

IPv6 Readiness Report

proton.com — proton.com



Scan to verify

Category: Enterprise • Generated: 16 Sep 2026, 22:16 MYT • Last Checked: 08 Aug 2026, 18:31 MYT • Verification ID: 957d75ae-57bc-4f96-85cb-b688af07fa0d
Report generated from National IPv6 Readiness Monitor — <https://ipv6.my6.my>
Audit trail: <https://ipv6.my6.my/audit/957d75ae-57bc-4f96-85cb-b688af07fa0d>

X

Non-Compliant

MGv6C-1.0

52%

No IPv6 Support

IPv6-ONLY READINESS

Website: X Not Ready

DNS: X Not Ready

Email: X Not Ready

IPv6 ADDRESSES	IPv4 ADDRESSES
2603:1061:14:160::1	52.139.251.148

Network Information (WHOIS / RDAP)

	IPv6 Network	IPv4 Network
Organization	Microsoft Corporation	Microsoft Corporation
Country	US	US
ASN	AS8075	AS8075
ASN Name	MICROSOFT-CORP-MSN-AS-BLOCK - Microsoft Corporation, US	MICROSOFT-CORP-MSN-AS-BLOCK - Microsoft Corporation, US
Network (CIDR)	2603:1000::/24	52.132.0.0/14

Web Services (35%)				5 / 8
#	CHECK	RESULT	DETAIL	
1	AAAA Record	PASS	2603:1061:14:160::1	
2	Globally Routable IPv6	PASS	All addresses are globally routable.	
3	HTTP over IPv6	PASS	HTTP (port 80) responds over IPv6 — 41ms TTFB.	
4	HTTPS over IPv6	PASS	HTTPS (port 443) responds over IPv6 — 96ms TTFB.	
5	IPv6-Only Reachability	FAIL	Site is not reachable when limited to IPv6-only.	
6	TLS Certificate Valid (IPv6)	FAIL	TLS certificate is invalid, expired, or hostname mismatch over IPv6.	
7	Dual-Stack (IPv4 + IPv6)	PASS	Domain has both A and AAAA records.	
8	HTTP/3 (QUIC)	FAIL	No HTTP/3 support detected.	

DNS & DNSSEC (25%)				0 / 5
#	CHECK	RESULT	DETAIL	
1	NS Has AAAA Record	FAIL	No nameserver has an AAAA record.	
2	NS Reachable via IPv6	FAIL	No nameserver is reachable over IPv6.	
3	NS Answers Queries via IPv6	FAIL	Nameserver does not answer queries over IPv6.	
4	DNSSEC Validated	FAIL	DNSSEC validation failed or zone is unsigned.	
5	Reverse DNS (PTR)	FAIL	No PTR record found.	
6	DS Record at Parent	FAIL	No DS record at parent.	
7	RRSIG Valid	FAIL	No valid RRSIG found.	

#	CHECK	RESULT	DETAIL
8	Signing Algorithm	INFO	No DNSKEY record found.

Email Services (25%)			4 / 4
#	CHECK	RESULT	DETAIL
1	MX Record Exists	PASS	MX record found.
2	MX Server Has IPv6	PASS	MX server has AAAA record.
3	SMTP Reachable via IPv6	FAIL	SMTP is not reachable over IPv6.
4	STARTTLS over IPv6	FAIL	STARTTLS not available over IPv6.
5	SPF Record	PASS	SPF record found.
6	DKIM Selector	INFO	No common DKIM selector found.
7	DMARC Record	PASS	DMARC record found.

IPv4 Baseline (15%)			1 / 3
#	CHECK	RESULT	DETAIL
1	A Record	PASS	52.139.251.148
2	HTTP over IPv4	FAIL	HTTP is not accessible over IPv4.
3	HTTPS over IPv4	FAIL	HTTPS is not accessible over IPv4.

Audit Trail & Evidence Record

Verification ID	957d75ae-57bc-4f96-85cb-b688af07fa0d
Domain	proton.com
Check Mode	Manual
Status	Completed
Started	08 Aug 2026, 18:30:04 MYT
Finished	08 Aug 2026, 18:31:22 MYT
Test Node Profile	dual stack
Engine Version	2.0.0
MGv6C Version	1.0.0
Audit URL	https://ipv6.my6.my/audit/957d75ae-57bc-4f96-85cb-b688af07fa0d

