NetSDK_Intelligent Building

Programming Manual

V1.0.1

Foreword

General

Welcome to use NetSDK intelligent building (hereinafter referred to as "SDK") programming manual (hereinafter referred to as "the manual").

SDK, also known as network device SDK, is a development kit for developer to develop the interfaces for network communication among surveillance products such as Network Video Recorder (NVR), Network Video Server (NVS), IP camera (IPC), Speed Dome (SD), and intelligence devices.

The manual describes the SDK interfaces and processes of the general function modules for intelligent buildings. For more function modules and data structures, refer to *NetSDK Development Manual*.

The sample code provided in the manual are only for demonstrating the procedure and not assured to copy for use.

Intended Readers

- Software development engineers
- Product managers
- Project managers

Safety Instructions

The following categorized signal words with defined meaning might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
TIPS	Provides methods to help you solve a problem or save you time.
NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.1	Updated the dependent library information.	April 2021

Version	Revision Content	Release Time
V1.0.0	First release.	August 2020

About the Manual

- The manual is for reference only. If there is inconsistency between the manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the manual.
- The manual would be updated according to the latest laws and regulations of related jurisdictions. For detailed information, refer to the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, we reserve the right of final explanation.
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- All trademarks, registered trademarks and the company names in the manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurring when using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Glossary

This chapter provides the definitions to some terms appearing in the manual to help you understand the function of each module.

Term	Description
Scene mode	The alarm host has two scenario modes: "Outside" and "Home". Each of the modes has relevant configurations which get effective after you selected.
Outside/Home	When the scenarios switch to "Outside" or "Home", the planned protection zone will be armed and the others become bypass zones.
Separation	A kind of configuration to the intrusion alarm detecting circuit which cannot report alarms till being reset manually.
Analog alarm channel (analog protection zone)	The device has multiple alarm input channels to receive the external detection signals. When the channels are analog type, they are called analog alarm channels which can connect to analog detector and collect analog data.
Duress card	A type of access card. When the user is forced to open the access, the duress card will be recognized by the system, and then the alarm will be generated.

Table of Contents

1 Overview

1.1 General

This manual is about reference information of NetSDKCS, the packaging project of C# NetSDK library. The main content is main functions, interface functions, and callback functions.

Main functions include: Common functions, alarm host, access control and other functions.

- For files included by C# NetSDK library, see Table 1-1 and Table 1-2.

Table 1-1 Files included in Windows development kit

Library Type	**Windows Library File Name**	**Linux Library File Name**	**Library File Description**
Function library	dhnetsdk.dll	libdhnetsdk.so	Lib file
	avnetsdk.dll	libavnetsdk.so	Lib file
Configuration library	dhconfigsdk.dll	libdhconfigsdk.so	Lib file
Play (encoding/decoding) auxiliary library	dhplay.dll	libdhplay.so	Play library
	fisheye.dll	Not included	Fisheye correction library
dhnetsdk auxiliary library	IvsDrawer.dll	Not included	Image display library
	StreamConvertor.dll	libStreamConvertor.so	Transcoding library

- For files included by C# packaging project, see Table 1-2.

Table 1-2 Files included in NetSDKCS project

Library Type	**Library File Description**
NetSDK.cs	Packages C# interfaces, provides callback C# interface.
NetSDKStruct.cs	Stores structural body enumerations.
NetSDK.cs	Introduces C interfaces in NetSDK library to C# project.

- The function library and configuration library are required libraries.
- The function library is the main body of NetSDK, which is used for communication interaction between client and products, remotely controls device, queries device data, configures device data information, as well as gets and handles the streams.
- NetSDK is the base of NetSDKCS project. The OriginalSDK.cs file defined the citing path of NetSDK library.
- Customers can cite this packaging project in their own projects directly, or they can import files in the packaging project to their own projects, or they can package programs by referring to this packaging project.

1.2 Applicability

1.2.1 Supported System

- Recommended memory: No less than 512 M.
- Operating system:
  - ◇ Windows

  Support Windows 10/Windows 8.1/Windows 7 and Windows Server 2008/2003.
  - ◇ Linux

  Support the common Linux systems such as Red Hat/SUSE.

1.2.2 Supported Devices

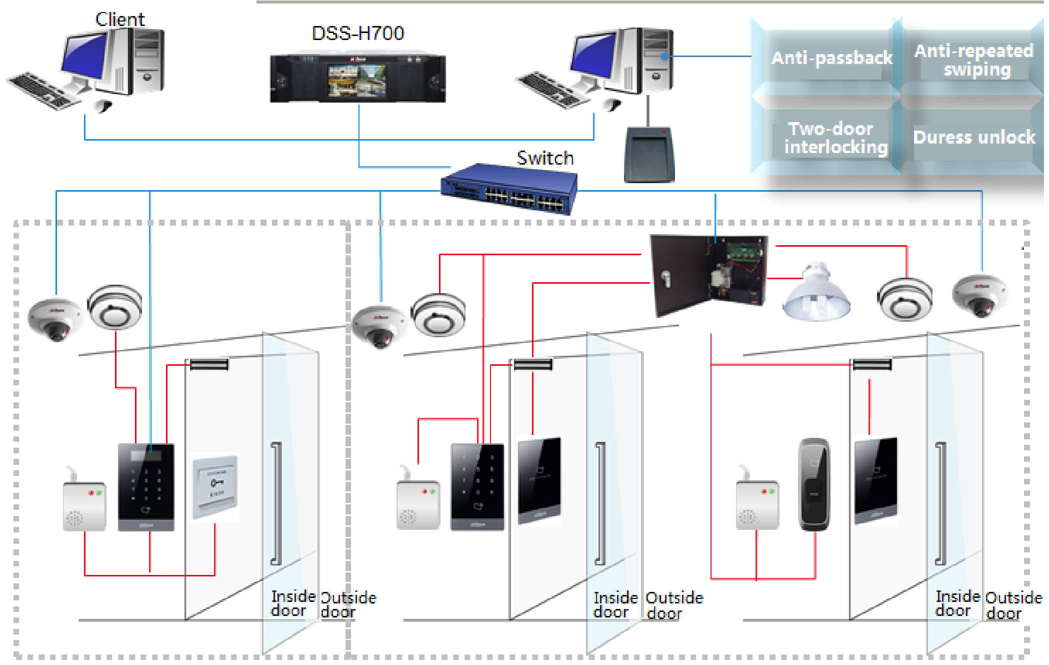
Not all models are listed here.

- Access Control (First-generation Device)
  - ◇ ASC1201B-D, C1201C-D
  - ◇ ASC1202B-S, ASC1202B-D, ASC1202C-S, ASC1202C-D
  - ◇ ASC1204B-S, SC1204C-S, ASC1204C-D
  - ◇ ASC1208C-S
  - ◇ ASI1201A, ASI1201A-D, ASI1201E, ASI1201E-D
  - ◇ ASI1212A(V2)、ASI1212A-D(V2)、ASI1212D、ASI1212D-D
- Access Control (Second-generation Device)
  - ◇ ASI1202M, ASI1202M-D
  - ◇ ASI7213X, ASI7213Y-D, ASI7213Y-V3
  - ◇ ASI7214X, ASI7214Y, ASI7214Y-D, ASI7214Y-V3
  - ◇ ASI7223X-A, SI7223Y-A, ASI7223Y-A-V3
  - ◇ ASI8213Y-V3
  - ◇ ASI8214Y, ASI8214Y(V2) , ASI8214Y-V3
  - ◇ ASI8223Y, ASI8223Y(V2) , ASI8223Y-A(V2) , ASI8223Y-A-V3
- Video Intercom
  - ◇ VTA8111A
  - ◇ VTO1210B-X, VTO1210C-X
  - ◇ VTO1220B
  - ◇ VTO2000A, VTO2111D
  - ◇ VTO6210B, VTO6100C
  - ◇ VTO9231D, VTO9241D
  - ◇ VTH1510CH, VTH1510A, VTH1550CH
  - ◇ VTH5221D, VTH5241D
  - ◇ VTS1500A, VTS5420B, VTS8240B, VTS8420B
  - ◇ VTT201, VTT2610C

1.3 Application Scenarios

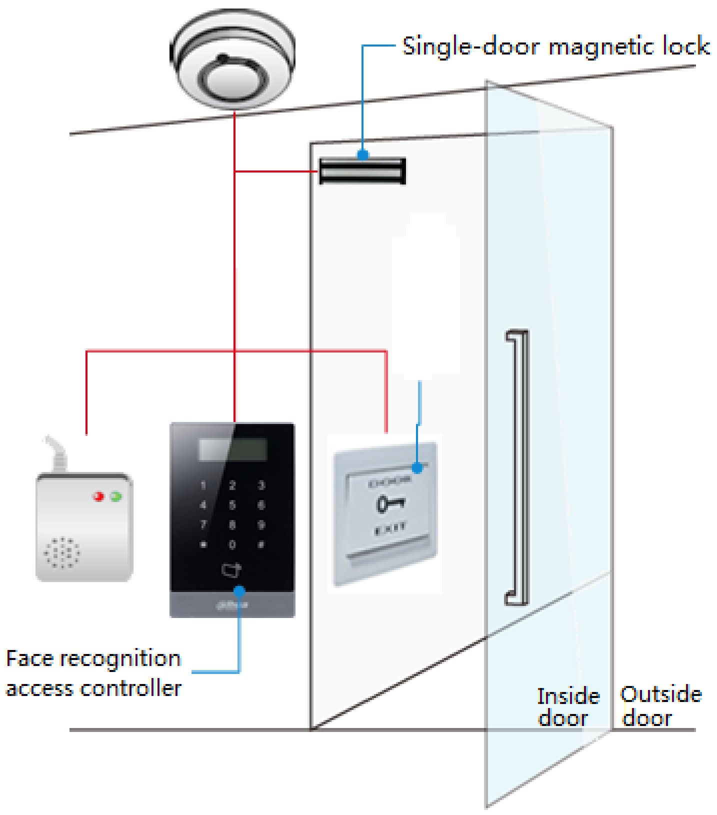
- Typical scenario.

Figure 1-1 Typical scenario



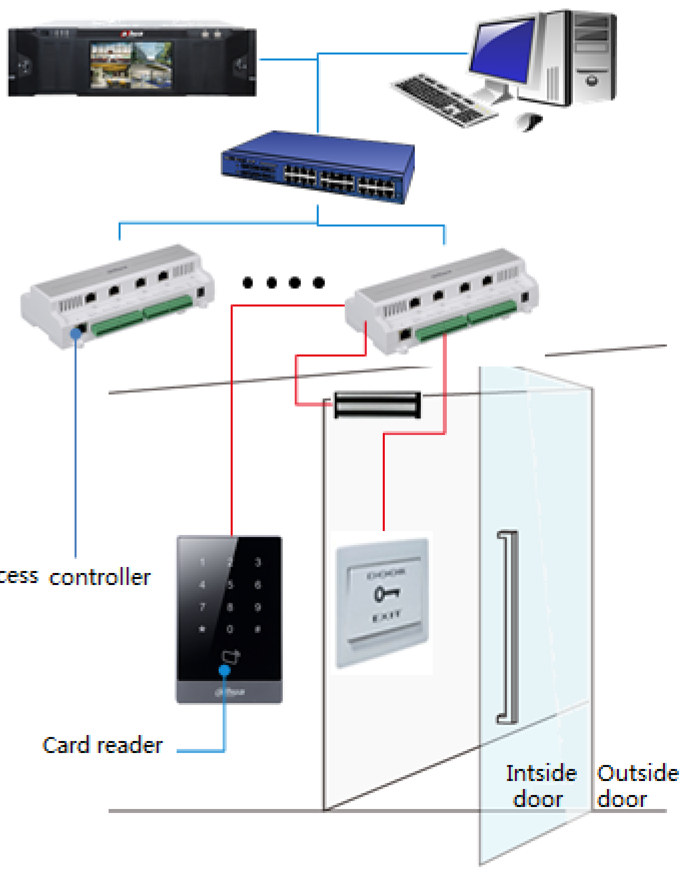
- Micro access control for small-sized office.

Figure 1-2 Micro access control



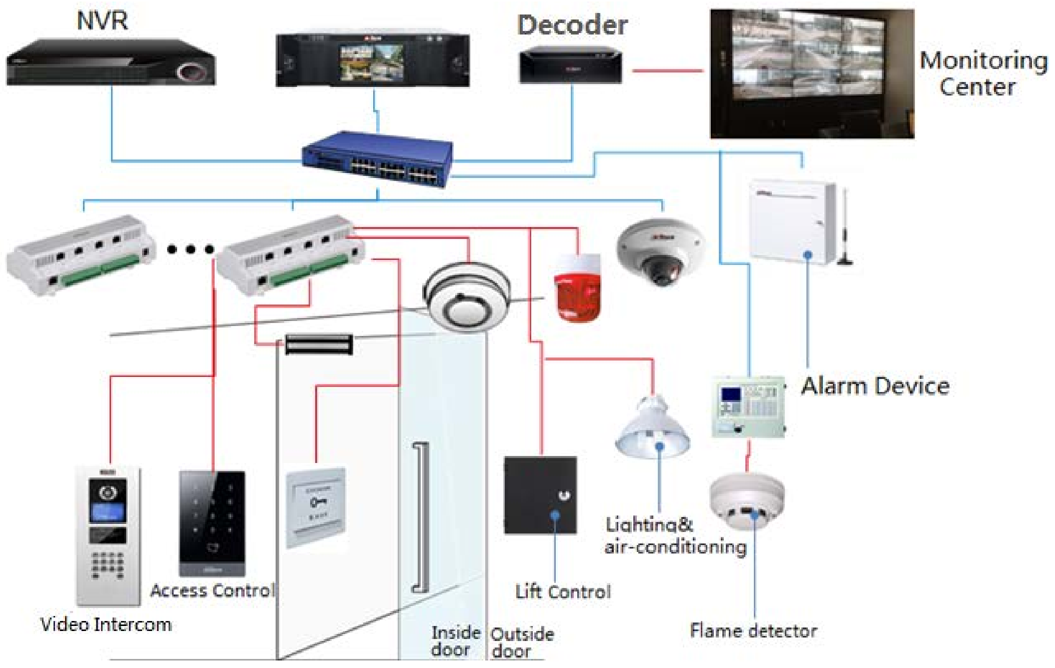
- Network access control for medium and small-sized intelligent building, treasury house and jail monitoring projects.

Figure 1-3 Network access control



- Enhanced access control.

Figure 1-4 Enhanced access control



2 Main Functions

2.1 General

2.1.1 SDK Initialization

2.1.1.1 Introduction

Initialization is the first step of SDK to conduct all the function modules. It does not have the surveillance function but can set some parameters that affect the SDK overall functions.

- Initialization occupies some memory.
- Only the first initialization is valid within one process.
- After using this function, call NETSDK cleaning interfaces to release resources.

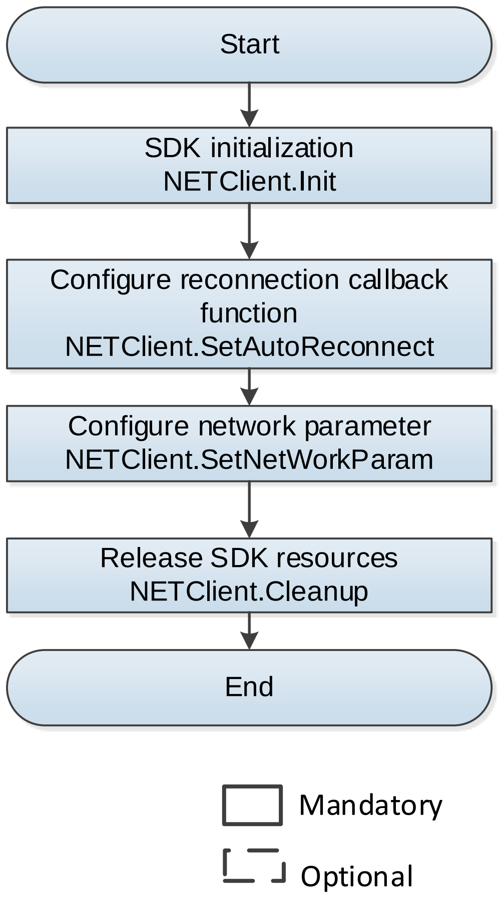
2.1.1.2 Interface Overview

Table 2-1 Description of SDK initialization interface

Interface	Description
NETClient.Init	NetSD initialization interface.
NETClient.Cleanup	NetSD cleaning interface.
NETClient.SetAutoReconnect	Configure reconnection callback interface.
NETClient.SetNetworkParam	Configure login network environment interface.

2.1.1.3 Process Description

Figure 2-1 SDK initialization


Start
SDK initialization
NETClient.Init
Configure reconnection callback function
NETClient.SetAutoReconnect
Configure network parameter
NETClient.SetNetWorkParam
Release SDK resources
NETClient.Cleanup
End
Mandatory
Optional

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 (Optional) Call **NETClient.SetAutoReconnect** to set reconnection callback to allow the auto reconnecting after disconnection within SDK.

Step 3 (Optional) Call **NETClient.SetNetworkParam** to network login parameter that includes the timeout period for device login and the number of attempts.

Step 4 After using all NetSDK functions, call **NETClient.Cleanup** to release NetSDK resources.

Note

- You need to call the interfaces **NETClient.Init** and **NETClient.Cleanup** in pairs. It supports single-thread multiple calling in pairs, but it is recommended to call the pair for only one time overall.

- Initialization: Internally calling the interface **NETClient.Init** multiple times is only for internal count without repeating applying resources.
- Cleaning up: The interface **NETClient.Cleanup** clears all the opened processes, such as login, real-time monitoring, and alarm subscription.
- Reconnection: NetSDK can set the reconnection function for the situations such as network disconnection and power disconnection. NetSDK will keep logging in to the device until login succeeded. Only the real-time monitoring, playback, intelligent event subscription, and alarm function will be resumed after the reconnection.

2.1.1.4 Sample Code

```
// statement static call back entrusting (for common entrusting, releasing before callback might occur)
private static fDisConnectCallBack m_DisConnectCallBack;        //disconnection callback
private static fHaveReConnectCallBack m_ReConnectCallBack;    /reconnection callback

// realize entrusting
m_DisConnectCallBack = new fDisConnectCallBack(DisConnectCallBack);
m_ReConnectCallBack = new fHaveReConnectCallBack(ReConnectCallBack);

// initialize NetSDK, realize disconnection callback during initialization
bool result = NETClient.Init(m_DisConnectCallBack, IntPtr.Zero, null);
if (!result)
{
MessageBox.Show(NETClient.GetLastError());//display error infomation
return;
}

//configure reconnection callback
NETClient.SetAutoReconnect(m_ReConnectCallBack, IntPtr.Zero);

//configure network parameter
NET_PARAM param = new NET_PARAM()
{
nWaittime = 10000,// waiting timeout duration (ms)
nConnectTime = 5000,// connection timeout (ms)
};
NETClient.SetNetworkParam(param);

// cleaning up initialization resource
NETClient.Cleanup();
```

2.1.2 Device Initialization

2.1.2.1 Introduction

The device is uninitialized by default. Please initialize the device before use.

- Uninitialized devices cannot be logged in.
- A password will be set up for the default admin account during initialization.
- You can reset the password if you forgot it.

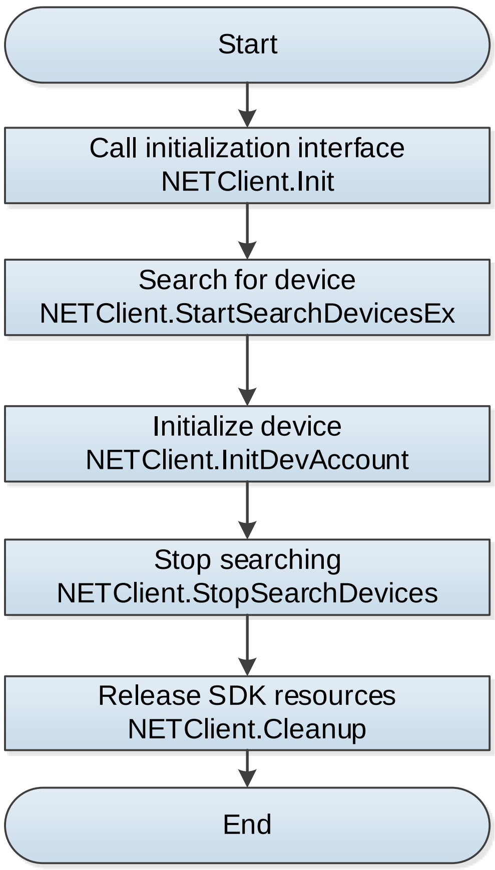
2.1.2.2 Interface Overview

Table 2-2 Description of device initialization interfaces

Interface	**Description**
NETClient.StartQueryDevicesEx	Search for devices in the LAN, and find the uninitialized devices.
NETClient.InitDevAccount	Device initialization interface.
NETClient.StopQueryDevices	Used to stop searching for devices.

2.1.2.3 Process Description

Figure 2-2 Device initialization



Start
Call initialization interface NETClient.Init
Search for device NETClient.StartSearchDevicesEx
Initialize device NETClient.InitDevAccount
Stop searching NETClient.StopSearchDevices
Release SDK resources NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.StartQueryDevicesEx** to Query for the devices within the LAN and get the device information (multi-thread calling is not supported).

Step 3 Call **NETClient.InitDevAccount** to initialize device.

Step 4 Call **NETClient.InitDevAccount** to stop Querying.

Step 5 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

Note

Because the interface is working in multicast, the host PC and device must be in the same multicast group.

2.1.2.4 Sample Code

```
// call the NETClient.StartQueryDevicesEx interface to get device infoin the callback function
//device initialization
NET_IN_INIT_DEVICE_ACCOUNT sInitAccountIn = {sizeof(sInitAccountIn)};
NET_OUT_INIT_DEVICE_ACCOUNT sInitAccountOut = {sizeof(sInitAccountOut)};
sInitAccountIn.byPwdResetWay = 1; //1 is mobile phone number resetting method, 2 is email address resetting method
strncpy(sInitAccountIn.szMac, szMac, sizeof(sInitAccountIn.szMac) - 1);// configure mac
strncpy(sInitAccountIn.szUserName, szUserName, sizeof(sInitAccountIn.szUserName) - 1);// configure username
strncpy(sInitAccountIn.szPwd, szPwd, sizeof(sInitAccountIn.szPwd) - 1);//configure password
strncpy(sInitAccountIn.szCellPhone, szRig, sizeof(sInitAccountIn.szCellPhone) - 1);// because the value of byPwdResetWay is 1, szCellPhone field needs to be configured; if the value of byPwdResetWay is 2, sInitAccountIn.szMail needs to be configured.
NETClient.InitDevAccount(&sInitAccountIn, &sInitAccountOut, 5000, NULL);
```

2.1.3 Device Login

2.1.3.1 Introduction

Device login, also called user authentication, is the precondition of all the other function modules.

You can obtain a unique login ID upon logging in to the device and should use the login ID when using other NetSDK interfaces. The login ID becomes invalid once logged out of the device.

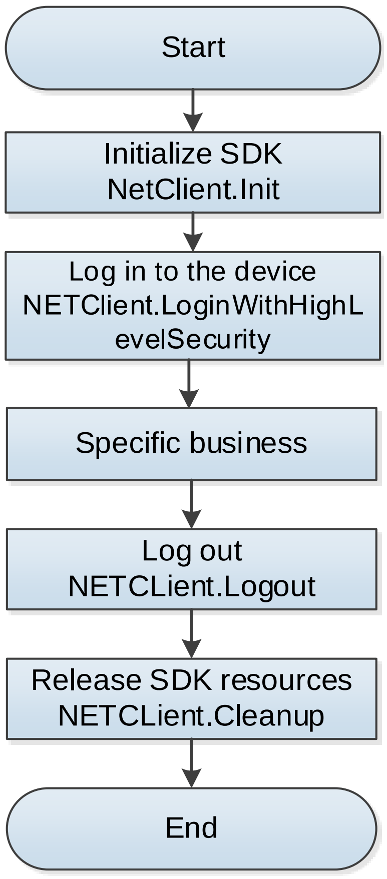
2.1.3.2 Interface Overview

Table 2-3 Description of device login interfaces

Interface	Description
NETClient.LoginWithHighLevelSecurity	Login interface.
NETClient.Logout	Logout interface.

2.1.3.3 Process Description

Figure 2-3 Login



Process

Step 1 Call **NETClient.Init** to initialize NetSDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 After successful login, you can realize the required function module.

Step 4 After using the function module, call **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

Note

- Login handle: When the login is successful, the returned value of the interface is not 0 (even the handle is smaller than 0, the login is also successful). One device can log in multiple times with different handle at each login. If there is not special function module, it is suggested to log in only one time. The login handle can be repeatedly used on other function modules.
- Duplicate handle: The login handle might be the same as the existing handle, and it is normal. For example, log in to device A, you will get loginIDA; log out loginIDA, and then log in to the device again, you will get LoginIDA again. However, in the life cycle of the handle, no duplicate handle will appear.
- Logout: The interface will release the opened functions in the login session internally, but it is not suggested to rely on the cleaning up function of the logout interface. For example, if you

opened the monitoring function, you should call the interface that stops the monitoring function when it is no longer required.

- Use login and logout in pairs: The login consumes some memory and socket information and releases sources once logged out.
- Login failure: It is suggested to check the failure through the error parameter (login error code) of the login interface.
- After the device is offline, the login ID of the device will be invalid, and the login ID will be valid again if the device is logged in again.

2.1.3.4 Sample Code

```
//log in to the devcice
NET_DEVICEINFO_Ex m_DeviceInfo = new NET_DEVICEINFO_Ex();
IntPtr m_LoginID = NETClient.LoginWithHighLevelSecurity(ip, port, name, password,
EM_LOGIN_SPAC_CAP_TYPE.TCP, IntPtr.Zero, ref m_DeviceInfo);
if (IntPtr.Zero == m_LoginID)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}

// log out of the device
if (IntPtr.Zero != m_LoginID)
{
bool result = NETClient.Logout(m_LoginID);
if (!result)
    {
    MessageBox.Show(this, NETClient.GetLastError());
    return;
}
m_LoginID = IntPtr.Zero;
}
```

2.1.4 Realtime Monitor

2.1.4.1 Introduction

Real-time monitoring obtains the real-time stream from the storage device or front-end device, which is an important part of the surveillance system.

SDK can get the main stream and sub stream from the device once logged in.

- Supports passing in the window handle for SDK to directly decode and play the stream (Windows system only).
- Supports calling the real-time stream to you for independent treatment.
- Supports saving the real-time record to the specific file through saving the callback stream or calling the SDK interface.

2.1.4.2 Interface Overview

Table 2-4 Description of real-time monitoring interfaces

Interface	Description
NETClient.RealPlay	Extension interface for starting the real-time monitoring.
NETClient.StopRealPlay	Extension interface for stopping the real-time monitoring.
NETClient.SaveRealData	Start saving the real-time monitoring data to the local path.
NETClient.StopSaveRealData	Stop saving the real-time monitoring data to the local path.
NETClient.SetRealDataCallBack	Extension interface for setting the real-time monitoring data callback.

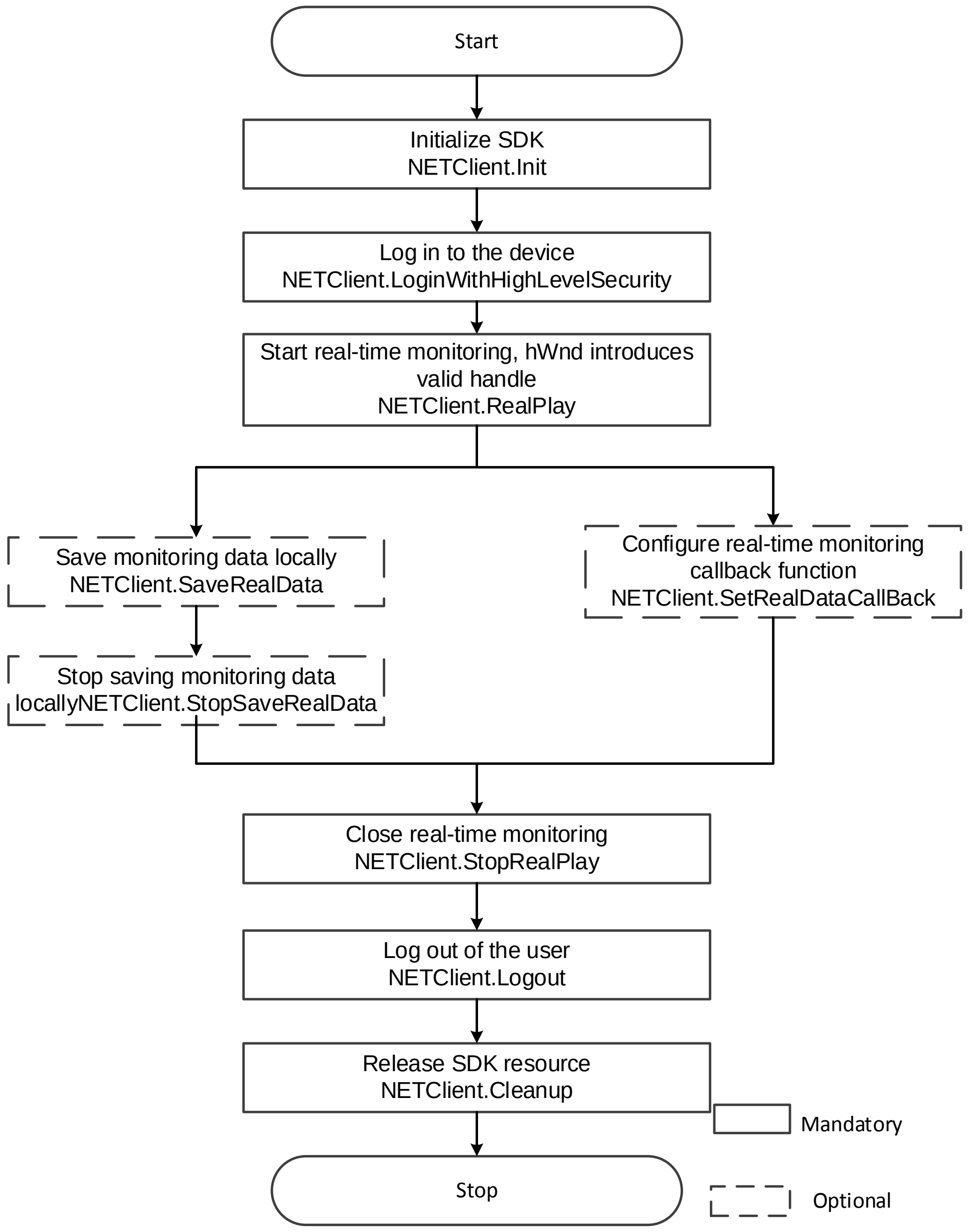
2.1.4.3 Process Description

You can realize the real-time monitoring through SDK integrated play library or your play library.

2.1.4.3.1 SDK Decoding Play

Call PlaySDK library from the SDK auxiliary library to realize real-time play.

Figure 2-4 SDK decoding play


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Start real-time monitoring, hWnd introduces valid handle
NETClient.RealPlay
Save monitoring data locally
NETClient.SaveRealData
Stop saving monitoring data locallyNETClient.StopSaveRealData
Configure real-time monitoring callback function
NETClient.SetRealDataCallBack
Close real-time monitoring
NETClient.StopRealPlay
Log out of the user
NETClient.Logout
Release SDK resource
NETClient.Cleanup
Stop
Mandatory
Optional

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.RealPlay** to start the real-time monitoring. The parameter **hWnd** is a valid window handle.

Step 4 (Optional) Call **NETClient.SaveRealData** to start saving the monitoring data.

Step 5 (Optional) Call **NETClient.StopSaveRealData** to end the saving process and generate a local video file.

Step 6 (Optional) If you call **NETClient.SetRealDataCallBackEx2**, you can choose to save or forward the video data. If the video data is saved as a file, see the step 4 and step 5.

Step 7 After using the real-time monitoring, call **NETClient.StopRealPlayEx** to stop it.

Step 8 After using the function module, call **NETClient.Logout** to log out of the device.

Step 9 After using all NetSDK functions, call **NETClient.Cleanup** to release SDK resources.

Note

- NetSDK decoding play only supports Windows system. You need to call the decoding after getting the stream for display in other systems.
- Multi-thread calling: Multi-thread calling is not supported for the functions within the same login session; however, multi-thread calling can deal with the functions of different login sessions although such calling is not recommended.
- Timeout: The application for monitoring resources in the interface should make some agreements with the device before requesting the monitoring data. There are some timeout settings (see "NET_PARAM structure"), and the field related to monitoring is **nGetConnInfoTime**. If there is timeout due to the reasons such as bad network connection, you can modify the value of **nGetConnInfoTime** bigger. The sample code is as follows. Call it for only one time after having called the **NETClient.Init**.

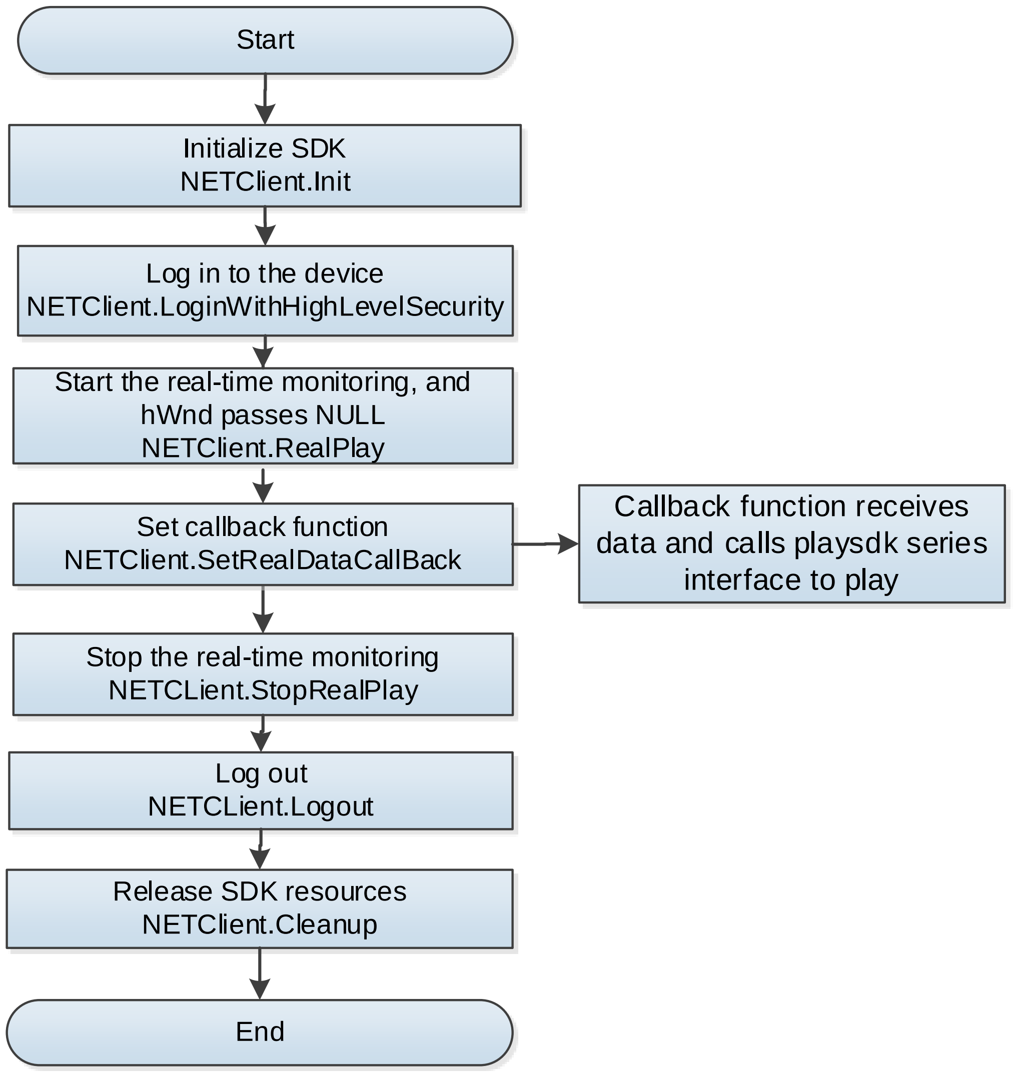
```
NET_PARAM param = new NET_PARAM()
{
nGetConnInfoTime = 5000,// get sub connection info timeout duration (ms)
};
NETClient.SetNetworkParam(param);
```

- Failed to repeat opening: Because some devices do not support opening the monitoring function on the same channel for multiple times in one login, these devices might fail from the second opening. In this case, you can try the following:
  - ◇ Close the opened channel first. For example, if you already opened the main stream video on the channel 1 and still want to open the sub stream video on the same channel, you can close the main stream video first and then open the sub stream video.
  - ◇ Log in twice to obtain two login handles to deal with the main stream and sub stream respectively.
- Calling succeeded but no image: SDK decoding needs to use dhplay.dll. It is suggested to check if dhplay.dll and its auxiliary library are missing under the running directory. See Table 1-2 and Table 1-1.

2.1.4.3.2 Calling the Third-party Decoding Play Library

SDK calls back the real-time monitoring stream to the user and then the user can call PlaySDK to perform decoding play.

Figure 2-5 Third-party decoding play


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Start the real-time monitoring, and hWnd passes NULL
NETClient.RealPlay
Set callback function
NETClient.SetRealDataCallBack
Callback function receives data and calls playsdk series interface to play
Stop the real-time monitoring
NETCLient.StopRealPlay
Log out
NETCLient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize NetSDK.

Step 2 Call NETClient.LoginWithHighLevelSecurity to log in to the device.

Step 3 After successful login, call **NETClient.RealPlay** to start real-time monitoring. The parameter **hWnd** is **NULL**.

Step 4 Call **NETClient.SetRealDataCallBack** to set the real-time data callback.

Step 5 In the callback, pass the data to PlaySDK to finish decoding.

Step 6 After using the real-time monitoring, call **NETClient.StopRealPlay** to stop it.

Step 7 After using the function module, call **NETClient.Logout** to log out of the device.

Step 8 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

Note

- Stream format: It is recommended to use PlaySDK for decoding.
- Image lag:

◇ When using PlaySDK for decoding, there is a default channel cache size (the PLAY_OpenStream interface in PlaySDK) for decoding. If the stream resolution value is big, it is recommended to change the parameter value (for example changed to 3*1024*1024).

◇ NetSDK callbacks can only move into the next process after returning from you. Do not do time consuming operations; otherwise the performance could be affected.

2.1.4.4 Sample Code

2.1.4.4.1 SDK Decoding Play

```
//take enabling main stream of the first channel as an example, hWnd is window handle of the
  interface
IntPtr m_RealPlayID = NETClient.RealPlay(m_LoginID, 0, hWnd, EM_RealPlayType.Realplay);
if (IntPtr.Zero == m_RealPlayID)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}

// Disable monitoring
bool ret = NETClient.StopRealPlay(m_RealPlayID);
if (!ret)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}
m_RealPlayID = IntPtr.Zero;
```

2.1.4.4.2 Calling Play Library

```
// take enabling main stream of the first channel as an example
IntPtr m_RealPlayID = NETClient.RealPlay(m_LoginID, 0, null, EM_RealPlayType.Realplay);
if (IntPtr.Zero == m_RealPlayID)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}
//configure real-time monitoring callback function
private static fRealDataCallBackEx2 m_RealDataCallBackEx2;
m_RealDataCallBackEx2 = new fRealDataCallBackEx2(RealDataCallBackEx);
NETClient.SetRealDataCallBack(m_RealPlayID, m_RealDataCallBackEx2, IntPtr.Zero,
EM_REALDATA_FLAG.DATA_WITH_FRAME_INFO | EM_REALDATA_FLAG.PCM_AUDIO_DATA |
EM_REALDATA_FLAG.RAW_DATA | EM_REALDATA_FLAG.YUV_DATA);
private void RealDataCallBackEx(IntPtr lRealHandle, uint dwDataType, IntPtr pBuffer, uint dwBufSize,
IntPtr param, IntPtr dwUser)
{
```

```
// to get stream data from the device, you need to call PlatSDK interfaces. For details, see NetSDK
monitoring demo source code
// for example, save data, send data, transform to YUV and more.
EM_REALDATA_FLAG type = (EM_REALDATA_FLAG)dwDataType;
        switch (type)
        {
                case EM_REALDATA_FLAG.RAW_DATA:
                        //processing operations
                break;
        }
}

// close monitoring
bool ret = NETClient.StopRealPlay(m_RealPlayID);
if (!ret)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}
m_RealPlayID = IntPtr.Zero;
```

2.1.5 Voice Talk

2.1.5.1 Introduction

Voice talk realizes the voice interaction between the local platform and the environment where front-end devices are located, to meet the need of voice communication between the local platform and the site environment.

This chapter introduces how to use NetSDK to realize the voice talk with devices.

2.1.5.2 Interface Overview

Table 2-5 Description of voice talk interfaces

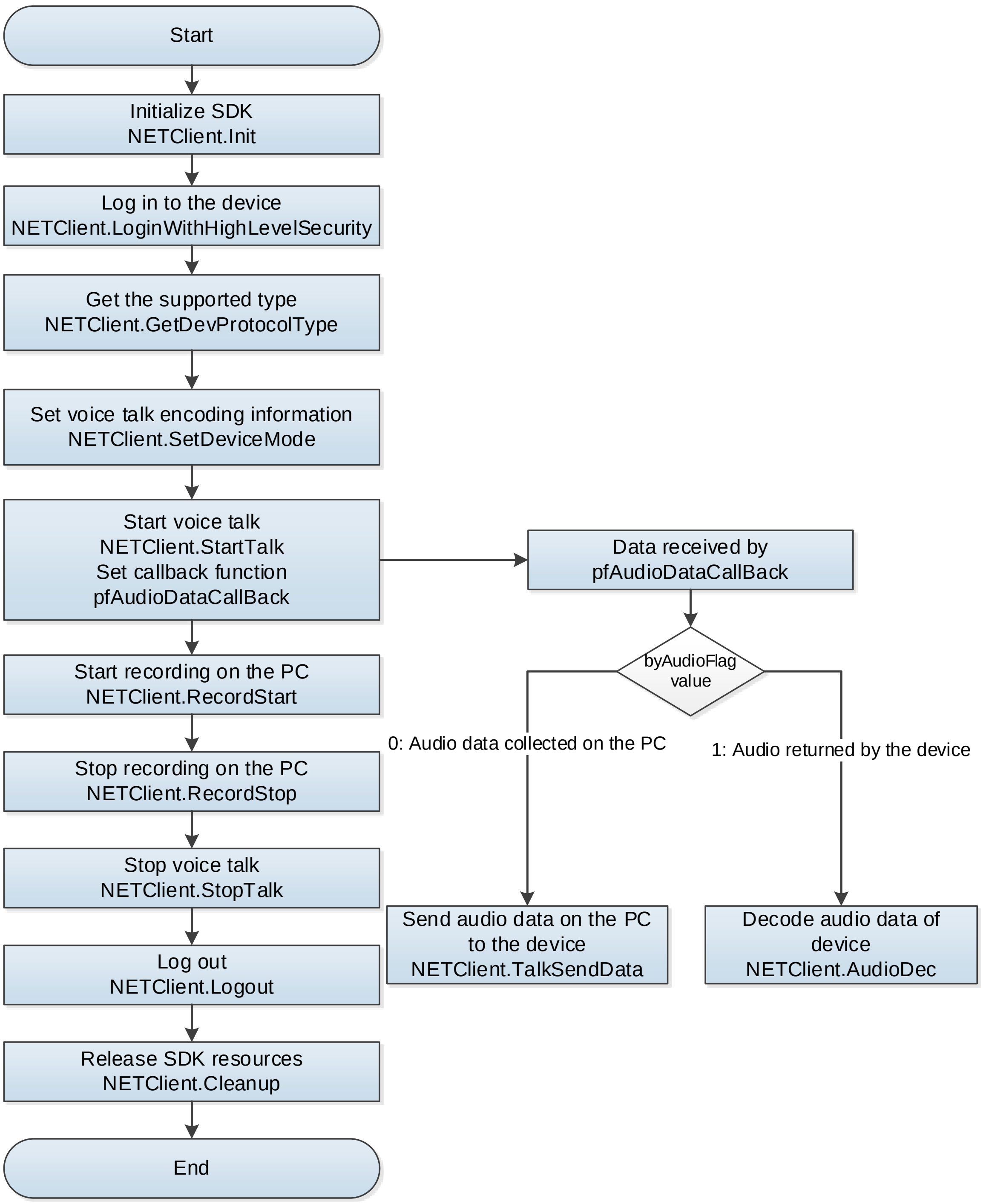
Interface	Description
NETClient.StartTalk	Extension interface for starting the voice talk.
NETClient.StopTalk	Extension interface for stopping the voice talk.
NETClient.RecordStart	Extension interface for starting the client record (valid only in Windows system).
NETClient.RecordStop	Extension interface for stopping the client record (valid only in Windows system).
NETClient.TalkSendData	Send voice data to the device.
NETClient.AudioDec	Extension interface for decoding audio data (valid only in Windows system).
NETClient.StartTalk	Set device voice talk mode.

2.1.5.3 Process Description

When NetSDK collects the audio data from the local audio card or receives the audio data from the front-end devices, it will call the audio data callback. You can call the NetSDK interface in the callback to send the local audio data collected to the front-end devices, or call the NetSDK interface to decode and play back the audio data received from the front-end devices.

The process is valid only in Windows system.

Figure 2-6 Second-generation voice talk



Process

Step 1 Call **NETClient.Init** to initialize NetSDK.

Step 2 After successful initialization, call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.SetDeviceMode** to get support for the second-generation or third-generation voice talk. The value of emType should be EM_USEDEV_MODE.TALK_ENCODE_TYPE

Step 4 Call **NETClient.SetDeviceMode** to set voice talk parameters. The value of emType should be EM_USEDEV_MODE.TALK_SPEAK_PARAM.

Step 5 Call **NETClient.StartTalk** to set callback and start voice talk. In the callback, call **NETClient.AudioDec** to decode the audio data sent from the decoding device, and call **NETClient.TalkSendData** to send the audio data from the PC to the device.

Step 6 Call **NETClient.RecordStart** to start recording on the PC. After this interface is called, the voice talk callback set by **NETClient.StartTalk** will receive the local audio data.

