R F I D Read-Write Device PC Development Guide C

Author,: Liu Xiao

V 0.3.0.0

See, record

1., preface

1.1. summary

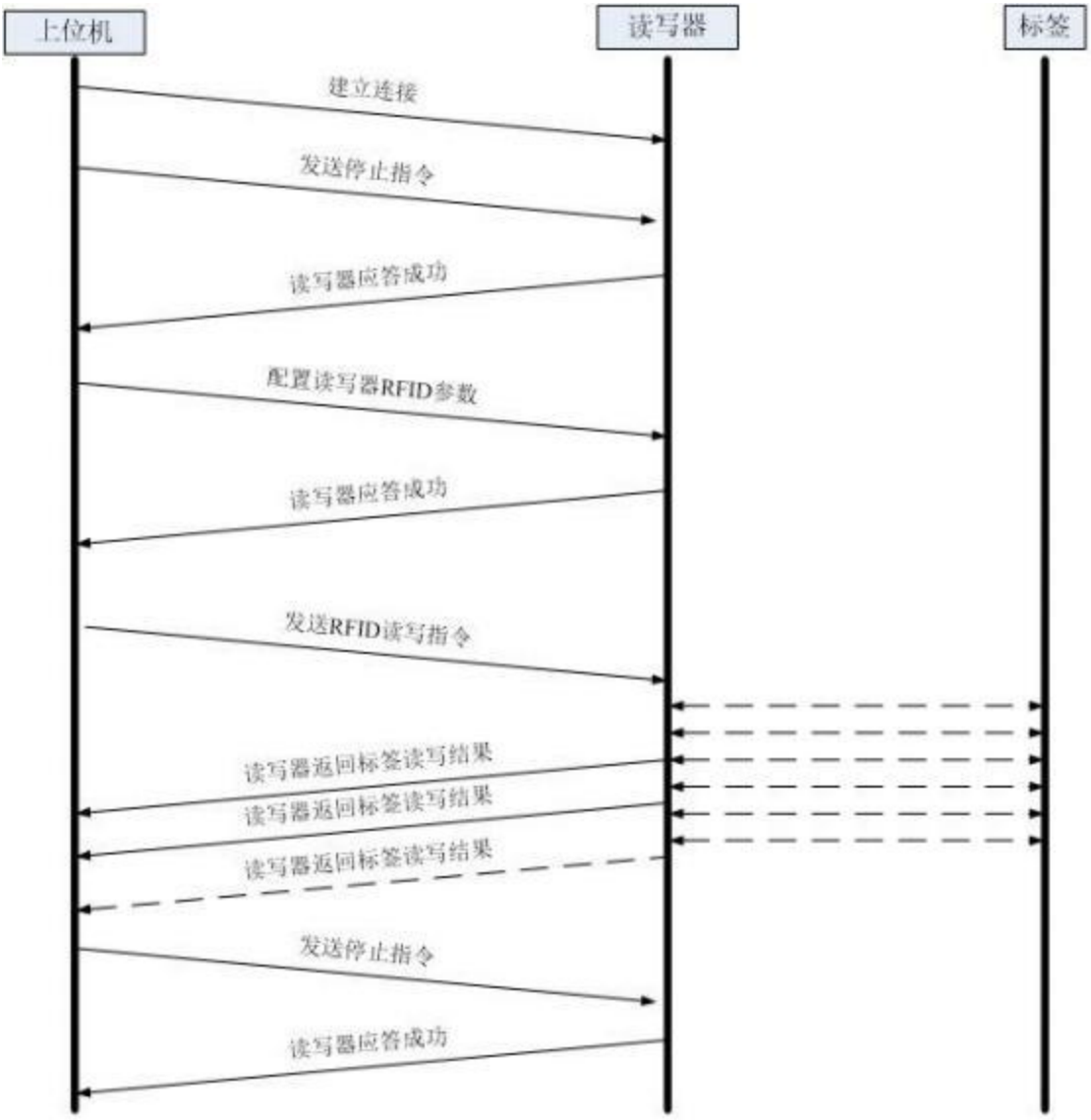
To facilitate secondary development, we provide the available in.Function library where the n e t platform runs.The library is written in the C # language and encapsulated into the standard D LL library " GR ea d er Ap i.The d ll ", with support.Version of n et f ra m e w o rk 2.0 and above.

