

使用说明及测试指导

HF2421

操作指南

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版本记录:

1. 串口服务器设备连接

1.1 HF2421 设备连接

HF2421 串口设备为 AP 模式,而且以太网接口只能为 LAN 口状态,可以通过网线连接到 PC 或者连接 WiFi 信号连接,初始 ssid 为设备型号+mac 地址最后四位(串口设备上电至 PC 联网成功时间约 5~10s)。当 HF2421 网口 1 正确联网后,Net-1 灯亮起绿灯;同样当 HF2421 网口 2 正确联网后,Net-2 灯亮起绿灯。当 RS232-1 有数据收发时,Active1 灯会急速闪烁,同样当 RS232-2 有数据收发时,Active2 灯也会闪烁。

以太网口1:下图中右侧第一个网口,只能作为LAN口。

以太网口 2:下图中右侧第二个网口,同样只能作为 LAN 口。



2. 串口设置

2.1. 串口工具 SecureCRT

下载地址: http://gb.hi-flying.com/download_detail_dc/downloadsId=22.html





2.2. 设置串口参数

协议:Serial

)

	-	
和 LPT)"查看,如图所示。		🦉 通信端口 (COM1)
波特率:115200		
数据位:8		

奇偶校验:None

停止位:1

流控:无(请把 RTS/CTS 前面的"√"去掉)

快速连接		X
协议(P): 端口(Q): 波特率(B): 数据位(D): 奇偶校验(A): 停止位(S):	Serial COM1 I15200 8 None 1 1 1	流控 DIR/DSR RTS/CTS <u>X</u> ON/XOFF
🗌 启动时显示	快速连接(W)	 ☑ 保存会话() ☑ 在新标签中打开(1) 连接 取消

注:HF2421设备出厂串口数据默认如上图所示,用户可以IOTService修改产品工作参数。

3. HF2421 搭建网络

3.1. TCP/IP 工作原理以及测试目的

工作原理:网络是用物理链路将各个孤立的工作站或主机相连在一起,组成数据链路,从而 达到资源共享和通信的目的。而在网络通信过程中,最重要的是通信协议。HF2421使用了 TCP/IP 协议,该协议包括 TCP 和 UDP 等等。而在建立连接中必须使用两个重要参数,一 个是 IP 地址,另一个是端口号。首先,服务端先确定自己的 IP 地址和端口号,然后客户端 绑定与服务端相同的 IP 地址和端口号后才能正确建立连接。 测试目的:

- 1、HF2421 串口端连接 PC,打开 SecureCRT 工具,验证串口是否能正常收发数据。
- 2、HF2421 网络连接 PC,打开 Tcp&Udp 工具后,PC 就作为客户端与串口端建立连接。用以上两个软件验证 HF2421 与 PC 的数据收发流程。

以下实例中,"TCP Server 测试"-HF2421 作为服务端,PC 作为客户端。

3.2. 基于 AP 有线网络功能组网

设备通过以太网网口直接连接到 PC(网口 1 或 2 皆可),模块自动使用默认的 IP,供 PC 直接访问进行参数配置或者数据传输通讯(大约需要 5 秒左右时间等到 PC 使用默认的 10.10.XXX.XXX IP 后才可以)。如下样例中模块 IP:10.10.100.254(一般固定此 IP,当有 IP 冲突时会自动更换成其他的)。



Ethernet IP:10.10.100.254

Ethernet IP:10.10.100.100

Step 1:打开网络和共享中心,除了保留本地连接禁用其余连接方式,接着用网线连接设备 RJ45和 PC 电脑两端端口,打开 IOTService 工具后即可自动显示设备信息,如下图所示。



当前连接到:	f.
PPPPP Internet 访问	:
无线网络连接	^
ррррр	正在连接
HF2421_1138	<u>.</u>
通过此网络发送的信 可见。	自己可能对其他人
🔲 自动连接	连接(<u>C</u>)
UPGRADE-AP_aaaa	llte.
HF-LPB120	<u>sul</u>
Soneter	llter
打开网络和	洪享中心





G ,	👰 ▶ 控制面板 ▶	网络和 Internet 🕨	网络连接 ▶		 ▼ ◆ 投索 网络连接 	٩
组织 ▼	禁用此网络设备	诊断这个连接	重命名此连接	查看此连接的状态	更改此连接的设置	₩= ▼ [] ()
	VMware Network A VMnet1 已禁用 无线网络连接 已禁用 Atheros AR9485 W	Adapter	VMware Netw VMnet8 已禁用	rork Adapter	本地连接 HF2421_AC84 Realtek PCIe GBE	Family Contr
🔝 I.O.T Ser	vice					
Managemer	nt (M) Setting (C)	Help (H)				
Beg	in 💥 Stop (Config	Status 🐺 Vir	Path		Connected
SN DevTy	pe MAC Address	s HostName	IP	Position	VirPath S	State SW Ver
1 HF242	1 ACCF23EA1138	Eport-HF2421	10.10.100.254	Local	Or	nline 1.09m

Step 2:根据上图中显示的设备 IP 地址,可使用网页配置的方法编辑设备参数。用户名和 密码默认都是 admin,打开后效果如下图所示。





Step 3: HF2421 通过 RS232 接口连接电脑,模拟下位机串口信号。串口工具使用方法可 参照 HF2421 用户手册第四章节。连接请使用我公司提供的串口线,必须为交叉线。 Step 4: 打开串口调试工具,推荐使用 SecureCRT 软件工具(其他串口工具也可,只是没 SecureCRT 方便), 以下介绍均使用 SecureCRT 工具。串口工具具体指令操作方法可参照 HF2421 用户手册 cli 指令章节。

