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# HwDevComm.dll User Manual

## 1 Summarization

HwDevComm.dll with all Hanvon Attendance Machine (and other eligible "Hanvon time attendance machine communication protocol-HDCP\_V0.1.20060120" agreement (hereinafter referred to as: communications protocols) and time attendance devices) to communicate the dynamic link library (DYNAMIC LINK LIBRARY, referred to as DLL), it can be invoked in the Win32 platform.

## 2 Interface

HwDevComm.dll offer one interface externally, description as follow:

interface	significance
HwDev_Execute	execute all kinds command, such as administration, record.

the statement of the interface as follow:

```
Int HwDev_Execute( char * pDevInfoBuf, unsigned long nDevInfoLen,  
                  char * pSendBuf, unsigned long nSendLen,  
                  char ** pRecvBuf, unsigned long * pRecvLen,  
                  FuncTotalDoneTp pFuncTotalDone)
```

concrete parameter of the interface, return value and the significance as follow:

parameter	significance
pDevInfoBuf	Time Attendance Machine information in the first pointer; kept in line with "Hanvon attendance machine communication protocol-HDCP_V0.1.20060120" syntax described in attendance machine information. Attendance Machine Information Description of the form: DeviceInfo( dev_id = "1" comm_type = "ip" ip_adress = "172.16.1.15" )
nDevInfoLen	Attendance-line information buffer length.

pSendBuf	The first pointer to send buffer; kept in line with "Hanvon attendance machine communication protocol-HDCP_V0.1.20060120" command in the syntax, parameters and data. Suggested that put a command in the a buffer every time. If put several commands in the buffer, it will be executed successfully. If one of the command execution fails, which will not affect the following implementation.
nSendLen	Send the buffer length. If nSendLen = 0 then HwDevComm.dll only received but dont send
pRecvBuf	The first pointer to receive buffer; store results of various commands; The syntax of the implementation in line with "Hanvon attendance machine communication protocol-HDCP_V0.1.20060120"; HwDevComm.dll to apply and release the memory
pRecvLen	receive the length of the buffer
pFuncTotalDone	Callback function pointer; used to call those who progress in the implementation feedback; and PFuncTotalDoneTp type as : typedef int (CALLBACK FuncTotalDoneTp)( unsigned long nTotal, unsigned long nDone ).
return value	significance
0	successful
-1	failed
other	reserved

## 3 Communication Protocol Summarization

### 3.1 Connect to the Attendance Machine

In two ways: serial, Socket.

Ready: The serial cable connect with PC and the attendance machine or network cable to connect PC, and attendance machine.

To establish serial port connection: Open the PC, serial port (serial port of attendance machine is turned on by default).

Remove serial connection: Close PC serial port.

Establish socket connection: set up PC Socket, Connect attendance machine (the state of attendance machine default is Accept, monitor in the port 9922 ).

Remove socket Connection: close the PC-Socket.

## 3.2 Grammar and Reserved Word



chart 3.1

Reserved Word Name	Significance and Application
command word	This operation is used to indicate what to do (for example: GetEmployeeID means acquire all staff employees number from attendance machine).
control word	The word appears as a command parameter for specifying the parameters of what is (for example: name indicates that the parameter is the employee name).
Constants reserved words	The word appears as a command parameter, generally with the back of the control word to indicate that the value of the parameter is. (Eg: language = "chs" indicates that the attendance machine language set to Simplified Chinese).
Separator	separate each reserved word.

Chart 3.1

In addition to a separator, the other reserved words for the numbers underscore a combination of letters, up to 32 characters, case sensitive.

The reserved word can be inserted between the Space (spaces), Tab (tabs), CR (enter), treatment is negligible.

### 3.3 Principle of Reserved Words

Name of Reserved Words	Naming Principle
command word	Pascal nomenclature refers to one or more words together to form a name, every word beginning with capital letters, other letters are lowercase.
control word	Adopt "underlined lower-case" approach, have to use lowercase letters, between the words with "_" to separate. Eg: finger_count.
constant reserved word	Adopt "underlined lower-case" approach.

