Version 1.1

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# Wired network

## 1. TCP Client connection

1. Configure module transparent transmission channel
AT+PASSCHANNEL=1 //Serial Ethernet mode (default mode)
response:
OK

2. Set up DHCP
AT+CWDHCP_DEF=3,0
response:
OK

3. Set the ip address
AT+CIPETH_DEF="192.168.0.7","192.168.0.1","255.255.255.0"
response:
OK
Note: Set as static IP. Note that the IP, gateway and subnet mask should be written at the same time (the default static IP of the module: 192.168.0.7)
Set to DHCP/Dynamic IP to automatically obtain IP and other related information
When the module is directly connected to the computer, it cannot be set to DHCP/dynamic IP. Generally, the computer does not have the ability to allocate IP addresses.
The module is set to DHCP directly connected to the computer, which will cause the module to be in a state of waiting for the IP address to be assigned, which will lead to
The module cannot perform normal transparent transmission work.

4. Query device IP address
AT+CIPETH_DEF?
response:
+CIPETH_DEF:"192.168.0.7","192.168.0.1","255.255.255.0"
OK

5. The module is directly connected to the computer via Ethernet to establish a TCP server
For example: ip: 192.168.0.201; port: 8080

6. The module acts as a tcp client to connect to the server
AT+CIPSTART="TCPC","192.168.0.201",8080//protocol, server IP and port
response:
OK

7. The module sends data to the server
AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes
>test // enter the data, no CR
response:

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Recv 4 bytes

SEND OK

8 Receive server data

response:

+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

9. Enable transparent transmission mode

AT+CIPMODE=1//

response:

OK

10. Start transparent data transmission

AT+CIPSEND

>

11. Quit sending data:

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

12. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

13. Disconnect TCP connection

AT+CIPCLOSE

response:

CLOSED

OK



## 2. TCP Server connection

1. Configure module transparent transmission channel

AT+PASSCHANNEL=1 //Serial Ethernet mode (default mode)

response:
OK

2. Set up DHCP
AT+CWDHCP_DEF=3,0
response:
OK

3. Set the ip address
AT+CIPETH_DEF="192.168.0.7","192.168.0.1","255.255.255.0"
response:
OK
Note: Set as static IP. Note that the IP, gateway and subnet mask should be written at the same time (the default static IP of the module: 192.168.0.7)
Set to DHCP/Dynamic IP to automatically obtain IP and other related information
When the module is directly connected to the computer, it cannot be set to DHCP/dynamic IP. Generally, the computer does not have the ability to allocate IP addresses.
The module is set to DHCP directly connected to the computer, which will cause the module to be in a state of waiting for the IP address to be assigned, which will lead to
The module cannot perform normal transparent transmission work.

4. Query device IP address
AT+CIPETH_DEF?
response:
+CIPETH_DEF:"192.168.0.7","192.168.0.1","255.255.255.0"
OK

5. Create TCP server
AT+CIPSTART="TCPS","192.168.0.201",8080,3333//local port 3333

6. The module sends data to the client
AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes
>test // enter the data, no CR
response:
Recv 4 bytes
SEND OK

7 Receive client data
response:
+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

8. Enable transparent transmission mode

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AT+CIPMODE=1//
response:
OK

9. Start transparent data transmission
AT+CIPSEND

>

10. Quit sending data:
In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

11. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

12. Disconnect

AT+CIPCLOSE

response:

CLOSED

OK



## 3.UDP client connection

1. Configure module transparent transmission channel

AT+PASSCHANNEL=1 //Serial Ethernet mode (default mode)

response:

OK

2. Set up DHCP

AT+CWDHCP_DEF=3,0

response:

OK

3. Set the ip address

AT+CIPETH_DEF="192.168.0.7","192.168.0.1","255.255.255.0"

response:

OK

Note: Set as static IP. Note that the IP, gateway and subnet mask should be written at the same time (the default static IP of the module: 192.168.0.7)

Set to DHCP/Dynamic IP to automatically obtain IP and other related information

When the module is directly connected to the computer, it cannot be set to DHCP/dynamic IP. Generally, the computer does not have the ability to allocate IP addresses.

