# **User Manual and Test Guide**

HTTP



Content

1.	DEVE	ELOPMENT KIT INTRODUCTION	3
2.	HARI	OWARE REQUIREMENTS	3
3.	SOF	WARE REQUIREMENTS	3
4.	HTTF	? tEST	4
	4.1.	Device Connection	4
	4.2.	HTTP Test	7
5.	WIRE	SHARK PACKAGE CAPTURING SOFTWARE	.10
	5.1.	Tool Introduction	.10
App	pendix	: Contact Information	.12



### **1. DEVELOPMENT KIT INTRODUCTION**

This document is applicable to High Flying's IoT equipment. The specific supported models are as follows. This document introduces HF5111B. Other products are used in the same way.



## 2. HARDWARE REQUIREMENTS

HF5111B 1 Pcs



# 4. HTTP TEST

### 4.1. Device Connection

Connect PC and HF5111B to router LAN.

Sending data in HTTP format to HTTP server (Set product socket to HTTP by IOTService software or webpage). When device socket works in HTTP mode. All received UART data will automaticly transform to HTTP format (add HTTP header) and send to HTTP server. For the received HTTP data from HTTP server, it will automatically remove HTTP header and only output the data packet to UART.





Device Setting			×
Jser:	admin admin	SOCKET SOCKET Name: Protocol:	netp  HTTP 192 168 83 107
Type: GET Path: /1111 Host:192.168.83.107	▼ Version: 1.		8899 0 60
		[	uart v
	Conf	firm Cancel	SOCKET Del
Stop Bits:		Export	VirPath
Parity:		Import	Detail
now control.	nan-bupiex V		

Figure 2. IOTService Configure

Protocol Settings						
Protocol	Http	T				
Local Port	0					
Server	192.168.83.107					
Server Port	8899					
Connect Mode	Always	Ŧ				
Method	GET	Ŧ				
Version	HTTP/1.1	Ŧ				
Path	/1111					
Headers						
Host	192.168.83.107	•				

Figure 3. Webpage Configure

For GET request, the received UART packet AAA will put after the HTTP path (auto add "?" between path and parameters), for POST request, packet is put in the content (auto add Content-Length header information).

Product will send the below data to HTTP Server when UART receive "pppp" data for GET request.

GET /1111?pppp HTTP/1.1 Host: 192.168.83.107



#### Product will output "DDDDD" when get response from the HTTP server. HTTP/1.1 200 OK

Server: nginx

#### DDDDD



Figure 4. HTTP GET Request Example

Product will send the below data to HTTP Server when UART receive "pppp" data for POST request.

POST /1111 HTTP/1.1 Host: 192.168.83.107 Content-Length:4

рррр

Product will output "DDDD" when get response from the HTTP server.

HTTP/1.1 200 OK

Content-Length: 4

Connection: close

DDDD

			I.O.T
★ TCP&UDP测试工具 - [192.168.83.100:2381]          Operate(②)       View(Y)       Windows(W)       Help(H)         G       CreateConnn       CreateServer       38 StartSer         Properties       4 ×         Client Mode       Server Mode         G       Local(192.168.83.107):8899         192.168.83.100:2381	<ul> <li>Language</li> <li>Ver 2 Connect</li> <li>192.168.83.100</li> <li>DestIP:</li> <li>192.168.83.100</li> <li>DestFort:</li> <li>2381</li> <li>LocalPort</li> <li>8899</li> <li>Type TCP v</li> <li>AtuoConn</li> <li>Eve Qoend</li> <li>Eve 42672544 ms</li> <li>Count</li> </ul>	t Send DisconnAll Send Send AtuoSend Send Hex Send Fi HTTP/1.1 200 OK Content-Length: 4 Connection: close DDDD Rec StopShow C	LeleteConn % 回 念 LeleteConn % 回 念 Eve 100 ms Send Stop Lel Send Received Clear Option G Serial-COM4 - SecureCRT 文件(D 编辑(E) 查看(Y) 选项(D) 第 第 章 》 》 》 》 》 》 》 》 》 》 》 》 》 》 》 》 》
	Send 122 Recv 67	Content-Length:4	🕶 + 🕡 a 🕡 STA 🕡 W 🚱
	Send Speed(b/S): 0	Receive speed(E	

Figure 5. HTTP POST Request Example

### 4.2. HTTP Test

Step 1: Browser open <u>http://115.29.164.59:8432/iot?msg=123456788</u>, got the response as following:

🗥 Bug	#4404: modbus配置信!	息修 🗙 🛛 🕁 软件开发	这工具包	×	115.29.164.59:	8432/iot?msg=1	× +
$\leftarrow \   \rightarrow$	C ① 不安全	115.29.164.59:8432	2/iot?msg=12	3456788			
1 应用	📙 汉枫 📙 工作	📙 购物  📸 百度	🤶 百度地图	S 211C电子网	3  谷歌邮箱		
Get:msg=1	23456788						

Step 2: Input the HTTP parameters as the following steps.