Integrity Verification

✓ INTEGRITY VERIFIED	
Algorithm	hmac-sha256-v1
Root Hash	41c5d407e0eed339081eac0e3e91c95d09c3adc9dca603026c1fd280280e2392
http_headers	812096eacef37bc9a945272a7cf6373fba4e7007b1eabed3c05485691a334885
dns_responses	eae3554b3e121fabb5f7bf7da7ee5b73474a1f4ca220905e43402f4be92d47b4
tls_handshake	b81f0092469dacd9d0aef94d956c832d9ad69d63e9b78e37069c5357573748a8
connectivity_log	b6151a4af3a497cbc3c915d50b8a3dee3ba4d9b30f9de811406cd31fd90ae355
dns_resolution_times	0d9bc6b5ef174c6b5cc18071af41c763d9a8639c7fa89852e6d82bf4691501d7

Test Node Identity

Os	Linux srv1440888 6.8.0-136-generic #136-Ubuntu SMP PREEMPT_DYNAMIC Wed Jul 1 21:53:05 UTC 2026 x86_64
Hostname	srv1440888
Php Version	8.3.33
Server Ipv4	76.13.221.142
Server Ipv6	2a02:4780:5e:2789::1

DNS Resolution Performance

Comparison of A (IPv4) vs AAAA (IPv6) query times across resolvers and transports. Shows median (p50) and 95th percentile (p95) of 3 samples per tuple.

Resolver	Transport	A p50 (ms)	A p95 (ms)	AAAA p50 (ms)	AAAA p95 (ms)	Delta (ms)
System	Default	21.57	23.36	21.48	23.05	-0.1
Google	IPv4	38.38	50.88	71.88	75.06	+33.5
Google	IPv6	61.59	151.02	82.68	157.19	+21.1
Cloudflare	IPv4	21.89	22.62	23.4	24.68	+1.5
Cloudflare	IPv6	22.17	23.42	27.01	30.2	+4.8



DNS Evidence

A

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 19690
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
;; ANSWER SECTION:
proton.com. 300 IN A 52.139.251.148
```

DS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 37915
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
;; AUTHORITY SECTION:
com. 882 IN SOA a.gtld-servers.net. nstld.verisign-grs.com. 1786184994 1800 900 604800 900
```

MX

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 50260
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
;; ANSWER SECTION:
proton.com. 7200 IN MX 0 proton-com.mail.protection.outlook.com.
```

NS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 2604
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
;; ANSWER SECTION:
proton.com. 7200 IN NS xns1.netmyne.my.
proton.com. 7200 IN NS xns2.netmyne.my.
```

TXT

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 7653
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
;; ANSWER SECTION:
proton.com. 3600 IN TXT "v=spf1 ip4:121.123.112.72 ip4:121.123.113.35 ip4:121.123.112.3 ip4:118.100.117.201 ip4:121.123.112.148 include:spf.protection.outlook.com -all"
proton.com. 3600 IN TXT "K2K5SCvtCiXqBiJ7e/GUqk0SgLL6Ay6lkeEzE6gaX4RbQL00hYyBAi5fGsXxE77hbS0PlgzMAPobZ7/ayDl8JA=="
proton.com. 3600 IN TXT "google-site-verification=d5-j9BTzQIiRiefs0F8yWxTRUscr3kiiIa2ooSa2cQE"
proton.com. 3600 IN TXT "ms49827105"
proton.com. 3600 IN TXT "_ho4mj7r9xm30ff7y5shdabrsj6yc249"
```

AAAA

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 1184
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 1232
;; AUTHORITY SECTION:
proton.com. 3565 IN SOA xns1.netmyne.my. register.netmyne.my. 2026080602 18000 7200 1209600 10800
```

RRSIG

```
xns1.netmyne.my. register.netmyne.my. 2026080602 18000 7200 1209600 10800
```

DNSKEY

```
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22052
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; AUTHORITY SECTION:
proton.com. 3565 IN SOA xns1.netmyne.my. register.netmyne.my. 2026080602 18000 7200 1209600 10800
```

DNSSEC_VALIDATION

```
; unsigned answer
proton.com. 7165 IN SOA xns1.netmyne.my. register.netmyne.my. 2026080602 18000 7200 1209600 10800
```