Step 7 After using the voice talk function, call **NETClient.RecordStop** to stop recording.

Step 8 Call **NETClient.StopTalk** to stop voice talk.

Step 9 Call NETClient.Logout to log out of the device.

Step 10 After using NetSDK, call NETClient.Cleanup to release NetSDK resources.

Note

- Voice encoding format: The example uses the common PCM format. SDK supports getting the voice encoding format supported by the device. The sample code is detailed in the SDK package on the website. If the default PCM can meet the requirement, it is not necessary to get the voice encoding format supported by the device.
- No sound at the device: The audio data needs to be collected from devices such as microphone. It is recommended to check if the microphone or other equivalent device is plugged in and if the interface **NETClient.RecordStart** succeeded in returning.

2.1.5.4 Sample Code

```
// Configure voice talk coding info. Take PCM as an example.
IntPtr talkEncodePointer = IntPtr.Zero;
NET_DEV_TALKDECODE_INFO talkCodeInfo = new NET_DEV_TALKDECODE_INFO();
talkCodeInfo.encodeType = EM_TALK_CODING_TYPE.PCM;
talkCodeInfo.dwSampleRate = SampleRate;
talkCodeInfo.nAudioBit = AudioBit;
talkCodeInfo.nPacketPeriod = PacketPeriod;
talkCodeInfo.reserved = new byte[60];
talkEncodePointer = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_DEV_TALKDECODE_INFO)));
Marshal.StructureToPtr(talkCodeInfo, talkEncodePointer, true);
NETClient.SetDeviceMode(m_LoginID, EM_USEDEV_MODE.TALK_ENCODE_TYPE, talkEncodePointer);

// Configure voice talk mode
IntPtr talkSpeakPointer = IntPtr.Zero;
NET_SPEAK_PARAM speak = new NET_SPEAK_PARAM();
speak.dwSize = (uint)Marshal.SizeOf(typeof(NET_SPEAK_PARAM));
speak.nMode = 0;
speak.bEnableWait = false;
speak.nSpeakerChannel = 0;
talkSpeakPointer = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_SPEAK_PARAM)));
Marshal.StructureToPtr(speak, talkSpeakPointer, true);
NETClient.SetDeviceMode(m_LoginID, EM_USEDEV_MODE.TALK_SPEAK_PARAM, talkSpeakPointer);

// configure voice talk callback function.
private static fAudioDataCallBack m_AudioDataCallBack;
m_AudioDataCallBack = new fAudioDataCallBack(AudioDataCallBack);

// start voice talk
IntPtr m_TalkID = NETClient.StartTalk(m_LoginID, m_AudioDataCallBack, IntPtr.Zero);
if(IntPtr.Zero == m_TalkID)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}

// realize callback function
private void AudioDataCallBack(IntPtr lTalkHandle, IntPtr pDataBuf, uint dwBufSize, byte
byAudioFlag, IntPtr dwUser)
{
if (lTalkHandle == m_TalkID)
{
if (SendAudio == byAudioFlag)
{
//send talk data send voice data
NETClient.TalkSendData(lTalkHandle, pDataBuf, dwBufSize);
}
else if (ReviceAudio == byAudioFlag)
{
//here call netsdk decode audio,or can send data to other user. Call netsdk to decode voice data, or
you can send voice data to other users.
try
{
NETClient.AudioDec(pDataBuf, dwBufSize);
}
catch (Exception ex)
{
Console.WriteLine(ex.Message);
}
}
}
}

// start recording audio on the PC
bool ret = NETClient.RecordStart(m_LoginID);
if(!ret)
```

```
{
NETClient.StopTalk(m_TalkID);
m_TalkID = IntPtr.Zero;
MessageBox.Show(this, NETClient.GetLastError());
return;
}

// Stop audio recording on the PC
NETClient.RecordStop(m_LoginID);

// stop voice talk
NETClient.StopTalk(m_TalkID);
m_TalkID = IntPtr.Zero;

DHDEV_TALKDECODE_INFO curTalkMode;
curTalkMode.encodeType = DH_TALK_PCM;
curTalkMode.nAudioBit = 16;
curTalkMode.dwSampleRate = 8000;
curTalkMode.nPacketPeriod = 25;
NETClient.SetDeviceMode(lLoginHandle, DH_TALK_ENCODE_TYPE, &curTalkMode);
// start voice talk
lTalkHandle = NETClient.StartTalk(lLoginHandle, AudioDataCallBack, (DWORD)NULL);
if(0 != lTalkHandle)
{
    BOOL bSuccess = NETClient.RecordStart(lLoginHandle);
}

// stop audio recording locally
if (!NETClient.RecordStop(lLoginHandle))
{
printf("CLIENT_RecordStop Failed!Last Error[%x]\n", CLIENT_GetLastError());
}
// stop audio recording
if (0 != lTalkHandle)
{
NETClient.StopTalk(lTalkHandle);
}
void CALLBACK AudioDataCallBack(LLONG lTalkHandle, char *pDataBuf, DWORD dwBufSize, BYTE
byAudioFlag, DWORD dwUser)
{
if(0 == byAudioFlag)
    {
        // send sound card data received from PC to devices
        LONG lSendLen = NETClient.TalkSendData(lTalkHandle, pDataBuf, dwBufSize);
        if(lSendLen != (LONG)dwBufSize)
        {
            printf("NETClient.TalkSendData Failed!Last Error[%x]\n" , CLIENT_GetLastError());
        }
    }
    else if(1 == byAudioFlag)
    {
        // send voice data from devices to NetSDK to decode and play the voice data
        NETClient.AudioDec(pDataBuf, dwBufSize);
    }
}
```

2.1.6 Alarm Host

2.1.6.1 Introduction

Alarm sending is realized by: Logging in to the device through NetSDK and then subscribing alarm from devices. Once the device detected alarm events and sent the events to NetSDK, the alarm info can be received through alarm callback function.

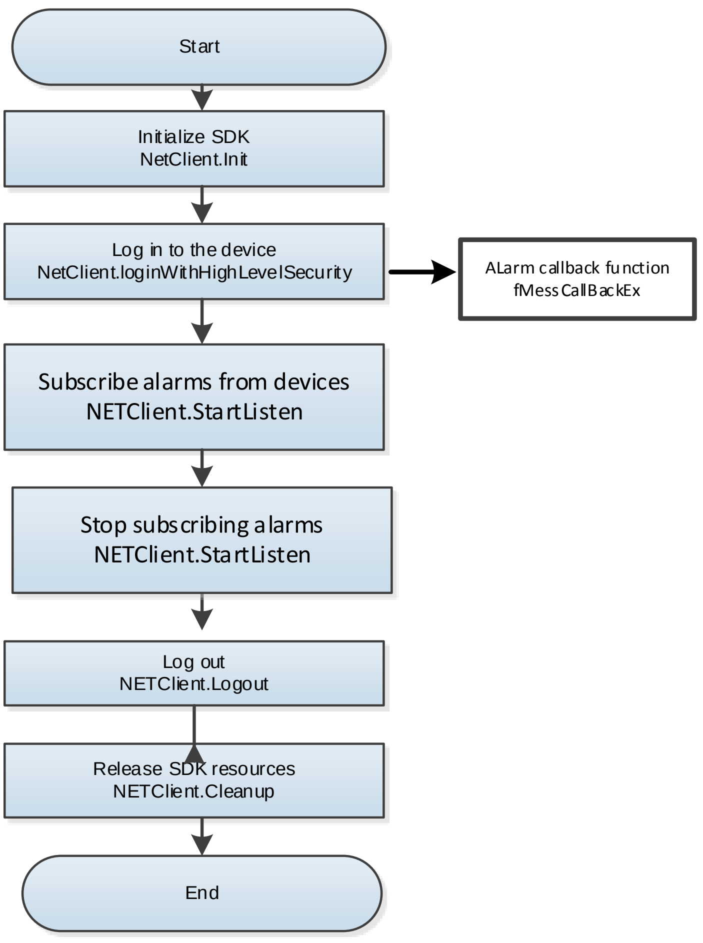
2.1.6.2 Interface Overview

Table 2-6 Description of arming and disarming interfaces

Interface	Description
NETClient.SetDVRMessCallBack	Set up alarm callback function interface.
NETClient.StartListen	Extension interface for alarm subscription
NETClient.StopListen	Used for stop alarm subscription.

2.1.6.3 Process Description

Figure 2-7 Arming and disarming



Process

Step 1 Call **NETClient.Init** to initialize NetSDK.

Step 2 Call **NETClient.SetDVRMessCallBack** to set alarm callback function. This interface needs to be called before alarm subscription.

Step 3 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 4 Call **NETClient.StartListen** to subscribe alarm from devices. After the subscription, alarm events sent by devices will be sent to users through the callback function set up in **NETClient.SetDVRMessCallBack**.

Step 5 After the alarm sending is completed, call NETClient.StopListen to stop the subscription of alarm events from devices.

Step 6 After completing this process, call **CLIENT_Logout** to log out of the device.

Step 7 After using all SDK functions, call **CLIENT_Cleanup** to release SDK resources.

Note

- If alarms cannot be sent anymore, you need to check if the device is disconnected from the network. If the device is disconnected from the network, the alarm subscription will be resumed automatically.
- Please asynchronously process alarm info in the alarm callback function fMessCallBack. Do not do too many operations in the callback or the callback might be blocked.

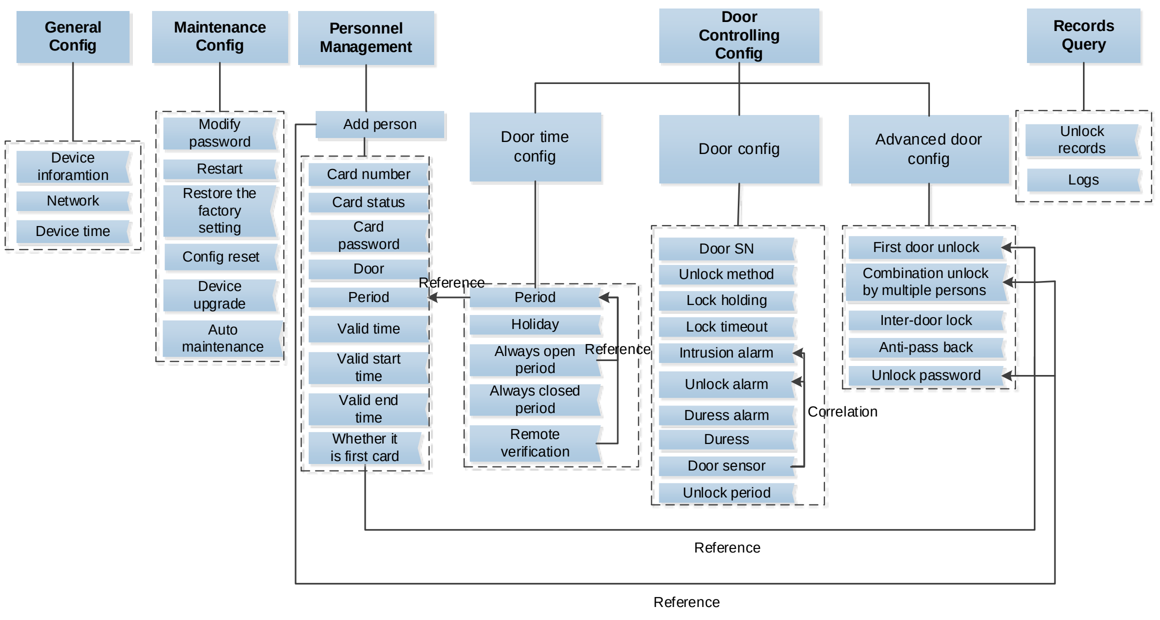
2.1.6.4 Sample Code

```
// statement static call back entrusting
private static fMessCallBackEx m_AlarmCallBack;
m_AlarmCallBack = new fMessCallBackEx(AlarmCallBackEx);
// configure alarm callback
NETClient.SetDVRMessCallBack(m_AlarmCallBack, IntPtr.Zero);

// alarm callback process
private bool AlarmCallBackEx(int lCommand, IntPtr lLoginID, IntPtr pBuf, uint dwBufLen, IntPtr
pchDVRIP, int nDVRPort, bool bAlarmAckFlag, int nEventID, IntPtr dwUser)
{
EM_ALARM_TYPE type = (EM_ALARM_TYPE)lCommand;
    switch (type)
{
case EM_ALARM_TYPE.ALARM_ALARM_EX:
data = new byte[dwBufLen];
            Marshal.Copy(pBuf, data, 0, (int)dwBufLen);
            for (int i = 0; i < dwBufLen; i++)
            {
if (data[i] == ALARM_START) // alarm start
                {//custom process
                }
                else //alarm stop
                {
}
             }
             break;
case EM_ALARM_TYPE.ALARM_RECORD_SCHEDULE_CHANGE:
{
NET_ALARM_RECORD_SCHEDULE_CHANGE_INFO                    info                    =
(NET_ALARM_RECORD_SCHEDULE_CHANGE_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_RECORD_SCHEDULE_CHANGE_INFO));
// custom process
}
break;
         default:
             Console.WriteLine(lCommand.ToString("X"));
```

```
                        break;
            }
            return true;
}

// subscribe alarm
bool ret = NETClient.StartListen(m_LoginID);
if (!ret)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}
// stop subscribing alarm
bool ret = NETClient.StopListen(m_LoginID);
if (!ret)
{
MessageBox.Show(this, NETClient.GetLastError());
return;
}
```

2.2 Access Controller/All-in-one Fingerprint Machine (First-generation)

Figure 2-8 Function calling relationship



Here are the meanings of reference and correlation.

- Reference: The function pointed by the end point of the arrow refers to the function pointed by the start point of the arrow.
- Correlation: Whether the function started by the arrow can be used normally is related to the function configuration pointed by the end point of the arrow.

2.2.1 Access Control

2.2.1.1 Introduction

It is used to control the opening and closing of the access, and get door sensor status. Without personnel information, it can remotely open and close the door directly.

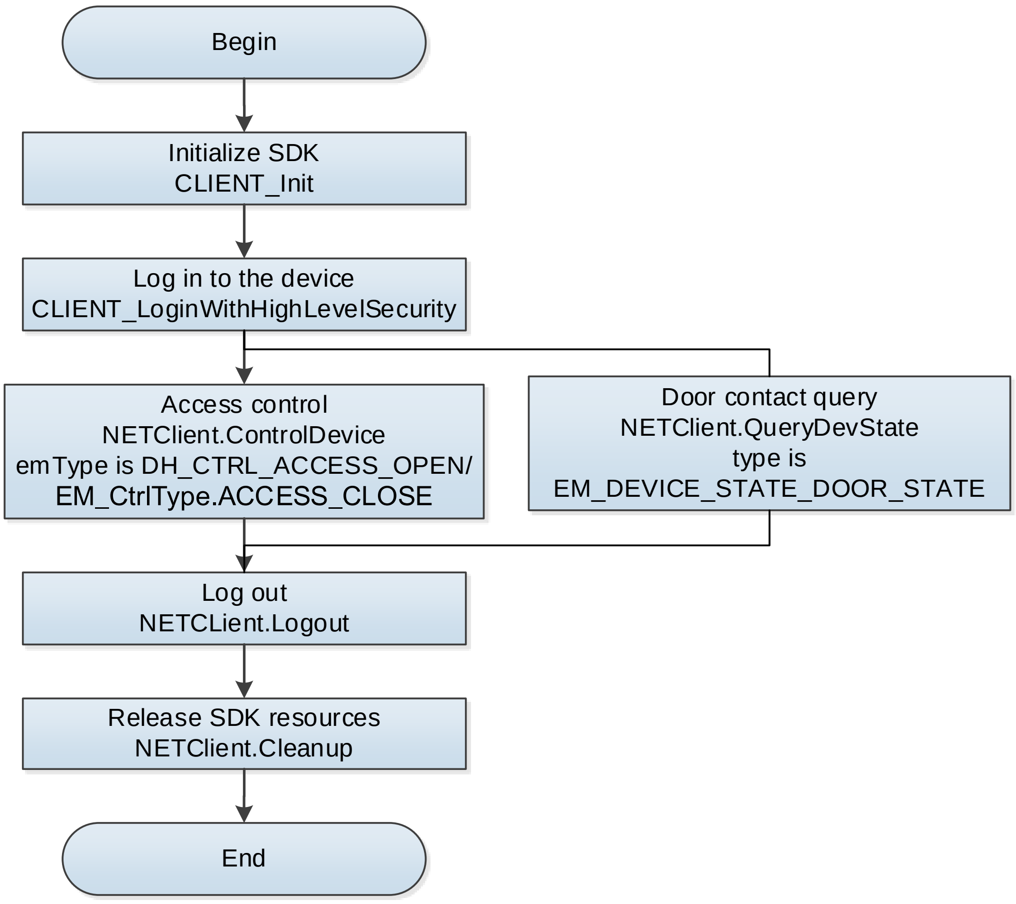
2.2.1.2 Interface Overview

Table 2-7 Description of access control interface

Interface	Description
NETClient.ControlDevice	Device control extension interface.
NETClient.QueryDevState	Status query interface.

2.2.1.3 Process Description

Figure 2-9 Access control



Process

Step 1 Call **CLIENT_Init** to initialize SDK.

Step 2 Call **CLIENT_LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **CLIENT_ControlDeviceEx** to control the access.

- Open the access: The **emType** value is **EM_CtrlType.ACCESS_OPEN**.
- Close the access: The **emType** value is **EM_CtrlType.ACCESS_CLOSE**.

Step 4 Call **NETClient.QueryDevState** to query the door sensor.
Type: EM_DEVICE_STATE_DOOR _STATE
pBuf: NET_DOOR_STATUS_INFO.

Step 5 After completing this process, call **NETClient.Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.2.1.4 Sample Code

```
    #region Open door access control -unlock
IntPtr m_LoginHandle = IntPtr.Zero;
GetConfig();
if (cfg.emState != EM_CFG_ACCESS_STATE.NORMAL)
{
    cfg.emState = EM_CFG_ACCESS_STATE.NORMAL;
    SetConfig(cfg);
}
NET_CTRL_ACCESS_OPEN openInfo = new NET_CTRL_ACCESS_OPEN();
openInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_ACCESS_OPEN));
openInfo.nChannelID = 0;
openInfo.szTargetID = IntPtr.Zero;
openInfo.emOpenDoorType = EM_OPEN_DOOR_TYPE.REMOTE;
IntPtr inPtr = IntPtr.Zero;
try
{
    inPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_ACCESS_OPEN)));
    Marshal.StructureToPtr(openInfo, inPtr, true);
    bool ret = NETClient.ControlDevice(m_LoginID, EM_CtrlType.ACCESS_OPEN, inPtr,
10000);
    if (!ret)
    {
        MessageBox.Show(NETClient.GetLastError());
        return;
    }
}
finally
{
    Marshal.FreeHGlobal(inPtr);
}
MessageBox.Show("Open Door success(unclocked successfully)
#endregion

#region Close door access control -lock
IntPtr m_LoginHandle = IntPtr.Zero;
GetConfig();
if (cfg.emState != EM_CFG_ACCESS_STATE.NORMAL)
{
    cfg.emState = EM_CFG_ACCESS_STATE.NORMAL;
    SetConfig(cfg);
}
NET_CTRL_ACCESS_CLOSE closeInfo = new NET_CTRL_ACCESS_CLOSE();
closeInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_ACCESS_CLOSE));
closeInfo.nChannelID = 0;
IntPtr inPtr = IntPtr.Zero;
try
{
    inPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_ACCESS_CLOSE)));
    Marshal.StructureToPtr(closeInfo, inPtr, true);
    bool ret = NETClient.ControlDevice(m_LoginID, EM_CtrlType.ACCESS_CLOSE,
inPtr, 10000);
    if (!ret)
    {
        MessageBox.Show(NETClient.GetLastError());
        return;
    }
}
finally
{
    Marshal.FreeHGlobal(inPtr);
}
MessageBox.Show("Close door success(locked successfully)");
#endregion
#region Query door state check door contact status
NET_DOOR_STATUS_INFO info = new NET_DOOR_STATUS_INFO();
info.dwSize = (uint)Marshal.SizeOf(typeof(NET_DOOR_STATUS_INFO));
info.nChannel = 0;
object objInfo = info;
bool ret = NETClient.QueryDevState(m_LoginID, EM_DEVICE_STATE.DOOR_STATE, ref
objInfo, typeof(NET_DOOR_STATUS_INFO), 10000);
if (!ret)
```

```
{
        MessageBox.Show(NETClient.GetLastError());
        return;
}
info = (NET_DOOR_STATUS_INFO)objInfo;

switch (info.emStateType)
{
        case EM_NET_DOOR_STATUS_TYPE.BREAK:
                MessageBox.Show("Door abnormal unlock");
                break;
        case EM_NET_DOOR_STATUS_TYPE.CLOSE:
                MessageBox.Show("Door closed");
                break;
        case EM_NET_DOOR_STATUS_TYPE.OPEN:
                MessageBox.Show("Door opened");
                break;
        case EM_NET_DOOR_STATUS_TYPE.UNKNOWN:
                MessageBox.Show("Unknown");
                break;
        default:
                break;
}
#endregion
```

2.2.2 Alarm Event

2.2.2.1 Introduction

The process to get event is that, you call the SDK interface. SDK actively connect to the device, and subscribe to alarm from the device, including door opening event and alarm event. Device sends events to the SDK immediately when events generate. Stop susbcribtion if you want to stop receiving events from device.

2.2.2.2 Interface Overview

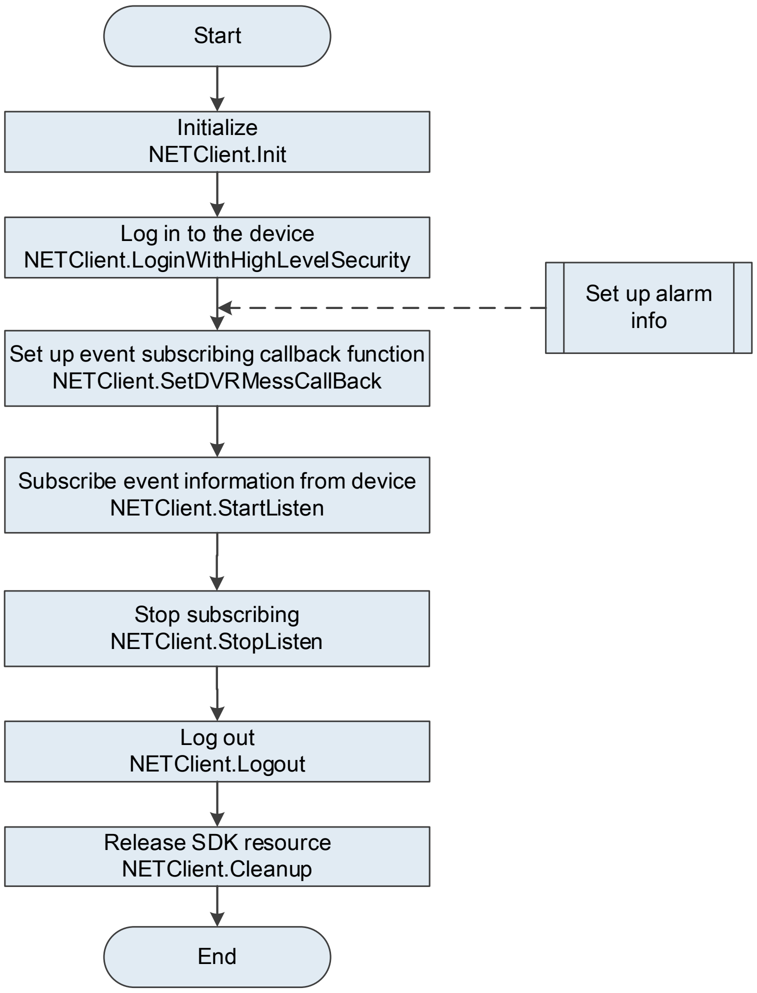
Table 2-8 Description of alarm event interface

Interface	**Description**
NETClient.StartListen	Subscribe to alarm from the device.

NETClient.SetDVRMessCallBack	Set device message callback to get the current device status information; this function is independent of the calling sequence, and the SDK is not called back by default. The callback must call the alarm message subscription interface **NETClient.StartListen** first before it takes effect.
NETClient.StopListen	Stop subscription.

2.2.2.3 Process Description

Figure 2-10 Alarm event



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Set alarm arming config (you can ignore this if the alarm arming has been configured).

Step 4 Set the alarm callback NETClient.SetDVRMessCallBack.

Step 5 Call **CLIENT.StartListenEx** to subscribe to alarm information from the device.

Step 6 After the alarm reporting process ends, you need to stop the interface for subscribing to alarm **CLIENT.StopListen**.

Step 7 After completing this process, call **CLIENT.Logout** to log out of the device.

Step 8 After using all SDK functions, call **CLIENT.Cleanup** to release SDK resources.

2.2.2.4 Sample Code

```
// statement static call back entrusting
private static fMessCallBackEx m_AlarmCallBack;
m_AlarmCallBack = new fMessCallBackEx(AlarmCallBackEx);
// configure alarm callback
NETClient.SetDVRMessCallBack(m_AlarmCallBack, IntPtr.Zero);
// alarm callback process
private bool AlarmCallBack(int lCommand, IntPtr lLoginID, IntPtr pBuf, uint dwBufLen, IntPtr
pchDVRIP, int nDVRPort, bool bAlarmAckFlag, int nEventID, IntPtr dwUser)
        {
            EM_ALARM_TYPE type = (EM_ALARM_TYPE)lCommand;
            var item = new ListViewItem();
            switch (type)
            {
                case EM_ALARM_TYPE.ALARM_ACCESS_CTL_EVENT:
                    NET_ALARM_ACCESS_CTL_EVENT_INFO access_info =
(NET_ALARM_ACCESS_CTL_EVENT_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_ACCESS_CTL_EVENT_INFO));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(access_info.stuTime.ToString());
                    item.SubItems.Add("Entry(进门)");
                    item.SubItems.Add(access_info.szUserID.ToString());
                    item.SubItems.Add(access_info.szCardNo.ToString());
                    item.SubItems.Add(access_info.nDoor.ToString());
                    switch (access_info.emOpenMethod)
                    {
                        case EM_ACCESS_DOOROPEN_METHOD.CARD:
                            item.SubItems.Add("Card(卡)");
                            break;
                        case EM_ACCESS_DOOROPEN_METHOD.FACE_RECOGNITION:
                            item.SubItems.Add("Face recognition");
                            break;
                        default:
                            item.SubItems.Add("Unknown");
                            break;
                    }
                    if (access_info.bStatus)
                    {
                        item.SubItems.Add("Success");
                    }
                    else
                    {
                        item.SubItems.Add("Failure");
                    }

                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                case EM_ALARM_TYPE.ALARM_ACCESS_CTL_NOT_CLOSE:
                    NET_ALARM_ACCESS_CTL_NOT_CLOSE_INFO            notclose_info            =
(NET_ALARM_ACCESS_CTL_NOT_CLOSE_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_ACCESS_CTL_NOT_CLOSE_INFO));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(notclose_info.stuTime.ToString());
                    item.SubItems.Add("NotClose");
                    item.SubItems.Add("");
                    item.SubItems.Add("");
                    item.SubItems.Add(notclose_info.nDoor.ToString());
                    item.SubItems.Add("");
                    if (notclose_info.nAction == ALARM_START)
                    {
                        item.SubItems.Add("Star");
                    }
                    else if (notclose_info.nAction == ALARM_STOP)
                    {
                        item.SubItems.Add("Stop");
                    }
                    else
                    {
                        item.SubItems.Add("");
                    }

                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                case EM_ALARM_TYPE.ALARM_ACCESS_CTL_BREAK_IN:
                    NET_ALARM_ACCESS_CTL_BREAK_IN_INFO          breakin_info          =
(NET_ALARM_ACCESS_CTL_BREAK_IN_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_ACCESS_CTL_BREAK_IN_INFO));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(breakin_info.stuTime.ToString());
                    item.SubItems.Add("BreakIn(闯入)");
                    item.SubItems.Add("");
                    item.SubItems.Add("");
                    item.SubItems.Add(breakin_info.nDoor.ToString());
                    item.SubItems.Add("");
                    item.SubItems.Add("");

                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                case EM_ALARM_TYPE.ALARM_ACCESS_CTL_REPEAT_ENTER:
                    NET_ALARM_ACCESS_CTL_REPEAT_ENTER_INFO          repeat_info          =
(NET_ALARM_ACCESS_CTL_REPEAT_ENTER_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_ACCESS_CTL_REPEAT_ENTER_INFO));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(repeat_info.stuTime.ToString());
                    item.SubItems.Add("RepeakIn");
                    item.SubItems.Add("");
                    item.SubItems.Add(repeat_info.szCardNo.ToString());
                    item.SubItems.Add(repeat_info.nDoor.ToString());
                    item.SubItems.Add("");
                    item.SubItems.Add("");

                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                case EM_ALARM_TYPE.ALARM_ACCESS_CTL_DURESS:
                    NET_ALARM_ACCESS_CTL_DURESS_INFO              duress_info              =
(NET_ALARM_ACCESS_CTL_DURESS_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_ACCESS_CTL_DURESS_INFO));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(duress_info.stuTime.ToString());
                    item.SubItems.Add("Duress");
                    item.SubItems.Add(duress_info.szUserID.ToString());
                    item.SubItems.Add(duress_info.szCardNo.ToString());
                    item.SubItems.Add(duress_info.nDoor.ToString());
                    item.SubItems.Add("");
                    item.SubItems.Add("");

                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                case EM_ALARM_TYPE.ALARM_CHASSISINTRUDED:
                    NET_ALARM_CHASSISINTRUDED_INFO chassisintruded_info =
(NET_ALARM_CHASSISINTRUDED_INFO)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_CHASSISINTRUDED_INFO));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(chassisintruded_info.stuTime.ToString());
                    if (chassisintruded_info.szReaderID.Length > 0)
                    {
                        item.SubItems.Add("CardreaderAntidemolition(card reader
tampering)");
                    }
                    else
                    {
                        item.SubItems.Add("ChassisIntruded(local device tampering)");
                    }
                    item.SubItems.Add("");
                    item.SubItems.Add("");
                    item.SubItems.Add(chassisintruded_info.nChannelID.ToString());
                    item.SubItems.Add("");
                    if (chassisintruded_info.nAction == ALARM_START)
                    {
                        item.SubItems.Add("Start(start)");
                    }
                    else if (chassisintruded_info.nAction == ALARM_STOP)
                    {
                        item.SubItems.Add("Stop(stop)");
                    }
                    else
                    {
                        item.SubItems.Add("");
                    }
                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                case EM_ALARM_TYPE.ALARM_ALARM_EX2:
                    NET_ALARM_ALARM_INFO_EX2            alarm_info            =
(NET_ALARM_ALARM_INFO_EX2)Marshal.PtrToStructure(pBuf,
typeof(NET_ALARM_ALARM_INFO_EX2));
                    item.Text = Alarm_Index.ToString();
                    item.SubItems.Add(alarm_info.stuTime.ToString());
                    item.SubItems.Add("AlarmEx2(external alarm)");
                    item.SubItems.Add("");
                    item.SubItems.Add("");
                    item.SubItems.Add(alarm_info.nChannelID.ToString());
                    item.SubItems.Add("");
                    if (alarm_info.nAction == ALARM_START)
                    {
                        item.SubItems.Add("Start(start)");
                    }
                    else if (alarm_info.nAction == ALARM_STOP)
                    {
                        item.SubItems.Add("Stop(stop)");
                    }
                    else
                    {
                        item.SubItems.Add("");
                    }

                    this.BeginInvoke(new Action(() =>
                    {
                        listView_event.BeginUpdate();
                        listView_event.Items.Insert(0, item);
                        if (listView_event.Items.Count > ListViewCount)
                        {
                            listView_event.Items.RemoveAt(ListViewCount);
                        }
                        listView_event.EndUpdate();
                    }));
                    Alarm_Index++;
                    break;
                default:
                    break;
            }

            return true;
        }
        #endregion
// alarm supscription
            if (!m_IsListen)
            {
                bool ret = NETClient.StartListen(m_LoginID);
                if (!ret)
                {
                    MessageBox.Show(this, NETClient.GetLastError());
                    return;
                }
                m_IsListen = true;
                btn_StartListen.Text = "StopListen(stop subscription)";
            }
            else
            {
                bool ret = NETClient.StopListen(m_LoginID);
                if (!ret)
                {
                    MessageBox.Show(this, NETClient.GetLastError());
                    return;
                }
                m_IsListen = false;
                listView_Event.Items.Clear();
                btn_StartListen.Text = "StartListen(start sunscription)";
            }
```

2.2.3 Viewing Device Information

2.2.3.1 Capability Set Query

2.2.3.1.1 Introduction

The process to view device information is that, you issue a command through SDK to the access control device, to get the capability of another device.

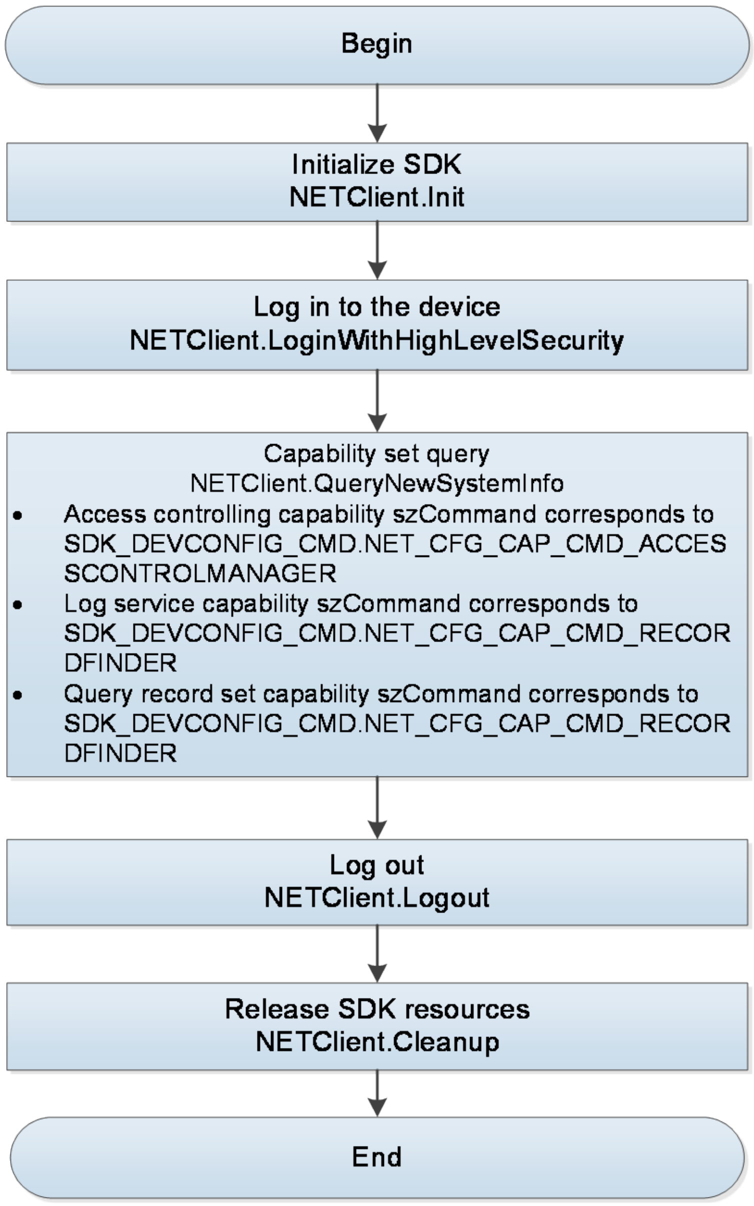
2.2.3.1.2 Interface Overview

Table 2-9 Description of capability set query interface

Interface	Description
NETClient.QueryNewSystemInfo	Query information on system capabilities (sucha as logs, record sets, and door control capabilities).

2.2.3.1.3 Process Description

Figure 2-11 Device information viewing


Begin
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Capability set query
NETClient.QueryNewSystemInfo
Access controlling capability szCommand corresponds to SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_ACCESSCONTROLMANAGER
Log service capability szCommand corresponds to SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_RECORDFINDER
Query record set capability szCommand corresponds to SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_RECORDFINDER
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.QueryNewSystemInfo** to query access control capability set.

Table 2-10 Description and structure of szCommand

szCommand	Description	szOutBuffer
SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_ACCESSCONTROLMANAGER	Access controlling capability	CFG_CAP_ACCESSCONTROL
SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_RECORDFINDER	Log getting capability	CFG_CAP_LOG

SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_RECORDFINDER	Query record set capability	CFG_CAP_RECORDFINDER_INFO

Step 4 After completing this process, call the **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call the **NETClient.Cleanup** to release SDK resources.

2.2.3.1.4 Sample Code

```
#region Query Access control caps get access controlling capability
            this.button_Query.Enabled = false;
            textBox_Caps.Text = "";
            textBox_Version.Text = "";

            int nCount = 0;
            CFG_CAP_ACCESSCONTROL info = new CFG_CAP_ACCESSCONTROL();
            object obj = info;
            string strCommand = SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_ACCESSCONTROLMANAGER;
            try
            {
                bool bQuery = NETClient.QueryNewSystemInfo(loginID, -1, strCommand, ref obj, typeof(CFG_CAP_ACCESSCONTROL), 3000);
                if (bQuery)
                {
                    nCount = ((CFG_CAP_ACCESSCONTROL)obj).nAccessControlGroups;
                    textBox_Caps.Text = "Access Control Caps(Access controlling capability):" + System.Environment.NewLine + "Access Control Num( number of access control devices)=" + nCount.ToString() + System.Environment.NewLine + System.Environment.NewLine;
                    this.button_Query.Enabled = true;
                }
            }
            catch (NETClientExcetion ex)
            {
                Console.WriteLine("GetAccessCount error:" + ex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine("GetAccessCount error:" + ex.Message);
            }
            #endregion

            #region Query Record Finder caps get record searching capability
            NET_CFG_CAP_RECORDFINDER_INFO RecordInfo = new
NET_CFG_CAP_RECORDFINDER_INFO();
            obj = RecordInfo;
            strCommand = SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_RECORDFINDER;
            try
            {
                bool bQuery = NETClient.QueryNewSystemInfo(loginID, 0, strCommand, ref obj,
typeof(NET_CFG_CAP_RECORDFINDER_INFO), 3000);
                if (bQuery)
                {
                    int nMaxPageSize =
((NET_CFG_CAP_RECORDFINDER_INFO)obj).nMaxPageSize;
                    textBox_Caps.Text += "RecordSetFinder Cap(record searching capability):" +
System.Environment.NewLine + "MaxPageSize(max records on each page)=" +
nMaxPageSize.ToString() + System.Environment.NewLine + System.Environment.NewLine;
                    this.button_Query.Enabled = true;
                }
            }
            catch (NETClientExcetion ex)
            {
                Console.WriteLine("GetAccessCount error:" + ex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine("GetAccessCount error:" + ex.Message);
            }
            #endregion

            #region Query log caps log service getting capability
            NET_CFG_CAP_LOG LogInfo = new NET_CFG_CAP_LOG();
            obj = LogInfo;
            strCommand = SDK_DEVCONFIG_CMD.NET_CFG_CAP_CMD_LOG;
            try
            {
                bool bQuery = NETClient.QueryNewSystemInfo(loginID, 0, strCommand, ref obj,
typeof(NET_CFG_CAP_LOG), 3000);

                if (bQuery)
                {
                    int dwMaxLogItems = (int)((NET_CFG_CAP_LOG)obj).dwMaxLogItems;
                    int dwMaxPageItems = (int)((NET_CFG_CAP_LOG)obj).dwMaxPageItems;
                    string strSupportStartNo = "";
                    if (((NET_CFG_CAP_LOG)obj).bSupportStartNo)
                    {
                        strSupportStartNo = "Yes";
                    }
                    else
                    {
                        strSupportStartNo = "No";
                    }

                    string strSupportTypeFilter = "";
                    if (((NET_CFG_CAP_LOG)obj).bSupportTypeFilter)
                    {
                        strSupportTypeFilter = "Yes";
                    }
                    else
                    {
                        strSupportTypeFilter = "No";
                    }

                    string strSupportTimeFilter = "";
                    if (((NET_CFG_CAP_LOG)obj).bSupportTimeFilter)
                    {
                        strSupportTimeFilter = "Yes";
                    }
                    else
                    {
                        strSupportTimeFilter = "No";
                    }
                    textBox_Caps.Text += "Log Cap(log service getting capability):" +
System.Environment.NewLine + "LogMaxItem(max number of logs)=" + dwMaxLogItems.ToString() +
System.Environment.NewLine;
                    textBox_Caps.Text += "MaxPageLogItem(max number of logs on each
page)=" + dwMaxPageItems.ToString() + System.Environment.NewLine;
                    textBox_Caps.Text += "IsSupportStartNo(support starting number or not)="
+ strSupportStartNo + System.Environment.NewLine;
                    textBox_Caps.Text += "IsSupportTypeFilter(support type filtering or not)=" +
strSupportTypeFilter + System.Environment.NewLine;
                    textBox_Caps.Text += "IsSupportTimeFilter(support time filtering or not)=" +
strSupportTimeFilter + System.Environment.NewLine;
                    this.button_Query.Enabled = true;
```

```
        }
    }
    catch (NETClientExcetion ex)
    {
        Console.WriteLine("GetAccessCount error:" + ex.Message);
    }
    catch (Exception ex)
    {
        Console.WriteLine("GetAccessCount error:" + ex.Message);
    }
    #endregion
```

2.2.3.2 Viewing Device Version and MAC

2.2.3.2.1 Introduction

To view device version and MAC, you need to issue a command through SDK to the access control device, to get device information such as serial number, version number and Mac address.

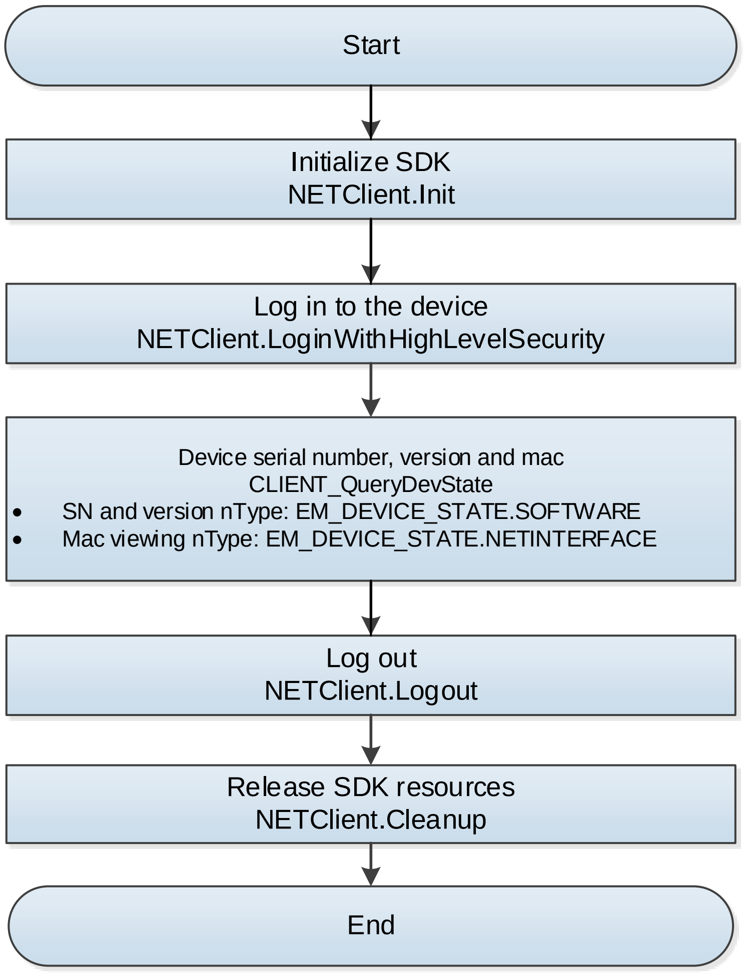
2.2.3.2.2 Interface Overview

Table 2-11 Description of interfaces for viewing device version and MAC

Interface	Description
NETClient.QueryDevState	Query device status (query serial number, software version, compiling time, MAC address).

2.2.3.2.3 Process Description

Figure 2-12 Device information viewing


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Device serial number, version and mac
CLIENT_QueryDevState
SN and version nType: EM_DEVICE_STATE.SOFTWARE
Mac viewing nType: EM_DEVICE_STATE.NETINTERFACE
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.QueryDevState** to query access control device information such as serial number, version and mac.

Table 2-12 Description and structure of nType

nType	Description	pBuf
EM_DEVICE_STATE.SOFTWARE	Serial number and version	NET_DEV_VERSION_INFO
EM_DEVICE_STATE.NETINTERFACE	Mac address	NET_DEV_NETINTERFACE_INFO

Step 4 After completing this process, call the **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call the **NETClient.Cleanup** to release SDK resources.

2.2.3.2.4 Sample Code

```
#region Query Version info get device version info
            NET_DEV_VERSION_INFO VersionInfo = new NET_DEV_VERSION_INFO();
            object objInfo = VersionInfo;
            bool ret = NETClient.QueryDevState(loginID, EM_DEVICE_STATE.SOFTWARE, ref
objInfo, typeof(NET_DEV_VERSION_INFO), 10000);
            if (!ret)
            {
                MessageBox.Show(NETClient.GetLastError());
                return;
            }
            this.button_Query.Enabled = true;
            VersionInfo = (NET_DEV_VERSION_INFO)objInfo;

            textBox_Version.Text += "SerialNo(serial number)：" + VersionInfo.szDevSerialNo +
System.Environment.NewLine;
            textBox_Version.Text += "SoftwareVersion(software version)：" +
VersionInfo.szSoftWareVersion + System.Environment.NewLine;
            textBox_Version.Text += "ReleaseTime(compile time)：" +
((VersionInfo.dwSoftwareBuildDate >> 16) & 0xffff) + "-" + ((VersionInfo.dwSoftwareBuildDate >> 8)
& 0xff) + "-" + (VersionInfo.dwSoftwareBuildDate & 0xff) + System.Environment.NewLine;

            // Query MAC address get MAC address
            NET_DEV_NETINTERFACE_INFO[] stuNetInfo = new
NET_DEV_NETINTERFACE_INFO[64];

            for (int i = 0; i < 64; i++)
            {
                stuNetInfo[i].dwSize = (int)Marshal.SizeOf(stuNetInfo[i].GetType());
            }
            object[] objInfo2 = new object[64];
            for (int i = 0; i < 64; i++)
            {
                objInfo2[i] = stuNetInfo[i];
            }
            bool Macret = NETClient.QueryDevState(loginID,
(int)EM_DEVICE_STATE.NETINTERFACE, ref objInfo2, typeof(NET_DEV_NETINTERFACE_INFO), 5000);
            if (!Macret)
            {
                MessageBox.Show(NETClient.GetLastError());
                return;
            }
            for (int i = 0; i < objInfo2.Length; i++)
            {
                stuNetInfo[i] = (NET_DEV_NETINTERFACE_INFO)objInfo2[i];
            }
            textBox_Version.Text += "MAC(physical address)： " + stuNetInfo[0].szMAC +
System.Environment.NewLine;
            #endregion;
```

2.2.4 Network Setting

2.2.4.1 IP Settings

2.2.4.1.1 Introduction

To configure IP address, you need to call SDK interface to get and configure device information, including IP address, subnet mask, and default gateway.

