AL-510 SDK

Document

1.2

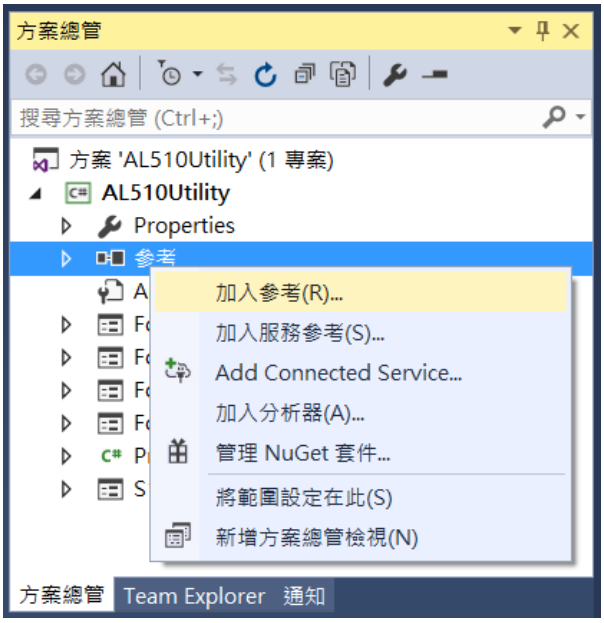
Version	Modifier	Date	Modify content
1.0	Irene	2019/1/21	初搞
1.1	Irene	2019/3/12	重新更名及完整範例
1.2	Irene	2019/4/29	新增 GetModuleVersion, FlashEMTag, GetEMTemprature, GetEMBatteryVoltage

Directory

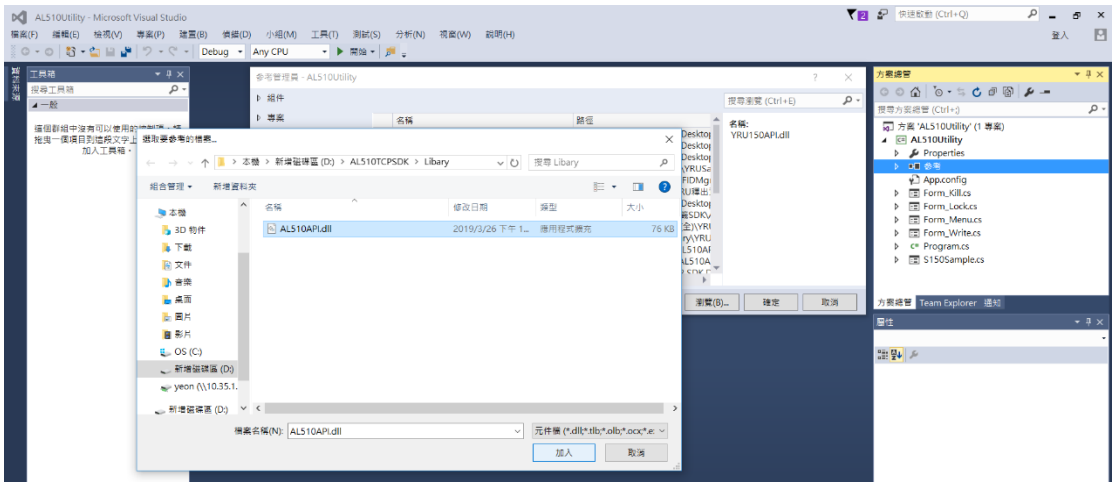
REFERENCE DLL

First, you need to add AL510API Reference to the project. (Example use vs2015)：

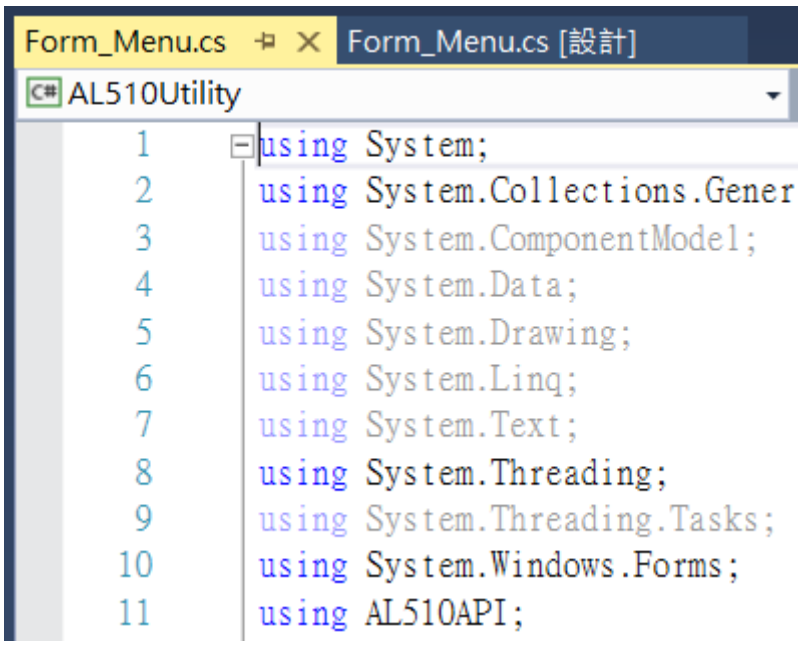
Step1. Click right mouse at Reference, choose「add reference」。



Step2. Choose「AL510API.dll」, click 「Add」。



Step3. Enter 「using AL510API」。



Step4. Create an instance of the AL510API class.

