

Wireless Modem

User Manual



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Functional features

- 4 wired LAN ports and 1 wired WAN port are supported.
- Support 1 WLAN wireless LAN;
- Support LED status monitoring (display power, Work, WAN, LAN, WIFI, 4G network mode and signal strength status);
- Support SSH, Web multi-platform management configuration;
- One key to restore factory Settings;
- The cable network ports all support the 10/100mbps rate;
- Support APN private network access, SIM card self-test, 2/3 / 4G standard switching, SIM information display
- Support wired wireless simultaneous online, multi-network intelligent switching;
- Support firmware upgrade, firmware configuration backup function;
- Firewall, NAT, DMZ host, access control black and white list, IP speed limit.
- QOS and traffic service can limit the speed according to interface;
- WPS one-key Internet function;
- Support VPN private network access, VPN client and VPN server operating mode;
- Support data transmission between serial port and Ethernet, transparent transmission and MOBUS transmission mode;
- Support load balancing multi-network port flow control settings, with network port priority, enable, flow control ratio and other operating methods;
- Support FRP internal network penetration, remote management of router (status display and parameter setting)

1. Quick start

In order to ensure that the products that users get at the first time are qualified, we provide a simple testing process for users to refer to. In the whole process, the customers can get started quickly.

1.1 Preparation

Before the 4G router works, users need to prepare at least one PC, one network cable, product supporting devices and a 4G SIM card with traffic.

1.2 Hardware connection



As shown in the figure above, before charging the device (the charging position has been marked on the panel), the customer must insert the 4G SIM card into the value card slot (chip end up), otherwise the 4G function will not be enabled.

Connect the WIFI antenna and 4G antenna to the SMA interface under the mark of the device panel, and connect the computer to the LAN port of the device (LAN1~LAN4 can be used). In order to detect 4G function, the WAN port cannot be connected to Ethernet.

In order to ensure that the computer can enter the WEB management interface through the LAN, the customer needs to ensure that the computer network property automatically obtains the IP address and automatically obtains the DNS server address, as shown in the figure below.

· 网络连接		Internet 协议版本 4 (TCP/IPv4) 履性
2000日 1000000000000000000000000000000000		 常规 警用配置 如果网络支持此功能,则可以获取自动指派的 IP 设置。否则,你需要从 格系统管理员处获得适当的 IP 设置。 ④ 自动获得 IP 地址(O) ④ 使用下面的 IP 地址(S): IP 地址(I): · · · 子对挑码(U): · · · 武以周天(D): · · · ● 自动获得 DNS 服务器地址(E): 前选 DNS 服务器地址(E): 前选 DNS 服务器地址(E): · · · * · · ·
A 顶口 进去 1 A 顶口	描述 传输控制协议/Internet 协议。该协议是默认的广域网络协议 于在不同的相互连接的网络上通信。	、用

After completing the above steps, use the power supply of the equipment, and then power up the router.

After power on, wait for about 1 minute, and the WORK indicator on the panel starts flashing at a frequency of about 1S, indicating that the startup is completed. In addition, on the panel, the 4G signal indicator and the 4G indicator in network properties also start to WORK normally (the device is connected to 4G network by default). The amount of 4G signal indicator light is determined by the current network signal quality.

1.3 Web access

On the PC, open any browser and input 192.168.10.1 to enter our router Web login interface, as shown in the figure below:

EBYTE 4G INDUSTRIAL ROUTER		
	またまでは またまでで 生活 でで 生活 」 記 記 記 記 記 記 の で の で の で の の の の の の の の の の の の の	
		Powered by Chengdu cuyle connect us. / EB1-E880-V1.0

Here, our default password is: root

After entering the password, you can enter our web administration interface.

In the bottom right corner of the Web page, you can click the following link to enter our company's official website,

which verifies the success of 4G routing access to the external network.

成都亿佰特电子科技有限公		EB	YTE 4G INDUSTRIAL	ROUTER				
犬态	^	Г						
92			工化					
防火墙			7652	菜单详	情			
路由表						radio0		
系统日志 实时信息			美型: MAC80211 802.11bgn 信道: 11 (2.462 GHz) 传输速率: -					
统	~		SSID: EBT-E880-40:d6:3c:1	le:4a:84				
鎊	~		BSSID: 40:D6:3C:1E:4A:84 mss: WPA2 PSK (CCMP)					
站	~		Xarac					
菜单栏			已连接站点					
	_	1	网络	MAC地址	主机	信号/ 噪声	接收速率 / 发送速率	断开连接
						无可用值息		
		ŀ	动本 DNS					
			:099	下沙面的		奇物主机名	已注册00 IP tttte	Files
			myddns ipv4	己蘇用		yourhost.example.com	无数据	IPv4 / wan
			myddns_ipv6	已就用		yourhost.example.com	无数癖	IPv6 / wan6
		L				点击这里,	验证网络	

Well, after the above steps, no failure occurs, which means that the equipment can be used normally. In addition, if customers want to know the current network speed, they can use relevant software to conduct network test.

2. Product Introduction

E880-IR01 is a 4G wireless router that provides fast networking and mobile network sharing solutions for user devices. The equipment adopts the industry's commercial high-performance embedded structure, and has a high application advantage in the data transmission fields such as industrial control network, smart grid, industrial control data acquisition, smart home, etc. It supports wired WAN port, LAN port, WLAN network, 4G network interface, SMS AT command and remote control of 4G router.

2.1 Basic Parameters

	Project	Index
		Downstream Rate 130Mbps, Upstream Rate 35Mbps
	IDD-LIE	Band 38/39/40/41
		Downstream Rate 150Mbps, Upstream Rate 50Mbps
	FDD-LIE	Band 1/3/8
	WCDMA	Downstream Rate 42Mbps, Upstream Rate
Wifi Daramatara	WCDMA	5.76Mbps Band 1/8
will ratallicicis		Downstream Rate 5.2Mbps, Upstream Rate
	ID-SCDMA	2.2Mbps Band 34/39
	CDMA 2000 1/EVDO	Downstream Rate 3.1Mbps , Upstream Rate
	CDIVIA2000 TX/E V DO	1.8Mbps BC0
		Downstream Rate 236.8kbps, Upstream Rate
	GSM/GPKS/EDGE	236.8kbps 900/1800
	Size (H*W*D)	172*107*29mm
	Weight	419.5g
	Working Temperature	-20°C~+70°C
	Storage temperature	-40°C~+85°C
	Working humidity	5%~95%
Hardware parameters	Storage humidity	1%~95%
	Working voltage	5V~36V
		Under DC12V power supply, average 106mA,
	Current consumption	maximum 205mA (normal temperature)
	precision	0.2%
	Data interface	RS485: 1200~115200bps

The working mode and power consumption table are shown in the following table:

The	power	consum	otion	table	of	E880)-IR01	is	shown	in	the	foll	owing	table	e
1 110		combann	pulon	luoie	O1	L 00,	, 11(01	10	5110 11		une	1011	.o wing	uon	•

Manner of Working	Supply Voltage	Average Current	Max Current	Remarks
4G+Ethernet	DC12V	106mA	205mA	Ethernet Prior
Ethernet	DC12V	99mA	186mA	Without SIM Card
4G	DC12V	141mA	283mA	Without input of

				WAN port
All Stop	DC12V	88mA	163mA	

When E880-IR01 is powered at 12V and works simultaneously with 4G and Ethernet, statistics show that: The average power consumption is 1.27w and the maximum power consumption is 2.46w. Average current 106mA, maximum current 205mA;

When E880-IR01 is powered at 12V and works alone in 4G, statistics show that:

The average power consumption is 1.69w and the maximum power consumption is 3.40w. Average current 141mA, maximum current 283mA.