1.2. Suitable equipment

Function, Module	Suitable equipment type
Reader and writer configuration and management	**R8008、R8004**
R F I D configuration and operation	**UHF equipment full model**

1.3. Copyright description

.4.1. Basic process of reading and writing



2. Get started quickly

```
using GDotnet.Reader.Api.DAL;
using GDotnet.Reader.Api.Protocol.Gx;
using System;
using System.Collections.Generic;
using System.Text;

//-----------------------------------------------------------------
// Copyright (C) 2019 SZGxwl Inc.All rights reserved.
//
```

```
//  Create by xiao.liu at 2019/1/11 11:22:51.
//
//  xiao.liu [mailto:fanqie0127@gmail.com]
// ============================================================
namespace GDotnet.Reader.Api
{
    static class Example
    {
        static void Main()
        {
            GClient clientConn = new GClient();
            eConnectionAttemptEventStatusType status;
            // clientConn.OpenTcp("192.168.1.168:6180", 3000, out status)
            if (clientConn.OpenSerial("COM16:115200", 3000, out status))
            {
                The // subscription tag reports the event
                clientConn.OnEncapedTagEpcLog += new delegateEncapedTagEpcLog(OnEncapedTagEpcLog);
                clientConn.OnEncapedTagEpcOver += new
delegateEncapedTagEpcOver(OnEncapedTagEpcOver);

                // stop command, idle state
                MsgBaseStop msgBaseStop = new MsgBaseStop();
                clientConn.SendSynMsg(msgBaseStop);
                if (0 == msgBaseStop.RtCode)
                {
                    Console.WriteLine("Stop successful.");
                }
                else { Console.WriteLine("Stop error."); }

                // power configuration, set all 4 antenna power to 30dBm.
                MsgBaseSetPower msgBaseSetPower = new MsgBaseSetPower();
                msgBaseSetPower.DicPower = new Dictionary<byte, byte>()
                {
                    {1, 30},
                    {2, 30},
                    {3, 30},
                    {4, 30}
                };
                clientConn.SendSynMsg(msgBaseSetPower);
                if (0 == msgBaseSetPower.RtCode)
                {
                    Console.WriteLine("Power configuration successful.");
                }
                else { Console.WriteLine("Power configuration error."); }
```

```
                Console .WriteLine ("Enter  a ny  character  to  start  reading  the  tag.") ; Console
                .ReadKey () ;

                // 4 antenna read cards, read the EPC data area and the TID data area
                MsgBaseInventoryEpc  msgBaseInventoryEpc  = new  MsgBaseInventoryEpc () ;
                msgBaseInventoryEpc .AntennaEnable  = (ushort ) (eAntennaNo ._1 | eAntennaNo ._2 |
eAntennaNo ._3 | eAnten naNo ._4) ;
                msgBaseInventoryEpc .InventoryMode  = (byte )eInventoryMode .Inventory  ;
                msgBaseInventoryEpc .ReadTid = new ParamEpcReadTid (); / / tid parameter
                msgBaseInventoryEpc .ReadTid .Mode  = (byte )eParamTidMode .Auto  ;
                msgB aseInventoryEpc .ReadTid .Len  = 6 ;
                clientConn .Se ndSynMsg (msgBaseInventoryEpc ) ;
                if  (0 == msgBaseIn ventoryEpc .RtCode )
                {
                    Console .WriteLine ("Inventory  epc  successful.") ;
                }
                else  { Cons ole .WriteLine ("Inventory  epc  error.") ; }
                Console .ReadKey () ;

                // stops reading the card, in an idle state
                clientConn .SendSynMsg (msgBaseStop ) ;
                if  (0 == msgBaseStop .RtCode )
                {
                    Console .Wri teLine ("Stop  successful.") ;
                }
                else  { Console .WriteLine ("Stop  er ror.") ; }
            }
            e lse
            {
                Console .W riteLine ("Connect  failure.") ;
            }
            Console .ReadKey () ;
        }

        The # r egion API event

        public  static  void  OnEncapedTagEpcLog (EncapedLogBaseEpcIn fo  msg )
        {
            If there is a blocking inside the // callback, it will affect the normal use of the API
            // A large number of tag pullbacks, please cache the tag data for business processing
            if  (null  != ms g )
            {
                Console .WriteLine (msg .logBaseEpcInfo .ToString ()) ;
            }
```

```
        }

        public  static  void  OnEncapedTagEpcOver (EncapedLogBaseEpcOve r  msg )
        {
            if  (null  != ms g )
            {
                Co nsole .WriteLine ("Epc  log  over.") ;
            }
        }

        #e ndregion
    }
}
```

