

Fait par Raphaël GEAY

# I. Le setup

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## 🕒 Prouvez que...

```
raphael@Client1:~$ ping youtube.com
```

```
PING youtube.com (142.250.200.206) 56(84) bytes of data.  
64 bytes from mrs08s17-in-f14.1e100.net (142.250.200.206): icmp_seq=1 ttl=112  
time=19.6 ms  
64 bytes from mrs08s17-in-f14.1e100.net (142.250.200.206): icmp_seq=2 ttl=112  
time=20.0 ms  
64 bytes from mrs08s17-in-f14.1e100.net (142.250.200.206): icmp_seq=3 ttl=112  
time=18.9 ms  
64 bytes from mrs08s17-in-f14.1e100.net (142.250.200.206): icmp_seq=4 ttl=112  
time=21.2 ms  
^C  
--- youtube.com ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3002ms  
rtt min/avg/max/mdev = 18.946/19.951/21.185/0.813 ms
```

```
[raphael@web ~]$ ping youtube.com
```

```
PING youtube.com (142.250.179.110) 56(84) bytes of data.  
64 bytes from par21s20-in-f14.1e100.net (142.250.179.110): icmp_seq=1 ttl=115  
time=21.2 ms  
64 bytes from par21s20-in-f14.1e100.net (142.250.179.110): icmp_seq=2 ttl=115  
time=22.8 ms  
64 bytes from par21s20-in-f14.1e100.net (142.250.179.110): icmp_seq=3 ttl=115  
time=19.8 ms  
64 bytes from par21s20-in-f14.1e100.net (142.250.179.110): icmp_seq=4 ttl=115  
time=20.4 ms  
^C  
--- youtube.com ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3006ms  
rtt min/avg/max/mdev = 19.848/21.046/22.760/1.100 ms
```

```
raphael@Client1:~$ ping 10.6.1.253
```

```
PING 10.6.1.253 (10.6.1.253) 56(84) bytes of data.  
64 bytes from 10.6.1.253: icmp_seq=1 ttl=64 time=1.04 ms  
64 bytes from 10.6.1.253: icmp_seq=2 ttl=64 time=0.579 ms  
64 bytes from 10.6.1.253: icmp_seq=3 ttl=64 time=1.11 ms  
64 bytes from 10.6.1.253: icmp_seq=4 ttl=64 time=0.917 ms  
^C  
--- 10.6.1.253 ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3065ms  
rtt min/avg/max/mdev = 0.579/0.909/1.105/0.202 ms
```

## II. LAN clients

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### Prouvez que...

```
raphael@Client1:~$ ip a
```

```
2: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP  
group default qlen 1000  
    link/ether 08:00:27:2d:9f:94 brd ff:ff:ff:ff:ff:ff  
    inet 10.6.1.37/24 metric 100 brd 10.6.1.255 scope global dynamic enp0s8  
        valid_lft 524sec preferred_lft 524sec  
    inet6 fe80::a00:27ff:fe2d:9f94/64 scope link  
        valid_lft forever preferred_lft forever
```

```
raphael@Client1:~$ resolvectl
```

```
Global  
    Protocols: -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported  
    resolv.conf mode: stub  
  
Link 2 (enp0s8)  
    Current Scopes: DNS  
        Protocols: +DefaultRoute -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported  
    Current DNS Server: 1.1.1.1  
        DNS Servers: 1.1.1.1
```

```
raphael@Client1:~$ ip route show
```

```
default via 10.6.1.254 dev enp0s8 proto dhcp src 10.6.1.37 metric 100
1.1.1.1 via 10.6.1.254 dev enp0s8 proto dhcp src 10.6.1.37 metric 100
10.6.1.0/24 dev enp0s8 proto kernel scope link src 10.6.1.37 metric 100
10.6.1.254 dev enp0s8 proto dhcp scope link src 10.6.1.37 metric 100
```

```
raphael@Client1:~$ ping youtube.com
```

```
PING youtube.com (142.251.37.174) 56(84) bytes of data.
64 bytes from mrs09s14-in-f14.1e100.net (142.251.37.174): icmp_seq=1 ttl=111
time=18.2 ms
64 bytes from mrs09s14-in-f14.1e100.net (142.251.37.174): icmp_seq=2 ttl=111
time=19.5 ms
64 bytes from mrs09s14-in-f14.1e100.net (142.251.37.174): icmp_seq=3 ttl=111
time=20.2 ms
64 bytes from mrs09s14-in-f14.1e100.net (142.251.37.174): icmp_seq=4 ttl=111
time=19.8 ms
^C
--- youtube.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 18.165/19.424/20.240/0.778 ms
```