STATUS

OTHERS

8



🕞 Serial-COM1 - 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)			
🖏 🕄 🖓 🖏 🕒 隆 👫 🕞 🥃 🍠 🖀	🕉 🕴 🕜 🛯	3 -			
Serial-COM1					×
EPORT					<u> </u>
					III
🥥 +++ 🥥 a 🛛 😡 ND 🥥 WS 🥥 AT+Z	 Q 	0	0	0	Defal 🔻
					*
就绪	Serial: COM1	1, 7	20行, 79列	VT100	大写数字。

3.3. AP 模式下 TCP Server 测试一

Step 1: 打开 TCP&UDP 测试工具,按如下流程建立 TCP 连接。

- 产品默认已经创建好一个 TCP Server (端口 8899)供使用。
- TCP&UDP 测试工具可从官网下载
 - http://gb.hi-flying.com/download_detail_dc/downloadsId=54.html
- DestIP:产品的 IP 地址,该地址可打开 IOTService 工具中查到。
- Port:产品 TCP Server 的端口号,默认 8899,可通过 IOTService 工具修改。



X TCP&UDP测试工具									
Operate(O) View(V) Windows(W) Help(H) Language									
CreateConnn	IntServer 28 🙆 🗺 Connect 💥 📽 Disco	nnAll 💥 DeleteCor	n 💥 🔟 😤 🛛						
Properties # ×									
Client Mode									
Server Mode									
Cre	a Connection								
	ype. Itti								
D D	estIP: 10.10.100.254 Port: 8899								
	ocalfort (* Auto								
r	AutoConn: Eve 0	s							
г	Send When Con: Eve	- ms							
-									
	Create Cancel								
	10 10 10 10 10 10 10 10 10 10 10 10 10 1	- 10-00-0							
	Send Speed(B/S): 0 Receiv	ve Speed(B/S): 0	h.						
Device Setting			×						
- System	SOCKET	WiFi							
User: admin		Mode:	AP 💌						
Password: admin	SUCKET Name.	AP SSID:	HF2421_1138						
HostName: Eport-HF2421	Protocol: TCP-SERVER	AP Key:							
DHCP: Enable 🗸	Server Addr: 0.0.0.0	STA SSID:	HF2421						
IP Address: 10.10.100.10	Server Port: 0	STA Key:							
Mask: 255.255.255.0	Local Port: 8899		Scan						
Gate Way: 10.10.100.254	Keep Alive: 60	Mobile Netword							
DNS: 10.10.100.254	Time Out: 300	APN:	3GNE1						
Network Mode: Router -	Rout: uart2 💌	APN Password	nassword						
UART	Buffer Size: 512	VPN:	Disable						
UART No: UART 1	New SOCKET SOCKET Del	PPTP VPN Server:							
Baudrate: 115200 💌		PPTP User:							
Data Bite: 8		PPTP Password:							
Stop Bits:	IP Address: 10.10.100.254								
Stop Bits: 1 Parity: NONE	IP Address: 10.10.100.254 Mask: 255.255.255.0	Confirm	Cancel Detail						
Stop Bits: 1 Parity: Flow Control:	IP Address: 10.10.100.254 Mask: 255.255.255.0 DHCP: Enable	Confirm Export	Cancel Detail						

Step 2:点击 Connect 按钮建立 TCP 连接。

■ 连接成功建立后,左侧变成绿色箭头,若是失败则为黄色箭头。



🎽 TCP&UDP测试工具 - [10.10.100.]	▶ TCP&UDP测试工具 - [10.10.00.254:8899]								
🗄 🖆 CreateConnn 🔌 CreateServe	r 🎉 StartServer 淃 🐼 🗧	😤 Connect 😹 📽 DisconnAll 💥 DeleteC	Conn 💥 🔯 🗧						
Operate(O) View(V) Window	s(<u>W</u>) Help(<u>H</u>) Language		×						
Properties 4 ×	10.10.100.254:8899		4 Þ ×						
Client Mode	DestIP: 10.10.100.254 DestPort: 8899 LocalPort 4001 Type TCP V AtuoConn Eve 0 s AutoSend Eve 0 ms Disconnect Count Send 0 Recv 0 Clear	nd AtuoSend Eve 100 ms Send Hex Send File Send Received	Send Stop Clear Option BroadOption						
	Send Speed(B/S): 0 Receive Speed(B/S): 0							

Step 3: 按如下参数打开串口工具 (默认 115200 波特率)。

🕞 Serial-COM5 - Secu	CDT			
	Session Options - Serial-C	OM5		
File Edit View Opti	Category			
ana ana ana ana ana i	🖃 Connection	Serial Op	tions	
Serial-COM5	Logon Scripts	P <u>o</u> rt:	COM5	Flow Control
	E. Terminal	<u>B</u> aud rate:	115200	
	Modes Emacs	Data bits:	8	<u>X</u> ON/XOFF
		P <u>a</u> rity:	None	\sim
	Advanced	<u>S</u> top bits:	1	\sim
	Window Log Wile			
	- Printing	<u>S</u> erial brea	ak 100	🚔 milliseconds
	Advanced Xmodem/Zmodem			
		IMPORTANT:	Any changes	you make will not take effe

Step 4: 确定串口工具是否处于命令模式, 输入命令"Exit"退出命令模式, 进入透传模式。 (默认都是透传模式)



