PW2X_HF2211_HF2221_HF9610 Wi-Fi Products Operation Guide

This document applies to the following series of products, please

refer to the user manual for product hardware description.



	HESS TOC TOCS TO	HF9610C
Dual UART		HF2221

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1. HARDWARE INTRODUCTION

PW2X, HF2211, HF9610, and HF2221 are serial ports to Ethernet and Wi-Fi serial servers. The hardware interfaces of HF2211 and HF9610 are exactly the same, but HF9610 is specially optimized for the application scenarios of remotely reading and writing PLC programs. The recommended application is HF9610. HF2221 has one more serial port and network port than HF2211. This article mainly uses HF2211 as an example. The usage of other products is similar. This article mainly introduces the configuration using the IOTService tool, but the webpage can also be configured, and the content is repeated without special instructions.

The related tools mentioned in this article can be downloaded from the official website.

http://www.hi-flying.com/index.php?route=download/category&path=1_4

1.1 HF2211/HF9610 Hardware Introduction

1 RS232 / RS485 / RS422 serial port

1 network port, default WAN, can be configured as LAN.

- WAN: Obtain IP from superior equipment, router has only one WAN port, obtain IP from superior access operator.
- LAN: Assign IP to lower-level equipment. The router usually has 4 LAN ports. 802.11bgn router-level Wi-Fi.



1.2 HF2221 Hardware Introduction

2 RS232 / RS485 / RS422 serial ports

2 network ports, 1 default WAN, can be configured as LAN, and the other LAN. 802.11bgn router-level Wi-Fi.



1.3 PW2X Hardware Introduction

1 RS485(PW21) or RS232(PW20) serial ports

1 network ports, 1 default WAN, can be configured as LAN, and the other LAN. 802.11bgn router-level Wi-Fi.



2. INITIAL SETUP

HF Products provide multiple methods to config, webpage and IOTService tools. Webpage is easy to use, but only for local setup and can not manage multiple device, recommend to use IOTService tools.

2.1 Webpage Set

Power on product:

- EW1X green LED will be repeat flash on 0.3s, then off 0.3s, indicate it works normally.
- HF2211S Link LED will be repeat flash on 0.3s, then off 0.3s, indicate it works normally.
- PW1X Net LED will be repeat flash on 0.3s, then off 0.3s, indicate it works normally.

PC Wi-Fi to search AP, different products with different SSID, XXXX is the end 4 characters of MAC.

• EW1X SSID is EW10_XXXX or EW11_XXXX.

- HF2211S SSID is HF2211S_XXXX
- PW1X SSID is PW11_XXXX

Set PC IP with Auto DHCP.

Internet	协议版本 4	(TCP/IPv4) 属	±						×
常规	备用配置								
如果阿格系统	网络支持此功 充管理员处势	b能,则可以获取 获得适当的 IP 设	2自动指 置。	派的丨	P 设置	t. 否则	山, 你需	雲天从网	
•	自动获得 IP	地址(0)							
-01	使用下面的	IP 地址(<u>S</u>):							
IP	地址():								
子	网掩码(U):								
默	认网关(D):								
	自动获得 DI	NS 服务器地址(E	<u>3</u>)						
-01	使用下面的	DNS 服务器地址	<u> է(E</u>)։						
首	选 DNS 服务	5##(P):							
备	用 DNS 服領	5 욽(<u>A</u>):							
	退出时验证	设置(L)					1 I I I	鈒(⊻)	
						确定		取	消

PC Wi-Fi connect to products and got IP as following picture



adli WLAN 2 状态	×		网络连接详细信息		×
常规			网络连接详细信息(D):		
连接	- 1		属性	值	
连接 元 Internet 访问权限 IPv6 连接: 无网络访问权限 媒体状态: 日启用 SSID: EW11_4C7A 持续时间: 00:01:23 速度: 72.2 Mbps 信号质量: 1111 详细信息(E) 无线属性(W) 活动 日发送 — 已接收 字节: 2,342 「其田(四) 245(C)	_		雇性 连接特定的 DNS 后缀 描述 物理地址 已启用 DHCP IPv4 地址 IPv4 子网掩码 获得租约的时间 租约过期的时间 IPv4 默认网关 IPv4 DNS 服务器 IPv4 DNS 服务器 IPv4 WINS 服务器 已启用 NetBIOS over Tc 连接-本地 IPv6 地址 IPv6 默认网关 IPv6 DNS 服务器	值 Intel(R) Dual Band Wireless-AC 3165 04-D3-B0-22-67-B2 是 10.10.100.150 255.255.255.0 2020年3月18日 15:14:32 2020年3月19日 15:14:32 10.10.100.254 10.10.100.254 10.10.100.254 是 fe80::79d4:d283:f685:a419%9	
		1		关闭(C)	_
关闭(C	C)				

Brower input 10.10.100.254, input default user name and password with admin/admin to login in. The main page is as following.

← → C ① 不安全 10.10.10 Ⅲ 应用 Ⅰ 汉枫 Ⅰ 工作 Ⅰ 购物	10.254/index.html 😵 百度 🤶 百度地图 🔇 211C电	子网 🔇 谷歌邮箱 🚺 人人网	☆ ☆
			English v
☆ STATUS	Status System running status overview		
SYSTEM SETTINGS	System State		Helper
SERIAL PORT SETTINGS	Product Name EW11	MAC 98D863584C7A	Status
COMMUNICATION SETTINGS	DHCP Enable	IP 0.0.0.0	
↔ ADVANCED SETTINGS ◀	Subnet Mask 0.0.0.0	Gateway 0.0.0.0	
OTHERS	DNS 223.5.5.5	Firmware Version 1.42.5i	
	System Time NTP Disabled	Total Running Time 0-Day 0:4:24	
	Remaining RAM 38072	Max Block Size 38072	
	Configuration Protected Disable	WiFi State Disconnected	
	WiFi Rssi -1		

Default UART parameters is as following.

fin status	Serial Port S change the device serie	ettings al port settings		
SYSTEM SETTINGS	Basic Settings			Helper
SERIAL PORT SETTINGS	Baud Rate	115200	Ŧ	Basic settings information
	Data Bit	8	•	
SETTINGS	Stop Bit	1	Y	
↔ ADVANCED SETTINGS ◀	Parity	None	T	
) others	Buffer Settings			

Default socket parameters is as following.

					English v
f status	Communica change the device sock	ation Settings et settings			
SYSTEM SETTINGS		netp	+Add	Helper	
>_ SERIAL PORT SETTINGS	Basic Settings			Communication Settings	
SOCKET SETTINGS	Name	netp			
○ ADVANCED SETTINGS ◀					
OTHERS	Socket Settings				
6 on Line	Local Port	8899			
	Buffer Size	512			
	Keep Alive(s)	60			
	Timeout (s)	0			

Products by default works as AP mode, if need to set it connect to router, set it to STA or AP+STA working mode as following. Select the scanned list and input the router password.

Note: setting is valid after reboot.

WiFi Settings							
WiFi Mode	STA	STA 🔹					
STA SSID	EW11	EW11					
STA KEY	ΈΥ <						
	Scan						
ID SSI	D 🖡	Rssi	Channel	Security	Choose		
1 UPGRADE-	AP_aaaa	100	6	√	0		
2 111!@#\$%	^&**(()_+	100	11	√	0		
3 LAN	D	98	1	√	0		
4 UPGRAE	DE-AP	96	11	×	0		
5 OULUN	OULUN_TEST		6	×	0		
6 WX-1	14	92	10	×	0		
7 king	sir	92	11	V	0		

If need static IP in STA mode, set DHCP to off and input static IP.

Note: setting is valid after reboot.

STATUS	System Sett Change the device sys	tings tem settings		
SYSTEM SETTINGS	Authentication			Helper
> SERIAL PORT SETTINGS	User Name	admin		Basic Settings
	Password	•••••		
ETTINGS	Basic Settings			
➢ ADVANCED SETTINGS ◀	Host Name	EW11		
₿ OTHERS	WAN Settings			
	DHCP	OFF		
	WAN IP	0.0.0.0 The WAN IP field must contain a valid IP.]	
	Subnet Mask	0.0.0.0 The Subnet Mask field must contain a valid IP.]	
	Gateway	0.0.0.0 The Gateway field must contain a valid IP.)	
	DNS	223.5.5.5]	

If upgrade firmware at the following position.

		English v
☆ STATUS	Others change the device other settings	
SYSTEM SETTINGS	Backup/Restore Configuration	Helper
>_ SERIAL PORT SETTINGS	Backup Backup	Backup/Restore Configuration
	Restore + Choose File	
SETTINGS	Upgrade	
○ ADVANCED SETTINGS ◀	Firmware + Choose File	
() OTHERS	Factory Settings	

There is another internal webpage for upgrade the firmware and webpage (external config webpage as above, this source code is open at our website for customer to change). Login with IP/hide.

Webpage source file:

http://www.hi-flying.com/download-center-1/application-notes-1/download-item-iot-devicewebpage-source-code

← → C ③ 不安全 10.10.100.254/hide	☆	ん
🏭 应用 📙 汉枫 📙 工作 📙 购物 📸 百度 🏆 百度地图 🚱 211C电子网 🚱 谷歌邮箱 🚺 人人网		
Upgrade application		
选择文件 未选择任何文件 Firmware file		
Upload FITTIWATE THE		
Upgrade customized webpage		
选择文件 未选择任何文件		
Upload		

2.2 IOTService Set

IOTService is simple to manage the products, config and even communicate with it. Download address:

http://www.hi-flying.com/download-center-1/applications-1/download-item-iotservice

Install IOTService and register account in the IOTBridge cloud(http://bridge.iotworkshop.com/) according to that tools doc.

PC connect to products AP(Same as previous chapter), and open tools, The device will be shown in IOTService.

🔝 I.O.T Service					- 🗆 ×		
anagement (M) Setting (C) Help (H)							
Serial Config 🔞 Config 🔇 Status 🖓 VirPath							
SN DevType MAC Address HostName	IP	Position	VirPath	Status	SW Ver		
1 EW11 98D863584C7A EW11	10.10.100.254	Local		Online	1.42.5i		

Note: See IOTService doc for more detailed usage, here just simply use it.

Double click the product list to see the device status.

🔝 Device Status

🕈 Device Status				×
System	SOCKET SOCKET Name: Protocol: Status: Server IP: Recv Bytes: 0 Send Bytes: 0 Eail Bytes: 0	netp MQTT Disconnect 47.115.117.98 Recv Frames: 0 Send Frames: 0	Network HostName: DHCP: IP Address: Mask: Gate Way: MAC Address:	EW11 Enable 0.0.0.0 0.0.0.0 98D863584C7A
Product ID:EW11Software Version:1.42.5iRTC Time:NTP DisabledUp Time:0-Day 2:14:39Total Free Memory:16376Max Block Size:16376	UART No: UART No: Config: 115200,8,1,NO Recv Bytes: 9 Send Bytes: 0 Fail Bytes: 0	INE Recv Frames: 6 Send Frames: 0 Fail Frames: 0	Reload Restart	Edit

Click Edit to change product setting.

