

Chapitre 2

Serveur Debian DS1: installation du service DNS

2.8. Installation du paquetage BIND

1)

```
root@DS1: ~#apt-get install bind9
Lecture des listes de paquets... Fait
Construction de l'arbre des dépendances... Fait
Lecture des informations d'état... Fait
Les paquets supplémentaires suivants seront installés :
  bind9-dnsutils bind9-host bind9-libs bind9-utils dns-root-data
Paquets suggérés :
  bind9-doc resolvconf ufw
Les NOUVEAUX paquets suivants seront installés :
  bind9 bind9-utils dns-root-data
Les paquets suivants seront mis à jour :
  bind9-dnsutils bind9-host bind9-libs
3 mis à jour, 3 nouvellement installés, 0 à enlever et 46 non mis à jour.
Il est nécessaire de prendre 1 905 kB dans les archives.
Après cette opération, 1 706 ko d'espace disque supplémentaires seront utilisés.
Souhaitez-vous continuer ? [0/n]
```

2)

```
root@DS1: ~#systemctl start bind9
root@DS1: ~#
```

3)

```
GNU nano 8.4 /etc/bind/named.conf
// This is the primary configuration file for the BIND DNS server named.
//
// Please read /usr/share/doc/bind9/README.Debian for information on the
// structure of BIND configuration files in Debian, *BEFORE* you customize
// this configuration file.
//
// If you are just adding zones, please do that in /etc/bind/named.conf.local

include "/etc/bind/named.conf.options";
include "/etc/bind/named.conf.local";
include "/etc/bind/named.conf.root-hints";
```

```

root@DS1: ~#ls -l /etc/bind
total 20
-rw-r--r-- 1 root bind 455 21 janv. 17:32 named.conf
-rw-r--r-- 1 root bind  42 21 janv. 17:32 named.conf.local
-rw-r--r-- 1 root bind  43 21 janv. 17:32 named.conf.options
-rw-r--r-- 1 root bind 116 21 janv. 17:32 named.conf.root-hints
-rw-r----- 1 bind bind 100 29 janv. 15:29 rndc.key
root@DS1: ~#

```

4)

```

root@DS1 ~ #cd /etc/bind
root@DS1 /etc/bind #cp named.conf named.conf.sauv
root@DS1 /etc/bind #cp named.conf.options named.conf.options.sauv
root@DS1 /etc/bind #cp named.conf.local named.conf.local.sauv
root@DS1 /etc/bind #_

```

5)

```

root@DS1: ~#systemctl status bind9
• named.service - BIND Domain Name Server
  Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: enabled)
  Active: active (running) since Thu 2026-01-29 15:29:58 CET; 11min ago
  Invocation: 6dddcd22f90f4b9398cb7151cf8e23a5
  Docs: man:named(8)
  Main PID: 1823 (named)
  Status: "running"
  Tasks: 8 (limit: 2317)
  Memory: 28.4M (peak: 30.4M)
  CPU: 69ms
  CGroup: /system.slice/named.service
          └─1823 /usr/sbin/named -f -u bind

janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './NS/IN': 2001:dc3::35#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './DNSKEY/IN': 2001:500:9f::42#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './NS/IN': 2001:500:9f::42#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './DNSKEY/IN': 2001:503:c27::2:30#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './NS/IN': 2001:503:c27::2:30#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './DNSKEY/IN': 2001:7fe::53#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './NS/IN': 2001:7fe::53#53
janv. 29 15:29:58 DS1 named[1823]: network unreachable resolving './NS/IN': 2001:500:2::c#53
janv. 29 15:30:08 DS1 named[1823]: managed-keys-zone: Unable to fetch DNSKEY set '.': timed out
janv. 29 15:30:08 DS1 named[1823]: resolver priming query complete: timed out
root@DS1: ~#

```

2.9. Zone de recherche directe et zone de recherche inversé

1)

```
GNU nano 8.4 /etc/bind/named.conf.local
//
// Do any local configuration here
//
zone "sio-exupery.LOCAL" IN {
    type master;
    file "db.sio-exupery.local";
    allow-update { none; };
};

zone "4.168.192.in-addr.arpa" IN {
    type master;
    file "rev.sio-exupery.local";
    allow-update { none; };
};
```

