

# Pre-Delegation Testing

## Whois CLI Test Cases

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**File name:** PDT\_Whois\_TC\_CLI.docx  
**Last saved:** 2016-10-18

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## Document control

### Document information and security

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Security class	File name
External	PDT_Whois_TC_CLI.docx

### Revisions

Date	Version	Name	Description
2013-01-07	PA1	Rickard Bellgrim	Initial document
2013-04-08	B	Staffan Hagnell	Delivery D2 for production
2013-05-03	C	Amar Andersson	Released
2013-06-12	PD1	Rickard Bellgrim	Clarify all 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.
2015-09-28	F	Mats Dufberg	Aligned PDT requirements to the Whois response formats defined in the Registry Agreement and advisories. IPv4 and IPv6 CLI TC are merged. All addresses are to be tested. Added statements on character encoding. Added explicit criteria for PASS, WARN and FAIL. Added FAIL on characters outside Unicode or file not compatible with declared encoding. This version is enforced at 2015-11-02.
2015-12-16	G	Mats Dufberg	Updated query string in WhoisCLI03 to match standard query for Name Server object. Updated WhoisCLI03 to require full response on both queries on name server name and name server IP address.
2016-01-29	H	Mats Dufberg	Changed end-of-transition date. Mintor editorial change.
<u>2016-10-18</u>	<u>I</u>	<u>Mats Dufberg</u>	<u>Relates to Whois Test Plan version K. Updated section on enforcement (1.5).</u>

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# 1. Introduction

## 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 43.

## 1.2 References

### 1.2.1 External

- IEEE 829-2008
- ICANN gTLD Applicant Guidebook, Version 2012-06-04
- RDDS-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>
- "Extensible Provisioning Protocol (EPP) Repository Identifiers", <https://www.iana.org/assignments/epp-repository-ids/epp-repository-ids.xhtml>
- ROID-Advisory, "gTLD Registry Advisory: Correction of non-compliant ROIDs", 2015-08-26, <https://www.icann.org/resources/pages/correction-non-compliant-roids-2015-08-26-en>
- RDDS-Consistent-Labeling-Policy, "Registry Registration Data Directory Services Consistent Labeling and Display Policy", <https://www.icann.org/rdds-labeling-display>

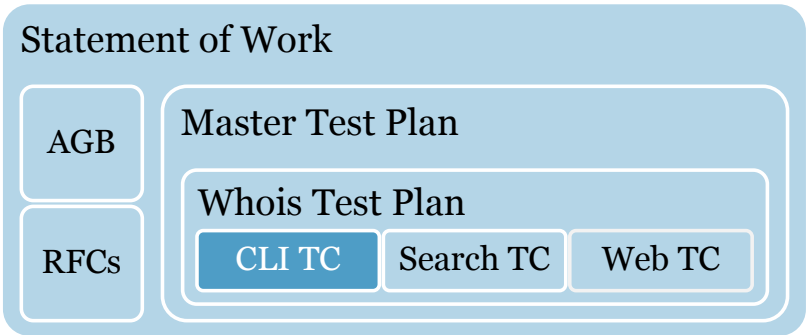
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### 1.2.2 Internal

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

### 1.2.3 Document Hierarchy

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## 1.3 Context

All tests are performed over IPv4 and IPv6 from all test nodes. The IPv4 and IPv6 addresses for the hostname <whois.nic.TLD> will be resolved using the delegation data from the DNS tests. If the hostname resolves to more than one IPv4 or IPv6 addresses, all the IP addresses will be tested.

1.4 Notation for description

Each test case for the Whois service over port 43 is described in their own chapter. The test procedures are described directly in the test case.

1.5 Enforcement

This version of this Test Case specification will be enforced on test appointments starting on 2016-11-01 or later. Before that date, see version H of this document.

This version of the document relates to version K or later of the Test Plan. Also see section 1.5 in the Test Plan, version K or later.

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## 2. Whois CLI 01

### 2.1 Test case identifier

WhoisCLI01

### 2.2 Objective

Multiple Domain Name Object queries will be performed over IPv4 and IPv6 TCP connections on port 43. The objective is to verify the format of the responses of such queries.

### 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
WhoisTestDomain	An existing domain name which has Whois data	String
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String
CharEncoding	Character encoding declaration	String
EppRepID	EPP Repository Identifier declaration	String

### 2.4 Outcome(s)

The format of the responses MUST follow the specification outlined in section 5, "Format Specification", in the Whois Test Plan and all responses must be identical.