Note: some setting need reboot to be valid. Better do restart operation after setting. 🔝 Device Setting

System	SOCKET	WiFi	
User: admin	SOCKET Name: netp	Mode:	AP
Password: admin		AP SSID:	EW11_4C7A 🔲 Hide
HostName: EW11	Protocol:	AP Key:	
DHCP: Enable 💌	Server Addr: mqtt.guanliyuan.vip	AP Channel:	AUTO
IP Address: 0.0.0.0	Server Port: 1883	STA SSID:	
Mask: 0.0.0.0	Local Port: 0	STA Key:	
Gate Way: 0.0.0.0	Keep Alive: 60		Scan
DNS: 223.5.5.5	Time Out: 0		
Network Mode:	Rout: uart 💌		
Longitude: 0.0	Buffer Size: 512		
Latitude: 0.0			
UART	New SOCKET SOCKET Del		
UART No: UART 1	LAN		
Baudrate: 115200 💌	IP Address: 10.10.100.254		
Data Bits: 8	Mask: 255.255.255.0		
Stop Bits:	DHCP: Enable 💌		
Parity: NONE 💌	Eth Wan: Disable 💌	Confirm	Cancel Detail
Flow Control: Half-Duplex	LAN Separate	Export	Import VirPath
Buffer Size: 512		F-Set Upd	F-Set Clear DiDo

Set to STA or AP+STA mode to make products connects to router, and may also set static IP.

Х

😭 Device Setting

System		SOC	KET			WiFi			
User:	admin	50	CKET Name		neto 💌	Mode:	STA		-
Password:	admin	30			netp •	AP SSID:		C7A 🗌 Hide	
HostName:	EW11	Pro	otocol:	MQ	TT 🔽	AP Key:			
DHCP:	Enable 💌	Ser	ver Addr:	mq	tt.guanliyuan.vip	AP Channel:	AUTO		-
IP Address:	0.0.0.0	Ser	ver Port:		1883	STA SSID:		EV	V11
Masla	0.0.00	lor	al Port		0	STA Kev:			
Wask:	0.0.0.0	200	arrora.			·			
Gate Way:	0.0.0.0	Kee	ep Alive:		60		Scan		
DNS:	223.5.5.5	T	🕈 Scan						×
Network Mode:	Router 💌	F	Select	Channel	SSID	MAC Address	RSSI	Has Key	
Longitude:	0.0		0	6	UPGRADE-AP_aaaa	C8:3A:35:54:B3:70	100	Yes	-
Longitude.		E	0	11	111!@#\$%^&**(()_+	78:44:FD:26:9A:7C	100	Yes	
Latitude:	0.0			1	LAND	3C:33:00:A8:35:2C	94	Yes	
			<u> </u>	10	WX-114	28:2C:B2:D2:E5:96	88	No	_
			<u> </u>	5	HF-LPB130	A8:CF:23:FF:88:88	84	No	_
		Г		1	UPGRADE-AP	04:4A:6C:70:9B:9C	80	No	_ =
		L		6	ChinaNet-xuanyin	78:44:FD:AB:73:76	64	Yes	_
				3	OPPO R15	D6:1A:3F:68:FB:DB	61	Yes	_
UART				13	tp_jiehui	94:D9:B3:73:37:39	59	Yes	
LIART No:	LIART 1	-14		11	HF2211_A990	98:D8:63:11:A9:90	59	No	_
ONIT HOI	Oraci i			11	yongheng	00:0E:E8:B6:57:2C	57	Yes	_
Baudrate:	115200 -	1		6	HF-Demo-Specia	54:/5:95:/3:88:38	54	Yes	_
				13	JACK_2G	8C:AB:8E:66:85:F0	52	Yes	- 1
Data Bits:	8 🔻	D		11	ZXZ	24:09:08:7F:08:0E	49	Yes	-
			\vdash	0	IP-LINK_4C6F	54:90:72:19:4U:0F	49	Yes	
Stop Bits:	1	C				- CACCOLDENCIUZIEA	. 4/		
Parity:	NONE 💌	E				Rescan C	onfirm	Close	
Flow Control:	Half-Duplex 💌				N Separate				_
Buffer Size:	512					F-Set Upd	F-Set Clear	DiDo	

 \times

3. SERIAL PORT SETTINGS

3.1. Serial Port Tool SecureCRT

Open SecureCRT find an executable program, click Open. Click the Quick Connect button to create a connection.

盾 serial-com4 - SecureCRT

<u>File E</u> dit <u>V</u> iew <u>O</u> ptions <u>T</u> ransfer	<u>S</u> cript Too <u>l</u> s <u>W</u> indow <u>H</u> elp
🔚 👪 🏹 🗶 Enter host <alt+r></alt+r>	🖻 🙈 👫 🍠 🚰 💥 🕴 🎯 🚟
Session Manager 🛛 🕈 🗸	✓ serial-com4 x

3.2. Setting Serial Port Parameters

Protocol: Serial

Port: The port that the computer is actually connected to (see "My Computer"-> "Device Manager"-> "Ports (COM and LPT)", as shown in the figure.

通信端口 (COM Quick Connect Protocol:	1)) Serial	~	×
The port may be	manually entered o	r selected from the list.	
P <u>o</u> rt:	COM3 USB Serial P	Port ~	
Baud rate:	115200 ~	Flow Control	
<u>D</u> ata bits:	8 ~		
P <u>a</u> rity:	None 🗸 🗸	<u>x</u> on/xoff	
Stop bits:	1 ~		
Na <u>m</u> e of pipe:			
Sho <u>w</u> quick co	onnect on startup	✓ Sa <u>v</u> e session ✓ Open in a <u>t</u> ab	
		Connect	Cancel

Note: The default serial port data of the device is as shown in the figure above. Users can modify the working parameters of the product by using IOTService.

3.3. Cli Instruction Mode

Data transmission needs to be in the transparent transmission mode (the default transparent transmission mode upon power-on). If you need to enter the Cli command mode for configuration, you can do as follows.

• Serial port mode.

Set the parameters of the SecureCRT serial port software according to the above.

Add "+++" button command to the button bar.

💼 Serial-COM4 - Secur	eCRT						_		×
文件(F) 编辑(E) 查看((V) 选项(O) 传输	(T) 脚本(S)	工具(L)	帮助(H)					
🖏 🖏 🗔 🕼 🗶 🗹	菜单栏(M)	1 🕸 1	0	÷					
Serial-COM4	工具栏(T)								×
EPORT>	会话标签页(B)	r	S	оск		DATA			^
Restart 🗹	交互窗口(C)	r	F	wUpgrade		Debug			
EPORT>Exit	<u> </u>								
	土聏(E)								
🕞 Serial-COM4 - Secur	eCRT						-		×
文件(F) 编辑(E) 查看(V) 选项(O) 传输((T) 脚本(S)	工具(L)	帮助(H)					
19 29 G 20 X 🗈	🖺 🗛 😼 😼 🖪) 🚰 💥 📍	🕐 🔤	Ŧ					
Serial-COM4									×
Show SY	'S	UART	50	оск		DATA			^
Restart Re Exit	load	WIFI	F۱	wupgrade		Debug			
						-			
映射按钮					X				
动作 功能(E)	发送字符	串	_	标签(L)					
发送字符串	+++		^ ++ ~	+					
发送字符串命令									
Vr - 发送一个回车 (CR)	┢ - 暫停一利	少	\e - 发j	送一个ESC					
\n - 友送一个新行 (LF)	\t-友医一个	TAB	/þ - 友)	医一个退格					
清除(C)			确定	È	取消				
🗃 +++ 🗑 a 🛛 🗃	STA 💿 WSS 🖸) WS 📦 A	T+Z 🕥 A	AT+ 🕥 W	VSLQ 🕥	10.2	10.1	Defa	• • •
k the button to send	the correspon	ding data.	When t	he interf	ace dis	plays	"EPC	DRT>"	

Click the button to send the corresponding data. When the interface displays "EPORT>", you have entered the CLI command mode.

🕞 Serial-COM4 - SecureCRT	_	×
文件(E) 编辑(E) 查看(V) 选项(Q) 传输(I) 脚本(S) 工具(L) 帮助(H)		
\$\$ \$\$ Co \$\$ \$\$ and \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$		
Serial-COM4		×
EPORT>		^

Note:

Any serial tool can do this. Sending "+++" must be a continuous package of data, and there can be no other data before and after (such as carriage return and line feed).

• Telnet mode.

Step 1: Enter the IP address of the device (the IP address can be obtained by searching through the IOTService tool, which will be detailed later), port 23.

■ http://192.168.0.121 - 未连接 - SecureCR1	—		\times
文件(F) 编辑(E) 查看(V) 选项(O) 传输(T) 脚本(S) 工具(L) 帮助(H)			
43 🔀 🖓 43 () · · · · · A (75 55 25 12 12 12 12 12 12 12 12 12 12 12 12 12			
http://192.168.0.121 快速连接 ×			×
			^
协议(P): Telnet ~			
主机名(H): 192.168.0.121			
端口(O): 23 防火墙(F): None ~			
□启动时显示快速连接(W) □ 保存会话(V)			
□ 在新标签中打开(T)			
法校 即治			×
	. 🕥 10).1 De	fai 🗸

Step 2: The default login name and password are both admin, then "EPORT>" is displayed, and you have logged in to the Cli command mode.

 □
 192.168.0.121 - SecureCRT
 ×

 文件(F) 编辑(E) 查看(V) 选项(O) 传输(T) 脚本(S) 工具(L) 帮助(H)
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4. TEST EXAMPLE

4.1. Auto-IP Function Networking

The device is directly connected to the PC via Ethernet, and the module automatically uses the default IP for the PC to directly access for parameter configuration or data transmission communication (it takes about 15 seconds to wait until the PC uses the default 169.254.XXX.XXX IP). The module IP in the following example: 169.254.173.207 (this IP is generally fixed, and it will be replaced automatically when there is an IP conflict).



Ethemet IP:169.254.173.207

Note:

Auto-IP function is that the network port is in WAN mode, and the two parties agree to use the default IP. Wi-Fi works in AP mode, you can manually switch to WAN or LAN mode, the default is WAN.

System	SOCKET	WiFi	
User: admin	SOCKET Name:	Mode:	AP
Password: admin		AP SSID:	HF2211_6CF8 Hide
HostName: Eport-HF2211		AP Key:	
DHCP: Enable 💌	Server Addr: 1.1.1.1	AP Channel:	AUTO
IP Address: 192.168.83.102	Server Port: 999	STA SSID:	
Mask: 255.255.2	Local Port: 10111	STA Key:	
Gate Way: 192.168.83.1	Keep Alive: 60		Scan
DNS: 10.10.100.254	Time Out: 0		
Network Mode:	Rout: uart 👻		
Longitude: 0.0	Buffer Size: 1024		
Latitude: 0.0			
	New SOCKET SOCKET Del		
UART			
UART No:	LAN		
Baudrate: 115200 💌	IP Address: 10.10.100.254		
Data Bits: 8	Mask: 255.255.255.0		
Stop Bits:	DHCP: Enable 💌		
Parity: NONE 🔻	Eth Wan: Enable 💌	Confirm	Cancel Detail
Flow Control: Half-Duplex		Export	Import
Buffer Size: 1024		F-Set Upd	F-Set Clear VirPath

If working in STA or AP + STA mode, the network port will automatically switch to LAN mode, and the HF2211 will assign the IP of its own LAN network segment to the PC (10.10.100.XXX network segment).

