



# Pre-Delegation Testing

## Whois Web Test Cases

Version PF8 (draft)

DRAFT

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# Document control

## Document information and security

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## Revisions

Date	Version	Name	Description
2013-01-07	PA1	Rickard Bellgrim	Initial document
2013-01-11	PA2	Rickard Bellgrim	Update test cases
2013-01-14	PA3	Rickard Bellgrim	The test plan now has an example of response data
2013-01-24	PA4	Rickard Bellgrim	Update text
2013-02-06	PA5	Rickard Bellgrim	Update test cases after meeting with ICANN
2013-02-10	PA6	Rickard Bellgrim	Update checks on Whois data
2013-03-03	PA7	Rickard Bellgrim	No IP is required as input data; the IP will be resolved using the delegation data from the DNS tests. Check EPP keywords.
2013-03-10	PA8	Rickard Bellgrim	Add DnsGlueRecord as input data. HTTP support is mandatory and HTTPS support is optional.
2013-04-08	B	Staffan Hagnell	Delivery D2 for production
2013-05-03	C	Amar Andersson	Released
2013-06-12	PD1	Rickard Bellgrim	Clarify the test cases
2013-06-24	PD2	Rickard Bellgrim	Clarify pass/fail criteria
2013-07-01	D	Mats Dufberg	Released.
2014-01-17	E	Jan Sandström	Replaced warn instructions with SHOULD criteria. Clarified ordered steps and reinforced MUST criteria, numerous cases.
2015-07-16	PF1-PF7	Lennart Bonnevier, Mats Dufberg	Aligned PDT requirements to the Whois response formats defined in the Registry Agreement and the Advisory dated 2015-04-27. Removed test cases Whois Web 06-08 and added Whois Web 09. Added WARN if HTTPS does not work in WhoisWeb01 and -02. WhoisWeb01 and -02 now test all IP addresses. Added MUST if referral to HTTPS in WhoisWeb01 and -02.
2015-07-16	PF8	Mats Dufberg	Document prepared for public comments. This is still a draft version.

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## 1. Introduction

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### 1.1 Scope

The Pre-Delegation Testing Provider will test the Whois service over port 43 (Whois) and 80/443 (HTTP/HTTPS), and verify the response format.

The test cases in this document focus on the Whois service over port 80/443.

### 1.2 References

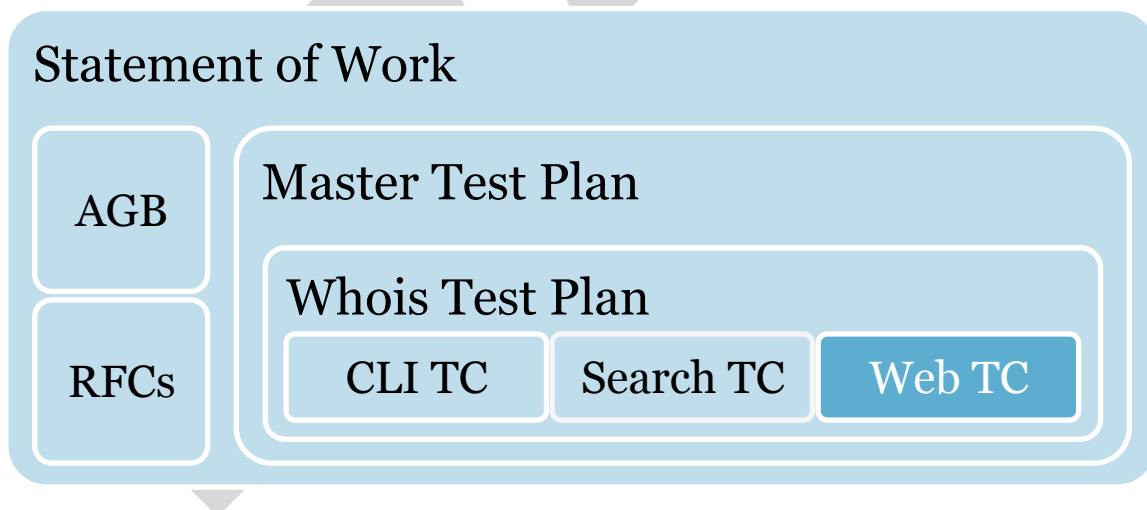
#### 1.2.1 External

- IEEE 829-2008
- ICANN gTLD Applicant Guidebook, Version 2012-06-04
- Advisory, "Advisory: Clarifications to the Registry Agreement, and the 2013 Registrar Accreditation Agreement (RAA) regarding applicable Registration Data Directory Service (Whois) Specifications", 2015-04-27, <https://www.icann.org/resources/pages/registry-agreement-raa-rdds-2015-04-27-en>