2.10. Construction des fichiers de zone

1)

```
GNU nano 8.4 /var/cache/bind/db.sio-exupery.local
; Fichier pour la résolution directe
$TTL 86400
@ IN SOA DS1.sio-exupery.local. root.sio-exupery.local. (
    2026011301
    1w
    1d
    4w
    1w )
@ IN NS DS1.sio-exupery.local.
DS1 IN A 192.168.4.254
DD1 IN A 192.168.4.1
```

2)

```
GNU nano 8.4 /var/cache/bind/rev.sio-exupery.local
; Fichier our la résolution inverse
$TTL 86400
@ IN SOA DS1.sio-exupery.local. root.sio-exupery.local. (
    2026011301
    1w
    1d
    4w
    1w )
@ IN NS DS1.sio-exupery.local.
254 IN PTR DS1.sio-exupery.local.
1 IN PTR DD1.sio-exupery.local.
```

3)

```
root@DS1: ~#chgrp bind /var/cache/bind/*
root@DS1: ~#chmod 664 /var/cache/bind/*
```

```
root@DS1: ~#ls -l /var/cache/bind
total 16
-rw-rw-r-- 1 root bind 212 29 janv. 16:09 db.sio-exupery.local
-rw-rw-r-- 1 bind bind 287 29 janv. 15:30 managed-keys.bind
-rw-rw-r-- 1 bind bind 785 29 janv. 15:30 managed-keys.bind.jnl
-rw-rw-r-- 1 root bind 233 29 janv. 16:13 rev.sio-exupery.local
root@DS1: ~#
```

4)

```
root@DS1: ~#ls -ld /var/cache/bind
drwxrwxr-x 2 root bind 4096 29 janv. 16:15 /var/cache/bind
```

2.11. Démarrage et tests du service

1)

```
GNU nano 8.4 /etc/hosts
127.0.0.1    localhost.localdomain localhost
127.168.4.254 DS1.sio-exupery.local DS1

# The following lines are desirable for IPv6 capable hosts
::1        localhost ip6-localhost ip6-loopback
ff02::1    ip6-allnodes
ff02::2    ip6-allrouters
```

2)

```
root@DS1: ~#ifdown enp0s3
root@DS1: ~#ifdown enp0s8
root@DS1: ~#
```

```

GNU nano 8.4 /etc/network/interfaces
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
allow-hotplug enp0s3
iface enp0s3 inet static
address 172.17.101.224
netmask 255.255.0.0
network 172.17.0.0
broadcast 172.17.255.255
gateway 172.17.250.3

allow-hotplug enp0s8
iface enp0s8 inet static
address 192.168.4.254
netmask 255.255.255.0
network 192.168.4.0
broadcast 192.168.4.255
dns-search sio-exupery.local
dns-domain sio-exupery.local
dns-nameservers 192.168.4.254

```

3)

```

root@DS1: ~#ifup enp0s3
root@DS1: ~#ifup enp0s8
root@DS1: ~#cat /etc/resolv.conf
# Generated by dhcpd from enp0s3.dhcp
# /etc/resolv.conf.head can replace this line
domain sio-exupery.local
nameserver 172.17.254.1

# /etc/resolv.conf.tail can replace this line
root@DS1: ~#

```

4)

```

root@DS1: ~#ifup enp0s3
root@DS1: ~#ifup enp0s8
root@DS1: ~#cat /etc/resolv.conf
# Generated by dhcpd from enp0s3.dhcp
# /etc/resolv.conf.head can replace this line
domain sio-exupery.local
nameserver 172.17.254.1

# /etc/resolv.conf.tail can replace this line
root@DS1: ~#systemctl restart bind9
root@DS1: ~#systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: enabled)
   Active: active (running) since Thu 2026-01-29 16:40:40 CET; 10s ago
     Invocation: 0cd518e2b764464c00ad150e7f45ae0b
       Docs: man:named(8)
    Main PID: 1983 (named)
      Status: "running"
         Tasks: 6 (limit: 2317)
        Memory: 22.7M (peak: 24.9M)
           CPU: 44ms
       CGroup: /system.slice/named.service
              └─1983 /usr/sbin/named -f -u bind

Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './NS/IN': 2001:dc3::35#53
Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './DNSKEY/IN': 2001:1b8:10::b#53
Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './NS/IN': 2001:1b8:10::b#53
Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './DNSKEY/IN': 2001:7fd:1#53
Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './NS/IN': 2001:7fd:1#53
Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './DNSKEY/IN': 2001:503:ba3e::2:30#53
Janv. 29 16:40:40 DS1 named[1983]: network unreachable resolving './NS/IN': 2001:503:ba3e::2:30#53
Janv. 29 16:40:50 DS1 named[1983]: network unreachable resolving './NS/IN': 2001:500:a8::e#53
Janv. 29 16:40:50 DS1 named[1983]: managed-keys-zone: Unable to fetch DNSKEY set '.': timed out
Janv. 29 16:40:50 DS1 named[1983]: resolver priming query complete: timed out
root@DS1: ~#