-			
System		SOCKET	
User:	test	SOCKET Name:	netp 💌
Password:	admin	Protocol:	НТТР 🔽
HostName:	Eport-HF5111B	Server Addr:	115.29.164.59
DHCP:	Enable 💌	Server Port:	8432
IP Address:	192.168.83.103	Local Port:	0
Http Setup		×	60
7			0
Type: GET	Version:		
Path: /iot			uart
Host-115 20 16/	1 50 8/32		512
11050.115.25.10	1.35.0432	-	SOCKET Del
	$\langle \rangle$		
		-	Cancel
			VirPath
	Cor	firm Cancel	Detail
			Detail

Protocol: HTTP Server Addr: Server address, IP or domain name. Server Port: Server port. Type: HTTP Type, GET or POST. Version: HTTP Version, 1.1. Path: HTTP path HTTP header input: Input HTTP header. Usually is Host information.

Step 3: Reboot and wait for SOCKA connection.

10	Device Status	Ū
	System	
	System	

System	Network		1	SOCKET	
	HostName:	Eport-HF5111B		SOCKET Name:	netp 💌
10000	DHCP:	Enable		Protocol:	HTTP
	IP Address:	192.168.83.103		Status:	Connected
	Mask:	255.255.255.0		Server IP:	
i i i i i i i i i i i i i i i i i i i	Gate Way:	192.168.83.1		Recv Bytes: 0	Recv Frames: 0
	MAC Address:	ACCF23202222		Send Bytes: 0	Send Frames: 0
Product ID: aaaa	UART		1	Fail Bytes: 0	Fail Frames: 0
Software Version: 1.34.7	LIART No:			-	
RTC Time: NTP Disabled	Config: 115200,8,1,NONE	OART			
Up Time: 0-Day 0:22:37	Recy Butes: 0	Recy Frames: 0			
Total Free Memory: 23948	Neev bytes. o	neev manies. o		Reload	<b>E</b> 15
Max Block Size: 14728	Send Bytes: 0	Send Frames: 0		Postart	Edit
Max block 3ize. 14720	Fail Bytes: 0	Fail Frames: 0		Restart	

 $\times$ 



🧱 大傻串口调试软件-3.0AD	QQ:6972972	-		×
端 □: COM4 ▼ 波特率: 115200 ▼ 数据位: 8 ▼ 検验位: 无 ▼ 停止位: 1 ▼ 状态 ◆ 关闭串口 发送 ◆ 後收	发帧数     4       发字节数     52       收帧数     4       收字节数     68       清空计数     关于程序       文件行数     1			
清空接收区 □ 16进制 停止显示 ☑ 自动清 保存数据 更改文件 data txt	<ul> <li>✓ 显示保存发送</li> <li>✓ 显示保存时间</li> <li>✓ 帧换行</li> <li>✓ 关键字过滤接收</li> <li>关键字</li> </ul>			
发送区1 清空 手动发送	msg=123456788			0
发送区2     清空     手动发送       发送区3     清空     手动发送	CP3:20190712224103:A0 13 01 8A 20 30 00 00 00 00 00 09 06 0B 08 00 00 00 0	00 34 1C		0
<ul> <li>发送区及发送文件轮发属性</li> <li>只轮发一遍 周期 100</li> <li>● 收到回答后发下一帧</li> <li>超时时间 5 s 重发次</li> </ul>	发送区1属性     发送区2属性       00 ms     选择发送文件       ● 定时     开始文件轮发       ● 加約     日 自动发 ● 参加轮发       ● 加約     日 自动发 ● 参加轮发       ● 方法     日 自动发 ● 参加轮发	发送⊠3属 ▼ 16进制 「 自动发 发送周期	性 <u>校验</u> 参加新 1000	义 泼 ns

Step 4: UART send data id=1, and got response of the server.



# 5. WIRESHARK PACKAGE CAPTURING SOFTWARE

### **5.1. Tool Introduction**

Wireshark can be used to analyze network packages about sending and receiving data. Please download and install this software from searching tools.

Step 1: Open wireshark tool and click interface tab control.

