

DNS Lab

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Contents

1	Bruk av dig	1
1.1	Uninett	1
1.2	UiA	1
1.3	Google	2
2	Statoil	3
3	Bind9 filer	4
4	forklaring av bind	5
5	Bind oppsett	6

List of Figures

1	Uninett	1
2	UiA	1
3	Google	2
4	dig statoil.no	3
5	dig statoil.com	4
6	Local	6
7	Options	6
8	zonefile	7

Introduksjon

Denne oppgaven skal vi lære om DNS-tjenere og finne ut hvordan de fungerer. Vi skal også se på forskjellige DNS-servere til forskjellige domener som UiA, statoil og google. Vi skal til slutt sette opp vår egen DNS-server.

1 Bruk av dig

For å finne informasjon om uia, uninett og google brukte vi kommandoen ”dig ANY”

1.1 Uninett

```

ploopyface@ploopyface:~$ dig ANY uninett.no
<<>> DiG 9.11.3-ubuntu1.12-Ubuntu <<>> ANY uninett.no
; global options: +cmd
; Got answer:
; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 41571
; flags: qr rd ra; QUERY: 1, ANSWER: 15, AUTHORITY: 0, ADDITIONAL: 1

; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
; QUESTION SECTION:
; uninett.no.                IN      ANY

; ANSWER SECTION:
uninett.no. 281 IN RRSIG A 8 2 300 20200923123416 20200920252517 55885 uninett.no. P80W6HTV/ZIAxf2qGI3M56uWKLl05W3sXUMNIeddm2NBe0RajvIMGT 2UT4tqDuv4yFRH0nscg5m9C8TDH+pUNZfwdyFkKY
bVrXwFkL899k/p 5ZMePQaQxkUdp5pe06Hl+mT4JItq89/+vVl53bnTjUpDuYELq5G hvs1aXu4aYurHSP2+C3oax8CtKdAu/KIG1rkp0h2luykg==
uninett.no. 281 IN A 13.48.72.176
uninett.no. 281 IN A 13.53.55.80
uninett.no. 281 IN A 13.48.92.235
uninett.no. 587 IN RRSIG MX 8 2 600 20200922182648 20200901192510 55885 uninett.no. ejzq83QCAP13p8loBVEHrUEzQQVY30xtwY+/ZZnEPgDRA9RjQfkw0SN M356hpbG0in7/c/KuEswr9zfyrJ3h19XF+HuShr
NH30YsWx2JUKFMjx YCCLsrFmLOVxLyZ20w9n089WpbaM7gZCjENokuHF1V5NhsS5so0lChp7g f4r/AzQsy6S014+juanfcozQnlGcm9sJhwABBr7V45g==
uninett.no. 587 IN MX 0 mx12.electric.net.
uninett.no. 587 IN MX 20 uninett-no.mx2.staysecuregroup.net.
uninett.no. 587 IN MX 10 uninett-no.mx1.staysecuregroup.com.
uninett.no. 587 IN MX 999 mx6.electric.net.
uninett.no. 970 IN RRSIG NS 8 2 3600 20200920133423 20200830061142 55885 uninett.no. gB2m5Ck1LOH4r7nTGLW504LbvtThVpDF1SH5m0m7q28oHLVlKcXz3yw+V TQWfwh+aa40llyWiteq2YJK3RHMcbyuLl+lv
Y2UEVUVMhMcMMMDG m4WZ6LH1MDR+4p005oLyh+NMHJ3Lc40EG10nSF39B+dx050BnJuj JKE00dLfhGZdGrA+0XK5mK7DdrLhxgY0JtZy9Wqp6770KA==
uninett.no. 970 IN NS ns.uninett.no.
uninett.no. 970 IN NS ns.uninett.no.
uninett.no. 970 IN NS nac.no.
uninett.no. 970 IN NS benon1.vlt.no.
uninett.no. 970 IN NS server.nordu.net.

; Query time: 3 msec
; SERVER: 127.0.0.53#53(127.0.0.53)
; WHEN: Thu Sep 10 11:48:51 CEST 2020
; MSG SIZE rcvd: 947

