

## Chapitre 2 - Serveur Debian DS1 : installation du service DNS

2.8. Installation du fichier bind .....	1
2.9. Zone de recherche directe et zone de recherche inversée .....	2
2.10. Construction des fichiers de zone .....	2
2.11. Démarrage et tests du service .....	4
2.12. Outils de test de résolution de noms .....	6
2.13. S'appuyer sur un DNS externe : la redirection .....	8
2.14. Test à partir du client Debian Desktop .....	9

### 2.8. Installation du fichier bind

Installation avec apt-get install bind9

```
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 ufw
```

Démarrage du service DNS bind

```
oot@DS1: ~#systemctl start bind9
oot@DS1: ~#_
```

dans /etc/bind/named.conf

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

Visualisation des fichiers de configuration dans le répertoire bind

```
root@DS1: ~#ls -l /etc/bind
total 20
-rw-r--r-- 1 root bind 455 22 oct. 18:00 named.conf
-rw-r--r-- 1 root bind 42 22 oct. 18:00 named.conf.local
-rw-r--r-- 1 root bind 43 22 oct. 18:00 named.conf.options
-rw-r--r-- 1 root bind 116 22 oct. 18:00 named.conf.root-hints
-rw-r----- 1 bind bind 100 15 janv. 14:33 rndc.key
root@DS1: ~#
```

Copie des fichiers

```
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#
```

Vérification de l'état du service bind

```
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 2026-01-15 14:33:06 CET; 6min ago
  Invocation: 82ae0e1e904f482498ce9ba261181a30
     Docs: man:named(8)
    Main PID: 1486 (named)
   Status: "running"
     Tasks: 8 (limit: 2303)
    Memory: 28.4M (peak: 30.4M)
       CPU: 269ms
    CGroup: /system.slice/named.service
           └─1486 /usr/sbin/named -f -u bind

janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './DNSKEY/IN': 2001:dc3::35#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './NS/IN': 2001:dc3::35#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './DNSKEY/IN': 2001:500:2f::f#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './NS/IN': 2001:500:2f::f#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './DNSKEY/IN': 2001:7fd::1#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './NS/IN': 2001:7fd::1#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './DNSKEY/IN': 2001:500:1::53#53
janv. 15 14:33:06 DS1 named[1486]: network unreachable resolving './NS/IN': 2001:500:1::53#53
janv. 15 14:33:16 DS1 named[1486]: managed-keys-zone: Unable to fetch DNSKEY set '.': timed out
janv. 15 14:33:16 DS1 named[1486]: resolver priming query complete: timed out
root@DS1: ~#_
```

## 2.9. Zone de recherche directe et zone de recherche inversée

Renseignement des noms des zones ainsi que les fichiers qui vont contenir les enregistrements

```
//  
// 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; };  
};
```

```
options {  
    directory "/var/cache/bind";  
};
```

## 2.10. Construction des fichiers de zone

Création du fichier pour la résolution direct

```
;; fichier pour la résolution directe  
$TTL 86400  
@ IN SOA DS1.sio-exupery.local. root.sio-exupery.local. (  
    2024020401  
    1w  
    1d  
    4w  
    1w )  
@ IN NS DS1.sio-exupery.local.  
DS1 IN A 192.168.4.254  
DD1 IN A 192.168.4.1
```

Fichier pour la résolution inverse

```
; fichier pour la résolution inverse
$TTL 86400
@ IN SOA DS1.sio-exupery.local. root.sio-exupery.local. (
    2026011501
    1w
    1d
    4w
    1w )
@ IN NS DS1.sio-exupery.local.
254 IN PTR DS1.sio-exupery.local.
1 IN PTR DD1.sio-exupery.local.
```