#### 1.2.2 Internal

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

#### 1.2.3 Document Hierarchy



### 1.3 Context

Automated tests (WhoisWeb01 and WhoisWeb02) are performed over IPv4 and IPv6, respectively, from all test nodes while the manual tests are performed over IPv4 from a single node. One manual test is performed over IPv6 from all nodes to verify that the Web Whois service is reachable and responds over IPv6.

The manual tests are only using one IPv4 and one IPv6 address, whereas the automated tests (WhoisWeb01 and WhoisWeb02) are using all IPv4 and IPv6 addresses available from lookup.

## 1.4 Notation for description

Each test case for the Whois service over port 80/443 is described in their own chapter. The test procedures are described directly in the test case.

## 1.5 Enforcement

This version of this document (version F) is enforced at 2015-11-02. Prior to that date, see the previous version of this document.

## 1.6 Special rules during transition period

This Test Case specification will be fully applied from January 31, 2016. Before that date, any deviation from the format requirements in the Registry Agreement and the Advisory will result in WARN. A WARN is still a PASS and will not prevent the Registry from passing PDT.

During the transition period (before January 31, 2016) any deviation that would have resulted in a FAIL in version E of this document will continue to result in a FAIL.

Also see section 1.6 in the Test Plan, version E or later.

## 2. Whois Web 01

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### 2.1 Test case identifier

WhoisWeb01

### 2.2 Objective

The automated test makes HTTP and HTTPS connections over IPv4 from all nodes and verifies that there is a successful connection. The test does not validate the certificate for the HTTPS connection.

### 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
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String

### 2.4 Outcome(s)

The Whois service MUST be available on HTTP over IPv4.

### 2.5 Environmental needs

- Whois test script
- IPv4 connectivity
- <WhoisIPv4> from resolving <whois.nic.TLD> using the delegation data.

### 2.6 Special procedural requirements

Connect time must not exceed 10 seconds.

### 2.7 Intercase dependencies

This test has no intercase dependencies.

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

1. Resolve the IPv4 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, all addresses are used. <WhoisIPv4> is one such address
2. Repeat the following steps from each test node for every IPv4 address:
  - a. Make an IPv4 HTTP connection to whois.nic.<TLD> (<WhoisIPv4>). Redirection is allowed but the end HTTP response MUST be 200.
  - b. Make an IPv4 HTTPS connection to whois.nic.<TLD> (<WhoisIPv4>). Redirection is allowed but the end HTTP response SHOULD be 200.
  - c. If the HTTP connection returns a referral to HTTPS, then that referral and any subsequent referrals MUST return an HTTP status response 200.
3. To pass the test, every IPv4 address must pass.

Criteria for PASS:

- The web HTTP Whois page and the web HTTPS Whois page can be reached using IPv4 only, and
- the HTTP status code is 200 for both, and
- the criteria are met from all test nodes, and
- the criteria are met for every IPv4 address.

Criteria for WARN:

- The web HTTP Whois page can be reached using IPv4 only, and
- the HTTP status code is 200 for the HTTP page, and
- the web HTTPS Whois page cannot be reached or cannot be reached using IPv4 only, or
- the HTTP status code is not 200 for the HTTPS page.
- Failure of HTTPS on one IPv4 address is enough to get WARN.

Criteria for FAIL:

- The web HTTP Whois page cannot be reached or cannot be reached using IPv4 only, or
- the HTTP status code is not 200 for the HTTP page.
- Failure of HTTP on one IPv4 address is enough to get FAIL.



### 3. Whois Web 02

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#### 3.1 Test case identifier

WhoisWeb02

#### 3.2 Objective

The automated test makes HTTP and HTTPS connections over IPv6 from all nodes and verifies that there is a successful connection. The test does not validate the certificate for the HTTPS connection.

#### 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
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String

#### 3.4 Outcome(s)

The Whois service MUST be available on HTTP over IPv6.

#### 3.5 Environmental needs

- Whois test script
- IPv6 connectivity
- <WhoisIPv6> from resolving <whois.nic.TLD> using the delegation data.

#### 3.6 Special procedural requirements

Connect time must not exceed 10 seconds.