2.2 Size and interface description

SIM Side



WAN Port Side



Top View





T 1	1 1	• • •	•	1 1 1	1 1
I he	hardware	inferface	15	described	helow.
1 110	nuiuiuiu	mernuee	10	acoultoca	0010.00

Interface No.	Name	Remarks				
1	DC5~36V	Voltage Scope DC:5~36V, Standard 5.5*2.1 Power Socket				
2	DC-IN+	Voltage Scope DC:5~36V, Power terminal positive				
3	DC-IN-	Voltage Scope DC:5~36V, Power terminal negative				
4	RS485 B-	RS485 interface B-terminal (standby)				
5	RS485 A+	RS485 interface A-terminal (standby)				
6	RS485 G	RS485 interface common ground				
7	RTS	Press hardware reset to restart				
8	TBD	Debugging interface				
9~12	LAN (1~4)	LAN Port (1~4) , LAN Interface, 10/100Mbps, Support Auto MDI/MDIX				
13	WAN	WAN Port, WAN Interface, 10/100Mbps, Support Auto MDI/MDIX				
14	4G	4G Antenna SMA Interface				
15	Card Withdrawal	Using a sharp object to press, get SIM card out				

16	SIM Slot	Where the SIM card is installed
17	GND Self Clinching Studs	Connecting with the earth
18	WPS	Short press to WPS get a no password access to Internet.
19	Restore	Long press 5s and release, and restore factory Settings
20	WIFI Antenna	WIFI Antenna SMA Interface

3. Function Set

In this section, we will be according to the function menu on the Web interface, and explain, limited to space, among them, some options, we will emphatically expounded, and some not commonly used and not important functions we can choose an overview, in the whole process, we will be in a certain function, interspersed with some menu with links to other functions.

3.1 Menu overview

In the web management interface, users can set their desired functions or view relevant states. Through the menu bar on the left of the page, specific functions or information can be set and inquired. Users can see the directory tree structure of the menu as shown in the following table.

Submenu \ menu	Status	System	Service	Internet
1	Overview	System	Dynamic DNS	Interface
2	Firewall	Administration authority	WIFI plan	Wireless
3	Routing table	Scheduled task	FRP Intranet penetration	Interchanger
4	system log	Time synchronization	RS485	DHCP/DNS
5	Real-time Information	Backup/upgrade	VPN server	Hostname
6		Restart	SIM	Static routing
7				SIM
8				Firewall
9				Network diagnosis
10				Qos function

4. Function description

4.1 Status

In the "Status" menu, users can view the current operating status of the router, including the firewall. Router, system internal operation log, and network related information refreshed in real time, etc. Users cannot set anything in this column. Here, users can query the content of the related sub-menu according to the related needs.

4.2 System

In the system bar, we can set the management parameters of the 4G router, etc. These include the login password of the web page, host name, upgrade and other functions.

4.2.1 Host name and time zone setting

In the system-> system properties-> basic settings option, users can set the host name of the 4G module and also modify the time zone. Here, our default host name is: EBYTE, and the time zone uses UTC (if the product is used in China, it can be set to: Asia / Shanghai).

Set the host name as shown below

大売 デ 系売 露 市場の 市場の 事業 市場の 事業 事業 事業 事業 事業 日間の 事業 日間の 日間の </th <th></th>	
系统 介介介 系统 此处配置设备的基础信息、如主机名称或对区。 管理权 计划任务 计划任务 系介介属性 时间同步 基本设置 请言和界面	
X6 此处配置设备的基础信号如主机名称或对区。 管理权 计划任务 系统属性 时间同步 备份/升级 基本设置 语言和界面	
 管理収 计划任务 所询问步 备份/升级 基本设置 语言和界面 	
计划任务 系统属性 时间同步 备份/升级 基本设置 适言和界面	
前间同步	
留の分取 基本设置 语言和界面 市 市	
率应 本地时间 Tue May 14 17:43:09 2019 同步浏览器时间	2019 同步浏览器时间
服务 v	<u>ا</u>
	J
的区 Asia/Shanghai	~
退出	

In addition, users can also set the language (Chinese / English) of the web interface and different style themes. Here, our default language is Chinese, and the style used is our company's technology blue theme

4.2.2 Username login password setting

In the system-> management rights-> host password option, set the web login interface. The host password setting requires at least one character, and then click the Save button. The login password can be set. As shown below.

状态	× _	主机密码			
系统	~				
系统		十扣应口			
管理权		土饥留阳			
计划任务		更改访问设备的管理员密码			
时间同步			密码	*	1
备份/升级					
重启			确认密始	•	
服务	~				
网络	×				
退出					

4.2.3 Restore factory reset and upgrade

In the system-> backup / upgrade option, performing a factory reset button to ensure that users can return to the initial state after the wrong operation of the router is set, so that it can be used normally. At the same time, we reserve the upgrade function. When we update the new version of firmware, users can perform the upgrade operation by themselves, so that they can experience more functions. The factory reset and upgrade are as shown below.

动作	Ϋ́F					
	- 10					
Ê	备份					
	点击"生成备份"下载当前配置文件的 tar 存档。					
	下载备份	生成备份				
1	恢复					
	上传备份存档以恢复配置。要将固件恢复到初始状态。這单去	"执行重置" (仅 squ	ashfs 格式的固件有效) .		
	が复到出厂设置	执行重置				
	恢复配置		浏览	上传备份		
		自定义文件(证书、	脚本) 会保留在系统	上。若无需保留,请	先执行恢复出厂设置	Rin o
1						
1	保仔 mtdblock 内谷					
	单击"保存 mtdblock"以下载指定的 mtdblock 文件。(注)	意:此功能适用于专业/	人士!)			
	选择 mtdblock	firmware	571.		<u> </u>	
	下载 mtdblock	保存 MTDBLOCK				
F	刷写新的固件					
	上传一个 sysupgrade 格式的固件映像又件以替换当前运行的	固件。勾述"保苗配查" 	以使更新后的系统仍	然使用ヨ則的系统間	宜 (新的回件需要#	138
	保留配置					
	固件文件		浏览	写固件		
				1.1		

What needs to be explained here is that when users upgrades the firmware, please do not power off. After loading the firmware browsed on the page, click to flash the firmware and wait for more than 10 seconds before the next window pops up. After clicking execute, wait a few seconds. A few minutes later, the web page automatically returns to the login interface, and the upgrade is successful.

4.2.4 Restart

In the system-> restart option, you will enter the following interface, click on the execute operation to perform the restart, wait for about 40 seconds, and the WORK indicator on the device panel flashes normally. At this time, the restart is successful.



另外,在面板的侧边(网口位置的右边),有一个 RST 物理按键,短按该按钮,也可以重启该设备。

4.3 Service

4.3.1 Dynamic DNS

In the Service-> Dynamic DNS option, users can add a domain name resolution service to achieve the functions of remotely setting up a router, as shown below.

Wrt Wiki: <u>DDNS 客户端文档</u> <u>DDNS 客户通航宣</u>					
青: m	yddns_i	ipv4			
里修改	选择的 DDNS	服务的详细配	72 E. o		
础设置	高级设置	计时器设定	日志查看器		
			已启用		
				如果服务配置被禁用,那么它将不能被启动。 无论是通过 LuCl 页面或者是通过终端。	
查询主机名 IP 地址版本		查询主机名	yourhost.example.com		
			主机名/FQDN 验证,如果 IP 更新发生或必要		
		IP 地址版本	● IPv4 地址		
			○ IPv6 地址		
				设定哪一个 IP 地址(IPv4 或 IPv6)会被发送给 DDNS 提供商	
		DDNS	服务提供商 [IPv4]	dyn.com	~
			域名	yourhost.example.com	
			曹操更新 URL 中的 [DOMAIN]		
用户名		用户名	your_username		
				替换更新 URL (已编码 URL) 中的 [USERNAME]	
			密码		•
				替换更新 URL (已编码 URL) 中的 [PASSWORD]	

In the dynamic setting interface, some DDNS service providers have been pre-configured in the drop-down menu in the DDNS service provider. If the DDNS service provider selected by the customer is not in the drop-down box, you can choose to customize it.