```

Figure 1: Uninett

1.2 UiA

```

ploopyface@ploopyface:~$ dig ANY uia.no
<<>> DiG 9.11.3-ubuntu1.12-Ubuntu <<>> ANY uia.no
; global options: +cmd
; Got answer:
; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 24355
; flags: qr rd ra; QUERY: 1, ANSWER: 23, AUTHORITY: 0, ADDITIONAL: 1

; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
; QUESTION SECTION:
; uia.no.                    IN      ANY

; ANSWER SECTION:
uia.no. 600 IN AAAA 2001:700:1501:d270::220:160
uia.no. 600 IN AAAA 2001:700:1501:7250::218:21
uia.no. 600 IN AAAA 2001:700:1500:7250::242:21
uia.no. 600 IN AAAA 2001:700:1500:7250::242:20
uia.no. 600 IN AAAA 2001:700:1501:7250::218:20
uia.no. 60 IN TXT "6a558262f4ab47a2ba1fcd4d5fac0ba9"
uia.no. 60 IN TXT "google-site-verification=bG130JsX3U7otr2xv-_Dvk149jlo-Xq0U5eWdQRU1-w"
uia.no. 60 IN TXT "facebook-domain-verification=5lg00sd5iybkxntghhq02rcsg1qo7j"
uia.no. 60 IN TXT "sndc1UTRlls/w0cXnXiqWbYmu04PLc+s75k+/4xX93N/wEkqYfUznzGfXf0eigtP6f/g49eGnubIw/hLwRHA=="
uia.no. 60 IN TXT "MS=ms65832447"
uia.no. 60 IN TXT "University of Agder, Norway"
uia.no. 3600 IN MX 5 mx.uhpost.no.
uia.no. 3600 IN MX 10 smtp.uia.no.
uia.no. 3600 IN SOA adgrm02.uia.no. hostmaster.uia.no. 47939581 900 600 86400 3600
uia.no. 3600 IN NS adkrs02.uia.no.
uia.no. 3600 IN NS adgrm02.uia.no.
uia.no. 3600 IN NS adkrs01.uia.no.
uia.no. 3600 IN NS adgrm01.uia.no.
uia.no. 600 IN A 158.37.218.20
uia.no. 600 IN A 158.37.220.160
uia.no. 600 IN A 158.37.242.21
uia.no. 600 IN A 158.37.242.20
uia.no. 600 IN A 158.37.218.21

; Query time: 4 msec
; SERVER: 127.0.0.53#53(127.0.0.53)
; WHEN: Thu Sep 10 11:53:33 CEST 2020
; MSG SIZE rcvd: 802

```

Figure 2: UiA

ved bruk av ”dig ANY uia.no” fant vi ut at de bruker 2 mailtjenester og 4 DNS servere.

