UHF Reader SDK（.net） Development Guide

Reader SDK is a software development kit that use for user develop application program. SDK provide to user in dynamic-link library document form.

SDK development guide is a reference manual for user secondary development. After review this manual, user will be able to solve their problem in fast way during their development.

According to functions performance, the SDK function can be apart in three segments: reader management functions、ISO18000-6B tag operation functions、EPC GEN2 tag operation functions.

Remark: In this development guide, there is only once description for case of different functions but same parameter.

Content

1 DLL Transfer Call

（1）first in VS.NET integrated environment select“file—〉create—〉engineer file—〉Visual C# engineer file—〉console appliation program”, give name to this console application program，and test the dll in this console application program.

（2）Then，select“engineer—〉Add reference”, select the applied DLL，application add guide can reference to add correspondence libiary of current engineer file.

（3）call RfidApiLib name space，create RfidApi object，and then call.

①Quote name space：using RfidApiLib

②Creat one RfidApi object：RfidApi api = new RfidApi();

③Transfer

```
RfidApi api = new RfidApi();
Api.read();
```

2 Reader Management Development

2. OpenCommPort

Functions Description	public int OpenCommPort(string port)
Function	Open PC COMM port
Parameter	
Return Value	Success return 0，fail return not 0

Example	**Open COMM Port 1：**
	Api.CloseCommPort();
	return;
	}
	lInfo.Items.Add("Connect the reader success!");

2.2 CloseCommPort

Functions Description	public void CloseCommPort()
Function	Close PC COMM Port
Parameter	
Return Value	Success return 0，fail return not 0
Example	

2.3 TcpConnectReader

Functions Description	public int TcpConnectReader(string ip, int port)
Function	**Set Reader IP address and Port**
Parameter	UINT Port: prot ； IP address
Return Value	Success return 0，fail return not 0
Example	

2.4 TcpCloseConnect

Functions Description	public int TcpCloseConnect()
Function	**Close TCP connection**
Parameter	
Return Value	Success return 0，fail return not 0
Example	

2.5 GetFirmwareVersion

Functions Description	public int GetFirmwareVersion(ref byte v1, ref byte v2)
Function	**Read reader hardware version number**
Parameter	ref byte v1 main version info.**;** ref byte v2 **secondary version info.**
Return Value	Success return 0，fail return not 0
Example	

2.6 GetTagData

Functions Description	public int GetTagData(ref byte[,] tag_data, byte tag_cnt)
Function	**Read tag data**
Parameter	Tag_cnt：tag quantity being identified this time tag_data**:** tag data
Return Value	Success return 0，fail return not 0
Example	

2.7 ClearIdBuffer

Functions Description	public int ClearIdBuf()
Function	**Clear ID buffer area**
Parameter	
Return Value	Success return 0，fail return not 0
Example	

2.8 SetRf

Functions Description	public int SetRf(byte power, byte freq_type)
Function	**Set reader power and frequency parameter**
Parameter	**power：power value pointer，get value as 0~30，match 0~30dBm. freq_type:frequency type pointer ， take 0 as China standard(920M~925M)，take 1 as FCC（902M~928M)，others are speciality type （example: 868M）。**
Return Value	Success return 0，fail return not 0
Example	**Set reader as FCC frequency，power set as 0.5W（27dBm）** **Api.SetRf(27,1);**

2.9 GetRf

Functions Description	public int GetRf(ref byte power, ref byte freq_type)
Function	**Read reader current RF parameter**
Parameter	**power ：power value pointer** **freq_type：frequency type pointer**
Return Value	Success return 0，fail return not 0
Example	

2.10 SetAnt

Functions Description	public int SetAnt(byte ant)
Function	**Set reader antenna （subject to separated type）**
Parameter	ant=0x01(antenna 1) 0x02(antenna 2) ant=0x04(antenna 3) 0x08(antenna 4)….
Return Value	Success return 0，fail return not 0

Example	**byte ant_sel = 0;**
	int status;
	if (ant1.Checked)

```
        ant_sel |= 0x01;
    if (ant2.Checked)
        ant_sel |= 0x02;
    if (ant3.Checked)
        ant_sel |= 0x04;
    if (ant4.Checked)
        ant_sel |= 0x08;
    status = Api.SetAnt(ant_sel);
    if (status != 0)
    {
        lInfo.Items.Add("Set ant failed!");
        return;
    }
    lInfo.Items.Add("Set ant success!");
}
```