Dynamic DNS is not enabled by default. Before using this function, please click Enable first.

After modification, please restart the router to ensure normal work.

Customers need to fill in the parameters set by DDNS strictly to ensure that the network matches normally. With multi-level routing, DDNS is also available.

This function cannot be used if the network where the router is located is not assigned a separate public IP. If relevant port mapping is set in the firewall, remote access to the router's internal network can be achieved.

The router can add multiple dynamic domain names.

4.3.2 WIFI Plan

In the Service-> WIFI plan option, users can set wireless WIFI related events, such as the activation or shutdown of wifi, as shown below.

WiFi 计划 定义自动打开和关闭 WiFi 的计划表	
全局设置	
启用 WiFi 计划	
启用日志	
激活 WiFi	激活 WIFI
正常关闭 WiFi	正業关闭 WIFI
强制关闭 WiFi	强制关闭 WIFI
卸载横块(实验性的,节省更多电量)	
计划事件	
BUSINESSHOURS	
启用	
星期	☑ 星期──辺 星期──辺 星期三回 星期五□ 星期六□ 星期日
启动 WiFi	06:00 👻
₩PI MARE:	13.00 -

4.3.3 Frp Intranet penetration

For internal users who do not have a public IP, remotely managing routers or other ports on the internal network is an awkward problem. Intranet penetration allows access to devices (such as the local machine) on the internal network through the public network. There are many intranet penetration tools. FRP intranet penetration with its high-performance reverse proxy application not only allows customers to easily perform intranet penetration, provide services to the external network, but also has stable and efficient performance and supports multiple protocol types.

Next, we will demonstrate how to use the intranet penetration tool.

Here, we log in to www.ngrok.cc, log in to the homepage of a frp server provider's official website, and then purchase the frp server. Of course, the platform also provides a free server (if users have their own public IP, he can set up his own frp server, here we use a third-party provider).

After purchasing the frp server, create a server tunnel in your account (the creation process is very simple and the platform is a detailed tutorial). After the tunnel is created, you can see the following information .

\leftarrow \rightarrow \heartsuit \textcircled{O}	www.ngrok.cc/user.html				
	◀ 首页 我的信	息◎ 主页 ◎	隧道管理 ⊗		
R , x גניָ <u>ָ</u> מּקַמְ.com	隧道管理				
希 主页	注意:未付款订单	将会在一个小时候自动	取消		
▲ 我的信息 (隧道id \$	隧道名称 \$	隧道协议 \$	本地端口 🗢	服务器类型 ♥
	× 1010010105	3 test-ebyte	http	192.168.10.1:80	Frp(客户端下载)
¥ 订单管理	隧道域名:	ebyte			
▲ 隧道管理 ~	自定义域名: 隧道端口: http验证用户名·	- 1			
隧道管理	http验证密码:	-			
开通隧道	开通日期: FRP授权码:	2019-08-03 16:19:01	89f30bcd9b2 1000		
	服务器地址: 服务器端口:	7000	(请不要暴露此地址,	,避免服务器遭受攻击,	谢谢)

Here we will get: 1. Tunnel domain name; 2. Tunnel name; 3. FRP authorization code; 4. Server address; 5. Server port; 6. Tunnel protocol; 7. Local port. These parameters need to be used in the frp client setting parameters in our router later.

In the service-> Frp intranet penetration-> basic settings option, we get the following setting interface.

状态	~	
系统	~	全局设置
服务	^	fpc运行中状态显示
Frp 内网穿透 动态 DNS SIM卡		基本设置 其他设置 客户端日志 已启用 2 功能启用
VPN 服务器 WiFi 计划 485串口		软件版本 0.16.1 ▼ 自定义版本。当前运行版本: 0.16.1
网络	~	下载源地址 源地址-2 ~
退出		服务器地址 frp frp.R务器地址 frp.R务器地址 近程服务器地址
		端口 7000
		HTTP穿透服务端口 80
		HTTPS穿透服务端口 443
		服务注册问编 40 0表示禁用定时注册功能,单位: 分钟

Server parameter name	Client parameter name	Description
	Software version	Client software version, select the default 0.16.1

	Derruland service address	Software download source, select the default source
	Download source address	address -2
Server address	Server address	Fill in the obtained server address with this option
Server port	Port	7000
FRP authorization code	Privilege token	Fill the server's authorization code into this option

In the basic settings, we enable the frp function and perform the following parameter correspondence: For other options, select the default.

In the service-> Frp intranet penetration-> service list option (this option is at the bottom of the page), we click the add button to go to the following interface and the setting interface as follows.

Frp域名配置

配置 Frp 协议参数	
基本设置 其他设置	
开启状态	启用
Frp 协议类型	HTTP ~
域名类型	子域名 ~
子域名	ebyte
	使用子域名时,必须预先在服务端配置主域名(subdomain_host)参数。
内网主机地址	192.168.10.1 (EBYTE.lan) •
内网主机端口	80
开启数据加密	
	将 frpc 与 frps 之间的通信内容加密传输,将会有效防止流量被拦截。
使用压缩	
	对传输内容进行压缩,加快流量转发速度,但是会额外消耗一些 cpu 资源。
服务备注名	test-ebyte-324717
	清确保备注名的唯一性

In this setting interface, we need to change the enabled state from disabled to enabled, and then set the relevant parameters corresponding to the server, as shown in the following table.

Server parameter name	Client parameter name	Description
Tunnel protocol	Frp protocol type	http
	Domain type	Select subdomain
Tunnel domain name	Subdomain	ebyte
Looolmont	Intranet host address	192.168.10.1
Local port	Intranet host port	80 (router web port)
Tunnel name	Service note name	test-ebyte-324717

Other selections default, and then click the Save and Apply button in the lower right corner. And restart the router.

After our intranet penetration function is successfully enabled, enter the Frp public network address in the browser, as shown below. At this time, our management interface appears on the web page, indicating that our intranet penetration start-up was successful.

$ \begin{array}{c c} & \leftarrow & $	
EBYTE 4G INDUSTRIAL ROUTER	
	需要授权 (新始入用户会们定题)。 用户省 root 変現 [変現 [] 変現 []

4.3.4 485 Serial port

485 serial port function has the data conversion between local RS485 serial port and Ethernet.Users can send the local serial port data to the remote data receiving port through the network protocol (TCP / IP). Users can also send it to the local serial port.We will explain the RS485 function below.

In Service-> 485 Serial Port Option, you can configure related options for serial port services, as shown below.

	0 1	192.168.10.1/cgi-bin/Juci/admin/services/ser2net
PAR BD 12: 11: 15 49: 27 49: 12 49: 27 49; 27 49: 27 49; 2	1	EBYTE 4G INDUSTRIAL ROUTER
犬态	~	中口、、小十网
系统	\sim	中口<->以太网
服务	~	串口与以太网的数据互转
Frp 内网穿透		
动态 DNS		常规配置 串口配置 网络配置
SIM卡		□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
VPN 服务器		
WiFi 计划		心跳包功能
485串口		心跳间隔(秒) 60
网络	~	心態内容(ASCII) NO USE
見出		MEI Outlan
		注册型 Cusion-
		自定义内容
		注册方式 Only once, at the time of registration >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

As shown in the figure above, the general configuration options include enabling serial port services and related services that enable heartbeat packets. We do not enable them by default here, but if users enable serial port services, in order to prevent the link from breaking, we recommend that users enable the heartbeat packet function at the same time. In the registration packet, you can choose the registration method. Here we provide ICCID and IMEI of SIM card as the registration packet. Of course, users can also customize the registration package content or registration method. In addition, the registration packet and heartbeat need to be explained.

In the serial port configuration options, as shown in the figure below.

	以太区	Ŋ			
	CTFLELENCE				
常规配置	串口配置	网络配置			
			波特率 (bps)	115200	~
			数据位	8	~
			校验位	None Check	~
			停止位	1	\checkmark

Here, the user can set the parameters related to the serial port, no unnecessary details are given here.