Use TCP/IP Connection：

```
AL510TCP reader = new AL510TCP();
```

TCP/IP

1. Connect

Connect to reader。

- Method：

  int Connect(string ip)

- Request：

parameter	Type	Description
ip	string	Reader IP

- Response

Type	Description
int	0:Success Not 0:Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex1_Connect
{
    class Ex1_Connect
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect
            int result = reader.Connect("192.168.1.91");
            if (result != 0)
            {
                Console.WriteLine("Connect to reader fail");
                Console.ReadLine();
            }
            else
            {
                Console.WriteLine("Connect to reader success");
                //Disconnect to reader
                int disResult = reader.Disconnct();
                Console.ReadLine();
            }
        }
    }
}
```

2. Disconnect

Disconnect to reader。

- Method：

  int Disconnct()

- Response

Type	Description
int	0:Success Not 0:Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex2_Disconnect
{
    class Ex2_Disconnect
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            if (result != 0)
                Console.WriteLine("Connect to reader fail");
            else
                Console.WriteLine("Connect to reader success");
            //Disconnect
            int disResult = reader.Disconnct();
            if (disResult == 0)
                Console.WriteLine("Disconnect to reader success");
            else
                Console.WriteLine("Disconnect to reader fail");

            Console.ReadLine();
        }
    }
}
```

3. GetVersion

Get Reader version

- Method：

  DataFormat.Version vs = reader.GetVersion()

- Response：

Type	Description
Version	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex3_GetVersion
{
    class Ex3_GetVersion
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get version
            DataFormat.Version vs = reader.GetVersion();
            Console.WriteLine("Version [Software:{0}, Hardware:{1}, Reader:{2},
RFBandRegulation:{3}]", vs.sofeware, vs.hardware, vs.reader, vs.rfid);
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

4. GetReaderID

Get Reader ID

- Method：

```
string readerID = reader.GetReaderID()
```

- Response：

Type	Description
string	Reader ID

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex4_GetReaderID
{
    class Ex4_GetReaderID
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader ID
            string readerID = reader.GetReaderID();
            Console.WriteLine("Reader ID: {0}", readerID);
            //Disconnect to reader
            Console.ReadLine();
        }
    }
}
```

5. SetRegulation

Set RFID Regulation。

- Method：

```
int SetRegulation(Regulation regulation)
```

- Request：

parameter	Type	Description
regulation	Regulation	Please refer to Annex I

- Response

Type	Description
int	0:Success Not 0:Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex5_SetRegulation
{
    class Ex5_SetRegulation
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set the RFID specification to the Taiwan band
            int setResult = reader.SetRegulation(Regulation.TW);
            if (setResult == 0)
                Console.WriteLine("Set regulation success");
            else
                Console.WriteLine("Set regulation fail");
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

6. GetRegulation

Get RFID Regulation setting。

- Method：

```
Regulation GetRegulation()
```

- Response：

Type	Description
Regulation	Please refer to Annex I

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex6_GetRegulation
{
    class Ex6_GetRegulation
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get RFID regulation
            Regulation reg = reader.GetRegulation();
            Console.WriteLine("Reader regulation: {0}", reg.ToString());
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

7. SetPower

Set Reader Power，Every version power range as Please refer to Annex II。

- Method：

```
int SetPower(int power)
```

- Request：

parameter	Type	Description
power	int	Power value

- Response

Type	Description
int	0:Success Not 0:Fail -2: Over rage

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;
```

```
namespace Ex7_SetPower
{
    class Ex7_SetPower
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set the reader power to 10
            int setResult = reader.SetPower(10);
            if (setResult == 0)
                Console.WriteLine("Set power success");
            else if (setResult == -2)
                Console.WriteLine("More than the settable range");
            else
                Console.WriteLine("Set power fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

8. GetPower

Get Reader Power setting。

- Method：

```
int GetPower()
```

- Response:

type	Description
int	Power(dbm)

Excmple：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex8_GetPower
{
    class Ex8_GetPower
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get Power
            int Power = reader.GetPower();
            Console.WriteLine("Power: {0}dbm", Power);
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

9. SetSingleAntenna

Set Single Antenna, and this setting affect some functions, such as: Write, Lock, Kill, Read …… .

- Method：

```
int SetSingleAntenna(string portNum)
```

- Request：

parameter	Type	Description
portNum	string	No Hub: 1~4 Hub: 01~32

- Response

Type	Description
int	0: Success Not 0: Fail -3: Over rage

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex9_SetSingleAntenna
{
    class Ex9_SetSingleAntenna
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set single antenna
            int setResult = reader.SetSingleAntenna("1");
            if (setResult == 0)
                Console.WriteLine("Set single antenna success");
            else
                Console.WriteLine("Set single antenna fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

10.GetSingleAntenna

Get Reader single Antenna

- Method：

```
string GetSingleAntenna()
```

- Response：

type	Description
string	Antenna Port Number

Eaxmple:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex10_GetSingleAntenna
{
    class Ex10_GetSingleAntenna
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get single antenna
            string ant = reader.GetSingleAntenna();
            Console.WriteLine("Antenna:{0}", ant);
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

11.SetLoopAntenna

Set Loop Antenna, and this setting affect some functions, such as: Inventory.

- Method：

```
int SetLoopAntenna(int[] portNum)
```

- Request：

parameter	Type	Description
portNum	int[]	Antenna sum.

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex11_SetLoopAntenna
{
    class Ex11_SetLoopAntenna
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set Loop Antenna: 1,2,9,17,18,19,31,32
            int[] bAnt = new int[4];
            bAnt[0] = 1 + 2;
            bAnt[1] = 1;
            bAnt[2] = 1 + 2 + 4;
            bAnt[3] = 64 + 128;
            int setResult = reader.SetLoopAntenna(bAnt);
            if (setResult == 0)
                Console.WriteLine("Set loop antenna success");
            else
                Console.WriteLine("Set loop antenna fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

12.GetLoopAntenna

Get Loop antenna。

- Method：