3. Connect description

3.1.RS232 linkage

Namespace	GDotnet.Reader.A pi.DAL
class	GC lient
Square, law	public b ool OpenSerial (String readerName , int timeout , out eConnectionAttemptEventSt atusType status)
Say, Ming	r ea d e r N a m e: Connect a string, such as "CO M 1:115200" ("String slogan: port rate")" t i m eou t: Connection confirmation timeout time (milliseconds), such as "1000" st a t u s: Connection status enumereration

3.2.RS485 linkage

Namespace	GDotnet.Reader.A pi.DAL
class	GC lient
Square, law	public b ool OpenSerial485(String readerName , int timeout , out eConnectionAttemptEventSt atusType status)

Say, Ming	r ea d e r N a m e: Connection string, such as "C O M 1:115200:1" ("String slogan: port rate: 485 address") t i m eou t: Connection confirmation timeout time (milliseconds), such as "1000" st a t u s: Connection status enumereration In semi-duplex mode, occasional communication failures are normal, please try again after failure.

.3.3 TCP client connection

Namespace	GDotnet.Reader.A pi.DAL
class	GC lient
Square, law	public b ool OpenTcp (String readerName , int timeout , out eConnectionAttemptEventSt atusType status)
Say, Ming	rea d er N a m e: A connection string (such as "192.168.1.168:6180").Reader and writer default I P "192.168.1.168", by default Port "6180" t i m eou t: Connection confirmation timeout time (milliseconds), such as "1000" st a t u s: Connection status enumereration

.4.The 3. The T C P server listens for it

Namespace	GDotnet.Reader.A pi.DAL
class	GS erver
Square, law	**public bool Open (int p ort)**
Say, Ming	por t: Local interface for by listening listening. Using this method to listen, you need to configure the UH F read and write device to Client Mode. The Client Mode configuration method is detailed in the RF I D Demo Software Operation Manual.

4. Event description

4.1. The I S O 18000-6C label reports events

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G C li en t
event	publ ic delegateTagEpcLog OnTagEpcLog ;
Say, Ming	_public del egate void delegateTagEpcLog (LogBaseEpcInfo msg) ;_ 6C tag actively reports the event: When the reader is reading card status, the tag information is reported through this event.See "Quick Start" for an example. L o g B aseE p c I n f o: See "Reporting Objects"

Report object

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
target	L ogBa s eEp c I n f o
attribute	E p c: A 16-decimal EPC string B Epc: The EPC byte array P c: P C value AntId,: Antenna No Rssi: Signal intensity Re s u l t: Tag read result, 0 is read success, non-0 is failure T i d: A 16-Binary T I D string BT i d: The T I D byte array Userdata: A 16-Binary Userdata string BU se r: The U se r da ta byte array Rese r ved: 16 Binary reservation string BR e s: Reserve byte array
Say, Ming	6C label actively report parameters.

4.2. The I SO 18000-6C label reports the end event

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	LogBa s eEpc O ve r
attribute	public dele gateTagEpcOver OnTagEpcOver ;
Say, Ming	public delegate void delegateTagEpcOver (LogBaseEpcOver msg) ; The 6C label actively reports the end parameter to ensure that the asynchronous messages are synchronized.

4.3. I S O 18000-6B Tab reporting events

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G C li en t
event	p ublic delegateTag6bLog OnTag6bLog ;
Say, Ming	publi c delegate void delegateTag6bLog (LogBase6bInfo msg) ; 6B The label actively reports the event: when the reader and writer read card status, the label information is reported through this event.See "Quick Start" for an example. LogBa s e 6b I n f o: See "Reporting Objects"

Report object

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
target	Log Base6b Info
attribute	AntId,: Antenna No Rssi: Signal intensity Re s u l t: Tag read result, 0 is read success, non-0 is failure T i d: A 16-Binary T I D string BT i d: The T I D byte array Userdata: A 16-Binary Userdata string BU se r: The U se r da ta byte array

Say, Ming	6C label actively report parameters.

4.4. The I SO 18000-6B label reports the end event

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	Log Base6b Info
attribute	publ ic delegateTag6bOver OnTag6bOver ;
Say, Ming	public d elegate void delegateTag6bOver (LogBase6bOver msg) ; The 6B label actively reports the end parameter to ensure that the asynchronous messages are synchronized.

