howto, dns, reversedns, soa

How to find the Authoritative Reverse DNS Server for a specific IP Address

The "dig" Way

If “digging” for a reverse name yields a cached response… e.g. the following command returns “p50939d12.dip0.t-ipconnect.de.” as the reverse host name:

```
dig -x 80.147.157.18
```

```
; <<>> DiG 9.18.20 <<>> -x 80.147.157.18
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 42447
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1424
;; QUESTION SECTION:
;18.157.147.80.in-addr.arpa.    IN      PTR

;; ANSWER SECTION:
18.157.147.80.in-addr.arpa. 84065 IN    PTR     p50939d12.dip0.t-ipconnect.de.

;; Query time: 0 msec
;; SERVER: 192.168.1.1#53(192.168.1.1) (UDP)
;; WHEN: Thu Dec 28 14:53:53 CET 2023
;; MSG SIZE  rcvd: 98
```

Get the authoritative DNS server for the address with the following command:

```
dig -t SOA 18.157.147.80.in-addr.arpa
```

```
; <<>> DiG 9.18.20 <<>> -t SOA 18.157.147.80.in-addr.arpa
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 44130
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1424
;; QUESTION SECTION:
;18.157.147.80.in-addr.arpa.    IN      SOA

;; AUTHORITY SECTION:
157.147.80.in-addr.arpa. 3600   IN      SOA     pns.dtag.de. dns.telekom.de. 2023122801 86400 7200
3600000 3600

;; Query time: 833 msec
;; SERVER: 192.168.1.1#53(192.168.1.1) (UDP)
;; WHEN: Thu Dec 28 16:11:51 CET 2023
;; MSG SIZE  rcvd: 114
```

Now you can direct dig to query the authoritative DNS server for the ip address:

```
dig @pns.dtag.de -x 80.147.157.18
```

```
; <<>> DiG 9.18.20 <<>> @pns.dtag.de -x 80.147.157.18
; (2 servers found)
```

```
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 5399
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 90230e600a10e52801000000658d907ced5542dfeb8f1c5e (good)
;; QUESTION SECTION:
;18.157.147.80.in-addr.arpa.    IN      PTR

;; ANSWER SECTION:
18.157.147.80.in-addr.arpa. 86400 IN    PTR     vm100.wiretrip.de.

;; Query time: 13 msec
;; SERVER: 2003:40:8000::100#53(pns.dtag.de) (UDP)
;; WHEN: Thu Dec 28 16:13:00 CET 2023
;; MSG SIZE  rcvd: 114
```

