


# IPv6 Readiness Report

whatsapp.com — whatsapp.com

Category: Social Media • Generated: 21 Apr 2026, 19:17 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>

 <b>Partially Compliant</b> <small>MGv6C-1.0</small>	<b>83%</b> <b>Partial Support</b>	<b>IPv6-ONLY READINESS</b> Website: <span style="color: green;">✓ Ready</span> DNS: <span style="color: green;">✓ Ready</span> Email: <span style="color: red;">✗ Not Ready</span>
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**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	<b>AAAA Record</b>	<span style="color: green;">PASS</span>	2a03:2880:f27f:1c0:face:b00c::167	
2	<b>Globally Routable IPv6</b>	<span style="color: green;">PASS</span>	All addresses are globally routable.	
3	<b>HTTP over IPv6</b>	<span style="color: green;">PASS</span>	HTTP (port 80) responds over IPv6 — 577ms TTFB.	
4	<b>HTTPS over IPv6</b>	<span style="color: green;">PASS</span>	HTTPS (port 443) responds over IPv6 — 523ms TTFB.	
5	<b>IPv6-Only Reachability</b>	<span style="color: green;">PASS</span>	Site is fully reachable via IPv6-only.	
6	<b>TLS Certificate Valid (IPv6)</b>	<span style="color: green;">PASS</span>	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	<b>Dual-Stack (IPv4 + IPv6)</b>	<span style="color: green;">PASS</span>	Domain has both A and AAAA records.	
8	<b>HTTP/3 (QUIC)</b>	<span style="color: green;">PASS</span>	Alt-Svc: h3 header detected.	

DNS & DNSSEC (25%)				4 / 5
#	CHECK	RESULT	DETAIL	
1	<b>NS Has AAAA Record</b>	<span style="color: green;">PASS</span>	Nameserver has IPv6 address.	
2	<b>NS Reachable via IPv6</b>	<span style="color: green;">PASS</span>	Nameserver is reachable via IPv6 on port 53.	
3	<b>NS Answers Queries via IPv6</b>	<span style="color: green;">PASS</span>	DNS queries answered over IPv6.	
4	<b>DNSSEC Validated</b>	<span style="color: red;">FAIL</span>	DNSSEC validation failed or zone is unsigned.	
5	<b>Reverse DNS (PTR)</b>	<span style="color: green;">PASS</span>	PTR record found in ip6.arpa.	
6	<b>DS Record at Parent</b>	<span style="color: red;">FAIL</span>	No DS record at parent.	
7	<b>RRSIG Valid</b>	<span style="color: red;">FAIL</span>	No valid RRSIG found.	
8	<b>Signing Algorithm</b>	<span style="color: purple;">INFO</span>	No DNSKEY record found.	

**Email Services** (25%) 3 / 6

#	CHECK	RESULT	DETAIL
1	<b>MX Record Exists</b>	<b>PASS</b>	MX record found.
2	<b>MX Server Has IPv6</b>	<b>FAIL</b>	MX server has no IPv6 address.
3	<b>SMTP Reachable via IPv6</b>	<b>FAIL</b>	SMTP is not reachable over IPv6.
4	<b>STARTTLS over IPv6</b>	<b>FAIL</b>	STARTTLS not available over IPv6.
5	<b>SPF Record</b>	<b>PASS</b>	SPF record found.
6	<b>DKIM Selector</b>	<b>INFO</b>	DKIM selector found: google._domainkey
7	<b>DMARC Record</b>	<b>PASS</b>	DMARC record found.

**IPv4 Baseline** (15%) 3 / 3

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

<b>✓ INTEGRITY VERIFIED</b>	
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 "Ghm7XCdpYQeendZNsepA800BAhbN9sfITvUxy9Fnd0GBxeAQICcmLbuXm23hNaysns+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
```











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=1034641024&st=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=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-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 *.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: y4X1PbzpE3SjMBb/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
-------------	-----

<b>Connected IP</b>	2a03:2880:f27f:1c0:face:b00c:0:167
<b>Connect Time</b>	6.52 ms
<b>TTFB</b>	462.64 ms
<b>Total Time</b>	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+rN7C7em0Xt8G0nbvEItFq5i/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)**

<b>HTTP Status</b>	200
<b>Connected IP</b>	157.240.236.60
<b>Connect Time</b>	4.65 ms

<b>TTFB</b>	383.26 ms
<b>Total Time</b>	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",
  "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\":\"coep_report\"},
    {\"max_age\":259200,\"endpoints\": [{\"url\":\"https://www.whatsapp.com/whatsapp_browser_error_reports/?device_level=unknown&bsid=7614069004803207874&cpp=C3&cv=1034641024\"}],\"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-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+eYqgAb2kfFGYi8sS/+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)**

<b>HTTP Status</b>	200
<b>Connected IP</b>	2a03:2880:f27f:1c0:face:b00c:0:167
<b>Connect Time</b>	4.66 ms
<b>TTFB</b>	467.84 ms
<b>Total Time</b>	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: Zty2EsYtAhEdir1Z0LSLwN8bbF10u9he6Ljt+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
```