Zonemaster
- A Comprehensive tool for DNS validation

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Health check

Just 20 minutes of your time to keep you running like clockwork

Stroke
Heart disease
Diabetes
Kidney disease
DNS Health check
Basic tools

✓ DNS errors – dig, nslookup

```
afnic@zonemaster:~$ dig rmll.info

;; DiG 9.9.5-9+deb8u8-Debian <<>> rmll.info
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 2014
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 3

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 4096

;; QUESTION SECTION:
rmll.info.

;; ANSWER SECTION:
rmll.info. 3600 IN A 80.67.169.65

;; AUTHORITY SECTION:
rmll.info. 86399 IN NS ns0.abul.org.
rmll.info. 86399 IN NS rmll1.rmll.info.

;; ADDITIONAL SECTION:
ns0.abul.org. 86400 IN A 195.214.228.104
rmll1.rmll.info. 86399 IN A 80.67.169.65

;; Query time: 214 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Thu Jun 22 09:26:10 CEST 2017
;; MSG SIZE  rcvd: 132
```
Comprehensive verification of a DNS zone using Zonemaster – from the CLI (1/2)

```
afnic@zonemaster:~$ zonemaster-cli --level DEBUG rmll.info

<table>
<thead>
<tr>
<th>Seconds</th>
<th>Level</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>DEBUG</td>
<td>SYSTEM:START TIME string=2017-06-22 09:16:17 +0200; time_t=1498115777</td>
</tr>
<tr>
<td>0.00</td>
<td>DEBUG</td>
<td>SYSTEM:TEST TARGET module=all; zone=rmll.info</td>
</tr>
<tr>
<td>0.00</td>
<td>DEBUG</td>
<td>Using module Zonemaster::Test::Basic version v1.0.2.</td>
</tr>
<tr>
<td>0.00</td>
<td>INFO</td>
<td>Using version v1.0.15 of the Zonemaster engine.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module Net::LDNS version 0.75.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module IO::Socket::INET6 version 2.72.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module Moose version 2.12.13.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module Module::Find version 0.12.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module JSON version 2.61.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module File::ShareDir version 1.102.</td>
</tr>
<tr>
<td>0.01</td>
<td>DEBUG</td>
<td>Using prerequisite module File::Slurp version 9999.19.</td>
</tr>
<tr>
<td>0.02</td>
<td>DEBUG</td>
<td>Using prerequisite module Net::IP version 1.26.</td>
</tr>
<tr>
<td>0.02</td>
<td>DEBUG</td>
<td>Using prerequisite module List::MoreUtils version 0.33.</td>
</tr>
<tr>
<td>0.02</td>
<td>DEBUG</td>
<td>Using prerequisite module Mail::RFC822::Address version 0.3.</td>
</tr>
<tr>
<td>0.02</td>
<td>DEBUG</td>
<td>Using prerequisite module Scalar::Util version 1.38.</td>
</tr>
<tr>
<td>0.02</td>
<td>DEBUG</td>
<td>Using prerequisite module Hash::Merge version 0.200.</td>
</tr>
<tr>
<td>0.02</td>
<td>DEBUG</td>
<td>Using prerequisite module Readonly version 2.</td>
</tr>
<tr>
<td>0.03</td>
<td>INFO</td>
<td>Configuration was read from /usr/local/share/perl/5.20.2/auto/share/dist/Zonemaster/config.json.</td>
</tr>
<tr>
<td>0.03</td>
<td>INFO</td>
<td>Policy was read from /usr/local/share/perl/5.20.2/auto/share/dist/Zonemaster/policy.json.</td>
</tr>
<tr>
<td>2.28</td>
<td>INFO</td>
<td>Nameserver for zone info replies when trying to fetch glue.</td>
</tr>
<tr>
<td>2.28</td>
<td>INFO</td>
<td>Nameserver for zone info listed these nameservers as glue: ns0.abul.org.,rmll1.rmll.info..</td>
</tr>
<tr>
<td>3.67</td>
<td>INFO</td>
<td>IPv4 is enabled, can send &quot;NS&quot; query to ns0.abul.org/195.214.228.104.</td>
</tr>
<tr>
<td>3.76</td>
<td>INFO</td>
<td>Nameserver ns0.abul.org listed these servers as glue: ns0.abul.org.,rmll1.rmll.info..</td>
</tr>
<tr>
<td>3.76</td>
<td>INFO</td>
<td>IPv4 is enabled, can send &quot;NS&quot; query to rmll1.rmll.info/80.67.169.65.</td>
</tr>
<tr>
<td>3.72</td>
<td>INFO</td>
<td>Nameserver rmll1.rmll.info listed these servers as glue: ns0.abul.org.,rmll1.rmll.info..</td>
</tr>
<tr>
<td>3.73</td>
<td>DEBUG</td>
<td>Module Zonemaster::Test::Basic finished running.</td>
</tr>
<tr>
<td>3.73</td>
<td>DEBUG</td>
<td>Using module Zonemaster::Test::Address version v1.0.1.</td>
</tr>
<tr>
<td>4.84</td>
<td>INFO</td>
<td>All Nameserver addresses are in the routable public addressing space.</td>
</tr>
<tr>
<td>7.88</td>
<td>INFO</td>
<td>Reverse DNS entry exists for each Nameserver IP address.</td>
</tr>
<tr>
<td>7.88</td>
<td>NOTICE</td>
<td>Nameserver ns0.abul.org has an IP address (195.214.228.104) with mismatched PTR result (hiero.abul.org.).</td>
</tr>
<tr>
<td>7.81</td>
<td>DEBUG</td>
<td>Module Zonemaster::Test::Address finished running.</td>
</tr>
<tr>
<td>7.81</td>
<td>DEBUG</td>
<td>Using module Zonemaster::Test::Connectivity version v1.0.6.</td>
</tr>
<tr>
<td>7.81</td>
<td>INFO</td>
<td>Nameserver ns0.abul.org/195.214.228.104 accessible over UDP on port 53.</td>
</tr>
<tr>
<td>7.83</td>
<td>INFO</td>
<td>Nameserver rmll1.rmll.info/80.67.169.65 accessible over UDP on port 53.</td>
</tr>
<tr>
<td>7.86</td>
<td>INFO</td>
<td>Nameserver ns0.abul.org/195.214.228.104 accessible over TCP on port 53.</td>
</tr>
<tr>
<td>7.88</td>
<td>INFO</td>
<td>Nameserver rmll1.rmll.info/80.67.169.65 accessible over TCP on port 53.</td>
</tr>
</tbody>
</table>
```
Comprehensive verification of a DNS zone using Zonemaster – from the CLI (2/2)