```
int[] GetLoopAntenna()
```

- Response:

type	Description
int[]	After analysis, antennas is known.

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex12_GetLoopAntenna
{
    class Ex12_GetLoopAntenna
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get loop antenna
            int[] ant = reader.GetLoopAntenna();
            List<int> antList = new List<int>();
            for (int i = 0; i < 4; i++)
            {
                int antNum = ant[i];
                if (antNum - 128 >= 0)
                {
                    antNum -= 128;
                    antList.Add(((i * 8) + 8));
                }
                if (antNum - 64 >= 0)
                {
                    antNum -= 64;
                    antList.Add(((i * 8) + 7));
                }
                if (antNum - 32 >= 0)
                {
                    antNum -= 32;
```

```
                    antList.Add(((i * 8) + 6));
                }
                if (antNum - 16 >= 0)
                {
                    antNum -= 16;
                    antList.Add(((i * 8) + 5));
                }
                if (antNum - 8 >= 0)
                {
                    antNum -= 8;
                    antList.Add(((i * 8) + 4));
                }
                if (antNum - 4 >= 0)
                {
                    antNum -= 4;
                    antList.Add(((i * 8) + 3));
                }
                if (antNum - 2 >= 0)
                {
                    antNum -= 2;
                    antList.Add(((i * 8) + 2));
                }
                if (antNum - 1 >= 0)
                {
                    antNum -= 1;
                    antList.Add(((i * 8) + 1));
                }
            }
            Console.Write("The antennas that are turned on are: ");
            foreach (int a in antList.OrderBy(a => a))
            {
                Console.Write(a.ToString().PadLeft(2, '0') + ",");
            }
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
```

```
        }
}
```

13.SetLoopTime

Set every antenna loop time。

- Method：

```
int SetLoopTime(int ms)
```

- Request：

parameter	Type	Description
ms	int	Unit: millisecond

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex13_SetLoopTime
{
    class Ex13_SetLoopTime
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set loop time
            int setResult = reader.SetLoopTime(200);
            if (setResult == 0)
                Console.WriteLine("Set loop time success");
            else
                Console.WriteLine("Set loop time fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

14.GetLoopTime

Get every antenna loop time。

- Method：

```
string GetLoopTime()
```

- Result:

type	Description
string	LoopTime(ms)

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex14_GetLoopTime
{
    class Ex14_GetLoopTime
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get loop time
            string looptime = reader.GetLoopTime();
            Console.WriteLine("Loop time: {0}", looptime);
            //Disconnect to reader
            int disResult = reader.Disconnct();//disconnect
            Console.ReadLine();
        }
    }
}
```

15.SetSysNowTime

Use computer local time to set reader time。

- Method：

```
int SetSysNowTime()
```

- Result:

type	Description
string	LoopTime(ms)

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex15_SetSysNotTime
{
    class Ex15_SetSysNotTime
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set reader time
            int setResult = reader.SetSysNowTime();
            if (setResult == 0)
                Console.WriteLine("Set time success");
            else
                Console.WriteLine("Set time fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

16.SetTime

Use numbers to set reader time。

- Method：

```
int SetTime(string time)
```

- request：

parameter	Type	Description
time	string	Format： yydddMMddHHmmss

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex16_SetTime
{
    class Ex16_SetTime
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set Reader time
            int setResult = reader.SetTime("19020312093500");
            if (setResult == 0)
                Console.WriteLine("Set time success");
            else
                Console.WriteLine("Set time fail");
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

17.GetTime

Get Reader time。

- Method：

```
string GetTime()
```

- Response:

type	Description
string	Time yyyy/MM/dd HH:mm:ss:fff

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex17_GetTime
{
    class Ex17_GetTime
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader time
            string readerTime = reader.GetTime();
            Console.WriteLine("Time: {0}", readerTime);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

18.ReadEPC

Read EPC Bank for one tag。

- Method：

```
DataFormat.TagData ReadEPC()
```

- Response：

Type	Description
Tag Data	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex18_ReadEPC
{
    class Ex18_ReadEPC
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read EPC
            DataFormat.TagData tag = reader.ReadEPC();
            Console.WriteLine("EPC:{0}, Antenna:{1}, Time:{2}", tag.Data,
tag.Antenna, tag.Time);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

19.ReadTID

Read TID Bank for one tag。

- Method：

```
DataFormat.TagData ReadTID()
```

- Response：

Type	Description
Tag Data	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex19_ReadTID
{
    class Ex19_ReadTID
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read TID
            DataFormat.TagData tag = reader.ReadTID();
            Console.WriteLine("TID:{0}, Antenna:{1}, Time:{2}", tag.Data,
tag.Antenna, tag.Time);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

20.ReadBank

Read specified Bank for one tag。

- Method：

