

IPv6 Readiness Report

whatsapp.com — whatsapp.com

Category: Social Media • Generated: 20 Apr 2026, 21:10 MYT • Last Checked: 07 Mar 2026, 01:16 MYT • Verification ID: fd1b577a-05f2-4cb1-905a-2409b8de2599

Report generated from National IPv6 Readiness Monitor — <https://ipv6.my6.my>Audit trail: <https://ipv6.my6.my/audit/fd1b577a-05f2-4cb1-905a-2409b8de2599>**Partially Compliant**

MGv6C-1.0

83%**Partial Support****IPv6-ONLY READINESS**Website: ✓ **Ready**DNS: ✓ **Ready**Email: ✗ **Not Ready****IPv6 ADDRESSES**

2a03:2880:f27f:1c0:face:b00c::167

IPv4 ADDRESSES

163.70.137.60

Network Information (WHOIS / RDAP)

	IPv6 Network	IPv4 Network
Organization	meta-mnt	meta-mnt
Country	IE	IE
ASN	AS32934	AS32934
ASN Name	FACEBOOK - Facebook, Inc., US	FACEBOOK - Facebook, Inc., US
Network (CIDR)	2a03:2880::/29	163.70.128.0/17

Web Services (35%)**8 / 8**

#	CHECK	RESULT	DETAIL
1	AAAA Record	PASS	2a03:2880:f27f:1c0:face:b00c::167
2	Globally Routable IPv6	PASS	All addresses are globally routable.
3	HTTP over IPv6	PASS	HTTP (port 80) responds over IPv6 — 577ms TTFB.
4	HTTPS over IPv6	PASS	HTTPS (port 443) responds over IPv6 — 523ms TTFB.
5	IPv6-Only Reachability	PASS	Site is fully reachable via IPv6-only.
6	TLS Certificate Valid (IPv6)	PASS	Certificate valid — issued by C = US, O = DigiCert Inc, CN = DigiCert Global G2 TLS RSA SHA256 2020 CA1, expires Mar 13 23:59:59 2026 GMT
7	Dual-Stack (IPv4 + IPv6)	PASS	Domain has both A and AAAA records.
8	HTTP/3 (QUIC)	PASS	Alt-Svc: h3 header detected.

DNS & DNSSEC (25%)**4 / 5**

#	CHECK	RESULT	DETAIL
1	NS Has AAAA Record	PASS	Nameserver has IPv6 address.
2	NS Reachable via IPv6	PASS	Nameserver is reachable via IPv6 on port 53.
3	NS Answers Queries via IPv6	PASS	DNS queries answered over IPv6.
4	DNSSEC Validated	FAIL	DNSSEC validation failed or zone is unsigned.
5	Reverse DNS (PTR)	PASS	PTR record found in ip6.arpa.
6	DS Record at Parent	FAIL	No DS record at parent.
7	RRSIG Valid	FAIL	No valid RRSIG found.
8	Signing Algorithm	INFO	No DNSKEY record found.

Email Services (25%) 3 / 6

#	CHECK	RESULT	DETAIL
1	MX Record Exists	PASS	MX record found.
2	MX Server Has IPv6	FAIL	MX server has no IPv6 address.
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	DKIM selector found: google._domainkey
7	DMARC Record	PASS	DMARC record found.

IPv4 Baseline (15%) 3 / 3

#	CHECK	RESULT	DETAIL
1	A Record	PASS	163.70.137.60
2	HTTP over IPv4	PASS	HTTP (port 80) responds over IPv4 — 496ms TTFB.
3	HTTPS over IPv4	PASS	HTTPS (port 443) responds over IPv4 — 456ms TTFB.

Audit Trail & Evidence Record

Verification ID	fd1b577a-05f2-4cb1-905a-2409b8de2599
Domain	whatsapp.com
Check Mode	Manual
Status	Completed
Started	07 Mar 2026, 01:16:17 MYT
Finished	07 Mar 2026, 01:16:27 MYT
Test Node Profile	dual stack
Engine Version	2.0.0
MGv6C Version	1.0.0
Audit URL	https://ipv6.my6.my/audit/fd1b577a-05f2-4cb1-905a-2409b8de2599

Integrity Verification

<p>✓ INTEGRITY VERIFIED</p>	
Algorithm	hmac-sha256-v1
Root Hash	c8bcd7c8a83a48f82da3782b92c076ec444f71a9d1e88af73e686d7528479c05
http_headers	f8578922312ae4e750e820e529c0c272d97bdb10290f9b306dad7eb7b613fb4c
dns_responses	e23b09f4e171d63720c3585db6d0ac017a2d1f25f746564d0f9d769bd9e173a0
tls_handshake	e063a751bc853ade2b10b2ce96a47012bbccfe652fbd0a82681275b7bcd30de
connectivity_log	5081e037e248a35c66cec8b05e00ca425100196f7ef7c630ec6188ead49ea127
dns_resolution_times	a44f13ac37a0e6297ffa8ea5ee260bd18031791151f6e6f49a7e6f69f5793cbd