Connect the network port of the device to the PC with a network cable. After opening the IOTService tool, the device information is automatically displayed, as shown in the figure below.

LO.T Service				-	
Management (M) Setting (C) Help (H)					ст н фу
Serial Config	tatus VirPat	th			Disconnected
SN DevType MAC Address HostName	IP	Position	VirPath	Status	SW Ver
1 HF2211 F0FE6B5D9F14 Eport-HF221	169.254.173.207	Local		Online	1.40.3

According to the device IP address shown in the figure above, you can also use the webpage configuration method to edit the device parameters. The username and password are both admin by default.

□ 网页无法访问 × □ 导航已取消	× +	0 – 8 ×
C ① http://169.254.173.207/		:0€ ∨ ⊃ - △ 🛛 ≡
> 🍐 收藏 ~ 🛄 手机收藏夫 🕍 百度 🖑 【級入式 🤐 愛词霸在 🛅 [J	.Fla]	
0 已取消网页导航		
你可以尝试以下操作:		
■ 刷新该页面。		
	Windows 安全	
	The server 169.254.173.207 is asking for your user name and password. The server reports that it is from USER LOGIN.	
	Warning: Your user name and password will be sent using basic	
	authentication on a connection that isn't secure.	
	admin	
	☑ 记住我的凭据	
	福定 取消	
		76
		显示桌面
🗥 文件 - Eport Pro系列【Linux以 × 🔇 HF2	211 × +	
← → C ① 不安全 169.254.173.207	/index.html	
	猫 🐕 百度一下,你就知道 🏠 项目-上海汉枫电…	C→ 智能生活开放平台 S kms常见激活问题 S Goc
	Chatas	
	Status	
	System running status overview	
	Current and Charles	
	System State	
<u> </u>	Product Name	MAC
SERIAL PORT SETTINGS	HF2211	F0FE6B5D9E14
COMMUNICATION SETTINGS	DHCP	IP
	Enable	169.254.173.207
OC ADVANCED SETTINGS		
	Subnet Mask	Gateway
OTHERS	255.255.0.0	0.0.0
-	DNIS	Firmware Version
	10.10.100.254	1.40.3
	System Time	Total Running Time
	NTP Disabled	0-Day 0:3:35
	Remaining RAM	Max Block Size
	143/088	1497088

The product's RS232 interface is connected to a computer. Open the serial debugging tool. It is recommended to use the SecureCRT software tool (other serial tools are also available).

- Note: The role of the network cable directly connected:
- In the absence of other routers, the network cable is directly connected to the

application, or used to modify the working parameters of the product.

When the Wi-Fi connection or product communication is abnormal (Wi-Fi parameter changes or other), you can directly connect the PC to the network to view the currently configured parameters and working status (in STA mode, the network cable is directly connected, and the IP of the PC It's 10.10.100.XXX).

4.2. TCP Server Test in Auto-IP Mode

Open the TCP & UDP test tool (download this tool from the previous article), the product has created a TCP Server (port 8899) by default, and establish a TCP connection according to the following process.

- DestIP: Destination IP address, fill in the product IP.
- Port: Destination port number, fill the product communication socket channel port.

port.					
🔀 TCP&UDP测试工	具				
Operate(O) Vie	w(V) Windows(W) Hel	p(<u>H</u>) Language			
CreateConnn	😂 CreateServer 🛞 Start	:Server 🔏 😣 😤 Co	nnect 🞯 餐 DisconnAll 🕻	💥 DeleteConn 🞇 🔯	- 😹 🖕
Properties Client Mode	# × Crea Loc	e: TCP etIP: 109 254 173 207 etIP: 109 254 173 207 etIPort @ Auto AutoConn: Send Then Clun: Create	Port: 8899 Specia 4001 Eve 0 s Eve ms Cancel		
Device Setting			-		
System		SOCKET		WiFi	
User:	admin	SOCKET Name:	netp 💌	Mode:	AP <
Password:	admin	Protocol:	TCP-SERVER V	AP SSID:	HF2211_76BC
HostName:	Eport-HF2211	Server Addr:	0000	AP Key:	
DHCP:	Enable 💌	Server Port:	0	STA SSID:	
IP Address:		Local Port:	8899	STA Key:	
Gate Way:		Keep Alive:	60	5	Scan
DNS:	10.10.100.254	Time Out:	300		
Network Mode:	Router 💌	Rout	uart	It can be set	by the user
UART		Duffer Circu		•	
UART No:	UART 1 💌	Buffer Size:	8192		
Baudrate:	115200 💌	New SOCKET	SOCKET Del		
Data Bits:	8			Confirm	Cancel
Stop Bits:	1	LAN		Export	VirPath
		IP Address:	10.10.100.254	Export	VirPaul
Parity:	NONE				
Parity: Flow Control:	Half-Duplex V	Mask:	255.255.255.0	Import	Detail

Click the Connect button to establish a TCP connection. After the connection is successfully established, the left side becomes a green arrow, and if the connection fails, a yellow arrow.

送 TCP&UDP测试]	[具 - [192.168	.0.107:8899]			-	- 🗆	×
Operate(O) Vie	w(⊻) Windo	ws(W) Help(H) La	nguage				×
CreateConnn	CreateServ	er 🏖 StartServer 🏖	😡 😤 Connect 울	🗟 DisconnAll 💥 Delet	eConn 🞇 🔯 🛛 🕫	-	
Properties	Ŧ×	169.254.173.2	07:8899				4 Þ 🗙
Client Mode	3.207:8899	DestIP: 169.254.173.207 DestPort: 8899 LocalPort 4001 Type TCP - AtuoConn Eve 0 s	Send TAtuoSen	d Eve 100 ms File Send Received	Send Stop Clear Option	BroadOpt	ion
AutoSend Eve 0 Connect		AutoSend Eve 0 ms Disconnect	Rec StopShow	Clear Save Option	n] ShowHex		

Open the serial tool according to the following parameters.

File Edit View Opti	Session Options - Serial-C	COM5		
File Edit View Opti	Category Connection Logon Scripts Serial Cernial Cer	Serial Op Port: Baud rate: Data bits: Parity: Stop bits: Serial brea	Any chaptes you	<pre>Flow Control DTR/DSR RTS/CTS XON/XOFF milliseconds </pre>

TCP and serial port transfer data to each other (data transmission needs to be in transparent transmission mode, if you have entered the Cli command mode before, you can restart or Exit command to exit).

✗ TCP&UDP测试工具 - [192.168.	0.107:6336]			- 🗆 X
Operate(O) View(V) Window	ws(W) Help(H) Lang	guage		:
🔄 🚰 CreateConnn 🔕 CreateServe	er 🛞 StartServer 🛞	🚱 😤 Connect 🕱 🗟 Disco	nnAll 🛛 😹 DeleteCor	nn 💥 🔟 🧏 💂
Properties # ×	≥ 169.254.173.20	7:8899		4 6 3
Client Mode	DestIP: 169.254.173.207 DestPort: 8899 LocalPort 68 Type TCP * AtuoConn Eve -17415907 s AutoSend Eve -17415907 ms Disconnect Count Send 32 Recv 15 Clear	Send AtuoSend Eve Send Hex Send File socket send data Rec StopShow Clear Save(In Time) uart send data	100 ms Send Received C	Send Stop Dear Option BroadOption Secure C × Qptions Iransfer Script C C C C C C C C C C C C C C C C C C C

4.3. AP-based Networking

This product acts as an AP to form a wireless network. All STAs use APs as the center of the wireless network, and mutual communication between STAs is completed through AP forwarding. As shown below:



Before using the HF2211 to form the AP mode, you must first understand the AP signal name of the device. The default is "HF2211_ + the last 4 digits of the MAC address". You can also query through the CLI command "Show".

Open Network and Sharing Center-> Change adapter settings.



After opening IOTService, you can find that the device has been successfully connected. In AP mode, the HF2211 assigns the IP of its LAN segment to the PC (that is, 10.10.100.XXX).

LO.T Service	e						
<u>M</u> anagement	(M) Setting (C) Help (H)					11 中文
Serial (Config	Config 🕜 S	itatus VirP	Path			Disconnected
SN DevType	MAC Address	HostName	IP	Position	VirPath	Status	SW Ver
1 HF2211	FOFE6B5D9F14	Eport-HF2211	10.10.100.254	Local		Online	1.40.3

4.4. AP + Ethernet-based Networking



As shown in the figure above, the HF2211 Ethernet is connected to the LAN port of the router. The PC can be connected to the router via Ethernet or wireless to form a network connection.

In AP mode, HF2211 Ethernet defaults to WAN mode. In STA or AP + STA mode, HF2211 Ethernet automatically switches to LAN mode.

				×
G v v b 控制面板 → 网络和 Internet → 网络	注接 →	▼ 4 搜索 网络连接		٩
组织 ▼		€= M=		0
VMware Network Adapter VMnet1 已禁用 予定 已禁用 Atheros AR9485 Wireless Net	VMware Network Adapter VMnet8 已禁用	本地连接 test18 Realtek PCIe GBE Family Cont	r	

Open IOTService to display the device information. If you need to modify the AP hotspot name and password, you can enter the device edit to modify the parameter information.

🔡 I.O.T Service						
<u>M</u> anagement (M) S	Setting (C) Help (H)					<mark>*</mark> 中3
Serial Config	Config S	tatus 🛛 VirPath	h			Disconnected
SN DevType MAC	Address HostName	IP	Position		VirPath	Status SW Ver
1 HF2211 F0FE6E	B5D9F14 Eport-HF2211	192.168.0.104	Local		C	Online 1.40.3
🔛 Device Setting						×
System		SOCKET			WiFi	
User:	admin	SOCKET Name:	netp	-	Mode:	AP 🔽
Password:	admin	Protocol:	TCP-SERVER	•	AP SSID:	HF2211_76BC
HostName:	Eport-HF2211	Server Addr:		0.0.0	AP Key:	
DHCP:	Enable 💌	Server Port			STA SSID:	HF2211
IP Address:	10.10.100.10	Local Part		0000	STA Key:	
Gate Way:	10.10.100.254	Koop Alive:		0099		Scan
DNS:	10.10.100.254	Keep Alive.				
Network Mode:	Router -	Time Out:		300		
UART		Rout	μαπ			
UART No:	UART 1 💌	Buffer Size:		8192		
Baudrate:	115200 🔻	New SOCKET	SOCKET	Del		
Data Bits:	8 🗸				Confirm	Cancel
Stop Bits:	1 💌	LAN				
Parity:	NONE	IP Address:	10.10.1	00.254	Export	VirPath
Flow Control:	Half-Duplex 💌	Mask:	255.255	5.255.0	Import	Detail
Buffer Size:	8192	DHCP:	Enable	-	F-Set Update	F-Set Clear
		L				

4.5. TCP Server Test in AP Mode

Open the TCP & UDP test tool and establish a TCP connection according to the following procedure. By default, the product has created a TCP server (port 8899) for use. The TCP & UDP tool fills in the device IP (viewed from the IOTService software), and

the port number.

