Internet.nl
How to get a 100% score

Ralph Dolmans
ralph@nlnetlabs.nl

https://www.nlnetlabs.nl/
Internet.nl

- Test adoption modern Internet standards
  - Not exclusively security standards!
- The bar is set high, but 100% is possible
  - 7479 websites in our hall of fame
- Test score equally divided over categories

https://www.nlnetlabs.nl/
Modern Internet standards

Connection test
- IPv6
- DNSSEC

Website test
- IPv6
- DNSSEC
- HTTPS

Email test
- IPv6
- DNSSEC
- DMARC, DKIM, SPF
- STARTTLS
Website test IPv6 + DNSSEC

- IPv6 – 11 points = 1/3 website test
  - IPv6 reachable webserver 0, 1 or 5
  - IPv6/IPv4 difference 0 or 1
  - IPv6 reachable nameserver 0, 1 or 5
- DNSSEC – 5 points = 1/3 website test
  - 0 (bogus), 1 (insecure) or 5 (secure)
Website test HTTPS

- Binary scoring (0 or 5) for:
  - **TLS connection**: TLS version, Cipher suites, Key exchange parameters, no TLS compression, Secure renegotiation, No client-initiated renegotiation
  - **Certificate**: Trust of chain, Public key length, Certificate signature, Domain name on certificate
  - **HTTP**: Enforced HTTPS

- HSTS 0, 1 or 5

- No scoring for DANE and HTTP compression in website test
Email test IPv6 + DNSSEC

- IPv6 – 10 points = 1/4 email test
  - IPv6 reachable mailserver 0, 1 or 5
  - IPv6 reachable nameserver 0, 1 or 5

- DNSSEC – 5 points = 1/4 email test
  - 0 (bogus), 1 (insecure) or 5 (secure)

https://www.nlnetlabs.nl/
Email test anti spoofing + STARTTLS

- Anti spoofing - 1/4 email test:
  - DMARC 0 or 1
  - DKIM 0 or 1
  - SPF 0 or 1

- STARTTLS 0 or 1 - 1/4 email test

- No scoring for DANE, TLS settings and TLS certificate
Email test anti spoofing + STARTTLS

- Anti spoofing - 1/4 email test:
  - DMARC 0, 1 or 5
  - DKIM 0 or 5
  - SPF 0, 1 or 5

- STARTTLS according to NCSC guidelines - 1/4 email test
  - Including DANE!

Scoring model for the next internet.nl version
Future plans

- Verify DMARC, DKIM and SPF validation
- Verify DANE validation
- Verify DKIM and SPF configuration
- Open source release!

https://www.nlnetlabs.nl/