14.94 INFO All the nameservers have SOA record.
14.95 INFO All of the nameserver names are listed both at parent and child.
14.95 DEBUG Module Zonemaster::Test::Delegation finished running.
14.95 INFO The module Example was disabled by the policy.
14.96 DEBUG Using module Zonemaster::Test::Nameserver version v1.0.5.
14.99 INFO None of the following nameservers is a recursor: ns0.abul.org, rml1.rml.info.
15.63 INFO The following nameservers support EDNS0: ns0.abul.org/195.214.228.104, rml1.rml.info/80.67.169.65.
15.67 INFO AXFR not available on nameserver ns0.abul.org/195.214.228.104.
15.69 INFO AXFR not available on nameserver rml1.rml.info/80.67.169.65.
16.10 INFO All nameservers reply with same IP used to query them.
15.14 INFO The following nameservers answer AAAA queries without problems: rml1.rml.info/80.67.169.65, ns0.abul.org/195.214.228.104.
15.15 INFO All nameservers succeeded to resolve to an IP address.
15.18 INFO None of the following nameservers returns an upward referral: ns0.abul.org, rml1.rml.info.
15.21 INFO Nameserver ns0.abul.org/195.214.228.104 preserves original case of queried names (www.RmlL.Info).
15.27 DEBUG When asked for SOA records on "WWW.RML.INFO" and "WWW.rml1.INFO", nameserver ns0.abul.org/195.214.228.104 returns same RCODE "NOERROR".
15.30 DEBUG When asked for SOA records on "WWW.RML.INFO" and "WWW.rml1.INFO", nameserver rml1.rml.info/80.67.169.65 returns same RCODE "NOERROR".
15.30 INFO When asked for SOA records on "WWW.rml1.INFO" with different cases, all servers reply consistently.
15.31 DEBUG Module Zonemaster::Test::Nameserver finished running.
15.31 DEBUG Using module Zonemaster::Test::Syntax version v1.0.1.
15.31 INFO No illegal characters in the domain name (rml.info).
15.31 INFO Neither end of any label in the domain name (rml.info) has a hyphen.
15.31 INFO Domain name (rml.info) has no label with a double hyphen ('--') in position 3 and 4 (with a prefix which is not 'xn--').
15.32 INFO Nameserver (ns0.abul.org) syntax is valid.
15.32 INFO Nameserver (rml1.rml.info) syntax is valid.
15.33 INFO There is no misused 'a' character in the SOA RNAME field (root.admin.rml.info).
15.34 INFO The SOA RNAME field (root@admin.rml.info) is compliant with RFC2822.
15.34 INFO SOA MNAME (admin.rml.info) syntax is valid.
15.35 INFO Domain name MX (rml1.rml.info) syntax is valid.
15.37 DEBUG Module Zonemaster::Test::Syntax finished running.
15.37 DEBUG Using module Zonemaster::Test::Zone version v1.0.1.
16.46 NOTICE SOA 'mname' nameserver (admin.rml.info) is not listed in "parent" NS records for tested zone (ns0.abul.org;rml1.rml.info).
16.47 INFO SOA "refresh" value (21600) is greater than the SOA "retry" value (3600).
16.47 INFO SOA "retry" value (3600) is greater than the minimum recommended value (14400).
16.48 DEBUG SOA "expire" value (684000) is higher than the minimum recommended value (684000) and not lower than the "refresh" value (21600).
16.48 DEBUG SOA "minimum" value (864000) is within the recommended ones (3600/86400).
16.67 NOTICE SOA 'mname' value (admin.rml.info) refers to a NS which is an alias (CNAME).
17.24 NOTICE SOA 'mname' value (admin.rml.info) refers to a NS which is an alias (CNAME).
17.25 WARNING No IP address found for SOA 'mname' nameserver (admin.rml.info).
17.26 DEBUG MX record for the domain is not pointing to a CNAME.
17.26 INFO Target (MX=rml1.rml.info) found to deliver e-mail for the domain name.
17.26 DEBUG Module Zonemaster::Test::Zone finished running.
Target Users