1.3 Google

```
ploopyface@ploopyface:~$ dig ANY google.com

; <<>> DiG 9.11.3-1ubuntu1.12-Ubuntu <<>> ANY google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 2231
;; flags: qr rd ra; QUERY: 1, ANSWER: 18, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.                IN      ANY

;; ANSWER SECTION:
google.com.                86400   IN      CAA      0 issue "pki.goog"
google.com.                43      IN      AAAA     2a00:1450:400f:80c::200e
google.com.                300     IN      TXT      "v=spf1 include:_spf.google.com ~all"
google.com.                300     IN      TXT      "globalsign-smime-dv=CDYX+XFHUw2wml6/Gb8+59BsH31KzUr6c1l2BPvqKX8="
google.com.                300     IN      TXT      "docusign=1b0a6754-49b1-4db5-8540-d2c12664b289"
google.com.                300     IN      TXT      "facebook-domain-verification=22rm551cu4k0ab0bxsw536tlds4h95"
google.com.                300     IN      TXT      "docusign=05958488-4752-4ef2-95eb-aa7ba8a3bd0e"
google.com.                600     IN      MX       40 alt3.aspmx.l.google.com.
google.com.                600     IN      MX       20 alt1.aspmx.l.google.com.
google.com.                600     IN      MX       10 aspmx.l.google.com.
google.com.                600     IN      MX       30 alt2.aspmx.l.google.com.
google.com.                600     IN      MX       50 alt4.aspmx.l.google.com.
google.com.                60      IN      SOA      ns1.google.com. dns-admin.google.com. 330686346 900 900 1800 60
google.com.                86400   IN      NS       ns2.google.com.
google.com.                86400   IN      NS       ns3.google.com.
google.com.                86400   IN      NS       ns4.google.com.
google.com.                86400   IN      NS       ns1.google.com.
google.com.                234     IN      A        216.58.207.238

;; Query time: 59 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Thu Sep 10 11:54:35 CEST 2020
;; MSG SIZE rcvd: 649
```

Figure 3: Google

Informasjonen vi får ut er

- MX - E-mail server
- NS - DNSstjener
- A - IPv4
- AAAA - IPv6
- SOA - Autoritet

Mail server prioritering

Mail serverene aksesseres med et designert prioritetsnummer. lavest blir prioritert først. for å finne denne informasjonen bruker en kommandoen "dig MX domene"

UiA.no

- 5 mx.uhpost.no
- 10 smto.uia.no

uninett.no

- 0 mx12.electric.net.
- 10 uninett-no.mx1.staysecuregroup.com.
- 20 uninett-no.mx2.staysecuregroup.net.
- 999 mx6.electric.net

google.com

- 10 aspmx.l.google.com
- 20 alt1.aspmx.l.google.com

- 30 alt2.aspmx.l.google.com
- 40 alt3.aspmx.l.google.com
- 50 alt4.aspmx.l.google.com

IPv6

for å finne IPv6 adressene brukte vi kommanden ”dig AAAA domenenavn”

UiA.no: 2001:700:1500:7250::242:21, 2001:700:1501:d270::220:160, 2001:700:1501:7250::218:21, 2001:700:1501:7250::218:20
2001:700:1500:7250::242:20

uninett.no: hadde ingen

google.com: 2a00:1450:500f:80c::200e

2 Statoil

ved hjelp av traceroute fant vi ut at statoil.com er i Oslo og statoil.no er i Amsterdam.

Vi fant ut at statoil ikke bruker ipv6, men vi fant ipv4. Email tjenesten til statoil er hosta av statoil-no.mail.protection.outlook.com og har 3 navntjenester spdns3.cscdns.net, mailwall1.statoil.com og mailwall2.statoil.com.

ved hjelp av nmap kommandoen så fant vi ut at statoil.no blokkere pinggen vår, men statoil.com så får vi lov og finner ut at port 80/tcp http er åpen og 443/tcp stengt https.

```

ploopyface@ploopyface:~$ dig ANY -F statoil.txt
; <<>> Dig 9.11.3-1ubuntu1.12-Ubuntu <<>> statoil.no
; global options: +cmd
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 9675
; flags: qr rd ra; QUERY: 1, ANSWER: 6, AUTHORITY: 0, ADDITIONAL: 1
;
; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
; QUESTION SECTION:
; statoil.no.                IN      ANY
;
; ANSWER SECTION:
; statoil.no.                100     IN      A       140.86.60.34
; statoil.no.                2233    IN      MX      0 statoil-no.mail.protection.outlook.com.
; statoil.no.                42172   IN      SOA      mailwall1.statoil.com. dnsregistry.statoil.com. 2020081302 14400 3600 1209600 43200
; statoil.no.                2233    IN      NS       mailwall1.statoil.com.
; statoil.no.                2233    IN      NS       spdns3.cscdns.net.
; statoil.no.                2233    IN      NS       mailwall2.statoil.com.
;
; Query time: 1 msec
; SERVER: 127.0.0.53#53(127.0.0.53)
; WHEN: Thu Sep 10 12:45:05 CEST 2020
; MSG SIZE rcvd: 244

; <<>> Dig 9.11.3-1ubuntu1.12-Ubuntu <<>> statoil.com
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 24298
; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;
; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
; QUESTION SECTION:
; statoil.com.              IN      ANY
;
; ANSWER SECTION:
; statoil.com.              158     IN      A       143.97.229.220
;
; Query time: 1 msec
; SERVER: 127.0.0.53#53(127.0.0.53)
; WHEN: Thu Sep 10 12:45:05 CEST 2020
; MSG SIZE rcvd: 56