```
DataFormat.TagData ReadBank(BankType type, int start, int len)
```

- Request：

parameter	Type	Description
type	BankType	BankType Please refer to Annex III
start	int	Starting address (Word)
len	int	Length (Word)

- Response：

Type	Description
Tag Data	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex20_ReadBank
{
    class Ex20_ReadBank
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read bank
            DataFormat.TagData tag = reader.ReadBank(BankType.USER, 0, 32);
            Console.WriteLine("Tag Data:{0}, Antenna:{1}, Time:{2}", tag.Data,
tag.Antenna, tag.Time);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

21.ReadSingleTagEPC

Read EPC for one tag, and get the number of reads.

- Method：

  int ReadSingleTagEPC()

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex21_ReadSingleTagEPC
{
    class Ex21_ReadSingleTagEPC
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            reader.AsyncRecvEnet += new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read Single Tag EPC
            int cmdResult = reader.ReadSingleTagEPC();
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }

        private static void reader_AsyncRecvEnet(object data)
        {
            if (data is AL510API.DataFormat.Tag)
            {
                AL510API.DataFormat.Tag tag = new
AL510API.DataFormat.Tag();
                tag = (AL510API.DataFormat.Tag)data;
                Console.WriteLine("EPC:{0}, Antenna:{1}, Time:{2}, IP:{3}",
tag.EPC, tag.Antenna, tag.Time, tag.IP);
            }
```

```
            }
        }
}
```

22.ReadMultiTagEPC

Read EPC bank for multi tag.

- Method：

```
int ReadMultiTagEPC()
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex22_ReadMultiTagEPC
{
    class Ex22_ReadMultiTagEPC
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            reader.AsyncRecvEnet += new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            //connect To Reader
            int result = reader.Connect("192.168.1.91");
            //Read Multi Tag EPC
            int cmdResult = reader.ReadMultiTagEPC();
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }

        private static void reader_AsyncRecvEnet(object data)
        {
            if (data is AL510API.DataFormat.Tag)
            {
                AL510API.DataFormat.Tag tag = new
AL510API.DataFormat.Tag();
                tag = (AL510API.DataFormat.Tag)data;
                Console.WriteLine("EPC:{0}, Antenna:{1}, Time:{2}, IP{3}",
tag.EPC, tag.Antenna, tag.Time, tag.IP);
            }
```

```
            }
        }
}
```

23.ReadMultiBank

Read EPC and other bank for one tag。

- Method：

```
DataFormat.Tag ReadMultiBank(BankType bank, int len)
```

- Request：

parameter	Type	Description
bank	BankType	Please refer to Annex III
len	int	length

- Response：

Type	Description
Tag	Please refer to Annex III

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex23_ReadMultiBank
{
    class Ex23_ReadMultiBank
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read Tag multi bank
            DataFormat.Tag tag = reader.ReadMultiBank(BankType.USER, 32);
            Console.WriteLine("EPC: {0}, User:{1} , Antenna:{2}, Time:{3},
IP:{4}", tag.EPC, tag.UserData, tag.Antenna, tag.Time, tag.IP);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

24.Inventory

Inventory Tag。

- Method：

```
int Inventory(int slotQ)
```

- Request:

parameter	Type	Description
slotQ	int	Tag num(2^{slotQ})

- Response：

Type	Description
Tag	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex24_Inventory
{
    class Ex24_Inventory
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            reader.AsyncRecvEnet += new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            reader.ConnectLost += new
AL510TCP.ConnectLostDelegate(reader_ConnectLost);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Inventory
            int cmdResult = reader.Inventory(2);
            Console.ReadLine();
            reader.StopInventory();
            reader.AsyncRecvEnet -= new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            reader.ConnectLost -= new
AL510TCP.ConnectLostDelegate(reader_ConnectLost);
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }

        private static void reader_AsyncRecvEnet(object data)
        {
            if (data is AL510API.DataFormat.Tag)
```

```
                {
                    AL510API.DataFormat.Tag tag = new
AL510API.DataFormat.Tag();
                    tag = (AL510API.DataFormat.Tag)data;
                    Console.WriteLine("EPC:{0}, Antenna:{1}, Time:{2}, IP:{3}",
tag.EPC, tag.Antenna, tag.Time, tag.IP);
                }
            }
            //Connect lost event
            private static void reader_ConnectLost(string data)
            {
                Console.WriteLine(data + "\n");
            }
        }
}
```

25.InventoryTID

Inventory Tag EPC and TID。

- Method：

```
void InventoryTID(int slotQ)
```

- Request:

parameter	Type	Description
slotQ	int	Tag num(2^{slotQ})

- Result：

Type	Description
Tag	Please refer to Annex III

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex25_InventoryTID
{
    class Ex25_InventoryTID
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            reader.AsyncRecvEnet += new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            reader.ConnectLost += new
AL510TCP.ConnectLostDelegate(reader_ConnectLost);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Inventory
            int cmdResult = reader.InventoryTID(2);
            Console.ReadLine();
            reader.StopInventory();
            reader.AsyncRecvEnet -= new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            reader.ConnectLost -= new
AL510TCP.ConnectLostDelegate(reader_ConnectLost);
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }

        private static void reader_AsyncRecvEnet(object data)
        {
            if (data is AL510API.DataFormat.Tag)
```

```
                {
                    AL510API.DataFormat.Tag tag = new
AL510API.DataFormat.Tag();
                    tag = (AL510API.DataFormat.Tag)data;
                    Console.WriteLine("EPC:{0}, TID:{1}, Antenna:{2}, Time:{3},
IP:{4}", tag.EPC, tag.TID, tag.Antenna, tag.Time, tag.IP);
                }
            }
            //Connect lost event
            private static void reader_ConnectLost(string data)
            {
                Console.WriteLine(data + "\n");
            }
        }
}
```

26.InventoryUser

Inventory Tag EPC and User Memory。

- Method：

  int InventoryUser(int slotQ, int len)