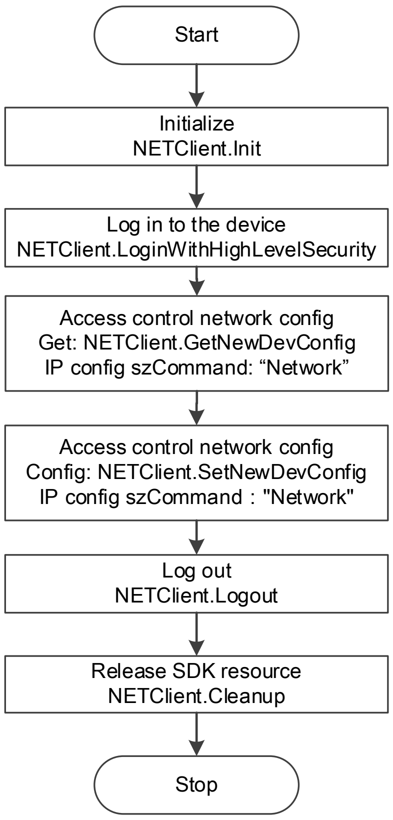
2.2.4.1.2 Interface Overview

Table 2-13 Description of IP setting interface

Interface	Description
NETClient.GetNewDevConfig	Query config information
NETClient.SetNewDevConfig	Set config information

2.2.4.1.3 Process Description

Figure 2-13 IP setting


Start
Initialize
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Access control network config
Get: NETClient.GetNewDevConfig
IP config szCommand: “Network”
Access control network config
Config: NETClient.SetNewDevConfig
IP config szCommand : "Network"
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
Stop

Process

Step 1 Call **NETClient.Init** function to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig** to query the IP settings.

- szCommand: “Network”.
- pBuf: CFG_NETWORK_INFO.

Step 4 Call CLIENT_SetNewDevConfig and CLIENT_PacketData to set the IP settings.

- szCommand: “Network”.
- pBuf: CFG_NETWORK_INFO.

Step 5 After completing this process, call the **NETClient.Logout** to log out of the device.

Step 6 After using all SDK functions, call the **NETClient.Cleanup** to release SDK resources.

2.2.4.1.4 Sample Code

```
// get IP and network config
        CFG_NETWORK_INFO cfg = new CFG_NETWORK_INFO();


        public CFG_NETWORK_INFO GetConfig_Network()
        {
            try
            {
                object objTemp = new object();
                bool bRet = NETClient.GetNewDevConfig(loginID, -1, "Network", ref objTemp,
typeof(CFG_NETWORK_INFO), 5000);
                if (!bRet)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return cfg;
                }
                cfg = (CFG_NETWORK_INFO)objTemp;
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return cfg;
        }


        public bool SetConfig_Network(CFG_NETWORK_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, -1, "Network", (object)cfg,
typeof(CFG_NETWORK_INFO), 5000);
            }
            catch (NETClientExcetion nex)
            {
                Console.WriteLine(nex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine(ex.Message);
            }
            return bRet;
    }
```

2.2.4.2 Auto Register Config

2.2.4.2.1 Introduction

To configure auto register, you need to call SDK interface to configure auto register information of the device, including auto register enabling, device ID, and server.

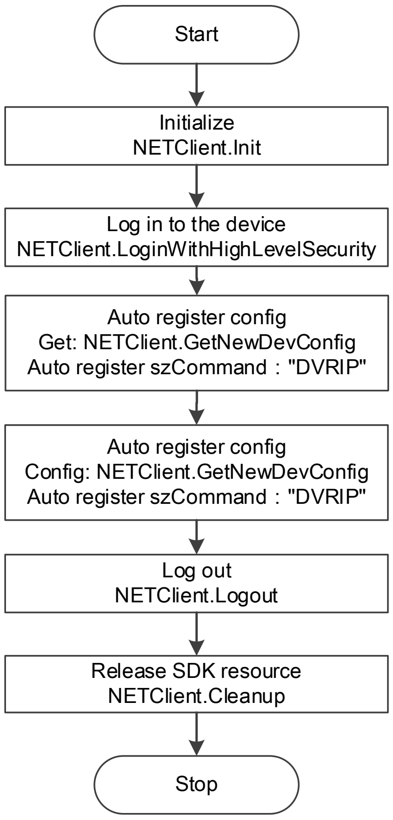
2.2.4.2.2 Interface Overview

Table 2-14 Description of interfaces for setting auto register

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Set config information.

2.2.4.2.3 Process Description

Figure 2-14 Auto register setting


Start
Initialize
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Auto register config
Get: NETClient.GetNewDevConfig
Auto register szCommand："DVRIP"
Auto register config
Config: NETClient.GetNewDevConfig
Auto register szCommand："DVRIP"
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
Stop

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Auto register config.

- Call **NETClient.GetNewDevConfig** to query the auto register config.
  - ◇ szCommand: DVRIP.
  - ◇ pBuf: NET_CFG_DVRIP_INFO.
- Call **NETClient.SetNewDevConfig** to set the auto register config.
  - ◇ szCommand: DVRIP.
  - ◇ pBuf: NET_CFG_DVRIP_INFO.

Step 4 After completing this process, call **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.2.4.2.4 Sample Code

```
// get auto register network config
        NET_CFG_DVRIP_INFO cfg_Dvrip = new NET_CFG_DVRIP_INFO();
        public NET_CFG_DVRIP_INFO GetConfig_Dvrip()
        {
            try
            {
                object objTemp = new object();
                bool bRet = NETClient.GetNewDevConfig(loginID, -1, "DVRIP", ref objTemp,
typeof(NET_CFG_DVRIP_INFO), 5000);
                if (bRet)
                {
                    cfg_Dvrip = (NET_CFG_DVRIP_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return cfg_Dvrip;
        }
        public bool SetConfig_Dvrip(NET_CFG_DVRIP_INFO cfg_Dvrip)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, -1, "DVRIP", (object)cfg_Dvrip,
typeof(NET_CFG_DVRIP_INFO), 5000);
            }
            catch (NETClientExcetion nex)
            {
                Console.WriteLine(nex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine(ex.Message);
            }
            return bRet;
        }
```

2.2.5 Device Time Setting

2.2.5.1 DeviceTime Setting

2.2.5.1.1 Introduction

Device time setting process is that, you call SDK interface to get and set the device time.

2.2.5.1.2 Interface Overview

Table 2-15 Description of time setting interfaces

Interface	Description
NETClient.QueryDeviceTime	Get the current time of the device.
NETClient.SetupDeviceTime	Configure the current time of the device.

2.2.5.1.3 Process Description

Figure 2-15 Time getting

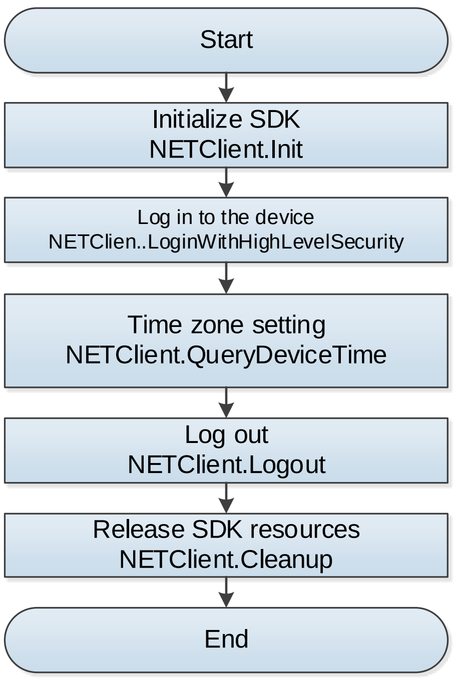
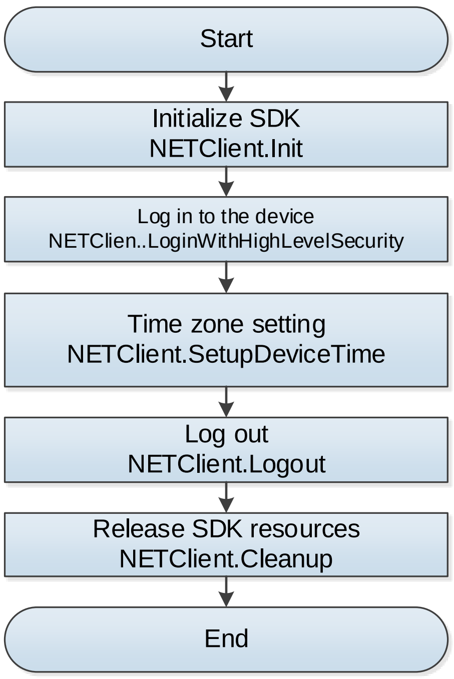


Figure 2-16 Time configuring



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.SetupDeviceTime** to set the access control time.

Step 4 After completing this process, call **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.2.5.1.4 Sample Code

```
#region Get Deice Time get device time
NET_TIME stuInfo = new NET_TIME();

bool ret = NETClient.QueryDeviceTime(loginID, ref stuInfo, 5000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
    return;
}
dateTimePicker_DevTime.Value = stuInfo.ToDateTime();
MessageBox.Show("Get Success(get successfully)");
#endregion
#region Set Device Timeconfigure device time
NET_TIME stuSet = new NET_TIME();
stuSet.dwYear = (uint)dateTimePicker_DevTime.Value.Year;
stuSet.dwMonth = (uint)dateTimePicker_DevTime.Value.Month;
stuSet.dwDay = (uint)dateTimePicker_DevTime.Value.Day;
stuSet.dwHour = (uint)dateTimePicker_DevTime.Value.Hour;
stuSet.dwMinute = (uint)dateTimePicker_DevTime.Value.Minute;
stuSet.dwSecond = (uint)dateTimePicker_DevTime.Value.Second;

bool ret = NETClient.SetupDeviceTime(loginID, stuSet);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
    return;
}
MessageBox.Show("Set Success(configured successfully)");
#endregion
```

2.2.5.2 NTP Server and Time Zone Setting

2.2.5.2.1 Introduction

NTP server and time zone setting process is that, you call SDK interface to get and set the NTP server and time zone.

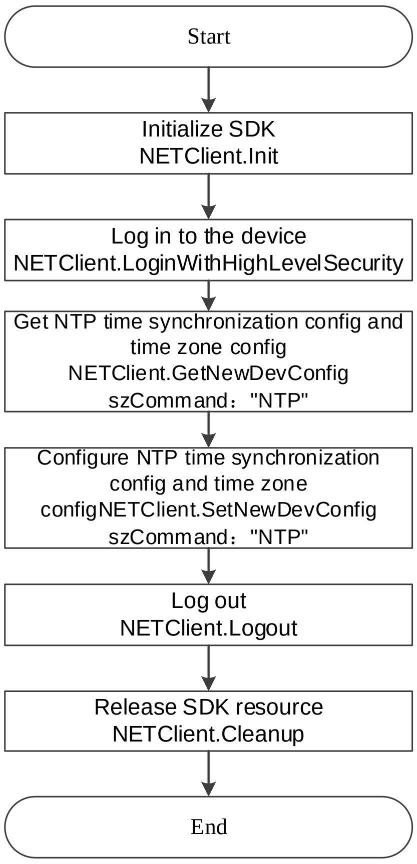
2.2.5.2.2 Interface Overview

Table 2-16 Description of NTP server and time zone interfaces

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Configure config information.

2.2.5.2.3 Process Description

Figure 2-17 NTP time sync


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get NTP time synchronization config and time zone config
NETClient.GetNewDevConfig
szCommand："NTP"
Configure NTP time synchronization config and time zone configNETClient.SetNewDevConfig
szCommand："NTP"
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient. Init** to initialize SDK.

Step 2 Call **NETClient. LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig** to query the access NTP time sync and time zone config.
- szCommand: NTP.
- pBuf: NET_CFG_NTP_INFO.

Step 4 Call **NETClient.SetNewDevConfig** to set the access NTP time sync and time zone config.
- szCommand: NTP.
- pBuf: NET_CFG_NTP_INFO.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.5.2.4 Sample Code

```
// NTP    config
NET_CFG_NTP_INFO cfg = new NET_CFG_NTP_INFO();


public NET_CFG_NTP_INFO GetConfig_NTP()
```

```
        {
            try
            {
                object objTemp = new object();
                bool bRet = NETClient.GetNewDevConfig(loginID, -1, "NTP", ref objTemp, 
typeof(NET_CFG_NTP_INFO), 5000);
                if (bRet)
                {
                    cfg = (NET_CFG_NTP_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return cfg;
        }


        public bool SetConfig_NTP(NET_CFG_NTP_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, -1, "NTP", (object)cfg, 
typeof(NET_CFG_NTP_INFO), 5000);
            }
            catch (NETClientExcetion nex)
            {
                Console.WriteLine(nex.Message);
            }
            catch (Exception ex)
```

```
                {
                        Console.WriteLine(ex.Message);
                }
                return bRet;
        }

DST Setting
```

2.2.5.3 DST Settings

2.2.5.3.1 Introduction

Daylight saving time (DST) setting process is that, you call SDK interface to get and set the DST.

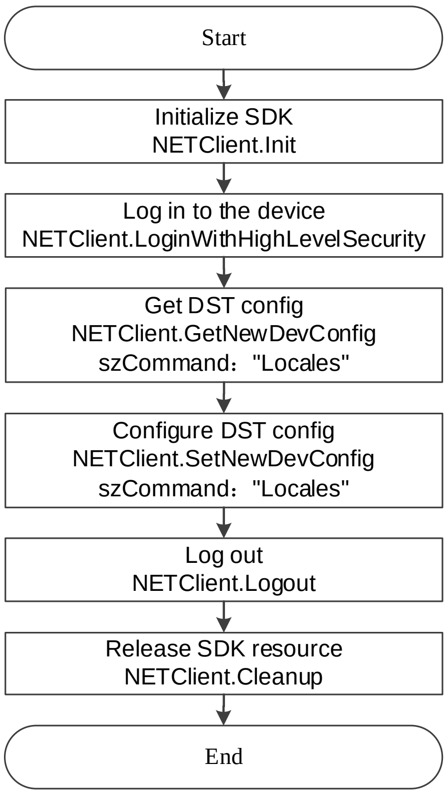
2.2.5.3.2 Interface Overview

Table 2-17 Description of DST setting interfaces

Interface	**Description**
NETClient. GetNewDevConfig	Query config information.
NETClient. SetNewDevConfig	Set config information.

2.2.5.3.3 Process Description

Figure 2-18 DST setting



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig and NETClient.ParseData** to query the access DST config.

- szCommand: Locales.
- pBuf: NET_AV_CFG_Locales.

Step 4 Call NETClient. SetNewDevConfig and NETClient. PacketData to set the access DST config.

- szCommand: Locales.
- pBuf: NET_AV_CFG_Locales.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.5.3.4 Sample Code

```
        // Locales config

        public bool GetConfig_Locales()
        {
            bool bRet = false;
            try
            {
                cfg_Locales.stuDstStart.nStructSize = Marshal.SizeOf(typeof(AV_CFG_DSTTime));
                cfg_Locales.stuDstEnd.nStructSize = Marshal.SizeOf(typeof(AV_CFG_DSTTime));
                object objTemp = (object)cfg_Locales;
                bRet = NETClient.GetNewDevConfig(loginID, -1, "Locales", ref objTemp,
typeof(NET_AV_CFG_Locales), 5000);
                if (bRet)
                {
                    cfg_Locales = (NET_AV_CFG_Locales)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }

            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }



        public bool SetConfig_Locales(NET_AV_CFG_Locales cfg_Locales)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, -1, "Locales", (object)cfg_Locales,
typeof(NET_AV_CFG_Locales), 5000);
            }
            catch (NETClientExcetion nex)
            {
                Console.WriteLine(nex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine(ex.Message);
            }
            return bRet;
        }
```

2.2.6 Maintenance Config

2.2.6.1 Changing Login Password

2.2.6.1.1 Introduction

The process to modify login password is that, you call SDK interface to modify the device login password.

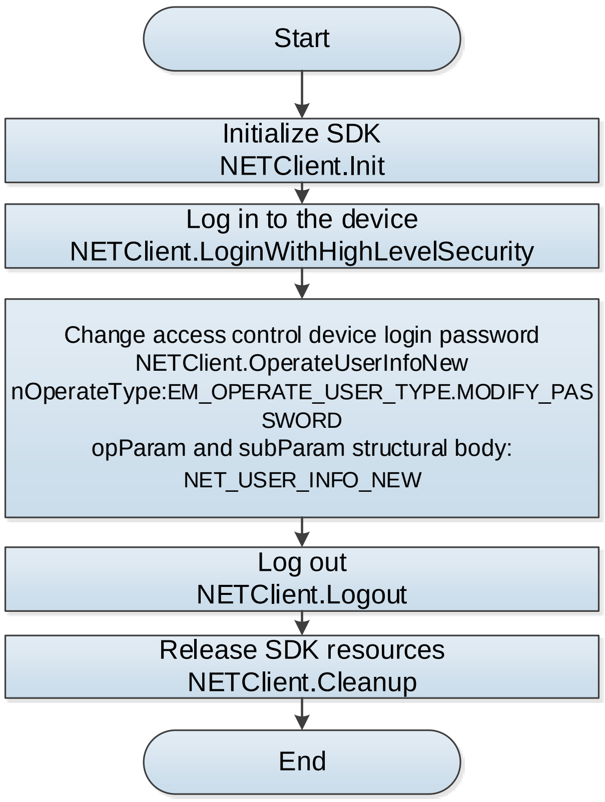
2.2.6.1.2 Interface Overview

Table 2-18 Description of interfaces for changing login password

Interface	Description
NETClient.OperateUserInfoNew	Make operations of device user.

2.2.6.1.3 Process Description

Figure 2-19 Maintenance config


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Change access control device login password
NETClient.OperateUserInfoNew
nOperateType:EM_OPERATE_USER_TYPE.MODIFY_PASSWORD
opParam and subParam structural body:
NET_USER_INFO_NEW
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient. Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.OperateUserInfoNew** to operate user info to change the device login password. nOperateType is EM_OPERATE_USER_TYPE.MODIFY_PASSWORD, opParam and subParam structural body is NET_USER_INFO_NEW.

Step 4 After completing this process, call **NETClient. Logout** to log out of the device.

Step 5 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.6.1.4 Sample Code

```
// change device login password
            NET_USER_INFO_NEW userInfo = new NET_USER_INFO_NEW();
            userInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_USER_INFO_NEW));
            userInfo.name =   textBox_User.Text.Trim();
            userInfo.passWord = textBox_OldPasswd.Text.Trim();
            IntPtr inPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_USER_INFO_NEW)));
            NET_USER_INFO_NEW stuModifyInfo = new NET_USER_INFO_NEW();
            stuModifyInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_USER_INFO_NEW));
            stuModifyInfo.passWord = textBox_NewPasswd.Text.Trim();
            IntPtr                              insubPtr                              =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_USER_INFO_NEW)));
            try
            {

                Marshal.StructureToPtr(userInfo, inPtr, true);

                Marshal.StructureToPtr(stuModifyInfo, insubPtr, true);

                bool          ret          =          NETClient.OperateUserInfoNew(loginID,
EM_OPERATE_USER_TYPE.MODIFY_PASSWORD, insubPtr, inPtr, 10000);
                if (!ret)
                {
                    MessageBox.Show( NETClient.GetLastError());
                    return;
                }
            }
            finally
            {
                Marshal.FreeHGlobal(inPtr);
                Marshal.FreeHGlobal(insubPtr);
            }
            MessageBox.Show("Modify password successfully.");
```

2.2.6.2 Restart

2.2.6.2.1 Introduction

The restart process is that, you call SDK interface to restart the device.

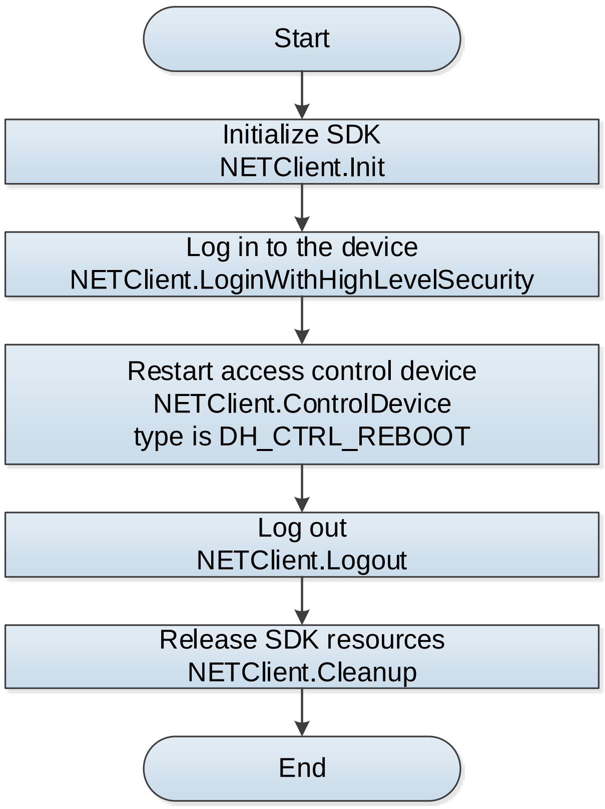
2.2.6.2.2 Interface Overview

Table 2-19 Description of device restart interface

Interface	**Description**
NETClient. ControlDevice	Device control.

2.2.6.2.3 Process Description

Figure 2-20 Device restart



Process

Step 1 Call **NETClient.Init** to initialize SDK.
Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient.ControlDevice** to restart the device.
Type: EM_CtrlType.REBOOT.
Step 4 After completing this process, call **NETClient. Logout** to log out of the device.
Step 5 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.6.2.4 Sample Code

```
#region Reboot Device restart the device
IntPtr inPtr = IntPtr.Zero;
bool ret = NETClient.ControlDevice(loginID, EM_CtrlType.REBOOT, inPtr, 10000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
    return;
}
this.Hide();
#endregion
```

2.2.6.3 Restoring the Factory Settings

2.2.6.3.1 Introduction

The process to restore factory defaults is that, you call SDK interface to restore factory defaults of the device. After taking effect, all configurations and personnel information on the device will be cleared.

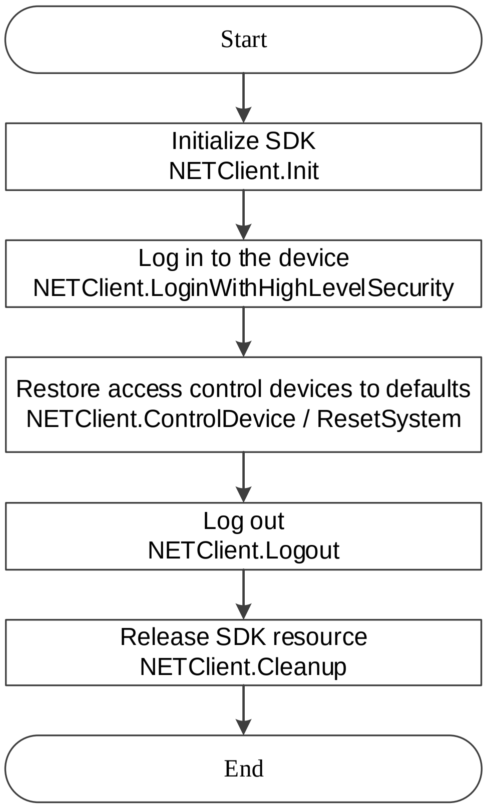
2.2.6.3.2 Interface Overview

Table 2-20 Description of interfaces for restoring factory defaults

Interface	Description
NETClient.ControlDevice	Control device (to restore factory defaults), supporting all-in-one machine and controller.
NETClient.ResetSystem	Control device (to restore factory defaults), supporting all-in-one machine (recommended).

2.2.6.3.3 Process Description

Figure 2-21 Factory defaults restoring



Process

Step 1 Call **NETClient. Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.ResetSystem** to control the device (controller or all-in-one fingerprint machine) to restore factory defaults. Or call **ControlDevice** function to control the device (controller or all-in-one fingerprint machine) to restore factory defaults.

Type: EM_CtrlType. RESTOREDEFAULT.

Step 4 After completing this process, call **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call **NETClient Cleanup** to release SDK resources.

2.2.6.3.4 Sample Code

```
            #region Reset Device restore factory defaults
            NET_IN_RESET_SYSTEM stuResetIn = new NET_IN_RESET_SYSTEM();
            stuResetIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_USERINFO_START_FIND));

            NET_OUT_RESET_SYSTEM stuResetOut = new NET_OUT_RESET_SYSTEM();
            stuResetOut.dwSize                                                          =
(uint)Marshal.SizeOf(typeof(NET_OUT_USERINFO_START_FIND));
            bool nRet = NETClient.ResetSystem(loginID, ref stuResetIn, ref stuResetOut, 5000);
            if (!nRet)
            {
                IntPtr inPtr = IntPtr.Zero;
                inPtr                                                                   =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RESTORE_TEMPSTRUCT)));
                NET_RESTORE_TEMPSTRUCT temp = new NET_RESTORE_TEMPSTRUCT() { value =
NET_RESTORE.ALL };
                Marshal.StructureToPtr(temp, inPtr, true);
                bool ret = NETClient.ControlDevice(loginID, EM_CtrlType.RESTOREDEFAULT, inPtr,
10000);
                if (!ret)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }
            }
            this.Hide();
            #endregion
```

2.2.6.4 Device Upgrade

2.2.6.4.1 Introduction

The device upgrade process is that, you call SDK interface to upgrade the device program.

2.2.6.4.2 Interface Overview

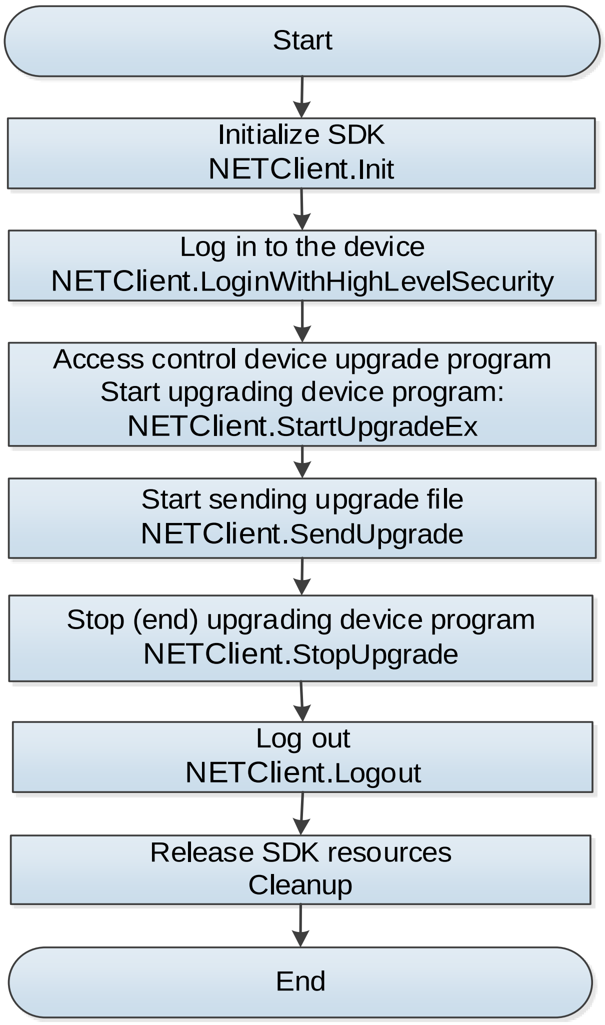
Table 2-21 Description of device upgrade interfaces

Interface	Description
NETClient.StartUpgrade	Start upgrading device program—extension.

NETClient.SendUpgrade	Start sending upgrade file.
NETClient.StopUpgrade	Stop upgrading.

2.2.6.4.3 Process Description

Figure 2-22 Device upgrade



Process

Step 1 Call **NETClient.Init** to initialize SDK.
Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient.StartUpgradeEx** to start upgrading the device program.
Step 4 Call **NETClient.SendUpgrade** to send the device upgrade file.
Step 5 Call **NETClient.StopUpgrade** to stop/end upgrading the device program.
Step 6 After completing this process, call **NETClient.Logout** to log out of the device.
Step 7 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.2.6.4.4 Sample Code

```
#region upgrade device update device
if (textBox_Path.Text == null || textBox_Path.Text == "")
{
```

```
                MessageBox.Show("please choose a upgrade packet file.(please select remote
update package.)");
                return;
            }

            m_UpgradeID = NETClient.StartUpgrade(m_LoginID, EM_UPGRADE_TYPE.BIOS_TYPE,
textBox_Path.Text, m_UpgradeCallBack, IntPtr.Zero);
            if (IntPtr.Zero != m_UpgradeID)
            {
                bool bRet = NETClient.SendUpgrade(m_UpgradeID);
                if (!bRet)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    button_Upgrade.Enabled = true;
                }
            }
            else
            {
                MessageBox.Show(NETClient.GetLastError());
                button_Upgrade.Enabled = true;
            }
            #endregion

            bool ret = NETClient.StopUpgrade(m_UpgradeID);
            if (ret)
            {
                m_UpgradeID = IntPtr.Zero;
                button_Upgrade.Enabled = true;
            }
            else
            {
                MessageBox.Show(NETClient.GetLastError());
            }
```

2.2.6.5 Auto Maintenance

2.2.6.5.1 Introduction

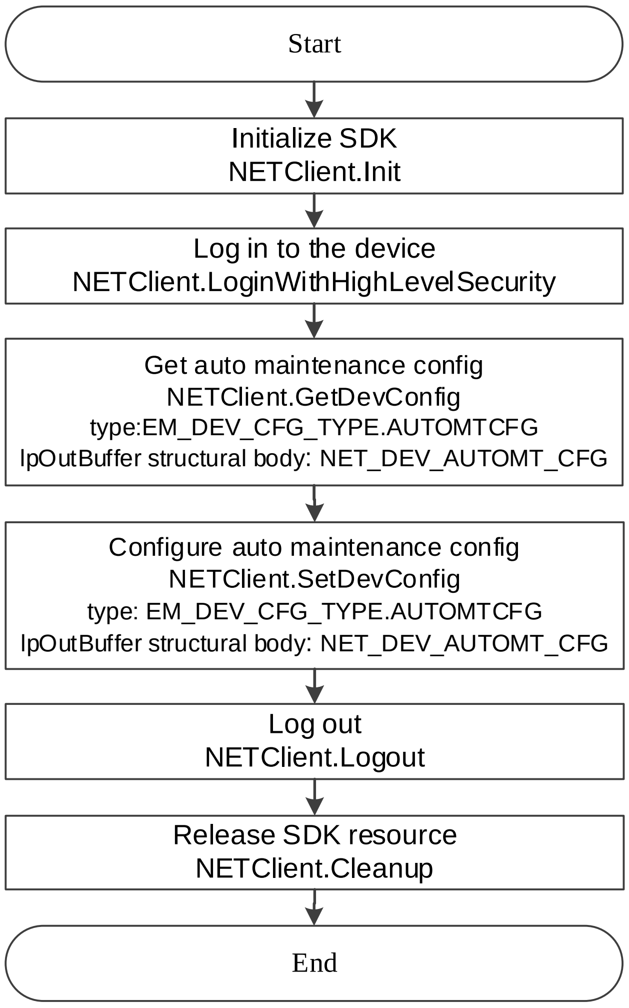
The auto maintenance process is that, you call SDK interface to configure the auto maintenance of device, including information such as auto restart time.

2.2.6.5.2 Interface Overview

Table 2-22 Description of auto maintenance interfaces

Interface	Description
NETClient.GetDevConfig	Query config information.
NETClient.SetDevConfig	Set config information.

2.2.6.5.3 Process Description


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get auto maintenance config
NETClient.GetDevConfig
type:EM_DEV_CFG_TYPE.AUTOMTCFG
lpOutBuffer structural body: NET_DEV_AUTOMT_CFG
Configure auto maintenance config
NETClient.SetDevConfig
type: EM_DEV_CFG_TYPE.AUTOMTCFG
lpOutBuffer structural body: NET_DEV_AUTOMT_CFG
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End
Figure 2-23 Auto maintenance

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetDevConfig** to query the access auto maintenance info.

- type: EM_DEV_CFG_TYPE.AUTOMTCFG
- lpOutBuffer structural body NET_DEV_AUTOMT_CFG.

Step 4 Call **NETClient.SetDevConfig** to set the access auto maintenance info.

- type is EM_DEV_CFG_TYPE.AUTOMTCFG，
- lpOutBuffer structural body NET_DEV_AUTOMT_CFG。

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.6.5.4 Sample Code

```
        NET_DEV_AUTOMT_CFG cfg_AutoMT = new NET_DEV_AUTOMT_CFG();
        public NET_DEV_AUTOMT_CFG GetDevConfig_AutoMT()
        {
            uint ret = 0;
            IntPtr inPtr = IntPtr.Zero;
            try
            {
                inPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_DEV_AUTOMT_CFG)));
                Marshal.StructureToPtr(cfg_AutoMT, inPtr, true);
                bool result = NETClient.GetDevConfig(loginID, EM_DEV_CFG_TYPE.AUTOMTCFG,
0, inPtr, (uint)Marshal.SizeOf(typeof(NET_DEV_AUTOMT_CFG)), ref ret, 5000);
                if (result && ret == (uint)Marshal.SizeOf(typeof(NET_DEV_AUTOMT_CFG)))
                {
                    cfg_AutoMT = (NET_DEV_AUTOMT_CFG)Marshal.PtrToStructure(inPtr,
typeof(NET_DEV_AUTOMT_CFG));
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch(Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            finally
            {
                Marshal.FreeHGlobal(inPtr);
            }
            return cfg_AutoMT;
        }

            #region Set auto matrix config configure auto maintenance config
            GetDevConfig_AutoMT();
            cfg_AutoMT.byAutoRebootDay = (byte)comboBox_RebootDay.SelectedIndex;
            cfg_AutoMT.byAutoRebootTime = (byte)comboBox_RebootTime.SelectedIndex;
            IntPtr inPtr = IntPtr.Zero;
            inPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_DEV_AUTOMT_CFG)));
            Marshal.StructureToPtr(cfg_AutoMT, inPtr, true);
```

```
                bool  result  =  NETClient.SetDevConfig(loginID,  EM_DEV_CFG_TYPE.AUTOMTCFG,  0,
inPtr, (uint)Marshal.SizeOf(typeof(NET_DEV_AUTOMT_CFG)), 5000);
                if (!result)
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
                MessageBox.Show("Set successfully.(configured successfully)");
                #endregion
```

2.2.7 Personnel Management

2.2.7.1 Introduction

For personnel information, you can call SDK to add, delete, query and modify personnel information fields of the access device (including No., name, face, card, fingerprint, password, user permission, period, holiday plan and user type).

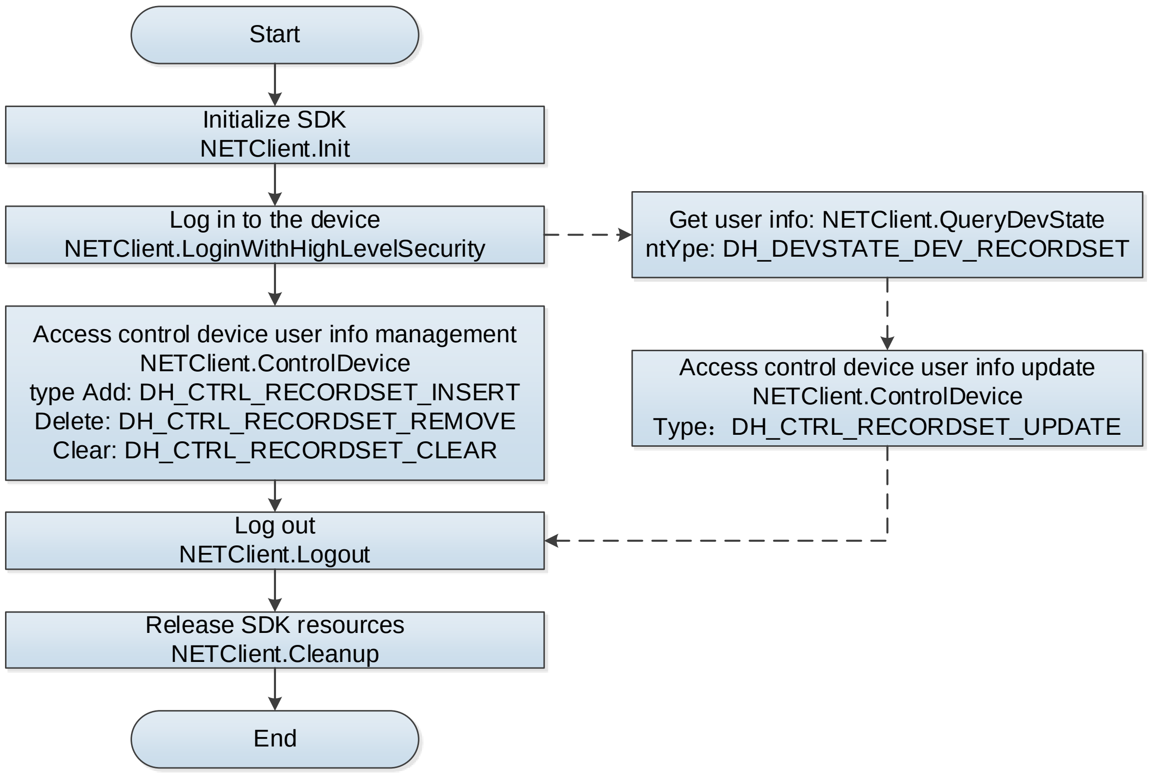
2.2.7.2 Interface Overview

Table 2-23 Description of personnel information interfaces

Interface	Description
NETClient.ControlDevice	Control device.
NETClient.QueryDevState	Query device status.

2.2.7.3 Process Description

Figure 2-24 User information management


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get user info: NETClient.QueryDevState
ntType: DH_DEVSTATE_DEV_RECORDSET
Access control device user info management
NETClient.ControlDevice
type Add: DH_CTRL_RECORDSET_INSERT
Delete: DH_CTRL_RECORDSET_REMOVE
Clear: DH_CTRL_RECORDSET_CLEAR
Access control device user info update
NETClient.ControlDevice
Type：DH_CTRL_RECORDSET_UPDATE
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.ControlDevice** to operate holiday information.

Table 2-24 Description and structure of type

Type	Description	emType	Param
● EM_CtrlType. RECORDSET_INSERT ● EM_CtrlType. RECORDSET_INSERTEX	Add user info	EM_NET_RECORD_TYPE. ACCESSCTLCARD	● NET_CTRL_RECORDSET_INSERT_PARAM ● NET_RECORDSET_ACCESS_CTL_CARD
EM_CtrlType. RECORDSET_REMOVE	Delete user info	EM_NET_RECORD_TYPE. ACCESSCTLCARD	● NET_CTRL_RECORDSET_PARAM ● NET_RECORDSET_ACCESS_CTL_CARD
EM_CtrlType. RECORDSET_CLEAR	Clear user info	EM_NET_RECORD_TYPE. ACCESSCTLCARD	NET_CTRL_RECORDSET_PARAM

Step 4 Call the **NETClient.QueryDevState** interface to get user information.

Table 2-25 Description and structure of type

Type	Description	emType	Param
EM_DEVICE_STATE. DEV_RECORDSET	Get user info	ACCESSCTLCA RD	NET_CTRL_RECORDSET_PARAM NET_RECORDSET_ACCESS_CTL_ CARD

Step 5 Call the **NETClient.ControlDevice** to update user information.

Table 2-26 Description and structure of type

Type	Description	emType	Param
EM_CtrlType. RECORDSET_ UPDATE	Update user info	ACCESSCTLCA RD	● NET_CTRL_RECORDSET_PA RAM ● NET_RECORDSET_ACCESS_ CTL_CARD
EM_CtrlType. RECORDSET_UPDATEEX	Update user info (with fingerprint)		

Step 6 After completing this process, call **NETClient.Logout** to log out of the device.

Step 7 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.2.7.4 Note

- Card number: Personnel card number.
- Card type: When the card is set as duress card, if the person bound to this card opens the door with card password, unlock password or by fingerprint, the duress alarm will be triggered.
- Card password: Suitable for card + password mode.
- Period: Select the serial number corresponding to the configured time period. If there is no serial number, set it in "2.2.9.1 Period Config."
- Unlock password: After setting this password, you can directly enter the password to open the door without swiping card. For details, see "2.2.10.5 Unlock Password."
- Valid number of times: Only guest users can set this field.
- Whether it is first card: Select as needed. For according to the actual situation. For the configuration method of the first card, see "2.2.10.1 Unlock at Designated Intervals and First Card Unlock."