Test Node Identity

Os	Linux srv1440888 6.8.0-101-generic #101-Ubuntu SMP PREEMPT_DYNAMIC Mon Feb 9 10:15:05 UTC 2026 x86_64
Hostname	srv1440888
Php Version	8.3.30
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	16.89	17.14	7.02	16.67	-9.9
Google	IPv4	29.77	30.13	29.01	34.41	-0.8
Google	IPv6	26.92	35.37	32.23	35.33	+5.3
Cloudflare	IPv4	20.5	22.12	8.01	8.81	-12.5
Cloudflare	IPv6	15.04	16.97	15.16	27.04	+0.1

DNS Evidence

A

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 26303
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
whatsapp.com. 00600IN A 57.144.151.32
```

DS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 45667
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; AUTHORITY SECTION:
com. 000778IN SOA a.gtld-servers.net. nstld.verisign-grs.com. 1772788441 1800 900 604800 900
```

MX

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 58712
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
whatsapp.com. 007200IN MX 10 mxa-00082601.gslb.pphosted.com.
whatsapp.com. 007200IN MX 10 mxb-00082601.gslb.pphosted.com.
```

NS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 4897
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
whatsapp.com. 0021600IN NS c.ns.whatsapp.net.
whatsapp.com. 0021600IN NS a.ns.whatsapp.net.
whatsapp.com. 0021600IN NS d.ns.whatsapp.net.
whatsapp.com. 0021600IN NS b.ns.whatsapp.net.
```

TXT

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 27945
;; flags: qr rd ra; QUERY: 1, ANSWER: 9, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
whatsapp.com. 007200IN TXT "v=spf1 include:_spf.fb.com include:facebookmail.com -all"
whatsapp.com. 003600IN TXT "MS=ms22994725"
whatsapp.com. 003600IN TXT "b42e0aa4-9d21-4a73-a111-fba236f1a835"
whatsapp.com. 003600IN TXT "bFwLY7J2JzFYHw5qkQFcBD6E0r9JL4VBpYSXSk3p8lA"
whatsapp.com. 003600IN TXT "facebook-domain-verification=ziojpt80hl1748lx6agku0kpttifb2"
whatsapp.com. 003600IN TXT "dropbox-domain-verification=lfq0o9x85s8s"
whatsapp.com. 003600IN TXT "Ghm7XCdpYQeendZNsepA800BAhbN9sfITvUxiy9Fnd0GBxeAQICmLbuXm23hNaysns+wZ6GskJWmTWD1/Ha9Q=="
whatsapp.com. 003600IN TXT "google-site-verification=MXbDGih8wW-64G5maXGw8iIkFbH7iv_vLobZd-kxdNo"
whatsapp.com. 003600IN TXT "adobe-idp-site-verification=a0d9793b-fc40-430b-9ab4-d3c75e4dcfba"
```

AAAA

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 19228
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
```

```
whatsapp.com.00600INAAAA2a03:2880:f34b:120:face:b00c:0:167
```

RRSIG

```
a.ns.whatsapp.net. dns.whatsapp.net. 4207849484 14400 1800 604800 300
```

DNSKEY

```
;; Got answer:  
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 55706  
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
; EDNS: version: 0, flags:; udp: 512  
;; AUTHORITY SECTION:  
whatsapp.com.001796INSOAa.ns.whatsapp.net. dns.whatsapp.net. 4207849484 14400 1800 604800 300
```