## 4 Reserved Words List and Significance

### 4.1 Command Word

Name	Significance
<b>Staff Administrator Command</b>	
GetEmployeeID	Get Employee ID
GetEmployee	Get the staff message from the machine. each time can only receive one.
SetEmployee	Send staff's message to the machine, each time can send one.
DeleteEmployee	Delete the staff and can delete more at a time.
DeleteAllEmployee	Delete all staff in the machine
SetNameTable	The Order updates the attendance of aircraft "id-name" comparison table, and then update the employee name that exist in the table.
<b>Record Administration Command</b>	

GetRecord	Get record from the machine in the special time range.
DeleteAllRecord	Delete all record in the machine.
<b>Attendance Administration Command</b>	
InitDevice	Attendance Machine initialized to a factory state.
InitDeviceAdmin	Attendance machine to initialize the administrator to set to a factory state.
GetDeviceInfo	Read attendance machine configuration, status information.
SetDeviceInfo	Setting attendance machine configuration, status information.
<b>Images Administration Command</b>	
GetPictureName	。 According to an image file time and picture recognition success of a list of image file names.
GetPicture	According to the image file name for image files. Image file is a base-64 encoded in Jpeg format photos.
<b>Result Command</b>	
Return	Return value identifies. Is a command performance results. such as: <b>Return( result="success / failed" [ Ctrl_Word = "Parameter / Value" ] ... )</b>
Wait	Waiting for identification. Attendance machine execute the command, need to wait some time (the time by the control word wait_time specified in seconds) to return only after the results, the structure such as:  Wait (wait_time = "10") // This command indicated need to wait for 10 seconds  This command is used the following occasions:



	<p>An operation requires a longer time (for example: initialization attendance machine), then wait for the operation of the party by wait_time understand the need to wait a long time to receive the correct results.</p> <p>Generally speaking, if the implementation of the command can be started within 5 seconds to return results, then do not need to use the Wait command.</p>
	<p>Note: this Agreement, receive data by default wait time is 5 seconds. If a command does not return in 5 seconds, and did not use Wait wait time specified in the order, then timeout out.</p>

## 4.2 Control Word

name	significance												
description													
result	<p>Marked results of the implementation of a command, possible constant value are:</p> <table> <tr> <th>name</th><th>significance</th></tr> <tr> <td>success</td><td>success</td></tr> <tr> <td>failed</td><td>failed</td></tr> <tr> <td></td><td></td></tr> </table>	name	significance	success	success	failed	failed						
name	significance												
success	success												
failed	failed												
reason	<p>Interpretation of the information on the implementation of the results of the possible constant value are:</p> <table> <tr> <th>name</th><th>significance</th></tr> <tr> <td>unknown command</td><td>unknown command</td></tr> <tr> <td>bad parameter</td><td>bad parameter</td></tr> <tr> <td>device busy</td><td>device busy</td></tr> <tr> <td>employee overflow</td><td>As SetEmployee command, employee overflow</td></tr> <tr> <td>unknown id</td><td>As DeleteEmployee command, unknown id</td></tr> </table>	name	significance	unknown command	unknown command	bad parameter	bad parameter	device busy	device busy	employee overflow	As SetEmployee command, employee overflow	unknown id	As DeleteEmployee command, unknown id
name	significance												
unknown command	unknown command												
bad parameter	bad parameter												
device busy	device busy												
employee overflow	As SetEmployee command, employee overflow												
unknown id	As DeleteEmployee command, unknown id												
notify	<p>The results of the implementation of a reminder message, usually because the command does not recognize the parameters have caused the possible constant value are:</p> <table> <tr> <th>name</th><th>significance</th></tr> </table>	name	significance										
name	significance												