4.5. The national standard label shall report events

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G C li en t
event	p ublic delegateTagGbLog OnTagGbLog ;
Say, Ming	_publi c delegate void delegateTagGbLog (LogBaseGbInfo msg) ; The G B tag actively reports the event: When the reader is reading card status, the tag information is reported through this event.See "Quick Start" for an example. LogBa s eGb I n f o: See "Reporting Objects"

Report object

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
target	L og Ba s e G x I n f o

attribute	E p c: 16 imported E PC string (tag encoding zone) BEp c: EPC byte array (tag encoding zone) P c: P C value AntId,: Antenna No Rssi: Signal intensity Re s u l t: Tag read result, 0 is read success, non-0 is failure T i d: 16 decimal T I D string (tag information zone) BT i d: T I D byte array (tag information zone) Userdata: A 16-Binary Userdata string BU se r: The U se r da ta byte array
Say, Ming	6C label actively report parameters.

4.6. National standard label to report the end event

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	L ogB a s e G b O ve r
attribute	publ ic delegateTagGbOver OnTagGbOver ;
Say, Ming	public d elegate void delegateTagGbOver (LogBaseGbOver msg) ; The G B label actively reports the end parameter to ensure that the asynchronous messages are synchronized.

.7.4 The G P I triggers the start event

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G C li en t
event	p ublic delegateGpiStart OnGpiStart ;

Say, Ming	public delega te void delegateGpiStart (LogBaseGpiStart msg) ; G P I triggers the start active reporting event: This event is reported when the G P I reaches the start conditions of the configuration. **L o g B as e G p i S t a rt: See "Reporting Objects"**

Report object

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
target	LogB a s e G p i S t a rt
attribute	GpiPort: GPI port number (the index starts from 0) Leve l: Level state, 0 low level, 1 high level T r i gge r T i m e: The trigger time
Say, Ming	G P I triggers start active reporting parameter.

.8.4 The G P I triggers the end event

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G C li en t
event	public delegateGpiOver OnGpiOve r ;
Say, Ming	_publi c delegate void delegateGpiOver (LogBaseGpiOver msg) ; The G P I triggers the start active reporting event: This event is reported when the G P I reaches the configured end condition. **L o g B a s e G p i O ve r: See "Reporting Objects"**

Report object

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
target	LogB a s e G p i O ve r
attribute	GpiPort: GPI port number (the index starts from 0) Leve l: Level state, 0 low level, 1 high level T r i gge r T i m e: The trigger time

Say, Ming	The G P I triggers the end of the active reporting parameter.

4.9. TCP connection disconnection event

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G C li en t
event	public delegateTcpDisconnected On TcpDisconnected ;
Say, Ming	_public delegate void delegateT cpDisconnected (String readerName) ; explain: ➢The connection is in T C P, and this event is reported when the remote connection is actively disconnected or the physical layer is abnormal. ➢After this event is reported, the connection object should be released by the upper bit machine (caller), otherwise the event will be reported repeatedly until the connection object is released. ➢To meet different needs, whether the connection to the remote device is independently controlled by the upper computer (caller).r eade r N a m e: Connection object name.

4.10. T C P Connection event

Namespace	GDo t ne t .Reade r .Ap i.DA L
class	G Se r ve r
event	public delegateGClientConnected OnC lientConnected ;
Say, Ming	public delegate void delegateGpiOver (GClient clie nt) ; The TCP is listening, and this event reporting is triggered when the remote read and write device actively connects to the upper computer.**GC li en t: See "Reporting Objects".**

Report object

Namespace	GD o t n e t .Reade r .Ap i.D A L

target	G C li en t
attribute	no 。
Say, Ming	Description: This connection object is the same as other active connection objects and is fully used.

5. Message configuration and query description

.1.5 Send a synchronization message

Namespace	GDotnet.Reader.A pi.DAL
class	GC lient
Square, law	public void SendSynMsg (Message msg)
method 1	public void SendSynMsg (Message msg , int timeout)
method 2	p ublic void SendSynMsgRetry (Message msg , int timeout , int retry)
returned value	m sg .R t Code: Message return code 0 is the operation is successful, the non-0 operation failed. m sg .R t M sg: The operation failed for the reason
Say, Ming	Send a synchronization message, see the code example. Tip: Reader-Writer Configuration and Management, RFID Configuration and Operation " and other messages are sent by this method.

