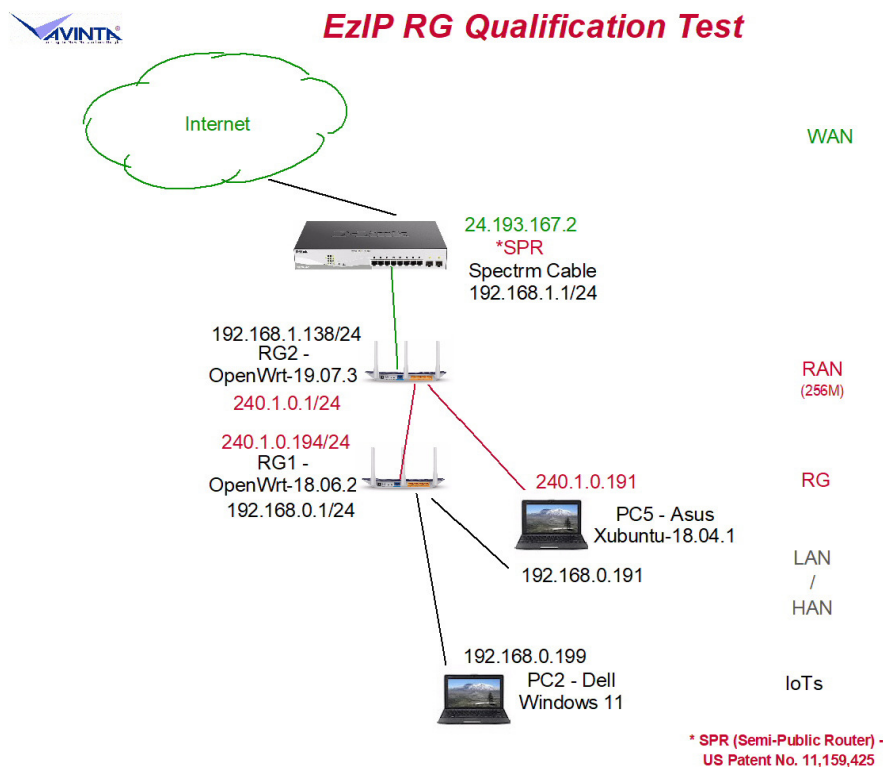


1. Introduction: This document outlines steps to verify whether a Home WiFi Router is capable of supporting Class E (240/4) netblock for being qualified as an EzIP RG.

2. “RAN Simulator” (circa 2019) review: Reference - Slides #4 & #6 of

<https://avinta.com/gallery/RegionalAreaNetworkSimulator.pdf>

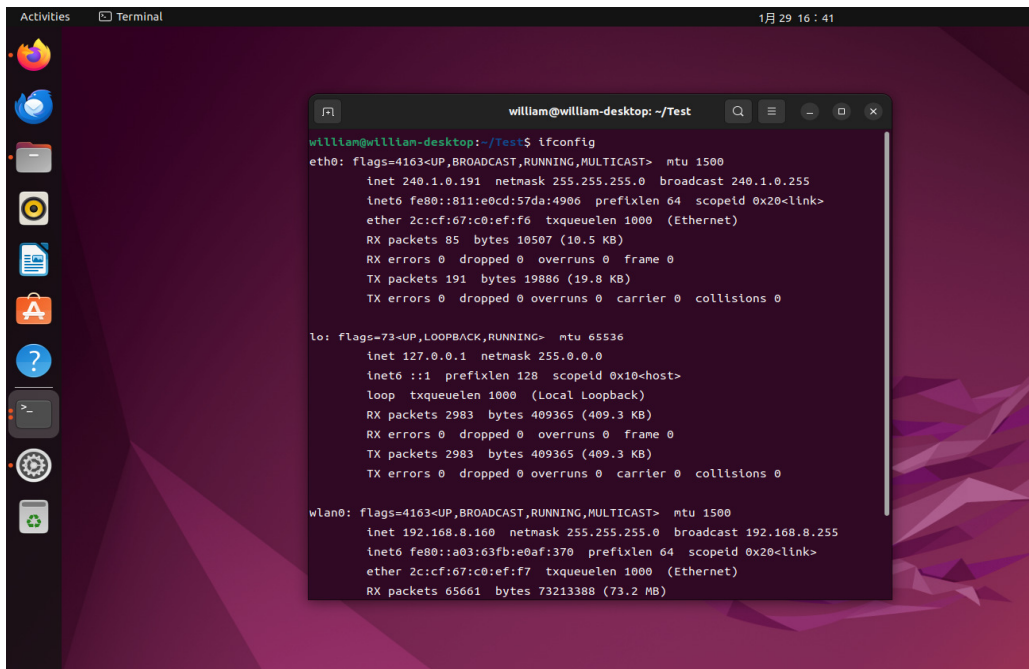


Notes:

- . PC2: Dell Inspiron NB with Windows-11 (DHCP client)
- . PC5: Asus EeePC NB with Xubuntu-18.04.1 (DHCP client)
- . RG1: GL-MT3000 with OpenWrt-21.02 (WAN: DHCP client, LAN: DHCP host at 192.168.0.1/24)
- . RG2: GL-MT3000 with OpenWrt-21.02 (WAN: DHCP client, LAN: DHCP host at 240.1.0.1/24)
- . SPR: To simplify replication, this is replaced by a common private premises Home WiFi Router (LAN: DHCP host at 192.168.1.1/24).

A. PC5 behind RG2 (Router – RG2 – PC5):

a. PC5 TCP/IP Properties (Terminal Emulator -> ifconfig):

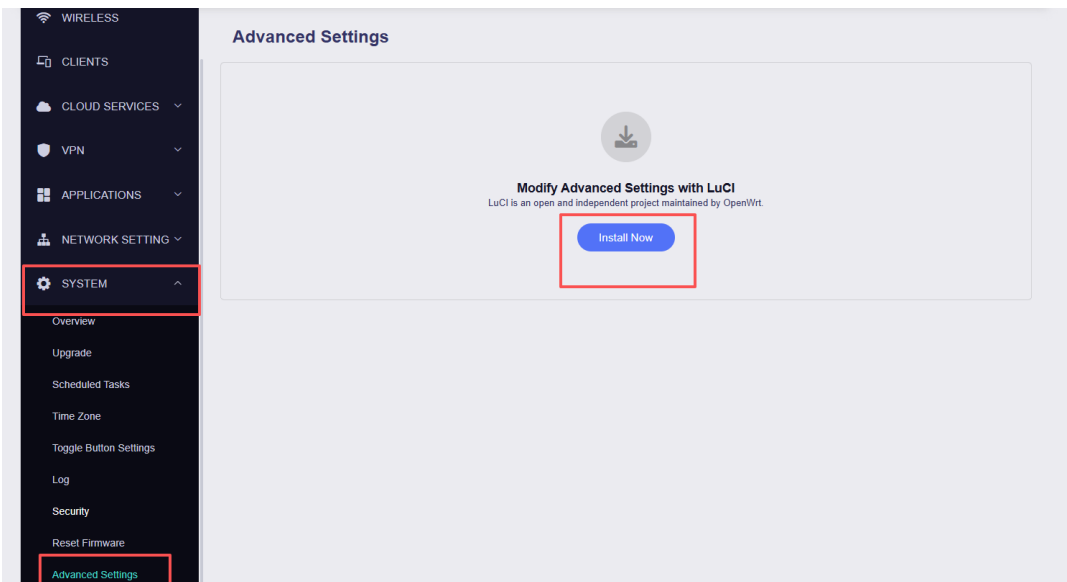


```
william@william-desktop: ~/Test
william@william-desktop:~/Test$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 240.1.0.191 netmask 255.255.255.0 broadcast 240.1.0.255
    inet6 fe80::811:e0cd:57da:4906 prefixlen 64 scopeid 0x20<link>
    ether 2c:cf:67:c0:ef:f6 txqueuelen 1000 (Ethernet)
    RX packets 85 bytes 10507 (10.5 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 191 bytes 19886 (19.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

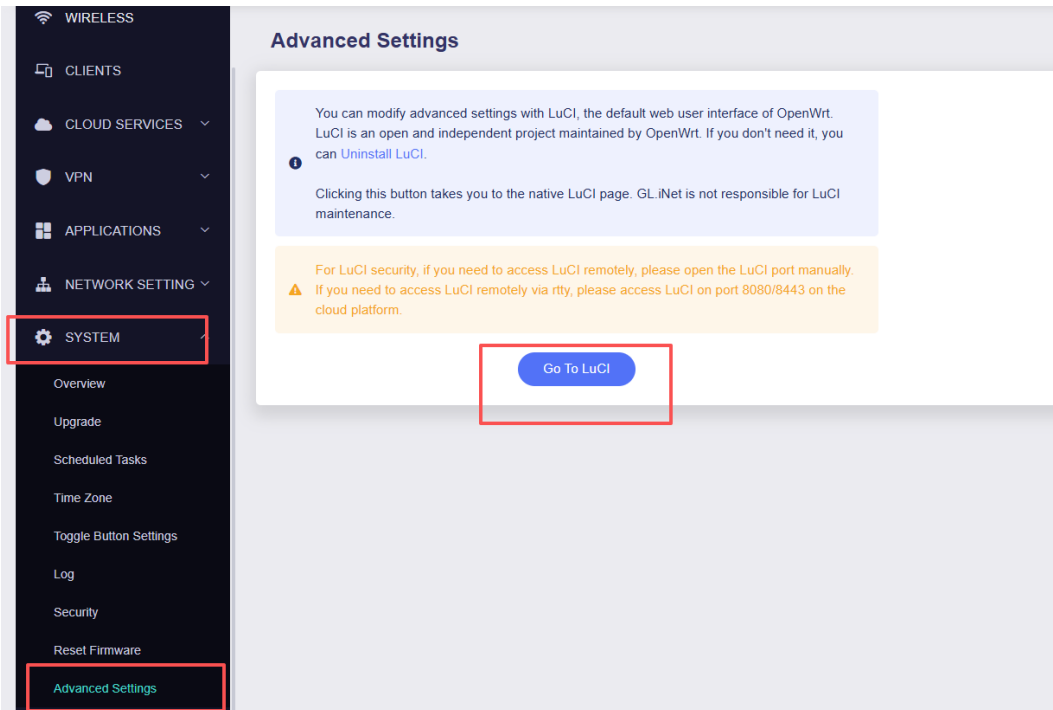
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 2983 bytes 409365 (409.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 2983 bytes 409365 (409.3 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.8.160 netmask 255.255.255.0 broadcast 192.168.8.255
    inet6 fe80::a03:63fb:e0af:370 prefixlen 64 scopeid 0x20<link>
    ether 2c:cf:67:c0:ef:f7 txqueuelen 1000 (Ethernet)
    RX packets 65661 bytes 73213388 (73.2 MB)
```