Market TCP&UDP-Debug
🔁 CreateConnn 🚳 CreateServer 🐰 StartServer 🛞 🐼 💥 Connect 💥 🌺 DisconnAll 💥 DeleteConn 🎇 🔯 🥃 🖕
Operate(O) View(V) Windows(W) Help(H) Language
Properties Client Mode Server Mode Create Connect a Type: TCP DestIP: 192.168.0.104 Port: 8899 LocalPort @ Auto © Specia 4001 AutoConn: Eve 0 s Send Then Conn: Eve ms Create Cancel

System		SOCKET		WiFi			
User:	admin	SOCKET Name:	netp	Mode:		AP	•
assword:	admin	Protocol:	TCP-SERVER	AP SSID:		HF9610_9F14	🗌 Hide
lostName:	HF2211	Common Andrea	121 40 00 72	AP Key:			
HCP:	Enable 💌	Server Addr:		AP Chanr	iel:	CH6	
P Address:		Server Port:		STA SSID	:		
/lask:		Local Port:	8899	STA Key:			
iate Way:		Keep Alive:	60			Scan	
INS:	10.10.100.254	Time Out:	0	×		las des	
letwork Mode:	Router	Rout:	uart 💌	It ca user	in de set	by the	
ongitude:	0.0						
iongitude.	0.0	Puffer Cine	1024				
atitude:	0.0	Buffer Size:	1024				
atitude:	0.0	Buffer Size:	SOCKET Del				
ART	0.0	Buffer Size: New SOCKET	SOCKET Del				
ART	UART 1 V 115200 V	Buffer Size: New SOCKET	1024 SOCKET Del				
ART	0.0 0.0 UART 1 V 115200 V 8 V	Buffer Size: New SOCKET LAN IP Address: Mask:	1024 SOCKET Del				
ART JART No: Baudrate: Data Bits: Stop Bits:	0.0 0.0	Buffer Size: New SOCKET LAN IP Address: Mask: DHCP:	1024 SOCKET Del				
ART	0.0 0.0 UART 1 V 115200 V 8 V 1 V NONE V	Buffer Size: New SOCKET LAN IP Address: Mask: DHCP: Eth Wan:	1024 SOCKET Del	Cont	irm	Cancel	Detail
JART UART No: Baudrate: Data Bits: Stop Bits: Parity: Flow Control:	0.0 0.0 UART 1 V 115200 V 8 V 1 V NONE V Half-Duplex V	Buffer Size: New SOCKET LAN IP Address: Mask: DHCP: Eth Wan:	1024 SOCKET Del	Coni	irm [Cancel Import	Detail

Click the Connect button to establish a TCP connection.

After the connection is successfully established, the left side becomes a green arrow, and if the connection fails, a yellow arrow.

) TCP&UDP测试工具 - [192.168.0).107:8899]		- 🗆 X
Operate(<u>O</u>) View(<u>V</u>) Window	vs(<u>W)</u> Help(<u>H</u>) Lang	uage	×
실 CreateConnn 🔕 CreateServe	r 繼 StartServer 淃 (🐼 😤 Connect 🗝 🍣 DisconnAll 💥 DeleteConr	n 🗞 🔟 🥫 🖕
Properties 7 ×	192.168.0.104	:8899	4 ▷ ×
 ☐ Client Mode 192.168.0.104:8899 Gerver Mode 	DestIP: 192.168.0.104 DestPort: 8899	Send AtuoSend Eve 100 ms Send Send Hex Send File Send Received Cl	nd Stop ear Option BroadOption
AutoSend Eve 0 ms	LocalPort 4001 Type TCP V AtuoConn Eve 0 s AutoSend Eve 0 ms		
Conneot	Disconnect Count Send Recv	Rec StopShow Clear Save Option 5	ShowHex

The transparent data is shown in the figure below.

▶ TCP&UDP测试工具 -					
Operate(O) View(V) Windo	ws(<u>W)</u> Help(<u>H</u>) Lang	Juage			×
🗄 🔄 CreateConnn 🔕 CreateServ	er 🏖 StartServer 🛞	🔕 😤 Connect 울 🍣 Discor	nnAll 🛛 💥 DeleteC	onn 🗞 🔟 💈	Ŧ
Properties 🛛 🛱 🗙					4 Þ ×
Client Mode 192.168.0.104:8899 Server Mode	DestIP: 192, 168. 0. 104 DestPort: 68 Type TCP AtuoConn Eve -1741590; s Disconnect Count Send 32 Recv 15	Send AtuoSend Eve Send Hex Send File socket send data Rec StopShow Clear Save(In Time) uart send data	100 ms Send Receired File Edit Viev Tools Help Tools Help Socket send Uart send da Ready	Send Stop Clear Option - Secure – Options Irans M M R Q data ta Serial: COM5	BroadOption

4.6. STA Wireless Network Mode-based Networking



HF2211 factory default AP networking mode. If you want to change to STA networking, you can use PC wireless direct connection AP hotspot, PC Ethernet direct connection device, or PC, device Ethernet direct connection router.

After entering the device editing, select STA mode, scan the signal hotspots to be connected, finally enter the hotspot password, and click OK.

Device Setting		and the state and the	
System			- WiFi
User:	admin		Mode: STA
Deservered	admin	SOCKET Name: netp 💌	AP SSID: HE2211 9E14 Hide
	Enert UE2211	Protocol: TCP-SERVER 🔻	AP Kev:
Postivame:	Eport-HF2211	Server Addr: 0.0.0.0	AP Channel:
DHCP:	Enable	Server Port: 0	
IP Address:			
Mask:		Local Port: 8899	STA Key:
Gate Way:	10.10.100.254	Keep Alive: 60	Scan
DNS:	10.10.100.254	Time Out: 0	
Network Mode:	Router 💌	Rout: uart 🔻	
Longitude:	0.0	Buffer Sizer 1024	- 1
Latitude:	0.0	Duner 3/26.	
		New SOCKET SOCKET Del	
UART			
UART No:	UART 1		
Baudrate:	115200 💌	IP Address: 10.10.100.254	
Data Bits:	8 💌	Mask: 255.255.255.0	
Stop Bits:	1 💌	DHCP: Enable 💌]
Parity:	NONE	Fil W	Confirm Cancel Detail
Flow Control:	Half-Duplex 💌	Eth Wan:	Export Import
		LAN Separate	VirPath
Buffer Size	1024		E-Set Unio
Buffer Size:	1024		r-set Opd
Buffer Size:	1024	- PACE HILD INSU	r-set upd
Buffer Size:	1024		r-set Opd
Buffer Size:	1024	SOCKET	Wifi Mode:
Buffer Size:	admin admin	SOCKET SOCKET Name: netp 🔻	WiFi Mode: STA AP SSID: HE2211 9F14 Hide
Buffer Size: Device Setting System User: Password:	admin admin	SOCKET SOCKET Name: netp v Protocol: TCP-SERVER v	WiFi Mode: STA AP SSID: HF2211_9F14 Hide
Buffer Size:	admin admin Eport-HF2211	SOCKET SOCKET Name: netp V Protocol: TCP-SERVER V Server Addr: 0.0.0.0	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO
Buffer Size:	admin admin Eport-HF2211 Enable	SOCKET SOCKET Name: netp Protocol: TCP-SERVER Server Addr: 0.0.0.0 Server Port: 0	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼
Buffer Size:	admin admin Eport-HF2211 Enable v 192.168.0.104	SOCKET SOCKET Name: netp ▼ Protocol: TCP-SERVER ▼ Server Addr: 0.0.0.0 Server Port: 0	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0	SOCKET SOCKET Name: netp V Protocol: TCP-SERVER V Server Addr: 0.00.0 Server Port: 0 Local Port: 8899	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211 STA Key:
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.0254	SOCKET SOCKET Name: netp ▼ Protocol: TCP-SERVER ▼ Server Addr: 0.0.0.0 Server Port: 0 Local Port: 8899 Keep Alive: 60	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192168.0.104 255.255.255.0 10.10.100.254 10.10.100.254	SOCKET SOCKET Name: netp Protocol: TCP-SERVER Server Addr: 0.000 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: SCan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192168.0.104 255.255.255.0 10.10.100.254 10.10.100.254 Router ▼	SOCKET SOCKET Name: netp ▼ Protocol: TCP-SERVER ▼ Server Addr: 0.0.00 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart ▼	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 10.10.100.254 Router ▼ 0.0	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: 0.0.0 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart V	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192168.0.104 255.255.255.0 10.10.100.254 10.10.100.254 Router ▼ 0.0 0.0	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: Server Port: Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart V	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0	SOCKET SOCKET Name: netp ▼ Protocol: TCP-SERVER ▼ Server Addr: 0.0.0.0 Server Port: 0 Local Port: 88999 Keep Alive: 60 Time Out: 0 Rout: uart ▼ Buffer Size: 1024	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0	SOCKET SOCKET Name: netp Protocol: TCP-SERVER Server Addr: 0.0.0.0 Server Port: 0 Local Port: 88999 Keep Alive: 60 Time Out: 0 Rout: uart Buffer Size: 1024 New SOCKET SOCKET Del	WiFi Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO ▼ STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0	SOCKET SOCKET Name: netp Protocol: TCP-SERVER Server Addr: 0.0.0.0 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart Buffer Size: 1024 New SOCKET SOCKET Del	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size:	admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0	SOCKET SOCKET Name: netp V Protocol: TCP-SERVER V Server Addr: 0.00.0 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: 0 Rout: 0 Buffer Size: 1024	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0 0.0	SOCKET SOCKET Name: netp V Protocol: TCP-SERVER V Server Addr: 0.00.0 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: 0 Rout: 0 Buffer Size: 1024 New SOCKET SOCKET Del	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0 0.0	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: Server Port: Q Local Port: Buffer Size: 1024 New SOCKET SOCKET Del	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable 192.168.0.104 255.255.255.0 10.10.100.254 Router 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: Server Port: Q Local Port: Buffer Size: 1024 New SOCKET SOCKET Del LAN IP Address: 10.10.100.254 Mask: 255.255.255.0	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size:	1024 admin admin Eport-HF2211 Enable 192.168.0.104 255.255.255.0 10.10.100.254 Router 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 115200 1	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: 0 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart © Buffer Size: 1024 New SOCKET SOCKET Del LAN IP Address: 10.10.100.254 Mask: 255.255.255.0 DHCP: Enable	WiFi Mode: STA AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan
Buffer Size: Device Setting User: Password: HostName: DHCP: IP Address: Mask: Gate Way: DNS: Network Mode: Longitude: Latitude: UART UART UART UART No: Baudrate: Data Bits: Stop Bits: Parity:	1024 admin admin Eport-HF2211 Enable ▼ 192.168.0.104 255.255.255.0 10.10.100.254 Router ▼ 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: 0.0.00 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart Buffer Size: 1024 New SOCKET SOCKET Del LAN IP Address: 10.10.100.254 Mask: 255.255.255.0 DHCP: Enable Eth Wan: Enable	P-Set Option P-set Clear WiFi ✓ Mode: STA AP SSID: HF2211_9F14 AP Channel: AUTO STA SSID: HF2211 STA Key: ✓ STA Key: ✓ Scan ✓
Buffer Size: Device Setting System User: Password: HostName: DHCP: IP Address: Mask: Gate Way: DNS: Network Mode: Longitude: Latitude: UART UART UART UART No: Baudrate: Data Bits: Stop Bits: Parity: Flow Control:	1024 admin admin Eport-HF2211 Enable 192.168.0.104 255.255.255.0 10.10.100.254 Router 0.0	SOCKET SOCKET Name: Protocol: TCP-SERVER Server Addr: 0.0.0 Server Port: 0 Local Port: 8899 Keep Alive: 60 Time Out: 0 Rout: uart Buffer Size: 1024 New SOCKET SOCKET Del LAN IP Address: 10.10.100.254 Mask: 255.255.255.0 DHCP: Enable Eth Wan: Enable	P-Set Option P-set Clear WiFi Mode: STA Mode: STA ▼ AP SSID: HF2211_9F14 Hide AP Key: AP Channel: AUTO STA SSID: HF2211 STA Key: Scan Sta SsiD: Scan Confirm Cancel Detail Export Import Detail
Buffer Size:	1024 admin admin Eport-HF2211 Enable 192.168.0.104 255.255.255.0 10.10.100.254 Router 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	SOCKET SOCKET Name: netp ▼ Protocol: TCP-SERVER ▼ Server Addr: 0.0.0.0 Server Port: 0 Local Port: 88999 Keep Alive: 60 Time Out: 00 Rout: uart ▼ Buffer Size: 10.0 Rout: 10.00 Rout: 10.0	P-Set Upti P-Set Clear WiFi ✓ Mode: STA AP SSID: HF2211_9F14 AP Channel: AUTO STA SSID: HF2211 STA SSID: HF2211 STA Key: Scan Sta SsiD: Scan Confirm Cancel Detail Export Import VirPath