DNSSEC_VALIDATION

```
; unsigned answer  
whatsapp.com.003501INSOAa.ns.whatsapp.net. dns.whatsapp.net. 4207849484 14400 1800 604800 300
```



```

maGMv5tjra0MyzJi3VA9XUDPoVpMwoPhRGrZ+6+X5S3Jko0Fgz2xIAwCsFPvwdX
h4K4h02m4hxQRsXYF5rtNLATNZ10inRR2XVdu0YDvR+Zp09Kjzr2g7fqDL02iV8
q0ddVIg4BhIAfD74mgE0i2GyrrJ2N+Vk5wnBsjFRmxadK/H2SKBNVSPiXrQn3ZVk
ls0lcsdIOxryM0Kwt9FmLdY7nw==
-----END CERTIFICATE-----
1 s:C = US, 0 = DigiCert Inc, CN = DigiCert Global G2 TLS RSA SHA256 2020 CA1
i:C = US, 0 = DigiCert Inc, OU = www.digicert.com, CN = DigiCert Global Root G2
a:PKKEY: rsaEncryption, 2048 (bit); sigalg: RSA-SHA256
v:NotBefore: Mar 30 00:00:00 2021 GMT; NotAfter: Mar 29 23:59:59 2031 GMT
-----BEGIN CERTIFICATE-----
MIIEYDCCA7CgAwIBAgIQDPW9BiTWA6R6uFAsI8zwZjANBgkqhkiG9w0BAQsFADBh
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNLcnQgSW5jMRkwFwYDVQQLEXB3
d3cuZGlnaWNaWNLcnQuY29tMSAwHgYDVQDExdEaWdpQ2VydCBHbG9iYWwUaW9vdCBH
MjAeFw0yMTAzMzAwMDAwMDBaFw0yMTAzMjkyMzU5NTlMaFkxOzAeFw0yMTAzMzA5
MRUwEwYDVQQKEwEaWdpQ2VydCBJbW50MzAeFw0yMTAzMzA5MzA5MzA5MzA5MzA5
bCBHMiiBUTFMgU1NBIFNIQT11NiAyMDIwIENBMTCASiIwDQYJKoZIhvcNAQEBBQAD
ggEPADCCAQoCggEBAMz3EGJPrjtjb+2QUlbf5d7ehJWivH0+dbn4Y+9LavyYEEV
cNsSAPonCrVX0Ft9sLGTcZU0akGUWzUb+nv6u8W+JDD+Vu/E832X4xT1FE3LpxDy
FuqrIvAxIhFhAZAmunjZlx/jfWardUSVc8is/+9dCOPzQ+Gssjop80j812s3wWPc
3kbW20X+fSP9k0hRBx5Ro1/tSUZUfyfYIXf0TnJcVPAPOoTncaQwywa8W0YUR0J8
osicFebUTVSVQpmowQTCd5zW50T0EeAqgJnwQ3DPP3Zr0UxJqyRwg2C/Uaoq2YT
zGJSQnW5+Jr6XL6ysGHLHx+5fwmY6D36g39HaaECAwEAACA0CAIiwgF+MBIGAIUd
EwEB/wQIMAYBAf8CAQAwHQYDVRO0BBYEFHSGMBmX9833s+9KTeqAx2+7c0XMB8G
A1UdIwQYMBAAFE4iVCAYLebjbuYP+vg5Eu0GF485MA4GA1UdDwEB/wQEAwIBhjAd
BgNVHSEUfjAUBgggRBgEFBQcDAQYIKwYBBQUHAWIwdgYIKwYBBQUHAQEaEjBoMCOG
CsGAQUFBzABhhodHRwOi8vb2Nzc5kaWdpY2VydC5jb20wQAYIKwYBBQUHMAKG
NGh0dHA6Ly9jYWNlcnRzLmRrZ21jZXJ0LmNvb5S9EaWdpQ2VydEdsb2JhbFJvb3RH
Mi5jcnQwQgYDVR0fBDswOTA3oDWgM4YxaHR0cDovL2NybmMuZGlnaWNaWNLcnQuY29t
L0RrZ21DZXJ0R2xvYmF5Um9vdEcyLmNybDA9BgNVHSAENjA0MA5GCWCGSAGG/WwC
ATAHBgVngQwBATAIBgZngQwBAGwEwCAyGZ4EMAQICMAAGBmeBDAECAzANBgkqhkiG
9w0BAQsFAA0CAQEAkPFwyyiXaZd8dP3a+iZ7U6utzW9upwGnIrXWk0H7U1MVL+t
wcWIBSAuWdH/SvWgKtiwLa3JLko716f2b4gp/DA/JIS7w7d7kwcsr4drdjPtAFVS
s1me5LnQ89/nD/7d+MS5EHKBCQRfz5eelJ1jjs+aWnJXMX43AYGyZm0pGrFmCW3R
bpD0ufovARTFXZkAdl9h6g4U5+LXUZtXMYnhIHUfoym05t558aI7Dd8KvwwVVo4
chDYABPPTHpbqclqCmBaZx2vN4Ye5DUys/vZwP9BFohFrH/6j/f3IL16/RZkiMN
JCqVJUzKoZHm1Lesh3S28W2jmdv51b2EQJ8HmA==
-----END CERTIFICATE-----
---
Server certificate
subject=C = US, ST = California, L = Menlo Park, O = "Meta Platforms, Inc.", CN = *.whatsapp.net
issuer=C = US, 0 = DigiCert Inc, CN = DigiCert Global G2 TLS RSA SHA256 2020 CA1
---
No client certificate CA names sent
Peer signing digest: SHA256
Peer signature type: ECDSA
Server Temp Key: X25519, 253 bits
---
SSL handshake has read 3216 bytes and written 378 bytes
Verification: OK
---
New, TLSv1.3, Cipher is TLS_CHACHA20_POLY1305_SHA256
Server public key is 256 bit
Secure Renegotiation IS NOT supported
Compression: NONE
Expansion: NONE

```


HTTP Response Evidence

IPv4 HTTP (port 80)

HTTP Status	200
Connected IP	157.240.236.60
Connect Time	9.69 ms
TTFB	457.82 ms
Total Time	457.9 ms

