

# WiFi

2017 Feb 26

I'm going to study experiments because I bought ESP-WROOM-02 module.  
ESP-WROOM-02 module is wireless LAN communication module.  
(including ESP8266,Xtal,flashmemory,TCP/IPprotocol stack and Atcommand API).  
It need external 3.3V-PowerSupply because ESP-WROOM-02 module temporaly use 500mA.

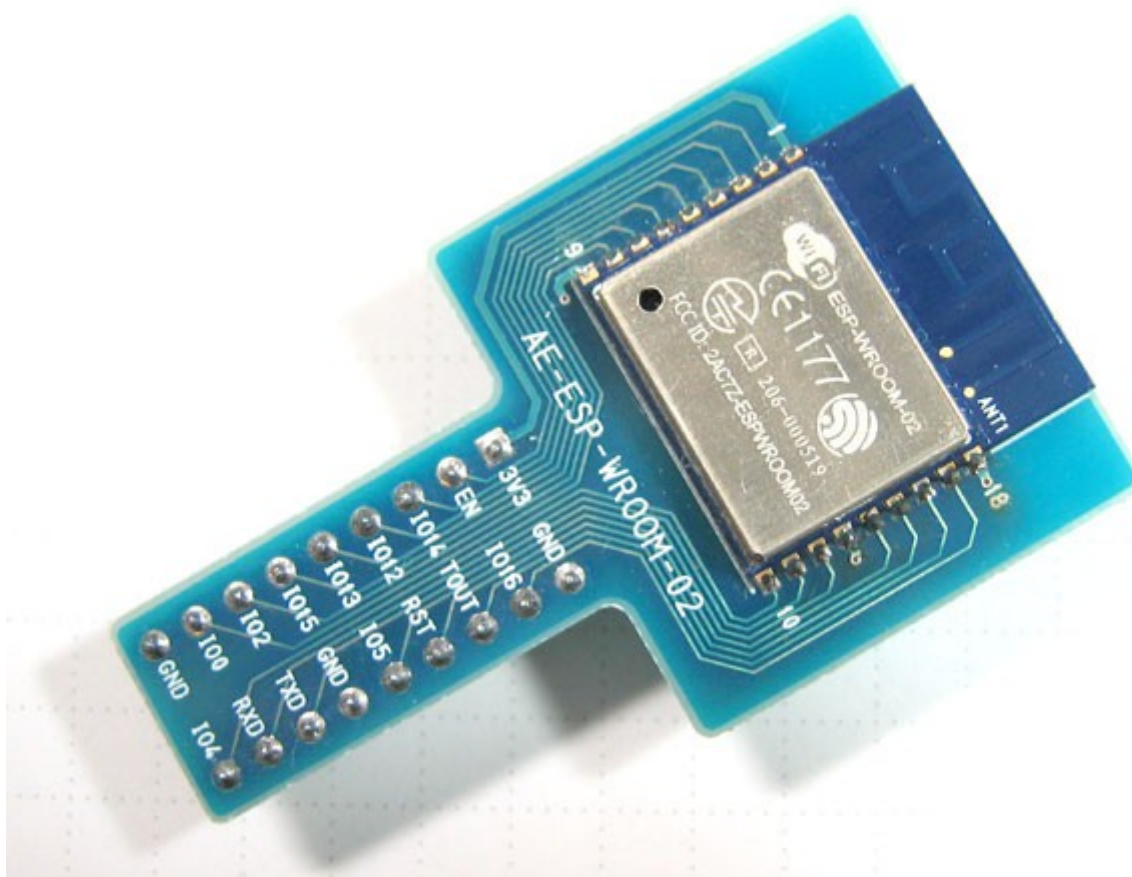
It use Flash-Boot-Mode(UART default:115200baud).

GPIO15:Lo

GPIO0:Hi

GPIO2:Hi

EN:Hi



Please put your WirelessLAN's SSID and password in Forth-code.