2.2.7.5 Sample Code

```
#region Get Card Info get card record
if (textBox_RecNo.Text == null || textBox_RecNo.Text == "")
{
    MessageBox.Show("Please input Rec Number(please enter recird set number)");
    return;
}
NET_CTRL_RECORDSET_PARAM inp = new NET_CTRL_RECORDSET_PARAM();
inp.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM));
inp.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;
```

```
            NET_RECORDSET_ACCESS_CTL_CARD info = new NET_RECORDSET_ACCESS_CTL_CARD();
            info.dwSize = (uint)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));
            info.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());
            IntPtr infoPtr = IntPtr.Zero;

            try
            {
                infoPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD)));
                Marshal.StructureToPtr(info, infoPtr, true);
                inp.pBuf = infoPtr;
                inp.nBufLen = Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));
                object objInp = inp;
                bool ret = NETClient.QueryDevState(loginID, (int)EM_DEVICE_STATE.DEV_RECORDSET, ref objInp, typeof(NET_CTRL_RECORDSET_PARAM), 10000);
                if (!ret)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }
                inp = (NET_CTRL_RECORDSET_PARAM)objInp;
                info = (NET_RECORDSET_ACCESS_CTL_CARD)Marshal.PtrToStructure(inp.pBuf, typeof(NET_RECORDSET_ACCESS_CTL_CARD));

               // dateTimePicker_CreateTime.Value = info.stuCreateTime.ToDateTime();
                textBox_CardNo.Text = info.szCardNo;
                textBox_UserID.Text = info.szUserID;
                comboBox_CardStatus.SelectedIndex = (int)info.emStatus + 1;
                comboBox_CardType.SelectedIndex = (int)info.emType + 1;
                textBox_CardPwd.Text = info.szPsw;
                m_SelectDoorsAry = info.nNewDoors;
                m_SelectTimeAry = info.nNewTimeSectionNo;
                textBox_UseTimes.Text = info.nUseTime.ToString();
                dateTimePicker_ValidStart.Value = info.stuValidStartTime.ToDateTime();
                dateTimePicker_ValidEnd.Value = info.stuValidEndTime.ToDateTime();

                checkBox_First.Checked = info.bFirstEnter;

                int nCtlType = comboBox_OperateType.SelectedIndex;
                if (2 == nCtlType)
                {
                    OnChangeUIState(7);
                }
                else
                {
                    OnChangeUIState(8);
                }

              //    MessageBox.Show("Query Success(获取成功)");
            }
            finally
            {
              //          Marshal.FreeHGlobal(infoPtr);
            }
            #endregion

                #region Insert record add card record
                NET_CTRL_RECORDSET_INSERT_PARAM          stuInfo          =          new
NET_CTRL_RECORDSET_INSERT_PARAM();
                stuInfo.dwSize                                                         =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_PARAM));

                stuInfo.stuCtrlRecordSetInfo.dwSize                                    =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_IN));
                stuInfo.stuCtrlRecordSetInfo.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;

                stuInfo.stuCtrlRecordSetInfo.nBufLen                                   =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));

                stuInfo.stuCtrlRecordSetResult.dwSize                                  =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_OUT));

                m_stuInfo.stuCreateTime.dwYear = (uint)DateTime.Now.Year;
                m_stuInfo.stuCreateTime.dwMonth = (uint)DateTime.Now.Month;
                m_stuInfo.stuCreateTime.dwDay = (uint)DateTime.Now.Day;
                m_stuInfo.stuCreateTime.dwHour = (uint)DateTime.Now.Hour;
                m_stuInfo.stuCreateTime.dwMinute = (uint)DateTime.Now.Minute;
                m_stuInfo.stuCreateTime.dwSecond = (uint)DateTime.Now.Second;
                m_stuInfo.szCardNo = this.textBox_CardNo.Text.Trim();
                m_stuInfo.szUserID = this.textBox_UserID.Text.Trim();
                m_stuInfo.emStatus                                                      =
(EM_ACCESSCTLCARD_STATE)comboBox_CardStatus.SelectedIndex -1;
                m_stuInfo.emType                                                        =
(EM_ACCESSCTLCARD_TYPE)comboBox_CardType.SelectedIndex - 1;
                m_stuInfo.szPsw = this.textBox_CardPwd.Text.Trim();
                m_stuInfo.nUseTime = Convert.ToInt32(textBox_UseTimes.Text.Trim());
                m_stuInfo.bNewDoor = true;

                if (m_selectDoorsList.Count > 0)
                {
                    for (int i = 0; i < m_selectDoorsList.Count; i++)
                    {
                        m_stuInfo.nNewDoors[i] = m_selectDoorsList[i];
                    }
                }
                m_stuInfo.nNewDoorNum = m_selectDoorsList.Count;

                if (m_selectTimesList.Count > 0)
                {
                    for (int i = 0; i < m_selectTimesList.Count; i++)
                    {
                        m_stuInfo.nNewTimeSectionNo[i] = m_selectTimesList[i];
                    }
                }
                m_stuInfo.nNewTimeSectionNum = m_selectTimesList.Count;

                m_stuInfo.stuValidStartTime.dwYear                                      =
(uint)dateTimePicker_ValidStart.Value.Year;
                m_stuInfo.stuValidStartTime.dwMonth                                     =
(uint)dateTimePicker_ValidStart.Value.Month;
                m_stuInfo.stuValidStartTime.dwDay = (uint)dateTimePicker_ValidStart.Value.Day;
                m_stuInfo.stuValidStartTime.dwHour                                      =
(uint)dateTimePicker_ValidStart.Value.Hour;
                m_stuInfo.stuValidStartTime.dwMinute                                    =
(uint)dateTimePicker_ValidStart.Value.Minute;
                m_stuInfo.stuValidStartTime.dwSecond                                    =
(uint)dateTimePicker_ValidStart.Value.Second;
```

```
                m_stuInfo.stuValidEndTime.dwYear = (uint)dateTimePicker_ValidEnd.Value.Year;
                m_stuInfo.stuValidEndTime.dwMonth =
(uint)dateTimePicker_ValidEnd.Value.Month;
                m_stuInfo.stuValidEndTime.dwDay = (uint)dateTimePicker_ValidEnd.Value.Day;
                m_stuInfo.stuValidEndTime.dwHour = (uint)dateTimePicker_ValidEnd.Value.Hour;
                m_stuInfo.stuValidEndTime.dwMinute =
(uint)dateTimePicker_ValidEnd.Value.Minute;
                m_stuInfo.stuValidEndTime.dwSecond =
(uint)dateTimePicker_ValidEnd.Value.Second;
                m_stuInfo.bFirstEnter = this.checkBox_First.Checked;



                IntPtr inPtr = IntPtr.Zero;
                IntPtr ptr = IntPtr.Zero;
                try
                {
                    inPtr =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD)));
                    Marshal.StructureToPtr(m_stuInfo, inPtr, true);

                    stuInfo.stuCtrlRecordSetInfo.pBuf = inPtr;
                    stuInfo.stuCtrlRecordSetInfo.nBufLen =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));
                    ptr =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_PARAM)));
                    Marshal.StructureToPtr(stuInfo, ptr, true);
                    bool ret = NETClient.ControlDevice(loginID,
EM_CtrlType.RECORDSET_INSERT, ptr, 10000);
                    if (!ret)
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                    stuInfo =
(NET_CTRL_RECORDSET_INSERT_PARAM)Marshal.PtrToStructure(ptr,
typeof(NET_CTRL_RECORDSET_INSERT_PARAM));
                    MessageBox.Show("Execute Success\n RetNo="+
stuInfo.stuCtrlRecordSetResult.nRecNo.ToString());
                }
                finally
                {
```

```
                Marshal.FreeHGlobal(inPtr);
                Marshal.FreeHGlobal(ptr);
            }
            #endregion

            #region Update record
            NET_CTRL_RECORDSET_PARAM stuInfo = new NET_CTRL_RECORDSET_PARAM();
            stuInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM));
            stuInfo.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;

            m_stuInfo.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());
            m_stuInfo.stuCreateTime.dwYear = (uint)DateTime.Now.Year;
            m_stuInfo.stuCreateTime.dwMonth = (uint)DateTime.Now.Month;
            m_stuInfo.stuCreateTime.dwDay = (uint)DateTime.Now.Day;
            m_stuInfo.stuCreateTime.dwHour = (uint)DateTime.Now.Hour;
            m_stuInfo.stuCreateTime.dwMinute = (uint)DateTime.Now.Minute;
            m_stuInfo.stuCreateTime.dwSecond = (uint)DateTime.Now.Second;

            m_stuInfo.szCardNo = this.textBox_CardNo.Text.Trim();
            m_stuInfo.szUserID = this.textBox_UserID.Text.Trim();
            m_stuInfo.emStatus                                                    =
(EM_ACCESSCTLCARD_STATE)comboBox_CardStatus.SelectedIndex - 1;
            m_stuInfo.emType                                                      =
(EM_ACCESSCTLCARD_TYPE)comboBox_CardType.SelectedIndex - 1;
            m_stuInfo.szPsw = this.textBox_CardPwd.Text.Trim();
            m_stuInfo.nUseTime = Convert.ToInt32(textBox_UseTimes.Text.Trim());
            m_stuInfo.bNewDoor = true;
            if (m_selectDoorsList.Count > 0)
            {
                for (int i = 0; i < m_selectDoorsList.Count; i++)
                {
                    m_stuInfo.nNewDoors[i] = m_selectDoorsList[i];
                }
            }
            m_stuInfo.nNewDoorNum = m_selectDoorsList.Count;

            if (m_selectTimesList.Count > 0)
            {
                for (int i = 0; i < m_selectTimesList.Count; i++)
                {
```

```
                                        m_stuInfo.nNewTimeSectionNo[i] = m_selectTimesList[i];
                                    }
                                }
                                m_stuInfo.nNewTimeSectionNum = m_selectTimesList.Count;
                                m_stuInfo.stuValidStartTime.dwYear                                    =
(uint)dateTimePicker_ValidStart.Value.Year;
                                m_stuInfo.stuValidStartTime.dwMonth                                   =
(uint)dateTimePicker_ValidStart.Value.Month;
                                m_stuInfo.stuValidStartTime.dwDay = (uint)dateTimePicker_ValidStart.Value.Day;
                                m_stuInfo.stuValidStartTime.dwHour                                    =
(uint)dateTimePicker_ValidStart.Value.Hour;
                                m_stuInfo.stuValidStartTime.dwMinute                                  =
(uint)dateTimePicker_ValidStart.Value.Minute;
                                m_stuInfo.stuValidStartTime.dwSecond                                  =
(uint)dateTimePicker_ValidStart.Value.Second;

                                m_stuInfo.stuValidEndTime.dwYear = (uint)dateTimePicker_ValidEnd.Value.Year;
                                m_stuInfo.stuValidEndTime.dwMonth                                     =
(uint)dateTimePicker_ValidEnd.Value.Month;
                                m_stuInfo.stuValidEndTime.dwDay = (uint)dateTimePicker_ValidEnd.Value.Day;
                                m_stuInfo.stuValidEndTime.dwHour = (uint)dateTimePicker_ValidEnd.Value.Hour;
                                m_stuInfo.stuValidEndTime.dwMinute                                    =
(uint)dateTimePicker_ValidEnd.Value.Minute;
                                m_stuInfo.stuValidEndTime.dwSecond                                    =
(uint)dateTimePicker_ValidEnd.Value.Second;
                                m_stuInfo.bFirstEnter = this.checkBox_First.Checked;



                                IntPtr inPtr = IntPtr.Zero;
                                IntPtr ptr = IntPtr.Zero;
                                try
                                {
                                    inPtr                                                             =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD)));
                                    Marshal.StructureToPtr(m_stuInfo, inPtr, true);

                                    stuInfo.pBuf = inPtr;
                                    stuInfo.nBufLen                                                   =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));
```

```
                    ptr                                                                                    =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM)));
                    Marshal.StructureToPtr(stuInfo, ptr, true);
                    bool              ret              =              NETClient.ControlDevice(loginID,
EM_CtrlType.RECORDSET_UPDATE, ptr, 10000);
                    if (!ret)
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                    MessageBox.Show("Execute Success(operated successfully)" );
                }
                finally
                {
                    Marshal.FreeHGlobal(inPtr);
                    Marshal.FreeHGlobal(ptr);
                }
                OnChangeUIState(nCtlType);
                #endregion
                #region Remove record remove card record
                NET_CTRL_RECORDSET_PARAM stuInfo = new NET_CTRL_RECORDSET_PARAM();
                stuInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM));
                stuInfo.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;
                m_stuInfo.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());


                IntPtr inPtr = IntPtr.Zero;
                IntPtr ptr = IntPtr.Zero;
                try
                {
                    inPtr = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(int)));
                    Marshal.StructureToPtr(m_stuInfo.nRecNo, inPtr, true);

                    stuInfo.pBuf = inPtr;
                    stuInfo.nBufLen = (int)Marshal.SizeOf(typeof(int));

                    ptr                                                                                    =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM)));
                    Marshal.StructureToPtr(stuInfo, ptr, true);
                    bool    ret    =    NETClient.ControlDevice(loginID,
EM_CtrlType.RECORDSET_REMOVE, ptr, 10000);
                    if (!ret)
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                    MessageBox.Show("Execute Success" );
                }
                finally
                {
                    Marshal.FreeHGlobal(inPtr);
                    Marshal.FreeHGlobal(ptr);
                }

                #endregion
                #region Clear card record clear card record
                NET_CTRL_RECORDSET_PARAM    inParam    =    new
NET_CTRL_RECORDSET_PARAM();
                inParam.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM));
                inParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;
                IntPtr inPtr = IntPtr.Zero;
                try
                {
                    inPtr                                                    =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM)));
                    Marshal.StructureToPtr(inParam, inPtr, true);
                    bool ret = NETClient.ControlDevice(loginID, EM_CtrlType.RECORDSET_CLEAR,
inPtr, 10000);
                    if (!ret)
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                    MessageBox.Show("Execute Success(operated successfully)");
                }
                catch (Exception ex)
                {
                    MessageBox.Show(ex.Message);
                }
                finally
                {
                    Marshal.FreeHGlobal(inPtr);
                }
                #endregion

                #region Insert card record with finger added with fingerprint
                NET_CTRL_RECORDSET_INSERT_PARAM                stuInfo                =                new
NET_CTRL_RECORDSET_INSERT_PARAM();
                stuInfo.dwSize                                                                          =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_PARAM));

                stuInfo.stuCtrlRecordSetInfo.dwSize                                                     =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_IN));
                stuInfo.stuCtrlRecordSetInfo.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;

                stuInfo.stuCtrlRecordSetInfo.nBufLen                                                    =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));

                stuInfo.stuCtrlRecordSetResult.dwSize                                                   =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_OUT));

                m_stuInfo.stuCreateTime.dwYear = (uint)DateTime.Now.Year;
                m_stuInfo.stuCreateTime.dwMonth = (uint)DateTime.Now.Month;
                m_stuInfo.stuCreateTime.dwDay = (uint)DateTime.Now.Day;
                m_stuInfo.stuCreateTime.dwHour = (uint)DateTime.Now.Hour;
                m_stuInfo.stuCreateTime.dwMinute = (uint)DateTime.Now.Minute;
                m_stuInfo.stuCreateTime.dwSecond = (uint)DateTime.Now.Second;

                m_stuInfo.szCardNo = this.textBox_CardNo.Text.Trim();
                m_stuInfo.szUserID = this.textBox_UserID.Text.Trim();
                m_stuInfo.emStatus                                                                      =
(EM_ACCESSCTLCARD_STATE)comboBox_CardStatus.SelectedIndex - 1;
                m_stuInfo.emType                                                                        =
(EM_ACCESSCTLCARD_TYPE)comboBox_CardType.SelectedIndex - 1;
                m_stuInfo.szPsw = this.textBox_CardPwd.Text.Trim();
                m_stuInfo.nUseTime = Convert.ToInt32(textBox_UseTimes.Text.Trim());
                m_stuInfo.bNewDoor = true;
                //m_stuInfo.nNewDoorNum;
                // m_stuInfo.sznDoors;
                // m_stuInfo.nNewTimeSectionNum;
                //m_stuInfo.nNewTimeSectionNo
                m_stuInfo.stuValidStartTime.dwYear                                =
(uint)dateTimePicker_ValidStart.Value.Year;
                m_stuInfo.stuValidStartTime.dwMonth                               =
(uint)dateTimePicker_ValidStart.Value.Month;
                m_stuInfo.stuValidStartTime.dwDay = (uint)dateTimePicker_ValidStart.Value.Day;
                m_stuInfo.stuValidStartTime.dwHour                                =
(uint)dateTimePicker_ValidStart.Value.Hour;
                m_stuInfo.stuValidStartTime.dwMinute                              =
(uint)dateTimePicker_ValidStart.Value.Minute;
                m_stuInfo.stuValidStartTime.dwSecond                              =
(uint)dateTimePicker_ValidStart.Value.Second;

                m_stuInfo.stuValidEndTime.dwYear = (uint)dateTimePicker_ValidEnd.Value.Year;
                m_stuInfo.stuValidEndTime.dwMonth                                 =
(uint)dateTimePicker_ValidEnd.Value.Month;
                m_stuInfo.stuValidEndTime.dwDay = (uint)dateTimePicker_ValidEnd.Value.Day;
                m_stuInfo.stuValidEndTime.dwHour = (uint)dateTimePicker_ValidEnd.Value.Hour;
                m_stuInfo.stuValidEndTime.dwMinute                                =
(uint)dateTimePicker_ValidEnd.Value.Minute;
                m_stuInfo.stuValidEndTime.dwSecond                                =
(uint)dateTimePicker_ValidEnd.Value.Second;
                m_stuInfo.bFirstEnter = this.checkBox_First.Checked;

                m_stuInfo.bEnableExtended = true;
                m_stuInfo.stuFingerPrintInfoEx.nCount = 1;
                m_stuInfo.stuFingerPrintInfoEx.nLength = PacketLen;
                m_stuInfo.stuFingerPrintInfoEx.nPacketLen = PacketLen;
                m_stuInfo.stuFingerPrintInfoEx.pPacketData                        =
Marshal.AllocHGlobal(m_stuInfo.stuFingerPrintInfoEx.nPacketLen);
                Marshal.Copy(FingerPrintInfo,   0,   m_stuInfo.stuFingerPrintInfoEx.pPacketData,
m_stuInfo.stuFingerPrintInfoEx.nPacketLen);

                IntPtr inPtr = IntPtr.Zero;
                IntPtr ptr = IntPtr.Zero;
                try
                {
                    inPtr                                                         =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD)));
                    Marshal.StructureToPtr(m_stuInfo, inPtr, true);
                    stuInfo.stuCtrlRecordSetInfo.pBuf = inPtr;
                    stuInfo.stuCtrlRecordSetInfo.nBufLen =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));
                    ptr =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_PARAM)));
                    Marshal.StructureToPtr(stuInfo, ptr, true);
                    bool ret = NETClient.ControlDevice(loginID,
EM_CtrlType.RECORDSET_INSERT, ptr, 10000);
                    if (!ret)
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                    stuInfo =
(NET_CTRL_RECORDSET_INSERT_PARAM)Marshal.PtrToStructure(ptr,
typeof(NET_CTRL_RECORDSET_INSERT_PARAM));
                    MessageBox.Show("Execute Success(operated successfully)\n RetNo=" +
stuInfo.stuCtrlRecordSetResult.nRecNo.ToString());
                }
                finally
                {
                    Marshal.FreeHGlobal(m_stuInfo.stuFingerPrintInfoEx.pPacketData);
                    Marshal.FreeHGlobal(inPtr);
                    Marshal.FreeHGlobal(ptr);
                }
                #endregion

                #region Update record with finger update with figerprint
                NET_CTRL_RECORDSET_PARAM stuInfo = new NET_CTRL_RECORDSET_PARAM();
                stuInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM));
                stuInfo.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;

                m_stuInfo.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());
                m_stuInfo.stuCreateTime.dwYear = (uint)DateTime.Now.Year;
                m_stuInfo.stuCreateTime.dwMonth = (uint)DateTime.Now.Month;
                m_stuInfo.stuCreateTime.dwDay = (uint)DateTime.Now.Day;
                m_stuInfo.stuCreateTime.dwHour = (uint)DateTime.Now.Hour;
                m_stuInfo.stuCreateTime.dwMinute = (uint)DateTime.Now.Minute;
                m_stuInfo.stuCreateTime.dwSecond = (uint)DateTime.Now.Second;

                m_stuInfo.szCardNo = this.textBox_CardNo.Text.Trim();
                m_stuInfo.szUserID = this.textBox_UserID.Text.Trim();
                m_stuInfo.emStatus =
(EM_ACCESSCTLCARD_STATE)comboBox_CardStatus.SelectedIndex - 1;
                m_stuInfo.emType =
(EM_ACCESSCTLCARD_TYPE)comboBox_CardType.SelectedIndex - 1;
                m_stuInfo.szPsw = this.textBox_CardPwd.Text.Trim();
                m_stuInfo.nUseTime = Convert.ToInt32(textBox_UseTimes.Text.Trim());
                m_stuInfo.bNewDoor = true;
                if (m_selectDoorsList.Count > 0)
                {
                    for (int i = 0; i < m_selectDoorsList.Count; i++)
                    {
                        m_stuInfo.nNewDoors[i] = m_selectDoorsList[i];
                    }
                }
                m_stuInfo.nNewDoorNum = m_selectDoorsList.Count;

                if (m_selectTimesList.Count > 0)
                {
                    for (int i = 0; i < m_selectTimesList.Count; i++)
                    {
                        m_stuInfo.nNewTimeSectionNo[i] = m_selectTimesList[i];
                    }
                }
                m_stuInfo.nNewTimeSectionNum = m_selectTimesList.Count;
                m_stuInfo.stuValidStartTime.dwYear =
(uint)dateTimePicker_ValidStart.Value.Year;
                m_stuInfo.stuValidStartTime.dwMonth =
(uint)dateTimePicker_ValidStart.Value.Month;
                m_stuInfo.stuValidStartTime.dwDay = (uint)dateTimePicker_ValidStart.Value.Day;
                m_stuInfo.stuValidStartTime.dwHour =
(uint)dateTimePicker_ValidStart.Value.Hour;
                m_stuInfo.stuValidStartTime.dwMinute =
(uint)dateTimePicker_ValidStart.Value.Minute;
                m_stuInfo.stuValidStartTime.dwSecond =
(uint)dateTimePicker_ValidStart.Value.Second;

                m_stuInfo.stuValidEndTime.dwYear = (uint)dateTimePicker_ValidEnd.Value.Year;
                m_stuInfo.stuValidEndTime.dwMonth =
(uint)dateTimePicker_ValidEnd.Value.Month;
                m_stuInfo.stuValidEndTime.dwDay = (uint)dateTimePicker_ValidEnd.Value.Day;
```

```
            m_stuInfo.stuValidEndTime.dwHour = (uint)dateTimePicker_ValidEnd.Value.Hour;
            m_stuInfo.stuValidEndTime.dwMinute =
(uint)dateTimePicker_ValidEnd.Value.Minute;
            m_stuInfo.stuValidEndTime.dwSecond =
(uint)dateTimePicker_ValidEnd.Value.Second;
            m_stuInfo.bFirstEnter = this.checkBox_First.Checked;

            m_stuInfo.bEnableExtended = true;
            m_stuInfo.stuFingerPrintInfoEx.nCount = 1;
            m_stuInfo.stuFingerPrintInfoEx.nLength = PacketLen;
            m_stuInfo.stuFingerPrintInfoEx.nPacketLen = PacketLen;
            m_stuInfo.stuFingerPrintInfoEx.pPacketData =
Marshal.AllocHGlobal(m_stuInfo.stuFingerPrintInfoEx.nPacketLen);
            Marshal.Copy(FingerPrintInfo, 0, m_stuInfo.stuFingerPrintInfoEx.pPacketData,
m_stuInfo.stuFingerPrintInfoEx.nPacketLen);



            IntPtr inPtr = IntPtr.Zero;
            IntPtr ptr = IntPtr.Zero;
            try
            {
                inPtr =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD)));
                Marshal.StructureToPtr(m_stuInfo, inPtr, true);

                stuInfo.pBuf = inPtr;
                stuInfo.nBufLen =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));

                ptr =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM)));
                Marshal.StructureToPtr(stuInfo, ptr, true);
                bool ret = NETClient.ControlDevice(loginID,
EM_CtrlType.RECORDSET_UPDATEEX, ptr, 10000);
                if (!ret)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }
                MessageBox.Show("Execute Success(operated successfully)");
            }
```

```
                    finally
                    {
                        Marshal.FreeHGlobal(m_stuInfo.stuFingerPrintInfoEx.pPacketData);
                        Marshal.FreeHGlobal(inPtr);
                        Marshal.FreeHGlobal(ptr);
                    }
                    OnChangeUIState(nCtlType);
                    #endregion

                    #region Update record with finger update with fingerprint
                    NET_CTRL_RECORDSET_PARAM stuInfo = new NET_CTRL_RECORDSET_PARAM();
                    stuInfo.dwSize = (uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM));
                    stuInfo.emType = EM_NET_RECORD_TYPE.ACCESSCTLCARD;

                    m_stuInfo.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());
                    m_stuInfo.stuCreateTime.dwYear = (uint)DateTime.Now.Year;
                    m_stuInfo.stuCreateTime.dwMonth = (uint)DateTime.Now.Month;
                    m_stuInfo.stuCreateTime.dwDay = (uint)DateTime.Now.Day;
                    m_stuInfo.stuCreateTime.dwHour = (uint)DateTime.Now.Hour;
                    m_stuInfo.stuCreateTime.dwMinute = (uint)DateTime.Now.Minute;
                    m_stuInfo.stuCreateTime.dwSecond = (uint)DateTime.Now.Second;

                    m_stuInfo.szCardNo = this.textBox_CardNo.Text.Trim();
                    m_stuInfo.szUserID = this.textBox_UserID.Text.Trim();
                    m_stuInfo.emStatus                                                    =
(EM_ACCESSCTLCARD_STATE)comboBox_CardStatus.SelectedIndex - 1;
                    m_stuInfo.emType                                                      =
(EM_ACCESSCTLCARD_TYPE)comboBox_CardType.SelectedIndex - 1;
                    m_stuInfo.szPsw = this.textBox_CardPwd.Text.Trim();
                    m_stuInfo.nUseTime = Convert.ToInt32(textBox_UseTimes.Text.Trim());
                    m_stuInfo.bNewDoor = true;
                    if (m_selectDoorsList.Count > 0)
                    {
                        for (int i = 0; i < m_selectDoorsList.Count; i++)
                        {
                            m_stuInfo.nNewDoors[i] = m_selectDoorsList[i];
                        }
                    }
                    m_stuInfo.nNewDoorNum = m_selectDoorsList.Count;
```

```
                if (m_selectTimesList.Count > 0)
                {
                    for (int i = 0; i < m_selectTimesList.Count; i++)
                    {
                        m_stuInfo.nNewTimeSectionNo[i] = m_selectTimesList[i];
                    }
                }
                m_stuInfo.nNewTimeSectionNum = m_selectTimesList.Count;
                m_stuInfo.stuValidStartTime.dwYear                                     =
(uint)dateTimePicker_ValidStart.Value.Year;
                m_stuInfo.stuValidStartTime.dwMonth                                    =
(uint)dateTimePicker_ValidStart.Value.Month;
                m_stuInfo.stuValidStartTime.dwDay = (uint)dateTimePicker_ValidStart.Value.Day;
                m_stuInfo.stuValidStartTime.dwHour                                     =
(uint)dateTimePicker_ValidStart.Value.Hour;
                m_stuInfo.stuValidStartTime.dwMinute                                   =
(uint)dateTimePicker_ValidStart.Value.Minute;
                m_stuInfo.stuValidStartTime.dwSecond                                   =
(uint)dateTimePicker_ValidStart.Value.Second;

                m_stuInfo.stuValidEndTime.dwYear = (uint)dateTimePicker_ValidEnd.Value.Year;
                m_stuInfo.stuValidEndTime.dwMonth                                      =
(uint)dateTimePicker_ValidEnd.Value.Month;
                m_stuInfo.stuValidEndTime.dwDay = (uint)dateTimePicker_ValidEnd.Value.Day;
                m_stuInfo.stuValidEndTime.dwHour = (uint)dateTimePicker_ValidEnd.Value.Hour;
                m_stuInfo.stuValidEndTime.dwMinute                                     =
(uint)dateTimePicker_ValidEnd.Value.Minute;
                m_stuInfo.stuValidEndTime.dwSecond                                     =
(uint)dateTimePicker_ValidEnd.Value.Second;
                m_stuInfo.bFirstEnter = this.checkBox_First.Checked;

                m_stuInfo.bEnableExtended = true;
                m_stuInfo.stuFingerPrintInfoEx.nCount = 1;
                m_stuInfo.stuFingerPrintInfoEx.nLength = PacketLen;
                m_stuInfo.stuFingerPrintInfoEx.nPacketLen = PacketLen;
                m_stuInfo.stuFingerPrintInfoEx.pPacketData                             =
Marshal.AllocHGlobal(m_stuInfo.stuFingerPrintInfoEx.nPacketLen);
                Marshal.Copy(FingerPrintInfo,    0,    m_stuInfo.stuFingerPrintInfoEx.pPacketData,
m_stuInfo.stuFingerPrintInfoEx.nPacketLen);
```

```
                IntPtr inPtr = IntPtr.Zero;
                IntPtr ptr = IntPtr.Zero;
                try
                {
                    inPtr                                                        =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD)));
                    Marshal.StructureToPtr(m_stuInfo, inPtr, true);

                    stuInfo.pBuf = inPtr;
                    stuInfo.nBufLen                                              =
(int)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARD));

                    ptr                                                          =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_PARAM)));
                    Marshal.StructureToPtr(stuInfo, ptr, true);
                    bool        ret        =        NETClient.ControlDevice(loginID,
EM_CtrlType.RECORDSET_UPDATEEX, ptr, 10000);
                    if (!ret)
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                    MessageBox.Show("Execute Success(operated successfully)");
                }
                finally
                {
                    Marshal.FreeHGlobal(m_stuInfo.stuFingerPrintInfoEx.pPacketData);
                    Marshal.FreeHGlobal(inPtr);
                    Marshal.FreeHGlobal(ptr);
                }
                OnChangeUIState(nCtlType);
                #endregion
```

2.2.8 Door Config

2.2.8.1 Introduction

For door config information, you can call SDK interface to get and set door config of the access device, including unlock mode, lock holding, lock timeout, holiday period number, unlock period, and alarm enabling option.

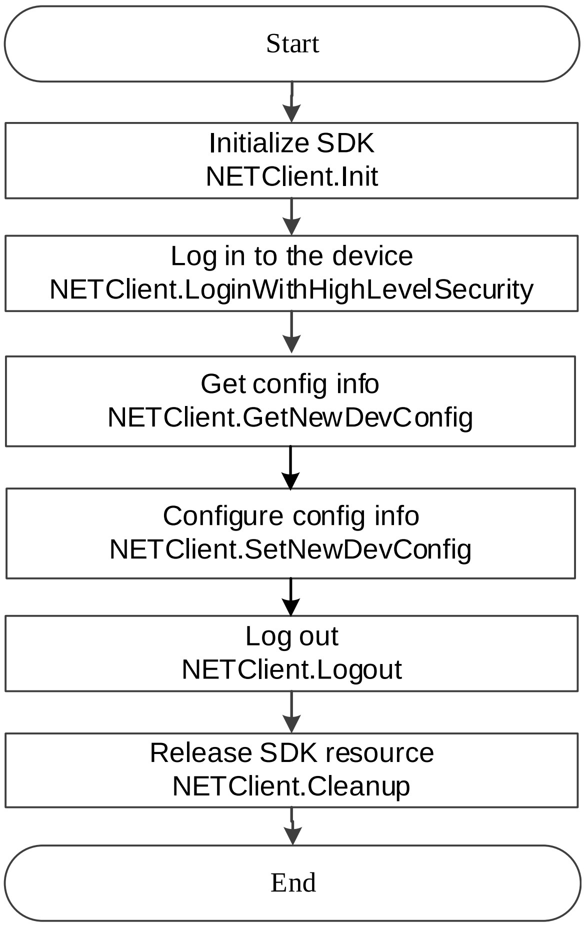
2.2.8.2 Interunlockface Overview

Table 2-27 Description of door config information interfaces

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Set config information.

2.2.8.3 Process Description

Figure 2-25 Door config information



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig** to query the access door info.

- szCommand: AccessControl.
- obj: NET_CFG_ACCESS_EVENT_INFO.

Table 2-28 Description of NET_CFG_ACCESS_EVENT_INFO

CFG_ACCESS_EVENT_INFO	Description
emState	Door status
nUnlockHoldInterval	Unlock duration
nCloseTimeout	Lock timeout period

emDoorOpenMethod	Unlock mode
bDuressAlarmEnable	duress
bBreakInAlarmEnable	Intrusion alarm enabling
bRepeatEnterAlarm	Repeat entry alarm enabling
abDoorNotClosedAlarmEnable	Interlock alarm enabling
abSensorEnable	Door sensor enabling

Step 4 Call **NETClient.SetNewDevConfig** and **NETClient.PacketData** to set the access door info.

- szCommand: AccessControl.
- pBuf: NET_CFG_ACCESS_EVENT_INFO.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.8.4 Note

- When the intrusion alarm and unlock alarm are enabled, users need enable door sensor so that the intrusion alarm and door open alarm can be implemented.
- Set the serial number of always open period, always close period and remote verifitication. For details, see "2.2.9.1 Period Config."

2.2.8.5 Sample Code

```
// get door config info
        NET_CFG_ACCESS_EVENT_INFO cfg = new NET_CFG_ACCESS_EVENT_INFO();
        public NET_CFG_ACCESS_EVENT_INFO? GetConfig()
        {
            try
            {
                object objTemp = new object();
                bool bRet = NETClient.GetNewDevConfig(loginID,
cmbBox_DoorIndex.SelectedIndex, "AccessControl", ref objTemp,
typeof(NET_CFG_ACCESS_EVENT_INFO), 5000);
                cfg = (NET_CFG_ACCESS_EVENT_INFO)objTemp;
                if (!bRet)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return cfg;
                }
                cfg = (NET_CFG_ACCESS_EVENT_INFO)objTemp;
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return cfg;
        }

        public bool SetConfig(NET_CFG_ACCESS_EVENT_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, cmbBox_DoorIndex.SelectedIndex,
"AccessControl", (object)cfg, typeof(NET_CFG_ACCESS_EVENT_INFO), 5000);
            }
            catch (NETClientExcetion nex)
            {
                Console.WriteLine(nex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine(ex.Message);
            }
            return bRet;
        }
```

2.2.9 Door Time Config

2.2.9.1 Period Config

2.2.9.1.1 Introduction

For period config information, you can call SDK interface to get and set the door period of the access control device. The configuration of this template cannot directly take effect on the device and needs to be called by other function modules.

2.2.9.1.2 Interface Overview

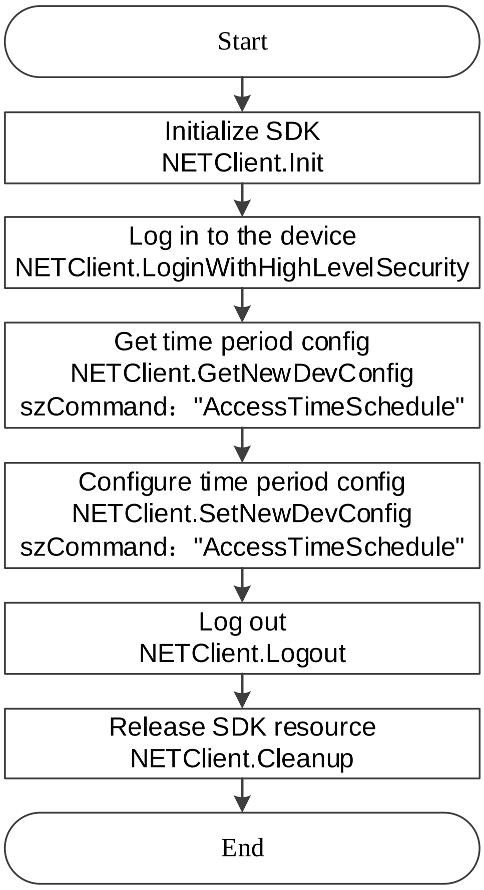
Table 2-29 Description of period interfaces

Interface	Description
NETClient.GetNewDevConfig	Query config information.

NETClient.SetNewDevConfig	Configure config information.

2.2.9.1.3 Process Description

Figure 2-26 Period config



Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get time period config
NETClient.GetNewDevConfig
szCommand："AccessTimeSchedule"
Configure time period config
NETClient.SetNewDevConfig
szCommand："AccessTimeSchedule"
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig** to query the access period info.

- szCommand: AccessTimeSchedule.
- pBuf: CFG_ACCESS_TIMESCHEDULE_INFO.

Step 4 Call **NETClient.SetNewDevConfig** to set the access period info.

- szCommand: AccessTimeSchedule.
- pBuf: CFG_ACCESS_TIMESCHEDULE_INFO.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.2.9.1.4 Sample Code

```
// Get time period config info
            timeSchedule = new NET_CFG_ACCESS_TIMESCHEDULE_INFO();
            object objInfo = timeSchedule;
            bool ret = NETClient.GetNewDevConfig(loginID, comboBox_Index.SelectedIndex + 1,
CFG_CMD_ACCESSTIMESCHEDULE, ref objInfo, typeof(NET_CFG_ACCESS_TIMESCHEDULE_INFO),
10000);
```

```
                if (!ret)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }
                timeSchedule = (NET_CFG_ACCESS_TIMESCHEDULE_INFO)objInfo;

                textBox_Name.Text = timeSchedule.szName;

                var temp = timeSchedule.stuTime[comboBox_Week.SelectedIndex * 4];
                dateTimePicker_Start1.Value = new DateTime(2020, 1, 1, temp.nBeginHour,
temp.nBeginMin, temp.nBeginSec);
                dateTimePicker_End1.Value = new DateTime(2020, 1, 1, temp.nEndHour,
temp.nEndMin, temp.nEndSec);

                temp = timeSchedule.stuTime[comboBox_Week.SelectedIndex * 4 + 1];
                dateTimePicker_Start2.Value = new DateTime(2020, 1, 1, temp.nBeginHour,
temp.nBeginMin, temp.nBeginSec);
                dateTimePicker_End2.Value = new DateTime(2020, 1, 1, temp.nEndHour,
temp.nEndMin, temp.nEndSec);

                temp = timeSchedule.stuTime[comboBox_Week.SelectedIndex * 4 + 2];
                dateTimePicker_Start3.Value = new DateTime(2020, 1, 1, temp.nBeginHour,
temp.nBeginMin, temp.nBeginSec);
                dateTimePicker_End3.Value = new DateTime(2020, 1, 1, temp.nEndHour,
temp.nEndMin, temp.nEndSec);

                temp = timeSchedule.stuTime[comboBox_Week.SelectedIndex * 4 + 3];
                dateTimePicker_Start4.Value = new DateTime(2020, 1, 1, temp.nBeginHour,
temp.nBeginMin, temp.nBeginSec);
                dateTimePicker_End4.Value = new DateTime(2020, 1, 1, temp.nEndHour,
temp.nEndMin, temp.nEndSec);

                MessageBox.Show("Get success(Get successfully)");

                object objInfo = timeSchedule;
                bool ret = NETClient.SetNewDevConfig(loginID, comboBox_Index.SelectedIndex + 1,
CFG_CMD_ACCESSTIMESCHEDULE, objInfo, typeof(NET_CFG_ACCESS_TIMESCHEDULE_INFO),
10000);
                if (!ret)
                {
```

```
                MessageBox.Show(NETClient.GetLastError());
                return;
            }
            MessageBox.Show("Set success");
```

2.2.9.2 Always Open and Always Closed Period Config

2.2.9.2.1 Introduction

For always open and always closed period config, you can call SDK interface to get and set the period config of the access control device, including always open period, always closed period, remote verification period.

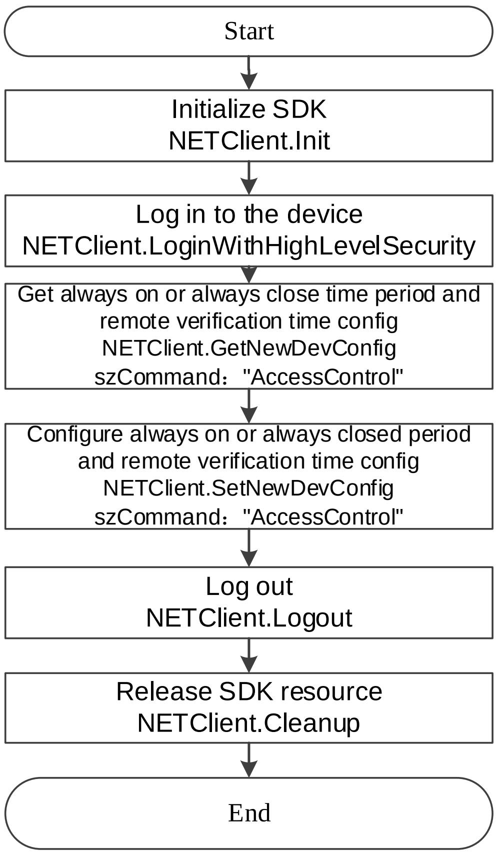
2.2.9.2.2 Interface Overview

Table 2-30 Description of always open and always closed period config interfaces

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Configure config information.

2.2.9.2.3 Process Description

Figure 2-27 Always open and always closed period config


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get always on or always close time period and remote verification time config
NETClient.GetNewDevConfig
szCommand："AccessControl"
Configure always on or always closed period and remote verification time config
NETClient.SetNewDevConfig
szCommand："AccessControl"
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig** to query the access always open and always closed period info, and remote verification period.

- szCommand: AccessControl.
- pBuf: NET_CFG_ACCESS_EVENT_INFO.

Table 2-31 Description of NET_CFG_ACCESS_EVENT_INFO

CFG_ACCESS_EVENT_INFO	Description
nOpenAlwaysTimeIndex	Always open period config
nCloseAlwaysTimeIndex	Always closed period config
stuAutoRemoteCheck	Remote verification period

Step 4 Call **NETClient.SetNewDevConfig** in pairs to set the access always open and always closed period info, and remote verification period.

- szCommand: AccessControl.
- pBuf: NET_CFG_ACCESS_EVENT_INFO.

Table 2-32 Description of NET_CFG_ACCESS_EVENT_INFO

NET_CFG_ACCESS_EVENT_INFO	Description
nOpenAlwaysTimeIndex	Always open period config
nCloseAlwaysTimeIndex	Always closed period config
stuAutoRemoteCheck	Remote verification period

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

Note

Set the serial number of always open period, always close period and remote verifitication. For details, see "2.2.9.1 Period Config."

2.2.9.2.4 Sample Code

```
// get time period config of always on always closed and remote verification
        NET_CFG_ACCESS_EVENT_INFO cfg = new NET_CFG_ACCESS_EVENT_INFO();
        public NET_CFG_ACCESS_EVENT_INFO? GetConfig()
        {
            try
            {
                object objTemp = new object();
                bool bRet = NETClient.GetNewDevConfig(loginID, comboBox_DoorNo.SelectedIndex, "AccessControl", ref objTemp, typeof(NET_CFG_ACCESS_EVENT_INFO), 5000);
                if (bRet)
                {
                    cfg = (NET_CFG_ACCESS_EVENT_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return cfg;
        }

        public bool SetConfig(NET_CFG_ACCESS_EVENT_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, comboBox_DoorNo.SelectedIndex,
"AccessControl", (object)cfg, typeof(NET_CFG_ACCESS_EVENT_INFO), 5000);
            }
            catch (NETClientExcetion nex)
            {
                Console.WriteLine(nex.Message);
            }
            catch (Exception ex)
            {
                Console.WriteLine(ex.Message);
            }
            return bRet;
        }
```

2.2.9.3 Holiday Config

2.2.9.3.1 Introduction

For holiday config, you can call SDK interface to get and configure the holiday of the access control device.

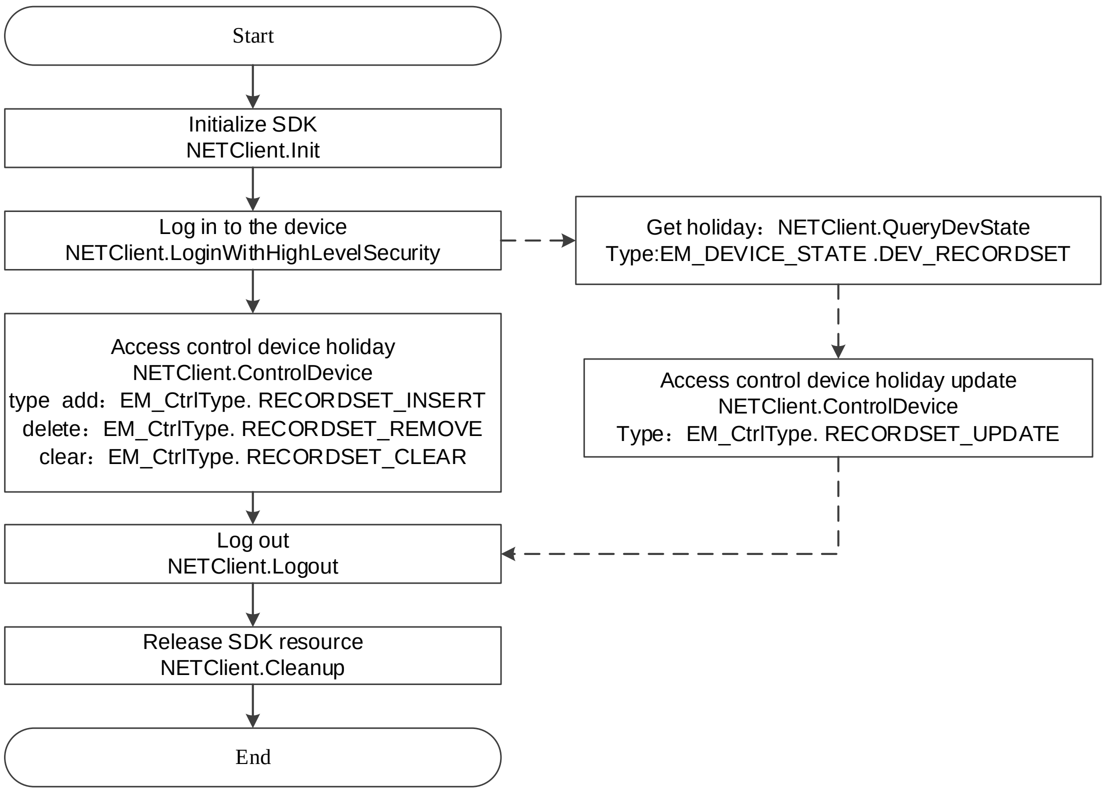
2.2.9.3.2 Interface Overview

Table 2-33 Description of holiday config interfaces

Interface	Description
NETClient.ControlDevice	Control device.
NETClient.QueryDevState	Query device status.

2.2.9.3.3 Process Description

Figure 2-28 Holiday config


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get holiday：NETClient.QueryDevState
Type:EM_DEVICE_STATE .DEV_RECORDSET
Access control device holiday
NETClient.ControlDevice
type add：EM_CtrlType. RECORDSET_INSERT
delete：EM_CtrlType. RECORDSET_REMOVE
clear：EM_CtrlType. RECORDSET_CLEAR
Access control device holiday update
NETClient.ControlDevice
Type：EM_CtrlType. RECORDSET_UPDATE
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient. Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.ControlDevice** to operate holiday information.

Table 2-34 Description and structure of type

Type	Description	emType	Param
EM_CtrlType. RECORDSET_INSERT	Add holiday	EM_NET_RECORD_ TYPE. ACCESSCTLHOLIDA Y	NET_CTRL_RECORDSET_INSERT_ PARAM NET_RECORDSET_HOLIDAY
EM_CtrlType. RECORDSET_REMO VE	Delete holiday	EM_NET_RECORD_ TYPE. ACCESSCTLHOLIDA Y	NET_CTRL_RECORDSET_PARAM NET_RECORDSET_HOLIDAY
EM_CtrlType. RECORDSET_CLEAR	Clear holiday	EM_NET_RECORD_ TYPE. ACCESSCTLHOLIDA Y	NET_CTRL_RECORDSET_PARAM

Step 4 Call the **NETClient.QueryDevState** interface to **get holiday** information.

Table 2-35 Description and structure of type

Type	Description	emType	Param
EM_DEVICE_STATE .D EV_RECORDSET	Get holiday	EM_NET_RECORD _TYPE.ACCESSCTL HOLIDAY	NET_CTRL_RECORDSET_PARAM NET_RECORDSET_HOLIDAY

Step 5 Call the NETClient.ControlDevice to update holiday information.

Table 2-36 Description and structure of type

Type	Description	emType	Param
DH_CTRL_RECORDSE T_UPDATE	Update holiday	EM_NET_RECORD _TYPE.ACCESSCTL HOLIDAY	NET_CTRL_RECORDSET_PARAM NET_RECORDSET_HOLIDAY

Step 6 After completing this process, call the **NETClient.Logout** to log out of the device.

Step 7 After using all SDK functions, call the **NETClient.Cleanup** to release SDK resources.