Response Headers:

```
{
  "0": "HTTP/1.1 301 Moved Permanently",
  "1": "Location: https://whatsapp.com/",
  "2": "Content-Type: text/plain",
  "3": "Server: proxygen-bolt",
  "4": "Date: Fri, 06 Mar 2026 09:16:26 GMT",
  "5": "Connection: keep-alive",
  "6": "Content-Length: 0",
  "8": "HTTP/2 302",
  "9": "location: https://www.whatsapp.com/",
  "10": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "11": "content-type: text/plain",
  "12": "content-length: 0",
  "13": "server: proxygen-bolt",
  "14": "date: Fri, 06 Mar 2026 09:16:26 GMT",
  "15": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=3, rtx=0, c=13, mss=1380, tbw=3523, tp=-1, tpl=-1, uplat=0, ullat=-1",
  "16": "alt-svc: h3=\":443\"; ma=86400",
  "18": "HTTP/2 200",
  "19": "vary: Accept-Encoding",
  "20": "set-cookie: wa_csrf=4NYnUbdPLJp7UERAP5q1_7; path=/; domain=whatsapp.com; secure; httponly; SameSite=Lax",
  "21": "set-cookie: wa_lang_pref=en; expires=Fri, 13-Mar-2026 09:16:26 GMT; Max-Age=604800; path=/; domain=whatsapp.com; secure; SameSite=Lax",
  "22": "set-cookie: wa_ul=e4a81fd3-a6b2-472c-9b1c-lb224696481d; expires=Thu, 04-Jun-2026 09:16:26 GMT; Max-Age=7776000; path=/; domain=.www.whatsapp.com; secure; httponly; SameSite=Lax",
  "23": "reporting-endpoints: coop_report=\\\"https://www.facebook.com/browser_reporting/coop/?minimize=0\\\",
  coop_report=\\\"https://www.facebook.com/browser_reporting/coep/?minimize=0\\\",
  default=\\\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614069001147848130&cpp=C3&cv=10346410246st=1772788586250\\\",
  permissions_policy=\\\"https://www.whatsapp.com/whatsapp_browser_error_reports/\\\"",
  "24": "report-to:
  {\\\"max_age\\\":2592000,\\\"endpoints\\\":[{\\\"url\\\":\\\"https://www.facebook.com/browser_reporting/coop/?minimize=0\\\"}],\\\"group\\\":\\\"coop_report\\\",\\\"include_subdomains\\\":true},
  {\\\"max_age\\\":86400,\\\"endpoints\\\":[{\\\"url\\\":\\\"https://www.facebook.com/browser_reporting/coep/?minimize=0\\\"}],\\\"group\\\":\\\"coep_report\\\"},
  {\\\"max_age\\\":259200,\\\"endpoints\\\":[{\\\"url\\\":\\\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614069001147848130&cpp=C3&cv=10346410246st=1772788586250\\\"}],\\\"group\\\":\\\"permissions_policy\\\"}",
  "25": "x-frame-options: DENY",
  "26": "content-security-policy: default-src 'self' blob;script-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-frzyfCu5' 'self'
  blob;style-src *.whatsapp.com *.whatsapp.net 'unsafe-inline' *.facebook.com 'self' data: blob;connect-src *.whatsapp.com *.whatsapp.net wss://*.facebook.com:*.
  fbcdn.net 'self' data: blob;font-src *.whatsapp.com *.whatsapp.net *.facebook.com static.xx.fbcdn.net data:img-src *.whatsapp.com *.whatsapp.net *.facebook.com
  *.fbcdn.net *.fbstatic.com static.xx.fbcdn.net *.cdninstagram.com 'self' data: blob;media-src *.fbcdn.net 'self' data: blob;child-src 'self' data: blob;frame-src
  *.facebook.com *.whatsapp.com 'self' data: blob;manifest-src 'self' data: blob;object-src 'self' data: blob;worker-src *.whatsapp.com *.whatsapp.net
  *.facebook.com *.facebook.net 'nonce-frzyfCu5' 'self' data: blob;block-all-mixed-content;upgrade-insecure-requests;",
  "27": "document-policy: include-js-call-stacks-in-crash-reports",
  "28": "permissions-policy: accelerometer=(), attribution-reporting=(), autoplay=(), bluetooth=(), camera=(), ch-device-memory=(), ch-downlink=(), ch-dpr=(), ch-
  ect=(), ch-rtt=(), ch-save-data=(), ch-ua-arch=(), ch-ua-bitness=(), ch-viewport-height=(), ch-viewport-width=(), ch-width=(), clipboard-read=(), clipboard-write=(),
  compute-pressure=(), display-capture=(), encrypted-media=(), fullscreen=(self), gamepad=(), geolocation=(), gyroscope=(), hid=(), idle-detection=(), interest-
  cohort=(), keyboard-map=(), local-fonts=(), magnetometer=(), microphone=(), midi=(), otp-credentials=(), payment=(), picture-in-picture=(), private-state-token-
  issuance=(), publickey-credentials-get=(), screen-wake-lock=(), serial=(), shared-storage=(), shared-storage-select-url=(), private-state-token-redemption=(),
  usb=(), unload=(self), window-management=(), xr-spatial-tracking=();report-to=\\\"permissions_policy\\\"",
  "29": "cross-origin-resource-policy: same-origin",
  "30": "cross-origin-embedder-policy-report-only: require-corp;report-to=\\\"coep_report\\\"",
  "31": "cross-origin-opener-policy: same-origin-allow-popups",
  "32": "pragma: no-cache",
  "33": "cache-control: private, no-cache, no-store, must-revalidate",
  "34": "expires: Sat, 01 Jan 2000 00:00:00 GMT",
  "35": "x-content-type-options: nosniff",
  "36": "x-xss-protection: 0",
  "37": "origin-agent-cluster: ?1",
  "38": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "39": "content-type: text/html; charset=\\\"utf-8\\\"",
  "40": "x-fb-debug: y4X1PbzbE3SjMBb/4DwZ/5qiBaILl6rXriFD/UDbmBJ66gG8ERLA19KYyGFlwkKraJ6EmuLA9A2hLVf7SvP/mQ==",
  "41": "date: Fri, 06 Mar 2026 09:16:26 GMT",
  "42": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=2, rtx=0, c=16, mss=1380, tbw=3523, tp=-1, tpl=-1, uplat=425, ullat=0",
  "43": "alt-svc: h3=\":443\"; ma=86400"
}
```

