post windows message. Window handle & message are the parameter of LPU237_wait_swipe_with_message(). It maybe notify that a card is swiped to Application	<-	Send card data.	Swipe card
		idle		Waits to swipe a card.	idle
Card swipe window handler is call LPU237_get_data() to get a card data.	<-	Send card data		Waits to swipe a card.	
Thread1 LPU237_wait_swipe_with_message()	->	Checks MSR' response.	<-	Waits to swipe a card.	
Process another.		Checks MSR' response.	<-	Waits to swipe a card.	
LPU237_cancel_wait_swipe()	->	Post windows message. Window handle & message are the parameter of LPU237_wait_swipe_with_message(). It maybe notify that waiting status is cancelled.		Waits to swipe a card.	
Process another.		idle		Waits to swipe a card.	
Thread1 LPU237_disable()	->	Send request to MSR.	->	Disable MSR.	
Thread1 LPU237_close	->	Close MSR for communication.		idle	
Thread1 LPU237_dll_off()	->	Delete dll' worker-thread.			

History

2013.07.16 – the first release. V1.0