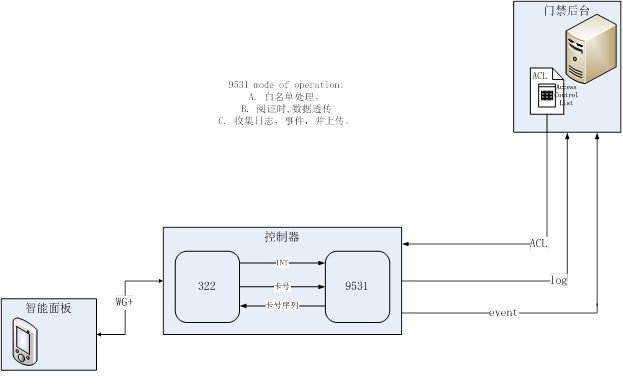
9531与后台之间通信流程如下：请参考！

1. 后台不停尝试连接控制器（9531）
2. 9531一直处于监听状态
3. 采用TCP协议
4. 网络连接建立好后，后台每150ms（可更改）发送一次数据包，polling
5. 9531回复event status
6. 需要更新白名单时，后台发送ACL
7. 9531接收ACL，ACL跟新完成后，发送OK，（如无OK回复，后台会重复发送白名单）
8. 重复polling，event status交互。

### 控制器与后台的通信设计要求



1、Setup connection

* 后台不停尝试连接控制器
* 控制器 TCP client，后台 TCP server
* 采用Port 8010
* 后台每150ms（可更改）发送一次polling数据包，控制器回复event / status
* 需要更新白名单时，后台发送“ACL download“
* 9531接收ACL，ACL跟新完成后，发送OK，（如无OK回复，后台会重复发送白名单）
* 重复polling，event status交互。

### 控制器连接建立后向服务端发送控制器唯一标示（Controller—>Server）

请求：

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| Pre-ample | 4 bytes | 01010101 |
| 指令 | 1 bytes | 01h : Request device register |
| 数据长度 | 2 bytes | 0006h |
| 数据 | N bytes | Controller ID[0..5], 12BCD |
| 数据结束标志 | 1 bytes | 0x03 |
| 校验 | 2 bytes | CRC  (Not checked now) |
| Frame 结束标志 | 1 byte | 0x04 |

响应：

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| Pre-ample | 4 bytes | 01010101 |
| 指令 | 1 bytes | 01h : Request device register response |
| 数据长度 | 2 bytes | 0001h |
| 数据 | N bytes | 00h =  OK  Otherwise, fail |
| 数据结束标志 | 1 bytes | 0x03 |
| 校验 | 2 bytes | CRC  (Not checked now) |
| Frame 结束标志 | 1 byte | 0x04 |

### 心跳消息（ServerController）

请求：

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| Pre-ample | 4 bytes | 01010101 |
| 指令 | 1 bytes | 05h : Polling |
| 数据长度 | 2 bytes | 0000h |
| 数据 | 0 bytes |  |
| 数据结束标志 | 1 bytes | 0x03 |
| 校验 | 2 bytes | CRC  (Not checked now) |
| Frame 结束标志 | 1 byte | 0x04 |

响应：

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| Pre-ample | 4 bytes | 01010101 |
| 指令 | 1 bytes | 05h : Polling response |
| 数据长度 | 2 bytes | 001Bh |
| 数据 | N bytes | Card ID [0..8]  Access Direction [0]  0=IN, 1=OUT  Access Time [0..5] [DDMMYYHHMMSS]  Tamper [0]            0=Tampered  Fire alarm [0]        0=alarm  door position[0]    0 = door open  RFU[0..7] |
| 数据结束标志 | 1 bytes | 0x03 |
| 校验 | 2 bytes | CRC  (Not checked now) |
| Frame 结束标志 | 1 byte | 0x04 |

### 白名单Access Control List（ServerController）

请求：

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| Pre-ample | 4 bytes | 01010101 |
| 指令 | 1 bytes | 4Bh  ACL download |
| 数据长度 | 2 bytes |  |
| 数据 | N bytes | List of ACL records |
| 数据结束标志 | 1 bytes | 0x03 |
| 校验 | 2 bytes | CRC  (Not checked now) |
| Frame 结束标志 | 1 byte | 0x04 |