IPv6 HTTP (port 80)

HTTP Status	200
-------------	-----

Connected IP	2a03:2880:f27f:1c0:face:b00c:0:167
Connect Time	6.52 ms
TTFB	462.64 ms
Total Time	462.75 ms

Response Headers:

```
{
  "0": "HTTP/1.1 301 Moved Permanently",
  "1": "Location: https://whatsapp.com/",
  "2": "Content-Type: text/plain",
  "3": "Server: proxygen-bolt",
  "4": "Date: Fri, 06 Mar 2026 09:16:24 GMT",
  "5": "Connection: keep-alive",
  "6": "Content-Length: 0",
  "8": "HTTP/2 302",
  "9": "location: https://www.whatsapp.com/",
  "10": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "11": "content-type: text/plain",
  "12": "content-length: 0",
  "13": "server: proxygen-bolt",
  "14": "date: Fri, 06 Mar 2026 09:16:24 GMT",
  "15": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=2, rtx=0, c=13, mss=1380, tbw=3522, tp=-1, tpl=-1, uplat=0, ullat=-1",
  "16": "alt-svc: h3=\":443\"; ma=86400",
  "18": "HTTP/2 200",
  "19": "vary: Accept-Encoding",
  "20": "set-cookie: wa_csrf=Lj4ntmDouiVzxhkPPKwq0; path=/; domain=whatsapp.com; secure; httponly; SameSite=Lax",
  "21": "set-cookie: wa_lang_pref=en; expires=Fri, 13-Mar-2026 09:16:24 GMT; Max-Age=604800; path=/; domain=whatsapp.com; secure; SameSite=Lax",
  "22": "set-cookie: wa_ul=4d263cb6-3e85-43e6-9645-5e615bf5fb87; expires=Thu, 04-Jun-2026 09:16:24 GMT; Max-Age=7776000; path=/; domain=www.whatsapp.com; secure; httponly; SameSite=Lax",
  "23": "reporting-endpoints: coop_report=\"https://www.facebook.com/browser_reporting/coop/?minimize=0\",
  coop_report=\"https://www.facebook.com/browser_reporting/coep/?minimize=0\",
  default=\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsrid=7614068992858796485&cpp=C3&cv=1034641024&st=1772788584406\",
  permissions_policy=\"https://www.whatsapp.com/whatsapp_browser_error_reports/\"",
  "24": "report-to:
  {\"max_age\":259200,\"endpoints\": [{\"url\": \"https://www.facebook.com/browser_reporting/coop/?minimize=0\"}], \"group\": \"coop_report\", \"include_subdomains\": true},
  {\"max_age\":86400,\"endpoints\": [{\"url\": \"https://www.facebook.com/browser_reporting/coep/?minimize=0\"}], \"group\": \"coep_report\"},
  {\"max_age\":259200,\"endpoints\": [{\"url\": \"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsrid=7614068992858796485&cpp=C3&cv=1034641024\"}], \"group\": \"permissions_policy\"},
  "25": "x-frame-options: DENY",
  "26": "content-security-policy: default-src 'self' blob;script-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-bk80ygQw' 'self' blob;style-src *.whatsapp.com *.whatsapp.net 'unsafe-inline' *.facebook.com 'self' data: blob;connect-src *.whatsapp.com *.whatsapp.net wss://*.facebook.com:*.fbcdn.net 'self' data: blob;font-src *.whatsapp.com *.whatsapp.net *.facebook.com static.xx.fbcdn.net data:img-src *.whatsapp.com *.whatsapp.net *.facebook.com *.fbcdn.net *.fbstatic.xx.fbcdn.net *.cdninstagram.com 'self' data: blob;media-src *.fbcdn.net 'self' data: blob;child-src 'self' data: blob;frame-src *.facebook.com *.whatsapp.com 'self' data: blob;manifest-src 'self' data: blob;object-src 'self' data: blob;worker-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-bk80ygQw' 'self' data: blob;block-all-mixed-content;upgrade-insecure-requests;",
  "27": "document-policy: include-js-call-stacks-in-crash-reports",
  "28": "permissions-policy: accelerometer=(), attribution-reporting=(), autoplay=(), bluetooth=(), camera=(), ch-device-memory=(), ch-downlink=(), ch-dpr=(), ch-ect=(), ch-rtt=(), ch-save-data=(), ch-ua-arch=(), ch-ua-bitness=(), ch-viewport-height=(), ch-viewport-width=(), ch-width=(), clipboard-read=(), clipboard-write=(), compute-pressue=(), display-capture=(), encrypted-media=(), fullscreen=(), gamepad=(), geolocation=(), gyroscope=(), hid=(), idle-detection=(), interest-cohort=(), keyboard-map=(), local-fonts=(), magnetometer=(), microphone=(), midi=(), otp-credentials=(), payment=(), picture-in-picture=(), private-state-token-issuance=(), publickey-credentials-get=(), screen-wake-lock=(), serial=(), shared-storage=(), shared-storage-select-url=(), private-state-token-redemption=(), usb=(), unload=(self), window-management=(), xr-spatial-tracking=();report-to=permissions_policy",
  "29": "cross-origin-resource-policy: same-origin",
  "30": "cross-origin-embedder-policy-report-only: require-corp;report-to=coep_report",
  "31": "cross-origin-opener-policy: same-origin-allow-poppers",
  "32": "pragma: no-cache",
  "33": "cache-control: private, no-cache, no-store, must-revalidate",
  "34": "expires: Sat, 01 Jan 2000 00:00:00 GMT",
  "35": "x-content-type-options: nosniff",
  "36": "x-xss-protection: 0",
  "37": "origin-agent-cluster: ?1",
  "38": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "39": "content-type: text/html; charset=utf-8",
  "40": "x-fb-debug: 2mLBBVt0FpQ8HguEHBw9Xd+rN7C7em0Xt8G0qnbEItFq5i/G2Nv18e1kQLUFfh9PTDlJ+zWf1libacGtyqSrGUA==",
  "41": "date: Fri, 06 Mar 2026 09:16:24 GMT",
  "42": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=6, rtx=0, c=16, mss=1380, tbw=3523, tp=-1, tpl=-1, uplat=438, ullat=0",
  "43": "alt-svc: h3=\":443\"; ma=86400"
}
```

