

# RDAP Test Suite

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# Introduction



- A tool to easily and automatically test RDAP implementations (only servers currently).
- Flexible enough to test multiple implementations.
- Graphical display of test results.
- Keep records of old tests to see evolution.
- Possibility to launch a specific test or run the full test suite by implementers.

# Server Implementation Test Profile



- Purpose of the profile:
  - List server paths.
  - List various existing and non-existing test data to be exercised by the test suite.
  - List supported features.
- The profile info is provided by the server implementer.

# Server Implementation Test Profile



## General Configuration:

### Connectivity

Server URL:

Base path: (for example, "/rdap" if domain requests look like "/rdap/domain")

Rate-limiter value (requests per sec, 0 if disabled):

Are absolute or relative requests supported, or both?: (is the full hostname required in the HTTP GET request?)

### Paths

Existing record: (for example "/domain/viagenie.ca")

Permanently redirected record:

Temporarily redirected record:

Non-existing record:

Record requiring credentials (request getting blocked):

# Server Implementation Test Profile



Specific options (same idea for IP addresses,  
AS and entities):

## Domain names

Is domain search supported? (y/n):

Is IDN domain search supported? (y/n):

Existing LDH FQDN (no trailing dot):

Existing A-Label IDN:

Existing U-label IDN:

Existing in-addr.arpa record:

Existing ip6.arpa record:

## Nameservers:

Is nameserver search supported? (y/n):

Is IDN nameserver search supported? (y/n):

Existing nameserver in LDH format:

Existing IDN NS in A-label form:

Existing IDN NS in U-label form:

# Example Tests



- Check of response validity: ensure response uses valid HTTP headers, is valid JSON, contains the (few) mandatory fields, etc. as defined in RFC 7480 (HTTP in RDAP) and RFC 7483 (JSON response).
- Functional check of RDAP server: valid processing of HTTP methods (RFC 7480) and query processing as defined in RFC 7482 (RDAP Query Format).