🕞 Serial-COM1 -	SecureCRT								- • •
文件(F) 编辑(E)	查看(V)	选项(O) (传输(T) 脚	l本(S)	工具(L) 幕	帮助(H)			
1 (k)	🕄 🗈 🛍 (1 😼 🗟	3 🕘 l 😁	28 1	🕜 🚍	÷			
Serial-COM1									×
EPORT>Exit									*
-									
									_
									=
									*
🎯 +++ 🞯 a	🥥 ND	🥥 WS	AT+Z	0	0	0	0	0	Defai 👻
									^
									-
就绪				Ser	ial: COM1	2, 1	23行, 80列	VT100	大写数字

Step 5: TCP 和串口之间相互传输数据。

Operate(O) View(V) Windows(W) Help(H) Language Image: Connect	×
CreateConnn S CreateServer S StartServer S	4 Þ ×
Properties # × ▶ 10.10.100.254:8899 □ <	4 Þ ×
E- Client Mode	
Interference I	ption
Type TCP AtuoConn Image: Serial-COMS Eve -17415907 AutoSend Tools Eve -17415907 Marcoline Image: Serial-COMS Image: Serial-COMS Serial-COMS	× ript
Count Send 32 Reov 15 Clear Uart send data Land Land Land Land Land Land Land Land	* < >

3.4. Auto-IP 模式下 TCP Server 测试二

上一章节中是以单串口单 Socket 测试数据,本章节中将说明双串口双 Socket 测试同时收发数据。

Step 1:用串口线同时连接串口设备 RS232-1、RS232-2 接口与 PC 两端。







Step 3: 打开 IOTService,点击设备编辑,下图中可以设置两个串口的参数。

To Device Setting					
System	SOCKET		WiFi		
User:	admin SOCKET Name:	netp 💌	Mode:	AP	-
Password:	admin Protocol:	TCP-SERVER	AP SSID:		HF2421_1138
HostName: Eport	t-HF2421		AP Key:		
DHCP: Enabl	e 🗸		STA SSID:		
IP Address: 10.1	0.100.10 Server Port:		STA Key:		
Mask: 255.2	255.255.0 Local Port:	8899		Scan	
Gate Way: 10.10	.100.254 Keep Alive:	60	Mobile Netword		
DNS: 10.10	.100.254 Time Out:	300	APN:	3GNET	•
Network Mode: Route	r 🔻 Rout:	uart2 💌	APN User:		3gnet
	Buffer Size:	512	VPN-	Disable	passworu
UART No: UART	1 Vew SOCKET	SOCKET Del	PPTP VPN Server	Distance	
Baudrate: UART	1		PPTP User		
Data Bits: 8			PPTP Password:		
Stop Bits: 1		10 10 100 254			
Parity: NONE		055.055.055.0	Confirm	Cancel	Detail
Flow Control: Half-D	uplex -	200.200.200.0	Export	Import	
Buffer Size:	512 DHCP:	Enable	F-Set Update	F-Set Clear	VirPath
·					

Step 4:创建两个 Socket,选定对应的两个串口(RS232-1和 RS232-2)。



Device Setting					
System		SOCKET	WiFi		
User:	admin	SOCKET Name: netp	Mode:	AP	•
Password:	admin		AP SSID:		HF2421_1138
HostName:	Eport-HF2421		AP Key:		
DHCP.	Enable	Server Addr: 0	.0.0.0 STA SSID:		
IR Address:		Server Port:	0 STA Key:		
IF Address.		Local Port:	8899	Scan	
Gate Way:	10.10.100.254	Keep Alive:	60 Mobile Netword		
DNS:	10.10.100.254	Time Out:	300 APN:	3GNET	
Network Mode:	Router -	Rout: Juard1	APN User:		3gnei
UART			APN Password:		password
UART No:	UART 1 💌	Buffer Size:	8192 VPN:	Disable	
Baudrate:	115200 💌	New SOCKET SOCKET D	el PPTP VPN Server:		
Data Bits:	8 💌		PPTP User:		
Stop Bits:	1	_ LAN	PPTP Password:		
Parity:	NONE	IP Address: 10.10.10	0.254 Confirm	Cancel	
Flow Control:	Half-Duplex 💌	Mask: 255.255.	255.0 Event		Detail
Buffer Size	8192	DUOD: Enable	Export	Import	VirDath
	0132	DHCP.	F-Set Update	F-Set Clear	VIIFaui

Device Setting				
System User: Password: HostName: DHCP: IP Address:	admin admin Eport-HF2421 Enable & New S Basic	SOCKET SOCKET Name: Protocol: TCP-S Server Addr. OCKET	netp IERVER IERVER	AP HF2421_1138 HF2421
Gate Way: DNS: DNS: Network Mode:	10.10.100. 10.10.100. Router Server /	TName: uart 1 bi: TCP-SERVER Addr. 10.10.100.103 Port. 10004	Security: Disable Security Key: Connect Mode: Always	Scan
-UART UART No: Baudrate:	Local P Keep A UART 1 115200 Rout	Port: 6666 Jive: 60 Jut: 300 Juant1	Stop Serial: HeartBeat Disable V HeartBeat Serial:	password Disable ▼
Data Bits: Stop Bits:	8 Buffer S	Size: 512	Confirm Cancel	
Parity: Flow Control:	NONE Half-Duplex	IP Address:	10.10.100.254 Confirm 255.255.255.0 Export	Cancel Detail
Buffer Size:	8192	DHCP:	Enable F-Set Update	F-Set Clear VirPath