IPv4 HTTPS (port 443)

HTTP Status	200
Connected IP	157.240.236.60
Connect Time	4.65 ms

TTFB	383.26 ms
Total Time	383.34 ms

Response Headers:

```
{
  "0": "HTTP/2 302",
  "1": "location: https://www.whatsapp.com/",
  "2": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "3": "content-type: text/plain",
  "4": "content-length: 0",
  "5": "server: proxygen-bolt",
  "6": "date: Fri, 06 Mar 2026 09:16:26 GMT",
  "7": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=1, rtx=0, c=13, mss=1380, tbw=3524, tp=-1, tpl=-1, uplat=0, ullat=-1",
  "8": "alt-svc: h3=443; ma=86400",
  "10": "HTTP/2 200",
  "11": "vary: Accept-Encoding",
  "12": "set-cookie: wa_csrf=1jAlYXTHui0a4w7GPrmL; path=/; domain=whatsapp.com; secure; httponly; SameSite=Lax",
  "13": "set-cookie: wa_lang_pref=en; expires=Fri, 13-Mar-2026 09:16:27 GMT; Max-Age=604800; path=/; domain=whatsapp.com; secure; SameSite=Lax",
  "14": "set-cookie: wa_ul=17d84dd0-fa5e-4cdf-896c-da7771c6321e; expires=Thu, 04-Jun-2026 09:16:27 GMT; Max-Age=7776000; path=/; domain=.www.whatsapp.com; secure; httponly; SameSite=Lax",
  "15": "reporting-endpoints: coop_report=https://www.facebook.com/browser_reporting/coop/?minimize=0",
  coep_report=https://www.facebook.com/browser_reporting/coep/?minimize=0",
  default=https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614069004803207874&cpp=C3&cv=1034641024&st=1772788587082",
  permissions_policy=https://www.whatsapp.com/whatsapp_browser_error_reports/",
  "16": "report-to:
  {
    \"max_age\":2592000,\"endpoints\":[
      {\"url\":\"https://www.facebook.com/browser_reporting/coop/?minimize=0\"},
      {\"url\":\"https://www.facebook.com/browser_reporting/coep/?minimize=0\"}
    ],\"group\":\"coop_report\",
    \"include_subdomains\":true
  },
  {
    \"max_age\":86400,\"endpoints\":[
      {\"url\":\"https://www.facebook.com/browser_reporting/coep/?minimize=0\"}
    ],\"group\":\"coep_report\"
  },
  {
    \"max_age\":2592000,\"endpoints\":[
      {\"url\":\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614069004803207874&cpp=C3&cv=1034641024&st=1772788587082\"}
    ],\"group\":\"permissions_policy\"
  },
  "17": "x-frame-options: DENY",
  "18": "content-security-policy: default-src 'self' blob:;script-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-Lzih2bxi' 'self' blob:;style-src *.whatsapp.com *.whatsapp.net 'unsafe-inline' *.facebook.com 'self' data: blob:;connect-src *.whatsapp.com *.whatsapp.net wss://*.facebook.com *.fbcdn.net 'self' data: blob:;font-src *.whatsapp.com *.whatsapp.net *.facebook.com static.xx.fbcdn.net data:;img-src *.whatsapp.com *.whatsapp.net *.facebook.com *.fbcdn.net *.fbstatic.xx.fbcdn.net *.cdninstagram.com 'self' data: blob:;media-src *.fbcdn.net 'self' data: blob:;child-src 'self' data: blob:;frame-src *.facebook.com *.whatsapp.com 'self' data: blob:;manifest-src 'self' data: blob:;object-src 'self' data: blob:;worker-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-Lzih2bxi' 'self' data: blob:;block-all-mixed-content;upgrade-insecure-requests;",
  "19": "document-policy: include-js-call-stacks-in-crash-reports",
  "20": "permissions-policy: accelerometer=(), attribution-reporting=(), autoplay=(), bluetooth=(), camera=(), ch-device-memory=(), ch-downlink=(), ch-dpr=(), ch-ect=(), ch-rtt=(), ch-save-data=(), ch-ua-arch=(), ch-ua-bitness=(), ch-viewport-height=(), ch-viewport-width=(), ch-width=(), clipboard-read=(), clipboard-write=(), compute-pressure=(), display-capture=(), encrypted-media=(), fullscreen=(self), gamepad=(), geolocation=(), gyroscope=(), hid=(), idle-detection=(), interest-cohort=(), keyboard-map=(), local-fonts=(), magnetometer=(), microphone=(), midi=(), otp-credentials=(), payment=(), picture-in-picture=(), private-state-token-issuance=(), publickey-credentials-get=(), screen-wake-lock=(), serial=(), shared-storage=(), shared-storage-select-url=(), private-state-token-redemption=(), usb=(), unload=(self), window-management=(), xr-spatial-tracking=();report-to=permissions_policy",
  "21": "cross-origin-resource-policy: same-origin",
  "22": "cross-origin-embedder-policy-report-only: require-corp;report-to=coep_report",
  "23": "cross-origin-opener-policy: same-origin-allow-popups",
  "24": "pragma: no-cache",
  "25": "cache-control: private, no-cache, no-store, must-revalidate",
  "26": "expires: Sat, 01 Jan 2000 00:00:00 GMT",
  "27": "x-content-type-options: nosniff",
  "28": "x-xss-protection: 0",
  "29": "origin-agent-cluster: ?1",
  "30": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "31": "content-type: text/html; charset=utf-8",
  "32": "x-fb-debug: nBeNop00aiaIgiUZp+eYqgAb2kFgYi8sS/+tWXTVqdCfVRktClP391yGXZt2WwMPxGF82uv7dup1rZcelBew==",
  "33": "date: Fri, 06 Mar 2026 09:16:27 GMT",
  "34": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=2, rtx=0, c=16, mss=1380, tbw=3523, tp=-1, tpl=-1, uplat=364, ullat=0",
  "35": "alt-svc: h3=443; ma=86400"
}
```

IPv6 HTTPS (port 443)

HTTP Status	200
Connected IP	2a03:2880:f27f:1c0:face:b00c:0:167
Connect Time	4.66 ms
TTFB	467.84 ms
Total Time	467.92 ms

