

# Pre-Delegation Testing

## EPP Test Plan

Version C

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# Document control

## Document information and security

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## 1. Introduction

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This Level Test plan focuses on the EPP service of the new gTLDs.

### 1.1 Scope

The Pre-Delegation Testing Provider will execute an *Extensible Provisioning Protocol* (EPP) test case suite using registrar credentials supplied by the applicant. The tests include:

- IPv6 transport support (if supported by the applicant)
- IPv6 DNS glue record handling
- DNSSEC support

All tests are to be performed over IPv4 and IPv6 from various points on the Internet.

### 1.2 References

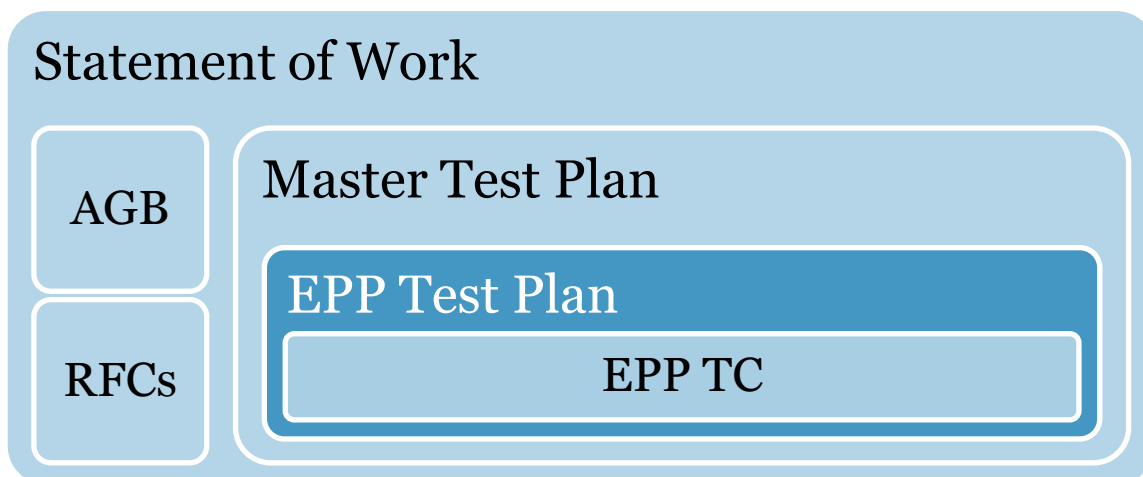
#### 1.2.1 External

- 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, Documentation Test Plan
- Pre Delegation Testing, EPP Test Cases

#### 1.2.3 Document Hierarchy



### 1.3 Level in the overall sequence

This Test Plan and the associated Test Cases can be run in parallel with the other Level Test Plans.

### 1.4 Test classes and overall test conditions

The EPP service of the gTLD will be tested over IPv4. If the service is IPv6-enabled, then the tests will also be performed using this protocol. All responses will be tested with positive test case.

## 2. Details for this level of test plan

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### 2.1 Test items and their identifiers

#### 2.1.1 Statement of Work

The main requirements for testing the EPP service are found in the Statement of Work:

- [R13]** Test the applicant's EPP interface for standards compliance with the requirements described in the Section 5.2 of the AGB, including the following commands:
  - domain.create
  - domain.renew
  - domain.update
  - domain.transfer
  - domain.delete
  - contact.create
  - contact.delete
  - host.create
  - host.delete
- [R14]** The Pre-Delegation Testing Provider should use internal subordinated hosts to verify the correct handling of glue records.
- [R15]** The Pre-Delegation Testing Provider should verify DNSSEC support.
- [R16]** The Pre-Delegation Testing Provider should verify that EPP transform commands are propagated to the DNS and Whois servers of the applicant in less than 60 minutes.

Note that contact.update and host.update are missing in the Statement of Work, but it will be corrected in a future amendment. They will thus not be excluded from the tests.

#### 2.1.2 Applicant Guidebook

Section 5.2 of the AGB states the following requirements:

**EPP Support --** As part of a shared registration service, applicant must provision EPP services for the anticipated load. ICANN will verify conformance to appropriate RFCs (including EPP extensions for DNSSEC). ICANN will also review self-certification documentation regarding EPP transaction capacity.

Documentation shall provide a maximum Transaction per Second rate for the EPP interface with 10 data points corresponding to registry database sizes from 0 (empty) to the expected size after one year of operation, as determined by applicant.

Documentation shall also describe measures taken to handle load during initial registry operations, such as a land-rush period.

**IPv6 support --** The ability of the registry to support registrars adding, changing, and removing IPv6 DNS records supplied by registrants will be tested by ICANN. If the registry supports EPP access via IPv6, this will be tested by ICANN remotely from various points on the Internet.

**DNSSEC support --** ICANN will review the ability of the registry to support registrars adding, changing, and removing DNSSEC-related resource records as well as the registry's overall key management procedures. In particular, the applicant must demonstrate its ability to support the full life cycle of key changes for child domains. Inter-operation of the applicant's secure communication channels with the IANA for trust anchor material exchange will be verified.

The practice and policy document (also known as the DNSSEC Policy Statement or DPS), describing key material storage, access and usage for its own keys is also reviewed as part of this step.