2.11 GetAnt

Functions Description	public int GetAnt(ref byte ant)
Function	**Read reader’s current working antenna code**
Parameter	Ant antenna code
Return Value	Success return 0，fail return not 0
Example	

2.12 SetOutPort

Functions Description	public int SetOutPort(byte port_num, byte level)
Function	**Set reader output port’s high & low electricity level**
Parameter	Unm is port code(0-3), level is output electricity level（0 is low electricity level, 1is high electricity level）
Return Value	Success return 0，fail return not 0
Example	

3 ISO18000-6B tag operation development

3.1 IsoMultiTagIdentify

Functions Description	public int IsoMultiTagIdentify(ref byte[,] tag_buf, ref byte tag_cnt)
Function	**ISO18000-6B** multi-tag identification contains repeat data filtration. Please use ClearIDBuffer functions to clearing reader's internal buffer before restart new operation of multi-tag identification.
Parameter	tag_cnt：Tags quantity that being read this time
Return Value	Success return 0，fail return not 0

Example	**Start multi tag identify**
	Api.ClearIDBuffer（）;
	While(no stop)
	{
	if(api.IsoMultiTagIdentify（tag_cnt,tag_flag）==0)

3.2 Iso Read Tag

Functions Description	public int IsoRead(byte addr, ref byte[] value)
Function	**ISO18000-6B multi tag reading。Can read ISO18000-6B tag any address started 8 byte data.**
Parameter	byte addr：read tag start address；value**: tag data**
Return Value	Success return 0，fail return not 0
Example	

3.3 IsoWriteTag

Functions Description	public int IsoWrite(byte addr, byte value)
Function	**ISO18000-6B** tag's write: one time write one byte data
Parameter	byte addr：Tags store address to be written. value：data to be writte, max.8byte
Return Value	Success return 0，fail return not 0

Example	**On tag address 20 write 0xAA**
	if(api.IsoWrite(20,0xAA) == 0)
	printf("write sucess");
	else
	printf("write failed");

3.4 IsoLockTag

Functions Description	public int IsoLock(byte addr)
Function	To write and lock to the specified tag address, this address can't be unlock after lock.
Parameter	byte addr，tag address to be write and lock**, max. 8 byte**
Return Value	Success return 0，fail return not 0
Example	

4 EPC GEN2 tag operation development

4.1 EpcMultiTagIdentify

Functions Description	public int EpcMultiTagIdentify(ref byte[,] tag_buf, ref byte tag_cnt, ref byte tag_flag)
Function	**EPC GEN2** multi-tag Identification contains repeat data filtration.
Parameter	tag_cnt: tag quantity being identified this time；tag_flag**:** tag data
Return Value	Success return 0，fail return not 0
Example	Refer to IsoMultiTagIdentify application example

4.2 EpcLockTag

Functions Description	public int EpcLockTag(byte MemBank)
Function	Write and lock operation to EPC tag, write and lock one area each time.
InputParameter	MemBank area of write and lock，**0** is reservation，**1 is EPC**，**2 is TID**，**3 user**
Return Value	Success return 0，fail return not 0
Example	

4.3 EpcInitEpc

Functions Description	public int EpcInitEpc(byte bit_cnt)
Function	EPC tag length initialized, Normally, Initialized is 96 bit（6 word）
InputParameter	bit_cnt，initialized numbe（**1 number is 2 byte,1 byte is 8 bit**）
Return Value	Success return 0，fail return not 0
Example	Initialized is 96 bit： **api.EpcnitEPC（96）;**

4.4 EpcRead

Functions Description	public int EpcRead(byte membank, byte wordptr, byte wordcnt, ref byte[] value)
Function	**EPC GEN2 tag data reading**
InputParameter	Membank，**read bank**；WordPtr，**read start address**；WordCnt，**read length**；value，**read tag data**
Return Value	Success return 0，fail return not 0

Example	**Read tag's 4 byte TID**
	unsigned char value[4];
	if(api.EpcRead(2,2,value) == 0)
	{
	
	Printf("TID:{0:X},{1:X},{2:X},{3:X}",value[0],value[1],value[2],value[3]);
	}

4.5 EpcWrite

Functions Description	public int EpcWrite(byte membank, byte wordptr, ushort value)
Function	**EPC GEN2 tag sinlge write**
InputParameter	Membank，**write bank**；WordPtr，**write start address**；value，**write data（2 byte）max. 8 byte**
Return Value	Success return 0，fail return not 0
Example	