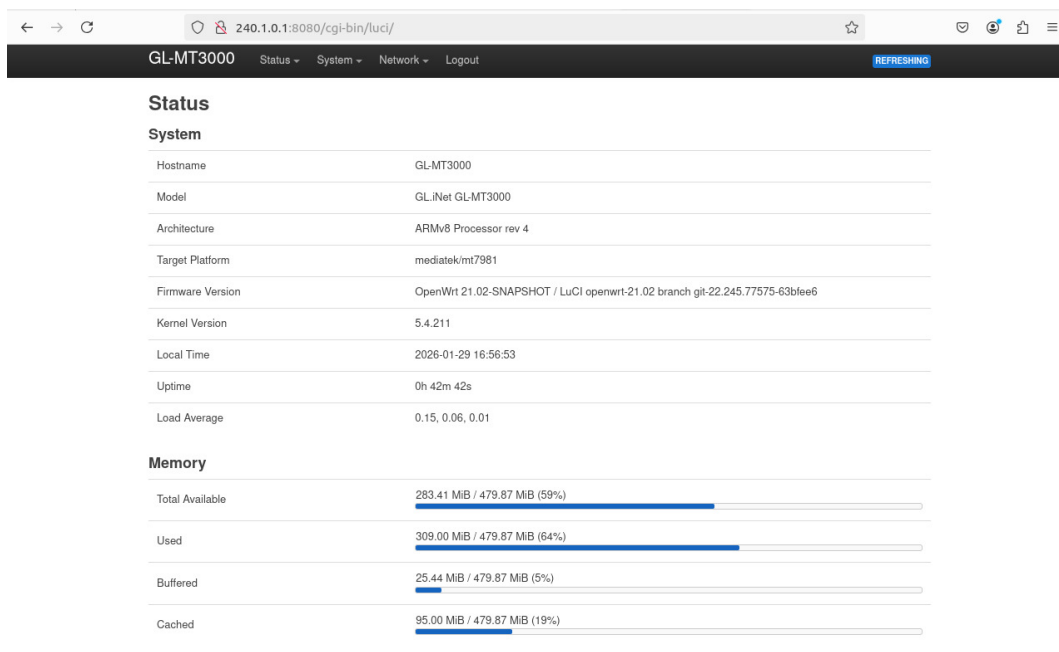
b. RG2 Firmware: Upon logged into the web Admin Panel, pull down “SYSTEM” tab, then “Advanced Settings”. Click “Install Now” button to install LuCi:



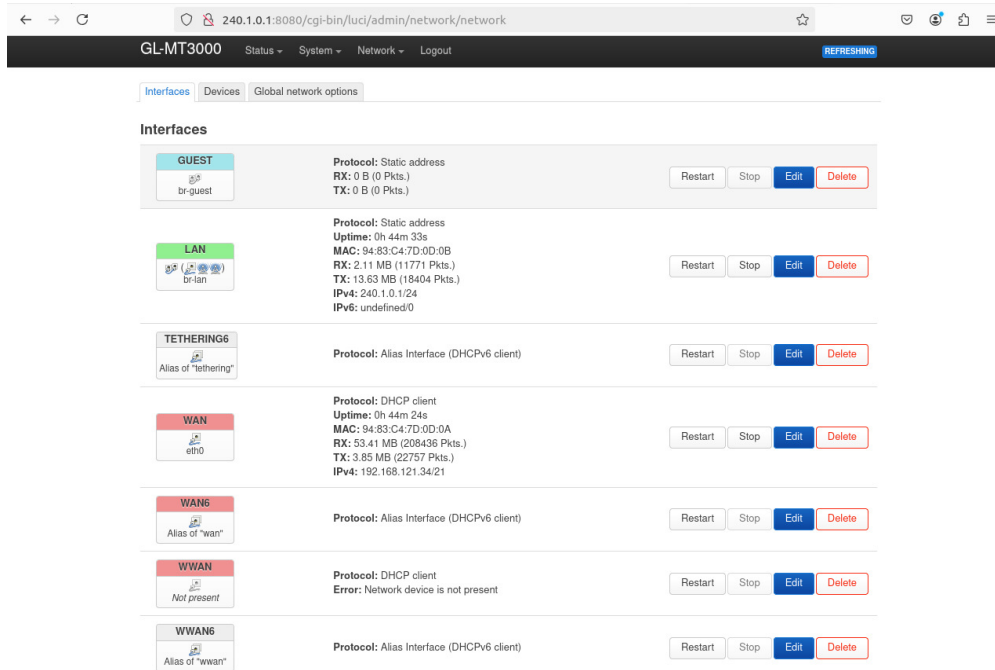
After LuCI is installed:



OpenWrt-21.02 Status -> Overview

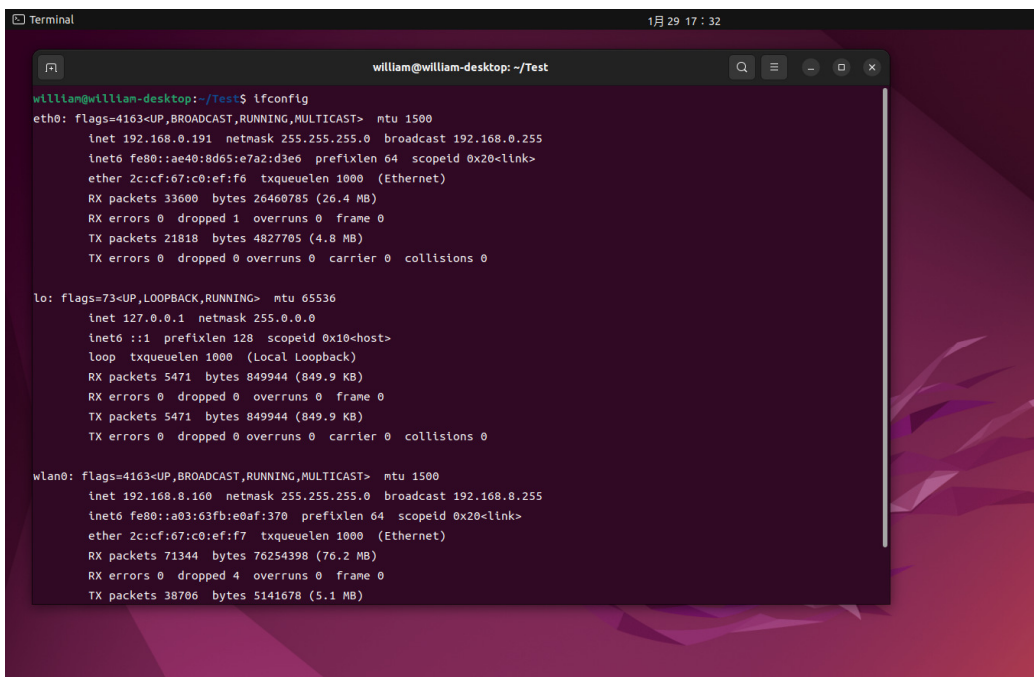


c. RG2 Interface Setup (Network -> Interfaces):



B. RG1 inserted between RG2 and PC5 (Router – RG2 – RG1 – PC5):

a. PC5 TCP/IP Properties (Terminal Emulator -> ifconfig):



b. RG1 Firmware (OpenWrt-21.02 Status -> Overview):

The screenshot shows the GL-MT3000 Admin Panel with the 'Status' tab selected. The page displays system information and memory usage.

Status

System

Hostname	GL-MT3000
Model	GL.iNet GL-MT3000
Architecture	ARMv8 Processor rev 4
Target Platform	mediatek/mt7981
Firmware Version	OpenWrt 21.02-SNAPSHOT / LuCI openwrt-21.02 branch git-22.245.77575-63bfee6
Kernel Version	5.4.211
Local Time	2026-01-29 17:37:38
Uptime	0h 28m 10s
Load Average	0.00, 0.01, 0.03

Memory

Total Available	282.27 MiB / 479.87 MiB (58%)
Used	326.62 MiB / 479.87 MiB (68%)
Buffered	28.79 MiB / 479.87 MiB (6%)
Cached	107.81 MiB / 479.87 MiB (22%)

c. RG1 Interface Setup (Network -> Interfaces):

The screenshot shows the GL-MT3000 Admin Panel with the 'Network' tab selected and the 'Interfaces' sub-tab active. It displays a list of network interfaces with their configurations and status.

Interfaces

Interface	Protocol	Status	Actions
GUEST br-guest	Static address RX: 0 B (0 Pkts.) TX: 0 B (0 Pkts.)	Restart Stop	Edit Delete
LAN br-lan	Static address Uptime: 0h 23m 11s MAC: 94:83:C4:29:80:BA RX: 4.94 MB (16831 Pkts.) TX: 10.92 MB (17330 Pkts.) IPv4: 192.168.0.1/24 IPv6: undefined/0	Restart Stop	Edit Delete
TETHERING6 Alias of "tethering"	Alias Interface (DHCPv6 client)	Restart Stop	Edit Delete
WAN eth0	DHCP client Uptime: 0h 30m 8s MAC: 94:83:C4:29:80:B9 RX: 15.86 MB (32751 Pkts.) TX: 7.72 MB (25895 Pkts.) IPv4: 240.1.0.145/24	Restart Stop	Edit Delete

