

IPv6 Readiness Report

kakao.com — kakao.com

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Report generated from National IPv6 Readiness Monitor — <https://ipv6.my6.my>Audit trail: <https://ipv6.my6.my/audit/71e68835-ada2-4270-ad4b-09b40510721a>**Non-Compliant**

MGv6C-1.0

28%**No IPv6 Support****IPv6-ONLY READINESS**Website: **X Not Ready**DNS: **X Not Ready**Email: **X Not Ready****IPv4 ADDRESSES**

211.249.251.46

211.242.11.41

121.53.93.60

Network Information (WHOIS / RDAP)

IPv4 Network	
Organization	DREAMX-KR
Country	KR
ASN	AS7625
ASN Name	DAUM-AS Kakao Corp, KR
Network (CIDR)	211.249.0.0/16

Web Services (35%)

0 / 8

#	CHECK	RESULT	DETAIL
1	AAAA Record	FAIL	No AAAA record found in DNS.
2	Globally Routable IPv6	FAIL	IPv6 address is not globally routable.
3	HTTP over IPv6	FAIL	HTTP is not accessible over IPv6.
4	HTTPS over IPv6	FAIL	HTTPS is not accessible over IPv6.
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)	FAIL	Domain is IPv6-only or IPv4-only.
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%) 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: default_domainkey
7	DMARC Record	PASS	DMARC record found.

IPv4 Baseline (15%) 3 / 3

#	CHECK	RESULT	DETAIL
1	A Record	PASS	211.249.251.46, 211.242.11.41, 121.53.93.60
2	HTTP over IPv4	PASS	HTTP (port 80) responds over IPv4.
3	HTTPS over IPv4	PASS	HTTPS (port 443) responds over IPv4.

Audit Trail & Evidence Record

Verification ID	71e68835-ada2-4270-ad4b-09b40510721a
Domain	kakao.com
Check Mode	Manual
Status	Completed
Started	07 Mar 2026, 01:16:26 MYT
Finished	07 Mar 2026, 01:16:33 MYT
Test Node Profile	dual stack
Engine Version	2.0.0
MGv6C Version	1.0.0
Audit URL	https://ipv6.my6.my/audit/71e68835-ada2-4270-ad4b-09b40510721a

Integrity Verification

✓ INTEGRITY VERIFIED	
Algorithm	hmac-sha256-v1
Root Hash	0fb619a8f223308dd884386c47168886f63f0760671d306aaf6c3e2f702a96a5
http_headers	f44ac9f0b226d5947ebd5bf6df46f95b2a81f53f17d23ba2a19f457c60ca1fa6
dns_responses	255858bd409b04d152479afd3d70d9d632c957f6d4b58690f892b689eb4b1780
tls_handshake	87df613887b8a86d1a42f74b8b33a0dd3c7500d312e26457ca8718728926845c
connectivity_log	eea1c11c2831238386db5daa28ba499a1757b89eac194413f838a1ad57b4581d
dns_resolution_times	cbbb03d3aca686ad74bdfbf1d2cf40879a32d72f015e2a47b21704f1ed92b2eb

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	19.44	19.54	17.03	18.59	-2.4
Google	IPv4	15.99	17.14	26.24	127.69	+10.3
Google	IPv6	126.12	129.75	130.16	132	+4
Cloudflare	IPv4	10.92	19.94	8.94	9.03	-2
Cloudflare	IPv6	18.13	19.94	17.98	19.12	-0.1

DNS Evidence

A

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 33941
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
kakao.com. 004630IN[A]211.242.11.41
kakao.com. 004630IN[A]211.249.251.46
kakao.com. 004630IN[A]121.53.93.60
```

DS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 34096
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; AUTHORITY SECTION:
com. 000900IN[SOA]a.gtld-servers.net. nstld.verisign-grs.com. 1772788566 1800 900 604800 900
```

MX

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 24605
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
kakao.com. 006000IN[MX]10 mx4.kakao.com.
kakao.com. 006000IN[MX]10 mx2.kakao.com.
kakao.com. 006000IN[MX]10 mx1.kakao.com.
kakao.com. 006000IN[MX]10 mx3.kakao.com.
```

NS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 11488
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
kakao.com. 006000IN[NS]ns1.kakao.com.
kakao.com. 006000IN[NS]ns2.kakao.com.
```