Device Setting						
System		SOCKET		WiFi		
User:	admin	SOCKET Name:	netp 👻	Mode:	AP	•
Password:	admin	Protocol: TCP-S	FRVER	AP SSID:		HF2421_1138
HostName:	Eport-HF2421	Server Addr:		AP Key:		
DHCP:	Enable 🔛 New	SOCKET	0.0.0.01	I SIASSID		
IP Address:	10.10.100	c	Detail		0	
Gate Way:	10.10.100. Proto	KET Name: uart 2 pcol: TCP-SERVER	Security: Security Key:	Disable -	scan	
DNS:	10.10.100. Serve	er Addr: 10.10.100.103			3GNET	-
Network Mode:	Router	er Port. 10004	Connect Mode: Stop Serial:	Always		3gnei
JART	Keep	Alive: 60	HeartBeat	Disable		password
UART No:	UART 1 Time	Out 300	HeartBeat Serial:		Disable	-
Baudrate:	115200 Rout	uart2 🔻				
Data Bits:	8 Buffer	er Size: 512	Confirm	Cancel		
Stop Bits:	1	-				
Parity:	NONE	IP Address:	10.10.100.254	Confirm	Cancel	Detail
Flow Control:	Half-Duplex 💌	Mask:	255.255.255.0	Export	Import	
Buffer Size:	8192	DHCP:	Enable 💌	F-Set Update	F-Set Clear	VirPath

Step 5:设备重启。打开 TCP&UDP 测试工具,创建两个客户端,分别对应 Step 4 中的 uart 1 和 uart 2。创建方法可见章节 3.3。

🎽 TCP&UDP测试工具 - [10.10.100.	254:5555]		- • •
🗄 🔄 CreateConnn 🔕 CreateServe	r 🎉 StartServer 😤 🐼	😪 Connect 🗝 🛬 DisconnAll 💥 DeleteConn 🍇 🧕 🥃 🖕	
Operate(O) View(V) Window	rs(<u>W)</u> Help(<u>H</u>) Languag	ge	×
Properties 4 ×	10.10.100.254:666	66 🏂 10.10.100.254:5555	4 Þ ×
Client Mode 10.10.100.254:6666 10.10.100.254:5555 Server Mode	DestIP: 10.10.100.254 DestPort: 5555 LocalPort 4001 Type TCP - AtuoConn Eve 0 s AtuoSend Eve 0 ms Disconnect Count Send 0 Recv 0 Clear	Send AtuoSend Eve 100 ms Send Stop Send Mex Send File Send Received Clear Option Rec StopShow Clear Save Option ShowMex Save(In Time)	BroadOption
	Send Spee	ed(B/S): 0 Receive Speed(B/S): 0	.#

Step 6: TCP 和两串口之间同时相互传输数据。



✗ TCP&UDP测试工具 - [10.10.100.254:5555]	🕞 Berial-COM1 - SecureCRT
🗄 🚰 CreateConnn 🔕 CreateServer 🔉 StartServer 😤 🐼 💥 Connect	22 Page DisconnAll 💥 DeleteConn 🍇 文件(F) 編編(E) 查看(V) 选项(O) 传输(T) 脚本(S) 工具(L) 帮助(H)
Operate(O) View(V) Windows(W) Help(H) Language	13 13 L. 4 X · · R. A L. 5 5 4 17 X · · 0 2 .
Properties # × 10.10.100.254:5555	Serial-COM1
■ Client Mode DestIP: Send □ ■ Server Mode □ DestPort: Send □	AtusSend Eve 100 ms Send Uart1
Filescalest 4001 Type Trtt	
Eve 0 s	G Serial-COM3 - SecureCRT
AutoSend	
TCP&UDP测试工具 - [10.10.100.254:6666]	
🚽 CreateConnn 🗳 CreateServer 🐰 StartServer 迷 😡 💥 Connect 👻	; Son DisconnAll ScheleteConn ScheleteConn Control ScheleteEon Control Sch
Operate(Q) View(V) Windows(W) Help(H) Language	uart2
operties	
Client Mode ▶ 10.10.100.254:6666 Server Mode DestIP: 10.10.100.254 Send ▲ Atua Send Hex S	Send Eve [100 ns Send S: Send File Send Received Clew Opp
LocalPort uart2	
Type TCP 👻	
AtuoConn	
Eve 0 s	
Eve 0 ns	
Disconnect	
Count Save (Ir	uor Save Jave Journey Outral J _ Saveney

3.5. 基于 AP 无线网络模式组网

本产品做为 AP 组成一个无线网络(相当于一个路由器)。每个终端可以自由地和串口设备组 网并且和 plc 之间进行通信。如下图所示:



Step 1: 在用 HF2421 组成 AP 模式之前,必须先了解设备的 AP 信号名称,默认



"HF2421_+MAC 地址后 4 位",也可通过 CLI 命令"Show"查询,如下图所示。

Serial-COM1 - SecureCRT	
☆(F) 編掲(F) 春石(V) 洗项(O) 传輸(T) 脚本(S) 丁目(L) 帮助(H)	
Config:115200,8,1,NONE,NONE State:In CLI Recv Bytes:176 Recv Frames:79 Send Bytes:670 Send Frames:67 Failed Bytes:0 Failed Frames:0	M
===SOCK Status=== SOCK Name:netp State:Server Created Client IP: Recv Bytes:670 Recv Frames:67 Send Bytes:117 Send Frames:58 Failed Bytes:0 Failed Frames:0	
===WIFI Status=== Mode:AP AP SSID:HF2421_1138 EPORT>	
😡 +++ 🥥 a 😡 NDBGL 🥥 WSCAN 🥥 AT+Z 😡 😡 show 😡 重启 😡 😡	Default -
	*
就绪 Serial: COM1 19, 7 19行, 60列 VT10	0 大写数字

