

# Registry System Testing

## Standard PDT Test Plan

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# Document control

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# 1. Introduction

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This document describes a standard Pre-Delegation Test (PDT). PDT is part of the Registry System Testing framework.

## 1.1 Background

ICANN (Internet Corporation for Assigned Names and Numbers) are now allowing applications for new gTLDs (generic Top-Level Domains). All applicants have to go through the evaluation process. One step in the evaluation process is the Pre-Delegation Testing (PDT).

## 1.2 Purpose

The purpose of the Pre-Delegation Testing is to verify that the applicant has met its commitment to establish registry operations in accordance with the technical and operational criteria described in the gTLD Applicant Guidebook (AGB). Each applicant will be required to complete Pre-Delegation Testing as a prerequisite to delegation into the root zone.

## 1.3 Scope

Only the test cases listed in this document will be included in a Standard PDT Test. For details about a test case, refer to the relevant Test Area Specification document.

## 1.4 References

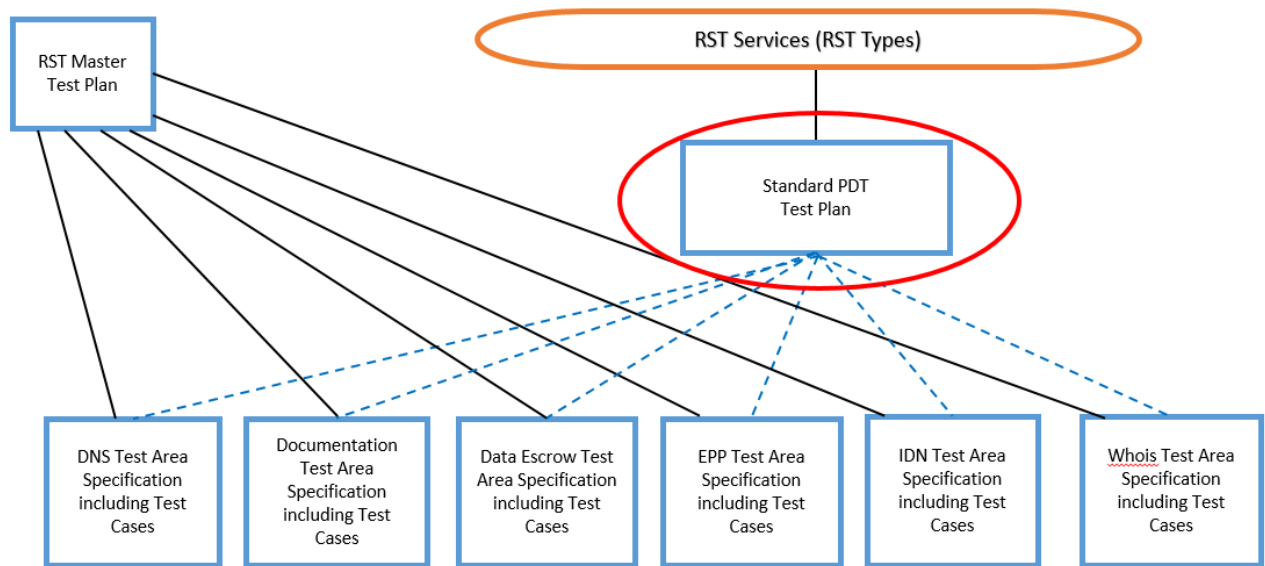
### 1.4.1 External

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

### 1.4.2 Internal

- ~~Pre-Delegation Testing, Statement of Work~~
- Registry System Testing, DNS Test Area Specification
- Registry System Testing, Whois Test Area Specification
- Registry System Testing, EPP Test Area Specification
- Registry System Testing, IDN Test Area Specification
- Registry System Testing, Data Escrow Test Area Specification
- Registry System Testing, Documentation Test Area Specification

### 1.4.3 Document Hierarchy



This document is one of many that specifies the Test Plan for a specific RST Type (circled in red in the above graphic).

## 1.5 System overview and key features

Each applicant for a new gTLD will undergo Pre-Delegation Testing. The primary purpose is to test the publicly exposed interfaces. This includes:

- Whois
- EPP
- DNS/DNSSEC
- Data Escrow
- IDN registrations (if supported)

There is also a set of technical documentation that needs to be reviewed. This set includes:

- DNSSEC Practice Statement (DPS)
- IDN tables, if applicant supports registration of IDN labels

## 2. Details of the Standard PDT Test Plan

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### 2.1 System requirements

~~The initial~~A set of requirements are ~~found in the Statement of Work. Some of the requirements are also referring to requirements specified~~ in the ICANN gTLD Applicant Guide Book and the IANA Technical Requirements.

#### ~~2.1.1~~ Statement of Work

~~The Statement of Work (SOW) clearly marks the requirements with a number. R1 to R8 are requirements on the actual test process. The table below will focus on R9 to R28.~~

#### ~~2.1.22.1.1~~ gTLD Applicant Guide Book

Module 5 in the gTLD Applicant Guide Book (AGB) describes the final steps for the applicant before the new gTLD can be delegated. There is a mixture of test areas, as defined in section 2.2, e.g. DNS, document, and performance testing. No clear requirement reference can be used. It is thus up to each test plan to define a requirement that refers to that particular text segment.

#### ~~2.1.32.1.2~~ IANA Technical Requirements

IANA clearly defines the requirements on authoritative name servers and the DNSSEC trust anchors.

### 2.2 Test Areas included in a Standard PDT Test

1. DNS
2. Whois
3. EPP
4. IDN
5. Data Escrow
6. Documentation

### 2.3 Test Cases included in a Standard PDT Test

#### 2.3.1 DNS

Full description of the DNS Test Cases is found in the DNS Test Area Specification.

