


# IPv6 Readiness Report

umk.edu.my — umk.edu.my

Category: Education • Generated: 20 Apr 2026, 21:26 MYT • Last Checked: 07 Mar 2026, 01:30 MYT • Verification ID: 434da5ce-8cf5-4a3c-afb1-cf376ce05566

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

Audit trail: <https://ipv6.my6.my/audit/434da5ce-8cf5-4a3c-afb1-cf376ce05566>

|   |                                      |   |
|---|--------------------------------------|---|
| <br><b>Non-Compliant</b><br><small>MGv6C-1.0</small> | <b>18%</b><br><b>No IPv6 Support</b> | <b>IPv6-ONLY READINESS</b><br>Website: <b>X Not Ready</b><br>DNS: <b>X Not Ready</b><br>Email: <b>X Not Ready</b> |
|---|--------------------------------------|---|

|   |
|---|
| <b>IPv4 ADDRESSES</b><br>103.101.246.12 |
|---|

## Network Information (WHOIS / RDAP)

| IPv4 Network   |  |
|----------------|--|
| Organization   | Universiti Malaysia Kelantan               |
| Country        | MY   |
| ASN            | AS137005                                   |
| ASN Name       | UMK-AS-AP Universiti Malaysia Kelantan, MY |
| Network (CIDR) | 103.101.244.0/22                           |

| Web Services (35%) <span style="float: right;">0 / 8</span> |                                     |             |  |
|---|-------------------------------------|-------------|--|
| #   | CHECK                               | RESULT      | DETAIL   |
| 1   | <b>AAAA Record</b>                  | <b>FAIL</b> | No AAAA record found in DNS.   |
| 2   | <b>Globally Routable IPv6</b>       | <b>FAIL</b> | IPv6 address is not globally routable.                               |
| 3   | <b>HTTP over IPv6</b>               | <b>FAIL</b> | HTTP is not accessible over IPv6.                                    |
| 4   | <b>HTTPS over IPv6</b>              | <b>FAIL</b> | HTTPS is not accessible over IPv6.                                   |
| 5   | <b>IPv6-Only Reachability</b>       | <b>FAIL</b> | Site is not reachable when limited to IPv6-only.                     |
| 6   | <b>TLS Certificate Valid (IPv6)</b> | <b>FAIL</b> | TLS certificate is invalid, expired, or hostname mismatch over IPv6. |
| 7   | <b>Dual-Stack (IPv4 + IPv6)</b>     | <b>FAIL</b> | Domain is IPv6-only or IPv4-only.                                    |
| 8   | <b>HTTP/3 (QUIC)</b>                | <b>FAIL</b> | No HTTP/3 support detected.  |

| DNS & DNSSEC (25%) <span style="float: right;">0 / 5</span> |                                    |             |   |
|---|------------------------------------|-------------|---|
| #   | CHECK                              | RESULT      | DETAIL  |
| 1   | <b>NS Has AAAA Record</b>          | <b>FAIL</b> | No nameserver has an AAAA record.             |
| 2   | <b>NS Reachable via IPv6</b>       | <b>FAIL</b> | No nameserver is reachable over IPv6.         |
| 3   | <b>NS Answers Queries via IPv6</b> | <b>FAIL</b> | Nameserver does not answer queries over IPv6. |
| 4   | <b>DNSSEC Validated</b>            | <b>FAIL</b> | DNSSEC validation failed or zone is unsigned. |
| 5   | <b>Reverse DNS (PTR)</b>           | <b>FAIL</b> | No PTR record found.                          |
| 6   | <b>DS Record at Parent</b>         | <b>FAIL</b> | No DS record at parent.                       |
| 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>PASS</b> | MX server has AAAA record.        |
| 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> | No common DKIM selector found.    |
| 7 | <b>DMARC Record</b>            | <b>FAIL</b> | No DMARC record found.            |

**IPv4 Baseline** (15%) 1 / 3

| # | CHECK                  | RESULT      | DETAIL                             |
|---|------------------------|-------------|------------------------------------|
| 1 | <b>A Record</b>        | <b>PASS</b> | 103.101.246.12                     |
| 2 | <b>HTTP over IPv4</b>  | <b>FAIL</b> | HTTP is not accessible over IPv4.  |
| 3 | <b>HTTPS over IPv4</b> | <b>FAIL</b> | HTTPS is not accessible over IPv4. |

### Audit Trail & Evidence Record

|                   |  |
|-------------------|--|
| Verification ID   | 434da5ce-8cf5-4a3c-afb1-cf376ce05566                           |
| Domain            | umk.edu.my   |
| Check Mode        | Manual   |
| Status            | Completed  |
| Started           | 07 Mar 2026, 01:26:27 MYT                                      |
| Finished          | 07 Mar 2026, 01:30:02 MYT                                      |
| Test Node Profile | dual stack   |
| Engine Version    | 2.0.0  |
| MGv6C Version     | 1.0.0  |
| Audit URL         | https://ipv6.my6.my/audit/434da5ce-8cf5-4a3c-afb1-cf376ce05566 |