```

Figure 4: dig statoil.no

```

; <<>> DiG 9.11.3-ubuntu1.13-Ubuntu <<>> ANY statoil.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 8414
;; flags: qr rd ra; QUERY: 1, ANSWER: 7, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;statoil.com.                IN      ANY

;; ANSWER SECTION:
statoil.com.                1783    IN      MX      0 statoil-com.mail.protection.outlook.com.
statoil.com.                4246    IN      NS      ns.domainnetwork.se.
statoil.com.                4246    IN      NS      mailwall1.statoil.com.
statoil.com.                4246    IN      NS      mailwall2.statoil.com.
statoil.com.                4246    IN      NS      ns3.domainnetwork.com.
statoil.com.                4246    IN      NS      ns2.domainnetwork.se.
statoil.com.                130     IN      A       143.97.229.220

;; Query time: 1 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Fri Sep 25 14:29:30 CEST 2020
;; MSG SIZE rcvd: 239

```

Figure 5: dig statoil.com

3 Bind9 filer

Vi fant alle filene som var lastet ned ved hjelp av "find | grep bind9"

```

./sys/fs/cgroup/devices/system.slice/bind9.service ./sys/fs/cgroup/devices/system.slice/bind9.service/cgroup.procs
./sys/fs/cgroup/devices/system.slice/bind9.service/devices.deny ./sys/fs/cgroup/devices/system.slice/bind9.service/devi
./sys/fs/cgroup/devices/system.slice/bind9.service/devices.allow ./sys/fs/cgroup/devices/system.slice/bind9.service/task
./sys/fs/cgroup/devices/system.slice/bind9.service/notify_on_release ./sys/fs/cgroup/devices/system.slice/bind9.servic
./sys/fs/cgroup/pids/system.slice/bind9.service ./sys/fs/cgroup/pids/system.slice/bind9.service/cgroup.procs
./sys/fs/cgroup/pids/system.slice/bind9.service/pids.current ./sys/fs/cgroup/pids/system.slice/bind9.service/pids.events
./sys/fs/cgroup/pids/system.slice/bind9.service/tasks ./sys/fs/cgroup/pids/system.slice/bind9.service/notify_on_releas
./sys/fs/cgroup/pids/system.slice/bind9.service/pids.max ./sys/fs/cgroup/pids/system.slice/bind9.service/cgroup.clone_
./sys/fs/cgroup/systemd/system.slice/bind9.service ./sys/fs/cgroup/systemd/system.slice/bind9.service/cgroup.procs
./sys/fs/cgroup/systemd/system.slice/bind9.service/tasks ./sys/fs/cgroup/systemd/system.slice/bind9.service/notify_on_
./sys/fs/cgroup/systemd/system.slice/bind9.service/cgroup.clone_children ./sys/fs/cgroup/unified/sys-
tem.slice/bind9.service ./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.events ./sys/fs/cgroup/u-