# Result - OK



ts_query_3_1_1_2	OK	GET /ip/218.241.111.1/32	<pre> s["eventDate":"2014-05-19T17:49:14Z"},"lang":"en"}  {"rdapConformance":["rdap_level_0"],"notices":[{"title":"the notices for response","description":["Service subject to The Registry of the CNNIC.", "Copyright (c) 2020 CNNIC."],"links":[{"value":"http://rdap.cnnic.cn/links1","rel":"self","href":"http://rdap.cnnic.cn/links1/href1","hrefLang":["en"],"title":"the first links title","media":"screen","type":"application/rdap+json"}]}],"objectClassName":"ip network","handle":"218.241.111.1-v4","startAddress":"218.241.111.1","endAddress":"218.241.111.1","ipVersion":"v4","name":"cnnic-1","type":"DIRECT ALLOCATION","country":"CN","parentHandle":"218.241.111.1/24-v4","status":["active"],"entities":[{"objectClassName":"entity","handle":"et-3","vcardArray":[{"vcard":{"version":{},"text":"4.0"},"kind":{},"text":"individual"},"fn":{},"text":"John"},"email":{},"text":"john@example.cn"},"title":{},"text":"Research Scientist"},"org":{},"text":"example"},"url":{},"uri":"http://example.cn"},"lang":{},"language-tag":"en"}],"roles":["technical"],"links":[{"value":"http://rdap.restfulw.hois.org/entity/et-3","rel":"self","href":"http://rdap.restfulw.hois.org/entity/et-3","type":"application/rdap+json"},"status":["active"],"port43":"http://w.hois.cnnic.cn"},"remarks":[{"title":"the remarks title","description":["remarks_description"],"links":[{"value":"https://github.com/cnnic/rdap/wiki/api-doc","rel":"alternate","href":"https://github.com/cnnic/rdap/wiki/api-doc","hrefLang":["en"],"title":"link title","media":"screen","type":"application/rdap+json"}]}],"links":[{"value":"http://rdap.restfulw.hois.org/ip/218.241.111.1/32","rel":"self","href":"http://rdap.restfulw.hois.org/ip/218.241.111.1/32","type":"application/rdap+json"},"port43":"w.hois.cnnic.cn","events":[{"eventAction":"unlocked","eventActor":"et-3","eventDate":"2014-05-19T17:49:14Z"},"lang":"en"}           </pre>
		<p>[REQUEST] {'Accept': 'application/rdap+json'}</p> <p>[RESPONSE] [{'transfer-encoding': 'chunked'}, {'date': 'Mon, 08 Feb 2016 05:46:23 GMT'}, {'access-control-allow-origin': ''}, {'content-type': 'application/rdap+json;charset=UTF-8'}, {'server': 'Apache-Coyote/1.1'}]</p> <p>[DETAILS]</p> <p>OK: Status is (200.)</p> <p>OK: The "rdapConformance" appears to be valid.</p> <p>OK: There seems to be a good "handle".</p> <p>OK: There seems to be a good "objectClassName".</p> <p>OK: "objectClassName" is expected value "ip network".</p> <p>OK: The "country" is valid.</p> <p>OK: There seems to be a good "handle".</p> <p>OK: There seems to be a good "objectClassName".</p> <p>OK: "objectClassName" is expected value "entity".</p> <p>OK: vCard seems valid.</p> <p>OK: The "roles" appear to be valid.</p> <p>OK: Event appears to be valid.</p> <p>OK: "remark" appears to be valid.</p> <p>OK: "notice" appears to be valid.</p> <p>OK: There seems to be a good "name".</p> <p>OK: There seems to be a good "type".</p> <p>OK: Correct IP version in "ipVersion"</p>	<pre> {   "rdapConformance": [     "rdap_level_0"   ],   "notices": [     {       "title": "the notices for response",       "description": [         "Service subject to The Registry of the CNNIC.",         "Copyright (c) 2020 CNNIC."       ],       "links": [         {           "value": "http://rdap.cnnic.cn/links1",           "rel": "self",           "href": "http://rdap.cnnic.cn/links1/href1",           "hrefLang": [             "en"           ],           "title": "the first links title",           "media": "screen",           "type": "application/rdap+json"         }       ]     }   ],   "objectClassName": "ip network",   "handle": "218.241.111.1-v4",   "startAddress": "218.241.111.1",   "endAddress": "218.241.111.1",   "ipVersion": "v4",   "name": "cnnic-1",   "type": "DIRECT ALLOCATION",   "country": "CN",   "parentHandle": "218.241.111.1/24-v4",   "status": [     "active"   ],   "entities": [     {       "objectClassName": "entity",       "handle": "et-3",       "vcardArray": [         {           "vcard": {             "version": {},             "text": "4.0"           },           "kind": {},           "text": "individual"         },         {           "fn": {},           "text": "John"         },         {           "email": {},           "text": "john@example.cn"         },         {           "title": {},           "text": "Research Scientist"         },         {           "org": {},           "text": "example"         },         {           "url": {},           "uri": "http://example.cn"         },         {           "lang": {},           "language-tag": "en"         }       ],       "roles": [         "technical"       ],       "links": [         {           "value": "http://rdap.restfulw.hois.org/entity/et-3",           "rel": "self",           "href": "http://rdap.restfulw.hois.org/entity/et-3",           "type": "application/rdap+json"         },         {           "status": [             "active"           ],           "port43": "http://w.hois.cnnic.cn"         },         {           "title": "the remarks title",           "description": [             "remarks_description"           ],           "links": [             {               "value": "https://github.com/cnnic/rdap/wiki/api-doc",               "rel": "alternate",               "href": "https://github.com/cnnic/rdap/wiki/api-doc",               "hrefLang": [                 "en"               ],               "title": "link title",               "media": "screen",               "type": "application/rdap+json"             }           ]         }       ]     }   ],   "links": [     {       "value": "http://rdap.restfulw.hois.org/ip/218.241.111.1/32",       "rel": "self",       "href": "http://rdap.restfulw.hois.org/ip/218.241.111.1/32",       "type": "application/rdap+json"     },     {       "port43": "w.hois.cnnic.cn",       "events": [         {           "eventAction": "unlocked",           "eventActor": "et-3",           "eventDate": "2014-05-19T17:49:14Z"         }       ],       "lang": "en"     }   ] }           </pre>

