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Interface Specification for Whois / DAS for Registrars

This interface specification describes the external interfaces of the Norid Whois & DAS services.

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Document History

Date	Revision	Author	Comment
2018-04-30	1e1	Erik Østlyngen	Initial version, based on the document 'Interface specification for Whois/DAS'. Added new parameter 'Organization Type' for organization objects.
2018-08-10	2e1	Trond Haugen	Adjusted common pretext (ch. 3.2.1).

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1 INTRODUCTION

1.1 Scope


This document describes the external interfaces for the Whois service and the Domain Availability Service (DAS).

1.2 Related Documents

Ref	Title	Doc nr
	RFC 3912 Whois Protocol Specification	

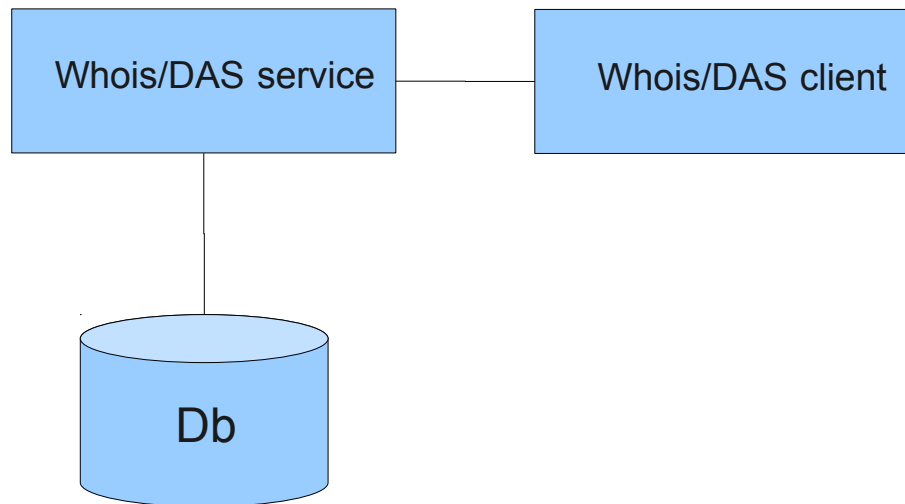
1.3 Glossary

Term	Description
DAS	Domain Availability Service

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2 INTERFACES

The Whois/DAS service has got an external interface towards the Whois/DAS client. This document describes the content and layout of the results.



2.1 Whois External Interface

The Whois external interface is the Whois service interface towards Whois clients.

The Whois service is listening on port 43.

The external interface has got a Norid extension.


- Character encoding (UTF-8)

By adding a '-c utf-8' to the query string the query is interpreted as UTF-8 instead of Latin-1 that is the default. The result is returned in UTF-8 if the '-c utf-8' option is set.

Example:

```
> whois -h registrarwhois.norid.no -c utf-8 øl.no
```

The -c utf-8 will tell the Whois service that the argument is coded in utf-8.

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2.2 DAS External Interface

The DAS external interface is the same as the Whois external interface when it comes to the Norid extension for character encoding. Refer chapter 2.1.

The DAS service is listening on port 79.

Example with normal characters:

```
> whois -p 79 norid.no
norid.no is available (0)
```

Example with UTF-8 characters (response coded in UTF-8):


```
> whois -p 79 -c utf-8 tromsø.no
tromsø.no (xn--troms-zua.no) is delegated (0)
```

Example with ACE domain name (response coded in Latin1 as default):

```
> whois -p 79 xn--troms-zua.no
tromsø.no (xn--troms-zua.no) is delegated (0)
```

Example with a response that is unprintable in the current char set:

```
> whois -p 79 xn--porsgu-sta26f.no
UNPRINTABLE (xn--porsgu-sta26f.no) is delegated (0)
```

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3 EXTERNAL INTERFACE

3.1 Whois Query Interface

Whois should primarily be used for domain name and Norid handle lookups. Searches that might return multiple objects will only return a list of object- and registrar handles. The return type is presented within parentheses below.