C. Plug PC2 into RG1 (Router – RG2 – RG1 – PC2):

a. PC2 TCP/IP properties (Command Prompt ->ipconfig):

```
Windows IP Configuration

Unknown adapter 本地连接:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Unknown adapter Tailscale:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::ca77:aa6b:7f20:78f4%46
    Autoconfiguration IPv4 Address. . : 169.254.83.107
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :

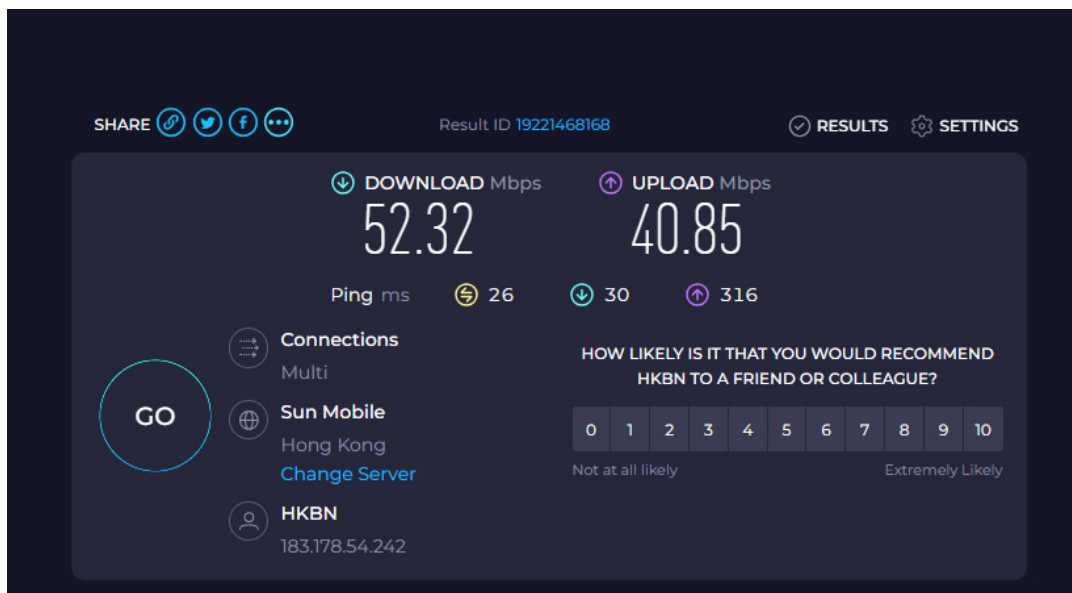
Ethernet adapter vEthernet (WSL (Hyper-V firewall)):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::6f65:d394:a486:b57c%50
    IPv4 Address. . . . . : 172.28.48.1
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . :

Ethernet adapter 以太网:

    Connection-specific DNS Suffix  . : lan
    Link-local IPv6 Address . . . . . : fe80::4b12:6ac6:60cf:9f66%3
    IPv4 Address. . . . . : 192.168.0.199
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1
```

b. Speed Test (Browser -> SpeedTest.net):



Note:

How Much Internet Speed Do I Really Need?

<https://www.speedtest.net/about/knowledge/how-much-speed-you-need>

c. PC2 to SpeedTest.net (Command Prompt -> TraceRT)

```
C:\Users\GL>tracert SpeedTest.net

Tracing route to SpeedTest.net [151.101.130.219]
over a maximum of 30 hops:

  1  <1 ms    <1 ms    <1 ms    console.gl-inet.com [192.168.0.1]
  2  *         *         *         Request timed out.
  3  1 ms      1 ms      1 ms      192.168.123.254
  4  2 ms      2 ms      1 ms      192.168.101.10
  5  10 ms     9 ms      8 ms      44.40.40.13
  6  16 ms     13 ms     14 ms     10.218.0.230
  7  17 ms     18 ms     16 ms     44.40.40.30
  8  18 ms     17 ms     17 ms     192.168.50.1
  9  19 ms     19 ms     20 ms     183178054241.ctinets.com [183.178.54.241]
 10  20 ms     19 ms     19 ms     203080069098.ctinets.com [203.80.69.98]
 11  22 ms     31 ms     19 ms     202.4.163.3
 12  20 ms     19 ms     21 ms     061244224065.ctinets.com [61.244.224.65]
 13  19 ms     20 ms     20 ms     54113.hkg.equinox.com [36.255.56.96]
 14  19 ms     20 ms     22 ms     151.101.130.219
```

Note:

In Step 2, the display skipped 240.1.0/24 environment by showing “Request timed out”, as if it did not respond, while packets transmission actually successfully passed / tunneled through it.

3. Summary:

- A. Common Home WiFi Routers (GL-MT3000) loaded with generic OpenWrt firmware code, without any customizations, support 240/4 just fine:

4. Conclusions:

- A. Since the environment between RG2 and RG1 above is equivalent to that between the SPR and RG1 in the left-hand side branch of the RAN Simulator, which is the proposed long-term EzIP network configuration, this series of tests validate that RG1: GL-MT3000 in such an architecture should serve RAN deployment well.