Step 2: 打开网络和共享中心->更改适配器设置。







Step 3:打开网络连接后连接 Step 1 中查到的 HF2421AP 热点名称



Step 4:禁用其他网络连接方式,只保留当前的无线连接。



() マ () マ () マ () マ) (met ▶ 网络连接 ▶	 ✓ 4y 搜索 网络连接 	
组织 ▼ 连接到 禁用此网络设备	诊断这个连接 重命名此连接 查報	雪此连接的状态 更改此连接的设置	
VMware Network Adapter VMnet1 已禁用	VMware Network Adapter VMnet8 已禁用	本地连接 已禁用 Realtek PCIe GBE Far	mily Contr
无线网络连接 HF2421_1138 Atheros AR9485 Wireless Net	无线网络连接 2 已禁用 Microsoft Virtual WiFi Minip	or	

Step 5:打开 IOTService 后,即可发现设备已连接成功,AP 模式下 HF2421 分配自身 LAN 网段的 IP 给 PC (即 10.10.100.XXX)。

🔝 I.O.T Service 📃 🔲 🔤							
Management (M) S	etting (C) Help (H)						
Begin 💥	Begin 💥 Stop 😳 Config 🔍 Status 🚏 VirPath						
SN DevType MA	C Address Host	Name IP	Position	VirPath	State	SW Ver	
1 HF2421 ACCF	23EA1138 Eport-H	F2421 10.10.100.25	54 Local		Online	1.09m	

测试方法和章节 3.3 一样,故此不再多做说明。

4. 基于 4G/3G 模式联网及远程数据通讯

4.1. 4G/3G 及 VPN 联网

Step 1:HF2421 支持 4G/3G/GPRS 类型标准 sim 卡,使用本功能之前断电插入 sim 卡。 Step 2:串口设备上电后,等待 10s 左右时间,打开 SecureCRT 串口调试工具,串口线连 接 PC(串口参数及设定可参照本文第二章),进入命令模式->SYS->Ping:输入一个服务 器网址,如 Ping www.baidu.com(下图中为百度网址为例)->出现 Success 表明能够正 常上网。



Step 3:在上图 EPORT/SYS 命令下进入 Network 目录。





Step 4:设定 VPN 参数信息,下图中以我公司测试服务器为例,当出现 SET-OK 就表示 设定成功。

注:如果不能设置 VPN,请升级以下版本的固件(目前最新的版本为1.09m),固件升级方

法参考 HF2421 使用手册中的 3.13 章节。

固件链接:http://pan.baidu.com/s/1pLgDEQJ

- Server Address: 服务器 IP 地址或者域名。测试地址为 112.124.43.15
- User Name (用户名): hiflying
- Password (密码): test123





Step 5: 我公司 VPN 测试网址为 192.168.18.1, 如下图表示连接成功。



🕞 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)	
11 XI 🖓 🖓 💫 🖕 隆 👫 🕞 🥃 🦪 🚰 XI 🕐 🖾 🚦	
Serial-COM4	×
EPORT/SYS>Ping 192.168.18.1 Success EPORT/SYS>	•
	E
🤪 +++ 🤪 a 🛛 📦 ND 📦 WS 📦 AT+Z 📦 🛛 📦 show 📦 重启 📦 🛛 📦	Defai 🔻
	* *
就绪 Serial: COM4 4, 11 15行, 50列 VT100 大	写数字 🔬



4.2. HF2421 远程联网



PLC Device

在上一章节中, 串口设备已通过 sim 卡连接公网后, 就可以进一步实现远程通讯的传输。 在本章节中模拟在不同的网络下通过 HF2421 创建的虚拟串口和物理串口之间进行数据收 发试验, 实现上图所示远程数据通讯。

Step 1: 注册 IOTBridge 的账号, 注册方法可参照 IOTService 工具说明文档中第八章, 此处不再详细说明。

Step 2: 下载最新版本的 IOTService (目前最新版本为 2.0.09b)。

IOTService 链接: http://pan.baidu.com/s/1dF1q1bj



🔛 I	O.T Servio	:e						
Man	agement (M) Setting (C)	Help (H)					
	Begin 💥 Stop Config 🔍 Status 🕎 VirPath							
SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF5111B	F0FE6B3DDB	Eport-HF5111B	192.168.2.100	Local	COM5/UDP,Disconnect	Online	1.0919
2	EP10	F0FE6B251E20	E 🔛 About			-x	Offline	1.09m
3	HF5111B	ACCF23FF8888	E			_	Offline	1.0919
4	HF5111B	F0FE6B1C3D	E 🔹	I.O.T Se	rvice 2.0.09b		Offline	1.0918 New Ver
5	EP10	D4AE52C85D	E				Offline	1.09m
6	HF2221	888B5D0085E0	E	XZ			Offline	1.09k
7	HF5111B	F0FE6B3DDD	E I.O.	T			Offline	1.09i New Ver
8	HF5111B	ACCF23FF5678	E WORKSH	0P <u>X</u>		Close	Offline	1.0917 New Ver
9	334455	F0FE6B3DDD	E				Offline	1.0919
10	HF5111B	F0FE6B1C3D	E	1	-		Offline	1.0919
11	HF5111B	F0FE6B50FDF7	Eport-E10	101.88.227.48	China.Shanghai		Offline	1.09m
12	HF2421	ACCF23EA11	Eport-HF2421	122.97.176.57	China.Nanjing		Offline	1.09m
13	HF2421	000C43E175B8	Eport-HF2421	122.97.176.59	China.Nanjing		Offline	1.09m
14	HF5111B	F0FE6B3DDA	Eport-HF5111B	116.231.223.102	China.Shanghai		Offline	1.0919
		-						
·								