Dig but the short way

```
dig +trace 18.157.147.80.in-addr.arpa
```

```
; <<>> DiG 9.18.20 <<>> +trace 18.157.147.80.in-addr.arpa
;; global options: +cmd
.                       73231   IN      NS      l.root-servers.net.
.                       73231   IN      NS      k.root-servers.net.
.                       73231   IN      NS      d.root-servers.net.
.                       73231   IN      NS      j.root-servers.net.
.                       73231   IN      NS      b.root-servers.net.
.                       73231   IN      NS      h.root-servers.net.
.                       73231   IN      NS      m.root-servers.net.
.                       73231   IN      NS      c.root-servers.net.
.                       73231   IN      NS      i.root-servers.net.
.                       73231   IN      NS      f.root-servers.net.
.                       73231   IN      NS      e.root-servers.net.
.                       73231   IN      NS      a.root-servers.net.
.                       73231   IN      NS      g.root-servers.net.
.                       73231   IN      RRSIG   NS 8 0 518400 20240110050000 20231228040000 46780 .
gVDot5BWANDB49am5IR+xfHlMiVScoXWTSlyj313whf8Fpy7qT2POGOY
1F0FBy4tYhT3bMZKMQ56djzBAWlFl9Vg7m0I+vqvzR8+yit+C4YFYv/j
Vw4P0VGB0vEPjXPCR+4iPg2iAnMEYzILOsQ8/3jcPmhrlsw9JkVE+4lY
hJMsJVXGYHHgZThPwHQz88pFc7RYQ4GHXThP1nVUZ8GByuLiC9GnYfCj
SZYHjXCaSKWuLDU08t/jNsMWfhEc+zg5TrSoDWIHu7TDB5YqRqqKzWSz
bNFaxJHTb2SbCKspakXVb5A+vSjmHVXM3uyr3lJ1zidsxZsDUYi/jsGB DiAGLg==
;; Received 525 bytes from 192.168.1.1#53(192.168.1.1) in 0 ms

in-addr.arpa.           172800  IN      NS      a.in-addr-servers.arpa.
in-addr.arpa.           172800  IN      NS      b.in-addr-servers.arpa.
in-addr.arpa.           172800  IN      NS      c.in-addr-servers.arpa.
in-addr.arpa.           172800  IN      NS      d.in-addr-servers.arpa.
in-addr.arpa.           172800  IN      NS      e.in-addr-servers.arpa.
in-addr.arpa.           172800  IN      NS      f.in-addr-servers.arpa.
in-addr.arpa.           86400   IN      DS      47054 8 2
5CAFCCEC201D1933B4C9F6A9C8F51E51F3B39979058AC21B8DF1B1F2 81CBC6F2
in-addr.arpa.           86400   IN      DS      53696 8 2
13E5501C56B20394DA921B51412D48B7089C5EB6957A7C58553C4D4D 424F04DF
in-addr.arpa.           86400   IN      DS      54956 8 2
E0E2BF5CFBD66572CA05EC18267D91509BA6A9405AF05C3FD4141DFA 45200C08
in-addr.arpa.           86400   IN      DS      63982 8 2
AAF4FB5D213EF25AE44679032EBE3514C487D7ABD99D7F5FEC3383D0 30733C73
in-addr.arpa.           86400   IN      RRSIG   DS 8 2 86400 20240110060000 20231228050000 46174 arpa.
2LW6tpW78yMDloyQ+gFayWeuIRsGYtFosSmILBmvIIozJIHV2gAAZdyX
```

```
kJKoTA6ShAWxr/v2ASTgTqWoK42veZkBLFqOvgRDDr8XKnTZJNEim8/0
6XxvQ50wS3H81zuy1lRrYNwZWH5lT+IcsV2bD3NYJd/jwPvdE1ToT3TE
T9LMFrxDcRPzivqpaeenV2Kz1YMe1f5CSLD37Tg5N3v99iBEB0UAPLxy
vS68J5u2DSLf4agmPfQ4kdJL94Z0IevGTiB71dQvjauhNSR+Zp+xgGG7
C+ZNlFcGJjJ6nTVrpbLReFhs/W4zRRBfxqyUXrcTy28kmBTcx67tN+FU ezHhTQ==
;; Received 915 bytes from 199.7.83.42#53(l.root-servers.net) in 23 ms

80.in-addr.arpa.        86400   IN      NS      ns4.apnic.net.
80.in-addr.arpa.        86400   IN      NS      rirns.arin.net.
80.in-addr.arpa.        86400   IN      NS      pri.authdns.ripe.net.
80.in-addr.arpa.        86400   IN      NS      ns3.afrinic.net.
80.in-addr.arpa.        86400   IN      NS      ns3.lacnic.net.
80.in-addr.arpa.        86400   IN      DS      34690 13 2
908FB0DEF1C977D145263A4BDA7CBE4C4ECD8FA0FE7BBCB20777B721 D4D8FDD7
80.in-addr.arpa.        86400   IN      RRSIG   DS 8 3 86400 20240108055519 20231218164435 35160 in-
addr.arpa. PsimM/+LLxa3JLo/NSuYp14pV7I1tRj1MmIjbnQYZ1b7nPodkPAWAFcI
ltlQFyiN2QoyVB5MzTS/wBytYCrlXFO13EKh+u0JbmUvr04ZLmEc0qv0
hFuM8WANt60VkIyq/Vt1wETYRD6lVpoA4XbYpbon1ngd8n5gATOgQa3U e6Y=
;; Received 464 bytes from 199.180.182.53#53(a.in-addr-servers.arpa) in 149 ms

157.147.80.in-addr.arpa. 172800 IN      NS      pns.dtag.de.
157.147.80.in-addr.arpa. 172800 IN      NS      secondary007.dtag.net.
;; Received 115 bytes from 193.0.9.5#53(pri.authdns.ripe.net) in 19 ms

157.147.80.in-addr.arpa. 3600   IN      SOA     pns.dtag.de. dns.telekom.de. 2023122801 86400 7200
3600000 3600
;; Received 144 bytes from 2003:40:8000::100#53(pns.dtag.de) in 9 ms
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dnstracer

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