In the network configuration, configure the relevant parameters of the network, such operating mode, IP address and port, and the related settings of the transmission mode, as shown in the figure below.

串	<mark>□</mark> <->	以太区	X				
串口	目与以太网的数	的据互转					
	常规配置	串口配置	网络配置				
				工作模式	TCPServer	~	
				本地IP	192.168.10.1		
				本地講口	7789		
				传输模式	Pass-Through	~	

Next, we will show a demo for users' reference.

In the general configuration, we set the following parameters.

常规配置	串口配署	网络配罟				
			启用			
			心跳包功能			
			心跳间隔 (秒)	10		
			心跳内容(ASCII)	FE		
			注册包	Custom	自定义	\checkmark
			自定义内容	hello ebyte	注册内容	
			注册方式	Send message every time	每次发送消息	<u>,~</u> 追加注册包

In the serial port configuration, we choose the default parameters, namely:

Baud rate: 115200;

Data bits: 8;

Parity digit: None;

Stop bit: 1;

In network configuration, we do the following configuration.

串ロ<->以太网 甲口与以太网的数据互转				
常规配置 串口配置 网络配置	工作模式	TCPServer	路由器工作方式	~
	本地端口	7789 Pass-Through Modbus RTU	传输模式选择	

Now we press the save and apply button (no need to restart the router here).

🏰 SSCOM V5.13.1 串口/网络数据调试器,作者:大虾丁丁,261 🗆 🗙	NSCOM V5.13.1 串口/网络数据调试器,作者:大虾丁丁,261805 口 ×
通讯端口 串口设置 显示 发送 多字符串 小工具 帮助 联系作者 ▲PCB打样降至每款5元顺丰包邮可选杂色! 【癌立创官网】	通讯端口 申口设置 显示 发送 多字符串 小工具 帮助 联系作者 ▲PCB打样降至每款5元顺丰包邮可选杂色! 【燕立创官网】
[10:29:23.427]版++FE [10:29:24.866/版++CTCP client send 10:29:29.77/版++fallo ebyte\$55 send 追加的注册包内容	[10:29:24.858]收← TCP client send [10:29:29.776]发→ \$R\$485 send 申口发送的数据
端口号 TCPCLient HEX显示 保存数据 」 援收数据到文件 []	端口号 COM12 USB-SERIAL CH340 ▼ HEX显示 保存数据 接收数据到文件 HEX
近程 192.168.10.1 //89 / 加时间戳和分包显示。超时时间: 20 ms 第	
本地 1152.168.172.1 _ 8666 _ 断开 111 client send	□ RTS I DTR 波特率: 115200 _ DTR 加速
为了更好地发展SSCOM软件 请您注册嘉立创F结尾客户	为了更好地发展SSCOM软件 请您注册嘉立创听结尾客户 发送

What needs to be explained here is that when the registration packet is enabled, the registration packet is added only when the serial port data is sent to the Ethernet. No registration packet added when the data sent by the Ethernet to the serial port.

At the same time, RS485 function not only supports the transparent transmission mode, but also supports the Modbus protocol (Modbus RTU and Modbus TCP protocol conversion).

In our demo, the router operates in TCP Server mode and is accessed by LAN. Users can choose relevant network operating mode and remote IP and port according to their needs.

In addition, it should be noted that if users does not connect to the server within 2 to 3 minutes after booting and self-starting in client mode, it will be automatically disconnected. When users confirm that the server is ready, they need to restart the serial-to-Ethernet service (that is, click the Save and Apply button again).

4.3.5 VPN Server

The E880-IR01 router supports both VPN client and server mode. Here, we will explain the VPN server (based on the PPTP protocol).

In order to make it easier for users to understand and correctly use VPN functions, we first explain the related concepts of VPN.

VPN (Virtual Private Network) is a virtual private network. It is a remote access technology. It uses the public network to establish a private network of its own. The VPN gateway implements remote access by encrypting data

packets and converting the destination address of the data packets. We can take an application scenario, Xiao Wang of a company is on a business trip in Beijing, he wants to access the intranet server of the company located in Chengdu. At this time, if the company's VPN server is connected through VPN, then Xiao Wang can be assigned a local IP by the server to obtain server resources, or form a "LAN" with other clients (colleague's computers) under the server to achieve remote data interaction.

In the service-> VPN server option, there is the following interface. Among them, in the basic settings, set the gateway IP and client IP (or IP range) of the VPN server and some related operating methods of the VPN.

	成都亿伯特电子科技有限公司		EBYTE 4G INDUSTRIAL ROUTER	
	状态	~	基本设置 用户管理 在线用户	
^	系统	\sim	V/DNI 肥冬哭· 其太公署	
	服务	^	VFIN 版力品. 至平以直	
	Frp 内网穿透 动态 DNS		启用 VPN 服务器 □	
	SIM-E		服务器 IP 地址 192.168.0.1	
	VPN 服务器		VPN 服务器还程地址,留空将自动设置。	
	WiFi 计划		客户端 IP 地址 192.168.0.20-30	
	485串口		分配培養产端的IP地址范围,留空将自动设置。	
	网络	~	DNS IP 地址 8.8.8.8 +	
	No. 11		设置 VPN 服钨器默认 DNS 服钨器,该设置非必须。	
	退出		唐用 MPPE 加密 □	
			允许使用 128 位加密连接。	
			唐用 NAT 转发 □	
			允许转发流量(该功能可能加重路由负担)。	
			自用运程服务 □	
			允许远程计算机通过互联网连接到此 VPN 服务器。	

In the user management settings, set the authentication password and user name of the VPN server. The option column Online Users can view the access information of related clients.

Below we will demonstrate the creation of a VPN server and related considerations.

In the basic settings, we set it as follows:

VPN 服务器:基本设置	
盾用 VPN 服务器	•
服务器 IP 地址	192.168.30.1
	VPN 服务器远程地址,留空将自动设置。
客户满 IP 地址	192.168.30.20-30
	分配给客户端的 IP 地址范围,留空将自动设置。
DNS IP 地址	8.8.4.4 ×
	8.8.8.8
	8.8.8.8
	设置 VPN 服务器默认 DNS 服务器,该设置非必须。
启用 MPPE 加速	
	允许使用 128 位加密连接。
启用 NAT 转发	
	允许转发流量(该功能可能加重路由负担)。
启用远程服务	

In user management, we set our own password and username, as follows; Password: 123456

User name: roy123

已成用	用户名		8 6		甲地址	
2 roy123		123456		自动分配		
			120			
170 A						
						保存并应用
					line.	and by Chennels Floring comm
						non of coundry rates county

After the setting is completed, we need to restart the router. And after that, our VPN server function starts to work.

At this point, we can set up a VPN client on our computer, and authenticate to the username and password we set up before, and then we can access our VPN server.



As shown in the figure above (win10), we click Add VPN Client and get the following interface.

	×
添加 VPN 连接	
VPN 提供商	
Windows (内置) V	
1612422.20	
test-ebyte-vpn	
103.2 1.120	
VPN 类型	
选择目动 也可以选择pptp隧道协议	
用户名和密码	
用户名(可选)	
roy123	
填写VPN服务器的认证信息	
器H(1)通	
保存 取消	

Then click Save. At this point, we will see one more VPN client.

命 主页	VPN
查找设置	۶ VPN
网络和 Internet	+ 添加 VPN 连接
● 状态	S880-Roy-VPN 新创建的VPN客户端
// WLAN	aliyun-Roy-VPN
12 以太网	
♀ 拨号	test-ebyte-vpn
% VPN	连接 高级选项 删除
- 予 飞行模式	- Alexandream - Ale
(1)	高级选项

We click Connect and then the VPN client connects to the routing VPN server.

