

HTTTPUSH SDK EXPLANATION DOCUMENT

-----Device actively uploads data to the server

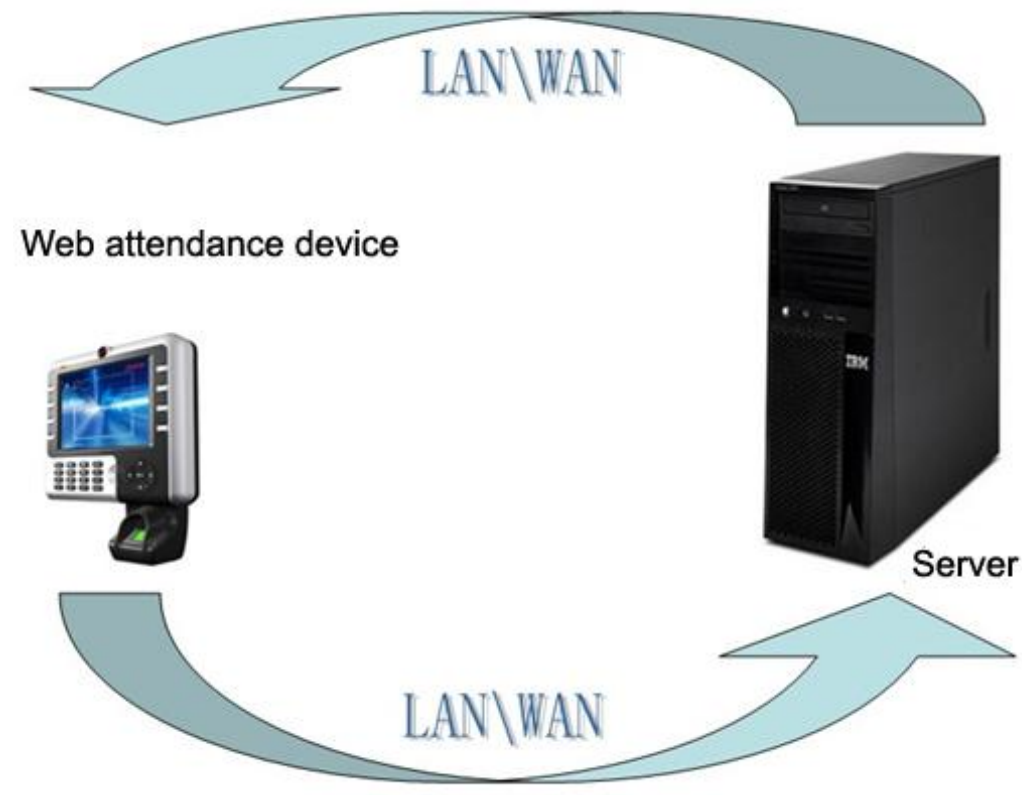
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I、 HTTP PUSH SDK function explanation

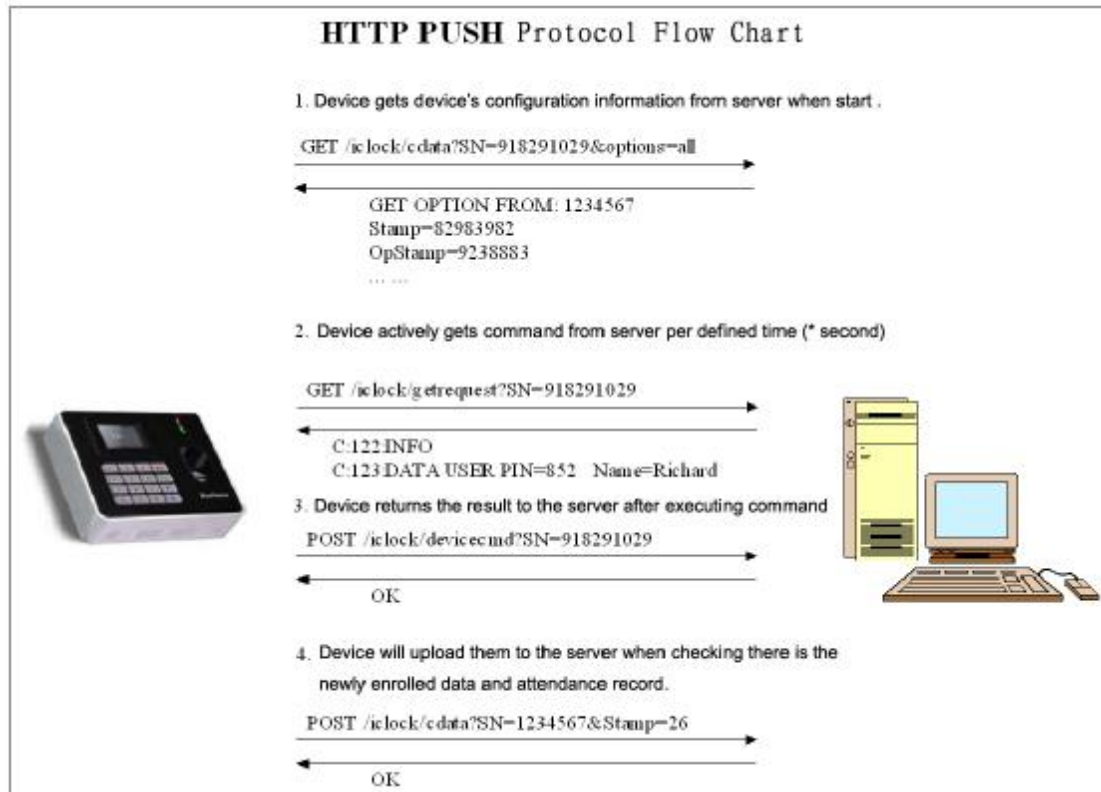
The main function is through www or LAN to control device, data real time or fixed time to transmit, based on HTTP protocol to communicate. The realizing principle is the device actively communicates with server, and data in device is uploaded to the server actively, and the control demand given by the server requires to wait the device to consult the server whether there is a command for itself, if there is, server will return command content to device; otherwise, device will continue to consult server per a period of time.