```

5)

```
root@DS1: ~#cd /etc/bind
root@DS1: /etc/bind#named-checkconf
root@DS1: /etc/bind#cd /var/cache/bind
root@DS1: /var/cache/bind#named-checkzone -d sio-exupery.local db.sio-exupery.local
loading "sio-exupery.local" from "db.sio-exupery.local" class "IN"
zone sio-exupery.local/IN: loaded serial 2026011301
OK
root@DS1: /var/cache/bind#
```

6)

```
root@DS1: /var/cache/bind#named-checkzone -d 4.168.192.in-addr.arpa rev.sio-exupery.lo
loading "4.168.192.in-addr.arpa" from "rev.sio-exupery.local" class "IN"
zone 4.168.192.in-addr.arpa/IN: loaded serial 2026011301
OK
```

7)

```
root@DS1: ~#journalctl -f
févr. 05 09:04:52 DS1 named[1632]: resolver priming query complete: timed out
févr. 05 09:10:58 DS1 systemd[1]: Starting systemd-tmpfiles-clean.service - Cleanup of Temporary Directories...
févr. 05 09:10:58 DS1 systemd-tmpfiles[1648]: /usr/lib/tmpfiles.d/legacy.conf:14: Duplicate line for path "/run/lock",
févr. 05 09:10:59 DS1 systemd[1]: systemd-tmpfiles-clean.service: Deactivated successfully.
févr. 05 09:10:59 DS1 systemd[1]: Finished systemd-tmpfiles-clean.service - Cleanup of Temporary Directories.
févr. 05 09:14:40 DS1 systemd[1]: Started getty@tty2.service - Getty on tty2.
févr. 05 09:15:16 DS1 login[1654]: pam_unix(login:session): session opened for user root(uid=0) by root(uid=0)
févr. 05 09:15:16 DS1 systemd-logind[695]: New session 3 of user root.
févr. 05 09:15:16 DS1 systemd[1]: Started session-3.scope - Session 3 of User root.
févr. 05 09:15:16 DS1 login[1654]: ROOT LOGIN ON tty2
févr. 05 09:17:01 DS1 CRON[1668]: pam_unix(cron:session): session opened for user root(uid=0) by root(uid=0)
févr. 05 09:17:01 DS1 CRON[1670]: (root) CMD (cd / && run-parts --report /etc/cron.hourly)
févr. 05 09:17:01 DS1 CRON[1668]: pam_unix(cron:session): session closed for user root
_
```

8)

```
root@DS1: ~#systemctl restart bind9
root@DS1: ~#
```

```
févr. 05 09:22:51 DS1 named[1685]: command channel listening on 127.0.0.1#953
févr. 05 09:22:51 DS1 named[1685]: configuring command channel from '/etc/bind/rndc.key'
févr. 05 09:22:51 DS1 named[1685]: command channel listening on ::1#953
févr. 05 09:22:51 DS1 named[1685]: managed-keys-zone: loaded serial 13
févr. 05 09:22:51 DS1 named[1685]: zone 4.168.192.in-addr.arpa/IN: loaded serial 2026011301
févr. 05 09:22:51 DS1 named[1685]: zone sio-exupery.LOCAL/IN: loaded serial 2026011301
févr. 05 09:22:51 DS1 named[1685]: all zones loaded
févr. 05 09:22:51 DS1 named[1685]: FIPS mode is disabled
févr. 05 09:22:51 DS1 named[1685]: running
```

2.12. Outils de test de résolution de noms

1)

```
root@DS1: ~#dpkg -l | grep -i dnsutils
ii bind9-dnsutils 1:9.20.18-1~deb13u1 amd64 Clients provided with BIND 9
root@DS1: ~#
```