Attribution de ces 2 fichiers au groupe bind

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

```
root@DS1: ~#ls -l /var/cache/bind
total 16
-rw-rw-r-- 1 root bind 212 15 janv. 15:19 db.sio-exupery.local
-rw-rw-r-- 1 bind bind 287 15 janv. 15:02 managed-keys.bind
-rw-rw-r-- 1 bind bind 937 15 janv. 15:02 managed-keys.bind.jnl
-rw-rw-r-- 1 root bind 222 15 janv. 15:22 rev.sio-exupery.local
root@DS1: ~#
```

Vérification la même appartenance du groupe au répertoire

```
root@DS1: ~#ls -ld /var/cache/bind
drwxrwxr-x 2 root bind 4096 15 janv. 15:43 /var/cache/bind
root@DS1: ~#_
```

## 2.11. Démarrage et tests du service

```
127.0.0.1    localhost.localdomain  localhost
192.168.4.254 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
```

Désactivation des cartes réseaux

## Chapitre 2 - Serveur Debian DS1

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

Rajout de dns-search, dns-domain, dns-nameservers

```
# 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
auto enp0s3
iface enp0s3 inet static
address 172.17.101.205
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_
```

Réactivation des 2 interfaces

```
root@DS1: ~#ifup enp0s3
root@DS1: ~#ifup enp0s8
root@DS1: ~#cat /etc/resolv.conf
# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
#     DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
nameserver 192.168.4.254
search sio-exupery.local
root@DS1: ~#_
```

Relance du serveur bind9

## Chapitre 2 - Serveur Debian DS1

```
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 2026-01-15 15:32:55 CET; 12s ago
  Invocation: f5ca30615f9c4b5094b5709763a8e6f4
     Docs: man:named(8)
    Main PID: 1277 (named)
   Status: "running"
     Tasks: 6 (limit: 2303)
    Memory: 24.4M (peak: 24.9M)
       CPU: 142ms
    CGroup: /system.slice/named.service
           └─1277 /usr/sbin/named -f -u bind

janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './NS/IN': 2001:500:9f::42#53
janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './DNSKEY/IN': 2001:500:12::d0d#53
janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './NS/IN': 2001:500:12::d0d#53
janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './DNSKEY/IN': 2001:500:2::c#53
janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './NS/IN': 2001:500:2::c#53
janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './DNSKEY/IN': 2001:7fd::1#53
janv. 15 15:32:55 DS1 named[1277]: network unreachable resolving './NS/IN': 2001:7fd::1#53
janv. 15 15:32:55 DS1 systemd[1]: Started named.service - BIND Domain Name Server.
janv. 15 15:33:05 DS1 named[1277]: resolver priming query complete: timed out
janv. 15 15:33:05 DS1 named[1277]: managed-keys-zone: Unable to fetch DNSKEY set '.': timed out
```

2eme test :

```
root@DS1: ~#cd /etc/bind
root@DS1: /etc/bind#named-checkconf
root@DS1: /etc/bind#
```

```
root@DS1: ~#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 2024020401
OK
root@DS1: /var/cache/bind#named-checkzone -d 4.168.192.in-addr.arpa rev.sio-exupery.local
loading "4.168.192.in-addr.arpa" from "rev.sio-exupery.local" class "IN"
zone 4.168.192.in-addr.arpa/IN: loaded serial 2026011501
OK
root@DS1: /var/cache/bind#_
```

3eme test :

```
root@DS1: ~#journalctl -f
janv. 15 16:28:42 DS1 named[1085]: network unreachable resolving './NS/IN': 2001:500:12::d0d#53
janv. 15 16:28:42 DS1 named[1085]: network unreachable resolving './DNSKEY/IN': 2001:dc3::35#53
janv. 15 16:28:42 DS1 named[1085]: network unreachable resolving './NS/IN': 2001:dc3::35#53
janv. 15 16:28:42 DS1 named[1085]: network unreachable resolving './DNSKEY/IN': 2001:500:2::c#53
janv. 15 16:28:42 DS1 named[1085]: network unreachable resolving './NS/IN': 2001:500:2::c#53
janv. 15 16:28:42 DS1 named[1085]: FIPS mode is disabled
janv. 15 16:28:42 DS1 systemd[1]: Started named.service - BIND Domain Name Server.
janv. 15 16:28:42 DS1 named[1085]: running
janv. 15 16:28:52 DS1 named[1085]: resolver priming query complete: timed out
janv. 15 16:28:52 DS1 named[1085]: managed-keys-zone: Unable to fetch DNSKEY set '.': timed out

root@DS1: /etc/bind#systemctl restart bind9
root@DS1: /etc/bind#_
```