II、 Communication between device and server

1、 Physical connection



2、 Send data flow



III、 Device gets configuration information from server

Before device starts data communication with server (restart or the first time connect server), it requires to get the configuration information from server, and then communicates according to the server's requirement.

Device sends:

```
GET /iclock/cdata?SN=xxxxxx&options=all
```

Thereinto, xxxxxx is the device's serial number.

server returns (example):

```
GET OPTION FROM: xxxxxx
```

```
Stamp=82983982
```

```
OpStamp=9238883
```

```
ErrorDelay=60
```

```
Delay=30
```

```
TransTimes=00:00;14:05
```

```
TransInterval=1
```

TransFlag=1111000000

Realtime=1

Encrypt=0

Thereinto:

GET OPTION FROM: the serial number of corresponding device

Stamp the latest record time-stamp mark of the latest attendance record
uploaded by device

OpStamp the latest operation-record time-stamp mark of the latest personnel data
uploaded by device

ErrorDely the interval time (second) to re-connect server after connecting network
failure.

Delay the interval time (second) to connect server when connecting the network
normally

TransTimes the time to check per fiixed time and send new data (hour:minute, 24 hours
format), use semicolon to divide multiple time, the most support is 10 time.

TransInterval the interval time (minute) to check and send new data

TransFlag mark for what new data sent to server, please return "1111000000"

Realtime whether to send new records in real time. 1 indicates to send to the
server immediately if there is a new data,; 0 indicates to send
according to the defined time in TransTimes and TransInterval.

Encrypt whether to send data with encryption (use Zksoftware specified
encryption calculation to send), please return 0

IV、 Upload data (attendance record, use information)

IV. upload data (attendance record, use information)

1、 Upload attendance record

Device sends:

POST /iclock/cdata?SN=xxxxxx&Stamp=99999999

982 2008-02-25 12:08:21 1 0

982 2008-02-25 18:01:09 1 0

Thereinto, xxxxxx is device's serial number, 99999999 is the latest record's time-stamp of
data uploaded this time, server will record this time-stamp for the device so that it is
convenient to return when the device gets configuration information.

Multiple fields of one record are used tab\s to divide. Multiple records are used \r\n
to divide.

Server returns:

OK

If error page returned by server (HTTP 405/5000 etc.) or no return for a long time (overtime), device will regard sending data failure this time, and will re-send these data.

2、 Upload user information

Device sends:

```
POST /iclock/cdata?SN=xxxxxx&OpStamp=99999999
```

```
USER PIN=982 Name=Richard Passwd=9822 Card=[09E4812202] Grp=1 TZ=
```

```
FP PIN=982 FID=1 Valid=1 TMP=
```

Thereinto, xxxxxx is the device's serial number, 99999999 is the latest operation record's time-stamp of data uploaded this time, server will record this time-stamp for this device so that it is convenient to return when the device gets configuration information.

Multiple fields of a record are used tab \t to divide. Multiple records are used \r\n to divide.

