

Pre-Delegation Testing

Whois CLI Test Cases

Version H

File name: PDT_Whois_TC_CLI.docx

Last saved: 2016-01-29

Copyright (c) 2013 Internet Corporation For Assigned Names and Numbers. All rights reserved.

Document control

Document information and security

| Made by | Responsible for fact | Responsible for document |
|------------------|----------------------|--------------------------|
| Rickard Bellgrim | Mats Dufberg | Mats Dufberg |

| 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. |

LIST OF CONTENTS

| | |
|---|-----------|
| 1. INTRODUCTION | 4 |
| 1.1 SCOPE | 4 |
| 1.2 REFERENCES | 4 |
| 1.2.1 External..... | 4 |
| 1.2.2 Internal | 4 |
| 1.2.3 Document Hierarchy | 4 |
| 1.3 CONTEXT..... | 4 |
| 1.4 NOTATION FOR DESCRIPTION | 5 |
| 1.5 SPECIAL RULES DURING TRANSITION PERIOD | 5 |
| 2. WHOIS CLI 01..... | 6 |
| 2.1 TEST CASE IDENTIFIER | 6 |
| 2.2 OBJECTIVE | 6 |
| 2.3 INPUTS..... | 6 |
| 2.4 OUTCOME(S) | 6 |
| 2.5 ENVIRONMENTAL NEEDS | 6 |
| 2.6 SPECIAL PROCEDURAL REQUIREMENTS..... | 6 |
| 2.7 INTERCASE DEPENDENCIES | 6 |
| 2.8 ORDERED DESCRIPTION OF STEPS TO BE TAKEN TO EXECUTE THE TEST CASE | 6 |
| 3. WHOIS CLI 02 | 8 |
| 3.1 TEST CASE IDENTIFIER | 8 |
| 3.2 OBJECTIVE | 8 |
| 3.3 INPUTS..... | 8 |
| 3.4 OUTCOME(S) | 8 |
| 3.5 ENVIRONMENTAL NEEDS | 8 |
| 3.6 SPECIAL PROCEDURAL REQUIREMENTS..... | 8 |
| 3.7 INTERCASE DEPENDENCIES | 8 |
| 3.8 ORDERED DESCRIPTION OF STEPS TO BE TAKEN TO EXECUTE THE TEST CASE | 8 |
| 4. WHOIS CLI 03 | 10 |
| 4.1 TEST CASE IDENTIFIER | 10 |
| 4.2 OBJECTIVE | 10 |
| 4.3 INPUTS..... | 10 |
| 4.4 OUTCOME(S) | 10 |
| 4.5 ENVIRONMENTAL NEEDS | 10 |
| 4.6 SPECIAL PROCEDURAL REQUIREMENTS..... | 10 |
| 4.7 INTERCASE DEPENDENCIES | 10 |
| 4.8 ORDERED DESCRIPTION OF STEPS TO BE TAKEN TO EXECUTE THE TEST CASE | 11 |
| 5. WHOIS CLI 04 | 13 |
| 5.1 TEST CASE IDENTIFIER | 13 |
| 5.2 REMOVED..... | 13 |
| 6. WHOIS CLI 05..... | 14 |
| 6.1 TEST CASE IDENTIFIER | 14 |
| 6.2 REMOVED..... | 14 |
| 7. WHOIS CLI 06 | 15 |
| 7.1 TEST CASE IDENTIFIER | 15 |
| 7.2 REMOVED..... | 15 |
| 8. GLOBAL..... | 16 |
| 8.1 GLOSSARY | 16 |
| 8.2 DOCUMENT CHANGE PROCEDURES | 16 |

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

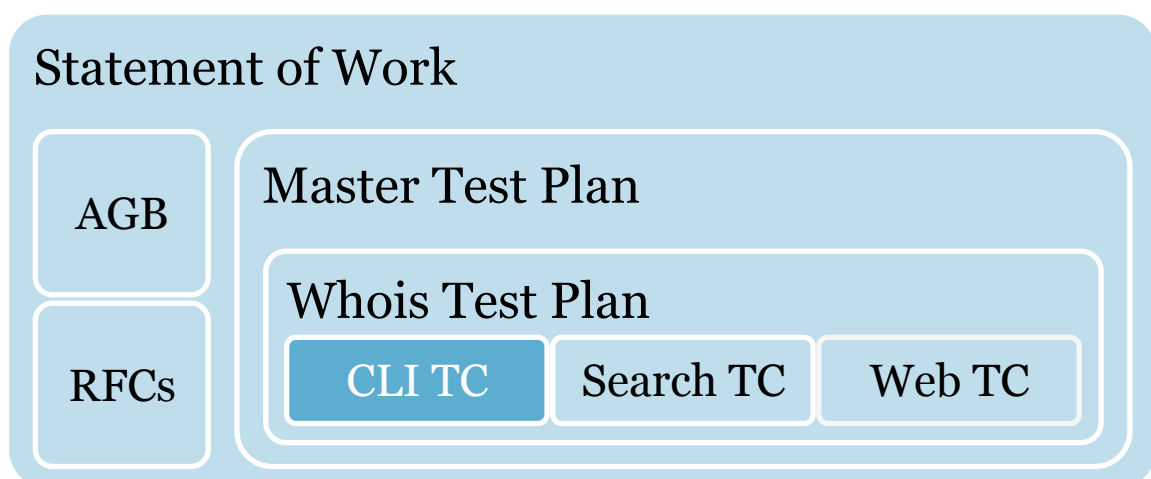
1.2.1 External

- 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>

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

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 Special rules during transition period

This Test Case specification will be fully applied from February 29, 2016. Before that date, 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 of this document will continue to result in a FAIL.

Also see section 1.5 in the Test Plan, version I or later.

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

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

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

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

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

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

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.