✓ End-user (connect directly to the public GUI “zonemaster.net”)

✓ Domain administrators (install your own Engine and the CLI)
  ✓ Engine - https://github.com/dotse/zonemaster-engine/blob/master/docs/Installation.md
  ✓ CLI - https://github.com/dotse/zonemaster-cli/blob/master/docs/Installation.md

✓ If you want to have control of your uses:
  ✓ Backend with database -
    https://github.com/dotse/zonemaster-backend/blob/master/docs/Installation.md
  ✓ GUI - https://github.com/dotse/zonemaster-gui/blob/master/docs/Installation.md

✓ You can also use it from your application
Comprehensive verification of a DNS zone using Zonemaster – from the GUI
How to run a test from the CLI?

```
aTnic@zonemaster:~$ zonemaster-cli rmll.info
Seconds  Level  Message
---------  ------  ---------------------------------------------
   17.83  NOTICE  Nameserver ns0.abul.org has an IP address (195.214.228.104) with mismatched PTR result (hiero.abul.org.).
   29.90  NOTICE  There are neither DS nor DNSKEY records for the zone.
   29.90  NOTICE  The zone is not signed with DNSSEC.
   31.56  NOTICE  SOA 'mname' nameserver (admin.rmll.info) is not listed in "parent" NS records for tested zone (ns0.abul.org;rmll1.rmll.info).
   31.96  NOTICE  SOA 'mname' value (admin.rmll.info) refers to a NS which is an alias (CNAME).
   32.35  NOTICE  SOA 'mname' value (admin.rmll.info) refers to a NS which is an alias (CNAME).
   32.35  WARNING No IP address found for SOA 'mname' nameserver (admin.rmll.info).
```
Options from the CLI

```
arnic@zonemaster:~$ zonemaster-cli --usage
```