设置		-	×
命 主页	VPN		
宣抗设置	VPN		
网络和 Internet	+ 添加 VPN 连接		
伊 状态	880-Roy-VPN		
// WLAN	aliyun-Roy-VPN		
空 以太网		_	
♀ 拨号	test-ebyte-vpn 已连接		
∞ VPN	高级选项 断开连接		
☆ 飞行模式			
(中) 移动热点	高级选项		

At this point, when the connection is successful, we open the windows console and enter ipconfig, we will see the following adapter.

C:\Windows\system32\cmd.exe
连接特定的 DNS 后缀......: 本地链接 IP∀6 地址........: fe80::2d60:93bd:5224:444e%14 IP∀4 地址..............192.168.172.1 子网種码.................255.255.0 默认网关....................................
以太网适配器 以太网 3:
媒体状态
PPP 适配器 test-ebyte-vpn:
连接特定的 DNS 后缀
无线局域网道配器 WLAN:
媒体状态
以太网适配器 蓝牙网络连接:
媒体状态

Now, our computer has been assigned a remote IP address by the VPN server. We can check the current situation of our router as follows:

基本设置用户管理在线用户			
VPN 服务器:在线用户	服务器的IP	VPN客户端被分配的IP	远端VPN客户端的 地址
	服务器 IP 地址	套户读 IP 地址	IP titté
	192.168.30.1	192.168.30.20	1 0.109

Similarly, the clients of other operating systems are roughly the same as those of windows. Users should note that the IP address of the VPN server is the same as the address mapped on the WAN port. When users use the VPN client to connect to the server and fill in the server name, they should fill in the IP address of the WAN port instead of 192.168.30.1 IP in the figure above. In addition, users need to know that when the VPN private network is established on the public network, the public network is disconnected, and the private network is immediately disconnected as well.

4.3.6 SIM Card

In the network-> SIM card option, you can configure the network access mode of 4G SIM card and query basic information of current SIM, as shown in the figure below.

\leftrightarrow \rightarrow O \Leftrightarrow	① 192.16	68.10.1/cgi-bin/luci/admin/network/apnIte	
成都亿佰特电子科技有	国家公司	EBYTE 4G INDUSTRIAL ROUTER	
状态	~	Catting & Information	
系统	~	Setting & mormation	
服务	~	↓锁网模ェ	1, 默认自动
网络	~	LTE Settings SIM Card	
接口		LTE mode 4G	~
无线		auto 4	G>3G>2G
交换机		LTE priority auto	~
DHCP/DNS		auto 4	G>3G>2G
主机名			
静态路由		搜网顺	茅,默认自动
SIM			
防火墙			

LTE mode is a network lock mode. Customers can use this option to switch the current network attributes (4G / 3G / 2G). Here, it should be noted that when switching networks, customers must know in advance whether the current telecommunications provider has the settings Network segment, for example, the mobile 4G card used by customer A, it sets the LTE mode to 3G, and the result does not have the service (signal quality indicators are all off). The reason is that the mobile card has been withdrawn from the 3G network segment, and the router cannot find the corresponding service.

LTE prority is the priority search sequence. When LTE mode is automatic, LTE prority is effective.

If Customers want to inquire about the related information of SIM card can switch to the SIM Card option to view the following information.

etting & Information		
LTE Settings SIM Card		
IMEI	800.00041142363	IMEI号
OPERATOR	CN-CTCC	电信提供商
SINGNAL_INTENSITY	27	当前网络信号
SOFTVER		"····································
СІМІ	460110000063095	CIMI号
SIMCARDSN	85 7701	57 QCCID
CENTER_NUMBER	+8618100010125	本卡号码
NET	LTE	当前网络属性

4.4 Network

In the network settings column, users can set and query network related parameters, such as login gateway settings, wifi settings, SIM card attributes, firewalls, etc. The following describes some of the commonly used setting options for users.

4.4.1 Interface

In Network-> Interface, users can set LAN port, WAN port, 4G network related settings, as shown in the figure below:

成都经新转电子转换有限公司	EBYTE 4G INDUSTRIAL ROUTER		finality (
状态 ~	LAN WAN WAN6 WWAN		
系统 ~	控 口		
服务 >			
网络 ^			
股口 无线	WWAN_4	物效: 虚拟动态报口 (DHCP 解户跳) 运行时间: 0h 44m 10s IPv4: 105	1018 关闭 \$P\$11 1994
交换机 DHCP/DNS 主机名 静态路由 SIM	LAN がご(計量) br-lan	9900: 静志は地と 活行理論() 0h 44m 166 MAC: 400063(1:E14A:B4 解他: 317 MB (22352 脱脂化) 起語: 51.4 MB (22352 脱脂化) 足が法: 15.4 MB (22352 脱脂化) I PM: ft:Ba:23214061; 1/80	100 关闭 \$100 1000
防火墙 网络诊断 QoS	WAN eth02		第日 英府 第三 159
退出	WAN6	物役: DHCPv6 寄产論 MAC: 40:D6:3C:1E4485 開税: 16:59 MB (54929 影響句) 複雑: 2.76 MB (18151 数据句)	1000 关闭 新聞 1556
	WWAN	約32: Q/MI 細胞 运行理解: Oh - 44m 13s MAC © 05:00:00:00:00 線蛇: 23:29 KB (87 恋嬌化) 変統: 16:49 KB (121 恋病性)	

In LAN option, you can set the gateway, subnet mask, etc. of the 4G router and the related settings of the DHCP function, as shown in the figure below.

成都化值特电子科技有限公司	EBYTE 4G INDUSTRIAL ROUTER
状态 ~	LAN WAN WANS WWAN
系统	
服务 >	接口 - LAN
网络	在此沉思。您可以 此 思问确想口。您可以访道"特别跟口",并输入由空格均稀的多个得限银口的名称非相信多个银口,跟口名称中可以使用 <u>VLAN</u> 记号 arranzes.xxxxxxx (特如: exxx.) 。
般日	
无线	一般配置
交换机	1 + 02 2002 MR-02 Ny-802
DHCP/DNS 主机会	
静态路由	2675938-11 500 555 Mac.40063C1-E4A84
SIM	##wbr.750.0He [5747] #02#@] 20世纪 5445.He (56593.5##@G)
防火墙	I Het 1: 15 al (1) / 20 I Prvf: Hob 3: cd doff. / 60
网络切斯 QoS	1922 静志地址 ~
Sector.	IPv4 2021 192-188.10.1
退出	IPv4 字列模码 255.255.255.0 •
	19v4) /#
	使用曲定Xin DNS 服务器
	IPv6 3股利益 60 +
	百年年人以下,1946年1948年(1949年)。 1949年194日 - 1949年1949年1949年194日 1949年1949年1949年1949年1949年1949年1949年1949
	IPv6 分配表示 Windowshite(注: ID: strengt)(Applied)
	Intel E 1
	可适,分产的通:"euid4"、"random"和其他型型值(例如:"z1"或"z12")。当从进行服务器获取到 IPv6 前缀(如"sbc.du"),使用质级(如"z1")合成 IPv6 IPb注(
	DHCP 服务器

Users can set the login IP of the 4G router, DHCP IP pool, number of customers, and lease duration, etc. in the general configuration. The default DHCP allocation IP range is $192.168.10.100 \sim 192.168.1.250$, and the lease

duration is 12h by default. Dynamic DHCP IP allocation is enabled by default. Users can choose to disable it or not according to their needs.

For the 4G network interface, if users uses an ordinary mobile phone card, it is not necessary to set the relevant APN information. If users use an APN dedicated network card which has a special APN address, when creating a 4G interface, they also need to fill in the relevant APN information in the figure below.