The module is set to DHCP directly connected to the computer, which will cause the module to be in a state of waiting for the IP address to be assigned, which will lead to

The module cannot perform normal transparent transmission work.

4. Query device IP address

AT+CIPETH_DEF?

response:

+CIPETH_DEF:"192.168.0.7","192.168.0.1","255.255.255.0"

OK

5. The module is directly connected to the computer via Ethernet to establish a UDP server

For example: ip: 192.168.0.201; port: 8080

6. The module acts as a udp client to connect to the server

AT+CIPSTART="UDPC","192.168.0.201",8080,3333

response:

OK

7. The module sends data to the server

AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes

>test // enter the data, no CR

response:

Recv 4 bytes

SEND OK

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8 Receive server data

response:

+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

9. Enable transparent transmission mode

AT+CIPMODE=1//

response:

OK

10. Start transparent data transmission

AT+CIPSEND

>

11. Quit sending data:

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

12. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

13. Disconnect TCP connection
AT+CIPCLOSE
response:
CLOSED
OK



## 4. UDP server connection

1. Configure module transparent transmission channel
AT+PASSCHANNEL=1 //Serial Ethernet mode (default mode)
response:
OK

2. Set up DHCP
AT+CWDHCP_DEF=3,0
response:
OK

3. Set the ip address
AT+CIPETH_DEF="192.168.0.7","192.168.0.1","255.255.255.0"
response:
OK
Note: Set as static IP. Note that the IP, gateway and subnet mask should be written at the same time (the default static IP of the module: 192.168.0.7)
Set to DHCP/Dynamic IP to automatically obtain IP and other related information
When the module is directly connected to the computer, it cannot be set to DHCP/dynamic IP. Generally, the computer does not have the ability to allocate IP addresses.
The module is set to DHCP directly connected to the computer, which will cause the module to be in a state of waiting for the IP address to be assigned, which will lead to
The module cannot perform normal transparent transmission work.

4. Query device IP address
AT+CIPETH_DEF?
response:
+CIPETH_DEF:"192.168.0.7","192.168.0.1","255.255.255.0"
OK

5. The module is directly connected to the computer via Ethernet to establish UDP
For example: ip: 192.168.0.201; port: 8080

6. The module establishes a UDP connection as a udp server
AT+CIPSTART="UDPS","192.168.0.201",8080,3333
response:
OK

7. The module sends data to the client
AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes
>test // enter the data, no CR
response:
Recv 4 bytes
SEND OK

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8 Receive server data
response:
+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

9. Enable transparent transmission mode
AT+CIPMODE=1//
response:
OK

10. Start transparent data transmission
AT+CIPSEND

>

11. Quit sending data:
In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

12. Exit transparent transmission mode
AT+CIPMODE=0
response:
OK

13. Disconnect TCP connection
AT+CIPCLOSE
response:
CLOSED
OK

# **Wifi** connection

## 1. **TCP Client** connection

1. Configure module transparent transmission channel
AT+PASSCHANNEL=2 //Serial wifi mode
response:
OK

2. Connect the router
AT+CWJAP="SSID","password"
response:
OK

3. Query the module IP address
AT+CIFSR
response
+CIFSR:STA,"192.168.1.103"
+CIFSR:STAMAC,"24:0a:c4:2a:25:8c"
+CIFSR:ETHIP,"0.0.0.0"
+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"
OK

4. Connect the computer and the module to the same router, use the network debugging tool on the computer to establish a TCP server
For example: ip: 192.168.1.101; port: 8888

5. The module acts as a tcp client to connect to the server
AT+CIPSTART="TCPC","192.168.1.101",8888//protocol, server IP and port
response:
OK

7. The module sends data to the server
AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes
>test // enter the data, no CR
response:
Recv 4 bytes
SEND OK

8 Receive server data
response:
+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

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9. Enable transparent transmission mode
AT+CIPMODE=1//
response:
OK

