

[howto](#), [dig](#), [diagnose](#), [dns](#), [rdns](#), [spf](#)

# How to Diagnose DNS and RDNS with DIG

## Sources:

- [IBM NS1 - Decoding DIG Output](#)
- [serverfault - How to determine which DNS server has the authority to set rDNS \(PTR records\)?](#)
- [linux.die.net - dig\(1\) - Linux man page](#)

## DIG Basic Usage

```
dig -t ANY @a.ns14.net nanoscopic.de
```

- dig: calling the command dig
- -t ANY: specifying the query type
- @a.ns14.net: specifying the DNS server to query
- nanoscopic.de: the name to query for

## Find Authoritative DNS Server

```
dig -t SOA nanoscopic.de
```

```
; <<>> DiG 9.18.26 <<>> -t SOA nanoscopic.de
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22729
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1424
;; QUESTION SECTION:
;nanoscopic.de.                IN      SOA

;; ANSWER SECTION:
nanoscopic.de.                3600    IN      SOA      a.ns14.net. domains.wiretrip.de. 2024031401 43200 7200
1209600 3600

;; Query time: 26 msec
;; SERVER: 192.168.1.1#53(192.168.1.1) (UDP)
;; WHEN: Mon May 06 17:50:07 CEST 2024
;; MSG SIZE rcvd: 105
```

The authoritative DNS server for nanoscopic.de is a.ns14.net.

## Query the authoritative DNS server (or a specific DNS server) for current data

To get current DNS data, use @<HOSTNAME\_OF\_AUTHORITATIVE\_DNS\_SERVER>.

## IPv4

```
dig @a.ns14.net -t A nanoscopic.de
```

```
; <<>> DiG 9.18.26 <<>> @a.ns14.net -t A nanoscopic.de
; (2 servers found)
```



```
;; AUTHORITY SECTION:
c.5.a.f.c.0.c.0.8.f.4.0.1.0.a.2.ip6.arpa. 3540 IN SOA ns1.your-server.de. dns.hetzner.com. 2020062010
14400 1800 604800 86400

;; Query time: 3 msec
;; SERVER: 192.168.1.1#53(192.168.1.1) (UDP)
;; WHEN: Mon May 06 19:49:14 CEST 2024
;; MSG SIZE rcvd: 170
```

The DNS server, serving the PTR record for 2a01:4f8:c0c:fa5c1 (nanoscopic.de), is ns1.your-server.de.</wrap> For one of my Telekom addresses (2003:a:b1c:f420:be24:11ff:feb3:a94f), I can use: <code> <code> IPADDR="2003:a:b1c:f420:be24:11ff:feb3::"; IPADDR=\$( dig -x \$IPADDR | egrep '^;\*PTR\$' | cut -c 2- | awk '{print \$1}' ); dig in ns \$IPADDR; </code> <code> ; «» DiG 9.18.26 «» in ns 0.0.0.3.b.e.f.f.1.1.4.2.e.b.0.2.4.f.c.1.b.0.a.0.0.3.0.0.2.ip6.arpa. Got answer: flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1 QUESTION SECTION: ;0.0.0.3.b.e.f.f.1.1.4.2.e.b.0.2.4.f.c.1.b.0.a.0.0.3.0.0.2.ip6.arpa. IN NS Query time: 23 msec WHEN: Tue May 07 14:41:33 CEST 2024 ;; MSG SIZE rcvd: 160 </code> The DNS server, serving the PTR record for 2003:a:b1c:f420:be24:11ff:feb3:a94f (mail.ignion.de), is \*\*pns.dtag.de. ===== How to interpret DIG output ===== -- ~~DISCUSSION~~

From: <https://wiki.nanoscopic.de/> - nanoscopic wiki

Permanent link: <https://wiki.nanoscopic.de/doku.php/pages/howtos/diagnose/how-to-diagnose-dns-with-dig?rev=1715085783>

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