- `-h` --help: Prints this usage information.
- `--version` Print version information and exit.
- `--level level`: The minimum severity level to display. Must be one of CRITICAL, ERROR, WARNING, NOTICE, INFO or DEBUG.
- `--locale locale`: The locale to use for messages translation.
- `--json json`: Flag indicating if output should be in JSON or not.
- `--json_stream json_stream`: Flag indicating if output should be streaming JSON or not.
- `--json_translate json_translate`: Flag indicating if streaming JSON output should include the translated message of the tag or not.
- `--raw`: Flag indicating if output should be translated to human language or dumped raw.
- `--time`: Print timestamp on entries.
- `--show_level`: Print level on entries.
- `--show_module`: Print the name of the module on entries.
- `--ns`: A name/ip string giving a nameserver for undelegated tests, or just a name which will be looked up for IP addresses. Can be given multiple times.
- `--save`: Name of a file to save DNS data to after running tests.
- `--restore`: Name of a file to restore DNS data from before running test.
- `--ipv4 ipv4`: Flag to permit or deny queries being sent via IPv4. --ipv4 permits IPv4 traffic, --no-ipv4 forbids it.
- `--ipv6 ipv6`: Flag to permit or deny queries being sent via IPv6. --ipv6 permits IPv6 traffic, --no-ipv6 forbids it.
- `--list_tests`: Instead of running a test, list all available tests.
- `--test test`: Specify test to run. Should be either the name of a module, or the name of a module and the name of a method in that module separated by a "." character (Example: "Basic/basic1"). The method specified must be one that takes a zone object as its single argument. This switch can be repeated.
- `--stop_level`: As soon as a message at this level or higher is logged, execution will stop. Must be one of CRITICAL, ERROR, WARNING, NOTICE, INFO or DEBUG.
- `--config config`: Name of configuration file to load.
- `--policy policy`: Name of policy file to load.
- `--ds ds`: Strings with DS data on the form "keytag,algorithm,type,digest".
- `--count count`: Print a count of the number of messages at each level.
- `--progress progress`: Boolean flag for activity indicator. Defaults to on if STDOUT is a tty, off if it is not.
- `--encoding encoding`: Name of the character encoding used for command line arguments.
- `--ntimes ntimes`: At the end of a run, print a summary of the times the name servers took to answer. Print the effective configuration used in JSON format, then exit.
- `--dump_config`: Print the effective policy used in JSON format, then exit.
- `--sourceaddr sourceaddr`: Local IP address that the test engine should try to send its requests from.
- `--elapsed elapsed`: Print elapsed time at end of run.
Comprehensive verification of a DNS zone using Zonemaster – from the API

je n'ai pas eu de retour, peut être que c'était trop sybillin
Running a batch test from the backend using JSON-RPC (1/2)

```
{
  "jsonrpc": "2.0",
  "id": 147559211348450,
  "method": "add_batch_job",
  "params": {
    "api_key": "fromage",
    "username": "citron",
    "test_params": {},
    "domains": [
      "zonemaster.net",
      "domain1.se",
      "domain2.fr"
    ]
  }
}
```

Example response:

```
{
  "jsonrpc": "2.0",
  "id": 147559211348450,
  "result": 8
}
```
Running a batch test from the backend using JSON-RPC (2/2)

```
{
    "jsonrpc": "2.0",
    "id": 147559211994909,
    "method": "get_batch_job_result",
    "params": "8"
}
```

Example response:

```
{
    "jsonrpc": "2.0",
    "id": 147559211994909,
    "result": {
        "nb_finished": 5,
        "finished_test_ids": [
            "43b408794155324b",
            "be9cbb44ff0b2a8",
            "62f487731116fd87",
            "692f8ffc32d647ca",
            "6441a83fcee8d28d"
        ],
        "nb_running": 195
    }
}
```

https://github.com/dotse/zonemaster-backend/blob/develop/docs/API.md (Documentation is being Updated)
Using Zonemaster from your application

Use Zonemaster;

# execute a test
my @log = Zonemaster->test_zone( 'fosdem2018.org' );
my @json = Zonemaster->logger->json( 'NOTICE' );

# get name servers of a zone
my @zone = Zonemaster->zone( 'fosdem2018.org' );
my @nameservers = join( ' ', @{ $zone->ns_names } );
You can implement Zonemaster tool for your internal use
Zonemaster in brief

✓ Open Source Project
  ✓ Source code written in Perl & Java Script (BSD-2 License)
  ✓ Documentation (CC BY 4.0 License)
✓ Aim – to be the state-of-art checking tool for Internet domain names
✓ Can check delegated and non-delegated zones
✓ Provides CLI/Web/API interfaces
✓ Provides high/medium/low levels of output
✓ Provides different output formats – Web/Text/JSON
✓ Currently supports outputs in English, French, Swedish and Danish
✓ Can be tailored for your needs
✓ OS versions supported – Debian, CentOS, FreeBSD, Ubuntu
# Requirements to test case mapping

https://github.com/dotse/zonemaster/blob/master/docs/requirements/TestRequirements.md