接口 - WWAN 在此页面,您可以配置网络接口,您可以勾造"祈娘接口",并能入	、由空格分隔的多个网络接口的名称来桥接多个接口	,接口名称中可以使用 <u>VIAN</u> 记号 INTERACE VIAME(例如: eth
一般配置		
基本设置 简级设置 防火墙设置		
**************************************	设备: wwan0 运行时间: 70:00:00:00:00:00 第位: 70:60:00:00:00:00 第位: 74:666 KB (5:184 数增色)) 发送: 480.21 KB (55:17 数增色))	
协议	QMI 蜂窝	~
调制解调器设备	/dev/cdc-wdm0	
APN		
PIN		
PAP/CHAP 用户名		
PAP/CHAP 密码		•
认证类型	请选择	•
	请选择	
	PAP/CHAP (both)	
返回至概况	CHAP	
	NONE	
	自定义	

This device also supports VPN clients (pptp, l2tp protocol type). Next, a demo of the VPN client will be given. First, we click to add a new interface and get the following information. Here, we set the name to PPTP and the protocol to PPtP.

新接口的名称 PPTP 合法字符: A-Z, a-z, 0-9 和 注意: 接口名称长度 名称的最大长度为 15 个字符, 包含根据协议类型, 网桥自动添加上的名字前缀 新接口的协议 PPtP ✓	创建新接口	
注意:接口名称长度 名称的最大长度为 15 个字符,包含根据协议类型,网桥自动添加上的名字前缀 新接口的协议 PPIP	新接口的名称	PPTP 合法字符: [A-7] [a-7] [0-9 和
新接口的协议 PPtP V	注意:接口名称长度	名称的最大长度为 15 个字符,包含根据协议类型,网桥自动添加上的名字前缀(b
	新接口的协议	Pptp v

In the basic settings, we enter the corresponding server IP, username and password, and add the interface to the firewall, and save and apply.

一般配置	置				
基本设置	高级设置	防火墙设置			
			状态	 設备: pptp-PPTP 接收: 0 B (0 数据包) 发送: 0 B (0 数据包) 	
			协议	PPtP	~
			VPN 服务器	test.ebyte.site	
			PAP/CHAP 用户名	roy	
			PAP/CHAP 密码	•••••	•

Wait for a little while, then, the VPN interface is assigned an IP address by the server, indicating that the remote VPN server is connected.

v	WWAN_4	bity: 虚拟动态接口 (DHCP 客户)) 运行时间: 7h 19m 19s IPv4: 10.105.187.242/30
8	LAN ² (2000) br-lan	(M)2: 第本地地は 運行時間にアト19m 25s (MaC+40:053<:1E6C:00 展空に1507 ME(5559) 契据(2) 展空に1507 ME(5559) 契据(2) 展空に1507 ME(5599) 契据(2) [PV+192:165.10:1/24 [P5-64:1925+1926+1926+1926+1926+1926+1926+1926+1926
p	PPTP ptp-PPTP	送行時時に 0h 1m 35s MAC: 00:0000000:00:00 実験に 69.25 KB (288 数据度)) 実施: 43.49 KB (394 数据度)) ドサイ: 192.168.20.234/32
	WAN Etho.2	by: DHCP 客户語 ΣGTBME: 7n 19m 21s KAC: 40-05-21:E6C:01 接触: 6851 MB (171756 数理他) 技法: 15.78 MB (92743 数理他) HP+1: 19:16:01.109/24
	WAN6	ける: DHCPv6 客户満 MAC: 4D/D63C:1E6C01 接後: 68.51 MB (71755 接通句) 投設: 15.78 MB (92743 数据句)

At this time, our intranet IP of ping server can be pinged.

(Boston)	C:\Users\Roy>ping 192.168.20.1
F	正在 Ping 192.168.20.1 具有 32 字节的数据: 来自 192.168.20.1 的回复: 字节=32 时间=40ms TTL=63 来自 192.168.20.1 的回复: 字节=32 时间=40ms TTL=63 来自 192.168.20.1 的回复: 字节=32 时间=40ms TTL=63 来自 192.168.20.1 的回复: 字节=32 时间=41ms TTL=63
	192.168.20.1 的 Ping 统计信息: 数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 (0% 丢失), 往返行程的估计时间(以毫秒为单位): 最短 = 40ms, 最长 = 41ms, 平均 = 40ms
	C:\Users\Roy>

Similarly, the VPN and PPTP settings of the L2TP method are roughly the same.

Here, we do not give an overview of other interfaces. At the same time, we also recommend that customers who do not have special needs or are not professionals, try not to set the relevant parameters of other interfaces. If customers have related questions, please call us for consultation.

4.4.2 Wireless

In the network-> wireless-> wireless overview option, click the edit option and users can set and query wireless related parameters, such as setting wireless password, operating mode, MAC filtering, etc., as shown in the figure below.

状态	\vee	
系统	~	设备配直
服务	\sim	基本论图 网络爱爱
网络	~	状态
接口		0% BSID: 40:06-32:1F4:A44 MBS: WA2 PSK (CCMP)
无线		任語:11(2.452.61z) 株職項列車:18.61m
交换机		씁号:0.0 bm (陳濟):0.0 bm 代報通過率:5.5 M b/0.15 目前:0.00
DHCP/DNS		于线网络中层用 雪用
主机名		R
静态路由		工作版本 N v11(2462 MHz) v 20 MHz v
防火塩		天线电功率 自动 シ
网络诊断		d8m
QoS		
<u>退出</u>		
		WPA2PSK V
		abig www.ebyte.com •
		802.111 快速切换
		雇用属于III——移动域的撮入点之间的快速激励
		802.11w曾建瓴保护 已蒸用(款认) 🗸
		罂粟类繁质本的 wpad/hostapd,并且 WiFi 孤治支持 (截止 2017/02,已现更清优捐性会驱动病 ath9k、ath10k,以及 LEDE 中的 mwlwlifi 和 mt76)
		自用書明置制安裝 (KRACK) 対策 □
		通过展用用于安装审判的 GAPOL-Key 财的重新传输,未增加降今所密则重要被攻击的复杂度,此解决方法可能会导致互属作性问题,并得低限物价度的可靠性,特别法
		周用 WPS 一種加速按钮,需要 WPA(2)-PSK 🕢

In wireless WIFI, the default WIFI name is: EBT-E880-XX: XX: XX: XX: XX: XX: XX: XX

The characters after EBT-E880- are the MAC address of the device.

WIFI default password is: www.ebyte.com

In addition, the 4G router has the WPS one-click Internet access function, which is turned on by default. If users want to connect to the device wirelessly, they need to turn on the WPS button function of the WIFI device, and then short press the WPS button on the side of the device and easily connect to WIFI without entering password.

4.4.3 Switch

In the network-> switch option, users can combine the network-> interface to set the type of network port (such as LAN port and WAN port) or enable / disable the network port. In later versions, The relevant settings will be combined with load balancing. The setting interface is shown in the figure below.

交换机 "switch	h0" (rt305x-	esw)														
		唐用 VLAN ☑														
"switch0" (rt:	305x-esw) _	B) VLAN		LAN 1		LAN 2			LAN S			LAN 4		WAN		
第日状态:	10	ØD 00baneT 全双工		100baseT 全京工		第 末道時			唐 朱遺棟			*12段		300baseT 金双工		
1	BMRZ	~	×标记	~	未标记		~	未続记	~		3		× 1	×.	~	EIR
2	Ethic		× <u>×</u>	~	×		~	×		×			~ 3	末 标记	~	Ell?

4.4.4 Host name

In the network-> host name option, custom domain name resolution can be implemented. Users can fill in any host name (domain name) they want. Here we set "EBYTE-4G-ROUTER" as the host name, corresponding IP address is 192.168.10.109. In this way, the mapping between the host name and the IP address is realized. When the local resolution EBYTE-4G-ROUTER actually resolves the 192.168.10.109 address.