#### 3.7 Intercase dependencies

This test has no intercase dependencies.

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

1. Resolve the IPv6 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, all addresses are used. <WhoisIPv6> is one such address
2. Repeat the following steps from each test node for every IPv6 address:
  - a. Make an IPv6 HTTP connection to whois.nic.<TLD> (<WhoisIPv6>). Redirection is allowed but the end HTTP response MUST be 200.
  - b. Make an IPv6 HTTPS connection to whois.nic.<TLD> (<WhoisIPv6>). Redirection is allowed but the end HTTP response SHOULD be 200.
  - c. If the HTTP connection returns a referral to HTTPS, then that referral and any subsequent referrals MUST return an HTTP status response 200.
3. To pass the test, every IPv6 address must pass.

Criteria for PASS:

- The web HTTP Whois page and the web HTTPS Whois page can be reached using IPv6 only, and
- the HTTP status code is 200 for both, and
- the criteria are met from all test nodes, and
- the criteria are met for every IPv6 address.

Criteria for WARN:

- The web HTTP Whois page can be reached using IPv6 only, and
- the HTTP status code is 200 for the HTTP page, and
- the web HTTPS Whois page cannot be reached or cannot be reached using IPv6 only, or
- the HTTP status code is not 200 for the HTTPS page.
- Failure of HTTPS on one IPv6 address is enough to get WARN.

Criteria for FAIL:

- The web HTTP Whois page cannot be reached or cannot be reached using IPv6 only, or
- the HTTP status code is not 200 for the HTTP page.
- Failure of HTTP on one IPv6 address is enough to get FAIL.

## 4. Whois Web 03

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### 4.1 Test case identifier

WhoisWeb03

### 4.2 Objective

A manual query for a known domain name will be performed on the Whois IPv4 website. The objective is to verify the format of the response.

### 4.3 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
WhoisTestDomain	An existing domain name which has Whois data	String
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String

### 4.4 Outcome(s)

The format of the responses MUST follow the specification outlined in section 5, "Format Specification", in the Whois Test Plan and the communication MUST be over IPv4.

### 4.5 Environmental needs

- Web browser
- IPv4 connectivity
- <WhoisIPv4> from resolving <whois.nic.TLD> using the delegation data.

### 4.6 Special procedural requirements

Lookup time must not exceed 10 seconds.

### 4.7 Intercase dependencies

This test has no intercase dependencies.

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

1. Resolve the IPv4 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, one address is used.
2. Browse to http://whois.nic.<TLD>.
3. Make a query for the domain <WhoisTestDomain>.
4. Copy the Whois response from the web page and paste it into a text file.
5. Verify that the Whois response matches the format specification given in the format specification in the Whois TP.
6. Verify that the response is a "Domain name reply" as defined in the format specification in the Whois TP.

7. Verify that the queried domain name exactly matches the name in the "Domain Name" field in the response.

Criteria for PASS:

- All verifications (steps 5-7) are successful.

Criteria for FAIL:

- At least one verification (steps 5-7) is unsuccessful.

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## 5. Whois Web 04

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### 5.1 Test case identifier

WhoisWeb04

### 5.2 Objective

A manual query for a known registrar will be performed on the Whois IPv4 website. The objective is to verify the format of the response.

### 5.3 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
WhoisTestRegistrar	An existing registrar which has Whois data	String
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String

### 5.4 Outcome(s)

The format of the responses MUST follow the specification outlined in section 5, "Format Specification", in the Whois Test Plan and the communication MUST be over IPv4.

### 5.5 Environmental needs

- Web browser
- IPv4 connectivity
- <WhoisIPv4> from resolving <whois.nic.TLD> using the delegation data.

### 5.6 Special procedural requirements

Lookup time must not exceed 10 seconds.

### 5.7 Intercase dependencies

This test has no intercase dependencies.

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

1. Resolve the IPv4 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, one address is used.
2. Browse to <http://whois.nic.<TLD>>.
3. Make a query for the registrar <WhoisTestRegistrar>.
4. Copy the Whois response from the web page and paste it into a text file.
5. Verify that the Whois response matches the format specification in the Whois TP.
6. Verify that the response is a "Registrar reply" as defined in the format specification in the Whois TP.
7. Verify that the queried registrar name matches the name in all "Registrar Name" fields in the response. The match may be a substring match.

Criteria for PASS:

- All verifications (steps 5-7) are successful.