Λ (	Capturing from Realtek PCIe GBE Family Controller: \Device\NPF_{03206AC7-7763-41C0-99F7-AC9D4DE099DA} [Wire												
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>G</u> o	<u>C</u> apture	<u>A</u> nalyze	<u>S</u> tatistics	Telephony	<u>T</u> ools <u>I</u>	nternals	; <u>H</u> elp			
		M 🎒	۱ ک	😹 <u>I</u> nteri	faces	Ctrl	+1 🕸 📣	7 👱		∣⊕(∈	Q 🖭	🎬 🛙	2 🖪
Filte	r: ip.	addr==	192.1	Optic <u>Optic</u> <u>Start</u>	ons	Ctrl	+K +E	~ E	Expressi	on Clea	r Apply	Save	
No.		Time		😫 S <u>t</u> op		Ctrl	+E	Destina	ntion		Protocol	Length	Info
	1211	76.79	1218	😹 <u>R</u> esta	art	Ctrl	+R 101	192.1	68.0.1	113	UDP	228	Sourc
	1212	77.01	0650	🖬 Capt	ure Filters.		101	192.1	68.0.1	13	UDP	228	Sourc
	1 2 1 2		0039		_		LOT	192.1	.00.0.1	L13	ICP	60	snapp
	1213 1214	77.21	.06830	00		192.168	.0.101	192.1	68.0.1	13	TCP	60	8117
Ste	1213 1214 p 2:	77.21 77.21	.06830 k rela	ated F	PC net	192.168 work ca	ard and c	192.1 click Sta	.68.0.1 art bu	utton.	ТСР	60	8117
Ste	1213 1214 p 2 : Wire	77.21 77.21 : Ticl	.06830 k rela Captu	ioo ated F ire Inter	PC netv faces	192.168 work ca	.0.101 ard and c	192.1 click Sta	.68.0.1 art bu	utton.	TCP —	60	8117
Ste	1213 1214 p 2: Wire	77.21 77.21 Ticl	06830 k rela Captu	ioo ated F ire Inter Descri	PC net faces	192.168 work ca	.o.ioi ard and c	192.1 click Sta	art bu	utton. Packets	тср — Packets	60	8117 ×
Ste	1213 1214 p 2: Wire	77.21 77.21 Shark:	06830 k rela Captu	ioo ated F ure Inter Descri	PC netv faces ption	192.168 work ca	.0.101 ard and c	192.1 click Sta IP b:f06:7bf:	68.0.1 art bu	utton. Packets	TCP — Packets 0	60	8117 × ails
Ste	1213 1214 p 2: Wire	Micro	06830 k rela Captu osoft	ated F are Inter Descri	PC netw faces ption	192.168 work ca	.o.io1 ard and c fe80::958b 192.10	192.1 click Sta IP b:f06:7bf: 68.10.165	68.0.1 art bu 6a84	Packets 0	TCP — Packets 0 0	60	8117 × ails

<u>S</u>tart

Stop

Options

<u>C</u>lose

#### Step 3: Send test data by TCP&UDP tool.

<u>H</u>elp

➢ TCP&UDP测试工具 - [183.230.40.33:80]			-		×
Operate( <u>O</u> ) View( <u>V</u> ) Windows( <u>W</u> ) Help( <u>H</u>	<u>l</u> ) Language				×
🗄 🔄 CreateConnn 🔕 CreateServer   😹 StartSer	ver 🔏 🙆   😤 Connec	t 🗝   🛬 DisconnAll   💥 DeleteConn 💸   🧕	8.		-
Properties 7 ×	JE 183.230.40.33:80	0 🏂 192.168.0.101:1061			4 Þ 🗙
Client Mode	DestIP: 183.230.40.33 DestFort: 80 LocalPort 4001 Type TCP AtuoConn Eve 0 Send 570 Recv 406 Clear	Send       AtuoSend Eve       100       ms         Send Hex       Send File       Send Received         POST/devices/1083662/dstapoints HTTP/1.1       api.key.htgu/Hc0UlR50gbe2/244wvMe         Hostapi.hegu/Dc0ulR50gbe2/244wvMe         Hostapi.hegu/Dc0ulR50gbe2/244wvMe         Content-length:59         ["datastreams":["id":"temp","datapoints":["value":20]]]]         Rec       StopShow       Clear         Save(In Time)         Connection:       xeve urve         Server:       Apache-Coyote/1.1         Fragma:       no=cache         ["errno":0, "error":       "suco"]HTTP/1.1 200 0K         Date:       Fri, 02 Sep 2016 05:38:02 GMT         Connection:       kep=live         Server:       Apache-Coyote/1.1         Pragma:       no=cache         ["errno":0, "error":"suco"]	Send Clear	Stop Option Kfex	
	Send Speed(B/S): 0	Receive Speed(B/S): 0			

Step 4: Input filter option. The following color marked packets are captured by this tool, which is from device uploading and server reposing.