<table>
<thead>
<tr>
<th>Req</th>
<th>Requirement description</th>
<th>Level and Test Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>UDP connectivity</td>
<td>CONNECTIVITY</td>
</tr>
<tr>
<td>R02</td>
<td>TCP connectivity</td>
<td>CONNECTIVITY</td>
</tr>
<tr>
<td>R03</td>
<td>Address in a private network</td>
<td>ADDRESS</td>
</tr>
<tr>
<td>R04</td>
<td>Address should not be part of a bogon prefix</td>
<td>ADDRESS</td>
</tr>
<tr>
<td>R05</td>
<td>Illegal symbols in domain name</td>
<td>SYNTAX</td>
</tr>
<tr>
<td>R06</td>
<td>Dash ('-') at start or beginning of domain name</td>
<td>SYNTAX</td>
</tr>
<tr>
<td>R07</td>
<td>Double dash in domain name</td>
<td>SYNTAX</td>
</tr>
<tr>
<td>R08</td>
<td>The child domain has at least one working name server</td>
<td>BASIC</td>
</tr>
<tr>
<td>R09</td>
<td>At least two nameservers for the domain</td>
<td>DELEGATION</td>
</tr>
<tr>
<td>R10</td>
<td>Identical addresses</td>
<td>DELEGATION</td>
</tr>
<tr>
<td>R11</td>
<td>Nameserver addresses on same subnet</td>
<td>CONNECTIVITY</td>
</tr>
<tr>
<td>R12</td>
<td>Nameserver addresses are all on the same subnet</td>
<td>CONNECTIVITY</td>
</tr>
</tbody>
</table>
84 requirements Classified into 8 categories (https://github.com/dotse/zonemaster/tree/master/docs/specifications/tests)

- Basic
- Address
- Connectivity
- Consistency
- Delegation
- DNSSEC
- Name Server
- Syntax

All test specifications are documented
BASIC00: Domain name must be valid

Test case identifier

BASIC00 Domain name must be valid

Objective

In order to begin testing the domain name from the input must be a valid domain name. The domain name must follow the rules defined in section 2.3.1 of RFC 1123. The objective of this test is to see if it is possible to have the domain name mapped into a DNS packet in order to proceed with further testing.

Inputs

The label of the domain name to be tested.
Ordered description of steps to be taken to execute the test case

1. If the input domain name starts with a "." character or has two or more consecutive "." characters the test case fails.

2. Remove any trailing "." character from the input domain name.

3. If the domain name contains non-ASCII characters, try to convert it to an ASCII domain, without a trailing "." character, with the IDN rules (see above). If the conversion fails, then this test case fails.

4. If the domain name does not meet the requirement of permissible characters of an ASCII domain above, this test case fails.

5. If the total length of the input is more than 253 octets, this test case fails.

6. Separate the input by the dividing it into labels separated by the "." character.

7. If any of the labels from step 6 has more than 63 octets, this test case fails.

Outcome(s)

The outcome is PASS or FAIL.

Special procedural requirements

If this test fails, it's impossible to continue and the whole testing process is aborted.

Intercase dependencies

None.
Implementation

✓ Perl
  ✓ Engine
    ✓ Perl library (Zonemaster::*), which implements all functionality for testing
    ✓ Functionality for logging results
  ✓ CLI
  ✓ Backend API
    ✓ JSON RPC interface to the engine. Can be used by other apps
✓ Javascript + Perl
  ✓ GUI – *A completely updated version of the GUI is planned for may 2018 release*
✓ C
  ✓ LDNS
    ✓ Resolver functionality built on ldns (Net::LDNS)
je n'ai pas eu de retour, peut être que c'était trop sybillin

afnic@zonemaster:~$ zonemaster-cli rmll.info
Seconds Level  Message

17.83 NOTICE  Nameserver ns0.abul.org has an IP address (195.214.228.104) with mismatched PTR result (hiero.abul.org.).
29.90 NOTICE  There are neither DS nor DNSKEY records for the zone.
29.90 NOTICE  The zone is not signed with DNSSEC.
31.56 NOTICE  SOA 'mname' nameserver (admin.rml1.info) is not listed in "parent" NS records for tested zone (ns0.abul.org;rml1.rml1.info).
31.96 NOTICE  SOA 'mname' value (admin.rml1.info) refers to a NS which is an alias (CNAME).
32.35 NOTICE  SOA 'mname' value (admin.rml1.info) refers to a NS which is an alias (CNAME).
32.35 WARNING  No IP address found for SOA 'mname' nameserver (admin.rml1.info).
Log – Raw format