Step 3: PC WiFi 无线连接串口设备热点,打开 IOTService,复制串口设备的 mac 地址,

在 Step 7 中添加设备会使用到。

UPGRADE-AP-Z	Illee	•
LQJ-AP	.ull	
hf_group	.ull	
LU	.ull	
ChinaNet-demon	.ull	
360-NSZ	.ul	
H60-L01	.ull	1
HF-LPT220	* ••	
HF2421_1138	.	
LJL	•	Γ,
WAWA	•	
aaron	al	Ŧ
打开网络和共享中心		



🔡 I.O.T Service					
Management (M) Setting (C) Help (H)					
Begin 💥 Stop Config	Status 🐺 🕻	/irPath			Connected
SN DevType MAC Address HostName	IP	Position	VirPath	State	SW Ver
1HF2421 ACCF23EA1138 Eport-HF2421	10.10.100.254	Local	Conv Dovice MAC	Online	1.09m
)evice Table Filter		
		F	Refresh		
			elete Selected Device		
			Ingrada Firmwara Calacted		
			Jpgrade Firmware Selected		
		L L L L L L L L L L L L L L L L L L L	Jpgrade Firmware All		
		ι	Jpgrade Web Selected		

Step 4: 修改为下图中的 IOTService 的服务器地址,并填入在 IOTBridge 申请的 Service

١d.

🔡 I.O.T Service						
Management (M)	Setting (C) Help (H)					
Begin	Software Setting Ctrl-M Default Setting Ctrl-D	🔍 Status 👹 V	/irPath			Connected
SN DevType M	Add Device Ctrl-I	IP	Position	VirPath	State	SW Ver
1 HF2421 AC	BroadCast Scan	10.10.100.254	Local		Online	1.09m
	Language 🕨					
						-



oftware Setting			
Remote Access		Communication	
Remote Access Enable:	Enable -	Device Config Enable:	Enable 💌
IOTBridge Server Addr:	bridge-test.iotworkshop.com	Device Cfg Port:	48896
Service Id:	iotbridge-service-id	VirPath UDP Enable:	Enable 👻
Service Name:	My Service	VirPath UDP Port:	28987
EMail Alarm		VirPath TCP Enable:	Enable 👻
EMail Alarm Enable	Disable	VirPath TCP Port Start:	28990
CMTD Address:		VirPath TCP Port End:	29990
SMTP Port		VTH TCP Server Port:	28986
SMIT FOIL		VCOM Parameter Synch:	Enable 👻
EMail Reseword		Others	
EMail Send List (eq. a@a.con	n:b@b.com):	Language:	English 👻
		Start up to Tray:	Disable 👻
		Confirm	Cancel

Step 5:使用 SecureCRT 打开串口,进入 EPORT/SYS>目录下,设定已申请的 UserID,

详细方法参考 IOTService 说明文档第八章 Step 10。



Step 6:在串口设备中设定服务器地址。输入 "+++" 进入命令模式->SYS->NAT Enable->

输入服务器地址名(必须和 IOTService 中相同)->设定端口号(默认即可)->SET-OK。

具体可参照下图设定。

Gerial-COM1 - SecureCR	r			- • •
文件(F) 编辑(E) 查看(V)	选项(O) 传输(T) 脚本(S)	工具(L) 帮助(H)		
1 N C N N I I I I	A 😼 🗟 🦪 🕈 💥 🕴	0 🔤 🚽		
Serial-COM1				× =
EPORT>SYS				A .
Version	Auth	Network	Telnet	Web
NTP	MAC	J CMD	NAT	Ping
ProductID orvCfg	CustomerID	UserID	CfgProte	ct Fact
Seript EPORT/SYS>NAT Input NAT Ser tworkshop.com Input NAT Ser SET-OK	Xm]Load Enable Ver Address[b Ver port[4889	Quit ridge-test.iotw 9]:	orkshop.com]:br	idge-test.io
EPORT/SYS>				н
🥥 +++ 🛛 😡 a	🤤 NDBGL 🛛 💿 WSCAN 💿) AT+Z 🥥 💿 sho	w 💿 重启 💿	😡 Default 🔻
				* *
就绪			Serial: COM3 16, 11 20行,	68列 VT100 大写数字

Step 7:更改 PC 端网络连接公网(可参照本章中第一张图),与串口设备保持不同网络。 打开 IOTService,添加设备后即可显示远程设备,从下图中可看见设备 IP 地址已改变。(若 是不方便查看远程设备 mac 地址,可用 I.O.T Bridge 查看设备信息,具体操作方法详见 IOTService 工具说明文档第八章)



\leftarrow \rightarrow C \bigcirc bridge	.iotworkshop.com/machineDe	etails.html?2901			Qź
	■ 网站首页				
🖵 Dashboard	❹ 我的设备 / 亘 设备信息				
▲ 我的UserID	Mac:	ACCF23EA1138	主机名:	Eport-HF2421	
I.O.T Service	时间:	2017-08-15 13:37:58	上电时间:	0-Day 3:2:18	
我的设备	型号:	HF2421	Lan Port:	47799	
① 我的信息 ~	Lan Ip:	10.10.100.254	Wan Port:	26300	
● 退出	Wan Ip:	116.231.223.102	经度:	121.629228	
	纬度:	31.226114	描述:		
	地理位置:	中国上海上海			