Device Setting							6
System			SOCKET		WiFi		
User:	ad	min	SOCKET Name:	neto 💌	Mode:	STA	•
Password:	ad	min			AP SSID:		14 🗌 Hide
lostName:	Eport-HE2	211	Protocol:	TCP-SERVER	AP Key:		
	Disable		Server Addr:		AP Channel:	AUTO	-
JHCP:	🔝 Scan		Second Sector		The stratment		1152211
P Address:	_						HF2211
Mask:	Select	Channel	SSID	MAC Address	RSSI	Has Key	
		6	ChinaNet-xuanyin	78:44:FD:AB:73:76	34	Yes	
bate Way:		6	VANWARD_Test	C8:3A:35:54:B3:70	24	No	
		1	Soneter1	78:44:FD:26:9A:7C	24	Yes	
JINS:		6	OULUN TEST	7C:B5:40:4F:B2:CD	20	No	
Johnork Modor		3	WX-114	28:2C:B2:D2:E5:96	15	No	
vetwork mode:		1	LAND	3C:33:00:A8:35:2C	10	Yes	
ongitude:	- I - 	6	717	24:69:68:7E:68:6E	0	Ves	
		11	vongheng	00:0E:E8:B6:57:2C	0	Ves	
Latitude:		10	JACK 2G	8C-AB-8E-66-85-E0	0	Ves	
		2	360-TD	C4:36:55:00:02:94	0	Vec	
		11	H2C iinhui	20,55,00,42,05,ED	0	Vec	
		11	HE Domo-Spocio	54.75.05.72.00.20	0	Voc	
JART UART No: Baudrate:			F	Rescan	nfirm	Close	
Data Bits:							
Stop Bits:	1	-	DHCP:	Enable 🔻			
Parity:	NONE	-	Eth Wan:	Enable 💌	Confirm	Cancel	Detail
Flow Control:	Half-Duple	x 💌		LAN Separate	Export	Import	
Buffer Size:		1024			F-Set Upd	F-Set Clear	VirPath

The device restarts. At this point, the HF2211 has established a connection with the router, and you can unplug the network cable.

System	SOCKET	WiFi
User: admin	SOCKET Name:	Mode: STA 💌
Password: admin		AP SSID: HF2211_9F14 Hide
HostName: Eport-HF2211		AP Key:
DHCP: Disable 💌	Server Addr: 0.0.0.0	AP Channel: AUTO 💌
IP Address: 192.168.0.104	Server Port: 0	STA SSID: LAND
Mask: 255.255.255.0	Local Port: 8899	STA Key: 12345678
Gate Way: 10.10.100.254	Keep Alive: 60	Scan
DNS: 10.10.100.254	Time Out: 0	
Network Mode: Router 💌	Rout: uart 🔻	
Longitude: 0.0	Buffer Size: 1024	
Latitude: 0.0	New SOCKET SOCKET Del	
UART] /
UART No: UART 1	LAN	1 /
Baudrate: 115200 💌	IP Address: 10.10.100.254	
Data Bits: 8	Mask: 255.255.255.0	
Stop Bits:	DHCP: Enable 💌	
Parity: NONE 🔻	Eth Wan:	Confirm Cancel Detail
Flow Control: Half-Duplex 🔻	LAN Separate	Export Import
Buffer Size: 1024		F-Set Upd F-Set Clear VirPath

- When the AP mode is switched to STA mode, the Ethernet of the device will automatically switch from WAN to LAN mode.
- After the device changes the networking mode, it needs to be restarted to take effect.

Device Status				×
System	SOCKET SOCKET Name: Protocol: Status: Client IP: Recv Bytes: 0 Send Bytes: 0 Fail Bytes: 0	netp TCP-SERVER Server Created Recv Frames: 0 Send Frames: 0 Fail Frames: 0	Network HostName: DHCP: IP Address: Mask: Gate Way: MAC Address:	Eport-HF2211 Enable 192.168.0.104 255.255.255.0 10.10.100.254 F0FE6B5D9F14
Product ID:HF2211Software Version:1.40.3RTC Time:NTP DisabledUp Time:0-Day 0:6:26Total Free Memory:1505280Max Block Size:1505280	UART UART No: Config: 115200,8,1,NON Recv Bytes: 0 Send Bytes: 0 Fail Bytes: 0	UART 1 T E Recv Frames: 0 Send Frames: 0 Fail Frames: 0	Reload Restart	Edit

After the connection is successfully established, the Link light of the device is on. After opening IOTService, the device information can be displayed.

LO.T Servi	ce						
Managemen	t (M) Setting (C	C) Help (H)					* 中文
Seria	Config	Config S	tatus 🕞 VirP	ath		(Disconnected
SN DevTyp	MAC Address	HostName	10	Position	VirPoth	Status	SW Ver
1 HF2211	FOFE6B5D9F14	Eport-HF2211	192.168.0.104	Local		Online	1.40.3
1/11/2211	FOFEOB3D9F14	Epon-Hrzz11	192.108.0.104			Onine	1.40.5

The test method for transmitting data between the TCP tool and the serial port in the STA mode is the same as described above.

4.7. AP-STA Wireless Network Mode-based Networking



Factory default AP networking mode. Use tools or web configuration to modify to AP + STA mode.

After entering the device editing, select APSTA mode, scan the signal hotspots to be
connected, finally enter the hotspot password, and click OK.

Device Setting						
System		SOCKET		WiFi		
User:	admin	SOCKET Name	netn	Mode:	APSTA	
Password:	admin	SOCIAL PRAIME.		AP SSID:	HF2211_9F1	4 🗌 Hide
HostName:	Eport-HF2211	Protocol:	TCP-SERVER	AP Key:		
DHCP:	Enable 💌	Server Addr:	0.0.0.0	AP Channel:	AUTO	•
IP Address:	192.168.0.104	Server Port:	0	STA SSID:		LAN
Mask:	255.255.255.0	Local Port:	8899	STA Key:		1234567
Gate Way:	10.10.100.254	Keen Alive:	60		Scan	
	10 10 100 254				ocan	
Notwork Mode	Routor	Time Out:	0			
Network Widde:	Kouter •	Rout:	uart 💌			
Longitude:	0.0	Buffer Size:	1024			
		New SOCKET	SOCKET Del			
		-1.001		-		
UART NO:	UART I	LAN				
Baudrate:	115200 💌	IP Address:	10.10.100.254			
Data Bits:	8 💌	Mask:	255.255.255.0			
Stop Bits:	1 💌	DHCP:	Enable 💌			
Parity:	NONE 💌	Eth Wan:	Disable 💌	Confirm	Cancel	Detail
Flow Control:	Half-Duplex 🔻			Export	Import	
Buffer Size:	1024			F-Set Upd	F-Set Clear	VirPath

Whenever the networking mode is changed, the device needs to restart networking to take effect.

evice Status					X
stem	CKET		, [N	letwork	
Soc	CKET Name:	netp 💌] н	lostName:	Eport-HF2211
Prot	otocol:	TCP-SERVER		HCP:	Enable
Stat	atus:	Server Created	I IF	P Address:	192.168.0.104
Clie	ent IP:		N	/lask:	255.255.255.0
Rec	cv Bytes: 0	Recv Frames: 0	G	iate Way:	10.10.100.254
Sen	nd Bytes: 0	Send Frames: 0	N	IAC Address:	F0FE6B5D9F14
Fail	l Bytes: 0	Fail Frames: 0	N	ViFi	
oduct ID: HF2211	RT			Status:	Disconnected
offware Version: 1.40.3	ART No:	UART 1 💌			0
C Time: NTP Disabled	onfig: 115200,8,1,NONE			(33).	0
Rec	ecv Bytes: 0	Recv Frames: 0			
Stal Free Memory: 1505280	end Bytes: 0	Send Frames: 0		Reload	
ax Block Size: 1505280 Fail	il Bytes: 0	Fail Frames: 0		Restart	Edit
ax Block Size: 1505280 Fail	and Bytes: 0 :::	Send Frames: 0 Fail Frames: 0		Reload Restart	

After restarting, you can unplug the network cable after the Link light of the device is turned on. The device and terminal AP-STA are successfully networked. At this time, the HF2211 is connected to the router hotspot signal in STA mode. After the PC is connected to the AP's hotspot, the router, HF2211, and PC are on the same network segment. The tool can see the device.

1.O.T Service			(3) 10	1.0	
Management (M) Setting (C) Help (H)					
Serial Config (Config (St	atus 🖓 VirP	ath			Disconnecte
SN DevType MAC Address HostName	IP	Position	VirPath	Status	SW Ver
HF2211 F0FE6B5D9F14 Eport-HF2211	192.168.0.104	Local		Online	1.40.3

4.8. AP-STA Wireless Cascade Mode-based Networking



The PC is wired or wireless connected to the first level HF2211. Open IOTService and click on the device to edit. Set the networking mode to AP + STA. The STA is connected to the router. After the setting is complete, restart the module.