Response Headers:

```
{
  "0": "HTTP/2 302",
  "1": "location: https://www.whatsapp.com/",
  "2": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
  "3": "content-type: text/plain",
}
```

```

"4": "content-length: 0",
"5": "server: proxygen-bolt",
"6": "date: Fri, 06 Mar 2026 09:16:25 GMT",
"7": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=2, rtx=0, c=13, mss=1380, tbw=3522, tp=-1, tpl=-1, uplat=0, ullat=-1",
"8": "alt-svc: h3=\":443\"; ma=86400",
"10": "HTTP/2 200",
"11": "vary: Accept-Encoding",
"12": "set-cookie: wa_csrf=XTj4CbndMZBwdHLA70rGIC; path=/; domain=.whatsapp.com; secure; httponly; SameSite=Lax",
"13": "set-cookie: wa_lang_pref=en; expires=Fri, 13-Mar-2026 09:16:25 GMT; Max-Age=604800; path=/; domain=.whatsapp.com; secure; SameSite=Lax",
"14": "set-cookie: wa_ul=c4720876-e1eb-4fd4-af31-b0ca49db549b; expires=Thu, 04-Jun-2026 09:16:25 GMT; Max-Age=7776000; path=/; domain=.www.whatsapp.com; secure; httponly; SameSite=Lax",
"15": "reporting-endpoints: coop_report=\"https://www.facebook.com/browser_reporting/coop/?minimize=0\",
coop_report=\"https://www.facebook.com/browser_reporting/coep/?minimize=0\",
default=\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614068996636594746&cpp=C3&cv=1034641024&st=177278858302\",
permissions_policy=\"https://www.whatsapp.com/whatsapp_browser_error_reports/\"",
"16": "report-to:
{\\max_age\\\":2592000,\\endpoints\\\":[{\\url\\\":\\\"https://www.facebook.com/browser_reporting/coop/?minimize=0\\\"}],\\group\\\":\\\"coop_report\\\",\\include_subdomains\\\":true},
{\\max_age\\\":86400,\\endpoints\\\":[{\\url\\\":\\\"https://www.facebook.com/browser_reporting/coep/?minimize=0\\\"}],\\group\\\":\\\"coop_report\\\"},
{\\max_age\\\":259200,\\endpoints\\\":[{\\url\\\":\\\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614068996636594746&cpp=C3&cv=1034641024&st=177278858302\\\"}],\\group\\\":\\\"permissions_policy\\\"},
{\\max_age\\\":21600,\\endpoints\\\":[{\\url\\\":\\\"https://www.whatsapp.com/whatsapp_browser_error_reports/\\\"}],\\group\\\":\\\"permissions_policy\\\"}]",
"17": "x-frame-options: DENY",
"18": "content-security-policy: default-src 'self' blob;script-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-1g2crpqg' 'self' blob;style-src *.whatsapp.com *.whatsapp.net 'unsafe-inline' *.facebook.com 'self' data: blob;connect-src *.whatsapp.com *.whatsapp.net wss://*.facebook.com:*.fbcdn.net 'self' data: blob;font-src *.whatsapp.com *.whatsapp.net *.facebook.com static.xx.fbcdn.net data:img-src *.whatsapp.com *.whatsapp.net *.facebook.com *.fbcdn.net *.fbstatic.xx.fbcdn.net *.cdninstagram.com 'self' data: blob;media-src *.fbcdn.net 'self' data: blob;child-src 'self' data: blob;frame-src *.facebook.com *.whatsapp.com 'self' data: blob;manifest-src 'self' data: blob;object-src 'self' data: blob;worker-src *.whatsapp.com *.whatsapp.net *.facebook.com *.facebook.net 'nonce-1g2crpqg' 'self' data: blob;block-all-mixed-content;upgrade-insecure-requests;",