- Request:

parameter	Type	Description
slotQ	int	Tag num(2^{slotQ})
len	int	length

- Response：

Type	Description
Tag	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex26_InventoryUser
{
    class Ex26_InventoryUser
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            reader.AsyncRecvEnet += new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            reader.ConnectLost += new
AL510TCP.ConnectLostDelegate(reader_ConnectLost);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Inventory
            int cmdResult = reader.InventoryUser(2, 32);
            Console.ReadLine();
            reader.StopInventory();
            reader.AsyncRecvEnet -= new
AL510TCP.AsyncReceiveDelegate(reader_AsyncRecvEnet);
            reader.ConnectLost -= new
AL510TCP.ConnectLostDelegate(reader_ConnectLost);
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }

        private static void reader_AsyncRecvEnet(object data)
        {
            if (data is AL510API.DataFormat.Tag)
```

```
                {
                    AL510API.DataFormat.Tag tag = new
AL510API.DataFormat.Tag();
                    tag = (AL510API.DataFormat.Tag)data;
                    Console.WriteLine("EPC:{0}, User:{1}, Antenna:{2}, Time:{3},
IP:{4}",
                        tag.EPC, tag.UserData, tag.Antenna, tag.Time, tag.IP);
                }
            }
            //Connect lost event
            private static void reader_ConnectLost(string data)
            {
                Console.WriteLine(data + "\n");
            }
        }
}
```

27.WriteEPC

Write EPC for one tag。

- Method：

```
DataFormat.WriteResult WriteEPC(string pwd, string data,
BankType targetBank, string mask)
```

- Request:

parameter	Type	Description
pwd	string	Accesspwd
data	string	EPC (hex)
targetBank	BankType	Specified bank for mask. BankType:Please refer to Annex III
mask	string	Specified tag

- Result：

Type	Description
writeResult	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex27_WriteEPC
{
    class Ex27_WriteEPC
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Write EPC
            DataFormat.WriteResult wr = reader.WriteEPC("00000000",
"AAAABBBBCCCCDDDDEEEEFFFF", BankType.TID,
"E2801105200045120429002O");
            if (wr.status == "0")
                Console.WriteLine("Write Success \nWrite Status:{0},
message:{1}", wr.status, wr.message);
            else
                Console.WriteLine("Write Fail \nWrite Status:{0}, message:{1}");
            Console.ReadLine();
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
    }
}
```

28.WriteBank

Write specified Bank。

- Method：

DataFormat.WriteResult WriteBank(BankType type, int start,

string pwd, string data, BankType targetBank, string mask)

- Request:

parameter	Type	Description
type	BankType	Write specified Bank TID Bank not writable BankTypePlease refer to Annex I
start	int	Starting address (Word)
pwd	string	Accesspwd
data	string	Data (hex)
targetBank	BankType	Specified bank for mask. BankType:Please refer to Annex I
mask	string	Specified tag

- Response：

Type	Description
writeResult	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex28_WriteBank
{
    class Ex28_WriteBank
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Write UserMemory Bank
            DataFormat.WriteResult wr = reader.WriteBank(BankType.USER, 0,
"00000000", "ABCDEF12", BankType.TID, "E2001992920C0081250014FE");
            if (wr.status == "0")
            {
                Console.WriteLine("Write Success \nWrite Status:{0},
message:{1}", wr.status, wr.message);
            }
            else
            {
                Console.WriteLine("Write Fail \nWrite Status:{0}, message:{1}");
```

```
                }
                Console.ReadLine();
                //Disconnect to reader
                int disResult = reader.Disconnct();
            }
        }
}
```

29.LockBank

Lock pecified tag bank。

- Method：

```
DataFormat.LockResult LockBank(BankType bank, LockType
locktype, string pwd, BankType targetbank, string mask)
```

- Request:

parameter	Type	Description
type	BankType	Lock pecified tag bank BankTypePlease refer to Annex I
LockType	LockType	Please refer to Annex I
pwd	string	Accesspwd
targetBank	BankType	Specified bank for mask. BankType:Please refer to Annex I
mask	string	Specified tag

- Response：

Type	Description
LockResult	Please refer to Annex III

Examples：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;
namespace Ex29_LockTag
{
    class Ex29_LockTag
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Lock EPC
            DataFormat.LockResult lr = reader.LockBank(BankType.EPC,
LockType.Lock, "00000000", BankType.TID, "E2001992920C0081250014FE");
            if (lr.status == "0")
                Console.WriteLine("Lock Success \nLock Status:{0},
message:{1}", lr.status, lr.message);
            else
                Console.WriteLine("Lock Fail \nLock Status:{0}, message:{1}",
lr.status, lr.message);
            Console.ReadLine();
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
    }
}
```

30.Kill

Kill tag。

- Method：

  DataFormat.KillResult Kill(string killPwd, BankType targetBank, string mask)

- Request:

parameter	Type	Description
killpwd	string	Accesspwd
targetBank	BankType	Specified bank for mask. BankType:Please refer to Annex I
mask	string	Specified tag

- Response：

Type	Description
KillResult	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex30_KillTag
{
    class Ex30_KillTag
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Kill Tag
            DataFormat.KillResult kr = reader.Kill("ABCD1234", BankType.TID,
"E2001992920C0081250014FE");
            if (kr.status == "0")
            {
                Console.WriteLine("Kill Success \nKill Status:{0}, message:{1}",
kr.status, kr.message);
            }
            else
            {
                Console.WriteLine("Kill Fail \nKill Status:{0}, message:{1}",
kr.status, kr.message);
            }
            Console.ReadLine();
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
    }
}
```

31.SetGPO

Set GPO。

- Method：

int SetGPO(int port, bool IsOn)

- Request:

parameter	Type	Description
port	int	GPO Port 1~4
IsOn	bool	True:on False:off

- Response

Type	Description
int	0: Success Not 0: Fail

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex31_SetGPO
{
    class Ex31_SetGPO
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set GPO
            int setResult = reader.SetGPO(1, true);
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
    }
}
```