Code Example 1

```
// stop command, idle state
MsgBaseStop msgBaseStop = ne w MsgBaseStop () ;
clientConn .SendSynMsg (msgBaseStop ) ;
if (0 == msgBaseStop .RtCode )
{
    Console .Wri teLine ("Stop successful.") ;
```

```
}
else { Console .WriteLine ("Stop er ror.") ; }
```

Code Example 2

```
// power configuration, set all 4 antenna power to 30dBm.
MsgBaseSetPower msgBaseSetPower = new MsgBaseSetP ower () ;
msg BaseSetPower .DicPower = new Dictionary <byte , byte >()
{
    {1, 30},
    {2, 30},
    {3, 30},
    {4, 30}
};
clientC onn .SendSynMsg (msgBaseSetPower ) ;
if (0 == msgB aseSetPower .RtCode )
{
    Console .WriteLine ("Power configuration s uccessful.") ;
}
else { Console .WriteLin e ("Power configuration error.") ; }
```

Code Example 3

```
if (null != this .clientConn )
{
    The // queries the antenna power
    MsgBaseGetPower msg = new MsgBa seGetPower () ;
    this .clientConn .SendSynMsg (msg ) ;
    if (0 == msg .RtCode && nul l != msg .DicPower )
    {
        foreach (var item in msg .DicPower )
        {
            swit ch (item .Key )
            {
                cas e 1 :
                {
                    cmbAnt1.SelectedIndex = ite m .Value ;
                }
                bre ak ;
                cas e 2 :
                {
                    cmbAnt2.SelectedIndex = ite m .Value ;
                }
                bre ak ;
```

```
                    case 3:
                        {
                            cmbAnt3.SelectedIndex = item.Value;
                        }
                        break;
                    case 4:
                        {
                            cmbAnt4.SelectedIndex = item.Value;
                        }
                        break;
                    default:
                        break;
                }
            }
        }
```

6. Message description

6.1. Reader and writer configuration and management

6.1.1. Restart the reader and writer

Namespace	GDotnet.Reader.Api.Protocol.Gx
class	MsgAppReset
attribute	not have
Say, Ming	Device restart message, generally executed after modification of the effective restart configuration.

6.1.2. Configure and query the serial port parameters

Namespace	GDotnet.Reader.Api.Protocol.Gx

Configuration class	M s g A ppSe tSe r i a l Pa r a m
Query class	M sg A pp G e tSe r i a l Pa r a m
attribute	Baud r a t e I ndex: Paud rate index (0,9600 bp s; 1,19200 bp s; 2,115200 bp s; 3,230400 bps; 4,460800bps)
Say, Ming	(Persistent configuration, power-off saving) Configuring device serial port parameters. Note: This configuration needs to be modified when the device is idle (i. e., the loop read status cannot change the configuration).

6.1.3. Configure the G P O status parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Configuration class	M s g A ppSe t G po
attribute	Gpo1:0 (low, relay disconnected) 1 (high, relay closed) Gpo2:0 (low, relay disconnected) 1 (high, relay closed) Gpo3:0 (low, relay disconnected) 1 (high, relay closed) Gpo4:0 (low, relay disconnected) 1 (high, relay closed) ……
Say, Ming	(Persistent configuration, power-off saving) Configure the device GPO parameters. Note: No assignment is required for a GPO that does not require control of the state.

6.1.4. Query the G P I status parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Query class	M s g A ppG e t G p i S t a t e
attribute	D i c G p i S t a t e: The corresponding level state of G P I (D i c ti onary <by t e, b y t e>, key: G P I index number, va l ue: level state (0 low, 1 high))

Say, Ming	Query the device GPI status. Note: Index number starts at 1.

6.1.5. Configure and query the GP I trigger parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Configuration class	M s g AppSe t G p i T r i gge r
Query class	M s gA pp G e t G p i T r i gge r
attribute	G piPort: G PI port number, and the index starts at 0 T r i gge r S t a rt: Trigger start (0 trigger off, 1 low level trigger, 2 high level trigger, 3 rise along trigger, 4 drop along trigger, 5 any edge trigger) Trigg e r Co mm a nd: Trigger binding command (He x, it is empty) BtriggerCommand: Trigger binding command (Byte [], can be empty) T r i gg e r O v e r: Trigger stop (0 no stop, 1 low level trigger, 2 high level trigger, 3 up along trigger, 4 down along trigger, 5 any edge trigger, 6 delay stop) O ve r D e l ayT i m e: Delay stop time (only if the stop condition is "delay stop" effective) Leve l U p l oadS w i t ch: I O level change upload switch when triggering does not stop (0 does not upload, 1 upload)
Say, Ming	(Persiuration configuration, power saving) Configure the device GP I trigger parameters. Note: This configuration needs to be modified when the device is idle (i. e., the loop read status cannot change the configuration).