### Integrity Verification

|                             |  |
|-----------------------------|--|
| <b>✓ INTEGRITY VERIFIED</b> |  |
| Algorithm                   | hmac-sha256-v1   |
| Root Hash                   | 0b5d48898db1c3560b7578d7437ebc80b607709e03d2f4a277fcab20c3fe013f |
| http_headers                | 64f76da87146216eb86522f53471f34e4d26883aff32cd73c1fbbf85fd9ad54f |
| dns_responses               | 483db2e1eeca6f30b5481b2422571ecfce3eedaca145f809ca53eb85fcd51e88 |
| tls_handshake               | f4f0fc20e874a8b04f1c843f3b3e7bdce43b3e30c2580dbf12125ecb3cb1ec59 |
| connectivity_log            | c571529628ae93d3d5180dec20e307692d772428bf4569b1feeb29b40bc18e78 |
| dns_resolution_times        | 0b8035d72a74024176227435909129d5f3cf1a78b47a2a6c4eda5af06924eac9 |

### 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   | 10.83      | 20.5       | 6.18          | 18.11         | -4.7       |
| Google     | IPv4      | 36.16      | 48.54      | 30.77         | 37.85         | -5.4       |
| Google     | IPv6      | 17.54      | 54.02      | 35.26         | 53.02         | +17.7      |
| Cloudflare | IPv4      | 7.99       | 8.63       | 9.03          | 21.12         | +1         |
| Cloudflare | IPv6      | 46.23      | 48.09      | 50.1          | 53.54         | +3.9       |



## DNS Evidence

### A

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 49273
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
umk.edu.my. 000900 IN A 103.101.246.12
```

### DS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 32148
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; AUTHORITY SECTION:
edu.my. 0001763 IN SOA b.nic.my. hostmaster.nic.my. 2026018485 1800 900 604800 3600
```

### MX

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 55483
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
umk.edu.my. 000900 IN MX 5 ALT1.ASPMX.L.GOOGLE.COM.
umk.edu.my. 000900 IN MX 5 ALT2.ASPMX.L.GOOGLE.COM.
umk.edu.my. 000900 IN MX 1 ASPMX.L.GOOGLE.COM.
umk.edu.my. 000900 IN MX 10 ASPMX3.GOOGLEMAIL.COM.
umk.edu.my. 000900 IN MX 10 ASPMX2.GOOGLEMAIL.COM.
```

### NS

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 50137
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
umk.edu.my. 000900 IN NS ns2.umk.edu.my.
umk.edu.my. 000900 IN NS ns1.umk.edu.my.
```

### TXT

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 7118
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; ANSWER SECTION:
umk.edu.my. 000900 IN TXT "MS=ms60345149"
umk.edu.my. 000900 IN TXT "v=spf1 include:_spf.google.com include:mailgun.org include:spf.protection.outlook.com ~all"
umk.edu.my. 000900 IN TXT "6mvgbvly9jdk41l12g17w2y6gtdmr53"
umk.edu.my. 000900 IN TXT "MS=8AB53C8B76EE2E7433A7FB6782ABD3BD1227839E"
umk.edu.my. 000900 IN TXT "abuseipdb-verification=7ZeMw6nw"
```

### AAAA

```
;; Got answer:
;; -->HEADER<<- opcode: QUERY, status: NOERROR, id: 3203
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; AUTHORITY SECTION:
umk.edu.my. 000900 IN SOA ns2.umk.edu.my. root.ns2.umk.edu.my. 2026021601 10800 1800 604800 86400
```

**RRSIG**

```
ns2.umk.edu.my. root.ns2.umk.edu.my. 2026021601 10800 1800 604800 86400
```

**DNSKEY**

```
;; Got answer:  
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 10014  
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
; EDNS: version: 0, flags:; udp: 512  
;; AUTHORITY SECTION:  
umk.edu.my. IN SOA ns2.umk.edu.my. root.ns2.umk.edu.my. 2026021601 10800 1800 604800 86400
```

**DNSSEC\_VALIDATION**

```
; unsigned answer  
umk.edu.my. IN SOA ns2.umk.edu.my. root.ns2.umk.edu.my. 2026021601 10800 1800 604800 86400
```

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## TLS Handshake Evidence

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### IPv4 Connection

|            |                |
|------------|----------------|
| IP Used    | 103.101.246.12 |
| IP Version | 4              |

```
4087C1FE00740000:error:8000006E:system library:BI0_connect:Connection timed out:../crypto/bio/bio_sock2.c:114:calling connect()
4087C1FE00740000:error:10000067:BI0 routines:BI0_connect:connect error:../crypto/bio/bio_sock2.c:116:
connect:errno=110
```

## HTTP Response Evidence

### IPv4 HTTP (port 80)

|              |  |
|--------------|--|
| HTTP Status  | 0  |
| Connected IP |  |
| Connect Time | 0 ms   |
| TTFB         | 0 ms   |
| Total Time   | 8002.43 ms   |
| Error        | Failed to connect to umk.edu.my port 80 after 8002 ms: Timeout was reached |

### IPv4 HTTPS (port 443)

|              |   |
|--------------|---|
| HTTP Status  | 0   |
| Connected IP |   |
| Connect Time | 0 ms  |
| TTFB         | 0 ms  |
| Total Time   | 8002.47 ms  |
| Error        | Failed to connect to umk.edu.my port 443 after 8002 ms: Timeout was reached |

## Connectivity Test Evidence

| Test                        | Result                |
|-----------------------------|-----------------------|
| TCP Connect IPv4 → port 80  | 000 0.000000 0.000000 |
| TCP Connect IPv4 → port 443 | 000 0.000000 0.000000 |

## 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 |