nified/system.slice/bind9.service/io.pressure ./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.procs
./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.max.descendants ./sys/fs/cgroup/unified/sys-
tem.slice/bind9.service/cpu.stat ./sys/fs/cgroup/unified/system.slice/bind9.service/memory.pressure ./sys/f-
s/cgroup/unified/system.slice/bind9.service/cpu.pressure ./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.type
./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.stat ./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup
./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.freeze ./sys/fs/cgroup/unified/system.slice/bind9.service/cgro
./sys/fs/cgroup/unified/system.slice/bind9.service/cgroup.subtree_control ./sys/fs/cgroup/unified/sys-
tem.slice/bind9.service/cgroup.max.depth find: './run/user/1000/gvfs': Permission denied ./run/sys-
temd/units/invocation:bind9.service ./etc/ppp/ip-up.d/bind9 ./etc/ppp/ip-down.d/bind9 ./etc/systemd/system/multi-
user.target.wants/bind9.service ./etc/rc2.d/S01bind9 ./etc/ufw/applications.d/bind9 ./etc/rc5.d/S01bind9
./etc/insserv.conf.d/bind9 ./etc/rc4.d/S01bind9 ./etc/rc3.d/S01bind9 ./etc/rc6.d/K01bind9 ./etc/rc1.d/K01bind9
./etc/rc0.d/K01bind9 ./etc/default/bind9 ./etc/network/if-down.d/bind9 ./etc/network/if-up.d/bind9
./etc/init.d/bind9 ./usr/lib/tmpfiles.d/bind9.conf ./usr/lib/x86_64-linux-gnu/libbind9.so.160.0.6 ./usr/lib/x86_64-
linux-gnu/samba/bind9 ./usr/lib/x86_64-linux-gnu/samba/bind9/dlz_bind9_11.so ./usr/lib/x86_64-
linux-gnu/samba/bind9/dlz_bind9_9.so ./usr/lib/x86_64-linux-gnu/samba/bind9/dlz_bind9_10.so ./usr/lib/x86_64-
linux-gnu/samba/bind9/dlz_bind9.so ./usr/lib/x86_64-linux-gnu/libbind9.so.160 ./usr/share/bind9 ./usr/share/doc/libb
160 ./usr/share/doc/libbind9-160/copyright ./usr/share/doc/libbind9-160/changelog.Debian.gz ./usr/share/-
doc/bind9 ./usr/share/doc/bind9/copyright ./usr/share/doc/bind9/README.gz ./usr/share/doc/bind9/changelog.Debi
./usr/share/doc/bind9/NEWS.Debian.gz ./usr/share/doc/bind9/README.Debian.gz ./usr/share/doc/bind9-
doc ./usr/share/doc/bind9-doc/copyright ./usr/share/doc/bind9-doc/changelog.Debian.gz ./usr/share/doc/bind9-
doc/arm ./usr/share/doc/bind9-doc/arm/man.named.html ./usr/share/doc/bind9-doc/arm/man.pkcs11-
tokens.html ./usr/share/doc/bind9-doc/arm/man.named-journalprint.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch
./usr/share/doc/bind9-doc/arm/man.dnssec-importkey.html ./usr/share/doc/bind9-doc/arm/man.dnssec-