It is possible to search for:

- complete domain name (complete object response)
- complete Norid handle (complete object response)
- complete name server name (list response)
- complete or part of organization name (list response)
- complete or part of contact person name (list response)
- complete or part of role name (list response)
- complete organization number (list response)
- complete local id (list response)


A maximum of 50 hits are returned. If a search results in more than 50 hits an error message is returned. A more detailed search need to be performed.

When a domain or name server is searched by name, the Whois service must fetch both domain and host objects from the database since they can have the same name. It is not possible to identify and separate a domain name from a host name. If there exists a domain 'data.no' and multiple hosts named 'data.no' registered with multiple registrars, then the response consists of a domain object, an organization object and finally a list of host- and registrar handles.

A Norid handle is formatted as upper case letters followed by numbers a letter and finally -NORID.

Handle type	Regexp.	Example
Delegation handle	[A-Z]+\d+D-NORID	KAR12D-NORID
Role handle	[A-Z]+\d+R-NORID	NN212R-NORID
Person handle	[A-Z]+\d+P-NORID	SVO1P-NORID
Organization handle	[A-Z]+\d+O-NORID	EA2O-NORID
Host handle	[A-Z]+\d+H-NORID	NS1800H-NORID
Registrar handle	REG\d+-NORID	REG5-NORID

Number type	Regexp	Example
Organization number	[\d]{9}	985821585
Local id	N\.[A-Z]{3}\.ld+	N.ORG.000004711

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3.2 Whois Responses


3.2.1 Common Pretext

The following lines of text are printed on top of a result from Whois

```

-----[start]-----
% By looking up information in the Registrar whois, you confirm that
% you accept the terms and conditions of the service:
% https://www.norid.no/en/registrar/system/tjenester/registrarwhois/vilkar/
%
% UNINETT Norid AS holds the copyright to the lookup service, content,
% layout and the underlying collections of information used in the
% service (cf. the Act on Intellectual Property of May 2, 1961, No.
% 2). Violation of the terms and conditions will count as a major
% breach of the registrar agreement, cf clause 7, fourth paragraph,
% and can lead to an immediate termination of the agreement. Use of
% data from the lookup service in violation of the terms and
% conditions may also result in legal pursuit.
-----[end]-----

```


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3.2.2 Domain Information

The Domain Information lookup returns two objects, the domain object and the domain holder object. The domain holder can be an organization or a person object.

This example shows a domain with an organization domain holder.

```

-----[start]-----
  Domain Information


  NORID Handle.....: NOR18456D-NORID
  Domain Name.....: norid.no
  Domain Holder Handle.....: UNA780-NORID
  Registrar Handle.....: REG2-NORID
  Tech-c Handle.....: UT128R-NORID
  Tech-c Handle.....: UH9R-NORID
  Name Server Handle.....: BIFF2H-NORID
  Name Server Handle.....: NAC2H-NORID
  Name Server Handle.....: NN14H-NORID
  Name Server Handle.....: SERV41H-NORID

  Additional information:
  Created:          1999-11-15
  Last updated:    1999-11-15

  NORID Handle.....: UNA780-NORID
  Type.....: organization
  Name.....: Hilde Thunem
  Organization Name.....: UNINETT NORID AS
  Id Type.....: organization_number
  Id Number.....: 985821585
  Organization Type.....: AS
  Registrar Handle.....: REG2-NORID
  Post Address.....: Abelsgate 5
  Postal Code.....: NO-7465
  Postal Area.....: Trondheim
  Country.....: NO
  Phone Number.....: +47.07355
  Email Address.....: info@norid.no

  Additional information:
  Created:          2010-10-01
  Last updated:    2010-10-01
-----[end]-----

```

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When the domain holder is a private person:

-----[start]-----

Domain Information

NORID Handle.....: OLA582D-NORID
Domain Name.....: ola.priv.no
Domain Holder Handle.....: ON1293P-NORID
Registrar Handle.....: REG2-NORID
Tech-c Handle.....: UT128R-NORID
Tech-c Handle.....: UH9R-NORID
Name Server Handle.....: BIFF2H-NORID
Name Server Handle.....: NAC2H-NORID
Name Server Handle.....: NN14H-NORID