### III. LAN serveurzzzz

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#### 🔍 Déterminer sur quel port écoute le serveur NGINX

```
[raphael@web ~]$ sudo ss -lnpt | grep nginx
```

```
LISTEN 0      511          0.0.0.0:80      0.0.0.0:*      users:
(("nginx",pid=1207,fd=6),("nginx",pid=1206,fd=6))
LISTEN 0      511          [::]:80        [::]:*        users:
(("nginx",pid=1207,fd=7),("nginx",pid=1206,fd=7))
```

#### 🔍 Ouvrir ce port dans le firewall

```
[raphael@web ~]$ sudo firewall-cmd --permanent --add-port=80/tcp
```

```
success
```

```
[raphael@web ~]$ sudo firewall-cmd --reload
```

success

## 🔗 Visitez le site web !

```
raphael@Client1:~$ curl http://10.6.2.11
```

```
<!doctype html>
<html>
  <head>
    <meta charset='utf-8'>
    <meta name='viewport' content='width=device-width, initial-scale=1'>
    <title>HTTP Server Test Page powered by: Rocky Linux</title>
    <style type="text/css">
      /**/

      html {
        height: 100%;
        width: 100%;
      }
      body {
        background: rgb(20,72,50);
        background: -moz-linear-gradient(180deg, rgba(23,43,70,1) 30%, rgba(0,0,0,1)
90%) ;
        background: -webkit-linear-gradient(180deg, rgba(23,43,70,1) 30%, rgba(0,0,0,1)
90%) ;
        background: linear-gradient(180deg, rgba(23,43,70,1) 30%, rgba(0,0,0,1) 90%);
        background-repeat: no-repeat;
        background-attachment: fixed;</pre></div><div data-bbox="72 750 742 773" data-label="Section-Header"><h2>🔗 Déterminer sur quel(s) port(s) écoute le service BIND9</h2></div><div data-bbox="99 807 501 824" data-label="Text"><pre>[raphael@dns ~]$ sudo ss -lnpt | grep :53</pre></div><div data-bbox="99 879 722 947" data-label="Text"><pre>LISTEN 0      10      10.6.2.12:53      0.0.0.0:*      users:
(("named",pid=1813,fd=25))
LISTEN 0      10      127.0.0.1:53      0.0.0.0:*      users:
(("named",pid=1813,fd=22))</pre></div><div data-bbox="477 965 517 981" data-label="Page-Footer">4 / 9</div>
```

```
LISTEN 0      10          [::1]:53      [::]:*      users:
(("named",pid=1813,fd=27))
```

## 🔧 Ouvrir ce(s) port(s) dans le firewall

```
[raphael@dns ~]$ sudo firewall-cmd --permanent --add-port=53/tcp
```

```
success
```

```
[raphael@dns ~]$ sudo firewall-cmd --reload
```

```
success
```

