

Pre-Delegation Testing

DNS Zone Test Cases

Version D

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1. Introduction

1.1 Scope

The Pre-Delegation Testing Provider will test the DNS service for the designated zone and verify the resulting answers. The test case described in this document is done using a program for doing introspective DNS tests of the zone content from the designated zone.

1.2 References

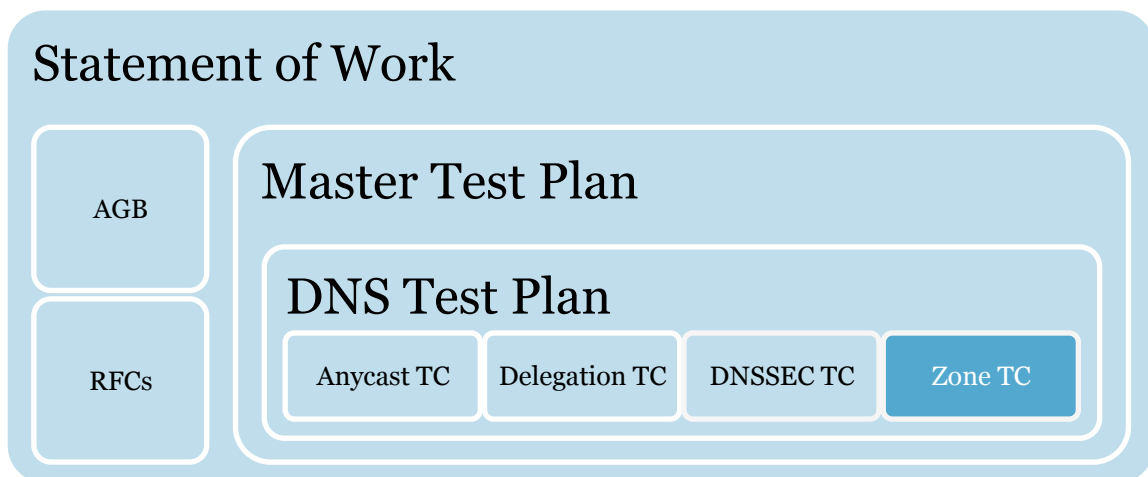
1.2.1 External

- IEEE 829-2008
- ICANN gTLD Applicant Guidebook, Version 2012-06-04

1.2.2 Internal

- Pre-Delegation Testing, Statement of Work
- Pre-Delegation Testing, Master Test Plan
- Pre-Delegation Testing, DNS Test Plan

1.2.3 Document Hierarchy



1.3 Context

All tests are to be performed over IPv4 and IPv6 from at least five points on the Internet. At least one probe node should be located in every ICANN region.

1.4 Notation for description

Each test case for the DNS service is described in their own section. The test procedures are described directly in the test case.

2. Check for too long TTL on DS records

2.1 Test case identifier

DNS28 DS TTL

2.2 Objective

The TTL on DS records in the designated zone must not be too long (>172800 seconds).

2.3 Inputs

The following information will be needed as input for this test case:

Id	Description	Type
TLD	The ASCII compatible name of the TLD	String
DnsNameServer-[1..n]	FQDN of authoritative name server	String
DnsGlueRecord-[1..n]	All IPv4 or IPv6 addresses for auth NS	String
EppDomCreate03Name	The name of a secure delegation (with a DS record)	String

The above input is also considered to be the exact same information that is sent to IANA for inclusion in the root zone. IANA will only publish the subordinate host glue records in the root zone.

The last parameter is taken from the input data for the EPP test case EPPDomCreate03.

2.4 Outcome(s)

All TTL values from the DS record must be less than or equal to 172800 seconds for this test to pass. If there are missing DS records, or the TTL value is higher than 172800 this test emits a warning.

2.5 Environmental needs

The EPP test case EPPDomCreate03 must have been performed at least 60 minutes previous to this test case. The EPP test registers a new domain name in the designated zone and adds a DS record to the delegation.