几名		
主机目录		
ŧ	机名	IP 地址
EBYTE-4G-ROUTER	192.168.10.109 (EBYTE-4G-ROUTER.lan)	

然后,我们在 windows 命令行 ping 一下主机名如下:

C:\Windows\system32\cmd.exe
C:\Users\Roy> C:\Users\Roy>ping EBYTE-4G-ROUTER
正在 Ping EBYTE-4G-ROUTER.1an [192.168.10.109] 具有 32 字节的数据: 来自 192.168.10.109 的回复: 字节=32 时间<1ms TTL=128 来自 192.168.10.109 的回复: 字节=32 时间<1ms TTL=128 来自 192.168.10.109 的回复: 字节=32 时间<1ms TTL=128 来自 192.168.10.109 的回复: 字节=32 时间<1ms TTL=128
192.168.10.109 的 Ping 统计信息: 数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 (0% 丢失), 往返行程的估计时间(以毫秒为单位): 最短 = Oms, 最长 = Oms, 平均 = Oms
C:\Users\Roy>

4.4.5 Static routing

Static routing can realize the setting communication of two different network segments. Assume the following configuration:

The WAN port address of router R1 is 192.168.0.112, and the LAN port gateway is 192.168.10.1;

The WAN port address of router R2 is 192.168.0.147, and the LAN port gateway is 192.168.20.1;

If users want to realize that the PC under the R1-LAN port on the LAN accesses the PC under the R2-LAN port to

implement communication functions on different network segments, a static route can be added to R1 to implement it. First set a static route on R1, and set up on R2 with the same principle, as shown in the figure below:

洛由表 ^{路由表描述了数据包的可达路径。}									
静态 IPv4 路由									
接口		目标	IPv4 子网掩码	<u>IPv4</u> 网关	跃点数	мти	路由类型		
		主机 IP 或网络	如果对象是一个网络						
wan	~	192.168.20.0	255.255.255.0	192.168.0.147	0	1500	unicast	•	删除
法加									

After adding, forwarding option should be changed from Deny to Accept in Network-> Firewall-> Basic Settings, as shown in the figure below.

本设置									
	启用 SYN-flood 防御								
	丢弃无效数据包								
	入站数据	接受		~					
	出站数据	接受		~					
	转发	接受		×					
	Routing/NAT 分载	实验特性。与 Q	oS/SQM 不完全兼容。						
	软件流量分载								
		基于软件的 Rou	ting/NAT 分载						
红城									
字 区域 ⇒ 转发	入站数据		出站数据		转发	IP 动态伪装	MSS 钳制		
in lan ⇒ wan	接受	~ 1	安受	~ 接受		~ 🗆		编辑 删除	

No static routing function is added by default.

4.4.6 Load balancing

Load balancing function can dynamically assign the router's multiple network interfaces (such as wired Ethernet and 4G wireless) to the priority of use of each network, enable, and even the proportion of flow between network ports. It enables users to make relevant allocation mechanisms based on the actual network environment. In the following, we will explain the load balancing function.

On our router, two network interfaces connected are wan (wired Ethernet) and wwan (4G wireless). After we power on, we can check the operating status of the two interfaces in the status-> load balancing option.



Users can handle exceptions in some interfaces or set some parameters through other sub-options.

In the option Network-> Load balancing, users can set the relevant parameters of load balancing, as shown in the figure below.

EBYTE 4G INDUS	TRIAL ROUTER	R				
全局接口成员策略	§ 规则 通知					
MWAN - 接 当前已配置 2 个接口, 量力 警告: 接口 wwan 在主路	口 大支持 60 个 由表中没有默认的路由					
MWAN 支持最多 25 MWAN 要求所有速[名称必须与 /etc/con 名称允许包括 A-Z、a 接口不应该与成员、f	2 个物理或逻辑接口, 1必须在 /etc/config/netts fig/network 中的接口名标 a-z、0-9、 氧略、规则中的任意一个该	work 中设定唯一的网关玩点。 知己。 酒。 遭项使用相同的名称				
名字	已启用	銀踪方式	跟踪可靠性	Ping 间隔	接口离线	接口在线
wan	是	ping	1	5s	3	3
wwan	是	ping	1	5s	3	3
	添加					

In this device, we have set two load balancing configurations for multiple network ports by default for users. Next, we will give a brief description of the relevant sub-options of this function for the load balancing formed by these two interfaces. Users can learn to configure their own rules after understanding it.

Interface:

It is used to add, delete or configure all external network access interfaces that need to be load balanced, and configure related parameters for interface status definition and detection.

Via the edit button, you can view the related settings between each interface. Some parameters are described below.

[Tracking IP]: Check whether the external network access of the device is normal by detecting and tracking the pinged destination host, which is usually the public IP.

[Tracking Reliability]: Specify how many IP addresses can be connected when the interface is considered online.

[Ping count]: Number of pings on the external network.

[Ping timeout]: When the ping of the external network is unreachable or there is no response, it is considered timeout.

[Ping interval]: How often ping the destination host IP.

[Interface offline]: When the number of ping failures reaches this value, the interface will be considered offline.

[Interface online]: When the number of successful pings reaches this value, the interface that is considered offline will be online again.

[Hop number]: It shows the priority configured by this interface in multiple interfaces (the smaller the hop value, the higher the priority). It cannot be modified here.

Members:

It is used to set the number of hops (that is, the interface priority) and the proportion of each MWAN interface. The member naming rule is generally: "interface name hop number weight ratio". As shown in the figure below.

"成员"用来设置每一个 MWAN 接口的跃点 名称允许包括 A-Z、a-、0-9、_但是不能有3 成员不应该与接口、策略、规则中的任意一个1	数(即接口优先级)和听占比重。 2倍。 设置项使用相同的名称			
名字	接口	跃点数	比重	
wan_m1_w3	wan	1	3	
wan_m2_w3	wan	2	3	
4g_m1_w2	wwan	1	2	
4g_m2_w2	wwan	2	2	× • •

The above defines four members, each with different hop counts and weight combinations, which provide services for the subsequent strategies.

Strategies:

Used to group members and tell MWAN how to distribute rate of flow using this policy in "rules". Members with lower hops will be used first. Members with the same number of hops divide the flow proportionally according to the weight. Members with a higher proportion of load balancing members will be allocated more flow. This device has 5 default strategies, as shown in the figure below.

全局	接口 成员 策略 规则 通知			
М	 WAN - 策略			
	"策略"把成员进行分组。告诉 MWAN 如何 罪有较低跃点数的成员将会被优先使用,拥有 进行负载均衡的成员之间拥有较高比重的成员 名称分许包括 A.Z. arz、0-2、0是不能有 策略不应该与接口、成员、规则中的任意一个	分配"规则"中使用这一策略的流量 相同跃点数的成员把流量进行负载均衡。 将会被分散到更多流量。 空格。各股成定在15个字符以内 设置质使用相同的名称		
	名字	分配的成员	备用成员	
	wan_only	wan_m1_w3	不可达 (拒绝)	▲ < 編組 < ###
	balanced	4g_m1_w2 wan_m1_w3	不可达 (拒绝)	
	4g_only	4g_m1_w2	不可达 (拒绝)	▲ < < < > < < < < < < < < < < < < < < <
	wan_1_4g_2	4g_m2_w2 wan_m1_w3	不可达 (拒绝)	
	4g_1_wan_2	4g_m1_w2 wan_m2_w3	不可达 (拒绝)	
	添加			

The explanation is shown in the following table:

Name	Description
wan_only	Only use flow from the wired Ethernet interface
halamaad	Use Flow from both Ethernet and 4G wireless interfaces and is obtained at a
balanced	ratio of 3: 2
4g_only	Only use flow from the 4G wireless interface
wan_1_4g_2	Wired priority, 4G backup
4g_1_wan_2	4G priority, wired backup

Rule:

It divides flow into specified "policies" based on IP addresses, protocols, and ports. Rules are matched in order from top to bottom. Except for the first rule that matches a communication, the other rules are ignored. Communication that does not match any rules will be performed by the system default routing table.

As shown in the figure below, it represents the policy that all target addresses or protocols follow wan_1_4g_2, that is, the wired network data is preferentially used. When the wired Ethernet fails or there is no data flow, flow is obtained from the 4G interface. When the first rule is not satisfied, the next one is matched, otherwise it will be ignored.