Additional information:


Created: 2011-02-16
Last updated: 2011-02-16

NORID Handle.....: ON1293P-NORID
Type.....: person
Name.....: Ola Nordman
Id Type.....: anonymous_person_identifier
Id Number.....: N.PRI.12345678
Registrar Handle.....: REG2-NORID
Post Address.....: Abelsgate 5
Postal Code.....: NO-7465
Postal Area.....: Trondheim
Country.....: NO
Phone Number.....: +47.12345678
Email Address.....: ola@ola.priv.com

Additional information:

Created: 2011-02-16
Last updated: 2011-02-16

-----[end]-----

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3.2.3 Domain Information with ACE Domain Name


This example shows how an ACE Domain Name is present in the result when the domain name contains non standard ASCII characters.

```

-----[start]-----
  Domain Information

  NORID Handle.....: TR03836D-NORID
  Domain Name.....: tromsø.no
  ACE Domain Name.....: xn--troms-zua.no
  Domain Holder Handle.....: NNRI40-NORID
  Registrar Handle.....: REG1-NORID
  Tech-c Handle.....: UT128R-NORID
  Tech-c Handle.....: NH55R-NORID
  Name Server Handle.....: X11H-NORID
  Name Server Handle.....: Y1H-NORID
  Name Server Handle.....: Z6H-NORID
  ...etc.
-----[end]-----

```

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3.2.4 Domain Information with DNSSEC data

DNSSEC data are displayed only if DNSSEC data is registered on the domain.

DS data is mandatory, whilst key information can optionally be registered along with the corresponding DS data. The Whois will present all registered DNSSEC data.

Note that the digest and public key values are presented on one long line by the Whois, and not line wrapped as shown below.

3.2.4.1 Domain with DS data only


This example shows how DNSSEC data is presented for a domain with two registered DS records, numbered 1 and 2.

```

-----[start]-----
  Domain Information

  NORID Handle.....: EXA177D-NORID
  Domain Name.....: example.no
  Domain Holder Handle.....: UNA1370-NORID
  Registrar Handle.....: REG9094-NORID
  Tech-c Handle.....: UT128R-NORID
  Name Server Handle.....: NSEX145H-NORID
  Name Server Handle.....: NSEX146H-NORID
  DNSSEC.....: Signed
  DS Key Tag      1.....: 24007
  Algorithm       1.....: 8
  Digest Type     1.....: 2
  Digest          1.....: 1d3523529917ae31f3d99d00339a4622b60
  4e7dab54421b1b0632b4c2733bc18
  DS Key Tag      2.....: 24379
  Algorithm       2.....: 5
  Digest Type     2.....: 1
  Digest          2.....: 43b670827d979202c297ec6e958c9653d8f
  14328
  ...etc.
-----[end]-----

```

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3.2.4.2 Domain with both DS and key data


This example shows how DNSSEC data is presented for a domain with two registered DS records, numbered 1 and 2, and where DS number 2 also has registered corresponding key data.

```

-----[start]-----
Domain Information

NORID Handle.....: EXA177D-NORID
Domain Name.....: example.no
Domain Holder Handle.....: UNA1370-NORID
Registrar Handle.....: REG9094-NORID
Tech-c Handle.....: UT128R-NORID
Name Server Handle.....: NSEX145H-NORID
Name Server Handle.....: NSEX146H-NORID
DNSSEC.....: Signed
DS Key Tag      1.....: 24007
Algorithm      1.....: 8
Digest Type    1.....: 2
Digest         1.....: 1d3523529917ae31f3d99d00339a4622b60
4e7dab54421b1b0632b4c2733bc18
DS Key Tag      2.....: 24379
Algorithm      2.....: 5
Digest Type    2.....: 1
Digest         2.....: 43b670827d979202c297ec6e958c9653d8f
14328
Key Flags      2.....: 257
Key Protocol   2.....: 3
Key Algorithm  2.....: 5
Key Public     2.....: AwEAAfENT8LjD8ZdyVk59UhpzQqVyfIUwkGP
ImZr6lriB23GJw+S9taerp9/EMfONfnT+IVRW89BuUw16M/TWBkQBv0=
...etc.
-----[end]-----

```

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3.2.5 Contact Information

The Contact Information dumps the organization, person or role objects.

