一、

(1)

```
E94116075@raspberrypi:~ $ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=54 time=44.1 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=54 time=71.4 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=54 time=53.4 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=54 time=78.1 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=54 time=84.8 ms
```

(2)

```
E94116075@raspberrypi:~ $ ping google.com
PING google.com (172.217.163.46) 56(84) bytes of data.
64 bytes from tsa01s13-in-f14.1e100.net (172.217.163.46): icmp_seq=1 ttl=53 time=34.0 ms
64 bytes from tsa01s13-in-f14.1e100.net (172.217.163.46): icmp_seq=2 ttl=53 time=168 ms
64 bytes from tsa01s13-in-f14.1e100.net (172.217.163.46): icmp_seq=3 ttl=53 time=201 ms
64 bytes from tsa01s13-in-f14.1e100.net (172.217.163.46): icmp_seq=4 ttl=53 time=227 ms
64 bytes from tsa01s13-in-f14.1e100.net (172.217.163.46): icmp_seq=5 ttl=53 time=67.6 ms
64 bytes from tsa01s13-in-f14.1e100.net (172.217.163.46): icmp_seq=6 ttl=53 time=41.5 ms
^C
```

(3)

```
E94116075@raspberrypi:~ $ traceroute google.com
traceroute to google.com (172.217.163.46), 30 hops max, 60 byte packets
 1  LAPTOP-P38MIDFH.mshome.net (192.168.137.1)  2.873 ms * *
 2  * * *
 3  192.168.78.114 (192.168.78.114)  8.507 ms  8.559 ms  8.606 ms
 4  * * *
 5  * * *
 6  * * *
 7  211-77-0-163.adsl.fetnet.net (211.77.0.163)  113.301 ms  113.350 ms  110.141 ms
 8  * * *
 9  * * *
10  h197-192-72-155.seed.net.tw (192.72.155.197)  44.655 ms h104-192-72-124.seed.net.tw (192.72.124.104)  45.233 ms h197-192-72-155.seed.net.tw (192.72.155.197)  45.274 ms
11  r59-167.seed.net.tw (139.175.59.167)  53.167 ms r58-210.seed.net.tw (139.175.58.210)  52.758 ms  53.398 ms
12  142.250.172.86 (142.250.172.86)  52.852 ms  53.020 ms  52.761 ms
13  * * *
14  209.85.242.124 (209.85.242.124)  64.941 ms 108.170.244.129 (108.170.244.129)  70.771 ms 209.85.245.64 (209.85.245.64)  56.615 ms
15  142.251.226.171 (142.251.226.171)  56.809 ms 108.170.244.108 (108.170.244.108)  62.424 ms 142.251.226.169 (142.251.226.169)  56.101 ms
16  108.170.244.65 (108.170.244.65)  62.190 ms tsa01s13-in-f14.1e100.net (172.217.163.46)  56.179 ms  44.371 ms
```

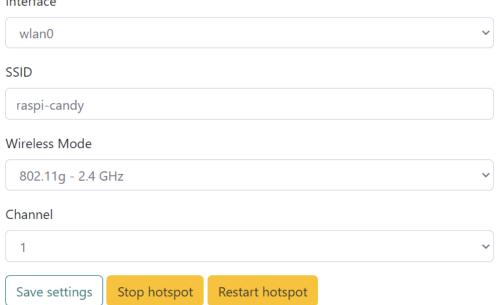(樹梅派變成 AP 前/後截圖)

```
E94116075@raspberrypi:~ $ ifconfig
eth0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether e4:5f:01:ab:c8:30  txqueuelen 1000  (Ethernet)
        RX packets 377  bytes 76790 (74.9 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 60  bytes 6379 (6.2 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 24  bytes 2578 (2.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 24  bytes 2578 (2.5 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.137.230  netmask 255.255.255.0  broadcast 192.168.137.255
        inet6 fe80::a60e:cd1d:8b88:e627  prefixlen 64  scopeid 0x20<link>
        ether e4:5f:01:ab:c8:31  txqueuelen 1000  (Ethernet)
        RX packets 10502  bytes 14160092 (13.5 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 6024  bytes 618738 (604.2 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

