DNS Delegation Requirements
draft-wallstrom-dnsop-dns-delegation-requirements

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Background (Legacy tools)

- Former tools that reach their limits.
- Zonecheck
  - AFNIC (French domain name registry: .fr, .re,…, .paris, .bzh, …)
  - Legacy code
  - Is no longer supported by AFNIC
- DNSCheck
  - IIS (Swedish domain name registry: .si, .nu)
  - Does not provide deterministic results
- Both AFNIC and IIS wanted a new better tool to check delegations

Background (Zonemaster roots)

- Zonemaster
  - Aim to create a state-of-the-art checking tool for internet domain names.
  - Project started in october 2013.
  - Joint IIS/AFNIC-labs Team (requirements, specs, implementation, …).
  - First release in december 2014.
  - Stable and publicly announced released in february 2015.
  - CENTR « **Tests Requirements Task Force** » (TRTF) created just after the first release.

Background (Zonemaster in 1 slide)

- **Opensource** ([GitHub](#)) project written in **Perl** (+javascript)
- Can check delegated and undelegated zones
- Process hundreds of tests
- Provides **CLI/Web/API** interfaces
  - Can be used by non technicians on our website (WEB)
  - Can be used on local servers by technicians (CLI)
  - Can be used and integrated in your own systems (API)
- Provides High/medium/low levels of output
  - Web/Text output/JSON output
- Outputs in **English**, **French**, **Swedish**
- Can be tailored for your needs
- But also provide a public interface: https://zonemaster.net/
- **IS BASED ON COMMON/DISCUSSED/PUBLIC/DOCUMENTED TEST SPECIFICATIONS**
  https://github.com/dotse/zonemaster/tree/master/docs/specifications/tests

Background (IANA Requirements)

- IANA Technical requirements for authoritative name servers.
  - Set of conformance criteria evaluated by ICANN for changes to delegations in IANA managed zones.
  - Check NS reachability, DNSKEY/DS matching…
  - Reference many DNS RFCs
  - https://www.iana.org/help/nameserver-requirements
- Processing time, in case of issue in delegation configuration, can be long.
  - It might be better to check conformance before sending a change request to IANA.

Background (ICANN PDT)

- IIS, new gTLD Pre-Delegation Testing (PDT) Service Provider for ICANN.
  - PDT addresses **DNS**, Whois, EPP, IDN, Data Escrow, Documentation.
  - https://newgtlds.icann.org/en/applicants/pdt
- Self-Test Tools
  - For DNS, DNScheck is the reference
- If PDT fails, gTLD is not delegated to applicant.

The draft

- Zonemaster requirements -> TRTF -> draft-wallstrom-dnsop-dns-delegation-requirements-00.txt (february 2016)
- First intention was « informative document » about operational considerations.
- Purposes :
  - Requirements to set up a fully functional DNS delegation for a domain name.
  - Create a set of test specifications for how to test a DNS delegation.
- Reach consensus on:
  - Organization of the document.
  - Categories of requirements (remove/add ?).
  - RFC level of compliance (rephrase requirements as many as necessary).

The draft (organization of document)

- 8 categories
  - Basic
    - Valid domain name, working parent domain, …
  - Address
    - Globally routable NS address, …
  - Connectivity
    - TCP/UDP, port 53.
  - Consistency
    - SOA RR content, NS RRset, …

The draft (organization of document)

- 8 categories
  - Delegation
    - Name servers (redundancy, localisation, reachability, …)
    - Referal size, authoritativity of all name servers, …
  - DNSSEC
    - DS/DNSKEY validity checks
    - Chain of trust must be valid,
    - RRSIG validity period, …
  - Name Server
    - Missing in this revision, will be added in -01
  - Syntax
    - Domain name, name servers
    - SOA content

The draft (enhancements)

- Add new requirements
  - About TTL values ?
- Soften language
  - Limit MUST/SHOULD usage
- Controversal requirements
  - Domain names vs host names
  - Way to check networks/Asns…

The draft

- Adoption ?
  - Best as informational document ?
  - Would dnsop work on this to get it to a BCP ? (as suggested in ML)
- Please, read the draft and send comments/remarks/issues on ML or on our issue tracker:
  https://github.com/CENTRccTLDs/TRTF/issues