If the contact is an organization object, all domains that the organization has registered is dumped

```

-----[start]-----
Contact Information

NORID Handle.....: UNA780-NORID
Type.....: organization
Name.....: Hilde Thunem
Organization Name.....: UNINETT NORID AS
Id Type.....: organization_number
Id Number.....: 985821585
Organization Type.....: AS
Registrar Handle.....: REG2-NORID
Post Address.....: Abelsgate 5
Postal Code.....: NO-7465
Postal Area.....: Trondheim
Country.....: NO
Phone Number.....: +47.07355
Email Address.....: info@norid.no

Additional information:
Created:      2010-10-01
Last updated: 2010-10-01

Domains.....: domeneforlivet.no domene-for-
livet.no domeneklagenemnda.no eksempeldomene.no eksempeldomene1.no
eksempeldomene2.no familienminprivat.no megselvprivat.no navnetmitt.no
norid.no
-----[end]-----

```

Here is an example of a person registrant with two registered domains.

```


-----[start]-----
Contact Information

NORID Handle.....: FFA1P-NORID
Type.....: person
Name.....: Fredrik Fos Åsheim
Id Type.....: anonymous_person_identifier
Id Number.....: N.PRI.76425801
Registrar Handle.....: REG9094-NORID
Post Address.....: Abelsgate 5
Postal Code.....: NO-7005
Postal Area.....: TRONDHEIM
Country.....: NO
Phone Number.....: +47.97263222
Email Address.....: fredrik@asheim.priv.no

Additional information:
Created:      2011-04-13
Last updated: 2011-04-13

Domains.....: fredrik.priv.no asheim.priv.no
-----[end]-----

```

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3.2.6 Contact Information with Reduced Format

It is possible to get multiple response objects if the search for contacts is done using:

- complete or part of organization name
- complete or part of contact person name
- complete or part of role name
- complete organization number
- complete local id

The contact- and registrar handles are dumped as below for each response object even if there is only one response object.

```

-----[start]-----
  Contacts matching the search parameter

  NORID Handle.....: AAH4R-NORID
  Registrar Handle.....: REG0-NORID

  NORID Handle.....: AAH5R-NORID
  Registrar Handle.....: REG11-NORID

  NORID Handle.....: AAH6R-NORID
  Registrar Handle.....: REG164-NORID

  NORID Handle.....: AAH7R-NORID
  Registrar Handle.....: REG173-NORID
-----[end]-----

```

If the contact information comes from an organization number or local id, an additional row with the total number of domains is present in the response.

```

-----[start]-----
  Contacts matching the search parameter


  NORID Handle.....: UNA760-NORID
  Registrar Handle.....: REG0-NORID

  NORID Handle.....: UNA770-NORID
  Registrar Handle.....: REG1-NORID

  NORID Handle.....: UNA780-NORID
  Registrar Handle.....: REG2-NORID

  Total Number of Domains....: 10
-----[end]-----

```

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3.2.7 Host Information

The host information dumps the host object

```

-----[start]-----
Host Information

NORID Handle.....: BIFF2H-NORID
Name Server Hostname.....: biff.uninett.no
Name Server IP-address.....: 158.38.180.21
Name Server IP-address.....: 2001:0700:0000:0526:0000:0000:0000:
aa53
Tech-c Handle.....: UH9R-NORID
Registrar Handle.....: REG2-NORID

Additional information:
Created:          2010-10-01
Last updated:    2010-10-01
-----[end]-----

```

3.2.8 Host Information with Reduced Format

It is possible to get multiple response objects if the search for hosts is done using:

- complete name server name

The host- and registrar handles are dumped as below for each response object even if there is only one response object.


```

-----[start]-----
Hosts matching the search parameter

NORID Handle.....: NS13353H-NORID
Registrar Handle.....: REG9090-NORID

NORID Handle.....: NS13354H-NORID
Registrar Handle.....: REG9091-NORID
-----[end]-----

```


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3.2.9 Registrar Information


The registrar information dumps properties from the registrar object

```

-----[start]-----
Registrar Information

Registrar Handle.....: REG2-NORID
Registrar Name.....: UNINETT AS
Address.....: Abels gate 5
Address.....: 7465 TRONDHEIM
Address.....: NO-7030
Address.....: Trondheim
Address.....: NO
Phone Number.....: +47.73557900
Fax Number.....: +47.73557901
Email Address.....: info@uninett.no
Web Address.....: http://www.uninett.no
-----[end]-----

```

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3.3 DAS Query Interface

It is only possible to search for complete domain names.

3.4 DAS Responses

The result of the DAS query depends on the domain being registered or not as well as current registry policy. If a domain name contains invalid characters or is located in a DNS zone not administered by Norid, an error message is returned.

DAS response messages:

M1	<domain> is available (<DAS service number>)
M2	<domain> is delegated (<DAS service number>)
M3	This domain can currently not be registered (<DAS service number>)
M4	<domain> is not valid (<DAS service number>)

3.4.1 Domain is not registered

This response means that the domain is not registered.

```
-----[start]-----
      data4711.no is available (0)
-----[end]-----
```

Note that this does not necessary imply that the domain can be registered, because only limited syntax and policy checks are performed.

3.4.2 Domain is already registered

This response means that the domain is already registered.

```
-----[start]-----
      data.no is delegated (0)
-----[end]-----
```

3.4.3 Domain can not be registered


This response means that the domain can not be registered for the moment due to registry policies.

```
-----[start]-----
      This domain can currently not be registered (0)
-----[end]-----
```

3.4.4 Invalid domain

This response means that the domain name is invalid or that the DNS zone is not administered by Norid.

```
-----[start]-----
      Domain is not valid (0)
-----[end]-----
```

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4 EXCEPTIONS AND ERROR RESPONSES

4.1 Whois

Error message	Comment
"% No match"	No match
"% ERROR - Too many matches, please be more specific"	Too many matches (>50 hits)


4.2 DAS

DAS has no service specific exceptions, only the common exceptions.

4.3 Common

The following exceptions are common for the Whois and DAS services.

Error message	Comment
"% Quota exceeded"	Queries are temporary denied from that IP address. There is a per day and a per hour quota.
"% Access denied"	Access is denied from that IP address.
"% Referral denied"	A referral query is not allowed from that IP address.
"% ERROR - Malformed UTF-8 characters in input"	Error in input characters when input is UTF-8.
"% ERROR - Database timeout"	
"% ERROR - Transient error"	
"% ERROR - Network error"	
"% ERROR - Request too large"	
"% ERROR - Timeout"	
"% ERROR - Invalid request"	

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4.4 Encoding exceptions

In this case the character conversion should fail, the special string 'UNPRINTABLE' in upper case should be used in the result-field instead, along with the following warning message at the end of the Whois output:

"Warning: The result could not be represented correctly in the ISO8859-1 character set. Please perform another lookup using UTF-8."

```
-----[start]-----
Domain Information

Domain Name.....: UNPRINTABLE
ACE Domain Name.....: xn--porsgu-sta26f.no
Domain Holder Handle.....: N10-NORID
Registrar Handle.....: REG1-NORID
Tech-c Handle.....: NS2R-NORID
Name Server Handle.....: TREL1H-NORID
Name Server Handle.....: SLAV8H-NORID
Name Server Handle.....: NIX1H-NORID

...etc.
```

Warning: The result could not be represented correctly in the ISO8859-1 character set. Please perform another lookup using UTF-8.

```
-----[end]-----
```