## 🔧 Effectuez des requêtes DNS manuellement depuis le serveur DNS lui-même dans un premier temps

```
[raphael@dns ~]$ dig web.tp6.b1 @10.6.2.12
```

```
; <<>> DiG 9.16.23-RH <<>> web.tp6.b1 @10.6.2.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 61358
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 6d20289ca56df6a9010000006716285d596ee1dfa38e50af (good)
;; QUESTION SECTION:
web.tp6.b1.                IN      A

;; ANSWER SECTION:
web.tp6.b1.                86400   IN      A      10.6.2.11

;; Query time: 0 msec
;; SERVER: 10.6.2.12#53(10.6.2.12)
;; WHEN: Mon Oct 21 12:09:33 CEST 2024
;; MSG SIZE rcvd: 83
```

```
[raphael@dns ~]$ dig dns.tp6.b1 @10.6.2.12
```

```
; <<>> DiG 9.16.23-RH <<>> dns.tp6.b1 @10.6.2.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 38163
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
; COOKIE: b140c7aa0f15c1dd010000006716288eaf40e3688bc5b503 (good)
;; QUESTION SECTION:
;dns.tp6.b1.                IN      A

;; ANSWER SECTION:
dns.tp6.b1.                86400   IN      A      10.6.2.12

;; Query time: 1 msec
;; SERVER: 10.6.2.12#53(10.6.2.12)
;; WHEN: Mon Oct 21 12:10:22 CEST 2024
;; MSG SIZE rcvd: 83
```

```
[raphael@dns ~]$ dig ynov.com @10.6.2.12
```

```
; <<>> DiG 9.16.23-RH <<>> ynov.com @10.6.2.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 14223
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
; COOKIE: a8e884b77f22ce25010000006716290875606700199759b0 (good)
;; QUESTION SECTION:
;ynov.com.                  IN      A

;; ANSWER SECTION:
ynov.com.                  300     IN      A      172.67.74.226
ynov.com.                  300     IN      A      104.26.10.233
ynov.com.                  300     IN      A      104.26.11.233

;; Query time: 298 msec
```

```
;; SERVER: 10.6.2.12#53(10.6.2.12)
;; WHEN: Mon Oct 21 12:12:24 CEST 2024
;; MSG SIZE rcvd: 113
```

```
[raphael@dns ~]$ dig -x 10.6.2.11 @10.6.2.12
```

```
; <<>> DiG 9.16.23-RH <<>> -x 10.6.2.11 @10.6.2.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 11889
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: c99d9eb1f5316c670100000067162947c0cf70a8c502e648 (good)
;; QUESTION SECTION:
;11.2.6.10.in-addr.arpa.                IN      PTR

;; ANSWER SECTION:
11.2.6.10.in-addr.arpa. 86400    IN      PTR      web.tp6.b1.

;; Query time: 0 msec
;; SERVER: 10.6.2.12#53(10.6.2.12)
;; WHEN: Mon Oct 21 12:13:27 CEST 2024
;; MSG SIZE rcvd: 103
```

```
[raphael@dns ~]$ dig -x 10.6.2.12 @10.6.2.12
```

```
; <<>> DiG 9.16.23-RH <<>> -x 10.6.2.12 @10.6.2.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 18692
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: ca2369e03fc26de30100000067162979239df3eb0f71d281 (good)
;; QUESTION SECTION:
;12.2.6.10.in-addr.arpa.                IN      PTR

;; ANSWER SECTION:
```

```
12.2.6.10.in-addr.arpa. 86400 IN PTR dns.tp6.b1.
```

```
;; Query time: 0 msec
;; SERVER: 10.6.2.12#53(10.6.2.12)
;; WHEN: Mon Oct 21 12:14:17 CEST 2024
;; MSG SIZE rcvd: 103
```

## 🔗 Effectuez une requête DNS manuellement depuis client1.tp6.b1

```
raphael@Client1:~$ drill web.tp6.b1
```

```
;; ->>HEADER<<- opcode: QUERY, rcode: NXDOMAIN, id: 702
;; flags: qr rd ra ; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 0
;; QUESTION SECTION:
;; web.tp6.b1. IN A

;; ANSWER SECTION:

;; AUTHORITY SECTION:
. 86400 IN SOA a.root-servers.net. nstld.verisign-grs.com. 2024102100 1800
900 604800 86400

;; ADDITIONAL SECTION:

;; Query time: 48 msec
;; SERVER: 127.0.0.53
;; WHEN: Mon Oct 21 12:17:47 2024
;; MSG SIZE rcvd: 103
```

## 🔗 Créez un nouveau client client2.tp6.b1 vitefé

```
raphael@raphael-VirtualBox:~$ ip a
```

```
2: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 08:00:27:8f:3a:ac brd ff:ff:ff:ff:ff:ff
    inet 10.6.1.37/24 metric 100 brd 10.6.1.255 scope global dynamic enp0s8
        valid_lft 594sec preferred_lft 594sec
```

```
raphael@raphael-VirtualBox:~$ resolvectl
```



**Global**

Protocols: -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported  
resolv.conf mode: stub

**Link 2 (enp0s8)**

Current Scopes: DNS

Protocols: +DefaultRoute -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported  
DNS Servers: 10.6.2.12