Device Setting		1 7428 1	ALC SHEET UP		
System		SOCKET		WiFi	
User:	admin	SOCKET Name:	netp 💌	Mode:	APSTA 👻
Password:	admin			AP SSID:	HF2211_9F14 Hide
HostName:	Eport-HF2211	Protocol:	TCP-SERVER	AP Key:	
DHCP:	Enable 💌	Server Addr:		AP Channel:	AUTO
IP Address:	192.168.0.104	Server Port:		STA SSID:	LAND
Mask:		Local Port:	8899	STA Key:	12345678
Gate Way:		Keep Alive:	60		Scan
DNS:	10.10.100.254	Time Out:	0		1
Network Mode:	Router	Reute			
Longitude:	0.0	Kout:	uart		
Latitude:	0.0	Buffer Size:	1024		
		New SOCKET			
		New Socker	SOCKET Der		
UART				/	/
UART No:	UART 1 🔻	LAN		/	
Baudrate:	115200 💌	IP Address:	10.10.100.254	/	
Data Bits:	8 💌	Mask:	255.255.255.0		
Stop Bits:	1	DHCP:	Enable 💌		_
Parity:	NONE	54.34	Dicable	Confirm	Cancel Detail
Flow Control:	Half-Duplex 💌	Eth Wan:	Disable	Export	Import
Puffer Circu	1024		LAN Separate	E Sot Und	E Set Clear VirPath
Butter Size:	1024			r-set Upd	r-set clear

After the device restarts, the Link light is on, the first-level HF2211 has been connected to the router, and the PC can see the device status.

1.O.T Service				
Management (M) Setting (C) Help (H)				* ^{****} 中3
Serial Config Config S	itatus 🕞 VirPa	ith		Disconnected
SN DevType MAC Address HostName	IP	Position	VirPath	Status SW Ver
1 HF2211 F0FE6B5D9F14 Eport-HF2211	10.10.100.254	Local	C	Inline 1.40.3

The PC wired or wireless connection to the second level HF2211, configure STA to connect to the first level HF2211, and changes the IP address in the local area network so that the LAN address and WAN address of the second-level device are not on the same network segment (the WAN IP is obtained from the first-level HF2211).

		-COCKET		-1465	
stem		SUCKET		VVIFI Mandau	ADCTA
ier:	admin	SOCKET Name:	890 💌	Mode:	APSTA
ssword:	admin	D 1 1		AP SSID:	HF2211_BF70 Hide
stName:	Eport-HF2211	Protocol:	ODP-CLIENT V	AP Key:	
ICP:	Enable 💌	Server Addr:		AP Channel:	AUTO
Address:	10.10.100.252	Server Port:		STA SSID:	HF2211_9
isk:		Local Port:		STA Key:	
te Way:		Keep Alive:			Scan
IS:	10.10.100.254	Time Out:			
twork Mode:	Router 💌	Bout	uart 💌		
naitude:	0.0	Roud	dart		
		Buffer Size:			
		New SOCKET	SOCKET Del		
DT.					
RT No:	UART 1	- LAN]	
RT ART No: audrate:	UART 1 💌 115200 💌	IP Address:	10.10.101.252		
RT ART No: nudrate: ata Bits:	UART 1 V 115200 V 8 V	IP Address:	10.10.101.252 255.255.255.0		
RT ART No: Iudrate: ata Bits: op Bits:	UART 1 V 115200 V 8 V 1 V	IP Address:	10.10.101.252 255.255.255.0 Enable 💌		
RT ART No: audrate: ata Bits: op Bits: rrity:	UART 1 V 115200 V 8 V 1 V NONE V	LAN IP Address: Mask: DHCP: Eth Wan:	10.10.101.252 255.255.05 Enable ▼ Disable ▼	Confirm	Cancel
RT ART No: audrate: ata Bits: op Bits: rity: ow Control:	UART 1 V 115200 V 8 V 1 V NONE V Disable V	IP Address: Mask: DHCP: Eth Wan:	10.10.101.252 255.255.05 Enable ▼ Disable ▼	Cohfirm Export	Cancel Detail

Restart the device after successful setting. PC Wi-Fi is connected to the secondary device hotspot. The IOTService tool can see the device information. At this time, the HF2211 cascade networking was successful.

1.O.T Service						
Management (M) Setting (C) Help	o (H)					一 中文
Serial Config	C Status	VirPat	th			B Disconnected
SN DevType MAC Address Hos	tName	IP	Position	VirPath	Status	SW Ver
1 HF2211 98D86347BF70 Eport-	HF2211 10.10).101.252	Local		Online	1.40.3

If all the devices in the network need to be in the same local area network (IP is assigned by the highest-level router), you can configure the device to work in bridge mode and set the local area network IP to the router network segment (192.168.0.XXX), so that all The HF2211 device and the IP communication connected to the HF2211 device are under the same router (192.168.0.XXX).

🔝 Device Setting		
System	SOCKET	WiFi
User: admin	SOCKET Name:	Mode: AP 💌
Password: admin		AP SSID: HF2211_6CF8 Hide
HostName: Eport-HF2211		AP Key:
DHCP: Enable 💌	Server Addr: 0.0.0.0	AP Channel: AUTO 💌
IP Address: 192.168.83.102	Server Port: 0	STA SSID: HF2211
Mask: 255.255.255.0	Local Port: 8899	STA Key:
Gate Way: 192.168.83.1	Keep Alive: 60	Scan
DNS: 10.10.100.254	Time Out: 0	
Network Mode: Router 💌	Rout: uart 💌	
.ongitude: Router	Buffer Size: 1024	
cadiude: 0.0	1024	
	New SOCKET SOCKET Del	
UART		
UART No:	LAN	7
Baudrate: 115200 💌	IP Address: 10.10.100.254	
Data Bits: 8	Mask: 255.255.255.0	T
Stop Bits: 1	DHCP: Enable 💌	
Parity: NONE 💌	Eth Wan: Enable 💌	Confirm Cancel Detail
Flow Control: Half-Duplex 💌	LAN Separate	Export Import
Buffer Size: 1024		F-Set Upd F-Set Clear VirPath

4.9. Router Mode TCP Server Test

The test is a simulation test of data transmission after the first-level device is used as the server and the second-level device is used as the client.

The serial cable PC is connected to the first-level device. Open SecureCRT and set the serial port parameters.

A not connected - secureCKT		- 1 ~
File Edit View Options Transfer Script	t Tools Window Help	
🔚 🔛 🎣 🔏 Enter host <alt+r></alt+r>	匙 🗛 🍠 🚰 🎎 🕴 🞯 🚟	
	Quick Connect Protocol: Serial The port may be manually entered or selected from the list. Pgrt: COM4 USB Serial Port Baud rate: 115200 Baud rate: 115200 Port control DTR/DSR Qata bits: 8 Parity: None Stop bits: 1 Name of pipe: Saye session Shogy quick connect on startup Saye session Open in a tab Connect	Cancel

Open the TCP & UDP test tool and establish a TCP connection according to the following procedure.

The first level device has already created a TCP Server (port 8899) for use by default. If required, users can also set it by themselves.

Device Setting	AN PACE MADE INSUE OF	×
System User: ad Password: ad	SOCKET SOCKET Name: netp V min Protocol: TCP.SERVER V	WiFi Mode: APSTA AP SSID: HF2211_9F14 Hide
HostName: Eport-HF2 DHCP: Enable IP Address: 192.168.0.	211 Froncos: Image: Compact of the second s	AP Key: AP Channel: AUTO STA SSID: LAND
Mask: 255.255.25 Gate Way: 10.10.100. DNS: 10.10.100. Network Mode: Router Longitude:	Local Port: 8899 Z54 Keep Alive: 60 Z54 Time Out: 0 ▼ Rout: uart ▼ 0.0 Buffer Size: 1024	STA Key: 12345678
	New SOCKET SOCKET Del	
UART No: UART 1 Baudrate: 115200 Data Bits: 8	Image: Canadian state sta	
Stop Bits: 1 Parity: NONE Flow Control: Half-Duples Buffer Size: 1	Therefore DHCP: Enable Eth Wan: Disable Disable	Confirm Cancel Detail Export Import VirPath F-Set Upd F-Set Clear VirPath

The PC Wi-Fi is connected to the second-level device hotspot. Open the TCP & UDP tool to create a client, and fill in the LAN port IP address (see above) and port number of the first-level device.

✗ TCP&UDP测试工具 - [10.10.100.25]	4:8899]	
Operate(O) View(V) Windows	W) Help(H) Language	×
CreateConnn	🛞 StartServer 🛞 😡 😹 Connect 😹 🎬 DisconnAll 💥 DeleteConn 🎇 🔯 🥫	
Properties P ×	⊯ 10.10.100.254:8899	4 Þ ×
Client Mode 10.10.100.554:8899 Server Mode	DestIP: IO. 10. 100. 254 DestPort: 88999 DestPort: 88999	BroadOption
	Greate Connection Image: Type: Type: Type: DestIP: 10::00::254 Port: Base Ev LocalPort @ Auto Cancel Clear	

✗ TCP&UDP测试工具 - [10.10.100.254:8899]	
Operate(Q) View(V) Windows(W) Help(H) Language	e X
🗄 🚰 CreateConnn 😒 CreateServer 🐰 StartServer 迷 🥝	🛫 Connect 🗝 😼 DisconnAll 🔀 DeleteConn 🗞 🔟 🧝 💂
Properties Properties Client Mode 10.10.100.254:8899 Server Mode DestIP: 10.10.100.254:8899 LocalPort 4001 Type TCP AtuoConn Eve 0 Server Mode Disconnect R Recv 104 Clear	<pre></pre>

The PC serial port is connected to the first-level device and can transparently transmit data.



4.10. Bridge TCP Server Test



As shown in the figure above, the primary device works in routing mode (WAN / LAN IP is in different network segments), and the secondary device is configured in bridge mode. The IP addresses of the PCs connected to the secondary device are assigned by the primary device. The specific configuration process is as follows.

The PC is connected to the secondary device through wired or wireless mode. The network mode is set to bridge mode, the LAN IP is modified to 10.10.100.252, and the Wi-Fi parameters are configured to connect AP + STA or STA to the primary device.

🔝 Device Setting

System		SOCKET		WiFi			
User:	admin	SOCKET Name:	netp 💌	Mode:		APSTA	-
Password:	admin	Desteurl		AP SSID		HF2211_6CF8	🗌 Hide
HostName:	Eport-HF2211	Protocol:	ICP-SERVER V	AP Key:			
DHCP:	Disable 💌	Server Addr:		AP Chan	nel:	AUTO	•
IP Address:		Server Port:		STA SSI	D:		XXXXX
Mask:		Local Port:	8899	STA Key	-		XXXXX
Gate Way:		Keep Alive:	60			Scan	
DNS:		Time Out:	0				
Network Mode:	Bridge 💌	Rout:	uart 💌				
Longitude:	Router Bridge	Buffer Size:	1024				
Latitude:	0.0						
		New SOCKET	SOCKET Del				
		-14N					
UART NO:	UANT						
Baudrate:	115200	IP Address:	10.10.100.252				
Data Bits:	8	Mask:	255.255.255.0				
Stop Bits:	1	DHCP:	Enable 💌				
Parity:	NONE	Eth Wan:	Enable 💌	Cor	firm	Cancel	Detail
Flow Control:	Half-Duplex 💌		LAN Separate	Exp	oort	Import	
Buffer Size:	1024			F-Set	Upd	F-Set Clear	VirPath

After the setting is successful, restart the secondary device and connect the PC to the WiFi hotspot of the primary device.