32.GetGPO

Get GPO status。

- Method：

```
bool[] GetGPO()
```

- Result：

Type	Description
Bool[]	True:On False:Off

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex32_GetGPO
{
    class Ex32_GetGPO
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get GPO
            bool[] gpo = new bool[4];
            gpo = reader.GetGPO();
            Console.WriteLine("GPO1:{0}", gpo[0]);
            Console.WriteLine("GPO2:{0}", gpo[1]);
            Console.WriteLine("GPO3:{0}", gpo[2]);
            Console.WriteLine("GPO4:{0}", gpo[3]);
            Console.ReadLine();
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
    }
}
```

33.GetGPI

Get GPI status。

- Method：

```
bool[] GetGPI()
```

- Result：

Type	Description
Bool[]	True:High False:Low

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex33_GetGPI
{
    class Ex33_GetGPI
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get GPI
            bool[] gpi = new bool[4];
            gpi = reader.GetGPI();
            Console.WriteLine("GPI1:{0}", gpi[0]);
            Console.WriteLine("GPI2:{0}", gpi[1]);
            Console.WriteLine("GPI3:{0}", gpi[2]);
            Console.WriteLine("GPI4:{0}", gpi[3]);
            Console.ReadLine();
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
    }
}
```

34.GPI

Detection GPI。

- Result：

Type	Description
GPI	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;
namespace Ex34_GPI
{
    class Ex34_GPI
    {
        static AL510TCP reader = null;
        static void Main(string[] args)
        {
            reader = new AL510TCP();
            reader.AsyncGPIEnet += new
AL510TCP.AsyncGPIDelegate(reader_AsyncGPIEnet);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            Console.WriteLine("GPI EVENT:");
            Console.ReadLine();
            reader.AsyncGPIEnet -= new
AL510TCP.AsyncGPIDelegate(reader_AsyncGPIEnet);
            //Disconnect to reader
            int disResult = reader.Disconnct();
        }
        private static void reader_AsyncGPIEnet(object data)
        {
            if (data is AL510API.DataFormat.GPI)
            {
                AL510API.DataFormat.GPI gpi = new DataFormat.GPI();
                gpi = (AL510API.DataFormat.GPI)data;
                Console.WriteLine("GPI{0}, Status:{1}", gpi.PORT, gpi.status);
            }
        }
    }
}
```

35.SetUSBHID

Set USB mode is HID mode。

- Method：

```
int SetUSBHID()
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex35_SetUSBHID
{
    class Ex35_SetUSBHID
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set USB HID
            int setResult = reader.SetUSBHID();
            if (setResult == 0)
                Console.WriteLine("Set USB HID success");
            else
                Console.WriteLine("Set USB HID fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

36.SetUSBKeyboard

Set USB mode is Keyboard mode。

- Method：

```
int SetUSBKeyboard()
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex36_SetUSBKeyboard
{
    class Ex36_SetUSBKeyboard
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set USB Keyboard
            int setResult = reader.SetUSBKeyboard();
            if (setResult == 0)
                Console.WriteLine("Set USB Keyboard success");
            else
                Console.WriteLine("Set USB Keyboard fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

37.SetWifiAP

Set Wi-Fi AP。

- Method：

```
int SetWifiAP(string apConfig, string apPassphrase)
```

- Request：

parameter	Type	Description
apConfig	string	SSID
apPassphrase	string	Password

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex37_SetWifiAP
{
    class Ex37_SetWifiAP
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set WiFi AP
            int setResult = reader.SetWifiAP("DrayTek-Arizon",
"YEONTRAINING");
            if (setResult == 0)
                Console.WriteLine("Set Wifi AP success");
            else
                Console.WriteLine("Set Wifi AP fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

38.GetWifiAP

Get Reader Wi-Fi AP and password。

- Method：

```
string GetWifiAP()
```

- Result：

Type	Description
string	Get ap Config and ap Passphrase, separated by commas.

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex38_GetWifiAP
{
    class Ex38_GetWifiAP
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader WiFi AP
            string readerWifi = reader.GetWifiAP();
            string[] readerap = readerWifi.Split(',');
            Console.WriteLine("Wifi AP name: {0}, Wifi AP password: {1}",
readerap[0], readerap[1]);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

39.SetWifiStaticIP

Set Wi-Fi static IP。

- Method：

```
int SetWifiStaticIP(string IP, string port, string subnetmask, string gateway)
```

- Request：

parameter	Type	Description
IP	string	IP
port	string	port
subnetmask	string	Subnetmask
gateway	string	Gateway

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex39_SetWifiStaticIP
{
    class Ex39_SetWifiStaticIP
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set WiFi Static IP
            int setResult = reader.SetWifiStaticIP("10.35.2.144", "1001",
"255.255.255.0", "10.35.2.254");
            if (setResult == 0)
                Console.WriteLine("Set Wifi static IP success");
            else
                Console.WriteLine("Set Wifi static IP fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

40.GetWifiStaticIP

Get Wi-Fi static IP。

- Method：