afnic@zonemaster:~$ zonemaster-cli --raw rmll.info

17.76 NOTICE ADDRESS:NAMESERVER IP PTR MISMATCH address=195.214.228.104; names=hiero.abul.org.; ns=ns0.abul.org
24.70 NOTICE DNSSEC:NEITHER DNSKEY NOR DS child=195.214.228.104; parent=199.254.31.1
24.70 NOTICE DNSSEC:NOT SIGNED zone=rmll.info
26.33 NOTICE ZONE:MNAME NOT IN GLUE mname=admin.rmll.info; ns=ns0.abul.org;rmll1.rmll.info
26.72 NOTICE ZONE:MNAME IS CNAME mname=admin.rmll.info
27.10 NOTICE ZONE:MNAME IS CNAME mname=admin.rmll.info
27.10 WARNING ZONE:MNAME HAS NO ADDRESS mname=admin.rmll.info
je n'ai pas eu de retour, peut être que c'était trop sybillin
Log Levels

DEBUG 1, 2, 3
INFO
NOTICE
WARNING
ERROR
CRITICAL

Configured by policy
Policy – to decide on the severity level of the results
Policy – to decide which test cases to run

```json
{
  "__testcases__": {
    "syntax01": 1,
    "syntax02": 1,
    "syntax03": 1,
    "syntax04": 1,
    "syntax05": 1,
    "syntax06": 0,
    "syntax07": 1,
    "syntax08": 1
  }
}
```
je n'ai pas eu de retour, peut être que c'était trop sybillin

```json
{
    "asnroots" : [ "asnlookup.zonemaster.net", "asnlookup.iis.se", "asn.cymru.com" ],
    "net" : {
        "ipv4" : 1,
        "ipv6" : 1
    },
    "no_network" : 0,
    "resolver" : {
        "defaults" : {
            "debug" : 0,
            "dnssec" : 0,
            "edns_size" : 0,
            "igntc" : 0,
            "recurse" : 0,
            "retrans" : 3,
            "retry" : 2,
            "usevc" : 0
        }
    }
}
```
Config filter – to have fine grained control over the tests

```
"logfilter" : {
    "BASIC" : {
        "IPV6_ENABLED" : [
            {
                "when" : {
                    "rrtype" : "NS",
                    "ns" : "f.ext.nic.fr",
                    "address" : "2001:67c:1010:11::53"
                },
                "set" : "WARNING"
            },
            {
                "when" : {
                    "ns" : "h.ext.nic.fr"
                },
                "set" : "ERROR"
            }
        ]
    }
}
```

All configurable features will be integrated to a one profile file (planned for may 2018 release)
Configurable features from the GUI
Standardisation efforts

✓ Also planning to introduce a the specifications as a best practices document at RIPE
Zonemaster Usage & other information

✓ IIS, CIRA, DK Hostmaster, Pingdom, RIPE NCC has their own Zonemaster implementation
✓ ICANN have recently confirmed that it will be starting to use Zonemaster for PDT.
✓ Registrar like ovh and GoDaddy have recommended Zonemaster to their users
✓ CENTR (Council for European Top Level Domains) is planning to use Zonemaster
✓ IIS and Afnic have dedicated support for Zonemaster (Currently around 6 people are partly working on ZM)
✓ Users and contributors are welcome
References

✓ Try out Zonemaster at https://zonemaster.net
✓ Information regarding installation, OS support, documentation, different modules can be found here : https://github.com/dotse/zonemaster
✓ To contact the team
  ✓ contact@zonemaster.net
  ✓ zonemaster-users@lists.iis.se
  ✓ zonemaster-devel@lists.iis.se (Development related questions)
Thank you!
Architecture

domain name.tld + options →

1. DNS lookup

2. 

Test: Zone

3. 

Test: SOA

4. 

Test: Nameserver

5. 

Test: DNSSEC

6. 

Authoritative DNS Servers → Report → Database
## Functional breakdown

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