When booting up ESP-WROOM-02, it send message at 74880baud.

Last some characters are send at 115200baud.

String is 'Ready'.

Prop0 Cog6 ok  
initialMsg  
394 characters

```
17_880 00 394:
17_880: 255 013 010 032 101 116 115 032 074 097 110 032 032 056 032 050 ... ets Jan 8 2
17_896: 048 049 051 044 114 115 116 032 099 097 117 115 101 058 049 044 013,rst cause:1,
17_912: 032 098 111 111 116 032 109 111 100 101 058 040 051 044 055 041 boot mode:(3,7)
17_928: 013 010 013 010 108 111 097 100 032 048 120 052 048 049 048 048 ....load 0x40100
17_944: 048 048 048 044 032 108 101 110 032 049 051 057 054 044 032 114 000, len 1396, r
17_960: 111 111 109 032 049 054 032 013 010 116 097 105 108 032 052 013 oom 16 ..tail 4.
17_976: 010 099 104 107 115 117 109 032 048 120 056 057 013 010 108 111 .chksum 0x89..lo
17_992: 097 100 032 048 120 051 102 102 101 056 048 048 044 032 108 ad 0x3ffe8000, l
18_008: 101 110 032 055 055 054 044 032 114 111 111 109 032 052 032 013 en 776, room 4 .
18_024: 010 116 097 105 108 032 052 013 010 099 104 107 115 117 109 032 .tail 4..chksum
18_040: 048 120 101 056 013 010 108 111 097 100 032 048 120 051 102 102 0xe8..load 0x3ff
18_056: 101 056 051 048 056 044 032 108 101 110 032 053 052 048 044 032 e8308, len 540,
18_072: 114 111 111 109 032 052 032 013 010 116 097 105 108 032 056 013 room 4 ..tail 8.
18_088: 010 099 104 107 115 117 109 032 048 120 099 048 013 010 099 115 .chksum 0xc0..cs
18_104: 117 109 032 048 120 099 048 013 010 010 050 110 100 032 098 um 0xc0....2nd b
18_120: 111 111 116 032 118 101 114 115 105 111 110 032 058 032 049 046 oot version : 1.
18_136: 052 040 098 049 041 013 010 032 032 083 080 073 032 083 112 101 4(b1).. SPI Spe
18_152: 101 100 032 032 032 032 032 032 058 032 052 048 077 072 122 013 ed : 40MHz.
18_168: 010 032 032 083 080 073 032 077 111 100 101 032 032 032 032 032 . SPI Mode
18_184: 032 032 058 032 081 073 079 013 010 032 032 083 080 073 032 070 : QIO.. SPI F
18_200: 108 097 115 104 032 083 105 122 101 032 038 032 077 097 112 058 lash Size & Map:
18_216: 032 056 077 098 105 116 040 053 049 050 075 066 043 053 049 050 8Mbit(512KB+512
18_232: 075 066 041 013 010 106 117 109 112 032 116 111 032 114 117 110 KB)..jump to run
18_248: 032 117 115 101 114 049 032 064 032 049 048 048 048 013 010 013 user1 @ 1000...
18_264: 010 013 010 083 068 203 163 192 152 032 032 032 032 032 032 032 ...SD....
```

ÿ

ets Jan 8 2013,rst cause:1, boot mode:(3,7)

load 0x40100000, len 1396, room 16

tail 4

chksum 0x89

load 0x3ffe8000, len 776, room 4

tail 4

chksum 0xe8

load 0x3ffe8308, len 540, room 4

tail 8

chksum 0xc0

csum 0xc0

2nd boot version : 1.4(b1)

SPI Speed : 40MHz

SPI Mode : QIO

SPI Flash Size & Map: 8Mbit(512KB+512KB)

jump to run user1 @ 1000

SD?# Prop0 Cog6 ok ← Maybe SD? = Ready

CON:Prop0 Cog5 RESET - last status: 0 ok

**Telnet** telnet\_0.1.f

2017 Feb 14

Operated ESP-WROOM-02 as telnet-server.