```
string GetWifiStaticIP()
```

- Result：

Type	Description
string	Get IP and gaeteway and subnet mask and port, separated by commas.

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex40_GetWifiStaticIP
{
    class GetWifiStaticIP
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader Static IP
            string readerWifi = reader.GetWifiStaticIP();
            string[] readerStatic = readerWifi.Split(',');
            Console.WriteLine("Static IP: {0}, port: {1}, default gateway: {2},
subnet mask: {3}", readerStatic[0], readerStatic[3], readerStatic[1], readerStatic[2]);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

41.SetDHCPEnable

Open Wi-Fi DHCP。

- Method：

```
int SetDHCPEnable()
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex41_SetDHCPEnable
{
    class Ex41_SetDHCPEnable
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set WiFi DHCP enable
            int setResult = reader.SetDHCPEnable();
            if (setResult == 0)
                Console.WriteLine("Set Wifi DHCP enable success");
            else
                Console.WriteLine("Set Wifi DHCP enable fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

42.SetDHCPDisable

Close Wi-Fi DHCP。

- Method：

```
int SetDHCPDisable()
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex42_SetDHCPDisable
{
    class Ex42_SetDHCPDisable
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set WiFi DHCP disable
            int setResult = reader.SetDHCPDisable();
            if (setResult == 0)
                Console.WriteLine("Set Wifi DHCP disable success");
            else
                Console.WriteLine("Set Wifi DHCP disable fail");
            //Disconnect to reader
            int disResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

43.GetDHCPStatus

Get Reader DHCP status。

- Method：

```
string GetWifiStaticIP()
```

- Response：

Type	Description
int	=0: DHCP close, =1: DHCP open, <0: can’ t get.

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex43_GetDHCPStatus
{
    class Ex43_GetDHCPStatus
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader DHCP status
            int readerDHCP = reader.GetDHCPStatus();
            if (readerDHCP == 0)
                Console.WriteLine("DHCP: turn off");
            else if (readerDHCP == 1)
                Console.WriteLine("DHCP: turn on");
            else
                Console.WriteLine("DHCP: unable to get");
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

44.GetWifiIP

Get the current Wi-Fi IP。

- Method：

```
string GetWifiIP()
```

- Response：

Type	Description
string	Current IP address 0.0.0.0 is disconnect.

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex44_GetWifiIP
{
    class Ex44_GetWifiIP
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader WiFi IP
            string readerWifi = reader.GetWifiIP();
            Console.WriteLine("Wifi IP: {0}", readerWifi);
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

45.GetWifiAPInfo

Get the current Wi-Fi AP information。

- Method：

```
string GetWifiAPInfo()
```

- Result：

Type	Description
string	Wi-Fi AP information: SSID and BSSID and Chanel and RSSI, separated by commas.

Example:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex45_GetWifiAPInfo
{
    class Ex45_GetWifiAPInfo
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader WiFi AP info
            string readerWifi = reader.GetWifiAPInfo();
            if (readerWifi.Contains(','))
            {
                string[] readerap = readerWifi.Split(',');
                if (readerap.Length < 4)
                    Console.WriteLine("Readers have not yet connected to
WIFIAP");
                else
                    Console.WriteLine("SSID: {0}, BSSID: {1}, Chanel: {2},
RSSI: {3}", readerap[0], readerap[1], readerap[2], readerap[3]);
            }
            else
                Console.WriteLine("Readers have not yet connected to WIFIAP");
            //Disconnect to reader
            int disconResult = reader.Disconnct();
            Console.ReadLine();
        }
    }
}
```

46.OpenHeartbeat

Open hartbeat and return time。

- Method：

```
int OpenHeartbeat(int seconds)
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex46_OpenHeartbeat
{
    class Ex46_OpenHeartbeat
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            reader.Heartbeat += new
AL510TCP.HeartbeatDelegate(reader_HeartbeatEnet);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Set heartbeat
            int setResult = reader.OpenHeartbeat(5);
            if (setResult == 0)
                Console.WriteLine("Set heartbeat success");
            else
                Console.WriteLine("Set heartbeat fail");
            Console.ReadLine();
            //Disconnect to reader
            int disconResult = reader.Disconnct();
        }

        private static void reader_HeartbeatEnet(string data)
        {
            Console.WriteLine(data);
        }
    }
}
```

47.CloseHeartbeat

Close heartbeat。

- Method：

```
int CloseHeartbeat()
```

- Response

Type	Description
int	0: Success Not 0: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using AL510API;

namespace Ex47_CloseHeartbeat
{
    class Ex47_CloseHeartbeat
    {
        static void Main(string[] args)
        {
            AL510TCP reader = new AL510TCP();
            reader.Heartbeat += new
AL510TCP.HeartbeatDelegate(reader_HeartbeatEnet);
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Close heartbeat
            int setResult = reader.CloseHeartbeat();
            if (setResult == 0)
                Console.WriteLine("Close heartbeat success");
            else
                Console.WriteLine("Close heartbeat fail");
            //Disconnect to reader
            Console.ReadLine();
            int disconResult = reader.Disconnct();
        }
        private static void reader_HeartbeatEnet(string data)
        {
            Console.WriteLine(data);
        }
    }
}
```

48.GetModuleVersion

Get Reader Module version

- Method：

```
string readerMV = reader.GetModuleVersion()
```

- Response：

Type	Description
string	Reader Module Version

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using AL510API;

namespace Ex48_GetModuleVersion
{
    class Ex48_GetModuleVersion
    {
        static void Main(string[] args)
        {
            //Create an instance of the YRU150TCP class
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Get reader module version
            string readerMV = reader.GetModuleVersion();
            Console.WriteLine("Reader Module Version: {0}", readerMV);
            //Disconnect to reader
            Console.ReadLine();
        }
    }
}
```