2.2.9.3.4 Sample Code

```
// Get holiday
            IntPtr pBuf = IntPtr.Zero;

            NET_RECORDSET_HOLIDAY result = new NET_RECORDSET_HOLIDAY();
            NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();

            try
            {
                pBuf = Marshal.AllocHGlobal(Marshal.SizeOf(result));

                //package for pwd
                result.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());
                result.dwSize = (uint)Marshal.SizeOf(result);
                Marshal.StructureToPtr(result, pBuf, true);
                //package stuParam
                stuParam.pBuf = pBuf;
                stuParam.nBufLen = Marshal.SizeOf(result);
                stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLHOLIDAY;
                stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);
                object obj = stuParam;

                bool bRet = NETClient.QueryDevState(loginID,
(int)EM_DEVICE_STATE.DEV_RECORDSET, ref obj, typeof(NET_CTRL_RECORDSET_PARAM), 3000);
                if (bRet)
                {
                    update_holiday = (NET_RECORDSET_HOLIDAY)Marshal.PtrToStructure(pBuf,
typeof(NET_RECORDSET_HOLIDAY));

                    dateTimePicker_StartTime.Value =
update_holiday.stuStartTime.ToDateTime();
                    dateTimePicker_EndTime.Value = update_holiday.stuEndTime.ToDateTime();
                    textBox_HolidayNo.Text = update_holiday.szHolidayNo;
                    MessageBox.Show("Get succeed");
                    OnChangeUIState(5);
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            finally
            {
                Marshal.FreeHGlobal(pBuf);
            }

// Add holiday
            IntPtr pParam = IntPtr.Zero;
            IntPtr pBuf = IntPtr.Zero;
            NET_CTRL_RECORDSET_INSERT_PARAM         stuInsertParam         =         new
NET_CTRL_RECORDSET_INSERT_PARAM();
            NET_CTRL_RECORDSET_INSERT_PARAM         stuOutParam         =         new
NET_CTRL_RECORDSET_INSERT_PARAM();

            NET_RECORDSET_HOLIDAY stuHoliday = new NET_RECORDSET_HOLIDAY();
            object obj = stuHoliday;
            InitStruct(ref obj);
            stuHoliday = (NET_RECORDSET_HOLIDAY)obj;
            stuHoliday.dwSize = (uint)Marshal.SizeOf(stuHoliday);

            stuHoliday.stuStartTime.dwYear = (uint)dateTimePicker_StartTime.Value.Year;
            stuHoliday.stuStartTime.dwMonth = (uint)dateTimePicker_StartTime.Value.Month;
            stuHoliday.stuStartTime.dwDay = (uint)dateTimePicker_StartTime.Value.Day;

            stuHoliday.stuEndTime.dwYear = (uint)dateTimePicker_EndTime.Value.Year;
            stuHoliday.stuEndTime.dwMonth = (uint)dateTimePicker_EndTime.Value.Month;
            stuHoliday.stuEndTime.dwDay = (uint)dateTimePicker_EndTime.Value.Day;

            stuHoliday.szHolidayNo = textBox_HolidayNo.Text;

            if (m_selectDoorsList.Count > 0)
            {
                for (int i = 0; i < m_selectDoorsList.Count; i++)
                {
                    stuHoliday.sznDoors[i] = m_selectDoorsList[i];
                }
            }
            stuHoliday.nDoorNum = m_selectDoorsList.Count;

            try
            {
                pParam                                                                    =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_PARAM)));
                pBuf                                                                      =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_HOLIDAY)));

                Marshal.StructureToPtr(stuHoliday, pBuf, true);

                //package stuInsertParam
```

```
                    stuInsertParam.stuCtrlRecordSetInfo.pBuf = pBuf;
                    stuInsertParam.stuCtrlRecordSetInfo.nBufLen = Marshal.SizeOf(stuHoliday);
                    stuInsertParam.dwSize = (uint)Marshal.SizeOf(stuInsertParam);
                    stuInsertParam.stuCtrlRecordSetInfo.dwSize =
(uint)Marshal.SizeOf(stuInsertParam.stuCtrlRecordSetInfo);
                    stuInsertParam.stuCtrlRecordSetInfo.emType =
EM_NET_RECORD_TYPE.ACCESSCTLHOLIDAY;
                    stuInsertParam.stuCtrlRecordSetResult.dwSize =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_OUT));
                    Marshal.StructureToPtr(stuInsertParam, pParam, true);



                    bool bRet = NETClient.ControlDevice(loginID, EM_CtrlType.RECORDSET_INSERT,
pParam, 3000);

                    stuOutParam =
(NET_CTRL_RECORDSET_INSERT_PARAM)Marshal.PtrToStructure(pParam,
typeof(NET_CTRL_RECORDSET_INSERT_PARAM));
                    if (bRet && stuOutParam.stuCtrlRecordSetResult.nRecNo > 0)
                    {
                        MessageBox.Show("Inster succeed。RecNO:" +
stuOutParam.stuCtrlRecordSetResult.nRecNo);
                    }
                    else
                    {
                        MessageBox.Show(NETClient.GetLastError());
                    }

                }
                catch (Exception ex)
                {
                    MessageBox.Show(ex.Message);
                }
                //free resource
                finally
                {
                    Marshal.FreeHGlobal(pParam);
                    Marshal.FreeHGlobal(pBuf);
                }

// update holiday
```

```
                update_holiday.stuEndTime.dwDay = (uint)dateTimePicker_EndTime.Value.Day;

                update_holiday.szHolidayNo = textBox_HolidayNo.Text;
                if (m_selectDoorsList.Count > 0)
                {
                    for (int i = 0; i < m_selectDoorsList.Count; i++)
                    {
                        update_holiday.sznDoors[i] = m_selectDoorsList[i];
                    }
                }
                update_holiday.nDoorNum = m_selectDoorsList.Count;



                bool bRet = false;
                IntPtr pParam = IntPtr.Zero;
                IntPtr pBuf = IntPtr.Zero;
                NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();
                try
                {
                    pParam = Marshal.AllocHGlobal(Marshal.SizeOf(stuParam));
                    pBuf = Marshal.AllocHGlobal(Marshal.SizeOf(update_holiday));



                    Marshal.StructureToPtr(update_holiday, pBuf, true);
                    stuParam.pBuf = pBuf;
                    stuParam.nBufLen = Marshal.SizeOf(update_holiday);
                    stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLHOLIDAY;
                    stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);
                    Marshal.StructureToPtr(stuParam, pParam, true);

                    bRet    =    NETClient.ControlDevice(loginID,    EM_CtrlType.RECORDSET_UPDATE,
pParam, 3000);
                    if (bRet)
                    {
                        MessageBox.Show("Update succeed。");
                    }
                    else
                    {
                        MessageBox.Show(NETClient.GetLastError());
                    }
```

```
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            finally
            {
                Marshal.FreeHGlobal(pParam);
                Marshal.FreeHGlobal(pBuf);
            }

// remove holiday
            IntPtr pParam = IntPtr.Zero;
            IntPtr pBuf = IntPtr.Zero;
            NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();
            stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLHOLIDAY;
            stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);
            stuParam.pBuf = IntPtr.Zero;
            stuParam.nBufLen = 0;
            try
            {
                pParam = Marshal.AllocHGlobal(Marshal.SizeOf(stuParam));
                pBuf = Marshal.AllocHGlobal(Marshal.SizeOf(int.Parse(textBox_RecNo.Text)));
                Marshal.StructureToPtr(int.Parse(textBox_RecNo.Text), pBuf, true);
                stuParam.pBuf = pBuf;
                stuParam.nBufLen = Marshal.SizeOf(int.Parse(textBox_RecNo.Text));
                Marshal.StructureToPtr(stuParam, pParam, true);

                result   =   NETClient.ControlDevice(loginID,   EM_CtrlType.RECORDSET_REMOVE,
pParam, 3000);
                if (result)
                {
                    MessageBox.Show("Remove succeed。");
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            finally
            {
                Marshal.FreeHGlobal(pBuf);
                Marshal.FreeHGlobal(pParam);
            }

// clear holiday
            IntPtr pParam = IntPtr.Zero;
            NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();
            stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLHOLIDAY;
            stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);

            pParam = Marshal.AllocHGlobal(Marshal.SizeOf(stuParam));
            Marshal.StructureToPtr(stuParam, pParam, true);

            bool result = NETClient.ControlDevice(loginID, EM_CtrlType.RECORDSET_CLEAR,
pParam, 3000);
            if (result)
            {
                MessageBox.Show("Clear succeed");
            }
            else
            {
                MessageBox.Show(NETClient.GetLastError());
            }
```

2.2.10 Advanced Config of Door

2.2.10.1 Unlock at Designated Intervals and First Card Unlock

2.2.10.1.1 Introduction

For unlock at designated intervals and first card unlock, you can call SDK interface to get and set the config of unlock at designated intervals, first card unlock and first user unlock of the access control device.

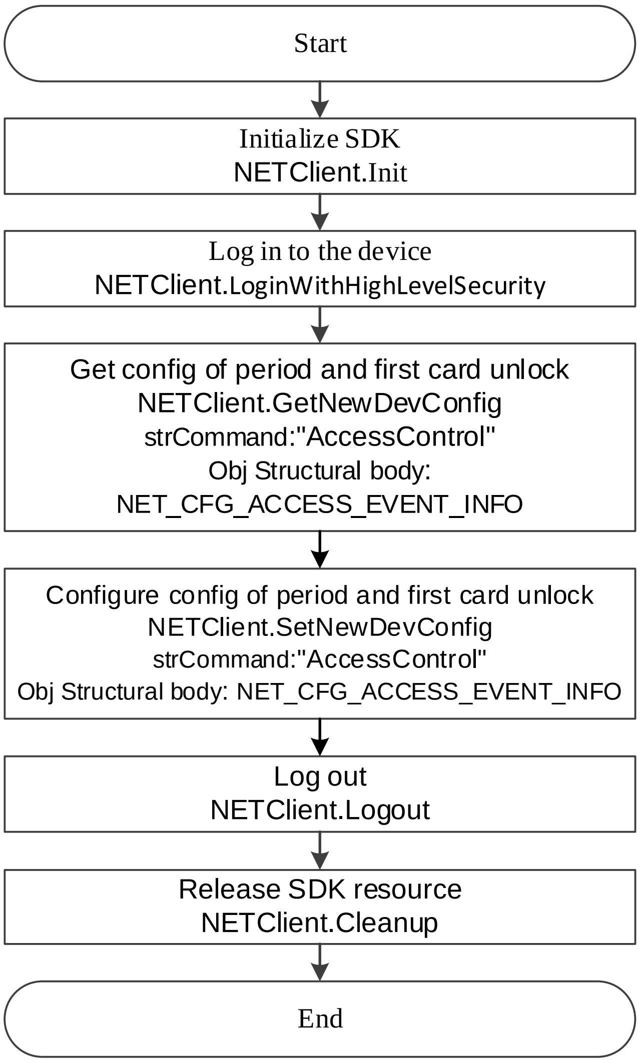
2.2.10.1.2 Interface Overview

Table 2-37 Description of interfaces for unlock at designated intervals and first card unlock

Interface	Description
NETClient. GetNewDevConfig	Query config information.
NETClient. SetNewDevConfig	Set config information.

2.2.10.1.3 Process Description

Figure 2-29 Unlock at designated intervals and first card unlock


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get config of period and first card unlock
NETClient.GetNewDevConfig
strCommand:"AccessControl"
Obj Structural body:
NET_CFG_ACCESS_EVENT_INFO
Configure config of period and first card unlock
NETClient.SetNewDevConfig
strCommand:"AccessControl"
Obj Structural body: NET_CFG_ACCESS_EVENT_INFO
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetNewDevConfig** to query the access info of unlock at designated intervals and first card unlock.

- szCommand: AccessControl.
- pBuf: NET_CFG_ACCESS_EVENT_INFO.

Table 2-38 Description of CFG_ACCESS_EVENT_INFO

CFG_ACCESS_EVENT_INFO	Description
stuDoorTimeSection	Config of unlock at designated intervals
stuFirstEnterInfo	First user/first card unlock config

Step 4 Call **NETClient.SetNewDevConfig** in pairs to set the access info of unlock at designated intervals and first card unlock.

- szCommand: AccessControl.
- pBuf: NET_CFG_ACCESS_EVENT_INFO.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

Note

- User ID of first card refers to card number.
- To implement first card unlock function, add the person of the user ID to device and select the card as first card; otherwise, the first card unlock function cannot be used.

2.2.10.1.4 Sample Code

```
// get config of unlock b period and config of first card/user unlock
        public bool GetConfig()
        {
            bool bRet = false;
            try
            {
                object objTemp = new object();
                bRet = NETClient.GetNewDevConfig(loginID, comboBox_Channel.SelectedIndex,
CFG_CMD_ACCESS_EVENT, ref objTemp, typeof(NET_CFG_ACCESS_EVENT_INFO), 5000);
                if (bRet)
                {
                    cfg = (NET_CFG_ACCESS_EVENT_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }
        public bool SetConfig(NET_CFG_ACCESS_EVENT_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, comboBox_Channel.SelectedIndex,
CFG_CMD_ACCESS_EVENT, (object)cfg, typeof(NET_CFG_ACCESS_EVENT_INFO), 5000);
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }
```

2.2.10.2 Combination Unlock by Multiple Persons

2.2.10.2.1 Introduction

For combination unlock by multiple persons, you can call SDK interface to get and set the config of combination unlock by multiple persons of the access control device.

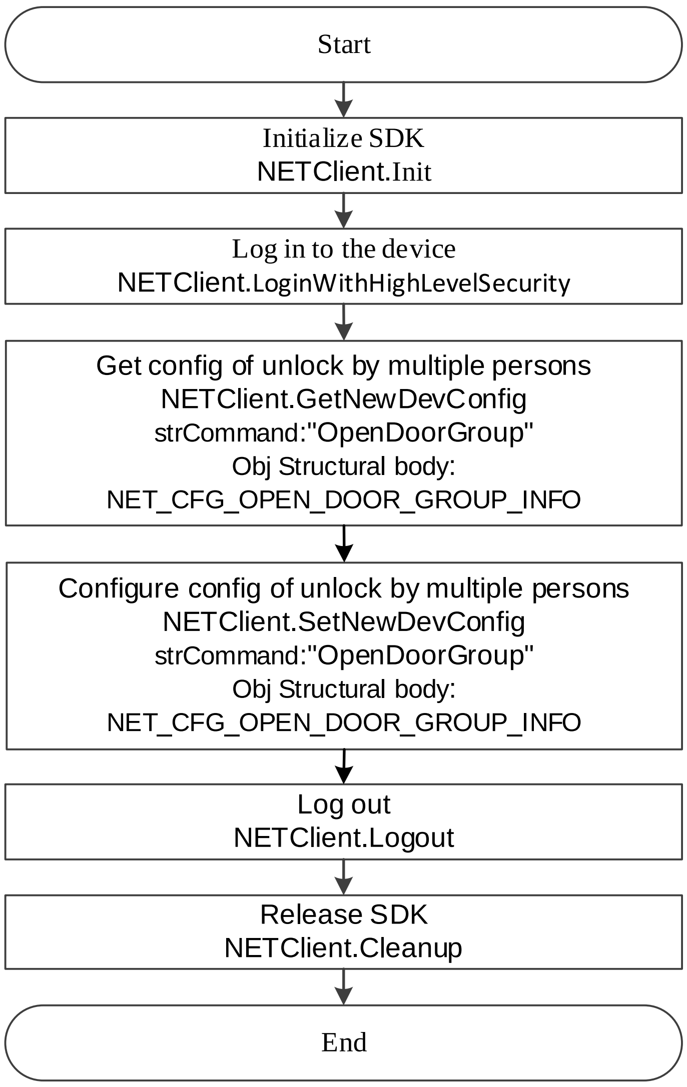
2.2.10.2.2 Interface Overview

Table 2-39 Description of interfaces for combination unlock by multiple persons

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Set config information.

2.2.10.2.3 Process Description

Figure 2-30 Combination unlock by multiple persons


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get config of unlock by multiple persons
NETClient.GetNewDevConfig
strCommand:"OpenDoorGroup"
Obj Structural body:
NET_CFG_OPEN_DOOR_GROUP_INFO
Configure config of unlock by multiple persons
NETClient.SetNewDevConfig
strCommand:"OpenDoorGroup"
Obj Structural body:
NET_CFG_OPEN_DOOR_GROUP_INFO
Log out
NETClient.Logout
Release SDK
NETClient.Cleanup
End

Process

Step 1 Call **NETClient. Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient. GetNewDevConfig** to query the access info of combination unlock by multiple persons

Step 4 Call **NETClient. SetNewDevConfig** to set the access info of combination unlock by multiple persons.

Step 5 After completing this process, call **NETClient.Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

Note

- Before configuring combination unlock by multiple persons, add personnel to the device.
- Combination number: Group the personnel, and one door can configure up to 4 personnel groups.

- Personnel group: Person within the group and one group has up to 50 persons who should be added to device in advance.
- Number of valid persons: Should be less than or equal to the current number of persons in the group, and the total number of valid persons for one door is less than or equal to five persons.
- Set the unlock method for the personnel group: You can select from card or fingerprint.

2.2.10.2.4 Sample Code

```
        public bool GetConfig()
        {
            bool bRet = false;
            try
            {
                cfg_info.stuGroupInfo = new NET_CFG_OPEN_DOOR_GROUP[4];
                for (int i = 0; i < cfg_info.stuGroupInfo.Length; i++)
                {
                    cfg_info.stuGroupInfo[i].stuGroupDetail = new
NET_CFG_OPEN_DOOR_GROUP_DETAIL[64];
                }

                object objTemp = cfg_info;
                bRet = NETClient.GetNewDevConfig(loginID, comboBox_Door.SelectedIndex,
CFG_CMD_OPEN_DOOR_GROUP, ref objTemp, typeof(NET_CFG_OPEN_DOOR_GROUP_INFO),
10000);
                if (bRet)
                {
                    cfg_info = (NET_CFG_OPEN_DOOR_GROUP_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }

        public bool SetConfig(NET_CFG_OPEN_DOOR_GROUP_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet    =    NETClient.SetNewDevConfig(loginID,    comboBox_Door.SelectedIndex,
CFG_CMD_OPEN_DOOR_GROUP, (object)cfg, typeof(NET_CFG_OPEN_DOOR_GROUP_INFO), 5000);
                if (!bRet)
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }
```

2.2.10.3 Inter-door Lock

2.2.10.3.1 Introduction

For inter-door lock config, you can call SDK interface to get and set the inter-door lock config of the access control device.

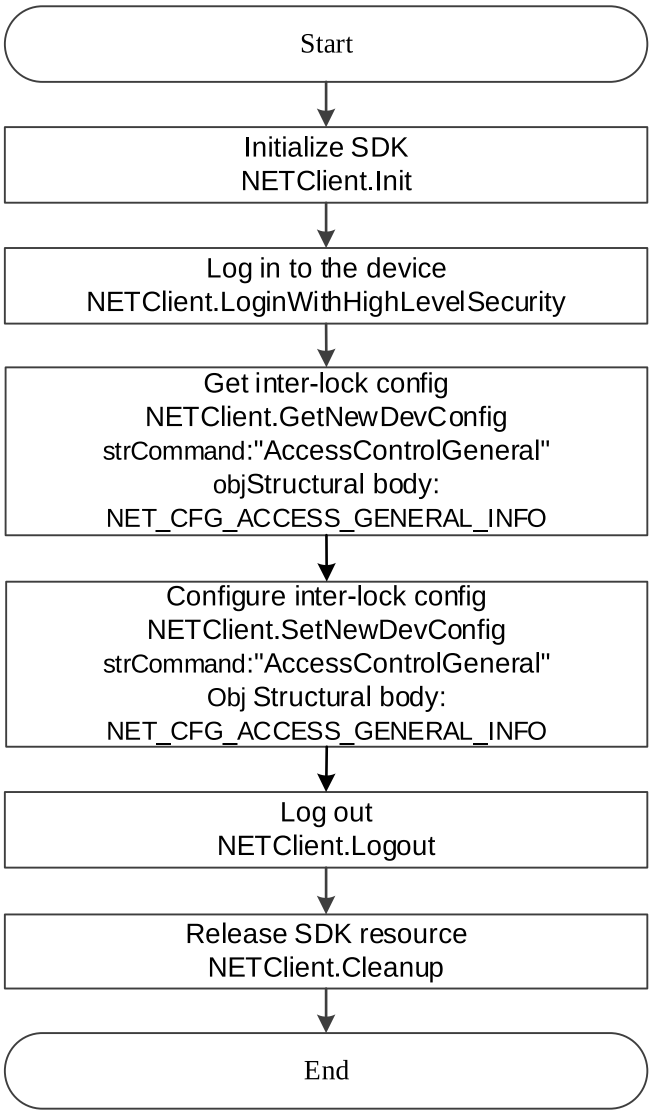
2.2.10.3.2 Interface Overview

Table 2-40 Description of inter-door lock interfaces

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Set config information.

2.2.10.3.3 Process Description

Figure 2-31 Inter-door lock config


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get inter-lock config
NETClient.GetNewDevConfig
strCommand:"AccessControlGeneral"
objStructural body:
NET_CFG_ACCESS_GENERAL_INFO
Configure inter-lock config
NETClient.SetNewDevConfig
strCommand:"AccessControlGeneral"
Obj Structural body:
NET_CFG_ACCESS_GENERAL_INFO
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.
Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient.GetNewDevConfig** to query the access inter-door lock info.
Step 4 Call **NETClient. SetNewDevConfig** to set the access inter-door lock info.
Step 5 After completing this process, call **NETClient. Logout** to log out of the device.
Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

Note

One device supports only one inter-door lock scheme.

2.2.10.3.4 Sample Code

```
//get inter-lock config
            public bool GetConfig()
```

```
        {
            bool bRet = false;
            try
            {
                object objTemp = new object();
                bRet = NETClient.GetNewDevConfig(loginID, -1, CFG_CMD_ACCESS_GENERAL, ref
objTemp, typeof(NET_CFG_ACCESS_GENERAL_INFO), 5000);
                if (bRet)
                {
                    cfg = (NET_CFG_ACCESS_GENERAL_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }

        public bool SetConfig(NET_CFG_ACCESS_GENERAL_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet  =  NETClient.SetNewDevConfig(loginID,  -1,  CFG_CMD_ACCESS_GENERAL,
(object)cfg, typeof(NET_CFG_ACCESS_GENERAL_INFO), 5000);
                if (!bRet)
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }
```

2.2.10.4 Anti-passback

2.2.10.4.1 Introduction

For anti-passback config, you can call SDK interface to get and set the anti-passback config of the access control device.

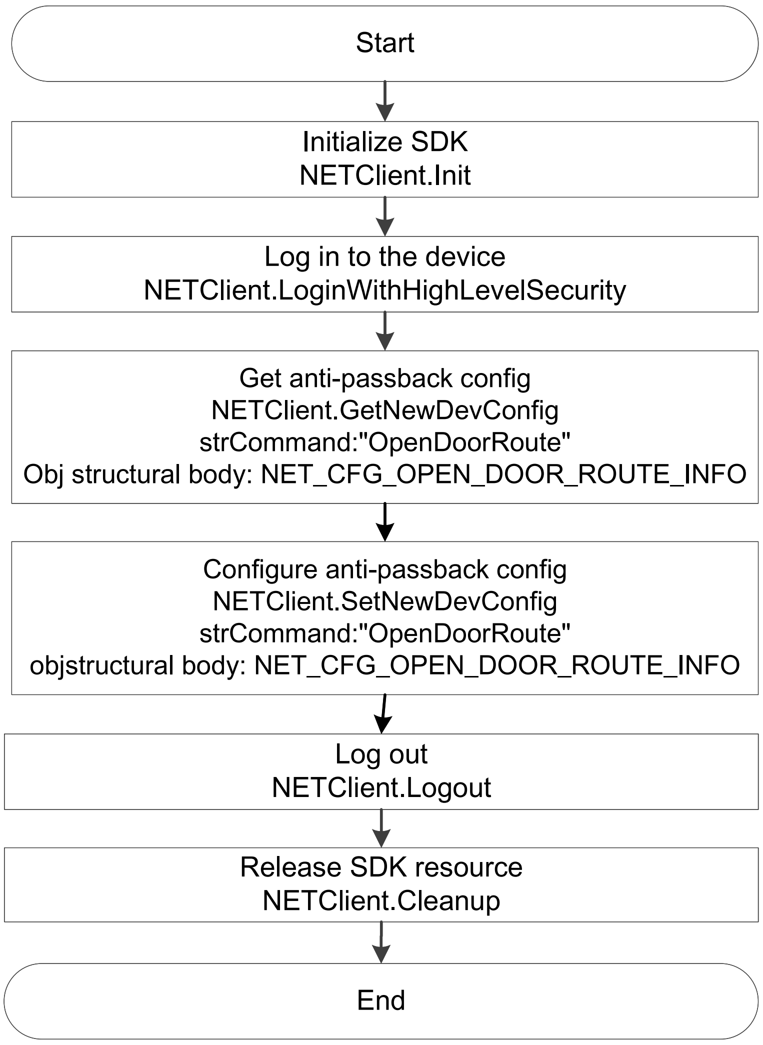
2.2.10.4.2 Interface Overview

Table 2-41 Description of anti-passback interfaces

Interface	Description
NETClient.GetNewDevConfig	Query config information.
NETClient.SetNewDevConfig	Set config information.

2.2.10.4.3 Process Description

Figure 2-32 Anti-passback config


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get anti-passback config
NETClient.GetNewDevConfig
strCommand:"OpenDoorRoute"
Obj structural body: NET_CFG_OPEN_DOOR_ROUTE_INFO
Configure anti-passback config
NETClient.SetNewDevConfig
strCommand:"OpenDoorRoute"
objstructural body: NET_CFG_OPEN_DOOR_ROUTE_INFO
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.
Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient.GetNewDevConfig** to query the access anti-passback info.
Step 4 Call **NETClient.SetNewDevConfig** to set the access anti-passback info.
Step 5 After completing this process, call **NETClient.Logout** to log out of the device.
Step 6 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

Note

One device supports only one anti-passback scheme.

2.2.10.4.4 Sample Code

```
//get anti-passback config
        public bool GetConfig()
        {
            bool bRet = false;
            try
            {
                object objTemp = new object();
                bRet = NETClient.GetNewDevConfig(loginID, -1, CFG_CMD_OPEN_DOOR_ROUTE,
ref objTemp, typeof(NET_CFG_OPEN_DOOR_ROUTE_INFO), 5000);
                if (bRet)
                {
                    cfg = (NET_CFG_OPEN_DOOR_ROUTE_INFO)objTemp;
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }

        public bool SetConfig(NET_CFG_OPEN_DOOR_ROUTE_INFO cfg)
        {
            bool bRet = false;
            try
            {
                bRet = NETClient.SetNewDevConfig(loginID, -1, CFG_CMD_OPEN_DOOR_ROUTE,
(object)cfg, typeof(NET_CFG_OPEN_DOOR_ROUTE_INFO), 5000);
                if (!bRet)
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (NETClientExcetion nex)
            {
                MessageBox.Show(nex.Message);
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            return bRet;
        }
```

2.2.10.5 Unlock Password

2.2.10.5.1 Introduction

For unlock password, you can call SDK interface to add, delete, query and modify the unlock password of the access control device.

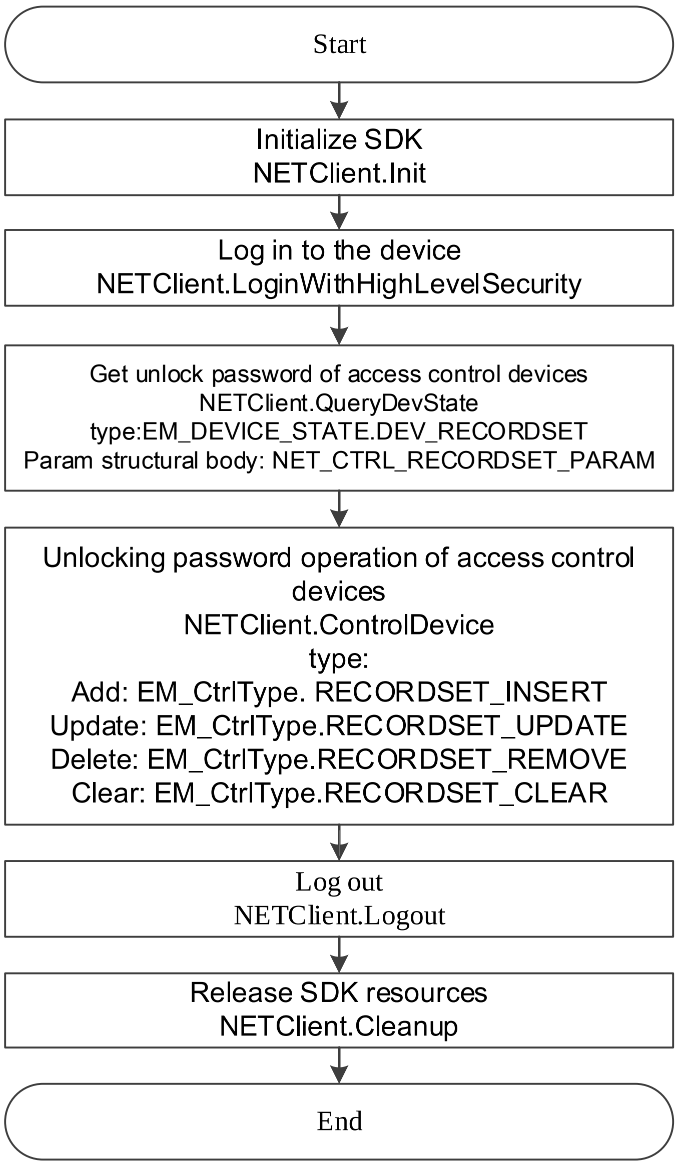
2.2.10.5.2 Interface Overview

Table 2-42 Description of unlock password interface

Interface	Description
NETClient.ControlDevice	Device control.

2.2.10.5.3 Process Description

Figure 2-33 Unlock password config


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get unlock password of access control devices
NETClient.QueryDevState
type:EM_DEVICE_STATE.DEV_RECORDSET
Param structural body: NET_CTRL_RECORDSET_PARAM
Unlocking password operation of access control devices
NETClient.ControlDevice
type:
Add: EM_CtrlType. RECORDSET_INSERT
Update: EM_CtrlType.RECORDSET_UPDATE
Delete: EM_CtrlType.RECORDSET_REMOVE
Clear: EM_CtrlType.RECORDSET_CLEAR
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Table 2-43 Description and structure of type

Type	Description	Param
EM_CtrlType. RECORDSET_INSERT	Add unlock password	NET_CTRL_RECORDSET_INSERT_PARA NET_RECORDSET_ACCESS_CTL_PWD
EM_CtrlType.RECORDSET_UPDATE	Delete unlock password	NET_CTRL_RECORDSET_PARAM NET_RECORDSET_ACCESS_CTL_PWD
EM_CtrlType.RECORDSET_REMOVE	Clear unlock password	NET_CTRL_RECORDSET_PARAM

Step 3 Call **NETClient. QueryDevState** interface to get unlock password information.

Step 4 Call **NETClient. ControlDevice** to update unlock password information.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

Note

- Before configuring combination unlock by multiple persons, add personnel to the device.
- User number: Personnel card number.

2.2.10.5.4 Sample Code

```
// Get password
        IntPtr pBuf = IntPtr.Zero;

                    NET_RECORDSET_ACCESS_CTL_PWD result = new
NET_RECORDSET_ACCESS_CTL_PWD();
                    NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();

                    try
                    {
                          pBuf = Marshal.AllocHGlobal(Marshal.SizeOf(result));

                          //package for pwd
                          result.nRecNo = Convert.ToInt32(textBox_RecNo.Text.Trim());

                          result.dwSize = (uint)Marshal.SizeOf(result);
                          Marshal.StructureToPtr(result, pBuf, true);

                          //package stuParam
                          stuParam.pBuf = pBuf;
                          stuParam.nBufLen = Marshal.SizeOf(result);
                          stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLPWD;
                          stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);
                          object obj = stuParam;

                          bool bRet = NETClient.QueryDevState(loginID,
(int)EM_DEVICE_STATE.DEV_RECORDSET, ref obj, typeof(NET_CTRL_RECORDSET_PARAM), 3000);
                          if (bRet)
                          {
                                update_pwd =
(NET_RECORDSET_ACCESS_CTL_PWD)Marshal.PtrToStructure(pBuf,
typeof(NET_RECORDSET_ACCESS_CTL_PWD));
                                m_SelectDoorsAry = update_pwd.sznDoors;
                    textBox_OpenPwd.Text                                                    =
Encoding.UTF8.GetString(update_pwd.szDoorOpenPwd);
                    textBox_UserID.Text = Encoding.UTF8.GetString(update_pwd.szUserID);
                    MessageBox.Show("Get succeed");
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            finally
            {
                Marshal.FreeHGlobal(pBuf);
            }

// Add password
            IntPtr pParam = IntPtr.Zero;
            IntPtr pBuf = IntPtr.Zero;
            NET_CTRL_RECORDSET_INSERT_PARAM        stuInsertParam        =        new
NET_CTRL_RECORDSET_INSERT_PARAM();
            NET_CTRL_RECORDSET_INSERT_PARAM        stuOutParam        =        new
NET_CTRL_RECORDSET_INSERT_PARAM();

            NET_RECORDSET_ACCESS_CTL_PWD        stuPwd        =        new
NET_RECORDSET_ACCESS_CTL_PWD();
            object obj = stuPwd;
            InitStruct(ref obj);
            stuPwd = (NET_RECORDSET_ACCESS_CTL_PWD)obj;
            stuPwd.dwSize = (uint)Marshal.SizeOf(stuPwd);

            Encoding.Default.GetBytes(  textBox_UserID.Text,  0,  textBox_UserID.Text.Length,
stuPwd.szUserID, 0);
            Encoding.Default.GetBytes(textBox_OpenPwd.Text, 0, textBox_OpenPwd.Text.Length,
stuPwd.szDoorOpenPwd, 0);
            if (m_selectDoorsList.Count > 0)
            {
                for (int i = 0; i < m_selectDoorsList.Count; i++)
```

```
                    {
                        stuPwd.sznDoors[i] = m_selectDoorsList[i];
                    }
                }
                stuPwd.nDoorNum = m_selectDoorsList.Count;

                try
                {
                    pParam                                                                          =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_PARAM)));
                    pBuf                                                                            =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_PWD)));

                    Marshal.StructureToPtr(stuPwd, pBuf, true);

                    //package stuInsertParam
                    stuInsertParam.stuCtrlRecordSetInfo.pBuf = pBuf;
                    stuInsertParam.stuCtrlRecordSetInfo.nBufLen = Marshal.SizeOf(stuPwd);
                    stuInsertParam.dwSize = (uint)Marshal.SizeOf(stuInsertParam);
                    stuInsertParam.stuCtrlRecordSetInfo.dwSize                                      =
(uint)Marshal.SizeOf(stuInsertParam.stuCtrlRecordSetInfo);
                    stuInsertParam.stuCtrlRecordSetInfo.emType                                      =
EM_NET_RECORD_TYPE.ACCESSCTLPWD;
                    stuInsertParam.stuCtrlRecordSetResult.dwSize                                    =
(uint)Marshal.SizeOf(typeof(NET_CTRL_RECORDSET_INSERT_OUT));
                    Marshal.StructureToPtr(stuInsertParam, pParam, true);



                    bool  bRet  =  NETClient.ControlDevice(loginID,  EM_CtrlType.RECORDSET_INSERT,
pParam, 3000);

                    stuOutParam                                                                     =
(NET_CTRL_RECORDSET_INSERT_PARAM)Marshal.PtrToStructure(pParam,
typeof(NET_CTRL_RECORDSET_INSERT_PARAM));
                    if (bRet && stuOutParam.stuCtrlRecordSetResult.nRecNo > 0)
                    {
                        MessageBox.Show("Inster  succeed(added  successfully.  RecNO(Record  No.):"
+ stuOutParam.stuCtrlRecordSetResult.nRecNo);
                    }
                    else
                    {
```

```
                    MessageBox.Show(NETClient.GetLastError());
                }

            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            //free resource
            finally
            {
                Marshal.FreeHGlobal(pParam);
                Marshal.FreeHGlobal(pBuf);
            }

// Get and then update
            Encoding.Default.GetBytes(textBox_UserID.Text,    0,    textBox_UserID.Text.Length,
update_pwd.szUserID, 0);
            Encoding.Default.GetBytes(textBox_OpenPwd.Text, 0, textBox_OpenPwd.Text.Length,
update_pwd.szDoorOpenPwd, 0);
            if (m_selectDoorsList.Count > 0)
            {
                for (int i = 0; i < m_selectDoorsList.Count; i++)
                {
                    update_pwd.sznDoors[i] = m_selectDoorsList[i];
                }
            }
            update_pwd.nDoorNum = m_selectDoorsList.Count;



            bool bRet = false;
            IntPtr pParam = IntPtr.Zero;
            IntPtr pBuf = IntPtr.Zero;
            NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();
            try
            {
                pParam = Marshal.AllocHGlobal(Marshal.SizeOf(stuParam));
                pBuf = Marshal.AllocHGlobal(Marshal.SizeOf(update_pwd));
                Marshal.StructureToPtr(update_pwd, pBuf, true);
                stuParam.pBuf = pBuf;
                stuParam.nBufLen = Marshal.SizeOf(update_pwd);
                stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLPWD;
                stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);
                Marshal.StructureToPtr(stuParam, pParam, true);

                bRet    =    NETClient.ControlDevice(loginID,    EM_CtrlType.RECORDSET_UPDATE,
pParam, 3000);
                if (bRet)
                {
                    MessageBox.Show("Update succeed");
                }
                else
                {
                    MessageBox.Show(NETClient.GetLastError());
                }
            }
            catch (Exception ex)
            {
                MessageBox.Show(ex.Message);
            }
            finally
            {
                Marshal.FreeHGlobal(pParam);
                Marshal.FreeHGlobal(pBuf);
            }

// Remove passsword
            bool result = false;
            IntPtr pParam = IntPtr.Zero;
            IntPtr pBuf = IntPtr.Zero;
            NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();
            stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLPWD;
            stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);
            stuParam.pBuf = IntPtr.Zero;
            stuParam.nBufLen = 0;
            try
            {
                pParam = Marshal.AllocHGlobal(Marshal.SizeOf(stuParam));
```

```
                    pBuf = Marshal.AllocHGlobal(Marshal.SizeOf(int.Parse(textBox_RecNo.Text)));
                    Marshal.StructureToPtr(int.Parse(textBox_RecNo.Text), pBuf, true);
                    stuParam.pBuf = pBuf;
                    stuParam.nBufLen = Marshal.SizeOf(int.Parse(textBox_RecNo.Text));
                    Marshal.StructureToPtr(stuParam, pParam, true);

                    result    =    NETClient.ControlDevice(loginID,    EM_CtrlType.RECORDSET_REMOVE,
pParam, 3000);
                    if (result)
                    {
                        MessageBox.Show("Remove succeed");
                    }
                    else
                    {
                        MessageBox.Show(NETClient.GetLastError());
                    }
                }
                catch (Exception ex)
                {
                    MessageBox.Show(ex.Message);
                }
                finally
                {
                    Marshal.FreeHGlobal(pBuf);
                    Marshal.FreeHGlobal(pParam);
                }

// clear password
                IntPtr pParam = IntPtr.Zero;
                NET_CTRL_RECORDSET_PARAM stuParam = new NET_CTRL_RECORDSET_PARAM();
                stuParam.emType = EM_NET_RECORD_TYPE.ACCESSCTLPWD;
                stuParam.dwSize = (uint)Marshal.SizeOf(stuParam);

                pParam = Marshal.AllocHGlobal(Marshal.SizeOf(stuParam));
                Marshal.StructureToPtr(stuParam, pParam, true);

                bool    result    =    NETClient.ControlDevice(loginID,    EM_CtrlType.RECORDSET_CLEAR,
pParam, 3000);
                if (result)
                {
```

```
                MessageBox.Show("Clear succeed(cleared successfully)。");
            }
            else
            {
                MessageBox.Show(NETClient.GetLastError());
            }
//
```

2.2.11 Records Query

2.2.11.1 Unlock Records

2.2.11.1.1 Introduction

For unlock records query, you can call SDK interface to query the unlock records of the access control device. You can set query conditions and number of query entries.

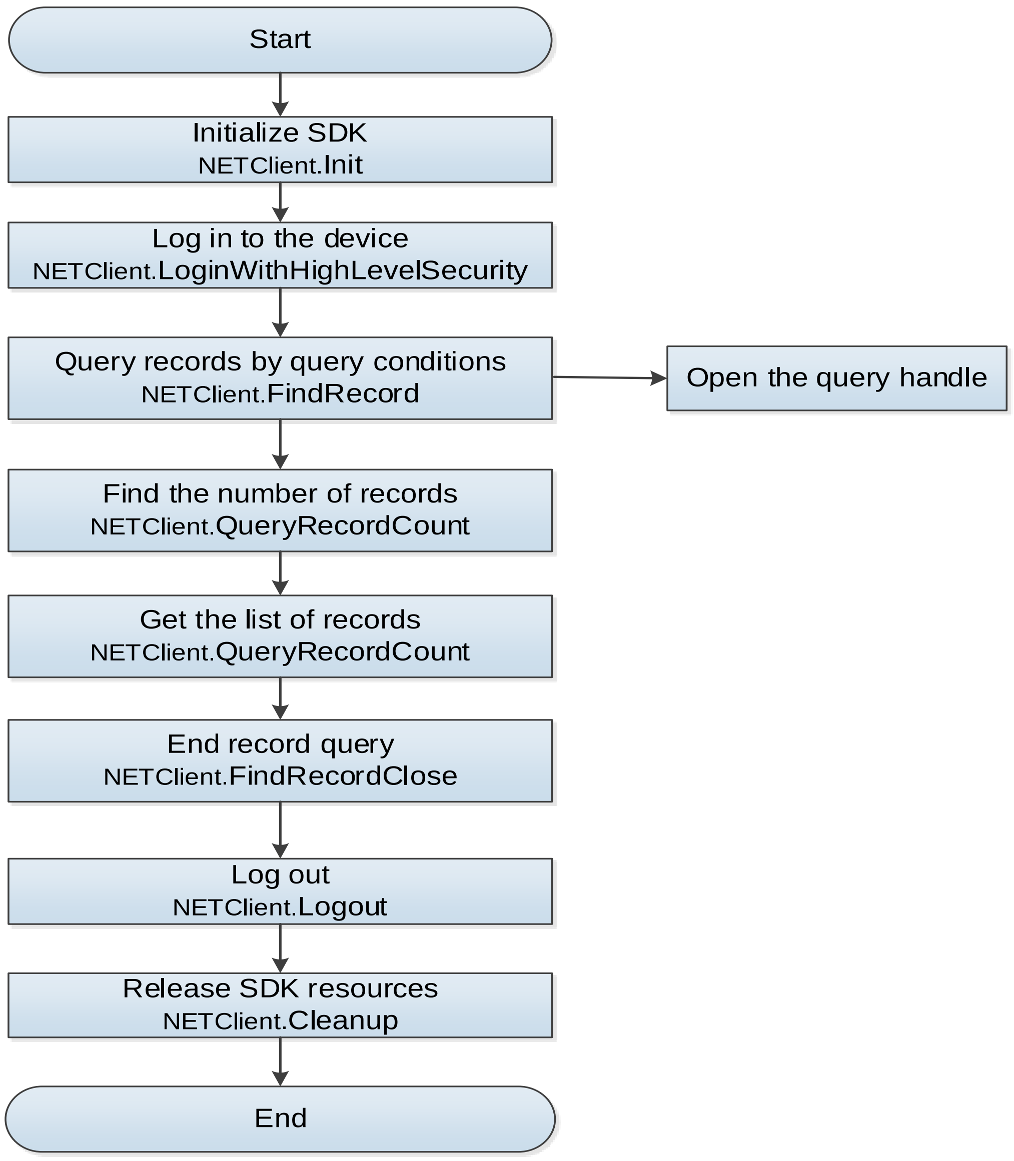
2.2.11.1.2 Interface Overview

Table 2-44 Description of record query interfaces

Interface	Description
NETClient.QueryRecordCount	Find the count of records.
NETClient.FindRecord	Query records by query conditions.
NETClient.FindNextRecord	Find records: View the count of files to be required by nFilecount. When the return value is the count of media files and less than nFilecount, the query of files is completed within the corresponding period.
NETClient.FindRecordClose	End record query.

2.2.11.1.3 Process Description

Figure 2-34 Record query



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.FindRecord** to get the query handle.
emType unlock record: EM_NET_RECORD_TYPE .ACCESSCTLCARDREC.

Step 4 Call **NETClient.QueryRecordCount** to find the count of records.

Step 5 Cal **NETClient.FindNextRecord** to get the list of records.

Step 6 After query, call **NETClient. FindRecordClose** to close the query handle.

Step 7 After completing this process, call **NETClient.Logout** to log out of the device.

Step 8 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.2.11.1.4 Sample Code

```
// Start query
    m_LogNum = 0;
```

```
            if (IntPtr.Zero == m_FindDoorRecordID)
            {
                NET_FIND_RECORD_ACCESSCTLCARDREC_CONDITION_EX condition = new
NET_FIND_RECORD_ACCESSCTLCARDREC_CONDITION_EX();
                condition.dwSize =
(uint)Marshal.SizeOf(typeof(NET_FIND_RECORD_ACCESSCTLCARDREC_CONDITION_EX));
                condition.bTimeEnable = true;
                condition.stStartTime = NET_TIME.FromDateTime(dateTimePicker_Start.Value);
                condition.stEndTime = NET_TIME.FromDateTime(dateTimePicker_End.Value);
                object obj = condition;

                bool ret = NETClient.FindRecord(loginID,
EM_NET_RECORD_TYPE.ACCESSCTLCARDREC_EX, obj,
typeof(NET_FIND_RECORD_ACCESSCTLCARDREC_CONDITION_EX), ref m_FindDoorRecordID,
10000);
                if (!ret)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }
                btn_StartQuery.Text = "StopQuery";
                btn_NextFind.Enabled = true;
                btn_GetRecordCount.Enabled = true;
                dateTimePicker_Start.Enabled = false;
                dateTimePicker_End.Enabled = false;
            }
            else
            {
                NETClient.FindRecordClose(m_FindDoorRecordID);
                m_FindDoorRecordID = IntPtr.Zero;
                btn_StartQuery.Text = "StartQuery";
                btn_NextFind.Enabled = false;
                btn_GetRecordCount.Enabled = false;
                dateTimePicker_Start.Enabled = true;
                dateTimePicker_End.Enabled = true;
                textBox_Count.Text = "";

                listView_DoorRecord.Items.Clear();
            }
```

```
// Get number of query
                if (IntPtr.Zero == m_FindDoorRecordID)
                {
                    return;
                }

                int nCount = 0;
                try
                {
                    if (NETClient.QueryRecordCount(m_FindDoorRecordID, ref nCount, 3000))
                    {
                        textBox_Count.Text = nCount.ToString();
                    }
                    else
                    {
                        MessageBox.Show(NETClient.GetLastError());
                        return;
                    }
                }
                catch (NETClientExcetion ex)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }
                catch (Exception ex)
                {
                    MessageBox.Show(ex.Message);
                    return;
                }

// query the next record
                listView_DoorRecord.Items.Clear();
                int max = 10;
                int retNum = 0;
                List<object> ls = new List<object>();
                for (int i = 0; i < max; i++)
                {
                    NET_RECORDSET_ACCESS_CTL_CARDREC            cardrec            =            new
NET_RECORDSET_ACCESS_CTL_CARDREC();
```

```
                cardrec.dwSize                                                          =
(uint)Marshal.SizeOf(typeof(NET_RECORDSET_ACCESS_CTL_CARDREC));
                ls.Add(cardrec);
            }
            NETClient.FindNextRecord(m_FindDoorRecordID,    max,    ref    retNum,    ref    ls,
typeof(NET_RECORDSET_ACCESS_CTL_CARDREC), 10000);
            BeginInvoke(new Action(() =>
            {
                foreach (var item in ls)
                {
                    NET_RECORDSET_ACCESS_CTL_CARDREC                info                =
(NET_RECORDSET_ACCESS_CTL_CARDREC)item;
                    var listitem = new ListViewItem();
                    listitem.Text = info.nRecNo.ToString();
                    listitem.SubItems.Add(info.stuTime.ToString());
                    listitem.SubItems.Add(info.szCardNo);
                    listitem.SubItems.Add(info.bStatus.ToString());
                    listitem.SubItems.Add(info.nDoor.ToString());
                    listitem.SubItems.Add(info.emMethod.ToString());
                    if (listView_DoorRecord != null)
                    {
                        listView_DoorRecord.BeginUpdate();
                        listView_DoorRecord.Items.Add(listitem);
                        listView_DoorRecord.EndUpdate();
                    }
                }
            }));
```

2.2.11.2 Device log

2.2.11.2.1 Introduction

For device log, you can call SDK interface to query the operation log of the access control device by specifying the log type or the number of queries, or query by pages.