2.6 Special procedural requirements

This test has to be executed separately from the other tests in order to wait for the required 60 minutes after the EPP tests has been finished.

2.7 Intercase dependencies

This test depends on the EPP test level to finish, since we need a registered domain with a secure delegation in order to have a DS record available for testing.

2.8 Ordered description of steps to be taken to execute the test case

A query for the DS record of the EppDomCreate03Name is done for all the listed name servers. The TTL of the DS record is evaluated, and it must not exceed 172800 seconds.

3. Wildcards must not exist in the TLD zone

3.1 Test case identifier

DNS29 Wildcards

3.2 Objective

There must not be any wildcards in the designated TLD zone, also known as Site Finder.¹

3.3 Inputs

The following information will be needed as input for this test case:

Id	Description	Type
TLD	The ASCII compatible name of the TLD	String
DnsNameServer-[1..n]	FQDN of authoritative name server	String
DnsGlueRecord-[1..n]	All IPv4 or IPv6 addresses for auth NS	String

The above input is also considered to be the exact same information that is sent to IANA for inclusion in the root zone. IANA will only publish the subordinate host glue records in the root zone.

3.4 Outcome(s)

Both queries must answer with the RCODE NXDOMAIN for this test to pass. All other RCODEs will generate a fail.

3.5 Environmental needs

All authoritative name servers listed in the inputs section should be authoritative for the designated zone.

3.6 Special procedural requirements

This test has no procedural requirements.

3.7 Intercase dependencies

This test depends on the EPP test level to finish, since we need a registered domain with a secure delegation in order to have a DS record available for testing.

3.8 Ordered description of steps to be taken to execute the test case

Two queries are made, for the A and the AAAA records for an almost certainly nonexistent name in the designated zone. The RCODE should not be NOERROR.

¹ http://en.wikipedia.org/wiki/Site_Finder

4. Check for use of zone as “dotless domain”

4.1 Test case identifier

DNS30 Dotless domain

4.2 Objective

The apex of the domain must not contain authoritative data such as an A/AAAA record, or an MX record, for use as what is called a “dotless domain”.

4.3 Inputs

See section 3.3 in this document.

4.4 Outcome(s)

All queries must answer with the RCODE NOERROR, and the ANSWER and AUTHORITY parts of the answer must not contain NS records for this test to pass. Any NS records in the answer will fail this test.

4.5 Environmental needs

All authoritative name servers listed in the inputs section should be authoritative for the designated zone.

4.6 Special procedural requirements

This test has no procedural requirements.

4.7 Intercase dependencies

This test depends on the EPP test level to finish, since we need a registered domain with a secure delegation in order to have a DS record available for testing.

4.8 Ordered description of steps to be taken to execute the test case

Three queries are made, for the A, the AAAA and the MX records for the label <TLD> in the designated zone. The RCODE should be NOERROR, with the ANSWER and AUTHORITY parts of the answer should be empty.

5. nic.<TLD> must be delegated

5.1 Test case identifier

DNS31 nic.<TLD> or whois.nic.<TLD> must be delegated

5.2 Objective

The names nic.<TLD> or whois.nic.<TLD> must be a delegated zone.

5.3 Inputs

See section 3.3 in this document.

5.4 Outcome(s)

The answer must be NOERROR and the ANSWER or AUTHORITY section must contain NS records, for either nic.<TLD> or whois.nic.<TLD>. If any of the queries fail to return an NS set, this test fails.

5.5 Environmental needs

All authoritative name servers listed in the inputs section should be authoritative for the designated zone.

5.6 Special procedural requirements

This test has no procedural requirements.

5.7 Intercase dependencies

This test depends on the EPP test level to finish, since we need a registered domain with a secure delegation in order to have a DS record available for testing.

5.8 Ordered description of steps to be taken to execute the test case

A query is made for the NS record for the label nic.<TLD> and the whois.nic.<TLD> in the designated zone. The answer should be a set of NS records for the name server handling the delegation.

6.	Global
6.1	Glossary
6.2	Document change procedures