IPV4 Connection

IP Used	52.139.251.148
IP Version	4

IPV6 Connection

IP Used	2603:1061:14:160::1
IP Version	6

```
depth=3 C = US, O = DigiCert Inc, OU = www.digicert.com, CN = DigiCert Global Root G3
verify return:1
depth=2 C = US, O = Microsoft Corporation, CN = Microsoft TLS ECC Root G2
verify return:1
depth=1 C = US, O = Microsoft Corporation, CN = Microsoft TLS G2 ECC CA OCSP 06
verify return:1
depth=0 C = US, ST = WA, L = Redmond, O = Microsoft Corporation, CN = *.azureedge.net
verify return:1
CONNECTED(00000010)
---
Certificate chain
 0 s:C = US, ST = WA, L = Redmond, O = Microsoft Corporation, CN = *.azureedge.net
   i:C = US, O = Microsoft Corporation, CN = Microsoft TLS G2 ECC CA OCSP 06
   a:PKEY: id-ecPublicKey, 256 (bit); signalg: ecdsa-with-SHA384
   v:NotBefore: May 18 10:49:57 2026 GMT; NotAfter: Nov 14 10:49:57 2026 GMT
-----BEGIN CERTIFICATE-----
MIIGujCCBkGgAwIBAgITYQABiI775brPqFfTJwAAAAIjijAKBgqhkhj0PQQDAzBX
MQswCQYDVQQGEwJVUzEeMBwGA1UEChMVTWlJcm9zb2Z0IENvcnBvcnF0aW9uS5Gw
JgYDVQQDEx9NaWlyb3NvZnQvVExTIEcyIEVDQyBDOyBSPQ1NQIDA2MB4XDTI2MDUx
ODUwNDk1N1oXDTI2MTExNDk1N1owZjELMAkGA1UEBhMCVmxhZzA3BgNVBAGt
AldBMRAdDgYDVQHEwdSZWrtb25kMR4wHAYDVQQKEzVNaWlyb3NvZnQvQ29ycG9y
YXRpb24xGDAwBgNVBAMMDyouYXplcmVLZGdLLm5lDBZMBMBGyqGSM49AgEGCCqG
SM49AwEHA0IAB07k6/xR6Uzbltaa7J+eJl14hB0Lxq4+cGpIN9y0LUA/zI6I44jU
gXkMAx2xLORLWaMdotEAZDan+TyFAoXMIbejggTbMIIe1zCCAX4GCisGAQQB1nkC
BAIEggFuBIIBagFoAHYA2AlV05RPev/IFhlvLE+Eq7D4/F6HVSYPFdEucrtFSxQA
AAGe0r4pGAAABAMARzBFAiEAiZq1SPhXKDsK3/x5Vz5YtG0rPcP08mIuAdqXavv
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6S2f425YSQuzWVeMAHYAyKPEf8ezrbk1awE/anoSbeM6TK0Lxb51L605dZkdZ5oA
AAGe0r4pkAAABAMARzBFAiEAlnSPSjAw7LcUnbtgALDnqWkpUBuSnD0ekC0dMtt+
q34CIGS93uCo1uHrFvJN4PsYt3CqGam33h7vR7MG1f8phdVTMBsGCsGAQQBgqjv
CgQ0MAwwCgYIKwYBBQUHAWewPAYJKwYBBAGCNxUHBC8wLQYLkwYBBAGCNxUIh73X
G4Hn60aCgZ0ujtAMh/DaHVZD6cNngrSjTAIBZAI BIDCAsGCsGAQUFBwEBBIIH
MIH7MGECCsGAQUFBzAChLVodHRwOi8vd3d3Lm1pY3Jvc29mdC5jb20vcGtpb3Bz
L2N1cnRzL0lP3Jvc29mdCUyMFRMUyUyMEcyJTlWRUNDJTlWQ0E1MjBPQ1NQJTlW
MDYuY3J0MGccGCsGAQUFBzAChLtodHRwOi8vY2Fpc3N1ZXJzLm1pY3Jvc29mdC5j
b20vcGtpb3BzL2N1cnRzL0lP3Jvc29mdCUyMFRMUyUyMEcyJTlWRUNDJTlWQ0E1
MjBPQ1NQJTlWMDYuY3J0MC0GCCsGAQUFBzABhiFodHRwOi8vb251b2NzcC5taWly
b3NvZnQvY29tL29j3AwHQYDVVR0BBYEFN195d2UxqCfQz8DwEEVEBUqFJMA4G
A1UDwEB/wQEAWIHgDAaBgNVHREEZzArRggqLmF6dXJlZW50ZS50ZD0AYDVR0T
AQH/BAIwADCB8QYDVROfBIHmMIHJoIHGoIHdhmXodHRwOi8vd3d3Lm1pY3Jvc
29mdC5jb20vcGtpb3BzL2NybC9wYXJ0aXRpb24vTWlJcm9zb2Z0JTlWVExTJTlW
RzILMjBFQ0M1MjBDQSUYME9DU1A1MjAwN1QYXJ0aXRpb24wMDA1NC5jcmYGBWh0