## Chapitre 2 - Serveur Debian DS1

```
janv. 15 16:29:29 DS1 named[1102]: command channel listening on 127.0.0.1#953
janv. 15 16:29:29 DS1 named[1102]: configuring command channel from '/etc/bind/rndc.key'
janv. 15 16:29:29 DS1 named[1102]: command channel listening on ::1#953
janv. 15 16:29:29 DS1 named[1102]: managed-keys-zone: loaded serial 12
janv. 15 16:29:29 DS1 named[1102]: zone sio-exupery.local/IN: loaded serial 2024020401
janv. 15 16:29:29 DS1 named[1102]: zone 4.168.192.in-addr.arpa/IN: loaded serial 2026011501
janv. 15 16:29:29 DS1 named[1102]: all zones loaded
janv. 15 16:29:29 DS1 named[1102]: FIPS mode is disabled
janv. 15 16:29:29 DS1 systemd[1]: Started named.service - BIND Domain Name Server.
janv. 15 16:29:29 DS1 named[1102]: running
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './DNSKEY/IN': 2001:503:ba3e::2:30#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './DNSKEY/IN': 2001:500:1::53#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './NS/IN': 2001:500:1::53#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './DNSKEY/IN': 2001:7fd::1#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './NS/IN': 2001:7fd::1#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './DNSKEY/IN': 2001:500:2::c#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './NS/IN': 2001:500:2::c#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './DNSKEY/IN': 2001:500:2d::d#53
janv. 15 16:29:29 DS1 named[1102]: network unreachable resolving './NS/IN': 2001:500:2d::d#53
```

## 2.12. Outils de test de résolution de noms

Vérification de la présence du packet

Commande dig DD1.sio-exupery.local

```
root@DS1: ~#dig DD1.sio-exupery.local
*
; <<> DiG 9.20.15-1~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: 20876
; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 0b9f51adf0e8db570100000069737f5152e09c82a710387f (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: Fri Jan 23 15:01:53 CET 2026
; MSG SIZE rcvd: 94
```

## Chapitre 2 - Serveur Debian DS1

### Commande dig SOA sio-exupery.local

```
root@DS1: ~#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: 44311
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: c231840dae8c84850100000069690acedee71998814dff5d (good)
;; QUESTION SECTION:
;sio-exupery.local.          IN      SOA

;; ANSWER SECTION:
sio-exupery.local.          86400  IN      SOA      DS1.sio-exupery.local. root.sio-exupery.local. 2024020401 604800 86400 2

;; Query time: 0 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Jan 15 16:42:06 CET 2026
;; MSG SIZE rcvd: 119
```

### Nslookup DS1

```
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

root@DS1: ~#_
```

### Ping

```
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=2.75 ms
64 bytes from DD1.sio-exupery.local (192.168.4.1): icmp_seq=2 ttl=64 time=1.18 ms

--- DD1.sio-exupery.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1075ms
rtt min/avg/max/mdev = 1.180/1.965/2.751/0.785 ms
root@DS1: ~#ping -c 2 DS1
PING DS1.sio-exupery.local (192.168.4.254) 56(84) bytes of data.
64 bytes from DS1.sio-exupery.local (192.168.4.254): icmp_seq=1 ttl=64 time=0.187 ms
64 bytes from DS1.sio-exupery.local (192.168.4.254): icmp_seq=2 ttl=64 time=0.044 ms

--- DS1.sio-exupery.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1012ms
rtt min/avg/max/mdev = 0.044/0.115/0.187/0.071 ms
root@DS1: ~#_
```