10. Start transparent data transmission
AT+CIPSEND

>

11. Quit sending data:
In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

12. Exit transparent transmission mode
AT+CIPMODE=0
response:
OK

13. Disconnect TCP connection
AT+CIPCLOSE
response:
CLOSED
OK

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## 2. TCP Server connection

1. Configure module transparent transmission channel
AT+PASSCHANNEL=2 //Serial wifi mode
response:
OK

2. Connect the router
AT+CWJAP="SSID","password"
response:
OK

3. Query the module IP address
AT+CIFSR
response
+CIFSR:STA,"192.168.1.103"
+CIFSR:STAMAC,"24:0a:c4:2a:25:8c"
+CIFSR:ETHIP,"0.0.0.0"
+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"
OK

4. Create TCP server
AT+CIPSTART="TCPS","192.168.0.201",8080,3333//local port 3333

5. Connect the computer and the module to the same router, use the network debugging tool on the computer to establish a TCP connection

6. The module sends data to the client
AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes
>test // enter the data, no CR
response:
Recv 4 bytes
SEND OK

7 Receive client data
response:
+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

8. Enable transparent transmission mode
AT+CIPMODE=1//
response:
OK

9. Start transparent data transmission

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AT+CIPSEND

>

10. Quit sending data:

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

11. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

12. Disconnect

AT+CIPCLOSE

response:

CLOSED

OK



## **3.UDP client** connection

1. Configure module transparent transmission channel
AT+PASSCHANNEL=2 //Serial wifi mode
response:
OK

2. Connect the router
AT+CWJAP="SSID","password"
response:
OK

3. Query the module IP address
AT+CIFSR
response
+CIFSR:STA,"192.168.1.103"
+CIFSR:STAMAC,"24:0a:c4:2a:25:8c"
+CIFSR:ETHIP,"0.0.0.0"
+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"
OK

4. Connect the computer and the module to the same router, use the network debugging tool on the computer to establish a UDP connection
For example: ip: 192.168.1.101; port: 8080

5. The module acts as a udp client to connect to the server
AT+CIPSTART="UDPC","192.168.1.101",8080,3333
response:
OK

6. The module sends data to the server
AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes
>test // enter the data, no CR
response:
Recv 4 bytes
SEND OK

7. Receive server data
response:
+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

8. Enable transparent transmission mode
AT+CIPMODE=1//
response:

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OK

9. Start transparent data transmission
AT+CIPSEND

>

10. Quit sending data:
In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

11. Exit transparent transmission mode
AT+CIPMODE=0
response:
OK

12. Disconnect TCP connection
AT+CIPCLOSE
response:
CLOSED
OK



## 4. UDP server connection

1. Configure module transparent transmission channel
AT+PASSCHANNEL=2 //Serial wifi mode
response:
OK

2. Connect the router
AT+CWJAP="SSID","password"
response:
OK

3. Query the module IP address
AT+CIFSR

response

+CIFSR:STA,"192.168.1.103"

+CIFSR:STAMAC,"24:0a:c4:2a:25:8c"

+CIFSR:ETHIP,"0.0.0.0"

+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"

OK

4. Connect the computer and the module to the same router, use the network debugging tool on the computer to establish a UDP connection

For example: ip: 192.168.1.101; port: 8080

6. The module establishes a UDP connection as a udp server

AT+CIPSTART="UDPS","192.168.1.101",8080,3333

response:

OK

7. The module sends data to the client

AT+CIPSEND=4 // set date length which will be sent, such as 4 bytes

>test // enter the data, no CR

response:

Recv 4 bytes

SEND OK

8 Receive server data

response:

+IPD,n:xxxxxxxxxx // received n bytes, data=xxxxxxxxxx

9. Enable transparent transmission mode

AT+CIPMODE=1//

response:

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OK

10. Start transparent data transmission

AT+CIPSEND

>

11. Quit sending data:

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

12. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

13. Disconnect TCP connection

AT+CIPCLOSE

response:

CLOSED

OK

# **HTTP** request

1. Configure module transparent transmission channel

AT+PASSCHANNEL=2 //Serial wifi mode

response:

OK

2. Connect the router

AT+CWJAP="SSID","password"

response:

OK

3. Query the module IP address

AT+CIFSR

response

+CIFSR:STA,"192.168.1.103"

+CIFSR:STAMAC,"24:0a:c4:2a:25:8c"

+CIFSR:ETHIP,"0.0.0.0"

+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"

OK



4. The computer and the module are connected to the same router

5. Computer build HTTP server

6. Use the web page to test that the request is successful

7. Module sends http request

AT+CIPSTART="HTPC","http://192.168.1.101:8000/Desktop/test.txt"

response

OK

+IPD,12:helloworld



# Serial port Bluetooth transparent data transmission

1. Configure module transparent transmission channel

AT+PASSCHANNEL=3 //Serial Bluetooth transparent transmission mode

response:

OK

2. Restart the module to enter the serial port Bluetooth transparent transmission mode

AT+RST

response:

OK

3. Make a Bluetooth connection

Use the mobile app Bluetooth tool to connect with Bluetooth

4. Enable transparent transmission mode

AT+CIPMODE=1//

response:

OK

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5. Start transmitting data

AT+CIPSEND

>

6.app send Bluetooth data

6. Receive Bluetooth data

response

+BLED,4:test

7. Quit sending data:

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

8. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

# Bluetooth **wifi** transparent data transmission

1. Configure module transparent transmission channel

AT+PASSCHANNEL=5 //Bluetooth wifi transparent transmission mode

response:

OK

2. Restart the module to enter the Bluetooth wifi transparent transmission mode

AT+RST

response:

OK

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2. Connect the router

AT+CWJAP="SSID","password"

response:

OK

3. Query the module IP address

AT+CIFSR

response

+CIFSR:STA,"192.168.1.103"

+CIFSR:STAMAC,"24:0a:c4:2a:25:8c"

+CIFSR:ETHIP,"0.0.0.0"

+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"

OK

4. Connect the computer and the module to the same router, use the network debugging tool on the computer to establish a TCP server

For example: ip: 192.168.1.101; port: 8888

5. The module acts as a tcp client to connect to the server

AT+CIPSTART="TCPC","192.168.1.101",8888//protocol, server IP and port

response:

OK

6. Enable transparent transmission mode

AT+CIPMODE=1//

response:

OK

7. Start transmitting data

AT+CIPSEND

>

8. Bluetooth and TCP data transparent transmission

Bluetooth data→TCP server

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TCP server data → Bluetooth

9. Quit sending data:

(Bluetooth sending +++)

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

10. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK

Note: Bluetooth Ethernet transparent data transmission is similar to Bluetooth wifi data transparent transmission

## **Wifi** and Ethernet transparent data transmission

1. Configure module transparent transmission channel
AT+PASSCHANNEL=4 // wifi Ethernet transparent transmission mode
response:
OK

2. Restart the module to enter the Bluetooth wifi transparent transmission mode
AT+RST
response:
OK

3. Query the module IP address
AT+CIFSR
response
+CIFSR:APIP,"192.168.4.1"
+CIFSR:APMAC,"24:0a:c4:2a:25:8d"
+CIFSR:ETHIP,"192.168.1.102"
+CIFSR:ETHMAC,"24:0a:c4:2a:25:8f"
OK

4. Connect the module to the same router, use the network debugging tool on the computer to establish a TCP server
For example: ip: 192.168.1.101; port: 8888

5. The module acts as a tcp client to connect to the server
AT+CIPSTART="TCPC","192.168.1.101",8888//protocol, server IP and port
response:
OK

6. Enable transparent transmission mode
AT+CIPMODE=1//
response:
OK

7. Start transmitting data
AT+CIPSEND

>

8. The hotspot ssid sent by the module connected to the mobile phone: WT32-ETH01; password: 12345678
Use the mobile phone's network debugging assistant and module for udp connection
Module ip: 192.168.4.1; port number: 3333

9. Quit sending data:

(Mobile phone send +++)

In the process of transmitting data through transparent transmission, if a single packet of data "+++" is recognized, the transparent transmission will be exited.

10. Exit transparent transmission mode

AT+CIPMODE=0

response:

OK