Criteria for FAIL:

- At least one verification (steps 5-7) is unsuccessful.

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## 6. Whois Web 05

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### 6.1 Test case identifier

WhoisWeb05

### 6.2 Objective

A manual query for a known name server will be performed on the Whois IPv4 website. The objective is to verify the format of the response.

### 6.3 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
WhoisTestNameServerName	The domain name of an existing name server which has Whois data	String
WhoisTestNameServerIP	The IP address of an existing name server which has Whois data	String
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String

### 6.4 Outcome(s)

The format of the responses MUST follow the specification outlined in section 5, "Format Specification", in the Whois Test Plan and the communication MUST be over IPv4.

### 6.5 Environmental needs

- Web browser
- IPv4 connectivity
- <WhoisIPv4> from resolving <whois.nic.TLD> using the delegation data.

### 6.6 Special procedural requirements

Lookup time must not exceed 10 seconds.

### 6.7 Intercase dependencies

This test has no intercase dependencies.

### 6.8 Ordered description of steps to be taken to execute the test case

1. Resolve the IPv4 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, one address is used.
2. Browse to http://whois.nic.<TLD>.
3. Make a query for the name server using the hostname <WhoisTestNameServerName> and the IP <WhoisTestNameServerIP>, respectively. At least one of them MUST give a response with Whois data.
4. Verify that both queries are give some response.

5. Copy the Whois response from the web page and paste it into a text file.
6. Verify that the Whois response matches the format specification given in the format specification in the Whois TP.
7. Verify that the response is a "Name server reply type 1" or "Name server reply type 2" as defined in the format specification in the Whois TP.
8. If the response is "Name server reply type 1" do the following step:
  - a. Verify that the "Server Name" field or the "IP Address" field exactly matches the query string from step 3 above.
9. If the response is "Name server reply type 2" do the following step:
  - a. Extract theROID from the first "ROID Line" as defined in the format specification in the Whois TP.
  - b. Make a new whois query, now using the extractedROID as the query string.
  - c. Copy the Whois response from the web page and paste it into a text file.
  - d. Verify that the new response is a "Name server reply type 1" as defined in the format specification in the Whois TP.
  - e. Verify that the "Server Name" field or the "IP Address" field in the new response exactly matches the query string from step 3 above.

Criteria for PASS:

- All verifications (steps 4 and 6-9, as applicable) are successful.

Criteria for FAIL:

- At least one verification (steps 4 and 6-9, as applicable) is unsuccessful.



## 7. Whois Web 06

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### 7.1 Test case identifier

WhoisWeb06

### 7.2 Removed

This test case was removed in version F of this document.

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## 8. Whois Web 07

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### 8.1 Test case identifier

WhoisWeb07

### 8.2 Removed

This test case was removed in version F of this document.

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## 9. Whois Web 08

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### 9.1 Test case identifier

WhoisWeb08

### 9.2 Removed

This test case was removed in version F of this document.

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## 10. Whois Web 09

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### 10.1 Test case identifier

WhoisWeb09

### 10.2 Objective

A manual query for a known domain name will be performed on the Whois IPv6 website. The objective is to verify that the Whois service is reachable and responds over IPv6.

### 10.3 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
WhoisTestDomain	An existing domain name which has Whois data	String
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String

### 10.4 Outcome(s)

The Whois service **MUST** be reachable over IPv6 and it **MUST** return a valid response.

### 10.5 Environmental needs

- Web browser
- IPv6 connectivity
- <WhoisIPv6> from resolving <whois.nic.TLD> using the delegation data.

### 10.6 Special procedural requirements

Lookup time must not exceed 10 seconds.

### 10.7 Intercase dependencies

This test has no intercase dependencies.

### 10.8 Ordered description of steps to be taken to execute the test case

1. Resolve the IPv6 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, one address is used.
2. Browse to <http://whois.nic.<TLD>>.
3. Verify that all communication is done over IPv6 and that no intermediate step is done over IPv4.
4. Make a query for the domain <WhoisTestDomain>.
5. The queried domain name **MUST** be present in the response. Beyond that, the response content and format will not be verified.

Criteria for PASS:

- All verifications (steps 3 and 5) are successful.

Criteria for FAIL:

- At least one verification (step 3 or 5) is unsuccessful.

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## 11. Global

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### 11.1 Glossary

The glossary is available in the Master Test Plan.

### 11.2 Document change procedures

Document change procedures are documented in the Master Test Plan.

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