6.1.6. Query the baseband software version

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Query class	MsgAppGet BaseVersi on
attribute	V ersion: Baseband software version number (eg: "0.1.0.0")

Say, Ming	no 。

6.1.7. Query the reader and writer information

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Query class	M sgAppGet ReaderInfo
attribute	I m ei: Reader and writer serial number Po w e r O nT i m e: Power-on time Ba s eBu ildDa t e: Baseband compilation time AppVersion: Application software version (like: "0.1.0.0") A ppBu il d D a t e: Application compilation time Sy st e m V e rs i o n: Operating system version
Say, Ming	no 。

6.1.8. Query the reader and writer R F I D capabilities

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Query class	M sg B as e G e t C a p a b iliti e s

attribute	M a x Po w e r: The maximum support power M i nPo w e r: The minimum support power An t ennaCou n t: Number of antennas F r equency A rr ay: List of supported frequency bands, 0, National standard 920~925MHz 1, National standard 840~845MHz 2, National standard 840~845MHz and 920~925MHz 3， FCC ， 902~928MHz 4， ETSI ， 866~868MHz P r o t o c o l A rr a y: List of supported protocols, 0， ISO18000-6C/ EPC C1G2 1， ISO18000-6B 2. National standard GB / T 29768-2013 3, Military standard GJB 7383.1-2011
Say, Ming	no 。

6.2. RFID configuration and operation

6.2.1. Stop instruction

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa s eS t op
attribute	not have
Say, Ming	Stop all RF I D operations on the reader and leave the reader idle. Tip: When the read and writer is in the card reading state, all configuration messages cannot be sent, and stop instructions must be sent.

6.2.2. Configure and query the reader and writer power

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Configuration class	M s g Ba s eSe t Po w e r
Query class	M s gB a s e G e t Po w e r
attribute	D i c Po w e r: reader and writer corresponding antenna power (D i c t i on a r y <b y t e, b y t e>, k e y: antenna index number, va l ue: antenna power value)
Say, Ming	(Persiuration configuration, power off saving) configure reader power for each antenna port.

6.2.3. Configure and query the reader-writer working frequency band

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Configuration class	M sg B as eSe t F r e qR a n ge
Query class	M sg B aseG e t F r e qR a n ge
attribute	F r eqRange I nde x: frequency band index, specific correspondence, as detailed in Appendix 1.
Say, Ming	(Persiuration configuration, power off saving) used to configure the current working band of the reader and writer.

6.2.4. Configure and query the EPC baseband parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Configuration class	M sg B a s e S e t B as eb a nd
Query class	M sg B as e G e t B as eb a nd

attribute	BaseSpeed: EPC baseband rate (optional). Q Va l ue: Default Q value (optional) (0~15). Sess i on: (Optional) (0, Sess i on0; 1, Sess i on1; 2, Sess i on2; 3, Sess i on3). I nventoryFlag: Disc flag parameters (optional) (0, Flag A only; 1, Flag B only; 2, Flag A and Flag B).
Say, Ming	(Persistence configuration, power saving) To configure the baseband parameters used by the reader and writer.

6.2.5. Configuration and query tag upload parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
Configuration class	M sg B as eSe t F r e qR a n ge
Query class	M sg B aseG e t F r e qR a n ge
attribute	Repe a t edT i m e: Repeat label filtering time (optional) (indicating that the same label content is uploaded only once during the specified repeat filtering time, 0~65535, time unit of 10m s). RssiTV: R SSI threshold (optional) (tag data is not uploaded and discarded when the tag RSSI value is below the threshold).
Say, Ming	(Persistent configuration, power off saving) configuration label actively upload parameters.

6.2.6. Read the EPC tag

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa s e I nven t o r yEpc

attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) I n v en t o r y M ode: Continuous / single reading (0: single reading mode, reading and writer do one round of card reading operation on each enabling antenna to end the card reading operation and automatically enter the idle state; 1: Continuous reading mode, the reader completes the card reading operation until the reader receives the stop command) Filter: Select the read parameter (optional) (see the parameter description for details) R eadTid: TI D Read parameters (optional) (see parameter description for details) Read U se r da t a: User data zone read parameters (optional) (see parameter description for details) Read Reserved: Retention Read parameters (optional) (see parameter description for details) He x Pa s s w o r d: Access Password (Optional)
Say, Ming	To configure the tag read parameters of the reader and start the read card operation, any read tag data operation needs to get the tag EPC code first, so any read card operation gets the EPC code.