```

keygen.html ./usr/share/doc/bind9-doc/arm/man.dnstop-read.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch03.htm
 ./usr/share/doc/bind9-doc/arm/man.dig.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch10.html ./usr/share/doc/bin
 doc/arm/man.dnssec-verify.html ./usr/share/doc/bind9-doc/arm/man.nsupdate.html ./usr/share/doc/bind9-
 doc/arm/man.isc-hmac-fixup.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.html ./usr/share/doc/bind9-
 doc/arm/Bv9ARM.ch04.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch11.html ./usr/share/doc/bind9-
 doc/arm/man.dnssec-revoke.html ./usr/share/doc/bind9-doc/arm/man.mdig.html ./usr/share/doc/bind9-
 doc/arm/man.pkcs11-list.html ./usr/share/doc/bind9-doc/arm/man.named-checkconf.html ./usr/share/doc/bind9-
 doc/arm/Bv9ARM.ch09.html ./usr/share/doc/bind9-doc/arm/man.rndc.html ./usr/share/doc/bind9-doc/arm/Bv9ARM
 ./usr/share/doc/bind9-doc/arm/man.arpaname.html ./usr/share/doc/bind9-doc/arm/man.named-checkzone.html
 ./usr/share/doc/bind9-doc/arm/man.dnssec-signzone.html ./usr/share/doc/bind9-doc/arm/man.dnssec-
 checkds.html ./usr/share/doc/bind9-doc/arm/man.ddns-confgen.html ./usr/share/doc/bind9-doc/arm/man.pkcs11-
 destroy.html ./usr/share/doc/bind9-doc/arm/man.dnssec-keyfromlabel.html ./usr/share/doc/bind9-doc/arm/man.dnssec
 dsfromkey.html ./usr/share/doc/bind9-doc/arm/man.named-nzd2nzf.html ./usr/share/doc/bind9-doc/arm/man.nsec3ha
 ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch08.html ./usr/share/doc/bind9-doc/arm/man.rndc.conf.html
 ./usr/share/doc/bind9-doc/arm/man.named.conf.html ./usr/share/doc/bind9-doc/arm/man.pkcs11-keygen.html
 ./usr/share/doc/bind9-doc/arm/man.genrandom.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch02.html
 ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch01.html ./usr/share/doc/bind9-doc/arm/man.rndc-confgen.html
 ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch07.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch12.html
 ./usr/share/doc/bind9-doc/arm/man.host.html ./usr/share/doc/bind9-doc/arm/Bv9ARM.ch06.html ./usr/share/doc/bi
 doc/arm/man.named-rrchecker.html ./usr/share/doc/bind9-doc/arm/notes.html ./usr/share/doc/bind9-
 doc/arm/man.dnssec-coverage.html ./usr/share/doc/bind9-doc/arm/man.delv.html ./usr/share/doc/bind9-
 doc/arm/man.dnssec-settime.html ./usr/share/doc/bind9-doc/arm/man.dnssec-keymgr.html ./usr/share/doc/bind9-
 doc/arm/man.nslookup.html ./usr/share/doc/bind9-doc/misc ./usr/share/doc/bind9-doc/misc/rfc-compliance.gz
 ./usr/share/doc/bind9-doc/misc/master.zoneopt ./usr/share/doc/bind9-doc/misc/tcp-fast-open ./usr/share/doc/bind9-