49.FlashEMTag

Flashing light for EM tag

- Method：

```
bool flag = reader.FlashEMTag(BankType bank, int start,
string data, string seconds)
```

- Request:

parameter	Type	Description
bank	BankType	Target bank Please refer to Annex I
start	int	Starting address (Word)
data	string	Specified tag
seconds	string	Flashing seconds

- Response

Type	Description
bool	True: Success

	False: Fail

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using AL510API;

namespace Ex49_FlashEMTag
{
    class Ex49_FlashEMTag
    {
        static void Main(string[] args)
        {
            //Create an instance of the YRU150TCP class
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //EM Flash
            bool flag = reader.FlashEMTag(BankType.TID, 0,
"E280B0443C0000001210E2A4", "3");
            Console.WriteLine("Result: {0}", flag.ToString());
            //Disconnect to reader
            Console.ReadLine();
        }
    }
}
```

50.GetEMTemprature

Get temprature for EM tag

- Method：

```
EMResult flag = reader.GetEMTagTemprature(BankType bank,
int start, string data)
```

- Request:

parameter	Type	Description
bank	BankType	Target bank Please refer to Annex I
start	int	Starting address (Word)
data	string	Specified tag

- Response：

Type	Description
EMResult	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using AL510API;
using static AL510API.DataFormat;

namespace Ex50_GetEMTemprature
{
    class Ex50_GetEMTemprature
    {
        static void Main(string[] args)
        {
            //Create an instance of the YRU150TCP class
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read EM Temprature
            DataFormat.EMResult flag = new EMResult();
            flag = reader.GetEMTemprature(BankType.TID, 0,
"E280B0443C0000001210E2A4");
            Console.WriteLine("Action Result: {0} \nResult: {1} \nTemprature:
{2}", flag.actionStatus.ToString(), flag.resultStatus.ToString(), flag.data.ToString());
            //Disconnect to reader
            Console.ReadLine();
        }
    }
}
```

51.GetEMBatteryVoltage

Get battery voltage for EM tag

- Method：

```
EMResult flag = reader.GetEMBatteryVoltage (BankType bank,
int start, string data, string seconds)
```

- Request:

parameter	Type	Description
bank	BankType	Target bank Please refer to Annex I
start	int	Starting address (Word)
data	string	Specified tag

- Reasult：

Type	Description
EMResult	Please refer to Annex III

Example：

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using AL510API;
using static AL510API.DataFormat;

namespace Ex51_GetEMBatteryVoltage
{
    class Ex51_GetEMBatteryVoltage
    {
        static void Main(string[] args)
        {
            //Create an instance of the YRU150TCP class
            AL510TCP reader = new AL510TCP();
            //Connect to reader
            int result = reader.Connect("192.168.1.91");
            //Read EM BatteryVoltage
            DataFormat.EMResult flag = new EMResult();
            flag = reader.GetEMBatteryVoltage(BankType.TID, 0,
"E280B0443C0000001210E2A4");
            Console.WriteLine("Action Result: {0} \nResult: {1} \nBatteryVoltage:
{2}", flag.actionStatus.ToString(), flag.resultStatus.ToString(), flag.data.ToString());
            //Disconnect to reader
            Console.ReadLine();
        }
    }
}
```

Annex I

- BankType

AccessPwd
KillPwd
EPC
TID
USER

- LockType

Lock
PermaLock
UnLock

- Regulation

US	US 902~928
TW	TW 922~928
CN	CN 920~925
CN2	CN2 840~845
EU	EU 865~868
JP	JP 916~921

KR	KR 917~921
VN	VN 918~923

Annex II

Every version power range

Reader Version	Power (dbm)
VC2	-2~18 dbm
VD2	-2~25 dbm
VD3	0~27 dbm
VD4	2~29 dbm
V6(TBD)	-2~30 dbm

Annex III

Result Object description

- Vesrsion:

parameter	Type	Description
sofeware	string	Firmware Veasion
hardware	string	Hardware Version
reader	string	Reader ID
rfid	string	RF band regulation

- TagData:

parameter	Type	Description
Data	string	Tag Bank data
Antenna	int	antenna
Time	string	Read time (yyyy/MM/dd HH:mm:ss:fff)

- Tag:

parameter	Type	Description
EPC	string	EPC
TID	string	TID
UserData	string	User Memory
Antenna	int	Antenna
AccessPwd	string	Access Password
KillPwd	string	Kill Password
RSSI	string	RSSI
Time	string	Read time (yyyy/MM/dd HH:mm:ss:fff)
IP	string	Reader IP/COM

- WriteResult：

parameter	Type	Description
Status	string	0: Success 1: Fail

Message	string	

- LockResult：

parameter	Type	Description
Status	string	0: Success 1: Fail
Message	string	

- KillResult：

parameter	Type	Description
Status	string	0: Success 1: Fail
Message	string	

- GPI：

parameter	Type	Description
Port	string	GPI Port
Status	string	0: Low 1: High
IP	String	Reader IP/COM

- WiegandData：

parameter	Type	Description
wiegand	string	Wiegand
time	string	Read time (yyyy/MM/dd HH:mm:ss:fff)
message	String	Success: blank Fail : Error message

- Wiegand：

parameter	Type	Description
wiegand	string	Wiegand
time	string	Read time (yyyy/MM/dd HH:mm:ss:fff)
IP	String	Reader IP

- EMResult：

parameter	Type	Description
actionStatus	bool	Run result

resultStatus	bool	Get Status
data	double	Temperature or Battery Voltage