6.2.7. Write the EPC tags

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M sgBa s e W r i t eEp c
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) A r e a: Label data zone to be written (0, reservation zone; 1, E PC zone; 2, TI D zone; 3, user data zone) St a rt: The word start address of the tag data zone to be written He x W r i t eDa t a: Data content to be written (optional) (16 decimal system) B w rit eD a t a: Data content to be written into Filter: Select the read parameter (optional) (see the parameter description for details) He x Pa s s w o r d: Access Password (Optional)
Say, Ming	➢The reader and writer writes on the E PC label, as defined by this instruction as a single operation ➢The I S O 18000-6C protocol specifies the read and write operation minimum data sheet as a word. ➢The EPC zone consists of CRC16 (word 0) + PC (word 1) + EPC: CRC16: word 0, unwritable. PC: The first word, the first five bit bits indicate the EPC word length, or the PC is calculated by moving 11 bits left for the EPC.

6.2.8. Lock the EPC label

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	Ms gBaseLock Epc
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) Area: Label data zone to be locked (0, Inactivate Passcode zone; 1, Access password zone; 2, EPC zone; 3, TID zone; 4, User data zone) M ode: Lock operation type (0, unlock; 1, lock; 2, permanent unlock; 3, permanent lock) Filter: Select the read parameter (optional) (see the parameter description for details) He x Pa s s w o r d: Access Password (Optional)
Say, Ming	Lock or unlock the label, as defined in this instruction as a single operation

6.2 Inactivate the EPC label.9.

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s g B a s eD e st o r yEpc
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) H exP ass w ord: To destroy the password Filter: Select the read parameter (optional) (see the parameter description for details)
Say, Ming	For the label inactivation operation, the label is permanently inactivated, which is an irreversible operation.The operation defined in this instruction is a single operation

6.2.10. Read the 6B tag

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa se I nven t o r y6b

attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) I n v en t o r y M ode: Continuous / single reading (0: single reading mode, reading and writer do one round of card reading operation on each enabling antenna to end the card reading operation and automatically enter the idle state; 1: Continuous reading mode, the reader completes the card reading operation until the reader receives the stop command) Area: Read content (0, read 6B TID only; 1, read 6B TID + user data; 2, Read user data only) Read U se r da t a: User data zone read parameters (optional) (see parameter description for details) H ex M a t chT i d: The T I D code to match the 6B tag (optional) (16 decimal system) B M atchTid: The TI D code to match the 6B tag (optional)
Say, Ming	Data read operation used for the I S O 18000-6B label

6.2.11. Write the 6B label

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa s e W r i t e6b
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) H ex M a t chT i d: The T I D code to match the 6B tag (optional) (16 decimal system) B M at chTid: TID code to be match the 6B tag S t a rt: The byte start address to the label data zone to be written He x W r i t eDa t a: Data content to be written (optional) (16 decimal system) B w rit eD a t a: Data content to be written into
Say, Ming	Write on the 6B label, as defined in this instruction as a single operation

6.2.12.6B label lock

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa s e L o c k6b
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) H ex M a t chT i d: The T I D code to match the 6B tag (optional) (16 decimal system) B M at chTid: TID code to be match the 6B tag Lock I n dex: Byte address of the data to be locked

Say, Ming	Lock 6B label data which is irrevocable and reversed and the locking operation defined in this instruction is a single operation

6.2.13.6B Tab Lock query

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M sg B aseL o ck6bG e t
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) H ex M a t chT i d: The T I D code to match the 6B tag (optional) (16 decimal system) B M at chTid: TID code to be match the 6B tag L o ck I nd ex: The byte address of the query data to be locked
Say, Ming	Query the 6B tag data lock state, and the lock query operation defined by this instruction is a single operation

6.2.14. Read the GB tags

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa s e I nven t o r y G b
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) I n v en t o r y M ode: Continuous / single reading (0: single reading mode, reading and writer do one round of card reading operation on each enabling antenna to end the card reading operation and automatically enter the idle state; 1: Continuous reading mode, the reader completes the card reading operation until the reader receives the stop command) Filter: Select the read parameter (optional) (see the parameter description for details) R eadTid: TI D Read parameters (optional) (see parameter description for details) Read U se r da t a: User data zone read parameters (optional) (see parameter description for details) He x Pa s s w o r d: Access Password (Optional)
Say, Ming	To configure the label reading parameters of the reader and writer and start the read card operation, any read label data operation needs to obtain the label encoding first, so any read card operation will get the label encoding (E P C).