2)

```
root@DS1: ~#dig DD1.sio-exupery.local

; <<>> DiG 9.20.18-1~deb13u1-Debian <<>> DD1.sio-exupery.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 27699
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: b36bdfff44ff6eed01000000698d8b7086044dde071bc60c (good)
;; QUESTION SECTION:
;DD1.sio-exupery.local.          IN      A

;; ANSWER SECTION:
DD1.sio-exupery.LOCAL.  86400  IN      A      192.168.4.1

;; Query time: 0 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Feb 12 09:12:32 CET 2026
;; MSG SIZE rcvd: 115
```

3)

```
root@DS1: ~#dig SOA sio-exupery.local

; <<>> DiG 9.20.18-1~deb13u1-Debian <<>> SOA sio-exupery.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 4126
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 925be4294f1b2da201000000698d8b2fc36b5015140d3e33 (good)
;; QUESTION SECTION:
;sio-exupery.local.          IN      SOA

;; ANSWER SECTION:
sio-exupery.LOCAL.      86400  IN      SOA     DS1.sio-exupery.local. root.sio-exupery.local. 2026011301 604800 86400

;; Query time: 4 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Feb 12 09:11:27 CET 2026
;; MSG SIZE rcvd: 136
```

4)

```
root@DS1: ~#nslookup DS1
Server:          192.168.4.254
Address:         192.168.4.254#53

Name:   DS1.sio-exupery.LOCAL
Address: 192.168.4.254
```

5)

```
root@DS1: ~#ping -c 2 DS1
PING DS1.sio-exupery.local (127.168.4.254) 56(84) bytes of data.
64 bytes from DS1.sio-exupery.local (127.168.4.254): icmp_seq=1 ttl=64 time=0.046 ms
64 bytes from DS1.sio-exupery.local (127.168.4.254): icmp_seq=2 ttl=64 time=0.038 ms

--- DS1.sio-exupery.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1013ms
rtt min/avg/max/mdev = 0.038/0.042/0.046/0.004 ms
root@DS1: ~#ping -c 2 DD1
PING DD1.sio-exupery.local (192.168.4.1) 56(84) bytes of data.
64 bytes from DD1.sio-exupery.local (192.168.4.1): icmp_seq=1 ttl=64 time=1.20 ms
64 bytes from DD1.sio-exupery.local (192.168.4.1): icmp_seq=2 ttl=64 time=0.671 ms

--- DD1.sio-exupery.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 0.671/0.935/1.200/0.264 ms
root@DS1: ~#
```

2.13. S'appuyer sur un DNS externe : la redirection

1)

```
GNU nano 8.4 /etc/bind/named.conf.options
options {
    directory "/var/cache/bind";
    forward only;
    forwarders { 172.17.254.1; };
    allow-recursion { localnets; };
    allow-query { any; };
    dnssec-validation no;
};
```

2)

```
GNU nano 8.4 /etc/bind/named.conf.root-hints
// prime the server with knowledge of the root servers
//zone "." {
//    type hint;
//    file "/usr/share/dns/root.hints";
//};
```

3)

```
root@DS1: ~#systemctl restart bind9
root@DS1: ~#systemctl status bind9
• named.service - BIND Domain Name Server
  Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: enabled)
  Active: active (running) since Thu 2026-03-05 16:20:55 CET; 15s ago
  Invocation: 9cc545046e1e4b95aeea724cdf550fe9
    Docs: man:named(8)
  Main PID: 1465 (named)
    Status: "running"
    Tasks: 6 (limit: 2317)
  Memory: 24.1M (peak: 26.2M)
    CPU: 28ms
  CGroup: /system.slice/named.service
          └─1465 /usr/sbin/named -f -u bind

mars 05 16:20:55 DS1 named[1465]: configuring command channel from '/etc/bind/rndc.key'
mars 05 16:20:55 DS1 named[1465]: command channel listening on 127.0.0.1#953
mars 05 16:20:55 DS1 named[1465]: configuring command channel from '/etc/bind/rndc.key'
mars 05 16:20:55 DS1 named[1465]: command channel listening on ::1#953
mars 05 16:20:55 DS1 named[1465]: zone 4.168.192.in-addr.arpa/IN: loaded serial 2026011301
mars 05 16:20:55 DS1 systemd[1]: Started named.service - BIND Domain Name Server.
mars 05 16:20:55 DS1 named[1465]: zone sio-exupery.LOCAL/IN: loaded serial 2026011301
mars 05 16:20:55 DS1 named[1465]: all zones loaded
mars 05 16:20:55 DS1 named[1465]: FIPS mode is disabled
mars 05 16:20:55 DS1 named[1465]: running
root@DS1: ~#
```