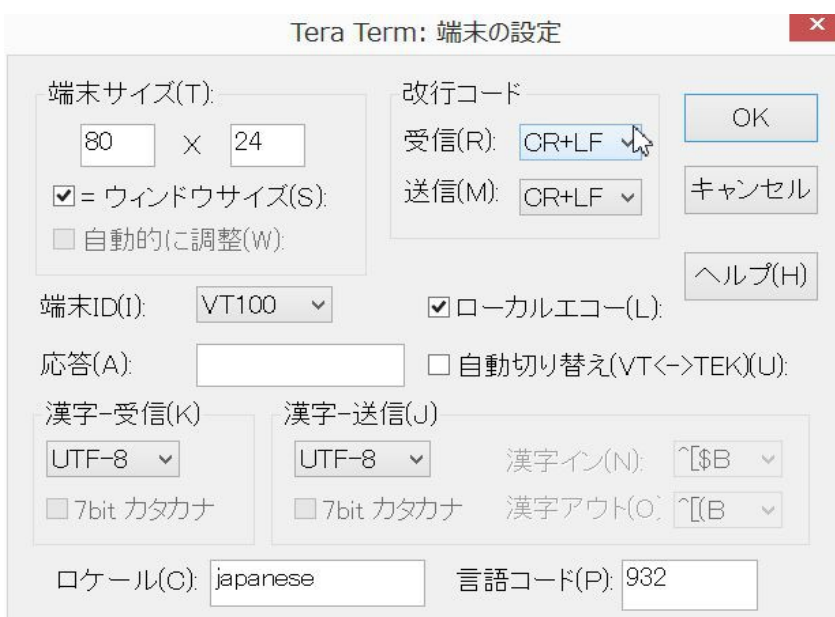
TeraTerm operate as telnet-client on Windows8.1( inside same network)

Host:192.168.2.103

Port:23

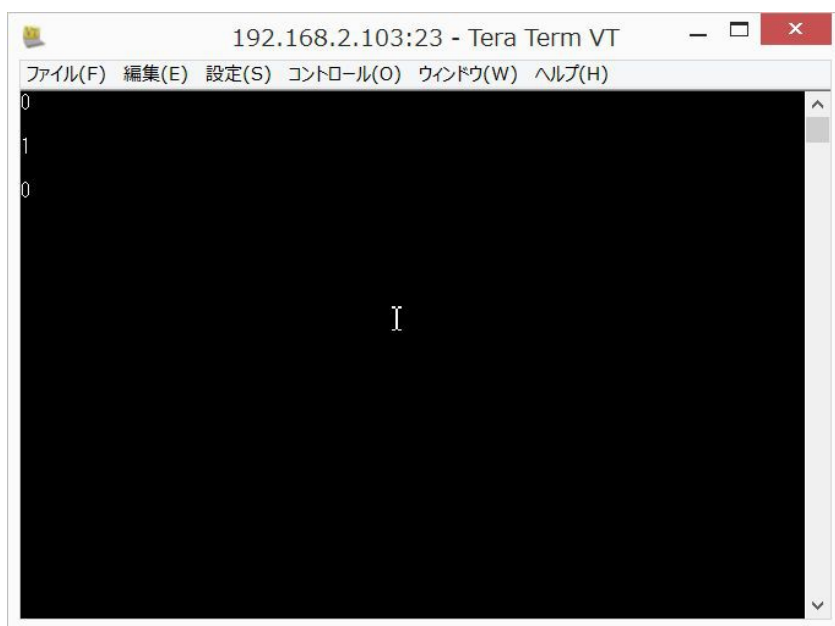


Checked local-echo on terminal menu.