### 2.5 Environmental needs

- Whois client software that preserves line endings in the response, e.g. Netcat
- IPv4 connectivity
- IPv6 connectivity
- List of IP addresses (IPv4 and IPv6, respectively) from resolving <whois.nic.TLD> using the delegation data, where <WhoisIP> is one such address.
- <CharEncoding>, character encoding declaration from pdtwhois.xml file.
- <EppRepID>, EPP Repository Identifier declaration from pdtwhois.xml file

### 2.6 Special procedural requirements

A Whois query and its response MUST NOT take longer than 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 IPv4 and IPv6 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, all addresses are used.
2. Make a query from each test node using the client software, i.e. the same query is sent from each test node and to all IP addresses found (IPv4 and IPv6).  
whois -h <WhoisIP> <WhoisTestDomain>
3. For each query executed repeat the following steps:
  - a. Verify that the Whois server returns a response.

- b. Verify that the character encoding of the response matches <CharEncoding>.
- c. Verify that the response is identical to all other responses.
- d. Verify that the response is a "Domain name reply" as defined in the Whois TP.
- e. Verify that the response conforms to the format in the specification in the Whois TP. *This verification includes, but is not limited to, verification of ROID format and registration of ROID Suffix, mandatory fields, field names, order of fields, status codes, and data format. See section 5 in the Whois TP for all details.*
- f. Verify that the queried domain name exactly matches the name in the "Domain Name" field in the response.
- g. Verify that the *ROID Suffix*, as defined in specification in the Whois TP, of the "Domain ID" field exactly matches <EppRepID>.

Criteria for PASS:

- The Whois output is encoded in ASCII, and
- The Whois service is available on IPv4 and IPv6, and
- All verifications (steps 3a-g) are successful.

Criteria for WARN:

- The Whois output is not encoded in ASCII encoding, and
- The Whois output was successfully converted to UTF-8, and
- All other criteria for PASS are successful.

Criteria for FAIL:

- The encoding of the Whois output cannot be converted to UTF-8, or
- At least one other criteria for PASS is unsuccessful.

### 3. Whois CLI 02

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#### 3.1 Test case identifier

WhoisCLI02

#### 3.2 Objective

Multiple Registrar Object queries will be performed over IPv4 and IPv6 TCP connections on port 43. The objective is to verify the format of the responses of such queries.

#### 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
WhoisTestRegistrar	An existing registrar which has Whois data	String
DnsGlueRecord	IPv4 or IPv6 addresses for auth NS	String
CharEncoding	Character encoding of Whois output	String

#### 3.4 Outcome(s)

The format of the responses MUST follow the specification outlined in section 5, "Format Specification", in the Whois Test Plan and all responses must be identical.

#### 3.5 Environmental needs

- Whois client software that preserves line endings in the response, e.g. Netcat
- IPv4 connectivity
- IPv6 connectivity
- List of IP addresses (IPv4 and IPv6, respectively) from resolving <whois.nic.TLD> using the delegation data, where <WhoisIP> is one such address.
- <CharEncoding>, character encoding declaration from pdtwhois.xml file.

#### 3.6 Special procedural requirements

A Whois query and its response MUST NOT take longer time than 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 IPv4 and IPv6 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, all addresses are used.
2. Make a query from each test node using the client software, i.e. the same query is sent from each test node and to all IP addresses found (IPv4 and IPv6).  
whois -h <WhoisIP> < WhoisTestRegistrar >
3. For each query executed repeat the following steps:
  - a. Verify that the Whois server returns a response.
  - b. Verify that the character encoding of the response matches <CharEncoding>.
  - c. Verify that the response is identical to all other responses.

- d. Verify that the response is a "Registrar reply " as defined in the Whois TP.
- e. Verify that the response conforms to the format in the specification in the Whois TP. *This verification includes, but is not limited to, verification of ROID format and registration of ROID Suffix, mandatory fields, field names, order of fields, status codes, and data format. See section 5 in the Whois TP for all details.*
- f. 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:

- The Whois output is encoded in ASCII, and
- The Whois service is available on IPv4 and IPv6, and
- All verifications (steps 3a-f) are successful.

Criteria for WARN:

- The Whois output is not encoded in ASCII encoding, and
- The Whois output was successfully converted to UTF-8, and
- All other criteria for PASS are successful.

Criteria for FAIL:

- The encoding of the Whois output cannot be converted to UTF-8, or
- At least one other criteria for PASS is unsuccessful.