"19": "document-policy: include-js-call-stacks-in-crash-reports",
"20": "permissions-policy: accelerometer=(), attribution-reporting=(), autoplay=(), bluetooth=(), camera=(), ch-device-memory=(), ch-downlink=(), ch-dpr=(), ch-ect=(), ch-rtt=(), ch-save-data=(), ch-ua-arch=(), ch-ua-bitness=(), ch-viewport-height=(), ch-viewport-width=(), ch-width=(), clipboard-read=(), clipboard-write=(), compute-pressure=(), display-capture=(), encrypted-media=(), fullscreen=(), gamepad=(), geolocation=(), gyroscope=(), hid=(), idle-detection=(), interest-cohort=(), keyboard-map=(), local-fonts=(), magnetometer=(), microphone=(), midi=(), otp-credentials=(), payment=(), picture-in-picture=(), private-state-token-issuance=(), publickey-credentials-get=(), screen-wake-lock=(), serial=(), shared-storage=(), shared-storage-select-url=(), private-state-token-redemption=(), usb=(), unload=(self), window-management=(), xr-spatial-tracking=();report-to=\\\"permissions_policy\\\"",
"21": "cross-origin-resource-policy: same-origin",
"22": "cross-origin-embedder-policy-report-only: require-corp;report-to=\\\"coop_report\\\"",
"23": "cross-origin-opener-policy: same-origin-allow-popups",
"24": "pragma: no-cache",
"25": "cache-control: private, no-cache, no-store, must-revalidate",
"26": "expires: Sat, 01 Jan 2000 00:00:00 GMT",
"27": "x-content-type-options: nosniff",
"28": "x-xss-protection: 0",
"29": "origin-agent-cluster: ?1",
"30": "strict-transport-security: max-age=31536000; preload; includeSubDomains",
"31": "content-type: text/html; charset=\\\"utf-8\\\"",
"32": "x-fb-debug: Zty2EsYtAhEdir1Z0LSLwN8bbF10u9he61jt+LUewihXwMHjtY0yIDACnQz/gsjdDEpS7FPy26Le8trVYrylpw==",
"33": "date: Fri, 06 Mar 2026 09:16:25 GMT",
"34": "x-fb-connection-quality: EXCELLENT; q=0.9, rtt=2, rtx=0, c=16, mss=1380, tbw=3523, tp=-1, tpl=-1, uplat=446, ullat=0",
"35": "alt-svc: h3=\":443\"; ma=86400"
}
    
```

Connectivity Test Evidence

Test	Result
TCP Connect IPv4 → port 80	301 0.001854 0.004512
TCP Connect IPv6 → port 80	301 0.001746 0.004366
TCP Connect IPv4 → port 443	302 0.002479 0.035959
TCP Connect IPv6 → port 443	302 0.001744 0.025633

Test Node Network Evidence

Node Profile	dual stack
--------------	------------

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
fe80::/64 dev eth0 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
76.13.221.0/24 dev eth0 proto kernel scope link src 76.13.221.142
```