

DNS quick reference

Record types, practical queries and a short troubleshooting sequence.

Read the records

A / AAAA - IPv4 / IPv6 address.

CNAME - alias to another hostname; normally cannot coexist with other data at the same name.

MX - mail exchange; lower preference values are tried first.

NS - authoritative name server.

TXT - text used by policies and verification.

SOA - zone administration and serial.

PTR - reverse address-to-name mapping.

Query with dig

```
dig example.com A
```

Show the response, status and answer TTLs.

```
dig example.com MX +short
```

Compact mail-exchange answer.

```
dig @1.1.1.1 example.com TXT
```

Ask a specific resolver.

```
dig -x 192.0.2.10
```

Reverse lookup for an example address.

Query with PowerShell

```
Resolve-DnsName example.com -Type MX
```

Inspect MX records on Windows.

```
Resolve-DnsName example.com -Type TXT  
-Server 1.1.1.1
```

One command; join the two lines before running.

Know which answer you are seeing

A recursive resolver answers from its cache or follows DNS delegation. An authoritative server answers for its zone. Different resolver answers can reflect caching, geography or load balancing.

TTL and changes

TTL is a cache lifetime in seconds. A cached answer usually displays its remaining lifetime. Lowering the TTL now does not shorten copies already cached under the previous TTL. Negative answers can also be cached.

Troubleshoot in order

1. Confirm the exact name, record type and DNS zone.
2. Compare your configured resolver with another resolver.
3. Check delegation and query the authoritative servers.
4. Distinguish NXDOMAIN (name absent), NOERROR with no matching data, and SERVFAIL (lookup failure).
5. Check split DNS, local hosts files and application caches.

Keep the context

Save the queried name, type, resolver, UTC time, response status and TTL. A matching pair of resolver answers is useful evidence, but does not prove global propagation.

Simple Systems tools

DNS lookup, DNS propagation checker, Reverse DNS checker and DNS record generator.

simplesys.dev/dns-tools/