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

Mise en place de la redirection

```
options {
    directory "/var/cache/bind";
    forward only;
    forwarders { 172.17.254.1; };
    allow-recursion { 8.8.8.8; };
};
```

Relance du serveur et vérification du service

```
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 2026-01-22 15:07:11 CET; 10s ago
 Invocation: 46370cdf4cf24377904c417c8bf6d39e
   Docs: man:named(8)
  Main PID: 1144 (named)
   Status: "running"
    Tasks: 6 (limit: 2303)
  Memory: 24.2M (peak: 24.2M)
     CPU: 72ms
   CGroup: /system.slice/named.service
           └─1144 /usr/sbin/named -f -u bind

janv. 22 15:07:11 DS1 named[1144]: configuring command channel from '/etc/bind/rndc.key'
janv. 22 15:07:11 DS1 named[1144]: command channel listening on :::1#953
janv. 22 15:07:11 DS1 named[1144]: managed-keys-zone: loaded serial 14
janv. 22 15:07:11 DS1 named[1144]: zone 4.168.192.in-addr.arpa/IN: loaded serial 2026011501
janv. 22 15:07:11 DS1 named[1144]: zone sio-exupery.local/IN: loaded serial 2024020401
janv. 22 15:07:11 DS1 named[1144]: all zones loaded
janv. 22 15:07:11 DS1 named[1144]: FIPS mode is disabled
janv. 22 15:07:11 DS1 systemd[1]: Started named.service - BIND Domain Name Server.
janv. 22 15:07:11 DS1 named[1144]: running
janv. 22 15:07:19 DS1 named[1144]: managed-keys-zone: No DNSKEY RRSIGs found for '.': success
```

Teste d'une résolution externe avec Dig avec DS1 et un ping :

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

; <<> DiG 9.20.15-1~deb13u1-Debian <<> www.ac-nice.fr
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 50739
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: e39f7cd3c713b7c7010000006972397450bf5cb7b96ed0a2 (good)
;; QUESTION SECTION:
;www.ac-nice.fr.                IN      A

;; ANSWER SECTION:
www.ac-nice.fr.                2926    IN      CNAME   www.ac-nice.fr.cdn.cloudflare.net.
www.ac-nice.fr.cdn.cloudflare.net. 167 IN A     141.101.90.105
www.ac-nice.fr.cdn.cloudflare.net. 167 IN A     141.101.90.107
www.ac-nice.fr.cdn.cloudflare.net. 167 IN A     141.101.90.104
www.ac-nice.fr.cdn.cloudflare.net. 167 IN A     141.101.90.106

;; Query time: 32 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Thu Jan 22 15:51:32 CET 2026
;; MSG SIZE rcvd: 182

root@DS1: ~#_
```

```
root@DS1: ~#ping www.ac-nice.fr
PING www.ac-nice.fr.cdn.cloudflare.net (141.101.90.105) 56(84) bytes of data:
64 bytes from 141.101.90.105: icmp_seq=1 ttl=53 time=23.4 ms
64 bytes from 141.101.90.105: icmp_seq=2 ttl=53 time=18.4 ms
64 bytes from 141.101.90.105: icmp_seq=3 ttl=53 time=26.8 ms
^C
--- www.ac-nice.fr.cdn.cloudflare.net ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2007ms
rtt min/avg/max/mdev = 18.439/22.893/26.807/3.437 ms
root@DS1: ~#
```


## 2.14. Test à partir du client Debian Desktop

Connexion depuis le terminal à root :