😫 I.O.T Service							
Management (M)	Setting (C) Help (H)						
Begin §	Software Setting Ctrl-M		Status 🖶 V	irPath			Connected
Bogin 🧳	Default Setting Ctrl-D			dui			addition.
SN Dev 👻 🖵	Add Device Ctrl-I	ne	IP	Position	VirPath	State	SW Ver
1 HF2421 ACC	BroadCast Scan	21	223.104.254.33	China.		Online	1.09m
	Language •						
		•					



🔛 I.O.T Service					
Management (M) Setting (C)) Help (H)				
Begin Stop	Add Device MAC Ac ACCF23EA1138	Idress	Dele Dele	te	Connected SW Ver
	MAC Addre	A1138	Clo	Add	1.09m
Management (M) Setting (C)) Help (H)				
I.O.T Service Management (M) Setting (C) Begin Stop) Help (H)	VirPath			Connected
I.O.T Service Management (M) Setting (C) Begin Stop SN Dev IHF2421 ACCF23EA1138) Help (H) Config Status s HostName B Eport-HF2421 223.10	IP Position 4.254.33 China.	VirPath	State Online	Connected SW Ver 1.09m

Step 8:编辑设备,建立虚拟串口,目前仅支持 udp 连接。



I.O.1 Service						
nagement (M) Sett	ting (C) Help (H)					
🕨 Begin 💢 S	Stop 💮 Config 🔍	Status 🐺 VirPath			Connected	
N Dev MAC A	Address HostName	IP Posit	tion VirPath	State	SW Ver	
1 HF2421 ACCF23E	EA1138 Eport-HF2421	223.104.254.33 China	а.	Online	1.09m	
Device Setting						
System	admin	SOCKET		WiFi Mode:	AP	
System	admin	SOCKET SOCKET Name:	netp 💌	WiFi Mode:	AP	HE2421 1
SystemUser:	admin admin	SOCKET SOCKET Name: Protocol:	netp 🗸	WiFi Mode: AP SSID:	AP	HF2421_1
System User: Password: HostName:	admin admin Eport-HF2421	SOCKET SOCKET Name: Protocol: Server Ardrr	netp ▼ TCP-CLIENT ▼	WiFi Mode: AP SSID: AP Key:	AP	HF2421_1
System User: Password: HostName: DHCP:	admin admin Eport-HF2421 Enable	SOCKET SOCKET Name: Protocol: Server Addr:	netp ▼ TCP-CLIENT ▼ 10.10.100.100	WiFi Mode: AP SSID: AP Key: STA SSID:		HF2421_1 HF24
System User: Password: HostName: DHCP: IP Address:	admin admin Eport-HF2421 Enable	SOCKET SOCKET Name: Protocol: Server Addr: Server Port:	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:		HF2421_1
System User: Password: HostName: DHCP: IP Address: Mask:	admin admin Eport-HF2421 Enable v 10.10.100.10	SOCKET SOCKET Name: Protocol: Server Addr: Server Port:	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP	HF2421_1
System User: Password: HostName: DHCP: IP Address: Mask:	admin admin Eport-HF2421 Enable 💌 10.10.100 10 255.255.255	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup Tcom VirThrough	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP	HF2421_1
System User: Password: HostName: DHCP: IP Address: Mask: Gate Way:	admin admin Eport-HF2421 Enable v 10.10.100.10 255.255.255 10.10.100.25	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP	HF2421_1 HF2
System User: User: Destword: Destwor	admin admin Eport-HF2421 Enable V 10.10.100.10 255.255.255 10.10.100.25 S	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2	netp	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP Scan	HF2421_1 HF2
System User: Password: HostName: DHCP: P Address: Mask: Gate Way: DNS: Network Mode:	admin admin Eport-HF2421 Enable ▼ 10.10.100.10 255.255.255 10.10.100.25 10.10.100.25 Router ▼	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP Scan	HF2421_1 HF2
System User: Password: HostName: DHCP: IP Address: Mask: Mask: Gate Way: DNS: Network Mode:	admin admin Eport-HF2421 Enable V 10.10.1001 255.255.255 10.10.100.25 10.10.100.25 Router S	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP	HF2421_1 HF2 3(passw
System User: Password: HostName: DHCP: P Address: Mask: Mask: Mask: Gate Way: DNS: DNS: Network Mode: JART	admin admin Eport-HF2421 Enable ▼ 10.10.100.10 255.255.255 10.10.100.25 10.10.100.25 Router ▼ S	SOCKET SOCKET Name: Protocol: Server Addr: Server Port VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out. uart1	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key:	AP Scan CMNET	HF2421_1 HF2 3g passw
System User: Password: HostName: DHCP: IP Address: Mask: Mask: Mask: Gate Way: DNS: DNS: Network Mode: UART UART No:	admin admin Eport-HF2421 Enable ▼ 10.10.100 17 255.255.255 10.10.100.25 Router ▼ S UART 1 ▼	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out: uart1	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: Add Close	AP 	HF2421_1 HF24 39 passw 112.124.43
System User: Password: HostName: DHCP: IP Address: Mask: Ma	admin admin Eport-HF2421 Enable V 10.10.100.10 255.255.255 10.10.100.25 S Router S S UART 1 115200	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out: uart1	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: X Add Close PPTP User:	AP 	HF2421_1 HF2- 3g passw 112.124.43 hifty
System User: Password: HostName: DHCP: IP Address: Mask: Gate Way: Gate Way: DNS: DNS: Network Mode: UART UART No: Baudrate: Data Bits:	admin admin Eport-HF2421 Enable V 10.10.100.10 255.255.255 10.10.100.25 S 10.10.100.25 S UART 1 115200 8	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Port: 5555 out: UDP ocket Port: 5555	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: X Add Close PPTP User: PPTP Password	AP 	HF2421_11 HF24 3g passw 112.124.43 hifly test
System User: Password: HostName: DHCP: IP Address: Mask: Gate Way: DNS: DNS: DNS: DNS: DNS: Matwork Mode: UART UART No: Baudrate: Data Bits: Stop Bits:	admin admin Eport-HF2421 Enable v 10.10.100.100 255.255.255 10.10.100.25 Router S UART 1 115200 8 v	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out: uart1	netp TCP-CLIENT ▼ 10.10.100.100 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: Add Close PPTP User: PPTP Password	AP 	HF2421_1 HF2 30 passw 112.124.43 hifty test
System User: Password: HostName: DHCP: IP Address: Mask: Gate Way: DNS: DNS: DNS: DNS: DNS: UART UART Moi: Baudrate: Data Bits: Stop Bits: Bacib:	admin admin Eport-HF2421 Enable V 10.10.100.10 255.255.255 10.10.100.25 Router S UART 1 115200 8 1	SOCKET SOCKET Name: Protocol: Server Addr: Server Port: VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out: uart1	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001 10001	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: Add Close PPTP User: PPTP Password Confirm	AP 	HF2421_11 HF24 3g passw 112.124.43 hifty test
System User: Password: HostName: DHCP: IP Address: Mask: Gate Way: DNS: Gate Way: DNS: Metwork Mode: UART UART UART No: Baudrate: Data Bits: Stop Bits: Parity:	admin admin Eport-HF2421 Enable V 10.10.100.10 255.255.255 10.10.100.25 10.10.100.25 Router S UART 1 115200 8 1 1	SOCKET SOCKET Name: Protocol: Server Addr: Server Port VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out: uart1	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001 10001 10001 10001 1000254 255.255.255.0	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: Add Close PPTP User: PPTP User: PPTP Password	AP Scan CMNET Enable er: Cancel	HF2421_11 HF24 3g passw 112.124.43 hifly test Detail
System User: Password: Password: HostName: DHCP: IP Address: IP Ad	admin admin Eport-HF2421 Enable V 10.10.100 10 255.255.255 10.10.100.25 10.10.100.25 Router S UART 1 115200 8 1 1 1 10 10 10 10 10 10 10 10 10 10 10	SOCKET SOCKET Name: Protocol: Server Addr: Server Port VirPath Setup rcom VirThrough erial Port: COM2 ocket Type: UDP ocket Port: 5555 out: uart1	netp ▼ TCP-CLIENT ▼ 10.10.100.100 10001 10001 10001 10001 10001 10001 1000254 255.255.255.0 Enable ▼	WiFi Mode: AP SSID: AP Key: STA SSID: STA Key: Add Close PPTP User: PPTP Der: PPTP Password Confirm Export	AP Scan CMNET Enable er: Cancel Import	HF2421_11 HF24 3g passw 112.124.43 hifly test1 Detail