# Result - Warning



s_http_4_1_2	WARNING	DELETE /well-known/rdap/ip/218.0.0.3	405 { "rdapConformance": [{"rdap_level_0": "notices": [{"title": "the notices for response", "description": ["Service subject to The Registry of the CNNIC.", "Copyright (c) 2020 CNNIC"], "links": [{"value": "http://rdap.restfulwhois.org/well-known/rdap/", "rel": "self", "href": "http://rdap.restfulwhois.org/well-known/rdap/", "hreflang": ["en"], "title": ["the title of the notice"], "media": "screen", "type": "application/rdap+json"}]}], "errorCode": 405, "title": "METHOD NOT ALLOWED", "description": ["METHOD NOT ALLOWED"], "lang": "en"} }
		<p>[REQUEST] {'Accept': 'application/rdap+json'}</p> <hr/> <p>[RESPONSE] [('content-length', '510'), ('server', 'Apache-Coyote/1.1'), ('allow', 'GET'), ('date', 'Mon, 01 Jun 2015 17:43:57 GMT'), ('access-control-allow-origin', '*'), ('content-type', 'application/rdap+json;charset=UTF-8')]</p> <hr/> <p>[DETAILS]</p> <p>OK: Status is (400, 405) OK: The "rdapConformance" appears to be valid. OK: The "errorCode" appears to be valid. <b>WARNING</b> (Continuing): "title" is not a string. OK: "notice" appears to be valid.</p>	<pre>{   "rdapConformance": [     "rdap_level_0"   ],   "notices": [     {       "title": "the notices for response",       "description": [         "Service subject to The Registry of the CNNIC.",         "Copyright (c) 2020 CNNIC"       ],       "links": [         {           "value": "http://rdap.restfulwhois.org/well-known/rdap/",           "rel": "self",           "href": "http://rdap.restfulwhois.org/well-known/rdap/",           "hreflang": [             "en"           ],           "title": [             "the title of the notice"           ],           "media": "screen",           "type": "application/rdap+json"         }       ]     }   ],   "errorCode": 405,   "title": "METHOD NOT ALLOWED",   "description": [     "METHOD NOT ALLOWED"   ],   "lang": "en" }</pre>

RFC 7483: Section 4.2: Format of "link" element



# Result - Error



ts_http_4_3_1	FAIL	GET /well-known/rdap/ip/218.0.0.3?unknown_param	400 <pre>{   "rdapConformance": [     {       "rdap_level_0": {         "notices": [           {             "title": "the notices for response",             "description": [               "Service subject to The Registry of the CNNIC.",               "Copyright (c) 2020 CNNIC"             ],             "links": [               {                 "value": "http://rdap.restfulwhois.org/well-known/rdap/",                 "rel": "self",                 "href": "http://rdap.restfulwhois.org/well-known/rdap/",                 "hreflang": [                   "en"                 ],                 "title": [                   "the title of the notice"                 ],                 "media": "screen",                 "type": "application/rdap+json"               }             ]           }         ]       }     ]   },   "errorCode": 400,   "title": "BAD REQUEST",   "description": [     "BAD REQUEST"   ],   "lang": "en" }</pre>
		<pre>[REQUEST] {'Accept': 'application/rdap+json'}  [RESPONSE][('transfer-encoding', 'chunked'), ('server', 'Apache-Coyote/1.1'), ('connection', 'close'), ('date', 'Mon, 01 Jun 2015 17:44:04 GMT'), ('access-control-allow-origin', '*'), ('content-type', 'application/rdap+json')]  [DETAILS]  FAIL: !(Status is (200,)) OK: The "rdapConformance" appears to be valid. OK: The "errorCode" appears to be valid. WARNING (Continuing): "title" is not a string. OK: "notice" appears to be valid.</pre>	<pre>{   "rdapConformance": [     {       "rdap_level_0": {         "notices": [           {             "title": "the notices for response",             "description": [               "Service subject to The Registry of the CNNIC.",               "Copyright (c) 2020 CNNIC"             ],             "links": [               {                 "value": "http://rdap.restfulwhois.org/well-known/rdap/",                 "rel": "self",                 "href": "http://rdap.restfulwhois.org/well-known/rdap/",                 "hreflang": [                   "en"                 ],                 "title": [                   "the title of the notice"                 ],                 "media": "screen",                 "type": "application/rdap+json"               }             ]           }         ]       }     ]   },   "errorCode": 400,   "title": "BAD REQUEST",   "description": [     "BAD REQUEST"   ],   "lang": "en" }</pre>

RFC 7480: Section 4.3: Server MUST ignore query parameters

# Future work



- Develop a specific suite for the ICANN gTLD RDAP profile.

# Live demo



# Questions?



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