 doc/misc/docbook-grammars.pl ./usr/share/doc/bind9-doc/misc/redirect.zoneopt ./usr/share/doc/bind9-
 doc/misc/format-options.pl ./usr/share/doc/bind9-doc/misc/hint.zoneopt ./usr/share/doc/bind9-doc/misc/sdb.gz
 ./usr/share/doc/bind9-doc/misc/Makefile.in ./usr/share/doc/bind9-doc/misc/stub.zoneopt ./usr/share/doc/bind9-
 doc/misc/ipv6.gz ./usr/share/doc/bind9-doc/misc/dnssec ./usr/share/doc/bind9-doc/misc/delegation-
 only.zoneopt ./usr/share/doc/bind9-doc/misc/migration-4to9 ./usr/share/doc/bind9-doc/misc/docbook-
 options.pl.gz ./usr/share/doc/bind9-doc/misc/roadmap ./usr/share/doc/bind9-doc/misc/forward.zoneopt
 ./usr/share/doc/bind9-doc/misc/sort-options.pl ./usr/share/doc/bind9-doc/misc/docbook-zoneopt.pl ./usr/share/doc/b
 doc/misc/options.gz ./usr/share/doc/bind9-doc/misc/slave.zoneopt ./usr/share/doc/bind9-doc/misc/static-
 stub.zoneopt ./usr/share/doc/bind9-doc/misc/in-view.zoneopt ./usr/share/doc/bind9-doc/misc/migration.gz
 ./usr/share/doc/bind9utils ./usr/share/doc/bind9utils/copyright ./usr/share/doc/bind9utils/changelog.Debian.gz
 ./usr/share/doc/bind9-host ./usr/share/doc/bind9-host/copyright ./usr/share/doc/bind9-host/changelog.Debian.gz
 ./usr/share/man/man1/bind9-config.1.gz ./usr/bin/bind9-config ./lib/systemd/system/bind9.service ./lib/systemd/syste
 resolvconf.service ./lib/systemd/system/bind9-pkcs11.service ./var/lib/bind/bind9-default.md5sum ./var/lib/systemd/de
 systemd-helper-enabled/bind9.service.dsh-also ./var/lib/systemd/deb-systemd-helper-enabled/bind9-resolvconf.service.ds
 also ./var/lib/systemd/deb-systemd-helper-enabled/multi-user.target.wants/bind9.service ./var/lib/systemd/deb-
 systemd-helper-enabled/bind9-pkcs11.service.dsh-also ./var/lib/dpkg/info/bind9.postrm ./var/lib/dpkg/info/bind9-
 host.list ./var/lib/dpkg/info/bind9.postinst ./var/lib/dpkg/info/bind9utils.md5sums ./var/lib/dpkg/in-
 fo/bind9utils.postinst ./var/lib/dpkg/info/bind9utils.list ./var/lib/dpkg/info/libbind9-160:amd64.list ./var/lib/dpkg/info
 160:amd64.symbols ./var/lib/dpkg/info/libbind9-160:amd64.shlibs ./var/lib/dpkg/info/bind9.list ./var/lib/dpkg/info/bin
 host.md5sums ./var/lib/dpkg/info/libbind9-160:amd64.triggers ./var/lib/dpkg/info/bind9.md5sums ./var/lib/dpkg/info/
 160:amd64.md5sums ./var/lib/dpkg/info/bind9.config ./var/lib/dpkg/info/bind9.prerm ./var/lib/dpkg/in-
 fo/bind9.conf files ./var/lib/dpkg/info/bind9utils.prerm ./var/lib/dpkg/info/bind9-doc.list ./var/lib/dpkg/info/bind9-
 doc.md5sums ./var/lib/dpkg/info/bind9.templates ./var/cache/apt/archives/bind9-doc_1%3a9.11.3+dfsg-
 1ubuntu1.13_all.deb ./var/cache/apt/archives/bind9utils_1%3a9.11.3+dfsg-1ubuntu1.13_amd64.deb ./var/cache/apt/a
 1ubuntu1.13_amd64.deb