2.2.11.2.2 Interface Overview

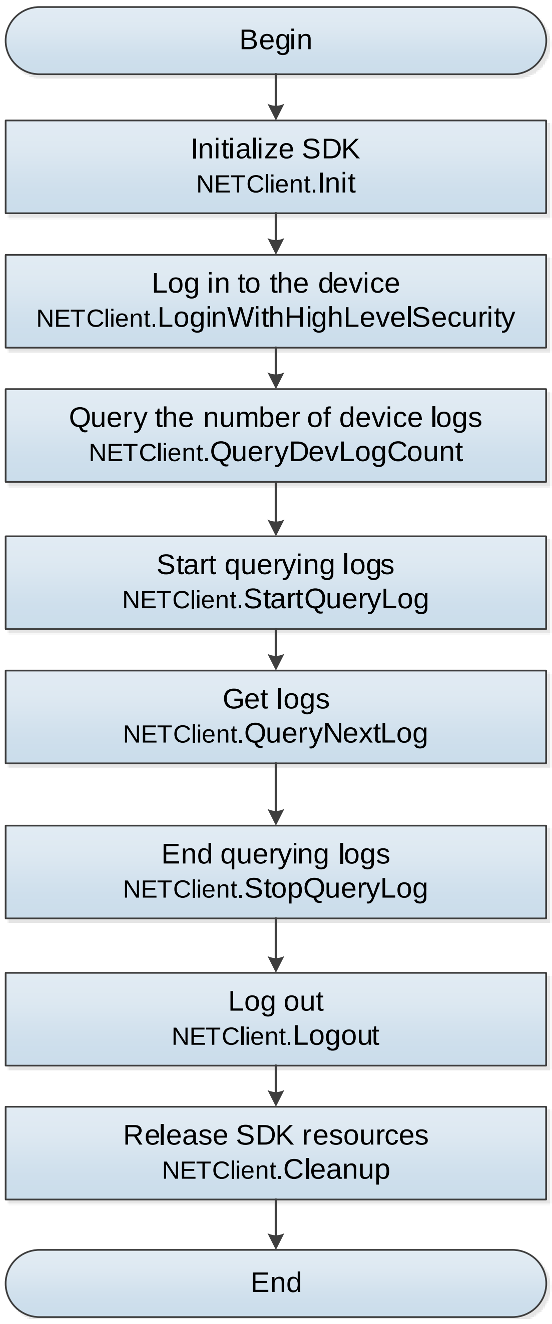
Table 2-45 Description of device log interfaces

Interface	Description
NETClient.QueryDevLogCount	Query the count of device logs.
NETClient.StartQueryLog	Start querying logs.
NETClient.QueryNextLog	Get logs.

NETClient.StopQueryLog	Stop querying logs.

2.2.11.2.3 Process Description

Figure 2-35 Device log



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.QueryDevLogCount** to set the number of queried logs.

Step 4 Call **NETClient.StartQueryLog** to start querying log information.

- pInParam: NET_IN_START_QUERYLOG.
- pOutParam: NET_OUT_START_QUERYLOG.

Step 5 Call **NETClient. QueryNextLog** to get log information.

- pInParam: NET_IN_QUERYNEXTLOG.

- pOutParam: NET_OUT_QUERYNEXTLOG.

Step 6 Call **NETClient. StopQueryLog** to stop querying logs.

Step 7 After completing this process, call **NETClient.Logout** to log out of the device.

Step 8 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

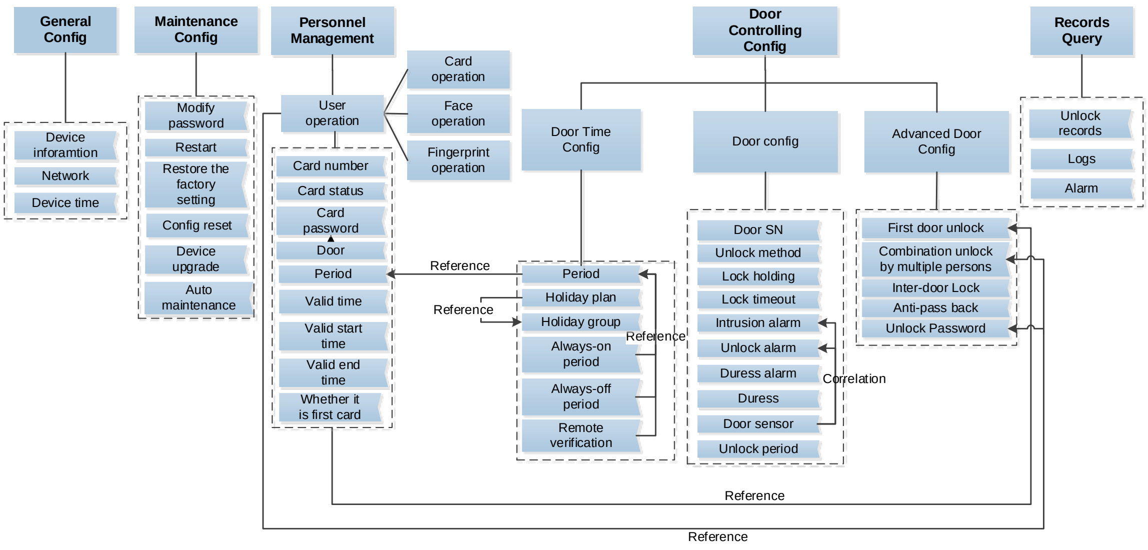
2.2.11.2.4 Sample Code

```
// Start querying log info
            m_LogNum = 0;
            if (IntPtr.Zero == m_FindLogID)
            {
                NET_IN_START_QUERYLOG stuIn = new NET_IN_START_QUERYLOG();
                stuIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_START_QUERYLOG));
                NET_OUT_START_QUERYLOG stuOut = new NET_OUT_START_QUERYLOG();
                stuOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_START_QUERYLOG));

                m_FindLogID = NETClient.StartQueryLog(loginID, ref stuIn, ref stuOut, 5000);
//CLIENT_StartQueryLog(m_lLoginID, &stuIn, &stuOut, SDK_API_WAIT);
                if (IntPtr.Zero == m_FindLogID)
                {
                    MessageBox.Show(NETClient.GetLastError());
                    return;
                }

                btn_StartQuery.Text = "StopQuery";

                btn_NextLog.Enabled = true;
                btn_GetLogCount.Enabled = true;
            }
            else
            {
                NETClient.StopQueryLog(m_FindLogID);
                m_FindLogID = IntPtr.Zero;
                btn_StartQuery.Text = "StartQuery";
                btn_NextLog.Enabled = false;
                btn_GetLogCount.Enabled = false;
                textBox_LogCount.Text = "";

                listView_Log.Items.Clear();
            }
//Get number of records
```

```
            NET_IN_GETCOUNT_LOG_PARAM stuIn = new NET_IN_GETCOUNT_LOG_PARAM();
            stuIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_GETCOUNT_LOG_PARAM));
            NET_OUT_GETCOUNT_LOG_PARAM          stuOut          =          new
NET_OUT_GETCOUNT_LOG_PARAM();
            stuOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_GETCOUNT_LOG_PARAM));
            if (NETClient.QueryDevLogCount(loginID, ref stuIn, ref stuOut, 5000))
            {
                textBox_LogCount.Text = stuOut.nLogCount.ToString();
            }
            else
            {
                MessageBox.Show(NETClient.GetLastError());
            }
// Query the next record
            listView_Log.Items.Clear();
            int max = 10;
            NET_IN_QUERYNEXTLOG stuIn = new NET_IN_QUERYNEXTLOG();
            stuIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_QUERYNEXTLOG));
            stuIn.nGetCount = max;

            NET_OUT_QUERYNEXTLOG stuOut = new NET_OUT_QUERYNEXTLOG();
            stuOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_QUERYNEXTLOG));
            stuOut.nMaxCount = max;
            stuOut.pstuLogInfo = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_LOG_INFO)) *
stuOut.nMaxCount);

            NET_LOG_INFO[] logInfo = new NET_LOG_INFO[stuOut.nMaxCount];
            for (int i = 0; i < stuOut.nMaxCount; i++)
            {
                logInfo[i].dwSize = (uint)Marshal.SizeOf(typeof(NET_LOG_INFO));
                logInfo[i].stuLogMsg.dwSize = (uint)Marshal.SizeOf(typeof(NET_LOG_MESSAGE));
                IntPtr          pDst          =          IntPtr.Add(stuOut.pstuLogInfo,
Marshal.SizeOf(typeof(NET_LOG_INFO)) * i);
                Marshal.StructureToPtr(logInfo[i], pDst, true);
            }

            if (NETClient.QueryNextLog(m_FindLogID, ref stuIn, ref stuOut, 5000))
            {
                if (stuOut.nRetCount > 0)
                {
                    BeginInvoke(new Action(() =>
                    {
                        for (int i = 0; i < stuOut.nRetCount; i++)
                        {
                            IntPtr          pDst          =          IntPtr.Add(stuOut.pstuLogInfo,
Marshal.SizeOf(typeof(NET_LOG_INFO)) * i);
                            NET_LOG_INFO                       retInfo                       =
(NET_LOG_INFO)Marshal.PtrToStructure(pDst, typeof(NET_LOG_INFO));

                            m_LogNum += 1;
                            var listitem = new ListViewItem();
                            listitem.Text = m_LogNum.ToString();
                            listitem.SubItems.Add(retInfo.stuTime.ToString());
                            listitem.SubItems.Add(retInfo.szUserName);
                            listitem.SubItems.Add(retInfo.szLogType);
                            listitem.SubItems.Add(retInfo.stuLogMsg.szLogMessage);
                            if (listView_Log != null)
                            {
                                listView_Log.BeginUpdate();
                                listView_Log.Items.Add(listitem);
                                listView_Log.EndUpdate();
                            }
                        }
                    }));


                }
            }
            else
            {
                MessageBox.Show(NETClient.GetLastError());
            }
        }
```

2.3 Access Controller/All-in-one Face Machine (Second-Generation)

Figure 2-36 Function calling relationship



Here are the meanings of reference and correlation.

- Reference: The function pointed by the end point of the arrow refers to the function pointed by the start point of the arrow.
- Correlation: Whether the function started by the arrow can be used normally is related to the function configuration pointed by the end point of the arrow.

2.3.1 Access Control

See "2.2.1 Access Control."

2.3.2 Alarm Event

See "2.2.2 Alarm Event."

2.3.3 Viewing Device Information

2.3.3.1 Capability Set Query

2.3.3.1.1 Introduction

The process to view device information is that, you issue a command through SDK to the access control device, to get the capability of another device.

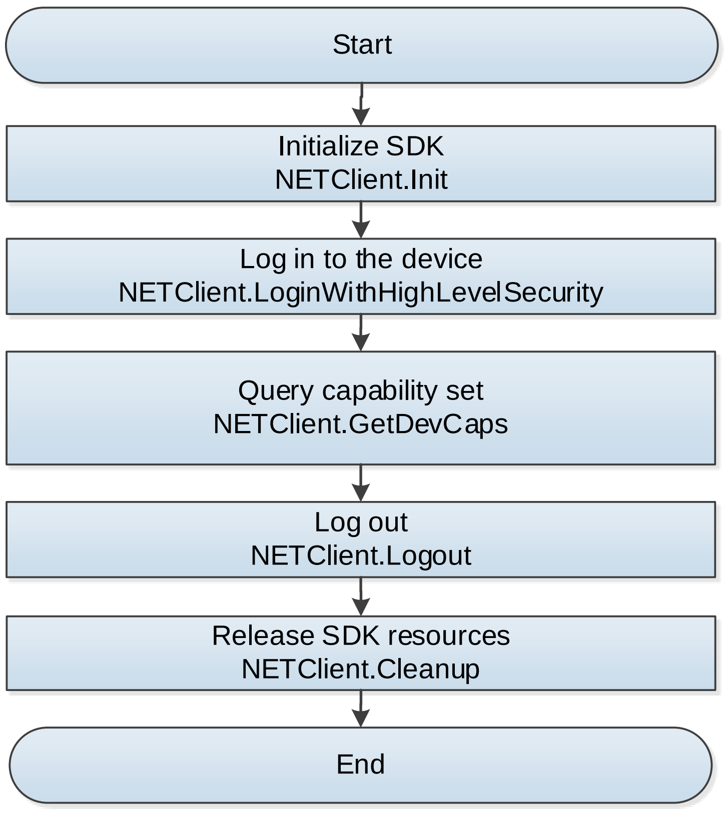
2.3.3.1.2 Interface Overview

Table 2-46 Description of capability set query interface

Interface	Description
NETClient.GetDevCaps	Get the access control capability (sucha as access control, user, card, face, and fingerprint).

2.3.3.1.3 Process Description

Figure 2-37 Device information viewing



Process

Step 1 Call **NETClient. Init** to initialize SDK.
Step 2 Call **NETClient. LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient. GetDevCaps** and assign **NET_ACCESSCONTROL_CAPS** to nType, to get the access control.
Step 4 After completing this process, call **NETClient. Logout** to log out of the device.
Step 5 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.3.3.1.4 Sample Code

```
NET_IN_AC_CAPS stuIn = new NET_IN_AC_CAPS();
stuIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_AC_CAPS));
NET_OUT_AC_CAPS stuOut = new NET_OUT_AC_CAPS();
stuOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_AC_CAPS));
stuOut.stuACCaps = new NET_AC_CAPS();
stuOut.stuUserCaps = new NET_ACCESS_USER_CAPS();
stuOut.stuCardCaps = new NET_ACCESS_CARD_CAPS();
stuOut.stuFingerprintCaps = new NET_ACCESS_FINGERPRINT_CAPS();
stuOut.stuFaceCaps = new NET_ACCESS_FACE_CAPS();

IntPtr ptrIn = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_IN_AC_CAPS)));
IntPtr ptrOut = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_OUT_AC_CAPS)));
Marshal.StructureToPtr(stuIn, ptrIn, true);
Marshal.StructureToPtr(stuOut, ptrOut, true);
bool bRet = NETClient.GetDevCaps(m_LoginID, EM_DEVCAP_TYPE.ACCESSCONTROL_CAPS, ptrIn,
ptrOut, 5000);
if (bRet)
{
    stuOut = (NET_OUT_AC_CAPS)Marshal.PtrToStructure(ptrOut, typeof(NET_OUT_AC_CAPS));
    m_AccessCount = stuOut.stuACCaps.nChannels;
}
else
{
    MessageBox.Show(NETClient.GetLastError());
}
```

2.3.3.2 Viewing Device Version and MAC

See "2.2.3.2 Viewing Device Version and MAC."

2.3.4 Network Setting

See "2.2.4 Network Setting."

2.3.5 Setting the Device Time

See "2.2.5 Device Time Setting."

2.3.6 Maintenance Config

See "2.2.6 Maintenance Config."

2.3.7 Personnel Management

2.3.7.1 User Management

2.3.7.1.1 Introduction

Call SDK to add, delete, and query the user info fields of the access controllers (including user ID, person name, type, status, ID card number, valid period, holiday plan, and user permission).

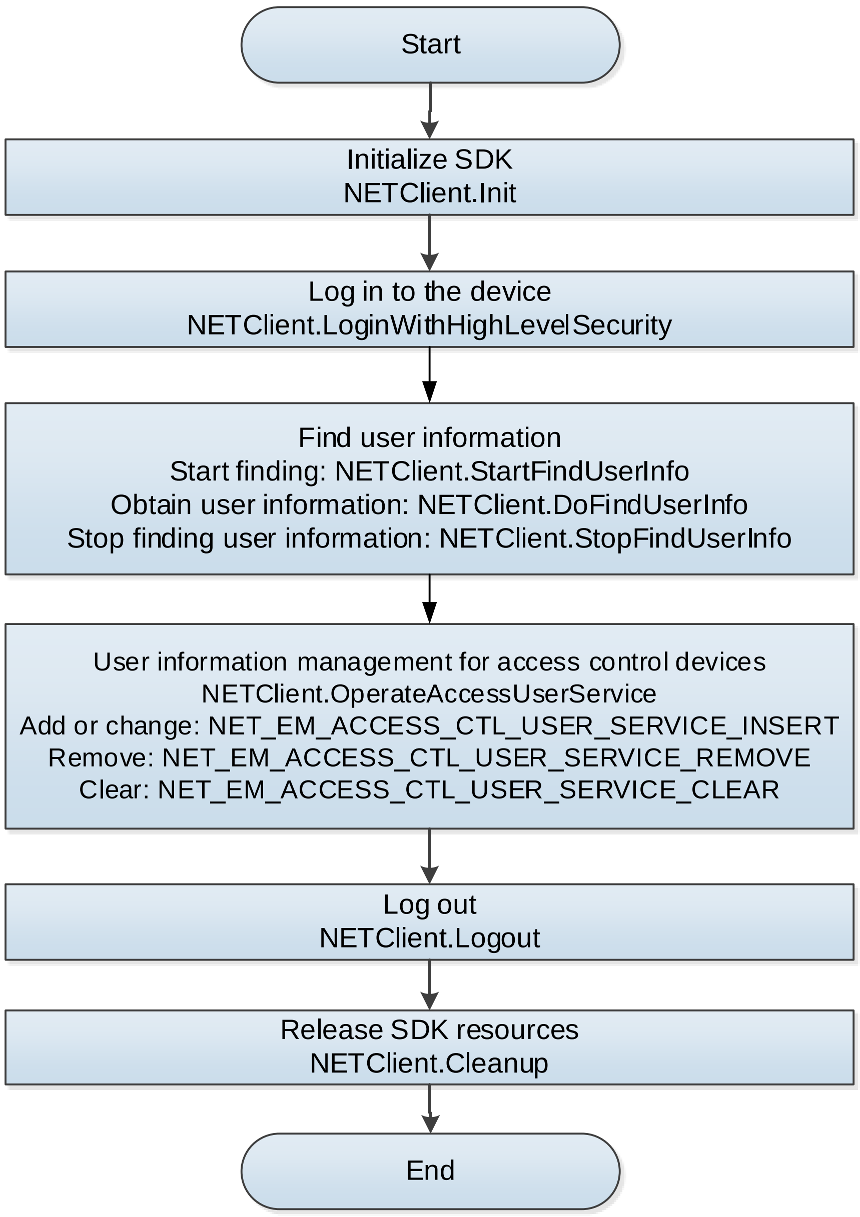
2.3.7.1.2 Interface Overview

Table 2-47 Description of user information interface

Interface	Description
NETClient.StartFindUserInfo	Start query user info
NETClient.DoFindUserInfo	Stop getting user info.
NETClient.StopFindUserInfo	Stop querying user info.
NETClient.InsertOperateAccessUserService	Add or change access control user info.
NETClient.RemoveOperateAccessUserService	Delete access control user info.
NETClient.ClearOperateAccessUserService	Clear access control user info.

2.3.7.1.3 Process Description

Figure 2-38 User info management


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Find user information
Start finding: NETClient.StartFindUserInfo
Obtain user information: NETClient.DoFindUserInfo
Stop finding user information: NETClient.StopFindUserInfo
User information management for access control devices
NETClient.OperateAccessUserService
Add or change: NET_EM_ACCESS_CTL_USER_SERVICE_INSERT
Remove: NET_EM_ACCESS_CTL_USER_SERVICE_REMOVE
Clear: NET_EM_ACCESS_CTL_USER_SERVICE_CLEAR
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient. Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.StartFindUserInfo** to start finding the user information.

Step 4 Call **NETClient.DoFindUserInfo** to obtain the user information.

Step 5 Call **NETClient.StopFindUserInfo** to stop finding the user information.

Step 6 Call **NETClient.InsertOperateAccessUserService** to add or change user information; call **NETClient.RemoveOperateAccessUserService** to delete user info; call **NETClient.ClearOperateAccessUserService** to clear user info.

Step 7 After completing this process, call **NETClient. Logout** to log out of the device.

Step 8 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.3.7.1.4 Sample Code

```
private IntPtr m_FindUserID = IntPtr.Zero;
private List<NET_ACCESS_USER_INFO> userInfoList = new List<NET_ACCESS_USER_INFO>();

//Get all user info
NET_IN_USERINFO_START_FIND stuStartIn = new NET_IN_USERINFO_START_FIND();
stuStartIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_USERINFO_START_FIND));

NET_OUT_USERINFO_START_FIND stuStartOut = new NET_OUT_USERINFO_START_FIND();
stuStartOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_USERINFO_START_FIND));
stuStartOut.nTotalCount = 0;
stuStartOut.nCapNum = 50;
m_FindUserID = NETClient.StartFindUserInfo(m_LoginID, ref stuStartIn, ref stuStartOut, 5000);
if (IntPtr.Zero == m_FindUserID)
{
    MessageBox.Show(NETClient.GetLastError());
    return;
}

userInfoList.Clear();

NET_IN_USERINFO_DO_FIND stuFindIn = new NET_IN_USERINFO_DO_FIND();
stuFindIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_USERINFO_DO_FIND));
stuFindIn.nCount = QueryNum;

NET_OUT_USERINFO_DO_FIND stuFindOut = new NET_OUT_USERINFO_DO_FIND();
stuFindOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_USERINFO_DO_FIND));
stuFindOut.nMaxNum = QueryNum;

NET_ACCESS_USER_INFO[] stuOutUserInfo = new NET_ACCESS_USER_INFO[stuFindOut.nMaxNum];
IntPtr outInfo = IntPtr.Zero;
```

```
outInfo = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_ACCESS_USER_INFO)) * stuFindOut.nMaxNum);
for (int index = 0; index < stuFindOut.nMaxNum; index++)
{
    IntPtr outInfoIndex = outInfo + index * Marshal.SizeOf(typeof(NET_ACCESS_USER_INFO));
    if (stuOutUserInfo[index].GetType() == typeof(NET_ACCESS_USER_INFO)) //if obj is boxinged type of typeName, some param(ex. dwsize) need trans to unmanaged memory
    {
        Marshal.StructureToPtr(stuOutUserInfo[index], outInfoIndex, true);
    }
    else
    {
        for (int i = 0; i < Marshal.SizeOf(typeof(NET_ACCESS_USER_INFO)); i++)
        {
            Marshal.WriteByte(outInfoIndex, i, 0);
        }
    }
}
stuFindOut.pstuInfo = outInfo;

int startNum = 0;
while (true)
{
    stuFindIn.nStartNo = startNum;

    bool result = NETClient.DoFindUserInfo(m_FindUserID, ref stuFindIn, ref stuFindOut, 5000);
    if (!result)
    {
        break;
    }

    if (stuFindOut.nRetNum > 0)
    {
        startNum += stuFindOut.nRetNum;
        for (int i = 0; i < stuFindOut.nRetNum; i++)
        {
            var userinfo = (NET_ACCESS_USER_INFO)Marshal.PtrToStructure(IntPtr.Add(stuFindOut.pstuInfo, Marshal.SizeOf(typeof(NET_ACCESS_USER_INFO)) * i), typeof(NET_ACCESS_USER_INFO));
            userInfoList.Add(userinfo);
            }
        }
}

NETClient.StopFindUserInfo(m_FindUserID);

//Add or change
private NET_ACCESS_USER_INFO m_UserInfo = new NET_ACCESS_USER_INFO();
m_UserInfo.szUserID = txt_UserID.Text.Trim();
m_UserInfo.szName = txt_Name.Text.Trim();
m_UserInfo.szPsw = txt_Pwd.Text.Trim();
bool result = false;
NET_ACCESS_USER_INFO[] stuInArray = new NET_ACCESS_USER_INFO[1] { m_UserInfo };
NET_EM_FAILCODE[] stuOutErrArray = new NET_EM_FAILCODE[1];
result = NETClient.InsertOperateAccessUserService(m_LoginID, stuInArray, out stuOutErrArray, 5000);
if (!result)
{
        for (int i = 0; i < stuOutErrArray.Length; i++)
        {
            MessageBox.Show(stuOutErrArray[i].emCode.ToString());
        }
}
//删除
NET_EM_FAILCODE[] stuOutErrArray = new NET_EM_FAILCODE[1];
string[] InUserid = new string[] { szUserID }; // szUserID： szUserID of users to be deleted
bool result = NETClient.RemoveOperateAccessUserService(m_LoginID, InUserid, out stuOutErrArray,
3000);
if (!result)
{
        for (int i = 0; i < stuOutErrArray.Length; i++)
        {
            MessageBox.Show(stuOutErrArray[i].emCode.ToString());
        }
}
```

2.3.7.2 Card Management

2.3.7.2.1 Introduction

Call SDK to add, delete, query, and modify the card information fields of the access control device (including card number, user ID, and card type).

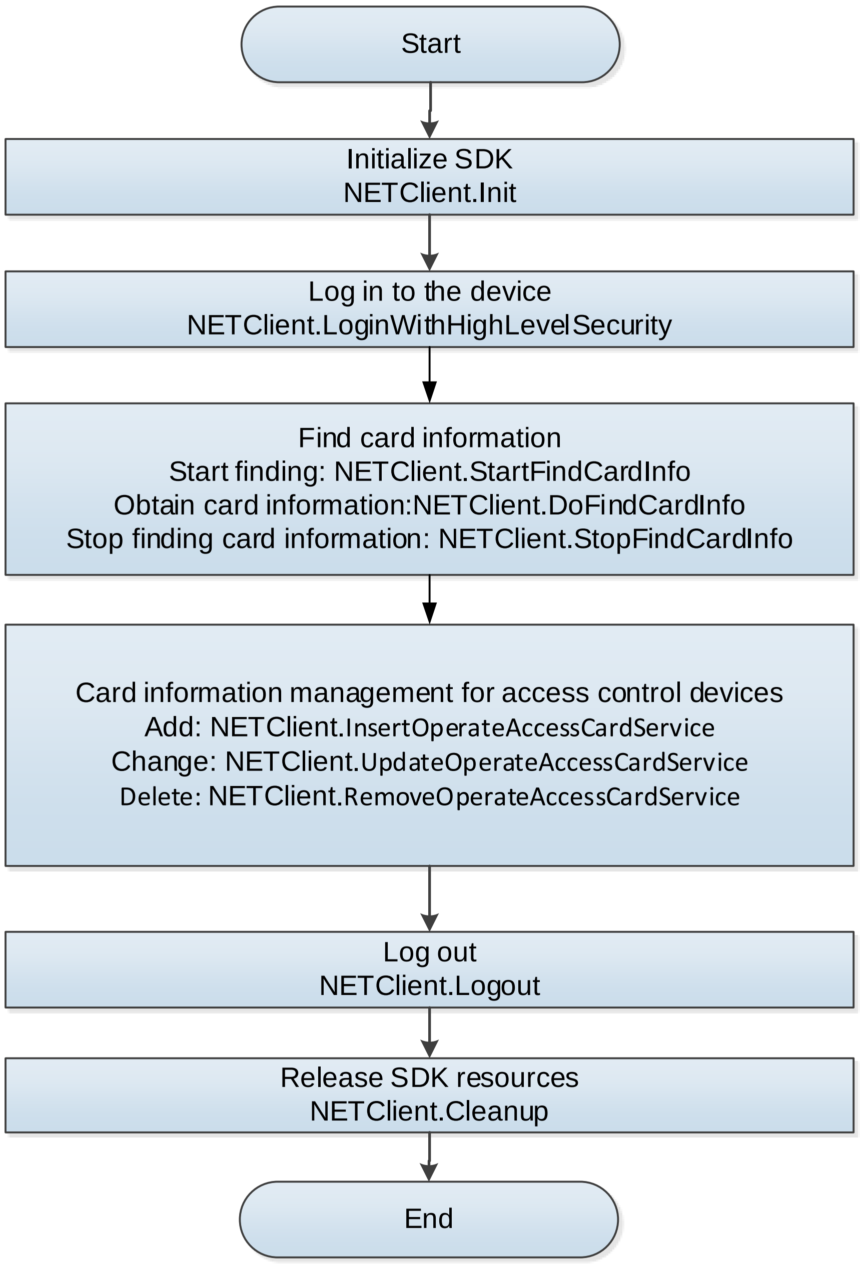
2.3.7.2.2 Interface Overview

Table 2-48 Description of card information interface

Interface	Description
NETClient.StartFindCardInfo	Start to find the card information.
NETClient.DoFindCardInfo	Obtain the card information..
NETClient.StopFindCardInfo	Stop finding the card information.
NETClient.InsertOperateAccessCardService	Add access control card info.
NETClient.RemoveOperateAccessCardService	Delete access control card info.
NETClient.ClearOperateAccessUserService	Clear access control card info.

2.3.7.2.3 Process Description

Figure 2-39 Management of card information


Start
Initialize SDK
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Find card information
Start finding: NETClient.StartFindCardInfo
Obtain card information:NETClient.DoFindCardInfo
Stop finding card information: NETClient.StopFindCardInfo
Card information management for access control devices
Add: NETClient.InsertOperateAccessCardService
Change: NETClient.UpdateOperateAccessCardService
Delete: NETClient.RemoveOperateAccessCardService
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.
Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient.StartFindCardInfo** to start finding the card information.
Step 4 Call **NETClient.DoFindCardInfo** to obtain the card information.
Step 5 Call **NETClient.StopFindCardInfo** to stop finding the card information.
Step 6 Call **NETClient.OperateAccessCardService** to add, update, delete, and clear the card information.
Step 7 After completing this process, call **NETClient.Logout** to log out of the device.
Step 8 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.3.7.2.4 Sample Code

```
//Get
private List<NET_ACCESS_CARD_INFO> cardInfoList = new List<NET_ACCESS_CARD_INFO>();
NET_IN_CARDINFO_START_FIND stuStartIn = new NET_IN_CARDINFO_START_FIND();
stuStartIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_CARDINFO_START_FIND));
stuStartIn.szUserID = m_UserInfo.szUserID;

NET_OUT_CARDINFO_START_FIND stuStartOut = new NET_OUT_CARDINFO_START_FIND();
stuStartOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_CARDINFO_START_FIND));
stuStartOut.nTotalCount = 0;
stuStartOut.nCapNum = 10;

IntPtr cardFindId = NETClient.StartFindCardInfo(m_LoginID, ref stuStartIn, ref stuStartOut, 5000);
if (IntPtr.Zero != cardFindId)
{
    int nStartNo = 0;
    bool m_bIsDoFindNextCard = true;
    while (m_bIsDoFindNextCard)
    {
        int nRecordNum = 0;

        NET_IN_CARDINFO_DO_FIND stuFindIn = new NET_IN_CARDINFO_DO_FIND();
        stuFindIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_CARDINFO_DO_FIND));
        stuFindIn.nStartNo = nStartNo;
        stuFindIn.nCount = 10;

        NET_OUT_CARDINFO_DO_FIND stuFindOut = new NET_OUT_CARDINFO_DO_FIND();
        stuFindOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_CARDINFO_DO_FIND));
        stuFindOut.nMaxNum = 10;
        stuFindOut.pstuInfo =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_ACCESS_CARD_INFO)) * stuFindOut.nMaxNum);

        NET_ACCESS_CARD_INFO[] pCardInfo = new
NET_ACCESS_CARD_INFO[stuFindOut.nMaxNum];
        for (int i = 0; i < stuFindOut.nMaxNum; i++)
        {
            IntPtr pDst = IntPtr.Add(stuFindOut.pstuInfo,
Marshal.SizeOf(typeof(NET_ACCESS_CARD_INFO)) * i);
            Marshal.StructureToPtr(pCardInfo[i], pDst, true);
        }

        bool ret = NETClient.DoFindCardInfo(cardFindId, ref stuFindIn, ref stuFindOut, 5000);
        if (ret)
        {
            if (stuFindOut.nRetNum > 0)
            {
                nRecordNum = stuFindOut.nRetNum;
                for (int i = 0; i < nRecordNum; i++)
                {
                    IntPtr pDst = IntPtr.Add(stuFindOut.pstuInfo,
Marshal.SizeOf(typeof(NET_ACCESS_CARD_INFO)) * i);
                    NET_ACCESS_CARD_INFO stuInfo =
(NET_ACCESS_CARD_INFO)Marshal.PtrToStructure(pDst, typeof(NET_ACCESS_CARD_INFO));
                    cardInfoList.Add(stuInfo);
                }
            }

            if (nRecordNum < 10)
            {
                break;
            }
            else
            {
                nStartNo += nRecordNum;
            }
        }
        else
        {
            break;
```

```
                }
        }

        NETClient.StopFindCardInfo(cardFindId);
}
else
{
        MessageBox.Show(NETClient.GetLastError());
}

//新增
NET_ACCESS_CARD_INFO[] stuInArray = new NET_ACCESS_CARD_INFO[1] { m_CardInfo };
NET_EM_FAILCODE[] stuOutErrArray = new NET_EM_FAILCODE[1];
stuInArray[0].emType = (EM_ACCESSCTLCARD_TYPE)cmb_CardType.SelectedIndex;
stuInArray[0].szCardNo = txt_CardNum.Text;
result = NETClient.InsertOperateAccessCardService(m_LoginID, stuInArray, out stuOutErrArray, 5000);
if (!result)
{
        for (int i = 0; i < stuOutErrArray.Length; i++)
        {
                MessageBox.Show(stuOutErrArray[i].emCode.ToString());
        }
}
//更新
NET_ACCESS_CARD_INFO[] stuInArray = new NET_ACCESS_CARD_INFO[1] { m_CardInfo };
NET_EM_FAILCODE[] stuOutErrArray = new NET_EM_FAILCODE[1];

stuInArray[0].emType = (EM_ACCESSCTLCARD_TYPE)cmb_CardType.SelectedIndex;
result = NETClient.UpdateOperateAccessCardService(m_LoginID, stuInArray, out stuOutErrArray,
3000);
if (!result)
{
        for (int i = 0; i < stuOutErrArray.Length; i++)
        {
                MessageBox.Show(stuOutErrArray[i].emCode.ToString());
        }
}

//删除
NET_EM_FAILCODE[] stuOutErrArray = new NET_EM_FAILCODE[1];
```

```
string[] InCardid = new string[] { szCardNo };// szCardNo： szCardNo of users to be deleted.
bool result = NETClient.RemoveOperateAccessCardService(m_LoginID, InCardid, out stuOutErrArray,
3000);
if (!result)
{
    for (int i = 0; i < stuOutErrArray.Length; i++)
    {
        MessageBox.Show(stuOutErrArray[i].emCode.ToString());
    }
}
```

2.3.7.3 Face Management

2.3.7.3.1 Introduction

Call SDK to add, delete, query, and modify the face information fields of the access control device (including user ID and face picture).

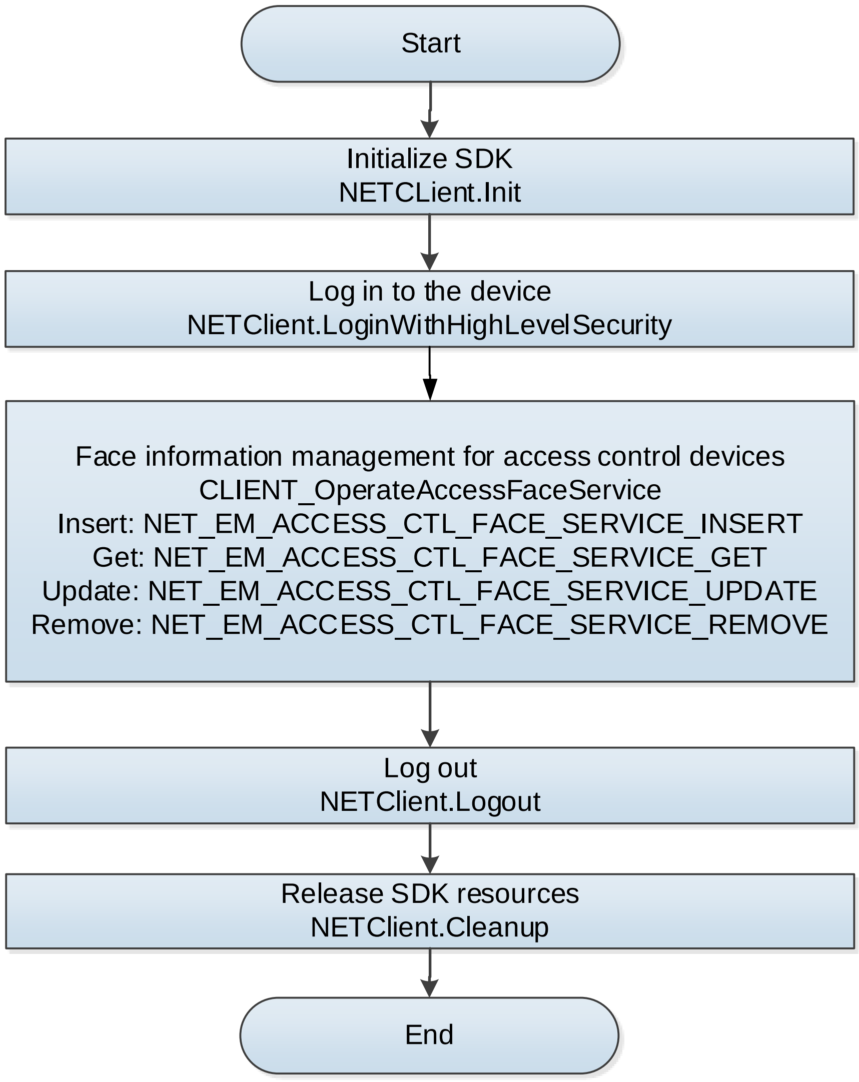
2.3.7.3.2 Interface Overview

Table 2-49 Description of face information interface

Interface	Description
NETClient.OperateAccessFaceService	Face information management interface for access control devices

2.3.7.3.3 Process Description

Figure 2-40 Management of face information


Start
Initialize SDK
NETCLient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Face information management for access control devices
CLIENT_OperateAccessFaceService
Insert: NET_EM_ACCESS_CTL_FACE_SERVICE_INSERT
Get: NET_EM_ACCESS_CTL_FACE_SERVICE_GET
Update: NET_EM_ACCESS_CTL_FACE_SERVICE_UPDATE
Remove: NET_EM_ACCESS_CTL_FACE_SERVICE_REMOVE
Log out
NETClient.Logout
Release SDK resources
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.OperateAccessFaceService** to add, obtain, update, and delete the face information.

Table 2-50 EM_NET_ACCESS_CTL_FACE_SERVICE 枚举值说明

Parameter	Definition
INSERT	Add
GET	Get
UPDATE	Update
REMOVE	Delete

Step 4 After completing this process, call **NETClient.Logout** to log out of the device.

Step 5 After using all SDK functions, call **NETClient.Cleanup** to release SDK resources.

2.3.7.3.4 Sample Code

```
//Get
```

```
NET_IN_ACCESS_FACE_SERVICE_GET stuFaceGetIn = new NET_IN_ACCESS_FACE_SERVICE_GET();
stuFaceGetIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_GET));
stuFaceGetIn.nUserNum = 1;
stuFaceGetIn.szUserID = new NET_IN_ACCESS_FACE_SERVICE_UserID[100];
stuFaceGetIn.szUserID[0] = new NET_IN_ACCESS_FACE_SERVICE_UserID() { userID =
m_UserInfo.szUserID };//m_UserInfo.szUserID;

NET_OUT_ACCESS_FACE_SERVICE_GET stuFaceGetOut = new
NET_OUT_ACCESS_FACE_SERVICE_GET();
stuFaceGetOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_GET));
stuFaceGetOut.nMaxRetNum = 1;
stuFaceGetOut.pFaceInfo = IntPtr.Zero;
stuFaceGetOut.pFaceInfo = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_ACCESS_FACE_INFO)));
stuFaceGetOut.pFailCode = IntPtr.Zero;
stuFaceGetOut.pFailCode = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_EM_FAILCODE)));

NET_ACCESS_FACE_INFO stuFaceInfo = new NET_ACCESS_FACE_INFO();
stuFaceInfo.nInFacePhotoLen = new int[5];
stuFaceInfo.pFacePhoto = new IntPtr[5];
for (int i = 0; i < 5; i++)
{
    stuFaceInfo.nInFacePhotoLen[i] = 100 * 1024;
    IntPtr tempPtr = IntPtr.Zero;
    tempPtr = Marshal.AllocHGlobal(100 * 1024);
    for (int j = 0; j < 100 * 1024; j++)
    {
        Marshal.WriteByte(tempPtr, j, 0);
    }
    stuFaceInfo.pFacePhoto[i] = tempPtr;
}
Marshal.StructureToPtr(stuFaceInfo, stuFaceGetOut.pFaceInfo, true);

NET_EM_FAILCODE stuFailCode = new NET_EM_FAILCODE();
Marshal.StructureToPtr(stuFailCode, stuFaceGetOut.pFailCode, true);

IntPtr pstInParam = IntPtr.Zero;
pstInParam = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_GET)));
Marshal.StructureToPtr(stuFaceGetIn, pstInParam, true);

IntPtr pstOutParam = IntPtr.Zero;
```

```
pstOutParam                                                                                    =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_GET)));
Marshal.StructureToPtr(stuFaceGetOut, pstOutParam, true);

bool            result            =            NETClient.OperateAccessFaceService(m_LoginID,
EM_NET_ACCESS_CTL_FACE_SERVICE.GET, pstInParam, pstOutParam, 5000);
var get_face_service = (NET_OUT_ACCESS_FACE_SERVICE_GET)Marshal.PtrToStructure(pstOutParam,
typeof(NET_OUT_ACCESS_FACE_SERVICE_GET));
if (!result)
{
    stuFailCode      =      (NET_EM_FAILCODE)Marshal.PtrToStructure(get_face_service.pFailCode,
typeof(NET_EM_FAILCODE));

    if (stuFailCode.emCode == EM_FAILCODE.NOERROR)
    {
        MessageBox.Show(NETClient.GetLastError());
    }
    else if (stuFailCode.emCode != EM_FAILCODE.UNKNOWN)
    {
        MessageBox.Show(stuFailCode.emCode.ToString());
    }
}
else
{
    stuFaceInfo    =    (NET_ACCESS_FACE_INFO)Marshal.PtrToStructure(get_face_service.pFaceInfo,
typeof(NET_ACCESS_FACE_INFO));
    if (stuFaceInfo.nFacePhoto > 0)
    {
        m_ImageData = new byte[stuFaceInfo.nOutFacePhotoLen[0]];
        Marshal.Copy(stuFaceInfo.pFacePhoto[0],              m_ImageData,              0,
stuFaceInfo.nOutFacePhotoLen[0]);
        using (MemoryStream stream = new MemoryStream(m_ImageData))
        {
            Image image = Image.FromStream(stream);
            pictureBox_face.Image = image;
            pictureBox_face.Refresh();
        }
    }
}
//Add
```

```
NET_IN_ACCESS_FACE_SERVICE_INSERT stuFaceInsertIn = new NET_IN_ACCESS_FACE_SERVICE_INSERT();
stuFaceInsertIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_INSERT));
stuFaceInsertIn.nFaceInfoNum = 1;
stuFaceInsertIn.pFaceInfo = IntPtr.Zero;
stuFaceInsertIn.pFaceInfo = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_ACCESS_FACE_INFO)));

NET_ACCESS_FACE_INFO stuFaceInfo = new NET_ACCESS_FACE_INFO();
stuFaceInfo.szUserID = m_UserInfo.szUserID;
stuFaceInfo.nFacePhoto = 1;
stuFaceInfo.nInFacePhotoLen = new int[5];
stuFaceInfo.nOutFacePhotoLen = new int[5];
stuFaceInfo.nInFacePhotoLen[0] = stuFaceInfo.nOutFacePhotoLen[0] = m_ImageData.Length;
stuFaceInfo.pFacePhoto = new IntPtr[5];
stuFaceInfo.pFacePhoto[0] = Marshal.AllocHGlobal(stuFaceInfo.nInFacePhotoLen[0]);
Marshal.Copy(m_ImageData, 0, stuFaceInfo.pFacePhoto[0], stuFaceInfo.nInFacePhotoLen[0]);

Marshal.StructureToPtr(stuFaceInfo, stuFaceInsertIn.pFaceInfo, true);

NET_OUT_ACCESS_FACE_SERVICE_INSERT stuFaceInsertOut = new NET_OUT_ACCESS_FACE_SERVICE_INSERT();
stuFaceInsertOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_INSERT));
stuFaceInsertOut.nMaxRetNum = 1;
stuFaceInsertOut.pFailCode = IntPtr.Zero;
stuFaceInsertOut.pFailCode = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_EM_FAILCODE)));

NET_EM_FAILCODE stuFailCodeR = new NET_EM_FAILCODE();
Marshal.StructureToPtr(stuFailCodeR, stuFaceInsertOut.pFailCode, true);

IntPtr pstInParam = IntPtr.Zero;
pstInParam = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_INSERT)));
Marshal.StructureToPtr(stuFaceInsertIn, pstInParam, true);

IntPtr pstOutParam = IntPtr.Zero;
pstOutParam = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_INSERT)));
Marshal.StructureToPtr(stuFaceInsertOut, pstOutParam, true);
```

```
bool result = NETClient.OperateAccessFaceService(m_LoginID,
EM_NET_ACCESS_CTL_FACE_SERVICE.INSERT, pstInParam, pstOutParam, 5000);
var faceinfo = (NET_OUT_ACCESS_FACE_SERVICE_INSERT)Marshal.PtrToStructure(pstOutParam,
typeof(NET_OUT_ACCESS_FACE_SERVICE_INSERT));
if (!result)
{
    var failcode = (NET_EM_FAILCODE)Marshal.PtrToStructure(faceinfo.pFailCode,
typeof(NET_EM_FAILCODE));
    if (failcode.emCode == EM_FAILCODE.NOERROR)
    {
        MessageBox.Show(NETClient.GetLastError());
    }
    else
    {
        MessageBox.Show(failcode.emCode.ToString());
    }
}

//Update
NET_IN_ACCESS_FACE_SERVICE_UPDATE stuFaceUpdateIn = new
NET_IN_ACCESS_FACE_SERVICE_UPDATE();
stuFaceUpdateIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_UPDATE));
stuFaceUpdateIn.nFaceInfoNum = 1;
stuFaceUpdateIn.pFaceInfo = IntPtr.Zero;
stuFaceUpdateIn.pFaceInfo =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_ACCESS_FACE_INFO)));

NET_ACCESS_FACE_INFO stuFaceInfo = new NET_ACCESS_FACE_INFO();
stuFaceInfo.szUserID = m_UserInfo.szUserID;
stuFaceInfo.nFacePhoto = 1;
stuFaceInfo.nInFacePhotoLen = new int[5];
stuFaceInfo.nOutFacePhotoLen = new int[5];
stuFaceInfo.nInFacePhotoLen[0] = stuFaceInfo.nOutFacePhotoLen[0] = m_ImageData.Length;
stuFaceInfo.pFacePhoto = new IntPtr[5];
stuFaceInfo.pFacePhoto[0] = Marshal.AllocHGlobal(stuFaceInfo.nInFacePhotoLen[0]);
Marshal.Copy(m_ImageData, 0, stuFaceInfo.pFacePhoto[0], stuFaceInfo.nInFacePhotoLen[0]);

Marshal.StructureToPtr(stuFaceInfo, stuFaceUpdateIn.pFaceInfo, true);

NET_OUT_ACCESS_FACE_SERVICE_UPDATE stuFaceUpdateOut = new
NET_OUT_ACCESS_FACE_SERVICE_UPDATE(); //{ sizeof(stuFaceUpdateOut) };
```

```
stuFaceUpdateOut.dwSize                                                    =
(uint)Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_UPDATE));
stuFaceUpdateOut.nMaxRetNum = 1;
stuFaceUpdateOut.pFailCode = IntPtr.Zero;
stuFaceUpdateOut.pFailCode = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_EM_FAILCODE)));

NET_EM_FAILCODE stuFailCodeR = new NET_EM_FAILCODE();
Marshal.StructureToPtr(stuFailCodeR, stuFaceUpdateOut.pFailCode, true);

IntPtr pstInParam = IntPtr.Zero;
pstInParam                                                                 =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_UPDATE)));
Marshal.StructureToPtr(stuFaceUpdateIn, pstInParam, true);

IntPtr pstOutParam = IntPtr.Zero;
pstOutParam                                                                =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_UPDATE)));
Marshal.StructureToPtr(stuFaceUpdateOut, pstOutParam, true);

bool        result        =        NETClient.OperateAccessFaceService(m_LoginID,
EM_NET_ACCESS_CTL_FACE_SERVICE.UPDATE, pstInParam, pstOutParam, 5000);
var   faceinfo   =   (NET_OUT_ACCESS_FACE_SERVICE_UPDATE)Marshal.PtrToStructure(pstOutParam,
typeof(NET_OUT_ACCESS_FACE_SERVICE_UPDATE));

if (!result)
{
    var        failcode        =        (NET_EM_FAILCODE)Marshal.PtrToStructure(faceinfo.pFailCode,
typeof(NET_EM_FAILCODE));
    if (failcode.emCode == EM_FAILCODE.NOERROR)
    {
        MessageBox.Show(NETClient.GetLastError());
    }
    else
    {
        MessageBox.Show(failcode.emCode.ToString());
    }
}

//Delete
NET_IN_ACCESS_FACE_SERVICE_REMOVE          stuFaceRemoveIn          =          new
NET_IN_ACCESS_FACE_SERVICE_REMOVE();
```

```
stuFaceRemoveIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_REMOVE));
stuFaceRemoveIn.nUserNum = 1;
stuFaceRemoveIn.szUserID = new NET_IN_ACCESS_FACE_SERVICE_UserID[100];
stuFaceRemoveIn.szUserID[0] = new NET_IN_ACCESS_FACE_SERVICE_UserID() { userID = m_UserInfo.szUserID };

NET_OUT_ACCESS_FACE_SERVICE_REMOVE stuFaceRemoveOut = new NET_OUT_ACCESS_FACE_SERVICE_REMOVE();//{ sizeof(stuFaceROut) };
stuFaceRemoveOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_REMOVE));
stuFaceRemoveOut.nMaxRetNum = 1;
stuFaceRemoveOut.pFailCode = IntPtr.Zero;
stuFaceRemoveOut.pFailCode = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_EM_FAILCODE)));

NET_EM_FAILCODE stuFailCodeR = new NET_EM_FAILCODE();
Marshal.StructureToPtr(stuFailCodeR, stuFaceRemoveOut.pFailCode, true);

IntPtr pstInParam = IntPtr.Zero;
pstInParam = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_IN_ACCESS_FACE_SERVICE_REMOVE)));
Marshal.StructureToPtr(stuFaceRemoveIn, pstInParam, true);

IntPtr pstOutParam = IntPtr.Zero;
pstOutParam = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_OUT_ACCESS_FACE_SERVICE_REMOVE)));
Marshal.StructureToPtr(stuFaceRemoveOut, pstOutParam, true);

bool result = NETClient.OperateAccessFaceService(m_LoginID, EM_NET_ACCESS_CTL_FACE_SERVICE.REMOVE, pstInParam, pstOutParam, 5000);
var faceinfo = (NET_OUT_ACCESS_FACE_SERVICE_REMOVE)Marshal.PtrToStructure(pstOutParam, typeof(NET_OUT_ACCESS_FACE_SERVICE_REMOVE));

if (!result)
{
    var failcode = (NET_EM_FAILCODE)Marshal.PtrToStructure(faceinfo.pFailCode, typeof(NET_EM_FAILCODE));
    if (failcode.emCode == EM_FAILCODE.NOERROR)
    {
        MessageBox.Show(NETClient.GetLastError());
    }
    else
```

```
        {
                MessageBox.Show(failcode.emCode.ToString());
        }
}
```

2.3.7.4 Fingerprint Management

2.3.7.4.1 Introduction

Call SDK to add, delete, query, and modify the fingerprint information fields of the access control device (including user ID, fingerprint data packet, and duress fingerprint number).