You can see 2 sets of HF2211, number 1: first-level equipment, number 2: second-level equipment.

1.O.T Service		-				x
Management (M) Setting (C) Help (H)						
Serial Config Config St	atus 🕞 VirPat	h		(Disconnect	ted
SN DevType MAC Address HostName	IP	Position	VirPath	Status	SW Ver	
1 HF2211 F0FE6B5D9F14 Eport-HF2211	10.10.100.254	Local		Online	1.40.3	
2 HF2211 98D86347BF70 Eport-HF2211	10.10.100.252	Local		Online	1.40.3	

Open the secondary device editor and modify the communication parameters as shown below.

×

System		SOCKET			WiFi	
User:	admin	SOCKET Name:	netp	-	Mode:	STA
Password:	admin		Ten conurn		AP SSID:	HF2211_9F14 Hide
HostName:	Eport-HF2211	Protocol:	[ICP-SERVER		AP Key:	
DHCP:	Disable 💌	Server Addr:		0.0.0	AP Channel:	AUTO
IP Address:	192.158.0.104	Server Port:		9	STA SSID:	LAND
Mask:		Local Port:	<u></u>	8888	STA Key:	12345678
Gate Way:		Keep Alive:		60		Scan
DNS:		Time Out:		0		
Network Mode:	Bridge	Rout:	uart	-		
Longitude:	0.0	Buffer Size		1024		
Latitude:	0.0	builter bizer		1014		

Restart the device after the setting is complete. Open the TCP & UDP test tool, create a client, and enter the communication IP and port number of the secondary device.

🎽 TCP&UDP测试工具 - [10.10.100.252:8888]
Operate(O) View(V) Windows(W) Help(H) Language ×
🔁 CreateConnn 🔯 CreateServer 🐰 StartServer 迷 🕢 🛫 Connect 🐲 🛬 DisconnAll 💥 DeleteConn 🎇 🔯 🍃 🖕
Properties 7 × 10.10.100.252:8888 4 > ×
Client Mode DestIP: Send AtuoSend Eve 100 ms Send Stop 10.10.100.252:8688 DestFort: 8888 DestFort: 8888
DestIP: 10.10.100.252 Port: 6888
LocalPort @ Auto @ Specia 4001
AutoConn: Eve 0 s
Cour Send When Conny Eve ms
Rec Cancel

After creating the connection, click Connect. A green arrow appears in front of the client, indicating that the connection is successfully established.

✗ TCP&UDP测试工具 - [10.10.100.2]	252:8888]		
Operate(O) View(V) Window	rs(<u>W)</u> Help(<u>H</u>) Langu	lage	×
🔄 🔄 CreateConnn 🔕 CreateServer	🛛 🎯 StartServer 😕 🤅	🕽 😒 Connect 🗝 📽 DisconnAll 🔀 Delete(Conn 💥 🔟 🥫 🖕
Properties 4 ×	10.10.100.252:8	888	4 Þ ×
Client Mode	DestIP: 10.10.100.252 DestPort: 0888 LocalPort 4001 Type TCP AtuoConn Eve S	Send AtuoSend Eve 100 ms Send Max Send File Send Received	Send Stop Clear Option BroadOption
	Recv 0	Rec StopShow Clear Save Option Save(In Time)	ShowHex

The PC serial line is connected to the secondary equipment, and TCP and serial ports transmit data to each other.

▶ TCP&UDP测试工具 - [10.10.100.252:8888]	🕞 Serial-COM3 - SecureCRT
Operate(Q) View(V) Windows(W) Help(H) Language	文件(F) 編輯(E) 查看(V) 选项(O) 传输(T) 脚本(S) 工具(L) 帮助(H)
🔠 CreateConn 🕲 CreateServer 🐰 StartServer 🛞 🕢 😒 Connect 🐲 👻 DisconnAll 💥 DeleteConn 🎇	(🖏 💥 🖓 🕼 🖄 🐴 🖓 🥫 🕒 🖀 💥 † 1 💿 🗃 🖕
Properties # × 10.10.100.252:8888	I Serial-COM3
Cient Mode DetIT: Send AtusSend Eve 100 ms Send 10.10.100.252.8888 DetIT: Send Mer Send File Send Accient Clear DetIT: DetIT: Send Mer Send File Send Accient Clear DetIT: DetIT: Send Mer Send File Send Accient Clear DetIT: DetIT: Send Mer Send Accient Clear Clear Type TIP TIP NoteSend Send Mer Send Mer <td>SOCK+a ++++ @ a @ NDBGL @ WSCAN @ AT+Z @ @ show @ 重自 SOCK+b</td>	SOCK+a ++++ @ a @ NDBGL @ WSCAN @ AT+Z @ @ show @ 重自 SOCK+b
Send Speed(B/S): 0 Receive Speed(B/S): 0	就绪 Serial: COM3

4.11. STA HTTP Client Test

HTTP data flow is as following.



• HTTP GET Test:

Test server address: 115.29.164.59

Test server port: 8432

Path: /iot

Header:

Host:115.29.164.59:8432 Connection: keep-alive Products setting as following.

🖬 Device Setting			×
System	SOCKET	WiFi	
User: admin		Mode:	APSTA 💌
Password: admin		AP SSID:	EW_XXXX 🔲 Hide
HostName: EW11	Protocol: 🛛 HTTP 💌	AP Key:	
	Server Addr: 115.29.164.59	AP Channel:	AUTO
	Server Port: 8432	STA SSID:	Soneter1
IP Address: 192.168.18.102		STA Keyr	Soneter1
Mask: 255.255.255.0	Local Port: 0	STA Key.	3011111
Gate Way: 192.168.18.1	Keep Alive: 60		Scan
DNS: 223.5.5.5	Time Out: 0		
Network Mode:	Rout: uart 💌		
Longitude: 0.0	Buffer Size		
Latitude: 0.0			
Http Setup	×		
Type: GET	ersion: 1.1		
Bath. (ot			
UART Patt. Jot			
UART No: Host:115.29.164.5	9:8432		
Baudrate: Connection: keep	alive		
Data Bits:			
Stop Bits:			
Parity:		Confirm	Cancel Detail
Flow Control:	Confirm Cancel	Export	Import VirPath
Buffer Size: 512		F-Set Upd	F-Set Clear DiDo

Server response back and products UART output packet. It filter the HTTP response header and only output the header.

AccessPort - COM4(115200,N,8,1) Opened
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>M</u> onitor <u>T</u> ools <u>O</u> peration <u>H</u> elp
🍓 🕘 🛃 🎜 🖇
Terminal Monitor
🖶 📴 Hex ab 🖾 🔝
Get:msg=AAA
Getmsg=AAA
Gettingg-AAA
Send→ ◯Hex
nsg=ÄÄÄ

Data flow is as following.



• HTTP POST Test:

Test server address: 115.29.164.59 Test server port: 8432 Path: /iot Header: Host:115.29.164.59:8432 Connection: keep-alive Products setting as following.

🔛 Device Setting						×
Device Setting System User: Password: Password: DHCP: IP Address: Mask: Gate Way: DNS: Network Mode: Longitude: Latitude:	admin admin EW11 Disable ▼ 192.168.18.102 255.255.05 192.168.18.1 223.5.55 Router ▼ 0.0	SOCKET SOCKET Name: Protocol: Protocol: Server Addr: Local Port: Local Port: Keep Alive: Time Out: Rout: Buffer Size:	CLIENT	WiFi Mode: AP SSID: AP Key: AP Channel: STA SSID: STA Key:	APSTA EW_XXX AUTO Scan	↓ ↓ Hide ↓ Soneter1 Soneter1
UART UART No: Baudrate: Data Bits: Stop Bits: Parity: Flow Control: Buffer Size:	Http Setup Type: POST Path: //iot Host:115.29.164. Connection: keep 512	Version: 1.1 59:8432 D-alive	n Cancel	Confirm Export F-Set Upd	Cancel Import F-Set Clear	Detail VirPath DiDo

Server response back and products UART output packet. It filter the HTTP response header and only output the header.

AccessPort - COM4(115200,N,8,1) Opened <u>File Edit View Monitor Tools Operation H</u>elp 👆 🕘 🔁 🗒 🍃 Terminal Monitor 🖶 🔛 Hex ab 🖾 🤮 Post:msg=AAA Plain Text V Real Time Send Clear Send DTR RTS | Max Size < 64KB Send-> 🔘 Hex • Char msg=ÀÀÅ Data flow is as following. HF Send to Server DTU POST /iot HTTP/1.1 Host:115.29.164.59:8432 Connection: keep-alive Content-Length:7 Socket连接设置: 协议: HTTP UART Send msg=AAA 服务器地址: 115.29.164.59 msg=AAA 服务器端口号: 8432 HTTP User Device Server Post:msg=AAA Server Response HTTP设置: 类型: POST 版本: 1.1 路径: /iot HTTP/1.1 200 OK **UART** Receive Date: Tue, 24 Sep 2019 10:14:10 GMT Access-Control-Allow-Origin: * 协议头: Cache-Control: no-cache Content-Type: application/json;charset=utf-8 Host:115.29.164.59:8432 Content-Length: 12 **Connection: keep-alive** Server: Jetty(8.y.z-SNAPSHOT) Post:msg=AAA

4.12. STA MQTT Client Test

Test server address: 112.124.43.15 Test server port: 1883 Device setting is as following.

Device Setting		🔯 MQTT Edit	
System	SOCKET		
User: admin	SOCKET Name:	Version:	4
Password: admin		Ping Time:	60
HostName: EW11	Server Addr 112 124 43 15	Client ID:	%MAC
DHCP: Disable 💌			1111
IP Address: 192.168.18.102	Server Port: 1883	User:	
Mask: 255.255.255.0	Local Port: 0	Password:	2222
Gate Way: 192.168.18.1	Keep Alive: 60	Subscribe Topic:	%MAC/down
DNS: 223.5.5.5	Time Out: 0	Subscribe Qos:	0
Network Mode:	Rout: uart 💌	Publish Topic:	%MAC/up
Longitude: 0.0	Buffar Circu 512		······································
Latitude: 0.0	Buller Size: 512	Publish Qos:	0
	New SOCKET SOCKET Del		Confirm
UART			
UART No: UART 1	LAN]	
Baudrate: 115200 💌	IP Address: 10.10.100.254		
Data Bits: 8	Mask: 255.255.255.0		
Stop Bits:	DHCP: Enable 💌		·
Parity: NONE 💌	Eth Wan: Disable 🔻	Confirm	Cancel Detail
Flow Control: Half-Duplex 💌	LAN Separate	Export	Import VirPath
Buffer Size: 512		F-Set Upd	F-Set Clear DiDo

Use MQTT.fx tools to test, set publish topic to the device Subscribe Topic and the publish data will be sent to device UART.