## 4. Whois CLI 03

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### 4.1 Test case identifier

WhoisCLI03

### 4.2 Objective

Multiple Name Server Object queries will be performed over IPv4 and IPv6 TCP connections on port 43. The objective is to verify the format of the responses of such queries.

### 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
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
CharEncoding	Character encoding of Whois output	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 all responses must be identical.

### 4.5 Environmental needs

- Whois client software that preserves line endings in the response, e.g. Netcat
- IPv4 connectivity
- IPv6 connectivity
- List of IP addresses (IPv4 and IPv6, respectively) from resolving <whois.nic.TLD> using the delegation data, where <WhoisIP> is one such address.
- <CharEncoding>, character encoding declaration from pdtwhois.xml file.

### 4.6 Special procedural requirements

Abort the test if any Whois query takes longer than 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 IPv4 and IPv6 addresses of the host whois.nic.<TLD> using <DnsGlueRecord>. If multiple addresses are returned from lookup, all addresses are used.
2. Make two queries from each test node using the client software, i.e. the same two queries are sent from each test node and to all IP addresses found (IPv4 and IPv6).  
whois -h <WhoisIP> "nameserver <WhoisTestNameServerName>"  
whois -h <WhoisIP> "nameserver <WhoisTestNameServerIP>"
3. Verify that the Whois server returns responses to the two queries. A response means at least some text is returned.
4. Both queries (WhoisTestNameServerName or WhoisTestNameServerIP) for all queried Whois servers MUST give a response that matches the following steps and requirements.
  - a. Verify that the character encoding of the responses match <CharEncoding>.
  - b. Verify that the response is identical to all other responses to the same query.
  - c. 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.
  - d. Verify that response conforms to the format in the specification in the Whois TP. *This verification includes, but is not limited to, verification of ROID format and registration of ROID Suffix, mandatory fields, field names, order of fields, status codes, and data format. See section 5 in the Whois TP for all details.*
  - e. If the response is "Name server reply type 1" and the query is for WhoisTestNameServerName do the following step:
    - i. Verify that the "Server Name" field exactly matches WhoisTestNameServerName in all returned Name Server objects.
  - f. If the response is "Name server reply type 1" and the query is for WhoisTestNameServerIP do the following step:
    - i. If the "IP Address" field is present, verify that at least one such field exactly matches WhoisTestNameServerIP.
    - ii. Repeat the previous verification in every Name Server objects in the response.
  - g. If the response is "Name server reply type 2" do the following step:
    - i. Extract the ROID from the first "ROID Line" as defined in the format specification in the Whois TP.
    - ii. Make a new whois query, now using the extracted ROID in the query string ("roid <ROID>").
    - iii. Verify that the new response is a "Name server reply type 1" as defined in the format specification in the Whois TP.
    - iv. Verify that the new response conforms to the format in the specification in the Whois TP.
    - v. Verify the response using step e or f above.

##### Criteria for PASS:

- The Whois outputs are encoded in ASCII, and
- The Whois service is available on IPv4 and IPv6, and
- All verifications (under steps 3 and 4a-g) are successful.

##### Criteria for WARN:

- The Whois outputs are not encoded in ASCII encoding, and
- The Whois output was successfully converted to UTF-8, and
- All other criteria for PASS are successful.

##### Criteria for FAIL:

- The encoding of the Whois output cannot be converted to UTF-8, or
- At least one other criteria for PASS is unsuccessful.

## **5. Whois CLI 04**

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### **5.1 Test case identifier**

WhoisCLI04

### **5.2 Removed**

This test case was removed in version F of this document. Testing on IPv6 has been merged into Test Case WhoisCLI01.

## **6. Whois CLI 05**

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### **6.1 Test case identifier**

WhoisCLI05

### **6.2 Removed**

This test case was removed in version F of this document. Testing on IPv6 has been merged into Test Case WhoisCLI02.

## **7. Whois CLI 06**

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### **7.1 Test case identifier**

WhoisCLI06

### **7.2 Removed**

This test case was removed in version F of this document. Testing on IPv6 has been merged into Test Case WhoisCLI03.

## **8. Global**

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### **8.1 Glossary**

The glossary is available in the Master Test Plan.

### **8.2 Document change procedures**

Document change procedures are documented in the Master Test Plan.

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any deviation from the format requirements in **RDDS-Advisory** and **ROID-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 February 29, 2016) any deviation that would have resulted in a FAIL in version E

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result in a FAIL.