```
E94116075@raspberrypi:~ $ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 140.116.122.160  netmask 255.255.255.0  broadcast 140.116.122.255
        inet6 fe80::3190:360c:9afb:508e  prefixlen 64  scopeid 0x20<link>
        ether e4:5f:01:ab:c8:30  txqueuelen 1000  (Ethernet)
        RX packets 53415  bytes 58540276 (55.8 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 23133  bytes 5173956 (4.9 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 98  bytes 7737 (7.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 98  bytes 7737 (7.5 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.3.141.1  netmask 255.255.255.0  broadcast 10.3.141.255
        inet6 fe80::3043:d3a4:5b38:d961  prefixlen 64  scopeid 0x20<link>
        ether e4:5f:01:ab:c8:31  txqueuelen 1000  (Ethernet)
        RX packets 23728  bytes 4899664 (4.6 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 49801  bytes 58689668 (55.9 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

二、

(1)

Basic settings

Interface

wlan0 ⌄

SSID

raspi-candy

Wireless Mode

802.11g - 2.4 GHz ⌄

Channel

1 ⌄

Save settings   Stop hotspot   Restart hotspot

(2)

```
C:\Users\92112>ping 8.8.8.8

Ping 8.8.8.8 (使用 32 位元組的資料):
回覆自 8.8.8.8: 位元組=32 時間=10ms TTL=113
回覆自 8.8.8.8: 位元組=32 時間=9ms TTL=113
回覆自 8.8.8.8: 位元組=32 時間=12ms TTL=113
回覆自 8.8.8.8: 位元組=32 時間=10ms TTL=113

8.8.8.8 的 Ping 統計資料:
    封包: 已傳送 = 4，已收到 = 4, 已遺失 = 0 (0% 遺失)，
大約的來回時間 (毫秒):
    最小值 = 9ms，最大值 = 12ms，平均 = 10ms

C:\Users\92112>
```

(3)

```
E94116075@raspberrypi:~ $ ping 10.3.141.134
PING 10.3.141.134 (10.3.141.134) 56(84) bytes of data.
64 bytes from 10.3.141.134: icmp_seq=1 ttl=64 time=99.5 ms
64 bytes from 10.3.141.134: icmp_seq=2 ttl=64 time=124 ms
64 bytes from 10.3.141.134: icmp_seq=3 ttl=64 time=41.5 ms
64 bytes from 10.3.141.134: icmp_seq=4 ttl=64 time=64.5 ms
64 bytes from 10.3.141.134: icmp_seq=5 ttl=64 time=87.1 ms
^C
--- 10.3.141.134 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4007ms
rtt min/avg/max/mdev = 41.482/83.271/123.729/28.330 ms
E94116075@raspberrypi:~ $
```

(4)

Static leases

Clients with a particular hardware MAC address can always be allocated the same IP address. This option adds dhcp-host entries to the dnsmasq configuration.

| 84:5c:f3:80:bc:68 | 10.3.141.110 | LAPTOP-P38MIDFH | 🗑 |
| MAC address | IP address | Optional comment | ⊞ |

Restrict access

⬤ Limit network access to static clients

Enable this option if you want RaspAP to **ignore any clients** which are not specified in the static leases list. This option adds dhcp-ignore to the dnsmasq configuration.

Save settings   Stop dnsmasq

(5)

```
C:\Users\92112>tracert google.com

在上限 30 個躍點上
追蹤 google.com [142.251.42.238] 的路由:

  1     1 ms     2 ms     1 ms  10.3.141.1
  2     3 ms     2 ms     1 ms  140.116.122.253
  3    12 ms     1 ms     1 ms  140.116.243.33
  4     2 ms     *        2 ms  140.116.243.193
  5     6 ms     6 ms     4 ms  140.116.243.177
  6     6 ms     3 ms     4 ms  192.192.61.146
  7     9 ms     6 ms     7 ms  192.192.61.32
  8    22 ms    11 ms    10 ms  192.192.61.188
  9     8 ms     7 ms     7 ms  192.192.61.203
 10    29 ms    51 ms    40 ms  72.14.202.60
 11     9 ms     9 ms     9 ms  ^C
C:\Users\92112>
```

第三題

```
PS C:\Users\92112> & C:/Users/92112/AppData/Local/Microsoft/WindowsApps/python3.10.exe c:/Users/92112/client.py
connected to 10.3.141.1:8000
please input message: Hi
send: Hi
echo: Hi
please input message: I'm Lou
send: I'm Lou
echo: I'm Lou
please input message: EXIT
closed connection.
```