

# AI-04656 WRT54G Mesh Networking with DD-WRT

Yes — **but not as normal home routers anymore.**

Your six DD-WRT-flashed WRT54Gs are best thought of as **tiny, rugged, programmable network computers from the 2000s**. They are obsolete for modern broadband/Wi-Fi, but they can still be excellent **lab, radio, networking, and embedded-experiment hardware**.

## The hard performance limit

For the typical WRT54G/WRT54GL:

|                                            |                                           |
|--------------------------------------------|-------------------------------------------|
|                                            |                                           |
| Wi-Fi standard                             | 802.11b/g                                 |
| Advertised Wi-Fi rate<br><b>Capability</b> | <b>54 Mbps<br/>Maximum / practical</b>    |
| Ethernet                                   | <b>10/100 Mbps Fast Ethernet</b>          |
| WAN port                                   | <b>100 Mbps maximum</b>                   |
| Frequency                                  | 2.4 GHz only                              |
| Wi-Fi MIMO                                 | No                                        |
| Wi-Fi 5 GHz                                | No                                        |
| Wi-Fi 802.11n/ac/ax                        | No                                        |
| Typical RAM                                | 16 MB, depending on model                 |
| Typical flash                              | 4 MB, depending on model                  |
| CPU                                        | ~200 MHz Broadcom MIPS on common versions |

Linksys itself specified 802.11g at 54 Mbps and 10/100 Ethernet. ([Linksys Downloads](#))

So if you connect one to a modern gigabit/2.5-Gbps network, **it becomes the bottleneck immediately**.

And there's an important distinction:

**54 Mbps ≠ 54 Mbps of usable TCP throughput.**

802.11g's 54-Mbps PHY rate typically translates into something around 20-ish Mbps of real throughput, depending on interference, distance, encryption, channel conditions, etc.

## But your six routers aren't worthless

Actually, given your background with **DockerLab, networking, Cloudflare, GCP, automation, and ham radio**, I'd keep several of them.

I would divide them into three categories:

## ● Keep: excellent experimental hardware

### 1. Ham-radio mesh

This is probably their most interesting second life.

You already used them for this, and the hardware characteristics are actually useful for experimentation:

#### **WRT54G → 2.4 GHz → external antennas → mesh nodes**

You could build a little six-node laboratory mesh and experiment with:

- routing
- ad-hoc networking
- mesh topology
- multi-hop routing
- long-distance directional antennas
- packet loss
- link metrics
- routing convergence
- VLANs
- QoS
- tunneling
- redundant paths

The WRT54G's removable antennas are particularly useful for experimentation. OpenWrt's documentation notes the two removable antennas and the hardware's serial interface as well. ([OpenWrt](#))

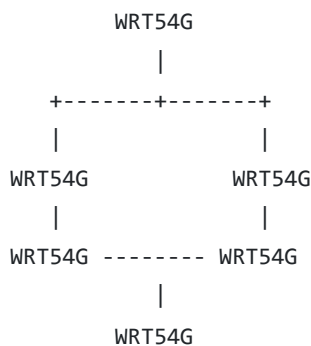
For actual modern amateur-radio deployments, I'd investigate **AREDN-compatible hardware** rather than assuming the WRT54G is still a good production platform. But for learning mesh networking, these old boxes are great disposable hardware.

## ● 2. Network laboratory

This is where I think they could be particularly useful **for you**.

You could make a:

### **6-node miniature network laboratory**



Then deliberately break things.

For example:

- DHCP
- DNS
- static routing
- RIP
- VLANs
- NAT
- firewall rules
- port forwarding
- wireless bridging
- client bridging
- repeater modes
- routing loops
- MTU problems
- packet loss
- latency
- asymmetric routing

That is much more educational than buying six modern routers and having everything work automatically.

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## 3. Wi-Fi repeater/extender

**Technically: yes.**

**Practically: usually no.**

DD-WRT historically made the WRT54G famous for exactly this kind of experimentation.

You can configure it as:

- wireless bridge
- client bridge
- repeater
- access point
- router
- WDS node
- VLAN router

But there's a major catch.

If you're repeating Wi-Fi wirelessly:

**client → WRT54G → Wi-Fi → main AP**

you're using the same 2.4-GHz radio for both sides.

Consequently, throughput can collapse.

And modern Wi-Fi equipment will vastly outperform it.

So I wouldn't deploy one as your home's primary Wi-Fi extender.

I'd use it for **experimentation or a temporary isolated network**.

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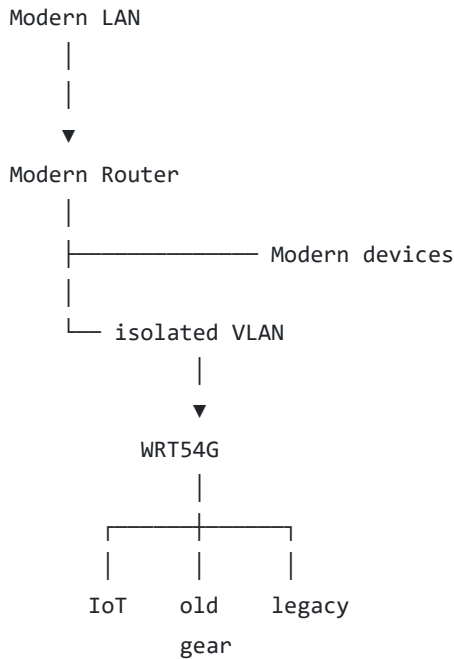
## 4. Dedicated IoT / legacy network

This is another surprisingly useful application.