4)

```
root@DS1: ~#dig www.ac-nice.fr

; <<> DiG 9.20.18-1~deb13u1-Debian <<> www.ac-nice.fr
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 9702
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:;; udp: 1232
; COOKIE: 9f83a4f768897f3a0100000069a9a010aeba40e4beeb69858 (good)
;; QUESTION SECTION:
;www.ac-nice.fr.                IN      A

;; ANSWER SECTION:
www.ac-nice.fr.                1041    IN      CNAME   www.ac-nice.fr.cdn.cloudflare.net.
www.ac-nice.fr.cdn.cloudflare.net. 267    IN      A       141.101.90.106
www.ac-nice.fr.cdn.cloudflare.net. 267    IN      A       141.101.90.105
www.ac-nice.fr.cdn.cloudflare.net. 267    IN      A       141.101.90.104
www.ac-nice.fr.cdn.cloudflare.net. 267    IN      A       141.101.90.107

;; Query time: 84 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Mar 05 16:24:00 CET 2026
;; MSG SIZE rcvd: 182
```

```
root@DS1: ~#ping www.dunod.com
PING www.dunod.com (51.144.190.143) 56(84) bytes of data.
64 bytes from 51.144.190.143: icmp_seq=1 ttl=108 time=24.0 ms
64 bytes from 51.144.190.143: icmp_seq=2 ttl=108 time=24.4 ms
64 bytes from 51.144.190.143: icmp_seq=3 ttl=108 time=23.9 ms
64 bytes from 51.144.190.143: icmp_seq=4 ttl=108 time=24.2 ms
64 bytes from 51.144.190.143: icmp_seq=5 ttl=108 time=24.4 ms
64 bytes from 51.144.190.143: icmp_seq=6 ttl=108 time=24.2 ms
64 bytes from 51.144.190.143: icmp_seq=7 ttl=108 time=24.4 ms
64 bytes from 51.144.190.143: icmp_seq=8 ttl=108 time=24.1 ms
^C
--- www.dunod.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7017ms
rtt min/avg/max/mdev = 23.931/24.193/24.430/0.168 ms
```

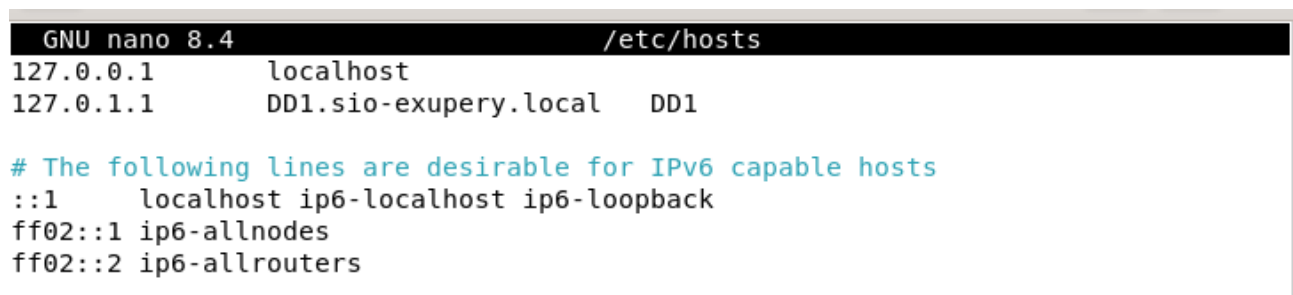
2.14. Test à partir du client Debian Desktop