白名单ACL record structure (26bytes)

* + 1. 白名单从后台发出来是没有排序的。
    2. 搜索的性能 : 25万的白名单记录, 搜索的时间小于 30毫秒。

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| 卡号 | 9 bytes | 二代证18位的身份证号  Mifare / 15693 3 bytes, 前面补6 bytes 00h |
| Access Type | 2 bytes | RFU |
| Password | 4 bytes | RFU |
| 有效起始日期 | 4 bytes | 十六进制，  一字节月，(hex 1-12)  一字节日，(hex 1-31)  一字节时，(hex 1-12)  一字节年 1970之后累加  0B120F56 = 11月18日 15时 2026 |
| 过期日期 | 4 bytes | 同上 |
| Card Type | 3 bytes | RFU |

响应：

|  |  |  |
| --- | --- | --- |
| **Type** | **Size** | **Comment** |
| Pre-ample | 4 bytes | 01010101 |
| 指令 | 1 bytes | 4B ACL download response |
| 数据长度 | 2 bytes | 00 01h |
| 数据 | 1 bytes | 00h =  OK  Otherwise, fail |
| 数据结束标志 | 1 bytes | 0x03 |
| 校验 | 2 bytes | CRC  (Not checked now) |
| Frame 结束标志 | 1 byte | 0x04 |

更新控制器时，白名单 download 的指令如下：

010101014B3B24B81B0E001F12340A18114C0000000008000000000457001F11110B120F3D0B120F560C000024B78DFC001F12340B13114C0B1311560C0000000103E704

可以解析成下面这种格式：

01010101 4B 00 3B

24B81B0E 001F 1234 0A18114C00000000 080000

00000457 001F 1111 0B120F3D0B120F56 0C0000

24B78DFC 001F 1234 0B13114C0B131156 0C0000

0001 03 E7 04

PS :

Other commands

0F  时段 download

0C   时区download

12   时区表download

A.Protocol

* 采用HID协议
* 322 sends command, 9531 gives response

1. Command

C.1 Setup transparent connection to ID server

|  |  |  |
| --- | --- | --- |
| Request | | |
| [0..3] | Cmd | 00h 10h 00h 00h |
| [4] | Len | 6 |
| [5..n] | Data | IP address[0..3],  Port[0..1] |
| Response | | |
| SW |  | 6E00 = fail  9000 =OK |

C.2 exchange data to ID server

|  |  |  |
| --- | --- | --- |
| Request | | |
| [0..3] | Cmd | 00h 10h 01h 00h |
| [4] | Len | n |
| [5.. ] | Data | Data[0..n-1] |
| Response | | |
| SW |  | 6E00 = fail  9000 =OK |

C.3 Check TCP/IP status

|  |  |  |
| --- | --- | --- |
| Request | | |
| [0..3] | cmd | 00h 10h 02h 00h |
| [4] | len | 00h |
| [5.. ] | data |  |
| Response | | |
| SW |  | 6E00 = cannot connect  9000 =OK |

C.4 Disconnect

|  |  |  |
| --- | --- | --- |
| Request | | |
| [0..3] | cmd | 00h 10h 03h 00h |
| [4] | len | 00h |
| [5.. ] | data |  |
| Response | | |
| SW |  | 6E00 = fail  9000 =OK |

C.5 Retrieve a signed ACL record

|  |  |  |
| --- | --- | --- |
| Request | | |
| [0..3] | cmd | 00h 20h 00h 00h |
| [4] | len | 04h |
| [5.. ] | data | Wiegand ID[0..3] |
| Response | | |
|  |  | ACL record[0..20] |
| SW |  | 6E00 = fail  9000 =OK |

C.6 Send Log/status for real-time monitoring

|  |  |  |
| --- | --- | --- |
| Request | | |
| [0..3] | cmd | 00h 30h 00h 00h |
| [4] | len |  |
| [5.. ] | data | Status[0..19] |
| Response | | |
|  |  | ACL record[0..20] |
| SW |  | 6E00 = fail  9000 =OK |