全局接口成员策略规则	·通知						
MWAN - 规则							
規則指定增加定量等使用時加速 規則基于 F 18世上,由日間协议 规則从上于 F TERE E 是和规則以上于的状态的情况。 不符合在规则的过程是体使用于 目的地力上列(目前和的时候,目前和他的标志。 完成年行者入足,acc. 00 规则不可能变更是的关闭。正则和	3 MWAN 策略 適由泰进行路由 透量由主路由泰处理 7 WAN 接口关闭后部 9 和空格 满輪共享相同的名称	创想先放					
名字	源地址	源端口	目标地址	目标端口	协议	分配的策略	
default_rule		-	0.0.0.0/0	—	all	wan_1_4g_2	
https		-	-	443	tcp	wan_only	
	5hn						

If the current policy type meets the needs of users, users need to click the edit button in the above figure, default_rule rule, and modify the corresponding policy.

IPset		
	匹配 IPset 规则列表名称。需要先配置 /etc/dnsmasg.conf 中的 IPset 规则(例如	"ipset=/youtube.com/youtube")
分配的策略	wan_1_4g_2	
	balanced	
	4g_only	
	wan_1_4g_2	
	4g_1_wan_2	
	不可达 (拒绝)	
	黑洞 (丢弃)	
	默认 (使用主路由表)	
	- 自定义	

4.4.7 Firewall

In the Network-> Firewall option, set the related settings of network security and communication rules, as shown in the figure below.

防火墙 - 区域设 防火场圈过在网络接口上创建区 基本设置	<u>崔</u> 《朱拉制网络流量。				
	启用 SYN-flood 防御				
	丢弃无效数据包				
	入站数据	接受	~		
	出站数据	接受	¥		
	₩24 Routing/NAT分载	实验得性。与 QoS/SQM 不完全兼容。			
	软件流量分载	口 基于软件的 Routing/NAT 分载			
区域					
				IP	

4.4.7.1 IP Dynamic masquerade (MASQ)

MASQ is MASQUREADE. Address masquerading converts the source IP of the outgoing packet into the IP address of an interface on the router. As shown in the figure, if IP masquerading is checked, the system will modify the source IP address of the data packet out of the router to the WAN port IP address, here, the default method is to enable IP dynamic masquerading.

区域										
名字	区域 ⇒ 转发	入站数据		出站数据			转发	IP动态伪装	MSS 钳制	
lan	lan ⇒ wan	接受	~ 1	接受	~	接受	~			编辑 删除
wan	wan = ACCEPT	接受	<u> </u>	接受	~	接受	~			编组 删除
添加	1							_		

4.4.7.2 Communication rule (SNAT&DNAT)

In Network-> Firewall-> Communication Rules, there is a column called Source NAT. Source NAT is a special form of packet masquerading. It changes the source address of packets leaving the router. For example, the source IP address of the packet that leaves the router is fixedly changed to 192.168.1.1(real IP: 192.168.10.1). The setting interface is as shown below. The name is EBYTE, which is the display interface after the setting. The name is TEST, which is the display interface when adding.

		A second a second	N II / MANHA AGAP 1 MIN II MANALAWATAG			
名字	匹配规则	添加后	动作	启用		
EBYTE	任何 通信 来自 <i>所有主机</i> 位于 lan	J	乘地址改写成 IP <i>192.168.1.1</i>		~ ~ 编辑	删除
	到 所有主机位于 wan					
所建 Source	到 <i>所有主机</i> 位于 wan	品				
所建 Source	到 <i>所有主机位于 wan</i> NAT 名字 添加	前版目标	i区域 到源 IP	到	源端口	

In this device, Source NAT is not added by default. When using this function, users can make related settings according to related requirements.

DNAT is the replacement of the destination address. The destination IP address of the packets entering the router with the destination address being the IP of the WAN port is replaced with the IP address set by users.

4.4.7.3 Port forwarding

Port forwarding allows computers from the Internet to access computers or services in the private LAN. For example, if you forward TCP data on port 82 on the external network to port 82 on the internal network 192.168.10.119, you will have the following settings.

名字	匹西	规则	转发	到	启用		
	尚无任何配置						
健端口转发 ^{名字}	协议	外部区 外部端口 域	内部区域	内部 IP 地址	内部端口		

4.4.8 Network diagnostics

In Network-> Network Diagnostics option, support online diagnostic function:

Ping tool directly operates ping test of specific address on the router.

Router resolution tool, goes through routing when accessing the address.

DNS viewing tool that resolves domain names into IP addresses.

As shown in the figure below.

网络诊断	
网络工具	
Powerse	d by Cheng

4.4.9 Flow control management (Qos)

In the Network-> Qos option, you can sort data packets based on the network address, port, or service, and perform network speed limit functions on an interface.As shown in the figure below.

_

					删除
WAN					
启用					
分类组	默认	~	-		
计算开销					
半双工					
下载速度 (kbit/s)	1024				
上传速度(kbit/s)	128				
添加					
分类规则					
分类规则 目标 源± f	1. 目的主机	协议	端口 字节数	注解	
分类规则 <u>■時 庫</u> ま# <u>■売 ≚</u> 全部	L 目的主机	协议 全部 ▼ 22,53	端口 字节数 •	注解 ssh, dns	▲ ▲ 删除
分类规则 日母 万美邦 東美邦 豊高	目的主机 全部 * 全部 * 全部 *	协议 22,53 TCP ・ 20,21,25,84	第日 字9数 ・ 2,110.443.993.995 ・	注解 ssh, dns ftp. smtp. http(s), imap	小 一 動除 小 一 動除

5. Device panel identification and function setting



The physical picture of the device panel (front view) is shown below

5.1 LED Indicator

In the panel, the description o	f each LED indicator is shown in the following table

Name	Description
Power	Always on after power on
WORK	After booting, it flashes at a frequency of 1S
WAN	WAN port network cable is plugged in and the other end of the network
WAIN	cable is connected to a device, the light is always on
LANI 4	LAN port network cable is plugged in and the other end of the network cable
LANI-4	is connected to a device, the light is always on
WI AN	when the WIFI network is successfully started, it is always on, and it flashes
WLAN	when there is device access or data interaction.
20/20/40	Current network attribute indicator, all lights off when there is no service,
20/30/40	one is on at most
	Indicates the signal quality of the surrent notwork attributes. The more the
Signal strength 1-4	light is on the store and he size lie
	ignt is on, the stronger the signal is.
DATA	Reserves

5.2 Button setting

Name	Description
RST	Hardware reset, short press this button to realize the restart function.
WPS	WPS Internet access function, short press this button, and use WPS button function on the access device to achieve secret-free Internet access
Restore	Long press the button for more than 5s to execute the factory reset function

In the panel, the functions and instructions of each physical button are shown in the table below.

5.3 Other identifications

<complex-block>

In the panel, other identifications are explained as shown in the figure below.

6. AT SMS command description

This device supports sending AT commands via SMS to remotely control the 4G router. The following are sending instructions and function descriptions.

AT SMS content	Function description
EBYTESMSAT+ATI	Version query
EBYTESMSAT+QCCID	Query 4G module QCCID / ICCID number
EBYTESMSAT+IMEI	Query IMEI Number
EBYTESMSAT+CSQ	Query the current 4G signal quality
EBYTESMSAT+RELD	Restart settings receive message reply + RLAD RUN
EBYTESMSAT+REBT	Restore factory settings receive message reply + RLBT RUN
EBYTESMSAT+QNWINFO	Network attributes currently connected
EBYTESMSAT+CIMI	SIM Card CIMI number

EBYTESMSAT+CNUM	Query the current 4G module number
EBYTESMSAT+QSPN	Query the current telecommunications provider

7. Revision history

Version	Date	Description	Issued by
1.0	2019-06-3	Initial version	Blue
1.1	2019-08-18	Added VPN, APN, intranet penetration, load balancing, serial port to Ethernet function descriptions	Xu
1.2	2019-8-20	Format adjustment	Lyl

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