DNS Privacy Public Resolvers

The following are services that have been announced by large organisations - they support DNS Privacy on anycast networks.

- DNS-over-TLS (DoT)
- DNS-over-HTTPS (DoH)
- DNS-over-QUIC (DoQ)

A comparison of the privacy policies of some resolvers is provided here.
A list of experimental DoT test servers (including those run by the Stubby developers) is available on the Test Servers page.

DNS-over-TLS (DoT)

Details are provided in the Stubby config file for users who want to enable them.

<table>
<thead>
<tr>
<th>Hosted by</th>
<th>IP addresses</th>
<th>TLS Ports</th>
<th>Hostname for TLS authentication</th>
<th>Base 64 encoded form of SPKI pin(s) for TLS authentication (RFC7858)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quad9 'secure'</td>
<td>9.9.9.9 2620:fe::fe</td>
<td>853</td>
<td>dns.quad9.net</td>
<td>Quad9 do NOT publish or recommend use of SPKI pins with their servers.</td>
<td>See <a href="https://quad9.net">https://quad9.net</a> and their FAQ for details of privacy, logging and filtering policies on the main and alternative addresses[^1]. UDP and TCP service are also available on these addresses.</td>
</tr>
<tr>
<td>Quad9 'insecure'</td>
<td>9.9.9.10 2620:fe::10</td>
<td>853</td>
<td>dns.quad9.net</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Cloudflare | 1.1.1.1 or 1.0.0.1 2606:4700:4700::1111 or 2606:4700:4700::1001 | 853       | cloudflare-dns.com             | Cloudflare do NOT publish or recommend use of SPKI pins with their servers. | [https://www.cloudflare.com/privacypolicy/](https://www.cloudflare.com/privacypolicy/) (section of interest Public DNS Resolver Users)  
[https://developers.cloudflare.com/1.1.1.1/privacy](https://developers.cloudflare.com/1.1.1.1/privacy)  
[https://developers.cloudflare.com/1.1.1.1/privacy/public-dns-resolver](https://developers.cloudflare.com/1.1.1.1/privacy/public-dns-resolver)  
And also see [https://labs.apnic.net/?p=1127](https://labs.apnic.net/?p=1127) for details of the APNIC/Cloudflare agreement as mentioned on the Register.  
UDP and TCP service are also available on these addresses. DNS-over-HTTPS is also available!  
NOTE: To use this service by name only (i.e resolve the IP from the name) use 1dot1dot1dot1.cloudflare-dns.com. |
| Google     | 8.8.8.8 or 8.8.4.4 2001:4860:4860:::8888 or 2001:4860:4860:::8844 | 853       | dns.google                     | Not published                                                             | [Google Privacy policy](https://www.google.com/about/priva.../privacy-policy) (under the “Information We Collect” section)  
[https://developers.cloudflare.com/1.1.1.1/privacy/public-dns-resolver](https://developers.cloudflare.com/1.1.1.1/privacy/public-dns-resolver)  
[https://www.cloudflare.com/privacy](https://www.cloudflare.com/privacy)  
This service provides different end points with different filters (security, family, adult) so visit the website to select the end point with the filter you prefer. NOTE: also does DoH.                                       |
| CleanBrowsing | Various, see the CleanBrowsing website | 853       | Various, see the CleanBrowsing website | Not published                                                             | [https://cleanbrowsing.org/privacy](https://cleanbrowsing.org/privacy) (under the “Information We Collect” section)  
This service provides different end points with different filters (security, family, adult) so visit the website to select the end point with the filter you prefer. NOTE: also does DoH.                                      |
This service provides different end points with different filters (default, family) so visit the website to select the end point with the filter you prefer. |
NOTE: This is currently a Public Beta trial.                                                                                                                                    |

DNS-over-HTTPS (DoH)

A comparison of the privacy policies of some resolvers is provided here.
A list of experimental DoT test servers (including those run by the Stubby developers) is available on the Test Servers page.
Details of a few anycast service and privacy policies:

<table>
<thead>
<tr>
<th>Hosted by</th>
<th>URL</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloudflare</td>
<td><a href="https://mozilla.cloudflare-dns.com/dns-query">https://mozilla.cloudflare-dns.com/dns-query</a></td>
<td>This server is announced as part of the Firefox Nightly shield study. It has a different (stronger) privacy policy than the general Cloudflare DoH server above: <a href="https://developers.cloudflare.com/1.1.1.1/commitment-to-privacy/privacy-policy/firefox/">https://developers.cloudflare.com/1.1.1.1/commitment-to-privacy/privacy-policy/firefox/</a></td>
</tr>
<tr>
<td>Quad9</td>
<td>Various</td>
<td>Please see <a href="https://www.quad9.net/doh-quad9-dns-servers/">https://www.quad9.net/doh-quad9-dns-servers/</a> for details</td>
</tr>
<tr>
<td>CleanBrowsing</td>
<td>Various, see the CleanBrowsing website</td>
<td>This service provides different end points with different filters (security, family, adult) so visit the website to select the end point with the filter you prefer.</td>
</tr>
</tbody>
</table>

Google also run a DoH endpoint at [https://dns.google/resolve](https://dns.google/resolve) using a proprietary JSON API.

**DNS-over-QUIC (DoQ)**