ANNEX A · PRACTICAL 3.4 · A WIRED LAN WITH ROUTEROS

Name _____ **Group G =** _____ **Date** _____

Your group's LAN is `10.G.0.0/24`. Write your group number instead of **G** everywhere. Lines marked **[R]** go into your report.

PART A · ON THE REAL ROUTER, IN YOUR GROUP (WINBOX)

Take turns: student A does steps 1–3, B does 4–5, C does 6–7. The other two read and check.

1. **Reset.** System → Reset Configuration, tick No Default Configuration. Reconnect: Neighbors → click the **MAC address** → user `admin`.
2. **Name and password.** System → Identity: `GG-router` (for group 3: `G3-router`). System → Password: the group's password.
3. **Bridge.** Bridge → + : name `bridge-lan`. Then Ports → + : add `ether2`, `ether3`, `ether4`, `ether5` to `bridge-lan`.
4. **Address.** IP → Addresses → + : `10.G.0.1/24` on interface `bridge-lan`.
5. **DHCP server.** IP → DHCP Server → DHCP Setup: interface `bridge-lan` · network `10.G.0.0/24` · gateway `10.G.0.1` · addresses `10.G.0.100-10.G.0.199` · DNS `10.G.0.1` · lease time `30m`.
6. **DNS.** IP → DNS: tick Allow Remote Requests. Static → + : name `gw.tramuntana.internal`, address `10.G.0.1`.
7. **A fixed address for one PC.** IP → DHCP Server → Leases → right-click one lease → Make Static.
8. **Check, each on your own PC.** Unplug and plug your cable, then:

```
ip -br address
ip route
ping -c 3 10.G.0.1
dig +short gw.tramuntana.internal
```

[R] My address _____ My default gateway _____

[R] Answer of `dig` _____ A classmate's address I can ping _____

[R] On the router: IP → DHCP Server → Leases. How many leases? _____ Which address did the first PC get? _____

DONE WHEN the three PCs have an address between `.100` and `.199`, ping the router and each other, and `dig` answers `10.G.0.1`.

PART B · ALONE, IN THE VIRTUAL LAB (CLI ONLY)

1. Start the lab and open the router. Wait a minute if the connection is refused. Password: `admin`.

```
cd ~/labs
containerlab deploy -t wired.clab.yml
ssh admin@clab-wired-r1
```

2. Build the same LAN by typing. The ports of this router are `ether2` and `ether3`. **Never touch** `ether1`. Complete the commands:

```
/interface bridge add name=bridge-lan
/interface bridge port add bridge=bridge-lan interface=________
/interface bridge port add bridge=bridge-lan interface=________
/ip address add address=_____________ interface=__________
/ip pool add name=pool-lan ranges=___________________________
/ip dhcp-server add name=dhcp-lan interface=bridge-lan address-pool=pool-lan disabled=no
/ip dhcp-server network
add address=_____________ gateway=____________ dns-server=____________
```

```
/ip dns set allow-remote-requests=yes
/ip dns static add name=gw.tramuntana.internal address=__________
```

3 Open a second terminal for `pc1` (then do the same for `pc2`):

```
docker exec -it clab-wired-pc1 bash
dhclient -v eth1
ip route
ping -c 3 10.G.0.1
dig +short gw.tramuntana.internal @10.G.0.1
```

[R] Copy the four lines of `dhclient` that start with `DHCP`. Which messages come from the router? _____

DONE WHEN `pc1` and `pc2` each have a lease, `pc1` pings `pc2`, and `dig` answers.

4 **[R]** In the router run `/export` and paste the result into the report. Then leave and clean up:

```
containerlab destroy -t wired.clab.yml --cleanup
```

HAND IN

`practical-3.4-surname.md` on Classroom, before Friday 11/12 at 23:59: the **[R]** lines of Part A, the `dhclient` lines and the `/export` of Part B, and two answers in your own words: Why is the router's address on the bridge and not on `ether2`? · What three things did DHCP tell your PC?

Marks (10): Part A works on the three PCs 4 · Part B export complete and correct 3 · the two explanations 2 · report clear, commands and outputs in code blocks 1.

EXIT TICKET (ALONE, NO NOTES)

1. In RouterOS, a bridge is:
   A · a cable between two routers B · a software switch that joins ports into one LAN
   C · a DHCP pool D · the port that goes to the internet
2. The router's LAN address `10.G.0.1/24` belongs on: A · `ether1` B · `ether2` C · the bridge D · every port
3. A PC is plugged in, the light is on, and it gets no address. Most likely:
   A · the DHCP server is not answering on that port B · the DNS name is missing
   C · the cable is Cat 5e D · the PC's MAC address is wrong
4. The pool `10.3.0.100-10.3.0.199` contains: A · 99 B · 100 C · 199 D · 254 addresses
5. DHCP gives the PC:
   A · only an address B · address and MAC C · address and internet D · address and mask, gateway, DNS server