```
sio@DEBDesktop:~$ su -
Mot de passe :
root@DEBDesktop:~#
```

Modification du nom de l'ordinateur

## Chapitre 2 - Serveur Debian DS1



A terminal window titled 'sio@DEBDesktop: ~' showing the nano 8.4 editor editing the file '/etc/hostname'. The content of the file is 'DD1'.

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

Modification dans /etc/hosts



A terminal window titled 'sio@DEBDesktop: ~' showing the nano 8.4 editor editing the file '/etc/hosts'. The content of the file is as follows:

```
sio@DEBDesktop: ~
GNU nano 8.4 /etc/hosts
127.0.0.1    localhost
127.0.1.1    DEBDesktop.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
```

At the bottom of the terminal, there is a status bar with the text '[ 7 lignes écrites ]' and a list of nano editor shortcuts:

```
^G Aide      ^O Écrire    ^F Chercher  ^K Couper    ^T Exécuter  ^C Emplacement
^X Quitter   ^P Lire fich ^R Remplacer ^U Coller    ^I Justifier ^V Aller ligne
```

## Chapitre 2 - Serveur Debian DS1

### Modification de l'adresse DNS

**Annuler** **Filaire** **Appliquer**

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

**Routes** Automatique

Adresse	Masque de réseau	Passerelle	Métrique
---------	------------------	------------	----------

### Vérification de la configuration réseau :

```
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:c1:c0:df brd ff:ff:ff:ff:ff:ff
    altname enx080027c1c0df
    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:fe1:c0df/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:~$ █
if
```

## Chapitre 2 - Serveur Debian DS1

```
sio@DD1:~$ cat /etc/resolv.conf
# Generated by NetworkManager
nameserver 192.168.4.254
sio@DD1:~$ █
```

Saisis successivement les commandes dig SOA sio-exupery.local, dig DS1.sio-exupery.local

puis dig www.dunod.com.

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

; <<> DiG 9.20.11-4-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: 4697
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:;, udp: 1232
; COOKIE: 5168e583c1b313440100000069737fd670f56c52c48a6bd2 (good)
;; QUESTION SECTION:
;sio-exupery.local.          IN      SOA

;; ANSWER SECTION:
sio-exupery.local.         86400  IN      SOA      DS1.sio-exupery.local. root.sio
exupery.local. 2024020401 604800 86400 2419200 604800

;; Query time: 8 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Fri Jan 23 15:04:06 CET 2026
;; MSG SIZE rcvd: 119
```

## Chapitre 2 - Serveur Debian DS1

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

```
; <<>> DiG 9.20.11-4-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: 60528
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 5e33a05beefd88a201000000697380142ee163476e6e3e90 (good)
;; QUESTION SECTION:
;sio-exupery.local.          IN      SOA

;; ANSWER SECTION:
sio-exupery.local.         86400   IN      SOA     DS1.sio-exupery.local. root.sio
exupery.local. 2024020401 604800 86400 2419200 604800

;; Query time: 4 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Fri Jan 23 15:05:09 CET 2026
;; MSG SIZE rcvd: 119
```

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

```
; <<>> DiG 9.20.11-4-Debian <<>> www.dunod.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 9151
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 93c3edb3f3d0901001000000697380396d789d6d305401d2 (good)
;; QUESTION SECTION:
;www.dunod.com.            IN      A

;; ANSWER SECTION:
www.dunod.com.            10800   IN      A       51.144.190.143

;; Query time: 84 msec
;; SERVER: 192.168.4.254#53(192.168.4.254) (UDP)
;; WHEN: Fri Jan 23 15:05:46 CET 2026
;; MSG SIZE rcvd: 86
```

Nslookup [www.google.com](http://www.google.com)

## Chapitre 2 - Serveur Debian DS1

```
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
```

### Ping de DS1

```
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=1.61 ms
64 bytes from _gateway (192.168.4.254): icmp_seq=2 ttl=64 time=2.18 ms

--- DS1.sio-exupery.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 1.612/1.896/2.181/0.284 ms
```

### Connectivité aux réseaux :