- DNS01 Minimum number of name servers
- DNS02 Name server reachability
- DNS03 Answer authoritatively
- DNS04 Network diversity
- DNS05 Consistency between glue and authoritative data
- DNS06 Consistency between delegation and zone
- DNS07 SOA record consistency between authoritative name servers
- DNS08 NS record consistency between authoritative name servers
- DNS09 No truncation of referrals
- DNS10 Prohibited networks
- DNS11 No open recursive name service
- DNS12 Same source address
- DNS14 Legal values for the DS hash digest algorithm
- DNS15 DS must match a DNSKEY in the designated zone

- DNS16 Signatures in the designated zone must validate
- DNS17 Zone contains NSEC or NSEC3 records
- DNS18 Consistency between glue and authoritative data
- DNS19 SOA record consistency between authoritative name servers
- DNS20 NS record consistency between authoritative name servers
- DNS21 No open recursive name service
- DNS23 Syntax for SOA RNAME
- DNS24 SOA Minimum
- DNS25 NSEC3 Iterations
- DNS26 RRSIG Lifetimes
- DNS27 DNSKEY Algorithms
- DNS28 DS TTL
- DNS29 Wildcards
- DNS30 Dotless domain
- DNS31 nic.<TLD> or whois.nic.<TLD> must be delegated
- DNS32 Name server reachability
- DNS33 Answer authoritatively
- DNS34 Consistency between delegation and zone
- DNS35 Name server must be able to provide referral to known subdomains
- DNS36 RRSIG(SOA) must validate with supplied DS record

### 2.3.2 Whois

Full description of the Whois Test Cases is found in the Whois Test Area Specification.

- WhoisCLI01 Query for domain name
- WhoisCLI02 Query for registrar
- WhoisCLI03 Query for name server
- WhoisWeb01 Verify IPv4 connectivity
- WhoisWeb02 Verify IPv6 connectivity
- WhoisWeb03 Manual query for domain name
- WhoisWeb04 Manual query for registrar
- WhoisWeb05 Manual query for name server
- WhoisWeb09 Manual query for domain name over IPv6
- WhoisSearch00 Verify if Whois Search is supported
- WhoisSearch01 Verify abuse protection
- WhoisSearch02 Partial Match capabilities
- WhoisSearch03 Exact Match search
- WhoisSearch04 Boolean Search capabilities
- WhoisSearch09 Search over IPv6

### 2.3.3 EPP

Full description of the EPP Test Cases is found in the EPP Test Area Specification.

- EppConnTest Verify connectivity
- EPPDomCreate01 Create a domain
- EPPDomCreate02 Add hosts to existing domain
- EPPDomCreate03 Create a DNSSEC-signed domain

- EPPDomRenew01 Renew a domain
- EPPDomTransfer01 Request transfer of a domain
- EPPDomTransfer02 Approve a requested domain transfer
- EPPDomDelete01 Delete a domain
- EPPConCreate 01 Create a contact
- EPPConDelete01 Delete a contact
- EPPHostDelete01 Delete a host
- EPPHostUpdate01 Update a host
- EPPContactUpdate01 Update a contact
- EPPDomUpdate01 Add DNSSEC records to a domain
- EPPExtensions Verify required EPP extensions

#### 2.3.4 IDN

Full description of the IDN Test Cases is found in the IDN Test Area Specification.

- IDNvalid00 IDN documentation validation
- IDNvalid01 IDN Table validation
- IDNvalid02 IDNA Code Point validation
- IDNvalid03 Contextual Rule validation
- IDNvalid04 IDN Script validation
- IDNvalid05 IDN Script Mixing Rule validation
- IDNvalid06 IDN Language validation
- IDNvalid07 Variant Code Point validation
- IDNvalid09 Variant Management Policy
- IDNvalid10 Basic IDN compliance
- IDNvalid11 IDN online registry response validation
- IDNvalid12 Asymmetrical and intransitive variant rule verification
- IDNvalid13 Pre-composed vs. decomposed character equivalence verification

#### 2.3.5 Data Escrow

Full description of the Data Escrow Test Cases is found in the Data Escrow Test Area Specification.

- DataEscrowFileName01 Verify file names, full escrow
- DataEscrowFileName02 Verify file names, differential escrow
- DataEscrowVerify01 Verify signatures, full escrow
- DataEscrowVerify02 Verify signatures, differential escrow
- DataEscrowContent01 Validate content, full escrow
- DataEscrowContent02 Validate content, differential escrow

#### 2.3.6 Documentation

Full description of the Documentation Test Cases is found in the Documentation Test Area Specification.

- DocDNS01 Capacity and DDOS mitigation
- DocDNS02 Load capacity, latency and network reachability
- DocDNS03 Load capacity – tables and graphs
- DocDNS04 Load capacity – 20 data points
- DocDNS05 Query latency



- DocDNS06 TCP reachability
- DocDNS07 Basic DNSSEC support
- DocDNS08 Name server consistency
- DocWhois01 Maximum QPS
- DocWhois02 Data mining
- DocEPP01 EPP capacity
- DocEPP02 EPP TPS
- DocEPP03 EPP landrush
- DocEPP04 EPP extensions
- DocEscr01 Data Escrow Agreement
- DocSL01 DNS SLA
- DocSL02 Whois SLA
- DocSL03 EPP SLA
- DocDPS01 DNSSEC Practice Statement – Structure
- DocDPS02 DNSSEC Practice Statement – Content

### **3. General**

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#### **3.1 Glossary**

The glossary is available in the RST Master Test Plan.

#### **3.2 Document change procedures**

Document change procedures are documented in the RST Master Test Plan.