USER PIN start row record is the user information

FP PIN start row record is the user's fingerprint information

Server returns:

OK

V、 Server gives command

Server gives device command which is firstly stored to the database or the temporary file (cache up), and writes a sign bit regarding the device has not executed yet, waits the device's request as follows:

```
GET /iclock/getrequest?SN=xxxxxx
```

Thereinto, xxxxxx is the device's serial number.

Then, server will return the cache command to the device:

```
C:122:INFO
```

```
C:123:DATA USER PIN=852 Name=Richard
```

It can return multiple commands to the device at one time, detailed command and command format please refer to the accessories <<device control and command>>

Note: Multiple fields of a data command are used tab \t to divide. Multiple records are used \r\n to divide.

Device uses the following request to return the command's execution result after executing command.

POST /iclock/devicecmd?SN=xxxxxx

Then the server can refresh database or this row command's sign bit of temporary file is the executed sign (or clear from the cache)

Device will send 'GET /iclock/getrequest?SN=xxxxxx' to the server per a period of time (usually 30 seconds, according to the configuration) to request and consult whether there is a command for itself, this will lead to that the command given by the server will not send to the device immediately. The solving method is that while server caching the command, it sends a message "R-CMD" to the UDP 4374 port of device, then the device will consult the server immediately after receiving this message. This mechanism will accelerate the response speed of the command given by the server greatly, but only be used in case that the server can connect the device directly, such as LAN, or the device with the public network's IP address on the Internet.

VI、Accessories

《Device control and command》

Realize remote control function when server sends the command to the device. When this command is through device to actively get the request from the server, device will get command from the server, and then execute this command, and return the result to the server again.

1, Fixed-time request and its command format from device to server

URL path format: GET <http://host/iclock/getrequest?SN=xxxx>

Thereinto, <http://host/iclock/> indicates the web applied path, xxxx indicates the serial number of device itself.

This request is sent from device to server per fixed time, is used to get the command that the server gives to itself. Then the server returns command format to the device, shown as:

C : ID1 : CMD1

C : ID2 : CMD2

C : ID3 : CMD3

Multiple commands can be divided into multiple rows, thereinto each row starts with "C:", the following ID indicates the serial number of this comand (generated by the server, the number of current given command must be unique), CMD indicates the detail content of command.

After executing these commands, device will return the result to the server through the following URL

POST /iclock/devicecmd?SN=xxxxxx

Thereinto pose's content includes the returned content.

Note: When device requests command from the server for the first time, or the device enrolls a new user/fingerprint and there is a new attendance record, URL path format will include simple infomration items (INFO=firmware version number, enrolled user number, enrolled fingerprint number, attendance record number, and IP address of the attendance device):

```
GET http://host/iclock/getrequest?SN=xxxx&INFO=Ver 6.39 Apr 28
2008,2,0,0,192.168.1.201
```

2, Command from server to device

1. Execute system command

Format:

SHELL CMD_String

Return:

POST's content is ID=iiii&SN=xxxx&Return=vvvv&Content=ssss, thereinto vvvv is the returned value of system command; ssss is the output content after command executing.

2. Check data refresh

Format:

CHECK

Function:

Get device's configuration information from server, then check the data's refreshing situation in the device, if there is a new data, transmit to the server immediately;

Return:

POST's content is ID=iiii&SN=xxxx&Return=1

3. Clear data

Format:

CLEAR LOG

Function:

Clear attendance record

Format:

CLEAR DATA

Function:

Clear all data

4. send device's information to the server

Format:

INFO

Return:

POST's content is the effective content of system's all configurations and items.

5. set device's item

Format:

SET OPTION ITEM=VALUE

Thereinto ITEM is the item's content, VALUE is the item's value. At current, only items with no '~' start are supported, for example:

SET OPTION IPAddress=192.168.1.225

Set IP address of device as 192.168.1.225.

Return:

Post's content is ID=iiii&SN=xxxx&Return=0

6. Restart

Format:

REBOOT

Function:

Restart the device

Note:

This command must be the last command returned to the device.

7. Data command

Format :

DATA SUBCMD

SUBCMD is as the following sub-command

%s : format character string

%d : formatted value

\t : tab

1) add or modify the user information

USER

PIN=%d\tName=%s\tPri=%d\tPasswd=%s\tCard=[%02x%02x%02x%02x]\tGrp=%d\tTZ=%d

Only PIN field is a must in this command, other fields can be none

2) add or modify the user fingerprint

FP PIN=%d\tFID=%d\tSize=%d\tValid=%d\tTMP=%s

3) delete the user

DEL_USER PIN=%d

4) delete the user fingerprint

DEL_FP PIN=%d\tFID=%d

8. reload system item

Format:

RELOAD OPTIONS

Function:

Require device to reload system configurations and items, so the modified system items can take affect.