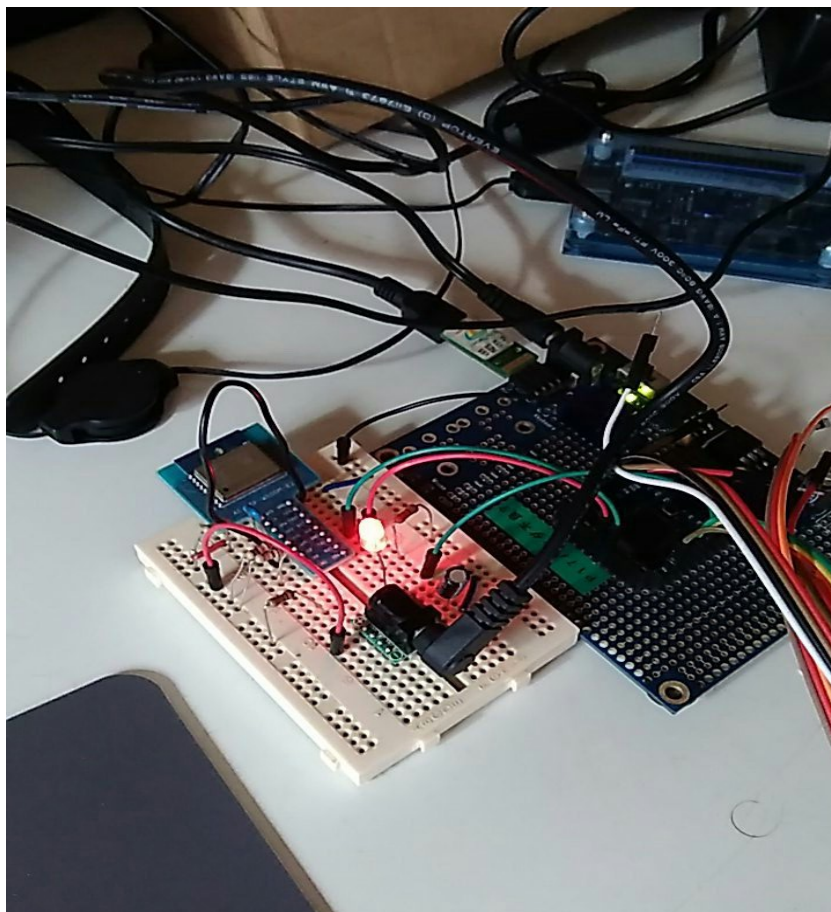


LED is on when 1 entered.

LED is off when 0 entered.



LED connected to P3 is on when sent 1 from telnet client.



Prop0 Cog6 ok  
testTelnet  
9 characters

19\_100 00\_009:

19\_100: 065 084 013 013 010 013 010 079 075 067 108 101 097 114 032 105 AT.....OKClear i  
AT

OK

110 characters

19\_100 00\_110:

19\_100: 013 010 065 084 043 071 077 082 013 013 010 065 084 032 118 101 ..AT+GMR...AT ve  
19\_116: 114 115 105 111 110 058 048 046 052 048 046 048 046 048 040 065 rsion:0.40.0.0(A  
19\_132: 117 103 032 032 056 032 050 048 049 053 032 049 052 058 052 053 ug 8 2015 14:45  
19\_148: 058 053 056 041 013 010 083 068 075 032 118 101 114 115 105 111 :58)..SDK versio  
19\_164: 110 058 049 046 051 046 048 013 010 099 111 109 112 105 108 101 n:1.3.0..compile  
19\_180: 032 116 105 109 101 058 065 117 103 032 049 049 032 050 048 049 time:Aug 11 201  
19\_196: 053 032 049 055 058 048 050 058 049 056 013 010 079 075 032 099 5 17:02:18..OK c

AT+GMR

AT version:0.40.0.0(Aug 8 2015 14:45:58)