6.2.15. Write the GB label

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M sgBa s e W r i t e G b
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) A rea: Label data zone to be written (0x10, tag coding zone 0x20, tag security zone 0x30~0x3F, user sub-zone 0~15 zone) St a rt: The word start address of the tag data zone to be written He x W r i t eDa t a: Data content to be written (optional) (16 decimal system) B w rit eD a t a: Data content to be written into Filter: Select the read parameter (optional) (see the parameter description for details) He x Pa s s w o r d: Access Password (Optional)
Say, Ming	➢The reader and writer write on the G B label, and the write operation defined by this instruction is a single operation ➢The G B protocol specifies the minimum read and write operation data sheet as a word.

6.2.16. Lock the GB label

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s gBa s e L o c k G b
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) A r e a: Label data zone to be locked (0x 00 tag information, 0x 10 label coding, 0x 20 tag security, 0x30~0x3F user child 0~15) M ode: Lock operation type 0x 00, readable and writable.0x01, which is readable and not writable.0x02, unreadable and written.0x03, unreadable or writable.At 0x 11, the security mode is set to require no identification; this operation area must be a label security zone.In 0x12, the security mode is set to require identification and no secure communication; this operation area must be a label security zone.0x13, security mode is set to identification and secure communication; this operation area must be a label security zone. Filter: Select the read parameter (optional) (see the parameter description for details) He x Pa s s w o r d: Access Password (Optional)

Say, Ming	Lock or unlock the label, as defined in this instruction as a single operation

6.2.17. Inactivate the GB label

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	M s g B a s eD e st o r y G b
attribute	A n t ennaEnab l e: Antenna port (enumerate with antenna, see Quick start for details) H exP ass w ord: To destroy the password Filter: Select the read parameter (optional) (see the parameter description for details)
Say, Ming	For the label inactivation operation, the label is permanently inactivated, which is an irreversible operation.The operation defined in this instruction is a single operation

7. parameter declaration

7.1.1. 6C / G B label selection parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	Pa r a m EpcF ilt e r
attribute	A r ea: Data zone to match (1, EPC zone; 2, T I D zone; 3, user data zone) (G B Label, 0x 00 Label Information Zone, 0x 10 Label coding Zone, 0x 20 Label Security Zone, 0x30~0x3F User Sub-zone 0~15) B it S t ar t: Matching the data start site address B i t Le n g t h: Data bit length required to match H ex D a t a: Data content to be matched (optional) (16 imal) BD a t a: Data content needed to match
Say, Ming	optional parameters The top 32 bits of the EPC region is the PC value, so the starting site address of distinguishing the EPC is usually 32.

7.1.2.6 The C tag reads the T I D parameter

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	P ara m E p c Re a d T i d
attribute	M od e: T I D read mode configuration, (0, T I D read length is adaptive, but the maximum length does not exceed the length defined by byte 1; 1, read TID by the length defined by byte 1) Len: The reader and writer needs to read the word of the TI D data (w ord , 16bits , The same below,) Length
Say, Ming	optional parameters

7.1.3.6 The C tag reads the user data area parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	Pa ra m Ep c Read U s e r da t a
attribute	S tart: Start word address L en: The word length of the user data that the reader needs to read
Say, Ming	optional parameters

7.1.4. 6B Tab reads the user data area parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	Param6b Re adUserdata
attribute	S t a rt: User data start byte address Le n: User data byte length
Say, Ming	optional parameters

7.1.5. The G B label reads the user data zone parameters

Namespace	GD o t ne t .Rea de r .Ap i.P r o t o c o l.G x
class	ParamGb Read Userdata
attribute	Ch il dA r ea: User subzone S t a rt: User data start byte address Le n: User data byte length
Say, Ming	optional parameters

8. appendix 1

List of frequency bands supported by the reader and writer

Saw, lead	Say, Ming
0	National standard is 920~925MHz
1	National standard is 840~845MHz
2	National standard 840~845MHz and 920~925MHz
3	FCC ， 902~928MHz
4	ETSI ， 866~868MH z

9. appendix 2