4 forklaring av bind

BIND (Berkley Internet Name Domain) er en referanse implementering av DNS protokollene og gir tilgang på en rekke komponenter tilknyttet DNS. BIND er en DNS server som er vidt utbredt i internett og brukes i flesteparten (ca 80% i følge isc.org 01.2013) av DNS tjenerne rundt om i verden. Så hvordan virker BIND? Siden bind er en DNS server/navnetjener har den til hensikt og oppgave å oversette navn til adresser i internett og omvendt, samt route mail til riktig plass. Ved å ha flere navneservere rundt om i verden som har ansvar for sine adresser og navnelister vil man til enhver tid kunne slå opp og få

informasjonen man trenger ved å sende request til disse når man vil besøke nettsider. Grunnen til at det er lagt opp på denne måten er at det ville vært lite hensiktsmessig å ha denne listen på alle pcer rundt om i verden, samt veldig ressurskrevende å oppdatere alle lister på alle maskiner rundt om. Derfor er dette ansvaret fordelt ut ansvarlige rundt om i verden som hoster sine globale navneservere som til enhver tid er oppdaterte.

5 Bind oppsett

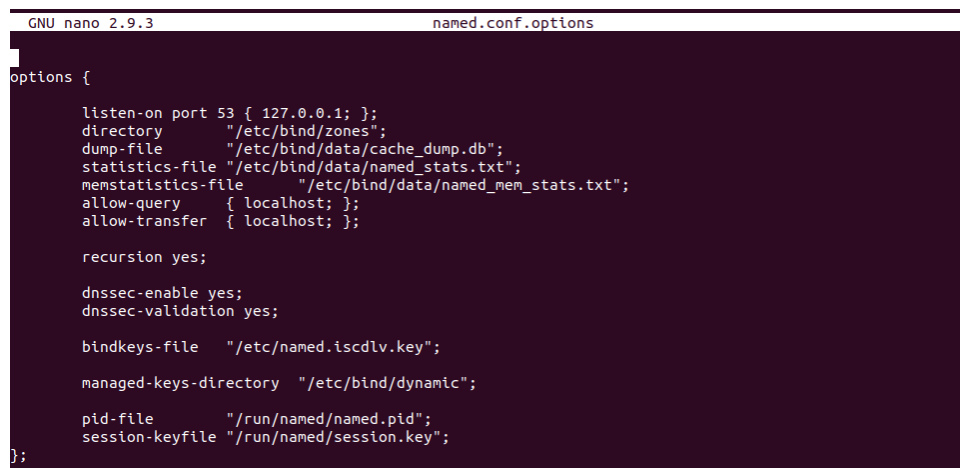


```
GNU nano 2.9.3      named.conf.local
//
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "1.nettlab.grm" IN {
    type master;
    file "/etc/bind/zones/db.1.nettlab.grm";      # zone file path
    allow-update { none; };                      # DNS2 private ip address - secondary
};

zone "1.10.in-addr.arpa" IN {
    type master;
    file "/etc/bind/zones/db.10.1";
    allow-update { none; };
};
```

Figure 6: Local



```
GNU nano 2.9.3      named.conf.options
options {
    listen-on port 53 { 127.0.0.1; };
    directory      "/etc/bind/zones";
    dump-file       "/etc/bind/data/cache_dump.db";
    statistics-file "/etc/bind/data/named_stats.txt";
    memstatistics-file "/etc/bind/data/named_mem_stats.txt";
    allow-query     { localhost; };
    allow-transfer  { localhost; };

    recursion yes;

    dnssec-enable yes;
    dnssec-validation yes;

    bindkeys-file   "/etc/named.iscdlv.key";

    managed-keys-directory "/etc/bind/dynamic";

    pid-file        "/run/named/named.pid";
    session-keyfile  "/run/named/session.key";
};
```

Figure 7: Options


```
GNU nano 2.9.3 db.1.nettlab.grm
$TTL 604800
$ORIGIN 1.nettlab.grm.
@ 3600 IN SOA ns1.1.nettlab.grm. dathost.1.nettlab.grm. (
    3 ; Serial
    604800 ; Refresh
    86400 ; Retry
    2419200 ; Expire
    604800 ) ; Negative Cache TTL

    3600 IN NS ns1.
    3600 IN NS ns2.

    3600 IN MX 10 mail1.
    3600 IN MX 20 mail2.

ns1. 3600 IN A 127.1.0.11
ns2. 3600 IN A 127.1.0.42
mail1. 3600 IN A 127.1.0.12
mail2. 3600 IN A 127.1.0.43

klient1 3600 IN A 127.1.0.10
klient2 3600 IN A 127.1.0.2
klient3 3600 IN A 127.1.0.3
klient4 3600 IN A 127.1.0.4
klient5 3600 IN A 127.1.0.5
klient6 3600 IN A 127.1.0.6
klient7 3600 IN A 127.1.0.7
```

Figure 8: zonefile

vi fikk dessverre ikke Bind til å fungere. vi vet ikke hvorfor vi ikke får ut informasjonen ved hjelp av "dig @localhost ANY 1.nettlab.grm". Vi prøvde mye frem og tilbake, med forskjellige tips fra forskjellige personer, men etter 3 timer med feilsøking ga vi opp.