SDK version:1.3.0

compile time:Aug 11 2015 17:02:18

OK

24 characters

19\_100 00\_024:

19\_100: 013 010 065 084 043 067 087 077 079 068 069 095 067 085 082 061 ..AT+CWMODE\_CUR=  
19\_116: 049 013 013 010 013 010 079 075 052 048 046 048 046 048 040 065 1.....OK40.0.0(A

AT+CWMODE\_CUR=1

OK

84 characters

19\_100 00\_084:

19\_100: 013 010 065 084 043 067 087 074 065 080 095 067 085 082 061 034 ..AT+CWJAP\_CUR="  
19\_116: --SSID--  
19\_132: --password--  
19\_148: 013 013 010 087 073 070 073 032 067 079 078 078 069 067 084 069 ...WIFI CONNECTE  
19\_164: 068 013 010 087 073 070 073 032 071 079 084 032 073 080 013 010 D..WIFI GOT IP..  
19\_180: 013 010 079 075 101 058 065 117 103 032 049 049 032 050 048 049 ..OKe:Aug 11 201

AT+CWJAP\_CUR="SSID", "password"

WIFI CONNECTED

WIFI GOT IP

OK

82 characters

19\_100 00\_082:

19\_100: 013 010 065 084 043 067 073 070 083 082 013 013 010 043 067 073 ..AT+CIFSR...+CI

19_116:	070	083	082	058	083	084	065	073	080	044	034	049	057	050	046	049	FSR:STAIP,"192.1
19_132:	054	056	046	050	046	049	048	051	034	013	010	043	067	073	070	083	68.2.103"..+CIFS
19_148:																	
19_164:																	
19_180:	079	075	079	075	101	058	065	117	103	032	049	049	032	050	048	049	OK0Ke:Aug 11 201

```
+CIFSR:STAIP,"192.168.2.103" ←-- IP address
```

OK  
20 characters

0K  
26 characters

OK  
2 characters

11 characters

27 characters

---- Keyin "1" on TeraTerm ----

----- Keyin "0" on TeraTerm -----

```

19_100 00_014:
19_100: 013 010 043 073 080 068 044 048 044 051 058 048 013 010 024 255  ..+IPD,0,3:0....

+IPD,0,3:0
----- Keyin "1" on TeraTerm -----
14 characters

19_100 00_014:
19_100: 013 010 043 073 080 068 044 048 044 051 058 049 013 010 024 255  ..+IPD,0,3:1....

+IPD,0,3:1
----- Keyin "0" on TeraTerm -----
14 characters

19_100 00_014:
19_100: 013 010 043 073 080 068 044 048 044 051 058 048 013 010 024 255  ..+IPD,0,3:0....

+IPD,0,3:0
----- Keyin "1" on TeraTerm -----
14 characters

19_100 00_014:
19_100: 013 010 043 073 080 068 044 048 044 051 058 049 013 010 024 255  ..+IPD,0,3:1....

+IPD,0,3:1
----- TeraTerm terminated -----
10 characters

19_100 00_010:
19_100: 048 044 067 076 079 083 069 068 013 010 058 049 013 010 024 255  0,CLOSED...:1....
0,CLOSED

```

## Using under Linux

echo "1" > /dev/tcp/192.168.2.103/23 ← LED on

34 characters

```

18_794 00_034:
18_794: 048 044 067 079 078 078 069 067 084 013 010 013 010 043 073 080  0,CONNECT....+IP
18_810: 068 044 048 044 050 058 048 010 048 044 067 076 079 083 069 068  D,0,2:1,0,CLOSED
18_826: 013 010 046 049 046 049 049 034 013 010 043 067 073 070 083 082  ...1.11"..+CIFSR
0,CONNECT