dHA6Ly9jcmwyLm1pY3Jvc29mdC5jb20vcGtpb3BzL2NybC9wYXJ0aXRpb24vTWlJ
cm9zb2Z0JTlWVExTJTlWRzILMjBFQ0M1MjBDQSUYME9DU1A1MjAwN1QYXJ0aXRp
b24wMDA1NC5jcmwwZgYDVVR0GBF8wXTAIBgZngQwBAGIwUQYMKwYBBAGCN0yDfQEB
MEEWpWYIKwYBBQUHAgEWM2h0dHA6Ly93d3cub3BzLm1pY3Jvc29mdC5jb20vcGtpb3
BzL2NybC9wYXJ0aXRpb24vTWlJcm9zb2Z0IENvcnBvcnF0aW9uS5Iw
IAyDVQQDExLNaWlyb3NvZnQvVExTIEVDQyBSBz290IEcyMB4XDTI2MDgwMTIwMDIw
M1oXDTI2MDYwMzIwMDIwM1owZjELMAkGA1UEBhMCVmxhZzA3BgNVBAGtFU1pY3Jvc
29mdCBDb3Jwb3JhdGlvbjoEoMCGYA1UEAxMFTWlJcm9zb2Z0IFRMLUyBHM1BFQ0Mg
Q0EGT0NTUCAwNjB2MBAGByqGSM49AgEGBSuBBAAiA2IABEyzDNjJnR5a+41f9R1p
mD4I7TsSxeFzO3+6b7vmQpNtV0YlhdgSYF8HnheuVLyZfP2c2eDvFgDSyw27W6K
qv0dTrInF5jXjcskE7X3AwqkQIHb2m0Pt1ygi7s9yGhV0a0CAoEwggJ9MA4GA1U
DwEB/wQEAWIBhjAQBgrkBGEAYI3FQEEAwIBADADBgNVH4EFgQUOJss5ZxPncIU
```

```

YerpRBCNCELL61slswEwYDR0gBAlwCqYAiBgZngQwBAGwIwEwYDVR0lBAwwCgYIKwYB
BQUHAWGwEQYJKwYBBAGCNxQBAAwCgBTAUHAUYgBDAEEwEgYDVR0lAQH/BAGwBgEB
/wIABDAfBgNVHSMEGDAAWgBr37a/5dDcuw72f3egmE1iEdChtZCBqWYDVR0lBTjG
MIGGMIGdoIGaoIGXhkLodHRwOi8vd3d3LmlpY3Jvc29mdC5jY2b0vcGtpb3BzL2Ny
bC9NaWNYb3NvZnQlMjBUTFMlMjBFQ0MlMjBSb290JT1wRz1uY3J3shkpodHRwOi8v
Y3J3MistawNYb3NvZnQyY29tL3Braw9wcy9jcmvWlJcm9b2Z0ZTIwVXVxTjTlIw
YUNDJTIwUmdvClUyMecyLmNybW0CCARAGCC5GAQUFBwEBBIBTAjCz/bzjBggRBgEF
BQcwoAaXZHR0cDovL3d3dy5taWNYb3NvZnQyY29tL3Braw9wcy9jZXJ0cy9NaWNy
b3NvZnQlMjBUTFMlMjBFQ0MlMjBSb290JT1wRz1uY3J3TjEwHEHnpZ24uY3J0MGKg
C2cGAQUFBzAChlLodHRwOi8vY29tL3Braw9wcy9jZXJ0cy9NaWNyY2b0vcGtpb3Bz
L2NybC9NaWNYb3NvZnQyY29mdC5jY2b0vcGtpb3BzL2NybW0CCBHMIAUyMCOlMjB4
c2lnbi5jcnQwLQYIKYKwYBBQUHMAgGIWh0dHA6L9ybWVvY3NwLmlpY3Jvc29mdC5j
Y2b0b2N2cDZAKBgghqhkjOPQ0DAAWnpADbmAJEaQoYkOv1JmPrJ0K4a9YUuvu7r02M
vILtnSHA2dJ/nyc6qsFnp0aXoPlN7vLCfW5f4jEaHpNckhEYcJ3W/9UVLcK27LgD
u4Gc4g1SkT9rJBGU/cJ++1EYiKEKxCMkMuHT03B0
-----END CERTIFICATE-----

2 s C = US, O = Microsoft Corporation, CN = Microsoft TLS ECC Root G2

i:C = US, O = DigiCert Inc, OU = www.digicert.com, CN = DigiCert Global Root G3

a:PKKEY: id-ecPublicKey, 384 (bit); sigalg: ecdsa-with-SHA384

v:NotBefore: May 21 00:00:00 2025 GMT; NotAfter: Jun 19 23:59:59 2029 GMT

-----BEGIN CERTIFICATE-----
MIID0zCCAsCgEwIABQIQNCPG0AHyBwLWpWx9anP/tjAKBgghqhkjOPQ0DAAZhMQsw
CQYDVQGEwJVUzEVMBMGAUECHMMRGLnaUNlcn0gS5WjMRKwFwYDVOQLExB3d3cu
ZGlnaWNlcnQyY29tMSAwHgYDVQDGEdeAwdp02YvClBHBG9iYmVvY3NwLmlpY3Jvc29m
dC5jY2b0b2N2cDZAKBgghqhkjOPQ0DAAWnpADbmAJEaQoYkOv1JmPrJ0K4a9YUuvu7r02M
vILtnSHA2dJ/nyc6qsFnp0aXoPlN7vLCfW5f4jEaHpNckhEYcJ3W/9UVLcK27LgD
u4Gc4g1SkT9rJBGU/cJ++1EYiKEKxCMkMuHT03B0
-----END CERTIFICATE-----