🗖 Ci	pturing from Realtek PCIe GBE Fami	ly Controller: \Device\NPF	03206AC7-7763-41C0-99F7	-AC9D4DE0	199DA) [Wireshark 1.8.2 (SVN Rev 44520 from /trunk-1.8)]
Eile	Edit View Go Capture Analyze	<u>Statistics</u> Telephony	<u>I</u> ools <u>I</u> nternals <u>H</u> elp		
		≞∣  ⇔ ⇔ ⊚ 7	👱   🔳 🖬   🔍 Q	0	🏽 🛯 🍓 %   📜
Filter	ip.addr==183.230.40.33		✓ Expression Clear	Apply Sa	ave
No.	Time	Source	Destination	Protocol Le	ength Info
	122 26.764794000	192.168.0.113	183.230.40.33	TCP	66 56482 > http [SYN] seq=0 win=8192 Len=0 MSS=1460 WS=256 SACK_PERM=1
	123 26.823045000	183.230.40.33	192.168.0.113	тср	66 http > 56482 [SYN, ACK] seq=0 Ack=1 win=14600 Len=0 MSS=1332 SACK_PERM=1 WS=128
	124 26.823206000	192.168.0.113	183.230.40.33	тср	54 56482 > http [ACK] Seq=1 Ack=1 Win=66560 Len=0
	129 28.929734000	192.168.0.113	183.230.40.33	HTTP	239 POST /devices/1083662/datapoints HTTP/1.1
	130 28.980916000	183.230.40.33	192.168.0.113	TCP	60 http > 56482 [ACK] Seq=1 Ack=186 Win=15744 Len=0
	131 28.984426000	183.230.40.33	192.168.0.113	HTTP	257 HTTP/1.1 200 OK (application/json)
	134 29.01341/000	192.168.0.113	183.230.40.33	TCP	54 56482 > http [Ack] Seq=186 Ack=204 Win=66304 Len=0
	215 49.8604/1000	192.168.0.113	183.230.40.33	ICMP	74 ECho (ping) request 1d=0x0001, seq=1/256, tt=64
	210 49.914030000	103.230.40.33	192.108.0.113	TCMP	74 ECHO (ping) reply id=0x0001, seq=1/250, ttl=40
	216 50.865150000	192.108.0.115	103.230.40.33	TCMP	74 ECHO (ping) request id=0x0001, seq=2/512, tt=04
	219 50.918652000	103.168.0.112	192.108.0.113	TCP	74 ECHO (phig) repry $Ta=0.0001$ , $Seq=7/312$ , $C1=40$
	236 54 604429000	183 230 40 33	192 168 0 113	TCP	60 bttp > 5642 [ETN ACK] Seq 304 ACK-187 Win-15744 Len-0
	237 54 604520000	192 168 0 113	183 230 40 33	TCP	54 56482 > 5410 [TACK] 564224 ACK-205 Win-66304 Lene0
	255 61.359199000	192,168,0,113	183,230,40,33	TCP	66 56490 > http [ckm] 564-101 Akm 200 Min-8192 Lene0 MS5-1460 MS-256 SACK PERM=1
	256 61.415183000	183,230,40,33	192,168,0,113	TCP	66 http > 56490 [SYN, ACK] Seg=0 Ack=1 win=14600 Len=0 MSS=1332 SACK PERM=1 WS=128
	257 61 415453000	102 168 0 113	183 230 40 33	TCP	54 56490 > bttp [ACK] Sec-1 ACK-1 Win-66550 Lep-0
	274 67.178769000	192.168.0.113	183.230.40.33	нттр	239 POST /devices/1083662/datapoints HTTP/1.1
	275 67.270394000	183.230.40.33	192.168.0.113	HTTP	257 HTTP/1.1 200 OK (application/json)
	276 67.299863000	192.168.0.113	183.230.40.33	TCP	54 50490 > http [ACK] 5eq=186 ACK=204 W1N=66304 Len=0
	579 132 237364000	183.230.40.33	192.168.0.113	TCP	60 http > 56490 [FIN, ACK] Seq=204 Ack=186 win=15744 Len=0
	580 132.237443000	192.168.0.113	183.230.40.33	TCP	54 56490 > http [ACK] Seq=186 Ack=205 Win=66304 Len=0
	581 132.237577000	192.168.0.113	183.230.40.33	тср	54 56490 > http [FIN, ACK] Seq=186 Ack=205 Win=66304 Len=0
	582 132.290350000	183.230.40.33	192.168.0.113	TCP	60 http > 56490 [ACK] seq=205 Ack=187 win=15744 Len=0