```

+IPD,0,2:1

0,CLOSED

echo "0" > /dev/tcp/192.168.2.103/23 ← LED off

34 characters

```

18_794 00_034:
18_794: 048 044 067 079 078 078 069 067 084 013 010 013 010 043 073 080  0,CONNECT....+IP
18_810: 068 044 048 044 050 058 048 010 048 044 067 076 079 083 069 068  D,0,2:0,0,CLOSED
18_826: 013 010 046 049 046 049 049 034 013 010 043 067 073 070 083 082  ...1.11"..+CIFSR
0,CONNECT

```

+IPD,0,2:0

0,CLOSED



2017 Feb 17

Changed setting of wireless LAN, ESP-WROOM-02's IP-address is 192.168.1.11 below;





This merely display string on client PC's browser.

In case of '1 wconstant debug', all message from ESP-WROOM-02 is displayed on TeraTerm.

Prop0 Cog6 ok  
WebServer1

..  
..  
..

37 characters

19\_376 00 037:  
19\_376: 065 084 043 067 073 080 083 069 082 086 069 082 061 049 044 056 AT+CIPSERVER=1,8  
19\_392: 048 013 013 010 110 111 032 099 104 097 110 103 101 013 010 013 0...no change...  
19\_408: 010 079 075 013 010 034 013 010 043 067 073 070 083 082 058 083 .OK.."+CIFSR:S  
AT+CIPSERVER=1,80

no change

OK

IP address:192.168.1.11

304 characters

<---- Wait until client request HTTP  
<---- Access from client

19\_376 00 304:  
19\_376: 048 044 067 079 078 078 069 067 084 013 010 013 010 043 073 080 0,CONNECT....+IP  
19\_392: 068 044 048 044 050 056 048 058 071 069 084 032 047 032 072 084 D,0,280:GET / HT  
19\_408: 084 080 047 049 046 049 013 010 072 111 115 116 058 032 049 057 TP/1.1..Host: 19  
19\_424: 050 046 049 054 056 046 049 046 049 049 013 010 085 115 101 114 2.168.1.11..User  
19\_440: 045 065 103 101 110 116 058 032 077 111 122 105 108 108 097 047 -Agent: Mozilla/  
19\_456: 053 046 048 032 040 088 049 049 059 032 076 105 110 117 120 032 5.0 (X11; Linux  
19\_472: 105 054 056 054 059 032 114 118 058 051 051 046 048 041 032 071 i686; rv:33.0) G  
19\_488: 101 099 107 111 047 050 048 049 048 048 049 048 049 032 070 105 ecko/20100101 Fi  
19\_504: 114 101 102 111 120 047 051 051 046 048 013 010 065 099 099 101 refox/33.0..Acce  
19\_520: 112 116 058 032 116 101 120 116 047 104 116 109 108 044 097 112 pt: text/html,ap  
19\_536: 112 108 105 099 097 116 105 111 110 047 120 104 116 109 108 043 plication/xhtmll+  
19\_552: 120 109 108 044 097 112 112 108 105 099 097 116 105 111 110 047 xml,application/  
19\_568: 120 109 108 059 113 061 048 046 057 044 042 047 042 059 113 061 xml;q=0.9,\*/\*;q=  
19\_584: 048 046 056 013 010 065 099 099 101 112 116 045 076 097 110 103 0.8..Accept-Lang  
19\_600: 117 097 103 101 058 032 101 110 045 085 083 044 101 110 059 113 uage: en-US,en;q  
19\_616: 061 048 046 053 013 010 065 099 099 101 112 116 045 069 110 099 =0.5..Accept-Enc  
19\_632: 111 100 105 110 103 058 032 103 122 105 112 044 032 100 101 102 oding: gzip, def  
19\_648: 108 097 116 101 013 010 067 111 110 110 101 099 116 105 111 110 late..Connection  
19\_664: 058 032 107 101 101 112 045 097 108 105 118 101 013 010 013 010 : keep-alive....  
0,CONNECT