MQTT.fx - 1.7.1		- 🗆 ×	
File Extras Help		SOCKET	WiFi
112.124.43.15	Connect Disconnect	dmin SOCKET Na	me: CLIENT Mode: AP SSID:
Publish Subscribe Scripts	Broker Status Log	W11 Protocol:	MQTT AP Key:
		Retained 00 B.1	
	1111	25 Version:	4
).1; Ping Time:	60
2	AccessPort - COM4(115200,N,8,1) Opened	- Client ID:	%MAC
B	ile <u>E</u> dit <u>V</u> iew <u>Monitor Tools Operation H</u> elp	User:	1111
(🍓 🗿 🛃 🗒 🎜 🌌	Password:	2222
	Terminal Monitor	Subscribe Topic:	%MAC/down
11		Subscribe Qos:	0
		Publish Topic:	%MAC/up
		Publish Qos:	0
Sec	nd-> O Hex @ Char Plain Text v Real Time Send Clear Send DTR RTS Max Siz	s < 64KB	Confirm Cancel
	9 oor	DHCP:	Enable V
		Eth Wan:	Disable Confirm Export
		× 512	LAN Separate
Co	an Statuz (CTS DSR RING RLSD (CD) (CTS Hold DSR Hold RLSD Hold NOFF Hold	COM4(115200 N 8 1) (1-set opu
INC	14100 141000		

Set tools subscribe topic to the device publish topic and the send UART data, the MQTT.fx tools got the packet.

		- 🗆 ×		
File Extras Help			SOCKET	WiFi
112.124.43.15	Connect Disconnect	en 😑 dmin	SOCKET Nar	ne: CLIENT Mode: AP SSID:
Publish Subscribe Scripts Broker Status Log		W11	Protocol: MQTT Edit	MQTT AP Key:
98D863584C7A/up	Subscribe QoS0	QoS1 QoS2 Autoscroll OF		
98D863584C7A/up	98D863584C7A/up	1 25 Ve	ersion:	4
Dump Messages Mute Unsubscripts	98Da642584C7A/up	QoS 0 2 1.11 Pir	ng Time:	60
	AccessPort - COM4(115200,N,8,1) Opened	— 🗆 × _{cli}	ient ID:	%MAC
	98D863584C7A/up File Edit View Monitor Tools Operation Hel	>Us	ser:	1111
		Pa	raword	2222
	Terminal Monitor		issword.	
	🖬 📓 Hex ab 🖾 🍰	Su	ibscribe Topic:	%MAC/down
	1111	Su	ibscribe Qos:	0 🗸
		Pu	ıblish Topic:	%MAC/up
		Pu	ıblish Qos:	0
Tanias Callastas (0)	98D863584C7A/up			
Topics Collector (0)	19-03-2020 16:30:39 222222	✓ Real Time Send Clear Send L		Confirm
	222222	-		Conten
		E	DHCP:	Enable
		E	Eth Wan:	Disable 👻
		× -		LAN Separate
	Comm Status CTS DSR RING RLSD (C	J) UIS Hold USR Hold RLSD Hol2		F-Set Upd
	includy.	12 145		

4.13. Firmware Upgrade

Firmware download address: http://www.hi-flying.com/index.php?route=download/category&path=1_3

 Webpage Local Upgrade: PC connect to device, login with device IP(10.10.100.254 or STA IP got from router)

		Lingion ·
☆ status	Others change the device other settings	
SYSTEM SETTINGS	Backup/Restore Configuration	Helper
SERIAL PORT SETTINGS	Backup Backup	Backup/Restore Configuration
	Restore + Choose File	
SETTINGS	Upgrade	
○ ADVANCED SETTINGS	Firmware + Choose File	
OTHERS	Factory Settings	

There is another internal webpage for upgrade the firmware and webpage (external config webpage as above, this source code is open at our website for customer to chagne). Login with IP/hide.



• IOTService Remote Upgrade: Refer to IOTService tools doc for remote upgrade.

4.14. Restore to Factory Setting

If device works in STA mode and not yet connect to router AP, do the following operation to recover and reconfig.

UART Cli command to reload

```
Serial-COM4 ×
EPORT>
Show
                                  UART
                                                  SOCK
                                                                   DATA
                 SYS
                 Reload
                                                                   CfgVer
Restart
                                  FwUpgrade
                                                  Debug
ScriptCrc
                 Exit
EPORT>rekiad
EPORT>Reload
Restart...
```

• Reload button to restore to factory setting.

Reload Pin (Button) function:

1. After module is powered up, long press this button ("Low" > 4s) and loose to make the module recover to factory setting.

4.15. More Application Case

See following for more. http://www.hi-flying.com/index.php?route=download/category&path=1_7



5. HF2221 TEST

HF2221 supports two network ports and two serial ports, and the serial port parameters of each channel can be independently configured. 🔡 Device Setting \times

System		SOCKET		WiFi		
User:	admin	SOCKET Name:	netp 💌	Mode:	AP	-
Password:	admin	Ducto coli		AP SSID:	HF2221_E6A0) 🔲 Hide
HostName:	Eport-HF2221	Protocol:	TCP-SERVER	AP Key:		
DHCP:	Enable 💌	Server Addr:		AP Channel:	AUTO	-
IP Address:		Server Port:		STA SSID:		
Mask:		Local Port:	8899	STA Key:		
Gate Way:		Keep Alive:	60		Scan	
DNS:	10.10.100.254	Time Out:	300			
Network Mode:	Router	Rout:	uart1 💌			
Longitude:	0.0	Buffer Size:	8192			
Latitude:	0.0					
		New SOCKET	SOCKET Del			
UART						
UART No:	UART 1 🔽					
Baudrate:	UART 1 UART 2	IP Address:	10.10.100.254			
Data Bits:	8 🗸	Mask:	255.255.255.0			
Stop Bits:	1	DHCP:	Enable 💌			
Parity:	NONE	Eth Wan:	Enable 💌	Confirm	Cancel	Detail
Flow Control:	Half-Duplex 💌		LAN Separate	Export	Import	
Buffer Size:	8192			F-Set Upd	F-Set Clear	VirPath

The data received by the Socket connection channel can also be specified to be output to any serial port.

🔛 Device Setting		>
System	SOCKET	WiFi
User: admin	SOCKET Name:	Mode: AP
Password: admin		AP SSID: HF2221_E6A0 Hide
HostName: Eport-HF2221		AP Key:
DHCP: Enable 💌	Server Addr: 0.0.0.0	AP Channel: AUTO
IP Address: 192.168.83.107	Server Port: 0	STA SSID: HF2221
Mask: 255.255.255.0	Local Port: 8899	STA Key:
Gate Way: 10.10.100.254	Keep Alive: 60	Scan
DNS: 10.10.100.254	Time Out: 300	
Network Mode:	Rout: uart1 💌	
Longitude: 0.0	Ruffer Size	
Latitude: 0.0	log	
	netp2	
	New SOCKET	
UART No: UART 1	LAN	
Baudrate: 115200 💌	IP Address: 10.10.100.254	
Data Bits: 8	Mask: 255.255.255.0	
Stop Bits: 1	DHCP: Enable 💌	
Parity: NONE 💌	Eth Wan: Enable 💌	Confirm Cancel Detail
Flow Control: Half-Duplex 💌		Export Import
Buffer Size: 8192		F-Set Upd F-Set Clear VirPath

 \sim

As shown in the figure below, HF2221 (using the WAN / LAN switchable network port, close to the DC power input) and PC are connected to the router LAN port.



The tool can find this device.

🔛 I.O.T Service					- 🗆 🗙
Management (M) Setting (C) Help (H)					
Serial Config Config Status VirPath					
SN DevType MAC Address HostName	IP	Position	VirPath	Status	SW Ver
1 HF2221 F0FE6B5DE6A0 Eport-HF2221	192.168.83.107	Local		Online	1.40.3

By default, the two serial ports of HF2221 are 115200 baud rate. The netp connection channel created by default is connected to serial port 1. Here, a new communication channel (up to 5 communication channels can be created), port 8888, connected to serial port 2.

🔝 Device Setting

T Device Setting						×
System				WiFi		
User:	admin			Mode:	AP	•
Password:	admin	SOCKET Name:	netp	AP SSID:	HF2221_E6A0	Hide
HostName:	Eport-HE2221	Protocol:	TCP-SERVER 🔽	AP Key:		
DHCP:	Enable	Server Addr:		AP Channel:	AUTO	
IP Address:	192,168,83,107	Server Port:		STA SSID:		HF2221
Mask:		Local Port:	8899	STA Key:		
Gate Way:		Keen Alive:	60		Scan	
DNS:	10.10.100.254	Time Out	300			
Network Mode:	Router	Time Out:	500			
Longitude:	0.0	Rout:	uart1			
Latitude	0.0	Buffer Size:	8192			
Latitude.	0.0					
		New SOCKET	SOCKET Del			
UART						
UART No:	UART 1 💌					
Baudrate:	UART 1	IP Address:	10.10.100.254			
Data Bits:	8 -	Mask:	255.255.255.0			
Stop Bits:	1		Enable			
Parity:	NONE			Confirm	Cancel	
Flaw Castrali	Holf Durlay	Eth Wan:	Enable	Export	Import	Detail
Flow Control:			LAN Separate			VirPath
Butter Size:	8192			F-Set Upd	F-Set Clear	
Device Setting				×		
System	SOCKET		WiFi			
User:	admin SOCKET	Name: netp	New SOCKET			>
Password:	admin Protoco	I: TCP-SERVER	Basic	Detail		
HostName:	Eport-HF2221 Server A	vddr: 0.0.0.0	SOCKET Name: net	p2 Security:	Disable	-
DHCP:	Enable Server F	'ort:	Protocol: T	CP-SERVER V	Key:	
IP Address:	192.168.83.107		Server addr:	Connect	Mode: Always	
Mask:	200.200.200.00 LOCAL PC	005	enver Port	Stop Ser	ial:	
DNG	10.10.100.254	ve: 00		HeartBe	at: Disable	
Natwork Mada	Poutor	it:30		HeartBe	at Time: 0	
Longitude:	Rout:	uart1	Keep Alive:	HeartBe	at Serial:	
Latitude:	0.0 Buffer S	ize: 8192	I'me Out:	0 Regist N	lode: Link	
			Rout: ua	art2 Regist C	ode:	
	New	SOCKET SOCKET Del	Buffer Size:	512 Max Clie	nt Num: 32	
UART					Confirm	Cancel
UART No:	UART 1					
Baudrate:	115200 V IP Addr	ess: 10.10.100.254	Į.			
Data Bits:	8 Vask:	255.255.255.0	Ī			
Stop Bits:	1 DHCP	Enable	-			
Parity:	NONE		Confirm	Cancel		

As shown in the figure below, two sockets communicate at the same time, and the serial port is transparent.

LAN Separate

Export

F-Set Upd... F-Set Clear

Import

VirPath

Half-Duplex 💌

8192

Flow Control:

Buffer Size:

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APPENDIX A:REFERENCES

A.1. IOTService Test Tools

IOTService Configure Software:

http://www.hi-flying.com/download-center-1/applications-1/download-item-iotservice