1)



```
sio@DD1: ~
GNU nano 8.4 /etc/hostname
DD1
```

2)



```
GNU nano 8.4 /etc/hosts
127.0.0.1 localhost
127.0.1.1 DD1.sio-exupery.local DD1

# The following lines are desirable for IPv6 capable hosts
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

3)

Détails Identité **IPv4** IPv6 Sécurité

Méthode IPv4

Automatique (DHCP) Réseau local seulement
 Manuel Désactiver
 Partagée avec d'autres ordinateurs

Adresses

Adresse	Masque de réseau	Passerelle	
192.168.4.1	255.255.255.0	192.168.4.254	⊗
			⊗

DNS Automatique

192.168.4.254

Séparer les adresses IP avec des virgules

4)

```
sio@DD1:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:27:e2:b5 brd ff:ff:ff:ff:ff:ff
    altname enx08002727e2b5
    inet 192.168.4.1/24 brd 192.168.4.255 scope global noprefixroute enp0s3
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe27:e2b5/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
sio@DD1:~$ █
```

```
sio@DD1:~$ ip r
default via 192.168.4.254 dev enp0s3 proto static metric 100
192.168.4.0/24 dev enp0s3 proto kernel scope link src 192.168.4.1 metric 100
sio@DD1:~$
```

5)

```
sio@DD1:~$ cat /etc/resolv.conf
# Generated by NetworkManager
nameserver 172.17.254.1
sio@DD1:~$ █
```

6)

```
sio@DD1:~$ dig SOA sio-exupery.local
```

```
; <<> DiG 9.20.15-1~deb13u1-Debian <<> SOA sio-exupery.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 65346
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 9f5fdb901594368a0100000069b2d2e5917a277ed5ab6930 (good)
;; QUESTION SECTION:
;sio-exupery.local.          IN      SOA

;; ANSWER SECTION:
sio-exupery.LOCAL.         86400  IN      SOA      DS1.sio-exupery.local. root.sio-
exupery.local. 2026011301 604800 86400 2419200 604800

;; Query time: 4 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
```

```
sio@DD1:~$ dig DS1.sio-exupery.local
```

```
; <<> DiG 9.20.15-1~deb13u1-Debian <<> DS1.sio-exupery.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 47218
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 9088d5993bbb6cea0100000069b2d383d41c6bd665e7ebb1 (good)
;; QUESTION SECTION:
;DS1.sio-exupery.local.      IN      A

;; ANSWER SECTION:
DS1.sio-exupery.LOCAL.     86400  IN      A        192.168.4.254

;; Query time: 0 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Mar 12 15:53:57 CET 2026
;; MSG SIZE rcvd: 115
```

```

sio@DD1:~$ dig www.dunod.com

; <<> DiG 9.20.15-1~deb13u1-Debian <<> www.dunod.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 34705
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:;, udp: 1232
; COOKIE: c5e8d9ae7f98e5250100000069b2d3c105e8b0c7cb5a7a3e (good)
;; QUESTION SECTION:
;www.dunod.com.                IN      A

;; ANSWER SECTION:
www.dunod.com.                7352   IN      A      51.144.190.143

;; Query time: 36 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Mar 12 15:54:59 CET 2026
;; MSG SIZE rcvd: 86

```

7)

```

sio@DD1:~$ nslookup www.google.com
Server:                192.168.4.254
Address:               192.168.4.254#53

Non-authoritative answer:
www.google.com canonical name = forcesafesearch.google.com.
Name:   forcesafesearch.google.com
Address: 216.239.38.120
Name:   forcesafesearch.google.com
Address: 2001:4860:4802:32::78

```

8)

```

sio@DD1:~$ ping -c 2 DS1.sio-exupery.local
PING DS1.sio-exupery.local (192.168.4.254) 56(84) bytes of data.
64 bytes from _gateway (192.168.4.254): icmp_seq=1 ttl=64 time=0.431 ms
64 bytes from _gateway (192.168.4.254): icmp_seq=2 ttl=64 time=1.06 ms

--- DS1.sio-exupery.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1008ms
rtt min/avg/max/mdev = 0.431/0.747/1.063/0.316 ms

```

9)

The image shows a browser window with the following elements:

- System bar: 12 mars 15:59
- Browser tab: Accueil du site de l'académ...
- Address bar: www.ac-nice.fr
- Logo:  **ACADÉMIE DE NICE**
*Liberté
Égalité
Fraternité*
- Domain: **ac-nice.fr**
- Navigation menu: Région académique, Académie, Scolarité, Enseignements, Concours-Métiers, Politique Educative, Acc
- Decorative bar: A solid blue horizontal bar at the bottom of the page content.