+IPD,0,280:GET / HTTP/1.1

Host: 192.168.1.11

User-Agent: Mozilla/5.0 (X11; Linux i686; rv:33.0) Gecko/20100101 Firefox/33.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

connectionID:0  
26 characters

19\_376 00\_026:  
19\_376: 065 084 043 067 073 080 083 069 078 068 061 048 044 053 048 013 AT+CIPSEND=0,50.  
19\_392: 013 010 013 010 079 075 013 010 062 032 084 032 047 032 072 084 ....OK..> T / HT  
AT+CIPSEND=0,50

OK

>  
<html><h1>Hello!! This is PropForth5.5</h1></html> -- Sent data to client  
28 characters

19\_376 00\_028:  
19\_376: 013 010 082 101 099 118 032 053 048 032 098 121 116 101 115 013 ..Recv 50 bytes.  
19\_392: 010 013 010 083 069 078 068 032 079 075 013 010 047 032 072 084 ...SEND OK../ HT

Recv 50 bytes

SEND OK

32 characters

19\_376 00\_032:  
19\_376: 065 084 043 067 073 080 067 076 079 083 069 061 048 013 013 010 AT+CIPCLOSE=0...  
19\_392: 048 044 067 076 079 083 069 068 013 010 013 010 079 075 013 010 0, CLOSED...OK..  
AT+CIPCLOSE=0

0, CLOSED

OK

<---- Wait until client request HTTP

Request from Linux to ESP-WROOM-02

+IPD,0,280:GET / HTTP/1.1

Host: 192.168.1.11

User-Agent: Mozilla/5.0 (X11; Linux i686; rv:33.0) Gecko/20100101 Firefox/33.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Request from Smartphone(geanee) to ESP-WROOM-02  
+IPD,0,507:GET / HTTP/1.1

Host: 192.168.1.11

Connection: keep-alive

Cache-Control: max-age=0

x-wap-profile: http://\*.\*.\*/Xianghe/MTK\_Phone\_KK\_UAprofile.xml

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,\*/\*;q=0.8

User-Agent: Mozilla/5.0 (Linux; Android 4.4.2; FXC-5A Build/KOT49H) AppleWebKit/537.36 (KHTML, like Gecko) Version/4.0 Chrome/30.0.0.0 Mobile Safari/537.36

Accept-Encoding: gzip, deflate

Accept-Language: ja-JP,en-US;q=0.8

X-Requested-With: com.android.browser

Request from Smartphone(VAIO) to ESP-WROOM-02  
+IPD,0,333:GET / HTTP/1.1

Host: 192.168.1.11

User-Agent: Mozilla/5.0 (Android 5.0.2; Mobile; rv:51.0) Gecko/51.0 Firefox/51.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

Accept-Language: ja,ja-JP;q=0.8,en-US;q=0.5,en;q=0.3

Accept-Encoding: gzip, deflate

Connection: keep-alive

Upgrade-Insecure-Requests: 1

Request from Windows8.1 to ESP-WROOM-02  
+IPD,0,295:GET / HTTP/1.1

Host: 192.168.1.11

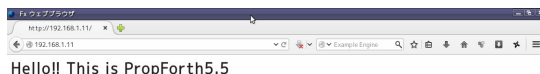
User-Agent: Mozilla/5.0 (Windows NT 6.3; WOW64; rv:43.0) Gecko/20100101 Firefox/43.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

Accept-Language: ja,en-US;q=0.7,en;q=0.3

Accept-Encoding: gzip, deflate

Connection: keep-alive



In case of '0 wconstant debug', no message from ESP-WROOM-02 is displayed on TeraTerm.

```
Prop0 Cog6 ok  
WebServer1
```

```
..  
..  
..
```

```
IP address:192.168.1.11
```

```
connectionID:0          <---- Access from client
```

```
<html><h1>Hello!! This is PropForth5.5</h1></html>
```

```
connectionID:0
```

```
          <---- Wait until client request HTTP
```