The following requirements have been identified from the text above. Note that the requirements on Self-certification documents are handled by the Documentation Test Plan.

- [AGB1]** EPPServer **MUST** be accessible over IPv4
- [AGB2]** EPPServer **SHOULD** be accessible over IPv6
- [AGB3]** EPPServer **MUST** handle IPv6 DNS record (glue records)
- [AGB4]** EPPServer **MUST** handle DNSSEC records

#### 2.1.3 Specification 6

Specification 6 of the registry agreement will not be fully cited here, but a number of requirements have been identified. Optional requirements and document verification requirements have been removed.

- [REG1]** EPPServer **MUST** be conformant with RFC 5910, RFC 5730, RFC 5731, RFC5732, RFC5733 and RFC5734
- [REG2]** EPPServer **MUST** be accessible from different parts of Internet.

## 2.2 Test Traceability Matrix

This table describes the different test cases and their mapping to the requirements. They will be documented in separate test case documents: EPP Test Cases.

Test ID	Description	Requirement Point
Epp Conn Test	Connect and login from 5 probes over IPv4 and IPv6.	REG2, REG1, AGB1, AGB2
EPP DomCreate 01	Create a domain with predefined contact and name servers. Verify that the domain is visible in zone within 24 hours. Verify that whois is updated within 24 hours	R13, R16, REG1
EPP DomCreate 02	Create a domain with predefined contact. Create 2 subordinate name servers and update domain with this. Verify that the correct glue records are visible in zone within 24 hours.	R14, REG1, AGB2
EPP DomCreate 03	Create a domain with predefined contacts and name servers. Update domain with DS records. Verify that the correct DNSSEC records are visible in zone within 24 hours.	R15, REG1, AGB3
EPP DomRenew 01	Renew a domain.	R13, REG1
EPP DomTransfer01	Request transfer of an existing domain.	R13, REG1
EPP DomTransfer02	Accept transfer of a domain (From EPP DomTransfer 01).	R13, REG1
EPP DomDelete01	Delete a domain.	R13, REG1
EPP ConCreate 01	Create a contact.	R13, REG1
EPP ConDelete01	Delete a contact.	R13, REG1
EPP HostDelete01	Delete a host.	R13, REG1
EPP HostUpdate01	Update a host	R13, REG1
EPP ContactUpdate01	Update a contact	R13, REG1
EPP Domain Update01	Update one domain and add DS records and verify that update is visible in zone and whois within 60 minutes	R16

## 2.3 Features to be tested

The following features will be tested:

- EPP connectivity from different places on the Internet.
- EPP connectivity over IPv4 and if specified over IPv6.
- EPP commands to create a domain.
- EPP commands to create hosts.
- EPP commands to update domain.
- Zone distribution of glue records.
- Zone distribution of DNSSEC records.
- EPP commands to renew a domain.
- EPP commands to transfer a domain.
- EPP commands to delete a domain.
- EPP commands to create a contact.
- EPP commands to delete a contact
- EPP commands to delete a host.

- EPP commands to update a host
- EPP commands to update a contact



## 2.4 Features not to be tested

- External communication for domain transfer, if an external handling is required.
- The commands host.update and contact.update are not tested because they were not specified in the Statement of work.
- The IPv6 connectivity is not tested if the applicant does not support it.

## 2.5 Approach

The EPP server will first be tested from five different Internet locations with just the login and logout commands. If the applicant supports IPv6 then this will be tested, if not, only IPv4 will be tested. The other test cases will only be tested from one location since connectivity already has been tested in first test case.

There is no possibility to validate or check individual field's conformance to local policies. The applicant must thus send in valid field data that can be used in the tests. If the applicant has supplied invalid data, then the test will fail because it does not get the correct EPP result code (1000).

There are two ways of supplying information to the tests:

- Supply complete EPP XML strings with all information
- Supply only field values

To test the RFC compliance in the best way, it was determined to only require the field values from the applicant. The tests can then build RFC compliant EPP XML command, thus being able to verify that the applicant's EPP server accepts correctly formatted RFC compliant XML.

To be able to test a transfer there are two test cases that can be defined:

- First test is to request a transfer. If the domain transfer does not require an external handling, then the result code must be 1000, and in other cases it must be 1001.
- Second test will be to accept a transfer if the applicant supports this.

Any test of transfers beyond this requires external handling and will be impossible to do in the PDT testing system.

As the EPP tests are creating data in the applicant's database, the test is not repeatable without the applicant either cleaning out the newly created data, or supplying new test data.

## 2.6 Item pass/fail criteria

The EPP must reply with correct XML messages for the different commands as described in the relevant RFCs.

## 2.7 Suspension criteria and resumption requirements

The only suspension criteria for the test would be if there are external network problems outside the control of the applicant or the PDT tester.

## 2.8 Test deliverables

The EPP test level will produce:

- Level Test Logs (LTL)
- Anomaly Report (AR) in case of error
- Level Test Report (LTR)

### 3. Test management

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The goal of these documents is to describe the test cases and how the new gTLDs are tested. This is just a part of a larger project and defining test management is not part of this subproject. However, some information can be found in the Master Test Plan.

## 4. General

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### 4.1 Glossary

The glossary is available in the Master Test Plan.

### 4.2 Document change procedures

Document change procedures are documented in the Master Test Plan.