```

HTTP Response Evidence

IPv4 HTTP (port 80)

HTTP Status	0
Connected IP	
Connect Time	0 ms
TTFB	0 ms
Total Time	8002.82 ms
Error	Failed to connect to proton.com port 80 after 8002 ms: Timeout was reached

IPv6 HTTP (port 80)

HTTP Status	404
Connected IP	2603:1061:14:160::1
Connect Time	22.17 ms
TTFB	42.58 ms
Total Time	42.66 ms

Response Headers:

[
"HTTP/1.1 404 Not Found",
"Date: Sat, 08 Aug 2026 10:30:55 GMT",
"Content-Type: text/html",
"Content-Length: 266389",
"Connection: close",
"Vary: Accept-Encoding",
"Cache-Control: no-store",
"x-azure-ref: 20260808T103055Z-1677d957f989bff6hC1JKTzn1n00000015pg000000007f91",
"X-Cache: CONFIG_NOCACHE"
]

IPv4 HTTPS (port 443)

HTTP Status	0
Connected IP	
Connect Time	0 ms
TTFB	0 ms
Total Time	8002.35 ms
Error	Failed to connect to proton.com port 443 after 8002 ms: Timeout was reached

IPv6 HTTPS (port 443)

HTTP Status	404
Connected IP	2603:1061:14:160::1
Connect Time	20.61 ms
TTFB	87.29 ms
Total Time	87.32 ms

Response Headers:

[
"HTTP/2 404",
"date: Sat, 08 Aug 2026 10:30:55 GMT",
"content-type: text/html",
"content-length: 266389",
"vary: Accept-Encoding",
"cache-control: no-store",
"x-azure-ref: 20260808T103055Z-1677d957f989bff6hC1JKTzn1n0000001620000000000zdb",
"x-cache: CONFIG_NOCACHE"
]

Connectivity Test Evidence

Test	Result
TCP Connect IPv4 → port 80	000 0.000000 0.000000
TCP Connect IPv6 → port 80	404 0.019381 0.039389
TCP Connect IPv4 → port 443	000 0.000000 0.000000
TCP Connect IPv6 → port 443	000 0.020228 0.000000

Test Node Network Evidence

Node Profile	dual stack
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Egress Connectivity

IPv4 Egress	76.13.221.142
IPv6 Egress	2a02:4780:5e:2789::1

Sysctl IPv6 Flags

net.ipv6.conf.all.disable_ipv6	0
--------------------------------	---

IPv6 Routes

2a02:4780:5e::/48 dev eth0 proto kernel metric 256 pref medium
fd7a:115c:a1e0::1136:5807 dev tailscale0 proto kernel metric 256 pref medium
fe80::/64 dev eth0 proto kernel metric 256 pref medium
fe80::/64 dev tailscale0 proto kernel metric 256 pref medium
default via 2a02:4780:5e::1 dev eth0 proto static metric 1024 pref medium

IPv4 Routes

default via 76.13.221.254 dev eth0 proto static
10.6.101.0/24 dev wg0 scope link
10.6.102.0/24 dev wg0 scope link
76.13.221.0/24 dev eth0 proto kernel scope link src 76.13.221.142
172.29.0.0/24 dev wg0 scope link