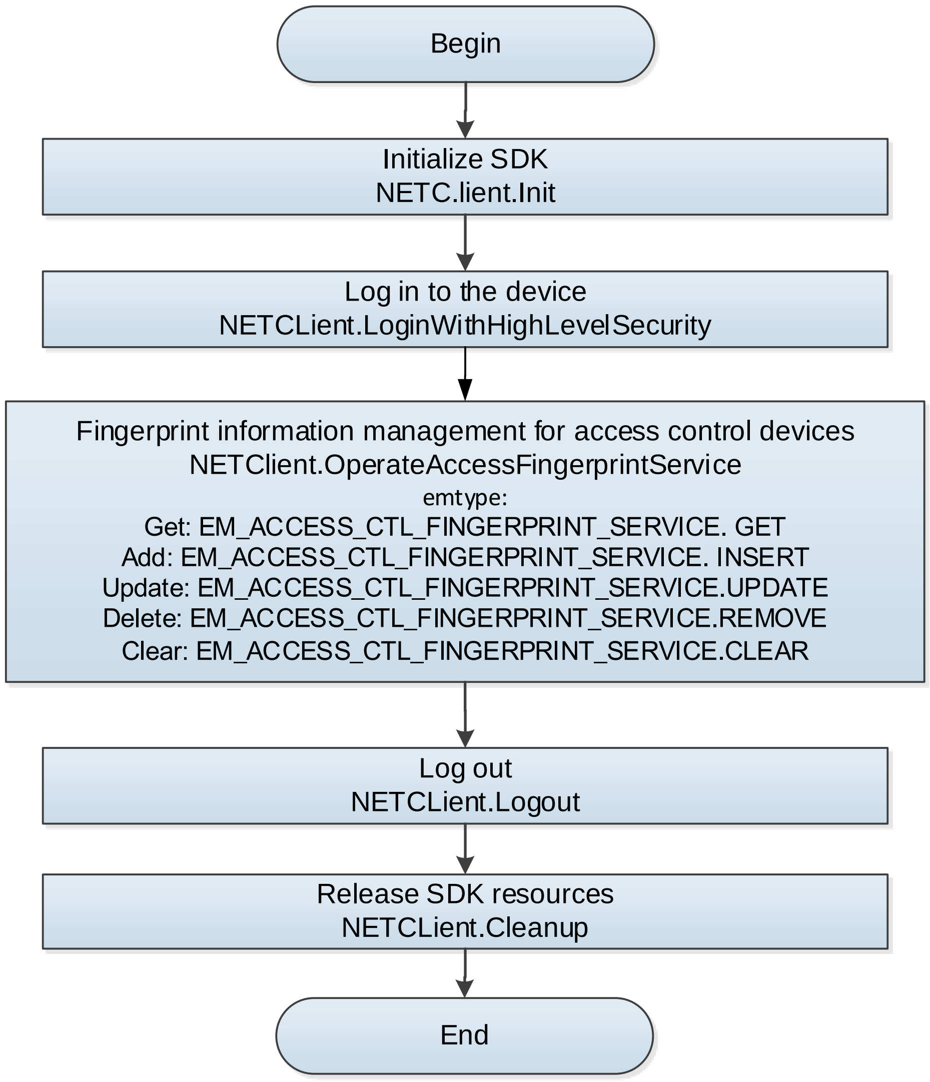
2.3.7.4.2 Interface Overview

Table 2-51 Description of fingerprint information interface

Interface	Description
NETClient. OperateAccessFingerprintService	Fingerprint information management interface

2.3.7.4.3 Process Description

Figure 2-41 Management of fingerprint information


Begin
Initialize SDK
NETC.lient.Init
Log in to the device
NETCLient.LoginWithHighLevelSecurity
Fingerprint information management for access control devices
NETClient.OperateAccessFingerprintService
emtype:
Get: EM_ACCESS_CTL_FINGERPRINT_SERVICE. GET
Add: EM_ACCESS_CTL_FINGERPRINT_SERVICE. INSERT
Update: EM_ACCESS_CTL_FINGERPRINT_SERVICE.UPDATE
Delete: EM_ACCESS_CTL_FINGERPRINT_SERVICE.REMOVE
Clear: EM_ACCESS_CTL_FINGERPRINT_SERVICE.CLEAR
Log out
NETCLient.Logout
Release SDK resources
NETCLient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.
Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.
Step 3 Call **NETClient.OperateAccessFingerprintService** to add, obtain, update, delete, and clear the fingerprint information.
Step 4 After completing this process, call **NETClient. Logout** to log out of the device.
Step 5 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

Table 2-52 Operations and structural body of type

emtype	Definition	Param
INSERT	Add fingerprint info	NET_IN_ACCESS_FINGERPRINT_SERVICE_INSERT NET_OUT_ACCESS_FINGERPRINT_SERVICE_INSERT
GET	Get fingerprint info	NET_IN_ACCESS_FINGERPRINT_SERVICE_GET NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET
UPDATE	Update fingerprint info	NET_IN_ACCESS_FINGERPRINT_SERVICE_UPDATE NET_OUT_ACCESS_FINGERPRINT_SERVICE_UPDATE
REMOVE	Delete fingerprint info	NET_IN_ACCESS_FINGERPRINT_SERVICE_REMOVE NET_OUT_ACCESS_FINGERPRINT_SERVICE_REMOVE
CLEAR	Clear fingerprint info	NET_IN_ACCESS_FINGERPRINT_SERVICE_CLEAR NET_OUT_ACCESS_FINGERPRINT_SERVICE_CLEAR

2.3.7.4.4 Sample Code

```
private NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET m_FingerprintInfo = new NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET();
//Get
NET_IN_ACCESS_FINGERPRINT_SERVICE_GET stuFingerPrintGetIn = new NET_IN_ACCESS_FINGERPRINT_SERVICE_GET();
stuFingerPrintGetIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_IN_ACCESS_FINGERPRINT_SERVICE_GET));
stuFingerPrintGetIn.szUserID = m_UserInfo.szUserID;

NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET stuFingerPrintGetOut = new NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET();
stuFingerPrintGetOut.dwSize = (uint)Marshal.SizeOf(typeof(NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET));
stuFingerPrintGetOut.nMaxFingerDataLength = 10000;
stuFingerPrintGetOut.pbyFingerData = IntPtr.Zero;
stuFingerPrintGetOut.pbyFingerData = Marshal.AllocHGlobal(10000);

IntPtr pstInParam = IntPtr.Zero;
pstInParam = Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_IN_ACCESS_FINGERPRINT_SERVICE_GET)));
Marshal.StructureToPtr(stuFingerPrintGetIn, pstInParam, true);
```

```
IntPtr pstOutParam = IntPtr.Zero;
pstOutParam                                                                                                    =
Marshal.AllocHGlobal(Marshal.SizeOf(typeof(NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET)));
Marshal.StructureToPtr(stuFingerPrintGetOut, pstOutParam, true);

bool          result          =          NETClient.OperateAccessFingerprintService(m_LoginID,
EM_ACCESS_CTL_FINGERPRINT_SERVICE.GET, pstInParam, pstOutParam, 5000);
m_FingerprintInfo                                                                                              =
(NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET)Marshal.PtrToStructure(pstOutParam,
typeof(NET_OUT_ACCESS_FINGERPRINT_SERVICE_GET));

//Add
m_FingerprintInfo.nPacketNum = 1;
m_FingerprintInfo.nPacketLen = m_PacketLen;
m_FingerprintInfo.szFingerPrintInfo = Marshal.AllocHGlobal(m_PacketLen);
for (int i = 0; i < m_PacketLen; i++)
{
    Marshal.WriteByte(m_FingerprintInfo.szFingerPrintInfo, i, FingerPrintInfo[i]);
}
m_FingerprintInfo.nDuressIndex = 0;
if (ckb_Duress.Checked)
{
    m_FingerprintInfo.nDuressIndex = 1;
}

NET_ACCESS_FINGERPRINT_INFO[]   stuInArray   =   new   NET_ACCESS_FINGERPRINT_INFO[1]
{ m_FingerprintInfo };
NET_EM_FAILCODE[] stuOutArray;

bRet  =  NETClient.InsertOperateAccessFingerprintService(m_LoginID,  stuInArray,  out  stuOutArray,
3000);
if (!bRet)
{
    for (int i = 0; i < stuOutArray.Length; i++)
    {
        MessageBox.Show(stuOutArray[i].emCode.ToString());
    }
}

//Update
```

```
for (int i = 0; i < m_PacketLen; i++)
{
        Marshal.WriteByte(m_FingerprintInfo.szFingerPrintInfo, (m_FingerprintNum - 1) * m_PacketLen
+ i, FingerPrintInfo[i]);
}
if (ckb_Duress.Checked)
{
        m_FingerprintInfo.nDuressIndex = m_FingerprintNum;
}

NET_ACCESS_FINGERPRINT_INFO[]     stuInArray     =     new     NET_ACCESS_FINGERPRINT_INFO[1]
{ m_FingerprintInfo };
NET_EM_FAILCODE[] stuOutArray;

bRet = NETClient.UpdateOperateAccessFingerprintService(m_LoginID, stuInArray, out stuOutArray,
3000);
if (!bRet)
{
        for (int i = 0; i < stuOutArray.Length; i++)
        {
                MessageBox.Show(stuOutArray[i].emCode.ToString());
        }
}
//Delete
NET_EM_FAILCODE[] stuOutErrArray;
string[] userid = new string[] { m_UserInfo.szUserID };
result = NETClient.RemoveOperateAccessFingerprintService(m_LoginID, userid, out stuOutErrArray,
3000);
if (!result)
{
        for (int i = 0; i < stuOutErrArray.Length; i++)
        {
                MessageBox.Show(stuOutErrArray[i].emCode.ToString());
        }
}
```

2.3.8 Door Config

See "2.2.8 Door Config."

2.3.9 Door Time Config

2.3.9.1 Period Config

See "2.2.9.1 Period Config."

2.3.9.2 Always Open and Always Closed Period Config

See "2.2.9.2 Always Open and Always Closed Period Config."

2.3.9.3 Holiday Group

2.3.9.3.1 Introduction

Configure the holiday group of the device through SDK, including the holiday group name, the start and end time, and group enabling.

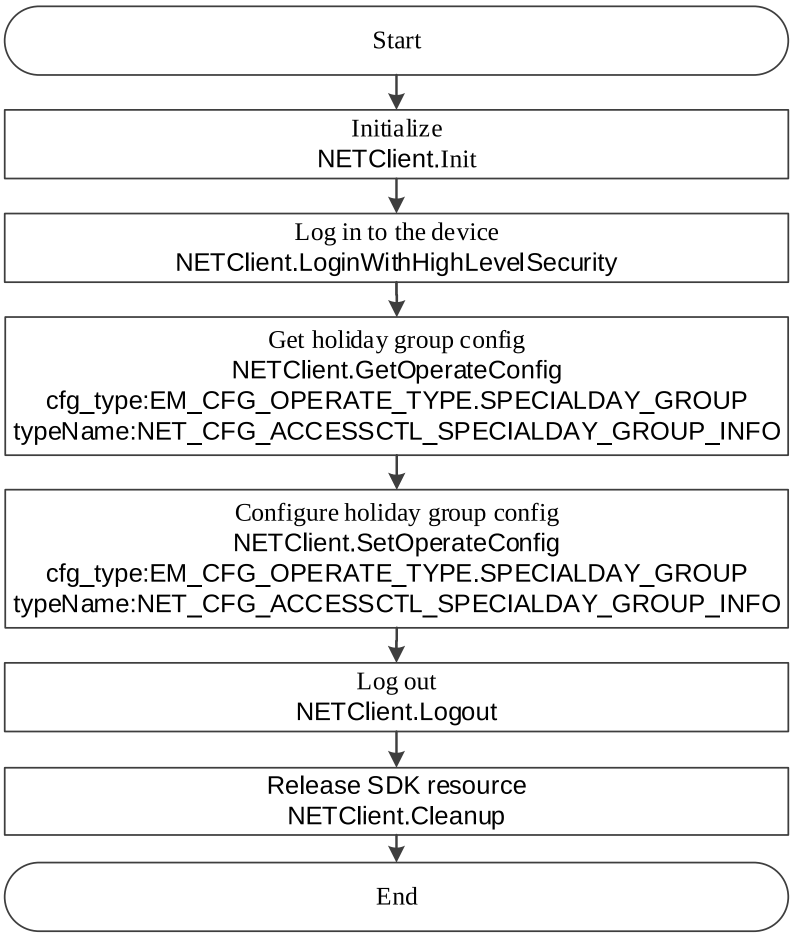
2.3.9.3.2 Interface Overview

Table 2-53 Description of holiday group interface

Interface	Description
NETClient.GetConfig	Query config information.
NETClient.SetConfig	Set config information.

2.3.9.3.3 Process Description

Figure 2-42 Holiday group


Start
Initialize
NETClient.Init
Log in to the device
NETClient.LoginWithHighLevelSecurity
Get holiday group config
NETClient.GetOperateConfig
cfg_type:EM_CFG_OPERATE_TYPE.SPECIALDAY_GROUP
typeName:NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO
Configure holiday group config
NETClient.SetOperateConfig
cfg_type:EM_CFG_OPERATE_TYPE.SPECIALDAY_GROUP
typeName:NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO
Log out
NETClient.Logout
Release SDK resource
NETClient.Cleanup
End

Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetConfig** to query the holiday group config info for the access control device.

Table 2-54 Description of cfg_type

cfg_type	Description	Structural body
NET_EM_CFG_ACCESSCTL_ SPECIALDAY_GROUP	Get holiday info	NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO

Step 4 Call **NETClient.SetConfig** to set the holiday group config info for the access control device.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resources.

2.3.9.3.4 Sample Code

```
//Get
NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO stuIn = new NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO();
stuIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO));
```

```
object obj = stuIn;
bool  ret  =  NETClient.GetOperateConfig(m_LoginID,  EM_CFG_OPERATE_TYPE.SPECIALDAY_GROUP,
cmb_Index.SelectedIndex, ref obj, typeof(NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO), 5000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
}
m_SpecialdayGroupInfo = (NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO)obj;

//Configure
m_SpecialdayGroupInfo.bGroupEnable = chb_Enable.Checked;
m_SpecialdayGroupInfo.szGroupName = txt_Name.Text;
object obj = m_SpecialdayGroupInfo;
bool  ret  =  NETClient.SetOperateConfig(m_LoginID,  EM_CFG_OPERATE_TYPE.SPECIALDAY_GROUP,
cmb_Index.SelectedIndex, obj, typeof(NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO), 5000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
}
```

2.3.9.4 Holiday Plan

2.3.9.4.1 Introduction

Configure the holiday plan of the device through SDK, including the holiday plan name, enabling, period, and valid door channel.

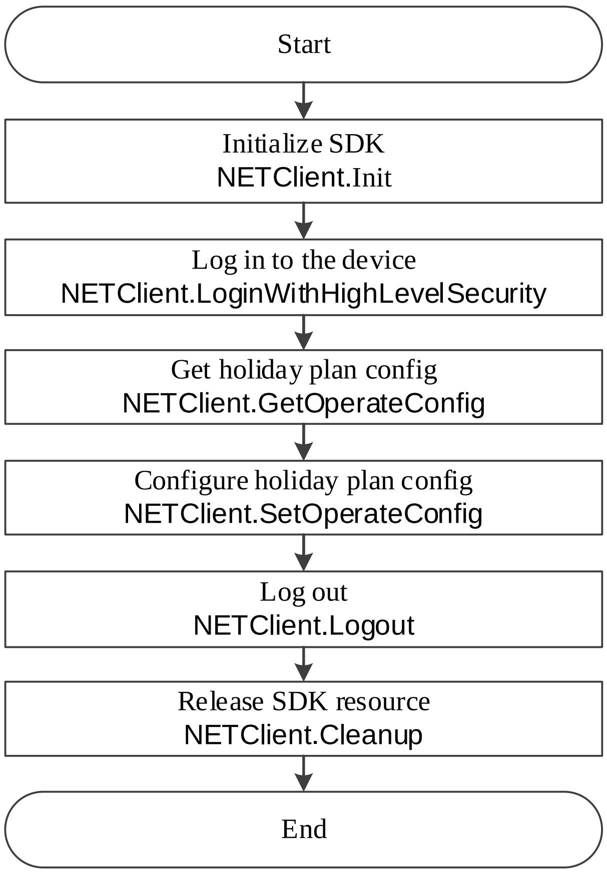
2.3.9.4.2 Interface Overview

Table 2-55 Description of holiday plan interface

Interface	Description
NETClient.GetOperateConfig	Query config information.
NETClient.SetOperateConfig	Set config information.

2.3.9.4.3 Process Description

Figure 2-43 Holiday plan



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.GetConfig** to query the holiday plan config info for the access control device.

Table 2-56 Description of emCfgOpType

emCfgOpType	Description	Structural body
EM_CFG_OPERATE_TYPE.SPECIALDAYS_SCHEDULE	Get holiday info	NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO

Step 4 Call **NETClient. SetConfig** to set the the holiday plan config info for the access control device.

Step 5 After completing this process, call **NETClient. Logout** to log out of the device.

Step 6 After using all SDK functions, call **NETClient. Cleanup** to release SDK resource.

2.3.9.4.4 Sample Code

```
// Get
NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO stuIn = new
NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO();
stuIn.dwSize = (uint)Marshal.SizeOf(typeof(NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO));
```

```
object obj = stuIn;
bool ret = NETClient.GetOperateConfig(m_LoginID, EM_CFG_OPERATE_TYPE.SPECIALDAYS_SCHEDULE, cmb_ScheduleGroup.SelectedIndex, ref obj, typeof(NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO), 5000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
}
m_ScheduleInfo = (NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO)obj;

//Configure
m_ScheduleInfo.szSchduleName = txt_ScheduleName.Text;
m_ScheduleInfo.bSchdule = chb_ScheduleEnable.Checked;
m_ScheduleInfo.nGroupNo = int.Parse(txt_GroupNum.Text);

object obj = m_ScheduleInfo;
bool ret = NETClient.SetOperateConfig(m_LoginID, EM_CFG_OPERATE_TYPE.SPECIALDAYS_SCHEDULE, cmb_ScheduleGroup.SelectedIndex, obj, typeof(NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO), 5000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
}
```

2.3.10 Advanced Config of Door

See "2.2.10 Advanced Config of Door."

2.3.11 Records Query

2.3.11.1 Unlock Records

See "2.2.11.1 Unlock Records."

2.3.11.2 Device Log

See "2.2.11.2 Device log."

2.3.11.3 Alarm Records

2.3.11.3.1 Introduction

Query the alarm records of the access control device through the SDK interface.

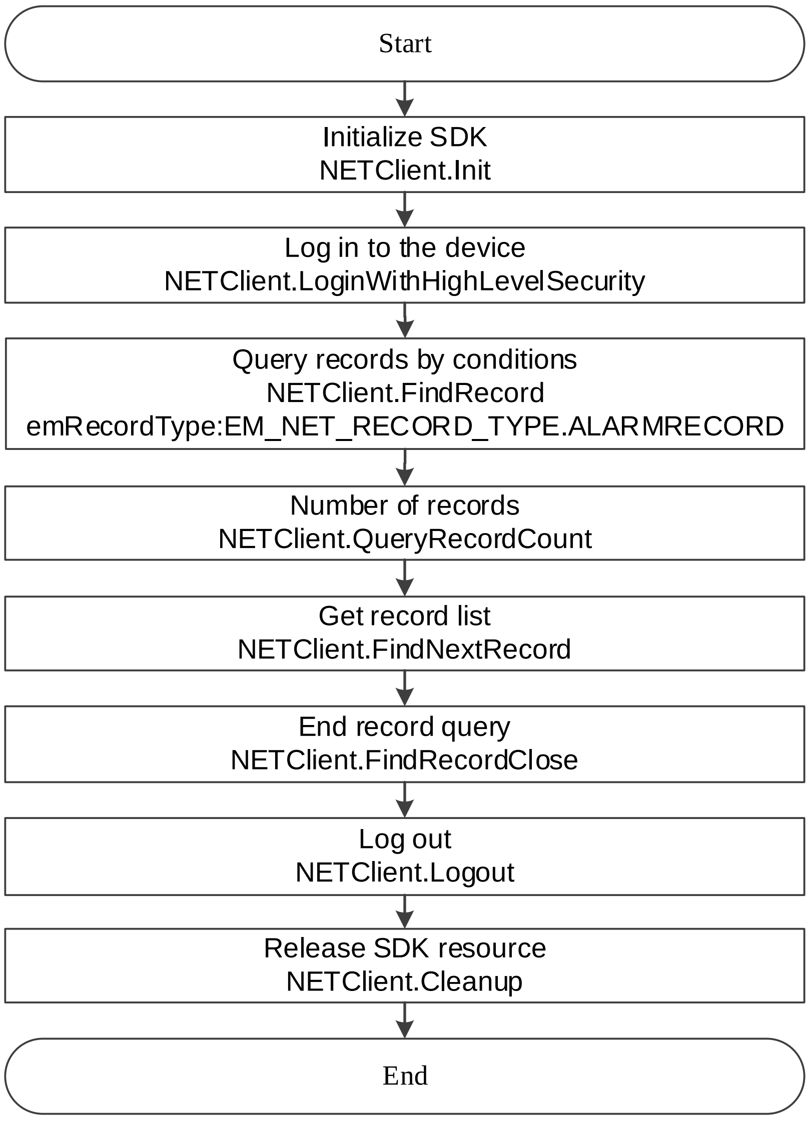
2.3.11.3.2 Interface Overview

Table 2-57 Description of record query interfaces

Interface	Description
NETClient.QueryRecordCount	Find the count of records
NETClient.FindRecord	Query records by query conditions
NETClient.FindNextRecord	Find records: nFilecount: count of files to be queried. When the return value is the count of media files and less than nFilecount, the query of files is completed within the corresponding period
NETClient.FindRecordClose	End record query

2.3.11.3.3 Process Description

Figure 2-44 Record query



Process

Step 1 Call **NETClient.Init** to initialize SDK.

Step 2 Call **NETClient.LoginWithHighLevelSecurity** to log in to the device.

Step 3 Call **NETClient.FindRecord** to get the query handle.
Assign NET_RECORD_ACCESS_ALARMRECORD to emType in pInParam.

Step 4 Call **NETClient.QueryRecordCount** to find the count of records.

Step 5 Call **NETClient.FindNextRecord** to get the list of records.

Step 6 Call **NETClient. FindRecordClose** to close the query handle.

Step 7 After completing this process, call **NETClient. Logout** to log out of the device.

Step 8 After using all SDK functions, call **NETClient. Cleanup** to release SDK resource.

2.3.11.3.4 Sample Code

```
//Start query
```

```
NET_FIND_NET_RECORD_ACCESS_ALARMRECORD_INFO_CONDITION condition = new
NET_FIND_NET_RECORD_ACCESS_ALARMRECORD_INFO_CONDITION();
condition.dwSize =
(uint)Marshal.SizeOf(typeof(NET_FIND_NET_RECORD_ACCESS_ALARMRECORD_INFO_CONDITION));
condition.stStartTime = NET_TIME.FromDateTime(dateTimePicker_DoorStart.Value);
condition.stEndTime = NET_TIME.FromDateTime(dateTimePicker_DoorEnd.Value);
object obj = condition;

bool ret = NETClient.FindRecord(m_LoginID, EM_NET_RECORD_TYPE.ACCESS_ALARMRECORD, obj,
typeof(NET_FIND_NET_RECORD_ACCESS_ALARMRECORD_INFO_CONDITION), ref
m_FindAlarmRecordID, 10000);
if (!ret)
{
    MessageBox.Show(NETClient.GetLastError());
    return;
}

//number of ercords
int nCount = 0;
if (NETClient.QueryRecordCount(m_FindAlarmRecordID, ref nCount, 3000))
{
    txt_AlarmRecordCount.Text = nCount.ToString();
}
else
{
    MessageBox.Show(NETClient.GetLastError());
}
//query records
int max = 20;
int retNum = 0;
List<object> ls = new List<object>();
for (int i = 0; i < max; i++)
{
    NET_RECORD_ACCESS_ALARMRECORD_INFO alarm_rec = new
NET_RECORD_ACCESS_ALARMRECORD_INFO();
    alarm_rec.dwSize = (uint)Marshal.SizeOf(typeof(NET_RECORD_ACCESS_ALARMRECORD_INFO));
    ls.Add(alarm_rec);
}
NETClient.FindNextRecord(m_FindAlarmRecordID, max, ref retNum, ref ls,
typeof(NET_RECORD_ACCESS_ALARMRECORD_INFO), 10000);
foreach (var item in ls)
```

```
{
NET_RECORD_ACCESS_ALARMRECORD_INFO                    info                    =
(NET_RECORD_ACCESS_ALARMRECORD_INFO)item;
}
//End record query
NETClient.FindRecordClose(m_FindAlarmRecordID);
m_FindAlarmRecordID = IntPtr.Zero;
```

3 Interface Function

3.1 Common Interface

3.1.1 SDK Initialization

3.1.1.1 SDK Initialization

Table 3-1 SDK initialization description

Item	Description	
Description	Initialize the SDK.	
Function	bool Init(fDisConnectCallBack cbDisConnect, IntPtr dwUser, NETSDK_INIT_PARAM? stuInitParam);	
Parameter	[in]cbDisConnect	Disconnection callback.
	[in]dwUser	User parameters for disconnection callback.
	[in]stuInitParam	Initialize NetSDK parameters
Return Value	● Success: TRUE ● Failure: FALSE	
Note	● Prerequisite for calling other functions of the NetSDK. ● When the callback is set as NULL, the device will not be sent to the user after disconnection. ● dwUser parameter introduced by Init will be returned by dwUser in the callback function cbDisConnect.	

3.1.1.2 SDK Cleaning up

Table 3-2 Description of SDK cleaning up

Item	Description
Description	Clean up NetSDK.
Function	void Cleanup()
Parameter	None.
Return Value	None.
Note	NetSDK cleaning up interface is finally called before the end.

3.1.1.3 Configuring Reconnection Callback

Table 3-3 Description of setting reconnection callback

Item	Description
Description	Configure auto reconnection callback.

Item	Description	

Function	void SetAutoReconnect(
	        fHaveReConnectCallBack cbAutoConnect,
	        IntPtr dwUser
	);	

Parameter	[in]cbAutoConnect	Reconnection callback.
	[in]dwUser	User parameters for reconnection callback.
Return Value	None.	
Note	Configure reconnection callback interface. If the callback is set as NULL, the device will not be reconnected automatically.	

3.1.1.4 Configuring Network Parameter

Table 3-4 Description of device network parameter

Item	Description	
Description	Configure network parameters.	
Function	void SetNetworkParam(NET_PARAM? netParam);	
Parameter	[in]pNetParam	Network delay, number of reconnections, buffer size and other parameters.
Return Value	None.	
Note	You can adjust parameters according to the actual network environment.	

3.1.2 Device Initialization

3.1.2.1 Querying Device

Table 3-5 Description of Querying device

Item	Description	
Description	Query device information.	

Function	IntPtr StartQueryDevice(
	    fQueryDevicesCB cbQueryDevice,
	    IntPtr pUserData,
	    IntPtr szLocalIp
	        )	

Parameter	[in] pInBuf	Input parameter of async Querying.
	[in] pUserData	User info
	[in] szLocalIp	Single NIC: szLocalIp is optional Multiple NICs: szLocalIp enter hpstIP
Return Value	Failure: 0; success: non 0.	
Note	Multi-thread calling is not supported.	

3.1.2.2 Device Initialization

Table 3-6 Description of device initialization

Item	Description	
Description	Initialize Device.	
Function	bool InitDevAccount(NET_IN_INIT_DEVICE_ACCOUNT pInitAccountIn, ref NET_OUT_INIT_DEVICE_ACCOUNT pInitAccountOut, uint dwWaitTime, string szLocalIp)	
Parameter	[in]pInitAccountIn	Input parameter, corresponding to NET_IN_INIT_DEVICE_ACCOUNT structure.
	[out]pInitAccountOut	Output parameter, corresponding to NET_OUT_INIT_DEVICE_ACCOUNT structure.
	[in]dwWaitTime	Timeout period.
	[in]szLocalIp	● In the case of single network adapter, szLocalIp can be left empty. ● In the case of multiple network adapters, fill the host IP in szLocalIp.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.2.3 Stopping Querying Device

Table 3-7 Description of stopping Querying device

Item	Description	
Description	Stop Querying device information.	
Function	bool StopQueryDevice(IntPtr lQueryHandle)	
Parameter	[in] lQueryHandle	Input parameter, Query handle.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	Multi-thread calling is not supported.	

3.1.3 Device Login

3.1.3.1 Logging in to the Device

Table 3-8 Description of user logging in to the device

Item	Description
Description	Log in to the device.

Item	Description	

Function	IntPtr LoginWithHighLevelSecurity(
	        string pchDVRIP,
	        ushort wDVRPort,
	        string pchUserName,
	        string pchPassword,
	        EM_LOGIN_SPAC_CAP_TYPE emSpecCap,
	        IntPtr pCapParam,
	        ref NET_DEVICEINFO_Ex deviceInfo
	);	

Parameter	[in]pchDVRIP	Device IP
	[in]wDVRPort	Device port
	[in]pchUserName	Username
	[in]pchPassword	Password
	[in]emSpecCap	Login type
	[in]pCapParam	Login type parameter
	[out]deviceInfo	Device info
Return Value	● Success: Non-0 ● Failure: 0	
Note	High security level login interface. You can still use LoginEx2, but there is a security risk. Therefore, it is highly recommended to use the latest interface LoginWithHighLevelSecurity to log in to the device.	

3.1.3.2 User Logging Out of the Device

Table 3-9 Description of user logging out of the device

Item	Description	
Description	Log out of the device.	

Function	bool Logout(
	        IntPtr lLoginID
	);	

Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
Return Value	● Success: TRUE ● Failure: FALSE	
Description	None.	

3.1.4 Realtime Monitor

3.1.4.1 Opening the Monitoring

Table 3-10 Description of opening the monitoring

Item	Description
Description	Open the real-time monitoring.

Item	Description	
Function	IntPtr RealPlay(IntPtr lLoginID, int nChannelID, IntPtr hWnd, EM_RealPlayType rType = EM_RealPlayType.Realplay);	
Parameter	[in]lLoginID	Return value of NETClient. LoginWithHighLevelSecurity.
	[in]nChannelID	Video channel number, an integer increasing from 0.
	[in]hWnd	Window handle, only valid in Windows system.
	[in]rType	Live view type.
Return Value	● Success: Non-0 ● Failure: 0	
Note	In Windows environment: ● When hWnd is valid, the picture is displayed in the corresponding window. ● When hWnd is NULL, the way of getting stream is to get video data by setting callback function, and then submit the data to users for processing.	

Table 3-11 Description of live view types

Live view type	Meanings
Realplay	Live View
Multiplay	Zero-Ch Encode
Realplay_0	Real-time monitoring—main stream, equivalent to DH_RType_Realplay
Realplay_1	Real-time monitoring—sub stream 1
Realplay_2	Real-time monitoring—sub stream 2
Realplay_3	Real-time monitoring—sub stream 3
Multiplay_1	Multi-picture preview—1 picture
Multiplay_4	Multi-picture preview—4 pictures
Multiplay_8	Multi-picture preview—8 pictures
Multiplay_9	Multi-picture preview—9 pictures
Multiplay_16	Multi-picture preview—16 pictures
Multiplay_6	Multi-picture preview—6 pictures
Multiplay_12	Multi-picture preview—12 pictures
Multiplay_25	Multi-picture preview—25 pictures
Multiplay_36	Multi-picture preview—36 pictures

3.1.4.2 Closing the Monitoring

Table 3-12 Description of closing the monitoring

Item	Description
Description	Close the real-time monitoring.

Item	Description	
Function	bool StopRealPlay(IntPtr lRealHandle);	
Parameter	[in]lRealHandle	Return value of RealPlay.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.4.3 Saving the Monitoring Data

Table 3-13 Description of saving the monitoring data

Item	Description	
Description	Save the real-time monitoring data as a file.	
Function	bool SaveRealData(IntPtr lRealHandle, string pchFileName);	
Parameter	[in]lRealHandle	Return value of RealPlay.
	[in]pchFileName	Path of the file to be saved.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.4.4 Stopping Saving the Monitoring Data

Table 3-14 Description of stopping saving the monitoring data

Item	Description	
Description	Stop saving the real-time monitoring data as a file.	
Function	bool StopSaveRealData(IntPtr lRealHandle);	
Parameter	[in]lRealHandle	Return value of RealPlay.
Return Value	Success: TRUE;Failure: FALSE	
Note	None.	

3.1.4.5 Setting Monitoring Data Callback

Table 3-15 Description of setting monitoring data callback

Item	Description
Description	Set real-time monitoring data callback.

Item	Description	

Function	bool SetRealDataCallBack(
	        IntPtr lRealHandle,
	        fRealDataCallBackEx2 cbRealData,
	        IntPtr dwUser,
	        EM_REALDATA_FLAG dwFlag
	);	

Parameter	[in]lRealHandle	Return value of RealPlay.
	[in]cbRealData	Callback function for monitoring data flow.
	[in]dwUser	Parameters of the callback function for monitoring data flow.
	[in]dwFlag	Type of monitoring data in callback.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

Table 3-16 dwFlag types and meanings

dwFlag	Meanings
0x00000001	Device original data
0x00000004	Data transformed to YUV format.

3.1.5 Device Control

3.1.5.1 Device Controlling

Table 3-17 Device control description

Item	Description	
Description	Device control.	

Function	bool ControlDevice(
	    IntPtr lLoginID,
	    EM_CtrlType type,
	    IntPtr param,
	    int waittime
	)	

Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]Type	Control type.
	[in]param	Input parameters, which vary by emType.
	[in]waittime	Timeout period, 1000 ms by default, which can be set as needed.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.6 Alarm Listening

3.1.6.1 Setting Alarm Callback Function

Table 3-18 Description of setting alarm callback function

Item	Description	
Description	Set alarm callback function.	
Function	void SetDVRMessCallBack(fMessCallBackEx cbMessage, IntPtr dwUser);	
Parameter	[in]cbMessage	Message callback function ● Status in which devices can be called back, such as alarm status. ● When the value is set as 0, it means callback is forbidden.
	[in]dwUser	User-defined data.
Return Value	None	
Note	● Set device message callback function to get the current device status information; this function is independent of the calling sequence, and the NetSDK is not called back by default. ● The callback function fMessCallBack must call the alarm message subscription interface StartListen first before it takes effect.	

3.1.6.2 Subscribing to Alarm

Table 3-19 Description of subscribing to alarm

Item	Description	
Description	Subscribing alarms.	
Function	bool StartListen(IntPtr lLoginID);	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	Subscribe to device message, and the message received is called back from the set value of SetDVRMessCallBack.	

3.1.6.3 Stopping Subscribing to Alarm

Table 3-20 Description of stopping subscribing to alarm

Item	Description
Description	Stop subscribing alarms.

Item	Description	
Function	bool StopListen(IntPtr lLoginID);	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.7 Getting Device Status

3.1.7.1 Getting Device Status

Table 3-21 Description of getting device status

Item	Description	
Description	Directly get the connection status of remote devices.	
Function	bool QueryDevState(IntPtr lLoginID, int nType, ref object obj, Type typeName, int waittime);	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]nType	Query information type. When getting remote device connection status, nType is EM_DEVICE_STATE.VIRTUALCAMERA.
	[out]obj	Used to receive data cache returned by querying. The structural body is NET_VIRTUALCAMERA_STATE_INFO.
	[in]typeName	Type of query structural body.
	[in]waittime	Waiting time in query status.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.8 Voice Talk

3.1.8.1 Setting Voice Talk Mode

Table 3-22 Description of setting device voice talk mode

Item	Description
Description	Set device voice talk mode.

Item	Description	
Function	bool SetDeviceMode(IntPtr lLoginID, EM_USEDEV_MODE emType, IntPtr pValue);	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]emType	Enumerated value.
	[in]pValue	For structure data pointers corresponding to the enumerated values.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

Table 3-23 Enumation of working modes and structural body

Emulated emType	Definition	Structural body
EM_USEDEV_MODE. TALK_ENCODE_TYPE	Select a designated format to realize voice call.	NET_DEV_TALKDECODE_INFO
EM_USEDEV_MODE. TALK_CLIENT_MODE	Configure client method for voice call.	None
EM_USEDEV_MODE. TALK_SPEAK_PARAM	Configure speaking parameter for voice call.	NET_SPEAK_PARAM
EM_USEDEV_MODE. TALK_MODE3	Configure voice call parameter for the 3rd generation video door phone.	NET_TALK_EX

3.1.8.2 Starting Talk

Table 3-24 Description of starting talk

Item	Description	
Description	Start voice talk.	
Function	IntPtr StartTalk(IntPtr lLoginID, fAudioDataCallBack pfcb, IntPtr dwUser);	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]pfcb	Audio data callback function.
	[in]dwUser	Parameters of audio data callback function.
Return Value	● Success: Non-0 ● Failure: 0	
Note	None.	

3.1.8.3 Stopping Talk

Table 3-25 Description of stopping talk

Item	Description	
Description	Stop voice talk.	

Function	bool StopTalk(
	        IntPtr lTalkHandle
	);	

Parameter	[in]lTalkHandle	Return value of StartTalk
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.1.8.4 Enabling the Recording

Table 3-26 Description of enabling the recording

Item	Description	
Description	Open the local recording.	

Function	bool RecordStart(
	        IntPtr lLoginID
	);	

Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	This interface is only valid in Windows.	

3.1.8.5 Disabling the Recording

Table 3-27 Description of disabling the recording

Item	Description	
Description	Stop the local recording.	

Function	bool RecordStop(
	        IntPtr lLoginID
	);	

Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	This interface is only valid in Windows.	

3.1.8.6 Sending Voice

Table 3-28 Description of sending voice

Item	Description
Description	Send audio data to the device.

Item	Description	
Function	int TalkSendData(IntPtr lTalkHandle, IntPtr pSendBuf, uint dwBufSize);	
Parameter	[in]lTalkHandle	Return value of StartTalk.
	[in]pSendBuf	Pointer of audio data blocks to be sent.
	[in]dwBufSize	Length of audio data blocks to be sent, in bytes.
Return Value	● Length of audio data blocks successfully returned. ● Return -1 if failed.	
Note	None.	

3.1.8.7 Decoding Voice

Table 3-29 Description of decoding voice

Item	Description	
Description	Decode audio data.	
Function	void AudioDec(IntPtr pAudioDataBuf, uint dwBufSize);	
Parameter	[in]pAudioDataBuf	Pointer of audio data blocks to be decoded.
	[in]dwBufSize	Length of audio data blocks to be decoded, in bytes.
Return Value	None.	
Note	None.	

3.2 Access Controller/ All-in-one Fingerprint Machine (First-generation)

3.2.1 Access Control

For details of the door control interface, see "3.1.5.1 Device Controlling."

For details of the door sensor status interface, see "3.2.3.3 Querying Device StatusQueryDevState."

3.2.2 Alarm Event

See "3.1.6 Alarm Listening."

3.2.3 Viewing Device Information

3.2.3.1 Querying System Capability Information

Table 3-30 Description of Querying system capability information

Item	Description	
Description	Query system capability information in string format.	
Function	bool QueryNewSystemInfo(IntPtr lLoginID, Int32 lChannel, string strCommand, ref object obj, Type typeName, int waittime)	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in] szCommand	Command parameter.
	[in] nChannelID	Channel number.
	[out] obj	Received protocol buffer.
	[in] typeName	Structural body.
	[in]waittime	Timeout period, 1000ms by default, which can be set as needed.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.2.3.2 Getting Device Capabilities GetDevCaps

Table 3-31 Description of getting device capabilities

Item	Description	
Description	Get device capabilities.	
Function	bool GetDevCaps(IntPtr lLoginID, EM_DEVCAP_TYPE nType, IntPtr pInBuf, IntPtr pOutBuf, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] nType	Device type Control parameters vary by type.
	[in] pInBuf	Get device capabilities (input parameter).
	[out] pOutBuf	Get device capabilities (output parameter).
	[in] nWaitTime	Timeout period.

Item	Description
Return Value	● Success: TRUE, ● Failure: FALSE
Note	None.

