

# IPv6 Readiness Report

kakao.com — kakao.com



Scan to verify

Category: Social Media • Generated: 04 Jul 2026, 22:58 MYT • Last Checked: 04 Jul 2026, 03:25 MYT • Verification ID: d3e7d01e-e0f1-4888-8635-9beb7e9fe205

Report generated from National IPv6 Readiness Monitor — <https://ipv6.my6.my>

Audit trail: <https://ipv6.my6.my/audit/d3e7d01e-e0f1-4888-8635-9beb7e9fe205>

<p><b>X</b></p> <p><b>Non-Compliant</b></p> <p>MGv6C-1.0</p>	<p><b>28%</b></p> <p><b>No IPv6 Support</b></p>	<p><b>IPv6-ONLY READINESS</b></p> <p>Website: <b>X Not Ready</b></p> <p>DNS: <b>X Not Ready</b></p> <p>Email: <b>X Not Ready</b></p>
--	---	--

IPv4 ADDRESSES
121.53.93.60
211.242.11.41
211.249.251.46

## Network Information (WHOIS / RDAP)

IPv4 Network	
Organization	DREAMX-KR
Country	KR
ASN	AS18160
ASN Name	AS18160-AS-KR-KR - Kakao Corp, KR
Network (CIDR)	121.53.0.0/16

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.	

#	CHECK	RESULT	DETAIL
7	<b>RRSIG Valid</b>	<b>FAIL</b>	No valid RRSIG found.
8	<b>Signing Algorithm</b>	<b>INFO</b>	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: default_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>	121.53.93.60, 211.242.11.41, 211.249.251.46
2	<b>HTTP over IPv4</b>	<b>PASS</b>	HTTP (port 80) responds over IPv4.
3	<b>HTTPS over IPv4</b>	<b>PASS</b>	HTTPS (port 443) responds over IPv4.

### Audit Trail & Evidence Record

Verification ID	d3e7d01e-e0f1-4888-8635-9beb7e9fe205
Domain	kakao.com
Check Mode	Scheduled
Status	Completed
Started	04 Jul 2026, 03:25:33 MYT
Finished	04 Jul 2026, 03:25:41 MYT
Test Node Profile	dual stack
Engine Version	2.0.0
MGv6C Version	1.0.0
Audit URL	https://ipv6.my6.my/audit/d3e7d01e-e0f1-4888-8635-9beb7e9fe205

### Integrity Verification

<b>✓ INTEGRITY VERIFIED</b>	
Algorithm	hmac-sha256-v1
Root Hash	091b5663bb28efd13a9d558c493b1574c221f40a9e2b1f7d4019a91a5731b760
http_headers	f39cb029058e18e7245687dd9c409011e7b68fd20b691bef2bfc1603738d299
dns_responses	84bf10d5b5aaa9ba24ce3912bc27070d58bfcf82f4c0487b07a969a0a0413efd
tls_handshake	6eadfa300e6aa53afdfce70033545609a8ae5b14db0ada106179144a2ffbdcd
connectivity_log	6ce8568232a14418e36fbb19b513e4db4857ef0033990f34f33acb7474a87f7f
dns_resolution_times	bc4e34894304e3cd075d45114265c49502c36c744a50f7dc5a407baeeec4ccfd

### Test Node Identity

Os	Linux srv1440888 6.8.0-124-generic #124-Ubuntu SMP PREEMPT_DYNAMIC Tue May 26 13:00:45 UTC 2026 x86_64
Hostname	srv1440888
Php Version	8.3.32
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	27.13	40.08	26.49	27.62	-0.6
Google	IPv4	32.64	34.27	27.35	41.34	-5.3
Google	IPv6	139.15	142.96	139.25	139.91	+0.1
Cloudflare	IPv4	29.1	35.01	23.59	26.56	-5.5
Cloudflare	IPv6	37.43	37.47	34.64	37.56	-2.8



## DNS Evidence

### A

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 27092
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; ANSWER SECTION:
kakao.com. 600 IN A 211.242.11.41
kakao.com. 600 IN A 121.53.93.60
kakao.com. 600 IN A 211.249.251.46
```

### DS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 28917
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; AUTHORITY SECTION:
com. 899 IN SOA a.gtld-servers.net. nstld.verisign-grs.com. 1783106726 1800 900 604800 900
```

### MX

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 39819
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; ANSWER SECTION:
kakao.com. 600 IN MX 10 mx1.kakao.com.
kakao.com. 600 IN MX 10 mx4.kakao.com.
kakao.com. 600 IN MX 10 mx3.kakao.com.
kakao.com. 600 IN MX 10 mx2.kakao.com.
```

### NS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 61116
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 3

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; ANSWER SECTION:
kakao.com. 600 IN NS ns1.kakao.com.
kakao.com. 600 IN NS ns2.kakao.com.
```