You could create:

**VLAN / isolated network → WRT54G → old devices**

For example:



The WRT54G doesn't need to handle your Internet connection.

It only needs to provide a little isolated network.

That is a much better use for it.

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## 5. Network-protocol test box

This is probably my favorite use.

Because they're cheap and disposable, you can intentionally configure one badly.

For example:

**Router #1**

Normal router

**Router #2**

NAT

**Router #3**

Static routing

#### Router #4

Firewall

#### Router #5

Wireless bridge

#### Router #6

Packet-loss / latency experiment

Now you've got a little **networking sandbox**.

If you brick one:

Who cares?

That's exactly the kind of hardware that is fun to experiment with.

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## 6. Serial-console / embedded Linux experimentation

This gets more interesting if you're comfortable opening electronics.

The WRT54G platform exposes serial connections on the PCB; OpenWrt documents the 3.3-V TTL serial interface. ([OpenWrt](#))

That means you can turn one into a little embedded-Linux laboratory.

You can experiment with:

- serial console
- bootloader
- firmware recovery
- embedded Linux
- GPIO
- JTAG concepts
- firmware modification
- custom builds
- network daemons
- lightweight scripts

It's essentially a **\$0 embedded Linux development board** if you already own it.

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## Where they're genuinely obsolete

I would **not** use a WRT54G for:

### Modern Internet gateway

Absolutely not.

Your current Internet connection could be hundreds of Mbps or gigabit-class.

The router's 100-Mbps Ethernet and ancient CPU make that pointless.

## Primary Wi-Fi

No.

Modern:

- Wi-Fi 6
- Wi-Fi 6E
- Wi-Fi 7

are several generations ahead.

## Security appliance

Also no.

The hardware is far too constrained, and the firmware situation is problematic.

OpenWrt explicitly says the classic 4-MB flash/32-MB-or-less class of hardware is **not recommended for current use**, and official OpenWrt support for these 4/32 devices ended in 2022. ([OpenWrt](#))

That's an important point:

**Don't think of these as secure modern routers simply because they're running DD-WRT.**

Keep them isolated from anything important.

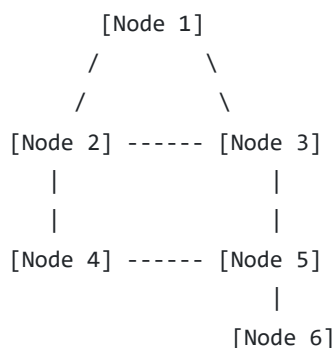
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## One particularly interesting possibility for you

Given your old **ham-radio mesh** experience, I'd actually resurrect **two or three**, rather than all six.

I'd build:

### WRT54G Mesh Lab



Then experiment with:

### Layer 2

- bridging
- WDS
- VLANs

Layer 3

- static routes
- dynamic routing
- mesh routing

Wireless

- channel selection
- antenna orientation
- distance
- interference
- throughput
- latency

Failure testing

Pull Node 3.

What happens?

Pull Node 4.

Does traffic reroute?

Add Node 6.

Does the topology improve?

That turns six forgotten routers into a **real networking laboratory**.

And there's a historical reason they're worth keeping

The WRT54G is actually one of the most important consumer networking platforms in the history of open-source networking.

Its inexpensive Broadcom hardware, Linux-based firmware ecosystem, and relatively hackable architecture helped make projects like OpenWrt and DD-WRT enormously popular.

The original WRT54G dates back to **December 2002**. ([OpenWrt](#))

In other words, your six boxes aren't just obsolete routers.

They're **classic networking lab hardware**.

My recommendation for your six

I'd do this:

|       |                                  |
|-------|----------------------------------|
|       |                                  |
| 2     | Ham-radio/mesh experimentation   |
| 2     | Networking/DockerLab experiments |
| Units | Purpose                          |
| -     |                                  |

And **don't throw them away yet**.

If your goal were simply:

"Can I use these to get Wi-Fi throughout my house?"

I'd say **no—replace them**.

But if the goal is:

"Can I turn six \$0 routers into a networking/ham-radio/embedded Linux laboratory?"

Then the answer is **absolutely yes**.

In fact, with your existing DockerLab, I could see a very interesting project: **six WRT54Gs + DockerLab + GCP = a miniature distributed network/mesh laboratory**, where you use modern Linux containers to simulate/control a network while the old WRT54Gs provide the physical wireless/routing layer.

[OpenWrt WRT54G hardware documentation](#) · [DD-WRT downloads](#)