TXT

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 19644
;; flags: qr rd ra; QUERY: 1, ANSWER: 7, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
kakao.com. 006000IN[TXT]"google-site-verification=Qljvs5WkxGiGJL4EzIB-BmmzJ9a0ivVkrm0PrmWSZs"
kakao.com. 006000IN[TXT]"google-site-verification=OVqf3b_fME-xxHijfDRV8CIZmbAbauZLS97ScYKYy7I"
kakao.com. 006000IN[TXT]"rovag_verification_token=D6FFB92C646749648E94FA00D3D0584D"
kakao.com. 006000IN[TXT]"v=spf1 ip4:103.246.58.76 ip4:103.246.58.77 ip4:103.246.58.78 ip4:103.246.58.79 ip4:103.246.58.61 ip4:103.246.58.62 ip4:103.246.58.63 ip4:103.246.58.64 ip4:103.246.58.65 include:_spf.daum.net include:_spf.kakao.com -all"
kakao.com. 006000IN[TXT]"google-site-verification=puTbVVviI88yMTQf88LO_8L9y2pdLP6bI98p3q00XdA"
kakao.com. 006000IN[TXT]"google-site-verification=W03BhsNNCPrfc_jvi4e0ZooqNPAY2rw1o95tmtXUXXG8"
kakao.com. 006000IN[TXT]"google-site-verification=rk_MxsjBvzXTt_F1ZI6877Z3V2dAH3B1BMc7bmdcWng"
```

AAAA

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 16938
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

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

```
;; AUTHORITY SECTION:  
kakao.com. 300 IN SOA ns.kakaocorp.com. root.kakaocorp.com. 1669033426 1800 600 2419200 300
```

RRSIG

```
ns.kakaocorp.com. root.kakaocorp.com. 1669033426 1800 600 2419200 300
```

DNSKEY

```
;; Got answer:  
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 40580  
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
; EDNS: version: 0, flags:; udp: 512  
;; AUTHORITY SECTION:  
kakao.com. 300 IN SOA ns.kakaocorp.com. root.kakaocorp.com. 1669033426 1800 600 2419200 300
```

DNSSEC_VALIDATION

```
; unsigned answer  
kakao.com. 600 IN SOA ns.kakaocorp.com. root.kakaocorp.com. 1669033426 1800 600 2419200 300
```



```
km0KA4sTb2VYpEBm/uL2HL/pZX9B7L/hbJ4NcoBe7V56oCnt7aeIo8sMjCRWTCWZ  
D1dY0+2KZ0C1dKj8d1VXXAtnjtDDuPPf6/iow0mYQTO/GAg/MLyL6CDm3FzDB8V  
tsH/aeMgP6pgD1XQqz+haDnfnJTKBuxhcxpnx3AdbLeue/QnPf1hhHYa8L+Rv8Pi5U  
h4V9FwH0fphdMX0xi140qmsiTbc5c0s9/uukH+YVsuFdWTna6IvW1qh+tEtyH16R  
vmi7pkqyZYUL0PMIE7avrLjVVBZuikwArTY8tCVV6Pp9l3VeagBqb2ffgqNJt3C0  
TYNYQI+BxG1R1cABLoId  
-----END CERTIFICATE-----  
2 s:C = US, 0 = DigiCert Inc, OU = www.digicert.com, CN = DigiCert Global Root G2  
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: Aug 1 12:00:00 2013 GMT; NotAfter: Jan 15 12:00:00 2038 GMT  
-----BEGIN CERTIFICATE-----  
MIIDjjCCAnagAwIBAgIQAzrx5qcRqaC7KGSxHQ65TANBqkqhkIG9w0BAQsFADBh  
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGLnaUNLcnQgSW5jMRkwFwYDVQQLExB3  
d3cuZGlnaWNLcnQuY29tMSAwHgYDVQDEdEaWdpQ2VydCBHbG9iYWwgUm9vdCBH  
MjAeFw0xMzA4MDExMjAwMDBAFw0xMzA4MDExMjAwMDBAFw0xMzA4MDExMjAwMDBA  
MRUwEwYDVQQKEwEaWdpQ2VydCBHbG9iYWwgYXVzLWVudCBHbG9iYWwgYXVzLWVudCBH  
b20xIDAeBgNVBAMTF0RpZ2l0ZXJ0IEEdsb2JhbCBSb290IEcyMIIIBjANBgkqhkiG  
9w0BAQEFAA0CAQ8AMIIBCgKCAQEAuzfNnnx7a8myaJctSnX/RrohCgiN9RlUyfuI  
2/0u8jqKT65qsGGmvPrC3oXgkRRLpimn7Wo6h+4FR1IAWsuUlecYxpsMNzaHxmx  
1x7e/dfgy5SDN67sH0N03Xss0r0upS/kqbit0tsZpLYL6ZtrAGCSYP9PIuKY92eQ  
q2EGnI/yuum06ZIya7XzV+hdG82MHauVBjVJ8zUtlunJbd134/tJS7SsVQepj5Wz  
tC07TG1F8PapsplwtP1MVYwnSlcuFfIKdzX0S0xZKBgyMUNGPHgm+F6HmIcr9g+UQ  
vI0LCSrnKPZzFBQ9RnbDhxSJITRNrw9FDKZJobq7nMwxM4MphQIDAQABo0IwQDAP  
BgNVHRMBAf8EBTADAQH/MA4GA1UdDwEB/wQEAwIBhjAdBgNVHQ4EFgQUTiJUIBiV  
5uNu5g/6+rks7QYXjzkWdQYJKoZihvcNAQELBQADggEBAGBnKJrvDkhj6zHd6mcY  
1Yl9PMwLSn/pvtSrF9+wX3N3KjITOYFnQoQj8kVnNeyIv/iPsGEMNKsuIEyExtv4
```


HTTP Response Evidence

IPv4 HTTP (port 80)

HTTP Status	302
Connected IP	211.249.251.46
Connect Time	94.99 ms
TTFB	481.46 ms
Total Time	481.65 ms
Error	Maximum (3) redirects followed

Response Headers:

```
{
  "0": "HTTP/1.1 302",
  "1": "Date: Fri, 06 Mar 2026 09:16:31 GMT",
  "2": "Connection: keep-alive",
  "3": "Location: /error/500",
  "4": "Content-Language: ko",
  "5": "Cache-Control: no-cache,must-revalidate",
  "7": "HTTP/1.1 302",
  "8": "Date: Fri, 06 Mar 2026 09:16:31 GMT",
  "9": "Connection: keep-alive",
  "10": "Location: /error/500",
  "11": "Content-Language: ko",
  "12": "Cache-Control: no-cache,must-revalidate",
  "14": "HTTP/1.1 302",
  "15": "Date: Fri, 06 Mar 2026 09:16:31 GMT",
  "16": "Connection: keep-alive",
  "17": "Location: /error/500",
  "18": "Content-Language: ko",
  "19": "Cache-Control: no-cache,must-revalidate",
  "21": "HTTP/1.1 302",
  "22": "Date: Fri, 06 Mar 2026 09:16:32 GMT",
  "23": "Connection: keep-alive",
  "24": "Location: /error/500",
  "25": "Content-Language: ko",
  "26": "Cache-Control: no-cache,must-revalidate"
}
```

IPv4 HTTPS (port 443)

HTTP Status	302
Connected IP	211.249.251.46
Connect Time	104.2 ms
TTFB	638.89 ms
Total Time	639.06 ms
Error	Maximum (3) redirects followed

Response Headers:

```
{
  "0": "HTTP/2 302",
  "1": "date: Fri, 06 Mar 2026 09:16:32 GMT",
  "2": "location: /error/500",
  "3": "content-language: ko",
  "4": "strict-transport-security: max-age=31536000",
  "5": "cache-control: no-cache,must-revalidate",
  "7": "HTTP/2 302",
  "8": "date: Fri, 06 Mar 2026 09:16:33 GMT",
  "9": "location: /error/500",
  "10": "content-language: ko",
  "11": "strict-transport-security: max-age=31536000",
  "12": "cache-control: no-cache,must-revalidate",
  "14": "HTTP/2 302",
  "15": "date: Fri, 06 Mar 2026 09:16:33 GMT",
  "16": "location: /error/500",
  "17": "content-language: ko",
  "18": "strict-transport-security: max-age=31536000",
  "19": "cache-control: no-cache,must-revalidate",
  "21": "HTTP/2 302",
  "22": "date: Fri, 06 Mar 2026 09:16:33 GMT",
}
```

```

"23": "location: /error/500",
"24": "content-language: ko",
"25": "strict-transport-security: max-age=31536000",
"26": "cache-control: no-cache,must-revalidate"
    }
    
```

Connectivity Test Evidence

Test	Result
TCP Connect IPv4 → port 80	302 0.100258 0.202492
TCP Connect IPv4 → port 443	302 0.095810 0.296428

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
    
```