### TXT

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 34460
;; flags: qr rd ra; QUERY: 1, ANSWER: 7, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; ANSWER SECTION:
kakao.com. 600 IN TXT "google-site-verification=puTbVVviI88yMTQf88L0_8L9y2pdLP6bI98p3q00XdA"
kakao.com. 600 IN 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. 600 IN TXT "rovag_verification_token=D6FFB92C646749648E94FA00D3D0584D"
kakao.com. 600 IN TXT "google-site-verification=rk_MxsjBvzXTt_F1ZI6877Z3V2dAH3B1BMc7bmdcWng"
kakao.com. 600 IN TXT "google-site-verification=OVqf3b_fME-xxHijfDRV8CIZmbAbauZLS97ScYKYy7I"
kakao.com. 600 IN TXT "google-site-verification=W03BhsNNCPrfc_jvi4e0ZqNPAY2rwl095tmtXUXXG8"
kakao.com. 600 IN TXT "google-site-verification=Qljvs5WkxGiGJL4EzIB-BmmzJ9a0ivVkrm0PrmWSZs"
```

### AAAA

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 14858
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
```

```
;; AUTHORITY SECTION:
kakao.com. IN SOA ns.kakaocorp.com. root.kakaocorp.com. 1669034684 1800 600 2419200 300
```

## RRSIG

```
ns.kakaocorp.com. root.kakaocorp.com. 1669034684 1800 600 2419200 300
```

## DNSKEY

```
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 40313
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; AUTHORITY SECTION:
kakao.com. IN SOA ns.kakaocorp.com. root.kakaocorp.com. 1669034684 1800 600 2419200 300
```

## DNSSEC\_VALIDATION

```
; unsigned answer
kakao.com. IN SOA ns.kakaocorp.com. root.kakaocorp.com. 1669034684 1800 600 2419200 300
```





```

km0KA4sTb2VYpEBm/uL2HL/pzX9B7L/hbJ4NcoBe7V56oCnt7aeIo8sMjCRWTCWZ
D1dY0+2KZ0C1dKj8d1VXXAtnjtDDuPPf6/iow0mYQTO/GAg/MLyL6CDm3FzDB8V
tsH/aeMgP6pgD1XQqz+haDnfnJTKBuxhcxpnx3AdbLeue/QnPflhHYa8L+Rv8Pi5U
h4V9FwH0fphdMX0xi140qmsiTbc5c0s9/uukH+YVsuFdWTna6IvW1qh+tEtyH16R
vmi7pkqyZYULPMIE7avrLjVVBZuikwArTY8tCVV6Pp9l3VeagBqb2ffgqNJt3C0
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-----
MIIDjjCCAnagAwIBAgIQAzrx5qcRqaC7KGSxHQ65TANBgkqhkiG9w0BAQsFADBh
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLExB3
d3cuZGlnaWNLcnQuY29tMSAwHGMpYDQDEdEaWdpQ2VydCBHbG9iYWwUm9vdCBH
MjAeFw0xMzA4MDExMjAwMDBaFw0zODAxMTUxMjAwMDBaMGExCzAJBgNVBAYTALVT
MRUwEwYDVQQKEwEaWdpQ2VydCBHbG9iYWwUm9vdCBHbG9iYWwUm9vdCBHbG9i
b20xIDAeBgNVBAMTF0R2Z1DZlDZlDZlDZlDZlDZlDZlDZlDZlDZlDZlDZlDZlDZl
9w0BAQEFAAOCAQ8AMIIBCgKCAQEAuzfNnNxx7a8myaJctSnX/RrohCgiN9RlUyfuI
2/0u8jqKT65qsGGmvPrC3oXgkRRLpimn7Wo6h+4FR1IAWsuULecYxpsMNzaHxmx
1x7e/dfgy5SDN67sH0N03Xss0r0upS/kqbit0tSzlYl6ZtrAGCSYP9PIUkY92eQ
q2EGnI/yuum06ZIya7XzV+hdG82MHauVBjVJ8zUtLuNjbd134/tJ57SsV0epj5Wz
tC07TG1F8PapsplwtP1MvYwnSlcUfIKdzX0S0xZKBgyMUNGPHgm+F6HmIcr9g+UQ
vI0LcsRnKPZzFBQ9RnbDhxSJITRnrw9FDKZJobq7nMwxM4MphQIDAQABo0IwQDAP
BgNVHRMBAf8EBTADAQH/MA4GA1UdDwEB/wQEAwIBhjAdBgNVHQ4EFgQUTiJUIBiV
5uNu5g/6+rks7QYXjzkWdQYJKoZIhvcNAQELBQADggEBAGBnKJRvDkhj6zHd6mcY
1Yl9PMWLSn/pvtsrF9+wX3N3KjIT0YFnQoQj8kVnNeyIv/iPsGEMNKSuIEyExtv4

```



## HTTP Response Evidence

### IPv4 HTTP (port 80)

HTTP Status	302
Connected IP	121.53.93.60
Connect Time	98.14 ms
TTFB	495.34 ms
Total Time	495.61 ms
Error	Maximum (3) redirects followed

#### Response Headers:

```
{
  "0": "HTTP/1.1 302",
  "1": "Date: Fri, 03 Jul 2026 19:25:39 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, 03 Jul 2026 19:25:39 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, 03 Jul 2026 19:25:39 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, 03 Jul 2026 19:25:40 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	121.53.93.60
Connect Time	93.82 ms
TTFB	574.54 ms
Total Time	574.78 ms
Error	Maximum (3) redirects followed

#### Response Headers:

```
{
  "0": "HTTP/2 302",
  "1": "date: Fri, 03 Jul 2026 19:25:40 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, 03 Jul 2026 19:25:40 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, 03 Jul 2026 19:25:40 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, 03 Jul 2026 19:25:40 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 0.092136 0.185431
TCP Connect IPv4 → port 443	302 0.096002 0.298808

**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
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
```