10 T Service	
Management (M) Setting (C) He	elo (H)
management (m) octang (c) m	
🕪 Begin 💥 Stop 🌘	Config 🔍 Status 👹 VirPath
SN Dev MAC Address	HostName IP Position VirPath State SW Ver
1 HF2421 ACCF23EA1138	Eport-HF2421 223.104.254.33 China. COM2/UDP,Connected Online 1.09m
▶ 计算机管理	
文件(F) 操作(A) 查看(V) 帮助	b(H)
Þ 🔿 📶 🗐 🗐	
□ [1] (1) [1] [4] (4] (4] (4] (4] (4] (4] (4] (4] (4] (
▶ ▶ ● 由件音看器	
▷ 20 共享文件夹	Intel(R) Dynamic Platform and Thermal Framework Fan Participant
> 🌆 本地用户和组	Intel(R) Dynamic Platform and Thermal Framework Manager
▷ Ň 性能	Intel(R) Dynamic Platform and Thermal Framework Memory Participant
🚑 设备管理器	📲 Intel(R) Dynamic Platform and Thermal Framework Processor Participant
4 🔄 存储	▶ · ■ 处理器
層 磁盘管理	▷ :; 磁盘驱动器
> 🛃 服务和应用程序	
	Fabula lech Virtual Serial Port Control (COM2)
	Fabulatech Virtual Senal Port Control (CONIS)
	USB Serial Port (COM4)
	↓ ····································
	· · · · · · · · · · · · · · · · · · ·
	· · · · · · · · · · · · · · · · · · ·
	· · · · · · · · · · · · · · · · · · ·
	▷ 🖏 人体学输入设备
	▶ 🛶 声音、视频和游戏控制器
	▷ 🖞 鼠标和其他指针设备
	▶ ● 通用串行总线控制器
	Atheros AR9485 Wireless Network Adapter
	Microsoft Virtual WiFi Miniport Adapter
	Kealtek PCIe GBE Family Controller
	Viviware virtual Ethernet Adapter for Vivinet1



Step 9: 打开串口设备的物理串口, 输入命令 "Exit" 进入透传模式, 与虚拟串口进行数据

收发。