Table 3-32 Comparison of nType, pInBuf and pOutBuf

nType	Description	pInBuf	pOutBuf
EM_DEVCAP_TYPE. FACEINFO_CAPS	Obtain the capability set for face access controller	NET_IN_GET_FACEINF O_CAPS	NET_OUT_GET_FACEINF O_CAPS

3.2.3.3 Querying Device StatusQueryDevState

Table 3-33 Description of querying device status

Item	Description	
Description	Get the current working status of the front-end device.	
Function	bool QueryDevState(IntPtr lLoginID, int nType, ref object obj, Type typeName, int waittime);	
Parameter	[in] lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]nType	Information type. When getting status of remote devices, nType: EM_DEVICE_STATE.VIRTUALCAMERA
	[out]obj	Output parameter, used to receive the returned data buffer in query. Based on different query types, the structures of returned data are also different.
	[in]typeName	Structural body type
	[in] waittime	Status waiting period.
Return Value	● Success: TRUE, ● Failure: FALSE	
Note	None.	

Table 3-34 Correspondence between nType, Query type and structure

nType	Description	pBuf
EM_DEVICE_STATE .SOFTWARE	Query device software version information	NET_DEV_VERSION_INFO
EM_DEVICE_STATE.NETINTERFA CE	Query network port information	NET_DEV_NETINTERFACE_INFO
EM_DEVICE_STATE.RECORDSET	Query device record set information	NET_CTRL_RECORDSET_PARAM
EM_DEVICE_STATE.DOOR_STAT E	Query access control status (door sensor)	NET_DOOR_STATUS_INFO

3.2.4 Network Setting

3.2.4.1 IP Settings

3.2.4.1.1 Querying Config Information

Table 3-35 Description of Querying config information

Item	Description	
Description	Get config in string format.	

Function	bool GetNewDevConfig(
	        IntPtr lLoginID,
	        Int32 lChannel,
	        string strCommand,
	        ref object obj,
	        Type typeName,
	        int waittime
	);	

Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]lChannel	Device channel number, starting from 0.
	[in]strCommand	Command parameter. Channel name strCommand is ChannelTitle.
	[out]obj	Information array that is found.
	[in]typeName	Structural body type.
	[in]waittime	Timeout period for waiting.
Return Value	● Success: TRUE, ● Failure: FALSE	
Note	None.	

3.2.4.1.2 Setting Config Information

Table 3-36 Description of setting config information

Item	Description	
Description	Get config in string format.	

Function	bool SetNewDevConfig(
	    IntPtr lLoginID,
	    int lChannel,
	    string strCommand,
	    object obj,
	    Type typeName,
	    int waittime
	)	

Parameter	[in] lLoginID	Return value of LoginWithHighLevelSecurity.
	[in] szCommand	Command parameter information.
	[in] nChannelID	Channel number.

Item	Description	
	[in]obj	The content you configured.
	[in]typeName	Structural body type.
	[in] waittime	Timeout period for waiting.
Return Value	● Success: TRUE, ● Failure: FALSE	
Note	None.	

3.2.4.2 Auto Register Config

3.2.4.2.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.4.2.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.5 Time Settings

3.2.5.1 Time Settings

Table 3-37 Description of time settings

Item	Description	
Description	Set the current time of the device.	

Function	bool SetupDeviceTime(
	    IntPtr lLoginID,
	    NET_TIME DeviceTime
	)	

Parameter	[in] lLoginID	Login handle.
	[in] DeviceTime	Set device time.
Return Value	● Success: TRUE, ● Failure: FALSE	
Note	When it is applied in system time sync, change the current system time of the front-end device to be synchronized with the local system time.	

3.2.5.2 NTP Time Sync, Time Zone Config

3.2.5.2.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.5.2.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.5.3 DST Setting

3.2.5.3.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.5.3.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.6 Maintenance Config

3.2.6.1 Changing Login Password

3.2.6.1.1 Operating Device User

Table 3-38 Description of operating device user

Item	Description	
Description	Operate device user, supporting up to 64-channel device.	

Function	bool OperateUserInfoNew(
	    IntPtr lLoginID,
	    EM_OPERATE_USER_TYPE nOperateType,
	    IntPtr opParam,
	    IntPtr subParam,
	    int waittime
	)	

Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in] nOperateType	For operation types, see Table 3-39 for details.
	[in] opParam	Set the input buffer for user information. See Table 3-39 for details.
	[in] subParam	Set the auxiliary input buffer for user information. When the set type is modified information, part of the original user information shall be passed in here. See Table 3-39 for details.
	[in]waittime	Timeout period, 1000ms by default, which can be set as needed.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	To implement the required function, set user information for changed devices.	

Table 3-39 Correspondence between nOperateType, opParam and subParam

nOperateType	opParam	subParam
EM_OPERATE_USER_TYPE. MODIFY_PASSWORD	NET_USER_INFO_NEW	NET_USER_INFO_NEW

3.2.6.2 Restart

3.2.6.2.1 Device Control

Table 3-40 Device control description

Item	Description	
Description	Device control.	
Function	bool ControlDevice(IntPtr lLoginID, EM_CtrlType type, IntPtr param, int waittime)	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in]type	Control type.
	[in]param	Control parameters vary by type.
	[in]waittime	Timeout period, 1000ms by default, which can be set as needed.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

Table 3-41 Comparison of type and param

Type	Description	Param
REBOOT	Restart	None
RECORDSET_INSERT	Add records to get the record set number	NET_CTRL_RECORDSET_INSERT_PARAM
RECORDSET_INSERTEX	Add fingerprint records to get the record set number	NET_CTRL_RECORDSET_INSERT_PARAM
RECORDSET_REMOVE	Delete a record according to the record set number	NET_CTRL_RECORDSET_PARAM
RECORDSET_CLEAR	Clear information of all record sets	NET_CTRL_RECORDSET_PARAM
RECORDSET_UPDATE	Update records of a record set number	NET_CTRL_RECORDSET_PARAM
RECORDSET_UPDATEEX	Update records of a fingerprint record set number	NET_CTRL_RECORDSET_PARAM
ACCESS_OPEN	Access control—open	NET_CTRL_ARM_DISARM_PARAM
RESTOREDEFAULT	Restore the device to factory default	NET_RESTORE_COMMON

3.2.6.3 Restoring to Factory Defaults

3.2.6.3.1 Restoring to Factory Defaults ControlDevice, ResetSystem

- For details of NETClient. ControlDevice, see "3.2.6.2.1 Device Control."

- For details of NETClient. ResetSystem, see Table 3-42.

Table 3-42 Description of restoring to factory defaults

Item	**Description**	
Description	Restoring to factory defaults.	
Function	bool ResetSystem(IntPtr lLoginID, ref NET_IN_RESET_SYSTEM pInParam, ref NET_IN_RESET_SYSTEM pOutParam, int nWaitTime)	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in] pstInParam	Input parameter for restoring to factory defaults.
	[out] pstOutParam	Output parameter for restoring to factory defaults.
	[in] nWaitTime	Timeout period.
Return Value	● Success: TRUE ● Failure: FALSE	

3.2.6.4 Device Upgrade

3.2.6.4.1 Starting Upgrading

Table 3-43 Description of start upgrading device program

Item	**Description**	
Description	Start upgrading device program—extension.	
Function	IntPtr StartUpgrade(IntPtr lLoginID, EM_UPGRADE_TYPE emType, string pchFileName, fUpgradeCallBack cbUpgrade, IntPtr dwUser)	
Parameter	[in]lLoginID	Return value of LoginWithHighLevelSecurity.
	[in] emType	Enumerated value. See Table 3-44 for details.
	[in] pchFileName	Name of file to be upgraded.
	[in] cbUpgrade	Upgrade progress callback function. See "4.8 Upgrade Progress Callback" for details.
	[in] dwUser	User-defined data.
Return Value	● Success: Upgrade handle ID ● Failure: 0	
Note	Set the upgrade of remote programs to return the program upgrade handle. Calling this interface has not sent upgrade program data, which will be sent by calling the SendUpgrade interface.	

Table 3-44 Enumerated value

emType	**Meanings**
BIOS_TYPE	BIOS upgrade

emType	Meanings
WEB_TYPE	WEB upgrade
BOOT_YPE	BOOT upgrade
CHARACTER_TYPE	Chinese character library
LOGO_TYPE	LOGO
EXE_TYPE	EXE, such as player
DEVCONSTINFO_TYPE	Inherent device information settings (such as hardware ID, MAC, SN)
PERIPHERAL_TYPE	Peripheral access slave chip (such as vehicle chip)
GEOINFO_TYPE	Geographic information positioning chip
MENU	Menu (pictures in the device operating interface)
ROUTE	Route file (such as bus routes)
ROUTE_STATE_AUTO	Bus stop announcement audio (matching with routes)
SCREEN	Dispatch screen (such as bus operating screen)

3.2.6.4.2 Starting Sending

Table 3-45 Description of starting sending upgrade file

Item	Description	
Description	Start sending upgrade file.	
Function	bool SendUpgrade(IntPtr lUpgradeID)	
Parameter	[in] lUpgradeID	Upgrade handle ID.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	Send upgrade program data.	

3.2.6.4.3 Stop Upgrading

Table 3-46 Description of stopping upgrading

Item	Description	
Description	Start sending upgrade file.	
Function	bool StopUpgrade(IntPtr lUpgradeID)	
Parameter	[in] lUpgradeID	Upgrade handle ID.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	Do not call this interface in callback function.	

3.2.6.5 Auto Maintenance

3.2.6.5.1 Querying Config Information

Table 3-47 Description of querying config information

Item	Description	
Description	Read device config information.	
Function	bool GetDevConfig(IntPtr lLoginID, EM_DEV_CFG_TYPE type, int lChannel, IntPtr lpOutBuffer, uint dwOutBufferSize, ref uint bytesReturned, int waittime)	
Parameter	[in] lLoginID	Device login handle.
	dwCommand	Device config command. See EM_DEV_CFG_TYPE enumation.
	[in] lChannel	Channel number. If all channel data obtained is 0xFFFFFFFF and the command does not require channel number, this parameter is invalid.
	[out] lpOutBuffer	Pointer of received data buffer.
	[in] dwOutBufferSize	Length of received data buffer (in bytes).
	[out] lpBytesReturned	Length of data actually received.
	[in] waittime	Timeout period for waiting.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

Table 3-48 Correspondence between dwCommand and lpOutBuffer

dwCommand	Query type	Corresponding structure lpOutBuffer
DST_CFG	DST configuration	NET_CFG_NTP_INFO
AUTOMTCFG	Auto maintenance config	NET_DEV_AUTOMT_CFG

3.2.6.5.2 Configuring Config Information

Table 3-49 Description of configuring config information

Item	Description	
Description	Set device config information.	
Function	bool SetDevConfig(IntPtr lLoginID, EM_DEV_CFG_TYPE type, int lChannel, IntPtr lpInBuffer, uint dwInBufferSize, int waittime)	
Parameter	[in] lLoginID	Device login handle.
	[in] dwCommand	Device config commands.

Item	Description	
	[in] lChannel	Channel number. If all channel data obtained is 0xFFFFFFFF and the command does not require channel number, this parameter is invalid.
	[in] lpInBuffer	Data buffer pointer.
	[in] dwInBufferSize	Data buffer length (in bytes).
	[in] waittime	Timeout period for waiting.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.2.7 Personnel Management

3.2.7.1 Collection of Personnel Information Fields

See "3.2.6.2.1 Device Control" and "3.2.3.3 Querying Device StatusQueryDevState."

3.2.8 Door Config

3.2.8.1 Door Config Information

3.2.8.1.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.8.1.2 Setting Config Information SetNewDevConfig

See "3.2.4.1.2 Setting Config Information."

3.2.9 Door Time Config

3.2.9.1 Period Config

3.2.9.1.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.9.1.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.9.2 Always Open and Always Closed Period Config

3.2.9.2.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.9.2.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information"

3.2.9.3 Holiday Config

See "3.2.6.2.1 Device Control" and "3.2.3.3 Querying Device StatusQueryDevState."

3.2.10 Advanced Config of Door

3.2.10.1 Unlock at Designated Intervals and First Card Unlock

3.2.10.1.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.10.1.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.10.2 Combination Unlock by Multiple Persons

3.2.10.2.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.10.2.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.10.3 Inter-door Lock

3.2.10.3.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.10.3.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.10.4 Anti-passback

3.2.10.4.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.2.10.4.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.2.10.5 Unlock Password

See "3.2.6.2.1 Device Control."

3.2.10.6 Device Log

3.2.10.6.1 Querying the Count of Device Logs

Table 3-50 Description of Querying the count of device logs

Item	Description	
Description	Query the count of device logs.	
Function	bool QueryDevLogCount(IntPtr lLoginID, ref NET_IN_GETCOUNT_LOG_PARAM pInParam, ref NET_OUT_GETCOUNT_LOG_PARAM pOutParam, int nWaitTime)	
Parameter	[in]lLoginID	Device login handle.
	[in] pInParam	Parameter for querying logs. See NET_IN_GETCOUNT_LOG_PARAM for details.
	[out] pOutParam	Returned log count. See NET_OUT_GETCOUNT_LOG_PARAM for details.
	[in] waittime	Timeout period in query.
Return Value	Return the queried log count.	
Note	None.	

3.2.10.6.2 Starting Querying Logs

Table 3-51 Description of starting Querying logs

Item	Description
Description	Start Querying device logs.

Item	Description	
Function	IntPtr StartQueryLog(IntPtr lLoginID, ref NET_IN_START_QUERYLOG pInParam, ref NET_OUT_START_QUERYLOG pOutParam, int nWaitTime)	
Parameter	[in]lLoginID	Device login handle.
	[in] pInParam	Parameter for starting querying logs. See NET_IN_START_QUERYLOG for details.
	[out] pOutParam	Output parameter for starting querying logs. See NET_OUT_START_QUERYLOG for details.
	[in] nWaitTime	Timeout period in query.
Return Value	● Success: non 0 ● Failure: 0	
Note	None.	

3.2.10.6.3 Getting Logs

Table 3-52 Description of getting logs

Item	Description	
Description	Get logs.	
Function	bool QueryNextLog(IntPtr lLoginID, ref NET_IN_QUERYNEXTLOG pInParam, ref NET_OUT_QUERYNEXTLOG pOutParam, int nWaitTime)	
Parameter	[in] lLogID	Query log handle.
	[in] pInParam	Input parameter for getting logs. See NET_IN_QUERYNEXTLOG for details.
	[out] pOutParam	Output parameter for getting logs. See NET_OUT_QUERYNEXTLOG for details.
	[in] nWaitTime	Timeout period in query.
Return Value	● Success: TRUE, ● Failure: FALSE	
Note	None.	

3.2.10.6.4 Ending Querying Logs

Table 3-53 Description of ending querying logs

Item	Description	
Description	Stop querying device logs.	
Function	bool StopQueryLog(IntPtr lLoginID)	
Parameter	[in] lLogID	Query log handle.

Item	Description
Return Value	● Success: TRUE, ● Failure: FALSE
Description	None.

3.2.11 Records Query

3.2.11.1 Unlock Records

3.2.11.1.1 Querying Record Count

Table 3-54 Description of Querying record count

Item	Description	
Description	Query the count of records.	
Function	bool QueryRecordCount(IntPtr lFindHandle, ref int nRecordCount, int waittime)	
Parameter	[in]lFindHandle	Handle of Querying records.
	[out]nRecordCou nt	Number of querying records
	[in]waittime	Timeout period in query.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	Before calling this interface, you should call FindRecord first to open the query handle.	

3.2.11.1.2 Querying Records by Query Conditions

Table 3-55 Description of Querying records by Query conditions

Item	Description	
Description	Query records by Query conditions.	
Function	bool FindRecord(IntPtr lLoginID, EM_NET_RECORD_TYPE emRecordType, object oCondition, Type tyCondition, ref IntPtr lFindID, int waittime)	
Parameter	[in]lLoginID	Device login handle.
	[in] emRecordType	Video type.
	[in] oCondition	Parameter for querying records.
	[in] tyCondition	Structural body.
	[out] lFindID	Return querying handle.

Item	Description	
	[in] waittime	Timeout period for waiting.
Return Value	● Success: TRUE, ● Failure: FALSE	
Note	You can call this interface first to get the query handle, then call the FindNextRecord function to get the list of records. After the query is completed, you can call FindRecordClose to close the query handle.	

Table 3-56 Description of unlock records parameter

emRecordType value	Structural body	Description
EM_NET_RECORD_TYPE. ACCESSCTLCARDREC_EX	NET_FIND_RECORD_ACCESSCTLC ARDREC_CONDITION_EX	Query door unlock records.

3.2.11.1.3 Querying Records

Table 3-57 Description of Querying records

Item	Description	
Description	Query records: nFilecount: count of files to be queried. When the return value is the count of media files and less than nFilecount, the query of files is completed within the corresponding period.	
Function	int FindNextRecord(IntPtr lFindeHandle, int nMaxNum, ref int nRetNum, ref List<object> ls, Type tyRecord, int waittime)	
Parameter	[in] lFindeHandle	Device query handle
	[in] nMaxNum	The max number of devices that can be Queryed.
	[out] nRetNum	The max number of devices found.
	[out] ls	Structural body list Queryed.
	[in] tyRecord	Structural body type.
	[in] waittime	Timeout period for waiting.
Return Value	● Success: 1 ● Failure: 0	
Note	None.	

3.2.11.1.4 Ending Record Query

Table 3-58 Description of ending record Query

Item	Description	
Description	Stop record Query.	
Function	bool FindRecordClose(IntPtr lFindHandle)	
Parameter	[in] lFindHandle	Return value of FindRecord.

Item	Description
Return Value	● Success: TRUE ● Failure: FALSE
Note	Call FindRecord to open the query handle; after the Query is completed, you should call this function to close the Query for handles.

3.3 Access Controller/All-in-one Face Machine (Second-Generation)

3.3.1 Access Control

For details of the door control interface, see "3.1.5.1 Device Controlling."

For details of the door contact status interface, see 3.2.3.3 Querying Device StatusQueryDevState"

3.3.2 Alarm Event

See "3.1.6 Alarm Listening."

3.3.3 Viewing Device Information

3.3.3.1 Getting Device Capabilities QueryDevState

Table 3-59 Description of getting device capabilities

Item	Description	
Description	Get device capabilities.	
Function	bool GetDevCaps(IntPtr lLoginID, EM_DEVCAP_TYPE nType, IntPtr pInBuf, IntPtr pOutBuf, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] nType	Device type. Control parameters vary by type.
	[in] pInBuf	Get device capabilities (input parameter).
	[out] pOutBuf	Get device capabilities (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Description	None.	

Table 3-60 Comparison of nType, pInBuf and pOutBuf

nType	Description	pInBuf	pOutBuf
EM_DEVCAP_TYPE.ACCESSCONTROL_CAPS	Get the access control capability	NET_IN_AC_CAPS	NET_OUT_AC_CAPS

3.3.3.2 Querying for Device Status

For details about QueryDevState, see "3.2.3.3 Querying Device StatusQueryDevState."

3.3.4 Network Setting

See "3.2.4 Network Setting."

3.3.5 Time Settings

See "3.2.5 Time Settings."

3.3.6 Maintenance Config

See "3.2.6 Maintenance Config."

3.3.7 Personnel Management

3.3.7.1 User Management

3.3.7.1.1 User Information Querying Interface

Table 3-61 Description of user information Querying interface

Item	Description	
Description	Personnel information Querying interface.	
Function	IntPtr StartFindUserInfo(IntPtr lLoginID, ref NET_IN_USERINFO_START_FIND pstIn, ref NET_OUT_USERINFO_START_FIND pstOut, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] pstIn	User information management (input parameter).
	[out] pstOut	User information management (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: non 0 ● Failure: 0	
Note	None.	

3.3.7.1.2 Getting Personnel Information Interface

Table 3-62 Description of getting personnel information interface

Item	Description	
Description	Getting personnel information interface	
Function	bool DoFindUserInfo(IntPtr lFindHandle, ref NET_IN_USERINFO_DO_FIND pstIn, ref NET_OUT_USERINFO_DO_FIND pstOut, int nWaitTime)	
Parameter	[in] lFindHandle	Return value of StartFindUserInfo.
	[in] pstIn	Getting personnel information interface (input parameter).
	[out] pstOut	Getting personnel information interface (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: true. ● Failure: false.	
Note	None	

3.3.7.1.3 Stopping Getting Personnel Information Interface

Table 3-63 Stopping getting personnel information interface

Item	Description	
Description	Stopping getting personnel information interface.	
Function	bool StopFindUserInfo(IntPtr lFindHandle)	
Parameter	[in] lFindHandle	StartFindUserInfo return value.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.1.4 Access Control User Info Getting Interface

Table 3-64 Description of access control user info getting interface

Item	Description	
Description	Access control user info getting interface	
Function	bool GetOperateAccessUserService(IntPtr lLoginID, string[] userid, out NET_ACCESS_USER_INFO[] stOutParam1, out NET_EM_FAILCODE[] stOutParam2, int nWaitTime)	
Parameter Return value	[in] lLoginID	Login handle
	[in] userid	Userid of the user to be Queryed for.

Item	Description	
	[in] stOutParam1	User info management (output parameter).
	[out] stOutParam2	User info Querying error type (input parameter).
	[in] nWaitTime	Timeout period.
Note	● Success: TRUE ● Failure: FALSE	
Description	None.	

3.3.7.1.5 Access Control User Info Adding Interface

Table 3-65 Description of access control user info adding interface

Item	Description	
Description	Access control user info adding interface	
Function	bool InsertOperateAccessUserService(IntPtr lLoginID, NET_ACCESS_USER_INFO[] stInParam, out NET_EM_FAILCODE[] stOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle
	[in] stInParam	User info management (input parameter)
	[out] stOutParam	User info management (output parameter)
	[in] nWaitTime	Timeout duration
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.1.6 Access Control User Info Deleting Interface

Table 3-66 Table 2-65 Description of access control user info deleting interface

Item	Description	
Description	Access control user info deleting interface	
Function	bool RemoveOperateAccessUserService(IntPtr lLoginID, string[] userid, out NET_EM_FAILCODE[] stOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle
	[in] userid	User ID of users to be deleted.
	[out] stOutParam2	User info query error type (output parameter).
	[in] nWaitTime	Timeout duration
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.1.7 Access Control User Info Clearing Interface

Table 3-67 Description of access control user info clearing interface

Item	Description	
Description	Access control user info management interface.	
Function	bool ClearOperateAccessUserService(IntPtr lLoginID, int nWaitTime)	
Parameter	[in] lLoginID	Login handle
	[in] nWaitTime	Timeout duration
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.2 Card Management

3.3.7.2.1 Card Information Management Interface for Access Control Devices

Table 3-68 Description of card information management interface for access control devices

Item	**Description**	
Description	Card information management interface for access control devices.	
Function	IntPtr StartFindCardInfo(IntPtr lLoginID, ref NET_IN_CARDINFO_START_FIND pstIn, ref NET_OUT_CARDINFO_START_FIND pstOut, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] pstIn	Start Querying for card information interface (input parameter).
	[out] pstOut	Start Querying for card information interface (output parameter).
	[in] nWaitTime	Timeout duration
Return value	● Success: login handle. ● Failure: 0.	
Description	None	

3.3.7.2.2 Finding Card Information Interface

Table 3-69 Description of finding the card information interface

Item	**Description**
Description	Finding the card information interface.

Item	Description	
Function	bool DoFindCardInfo(IntPtr lFindHandle, ref NET_IN_CARDINFO_DO_FIND pstIn, ref NET_OUT_CARDINFO_DO_FIND pstOut, int nWaitTime)	
Parameter	[in] lFindHandle	Return value of StartFindCardInfo.
	[in] pstIn	Finding the card information interface (input parameter).
	[out] pstOut	Finding the card information interface (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Description	None.	

3.3.7.2.3 Stopping Finding Card Information Interface

Table 3-70 Description of stopping finding card information interface

Item	Description	
Description	Stopping finding card information interface.	
Function	bool StopFindCardInfo(IntPtr lFindHandle)	
Parameter	[in] lFindHandle	Return value of StartFindCardInf.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.2.4 Access Control Card Info Getting Interface

Table 3-71 Description of access control card info getting interface

Item	Description	
Description	Access control card info getting interface	
Function	bool GetOperateAccessCardService(IntPtr lLoginID, string[] Cardid, out NET_ACCESS_CARD_INFO[] stOutParam1, out NET_EM_FAILCODE[] stOutParam2, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] Cardid	Card ID of cards to be Queryed for.
	[in] stOutParam1	Card info management (output parameter)
	[out] stOutParam2	Card info querying error type (output parameter)
	[in] nWaitTime	Timeout period.

Item	Description
Return value	● Success: TRUE ● Failure: FALSE
Note	None.

3.3.7.2.5 Access Control Card Info Adding Interface

Table 3-72 Description of access control card info adding interface

Item	Description	
Description	access control card info adding interfac	
Function	bool InsertOperateAccessCardService(IntPtr lLoginID, NET_ACCESS_CARD_INFO[] stInParam, out NET_EM_FAILCODE[] stOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] stInParam	Card info management (input parameter).
	[out] stOutParam	Card info management (output parameter)
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.2.6 Access Control Card Info Deleting Interface

Table 3-73 Description of access control card info deleting interface

Item	Description	
Description	access control card info deleting interface	
Function	bool RemoveOperateAccessCardService(IntPtr lLoginID, string[] Cardid, out NET_EM_FAILCODE[] stOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] Cardid	Card ID of cards to be deleted.
	[out] stOutParam2	Card info querying error type (output parameter)
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.2.7 Access Control Card Info Update Interface

Table 3-74 Description of access control card info update interface

Item	Description
Description	Access control card info update interface

Item	Description	
Function	bool UpdateOperateAccessCardService(IntPtr lLoginID, NET_ACCESS_CARD_INFO[] stInParam, out NET_EM_FAILCODE[] stOutParam, int nWaitTime	
Parameter	[in] lLoginID	Login handle.
	[in] stInParam	Card info management (input parameter)
	[out] stOutParam	Card info management (output parameter)
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.3 Face Management

3.3.7.3.1 Face Information Management Interface for Access Control Devices

Table 3-75 Description of face information management interface for access control devices

Item	Description	
Description	Face information management interface for access control devices.	
Function	bool OperateAccessFaceService(IntPtr lLoginID, EM_NET_ACCESS_CTL_FACE_SERVICE emtype, IntPtr pstInParam, IntPtr pstOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] emtype	Face information operation type.
	[in] pstInParam	Face information management (input parameter).
	[out] pstOutParam	Face information management (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

Table 3-76 Comparison of emtype, pInBuf and pOutBuf

emtype	Description	pInBuf	pOutBuf
EM_NET_ACCESS_CTL_FACE_SERVICE .INSERT	Add the face information	NET_IN_ACCESS_FACE_SERVICE_INSERT	NET_OUT_ACCESS_FACE_SERVICE_INSERT
EM_NET_ACCESS_CTL_FACE_SERVICE .GET	Find the face information	NET_IN_ACCESS_FACE_SERVICE_GET	NET_OUT_ACCESS_FACE_SERVICE_GET
EM_NET_ACCESS_CTL_FACE_SERVICE .UPDATE	Update the face information	NET_IN_ACCESS_FACE_SERVICE_UPDATE	NET_OUT_ACCESS_FACE_SERVICE_UPDATE

emtype	Description	pInBuf	pOutBuf
EM_NET_ACCESS_CTL_FACE_SERVICE .REMOVE	Delete the face information	NET_IN_ACCESS_FACE_SERVICE_REMOVE	NET_OUT_ACCESS_FACE_SERVICE_REMOVE
EM_NET_ACCESS_CTL_FACE_SERVICE .CLEAR	Clear the face information	NET_IN_ACCESS_FACE_SERVICE_CLEAR	NET_OUT_ACCESS_FACE_SERVICE_CLEAR

3.3.7.4 Fingerprint Management

3.3.7.4.1 Fingerprint Information Management Interface for Access Control Devices

Table 3-77 Description of fingerprint information management interface for access control devices

Item	Description	
Description	Fingerprint information management interface for access control devices.	
Function	bool GetOperateAccessFingerprintService(IntPtr lLoginID, string userid, IntPtr pFingerprintData, int dataLen, out NET_ACCESS_FINGERPRINT_INFO stOutParam1, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] userid	User ID of users to be queried.
	[out] pFingerprintData	Fingerprint information data (output parameter).
	[out] pFingerprintData	Fingerprint information data length (output parameter).
	[out] stOutParam2	Fingerprint info query error type (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.4.2 Access Control Fingerprint Info Adding Interface

Table 3-78 Description of access control fingerprint info adding interface

Item	Description	
Description	Access control fingerprint info management interface.	
Function	bool InsertOperateAccessFingerprintService(IntPtr lLoginID, NET_ACCESS_FINGERPRINT_INFO[] stInParam, out NET_EM_FAILCODE[] stOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] stInParam	Fingerprint info management (input parameter)

Item	Description	
	[out] stOutParam	Fingerprint info management (output parameter)
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.4.3 Access Control Fingerprint Info Deleting Interface

Table 3-79 Description of access control fingerprint info deleting interface

Item	Description	
Description	Access control fingerprint info management interface.	
Function	bool RemoveOperateAccessFingerprintService(IntPtr lLoginID, string[] userid, out NET_EM_FAILCODE[] stOutParam, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] userid	User ID of users to be deleted.
	[out] stOutParam2	Fingerprint info query error type (output parameter).
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.7.4.4 Access Control Fingerprint Info Clearing Interface

Table 3-80 Description of access control fingerprint info clearing interface

Item	Description	
Description	Access control fingerprint info management interface.	
Function	bool ClearOperateAccessFingerprintService(IntPtr lLoginID, int nWaitTime)	
Parameter	[in] lLoginID	Login handle.
	[in] nWaitTime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Note	None.	

3.3.8 Door Config

3.3.8.1 Door Config Information

3.3.8.1.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.3.8.1.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.3.9 Door Time Config

3.3.9.1 Period Config

3.3.9.1.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.3.9.1.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.3.9.2 Always Open and Always Closed Period Config

3.3.9.2.1 Querying Config Information

See "3.2.4.1.1 Querying Config Information."

3.3.9.2.2 Setting Config Information

See "3.2.4.1.2 Setting Config Information."

3.3.9.3 Holiday group

3.3.9.3.1 Getting the Holiday Group Interface

Table 3-81 Description of getting the holiday group interface

Item	Description
Description	Getting the holiday group interface.
Function	bool GetOperateConfig(IntPtr lLoginID, EM_CFG_OPERATE_TYPE cfg_type, int lChannel,

Item	Description	
	ref object obj, Type typeName, int waittime)	
Parameter	[in] lLoginID	Login handle.
	[in] cfg_type	Set the type of configuration info.
	[in] lChannel	Channel number.
	[out] obj	Returned data structural body.
	[in] typeName	Structural body type.
	[in] waittime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Description	None.	

Table 3-82 Description of cfg_type

cfg_type	Description	typeName
NET_EM_CFG_ACCESSCTL_SPECIALDAY_GROUP	Get the holiday group info	NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO

3.3.9.3.2 Setting the Holiday Group Interface

Table 3-83 Description of setting the holiday group interface

Item	Description	
Description	Setting the holiday group interface.	
Function	bool SetOperateConfig(IntPtr lLoginID, EM_CFG_OPERATE_TYPE cfg_type, int lChannel, object obj, Type typeName, int waittime)	
Parameter	[in] lLoginID	Login handle.
	[in] cfg_type	Set the type of configuration info.
	[in] lChannel	Channel number.
	[in] obj	Returned data structural body.
	[in] typeName	Structural body type.
	[in] waittime	Timeout period.
Return value	● Success: TRUE ● Failure: FALSE	
Description	None.	

Table 3-84 Description of cfg_type

cfg_type	Description	szInBuffer
EM_CFG_OPERATE_TYPE.SPECIALDAY_GROUP	Setting the holiday group info	NET_CFG_ACCESSCTL_SPECIALDAY_GROUP_INFO

3.3.9.4 Holiday Plan

For details, see "3.3.9.3 Holiday group."

Table 3-85 Description of emCfgOpType

cfg_type	Description	typeName
EM_CFG_OPERATE_TYPE.SPECIALDAYS_SCHEDULE	Get holiday plan info	NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO

Table 3-86 Description of emCfgOpType

emCfgOpType	Description	typeName
EM_CFG_OPERATE_TYPE.SPECIALDAYS_SCHEDULE	Configure holiday plan info	NET_CFG_ACCESSCTL_SPECIALDAYS_SCHEDULE_INFO

3.3.10 Advanced Config of Door

See "3.2.10 Advanced Config of Door."

3.3.11 Records Query

3.3.11.1 Unlock Records

See "3.2.11.1 Unlock Records."

3.3.11.2 Alarm Records

3.3.11.2.1 Querying Record Count

See "3.2.11.1.1 Querying Record Count."

3.3.11.2.2 Querying Records by Query Conditions

See "3.2.11.1.2Querying Records by Query Conditions."

Table 3-87 Description of unlocking record query input parameter

emRecordType	Structural Body	Description
EM_NET_RECORD_TYPE.ACCESS_ALARMRECORD	NET_RECORD_ACCESS_ALARMRECORD_INFO	Used to query access and alarm records.

3.3.11.2.3 Querying Records

See "3.2.11.1.3 Querying Records."

3.3.11.2.4 Ending Record Query

See "3.2.11.1.4 Ending Record Query"

4 Callback Function

4.1 Device Querying Callback

Table 4-1 Description of callback function for Querying device

Item	Description	
Description	Callback function for Querying device.	

Function	public delegate void fQueryDevicesCB(
	        IntPtr pDevNetInfo,
	        IntPtr pUserData
	);	

Parameter	[out]pDevNetInfo	Device information.
	[out]pUserData	User data.
Return Value	None.	
Note	None.	

4.2 Device Querying Callback

Table 4-2 Callback of Querying devices

Item	Description	
Name	Callback of Querying devices.	

Function	public delegate void fQueryDevicesCBEx(
	    IntPtr lQueryHandle,
	    IntPtr pDevNetInfo,
	    IntPtr pUserData
	);	

Parameter	[out] lQueryHandle	Query Handle
	[out]pDevNetInfo	Device information.
	[out]pUserData	User data.
Return value	None.	
Note	None.	

4.3 Disconnection Callback

Table 4-3 Description of disconnecting callback function

Item	Description	
Description	Disconnection callback.	

Function	public delegate void fDisConnectCallBack(
	        IntPtr lLoginID,
	        IntPtr pchDVRIP,
	        Int nDVRPort,
	        IntPtr dwUser
	);	

Parameter	[out]lLoginID	Return value of LoginWithHighLevelSecurity.
	[out]pchDVRIP	Disconnected device IP.

Item	Description	
	[out]nDVRPort	Disconnected device port.
	[out]dwUser	User parameters for callback function.
Return Value	None.	
Note	None.	

4.4 Reconnection Callback

Table 4-4 Description of reconnecting callback function

Item	Description	
Description	Reconnection callback.	

Function	public delegate void fHaveReConnectCallBack(
	        IntPtr lLoginID,
	        IntPtr pchDVRIP,
	        int nDVRPort,
	        IntPtr dwUser
	);	

Parameter	[out]lLoginID	Return value of LoginWithHighLevelSecurity.
	[out]pchDVRIP	Reconnected device IP.
	[out]nDVRPort	Reconnected device port.
	[out]dwUser	User parameters for callback function.
Return Value	None.	
Note	None.	

4.5 Callback for Real-time Monitoring Data

Table 4-5 Description of callback function for real-time monitoring data

Item	Description	
Description	Callback function for real-time monitoring data.	
Function	public delegate void fRealDataCallBackEx2(IntPtr lRealHandle, uint dwDataType, IntPtr pBuffer, uint dwBufSize, IntPtr param, IntPtr dwUser);	
Parameter	[out]lRealHandle	Return value of RealPlay.
	[out]dwDataType	Data type ● 0 means raw data ● 1 means data with frame information ● 2 means YUV data ● 3 means PCM audio data
	[out]pBuffer	Monitoring data block address.
	[out]dwBufSize	Length of monitoring data block, in bytes.

Item	Description	
	[out]param	Parameter structure for callback data. The type is different if the dwDataType value is different. ● dwDataType is 0, param is null pointer ● dwDataType is 1, param is NET_VideoFrameParam structural body. ● dwDataType is 3, param is NET_CBPCMDataParam structural body.
	[out]dwUser	User parameters for callback function.
Return Value	None.	
Note	None.	

4.6 Audio Data Callback

Table 4-6 Description of audio data callback function

Item	Description	
Description	Audio data callback for voice talk.	
Function	public delegate void fAudioDataCallBack(IntPtr lTalkHandle, IntPtr pDataBuf, uint dwBufSize, byte byAudioFlag, IntPtr dwUser);	
Parameter	[out]lTalkHandle	Return value of NETClient. StartTalkEx.
	[out]pDataBuf	Audio data block address.
	[out]dwBufSize	Length of audio data block, in bytes.
	[out]byAudioFlag	Flag of data type ● 0 means that the data is locally collected. ● 1 means that the data is sent from the device.
	[out]dwUser	User parameters for callback function.
Return Value	None.	
Note	None.	

4.7 Alarm Callback

Table 4-7 Description of alarm callback function

Item	Description
Description	Alarm callback function.
Function	public delegate bool fMessCallBackEx(int lCommand, IntPtr lLoginID, IntPtr pBuf, uint dwBufLen, IntPtr pchDVRIP, int nDVRPort,

Item	Description	
	bool bAlarmAckFlag, int nEventID, IntPtr dwUser);	
Parameter	[out]lCommand	Alarm type. See Table 4-8 for details.
	[out]lLoginID	Return value of login interface.
	[out]pBuf	Buffer that receives alarm data, which is filled with different data according to different listening interfaces called and lCommand values.
	[out]dwBufLen	Length of pBuf, in bytes.
	[out]pchDVRIP	Device IP.
	[out]nDVRPort	Port.
	[out]bAlarmAckFlag	TRUE, the event can be confirmed. FALSE, the event cannot be confirmed.
	[out]nEventID	Used to assign value to input parameter AlarmAck. When bAlarmAckFlag is TRUE, the data is valid.
	[out]dwUser	User-defined data.
Return Value	● Success: TRUE ● Failure: FALSE	
Note	Usually, call the set callback function during application initialization, and process properly in the callback function according to different device ID and command values.	

Table 4-8 Correspondence between alarm type and structure

Alarm business	Alarm type name	lCommand	pBuf
Alarm host	Local alarm event	ALARM_ALARM_EX2	NET_ALARM_ALARM_INFO_EX2
	Power failure event	ALARM_POWERFAULT	NET_ALARM_POWERFAULT_INFO
	Dismantlement prevention event	ALARM_CHASSISINTRUDED	NET_ALARM_CHASSISINTRUDED_INFO
	Extended alarm input channel event	ALARM_ALARMEXTENDED	NET_ALARM_ALARMEXTENDED_INFO
	Emergency event	URGENCY_ALARM_EX	数据为 16 个字节数组，每个字节表示一个通道状态 ● 1 为有报警 ● 0 为无报警
	Low battery voltage event	ALARM_BATTERYLOWPOWER	NET_ALARM_BATTERYLOWPOWER_INFO
	Device inviting platform to talk event	ALARM_TALKING_INVITE	NET_ALARM_TALKING_INVITE_INFO

Alarm business	Alarm type name	lCommand	pBuf
	Device arming mode change event	ALARM_ARMMODE_CHANGE_EVENT	NET_ALARM_ARMMODE_CHANGE_INFO
	Protection zone bypass status change event	ALARM_BYPASSMODE_CHANGE_EVENT	NET_ALARM_BYPASSMODE_CHANGE_INFO
	Alarm input source signal event	ALARM_INPUT_SOURCE_SIGNAL	NET_ALARM_INPUT_SOURCE_SIGNAL_INFO
	Alarm clearing event	ALARM_ALARMCLEAR	NET_ALARM_ALARMCLEAR_INFO
	Sub-system status change event	ALARM_SUBSYSTEM_STATE_CHANGE	NET_ALARM_SUBSYSTEM_STATE_CHANGE_INFO
	Extension module offline event	ALARM_MODULE_LOST	NET_ALARM_MODULE_LOST_INFO
	PSTN offline event	ALARM_PSTN_BREAK_LINE	NET_ALARM_PSTN_BREAK_LINE_INFO
	Analog quantity alarm event	ALARM_ANALOG_PULSE	NET_ALARM_ANALOGPULSE_INFO
	Alarm transmission event	ALARM_PROFILE_ALARM_TRANSMIT	NET_ALARM_PROFILE_ALARM_TRANSMIT_INFO
	Wireless device low battery alarm event	ALARM_WIRELESSDEV_LOWPOWER	NET_ALARM_WIRELESSDEV_LOWPOWER_INFO
	Protection zone arming and disarming status change event	ALARM_DEFENCE_ARMMODE_CHANGE	NET_ALARM_DEFENCE_ARMMODECHANGE_INFO
	Sub-system arming and disarming status change event	ALARM_SUBSYSTEM_ARMMODE_CHANGE	NET_ALARM_SUBSYSTEM_ARMMODECHANGE_INFO
	Detector abnormality alarm	ALARM_SENSOR_ABNORMAL	NET_ALARM_SENSOR_ABNORMAL_INFO

Alarm business	**Alarm type name**	**lCommand**	**pBuf**
	Patient activity status alarm event	ALARM_PATIENTDETECTION	NET_ALARM_PATIENTDETECTION_INFO
Access Control	Access control event	ALARM_ACCESS_CTL_EVENT	NET_ALARM_ACCESS_CTL_EVENT_INFO
	Details of access control unlocking event	ALARM_ACCESS_CTL_NOT_CLOSE	NET_ALARM_ACCESS_CTL_NOT_CLOSE_INFO
	Details of intrusion event	ALARM_ACCESS_CTL_BREAK_IN	NET_ALARM_ACCESS_CTL_BREAK_IN_INFO
	Details of repeated entry event	ALARM_ACCESS_CTL_REPEAT_ENTER	NET_ALARM_ACCESS_CTL_REPEAT_ENTER_INFO
	Malicious unlocking event	ALARM_ACCESS_CTL_MALICIOUS	NET_ALARM_ACCESS_CTL_MALICIOUS
	Details of forced card swiping event	ALARM_ACCESS_CTL_DURESS	NET_ALARM_ACCESS_CTL_DURESS_INFO
	Combination unlocking by multiple persons event	ALARM_OPENDOORGROUP	NET_ALARM_OPEN_DOOR_GROUP_INFO
	Dismantlement prevention event	ALARM_CHASSISINTRUDED	NET_ALARM_CHASSISINTRUDED_INFO
	Local alarm event	ALARM_ALARM_EX2	NET_ALARM_ALARM_INFO_EX2
	Access control status event	ALARM_ACCESS_CTL_STATUS	NET_ALARM_ACCESS_CTL_STATUS_INFO
	Bolt alarm	ALARM_ACCESS_CTL_STATUS	NET_ALARM_ACCESS_CTL_STATUS_INFO
	Fingerprint acquisition event	ALARM_FINGER_PRINT	NET_ALARM_CAPTURE_FINGER_PRINT_INFO
Video Intercom	No response to the call in direct connection event	ALARM_CALL_NO_ANSWERED	NET_ALARM_CALL_NO_ANSWERED_INFO
	Mobile phone number report event	ALARM_TELEPHONE_CHECK	NET_ALARM_TELEPHONE_CHECK_INFO

Alarm business	Alarm type name	lCommand	pBuf
	VTS status report	ALARM_VTSTATE_UPDATE	NET_ALARM_VTSTATE_UPDATE_INFO
	VTO face recognition	ALARM_ACCESSIDENTIFY	NET_ALARM_ACCESSIDENTIFY
	Device inviting another party to start talk event	ALARM_TALKING_INVITE	NET_ALARM_TALKING_INVITE_INFO
	Device canceling talk request event	ALARM_TALKING_IGNORE_INVITE	NET_ALARM_TALKING_IGNORE_INVITE_INFO
	Device actively hanging up talk event	ALARM_TALKING_HANGUP	NET_ALARM_TALKING_HANGUP_INFO
	Radar monitoring overspeed alarm event	ALARM_RADAR_HIGH_SPEED	NET_ALARM_RADAR_HIGH_SPEED_INFO

4.8 Upgrade Progress Callback

Table 4-9 Description of upgrade progress callback function

Item	Description	
Description	Upgrade progress callback function. Update files of G level and above are supported.	

Function	public delegate void fUpgradeCallBackEx(
	    IntPtr lLoginID,
	    IntPtr lUpgradechannel,
	    long nTotalSize,
	    long nSendSize,
	    IntPtr dwUser
	);	

Parameter	[out]lLoginID	Return value of login interface.
	[out] lUpgradechannel	Update handle ID returned by StartUpgrade.
	[out] nTotalSize	Total length of update file, in bytes.
	[out] nSendSize	Sent file length, in bytes; when it is -1, it means the sending of update file has ended.
	[out]dwUser	User-defined data.
Return Value	None.	
Note	Device upgrade program callback function prototype supports upgrade files above G.	

Item	Description
	nTotalSize = 0, nSendSize = -1 means that upgrade is completed. nTotalSize = 0, nSendSize = -2 means upgrade error. nTotalSize = 0, nSendSize = -3 means that the user has no upgrade permission. nTotalSize = 0, nSendSize = -4 means that the upgrade program version is too low. nTotalSize = -1, nSendSize = XX means upgrade progress. nTotalSize = XX, nSendSize = XX means the progress of sending upgrade files.

Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic device network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:
   - The length should not be less than 8 characters;
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
   - Do not contain the account name or the account name in reverse order;
   - Do not use continuous characters, such as 123, abc, etc.;
   - Do not use overlapped characters, such as 111, aaa, etc.;
2. **Update Firmware and Client Software in Time**
   - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.
2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.
3. **Set and Update Passwords Reset Information Timely**

   The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.
4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.
5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**
   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.
7. **MAC Address Binding**
   We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.
8. **Assign Accounts and Privileges Reasonably**
   According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.
9. **Disable Unnecessary Services and Choose Secure Modes**
   If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.
   If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:
   - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
   - SMTP: Choose TLS to access mailbox server.
   - FTP: Choose SFTP, and set up strong passwords.
   - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.
10. **Audio and Video Encrypted Transmission**
    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.
    Reminder: encrypted transmission will cause some loss in transmission efficiency.
11. **Secure Auditing**
    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.
12. **Network Log**
    Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.
13. **Construct a Safe Network Environment**
    In order to better ensure the safety of device and reduce potential cyber risks, we recommend:
    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
    - The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
    - Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
    - Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.