DNS^{2db}

HTTP interface specification
Draft

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Contents

1 Introduction

This document describes the http get request and the resulting output of the two DNS^{2db} php scripts. For a description of the complete DNS^{2db} system refer to the DNS^{2db}whitepaper which can be found at opensource.iis.se.

The dns2db.php script is a proxy that connects to one or several collector nodes in the DNS^{2db}system and aggregates their output. The dns2dbnode.php is the script that runs on the collector nodes and retrieves data from the DNS^{2db}databases has almost the same interface as dns2db.php. The main purpose of the dns2db.php script is to feed the flex gui with data.

2 Overview

This section contains a brief overview of the get parameters and the xml output tags.

2.1 Query parameters

Parameter	**Format**
function	Specifies the main function of the script se a discussion of each function in the functions section.
nodes	Comma separated list of servers to be applied to the query. Format: `&nodes=node1,node2,node3,node4` where `node1` should be the nodename as output by the nodelist function.
day	Specifies the date Format: `&day=YYYYMMDD`
time	Specifies the start time of the interval Format: `&time=HHMM`
count	Specifies the maximum number of returned entries. This does not affect the serverlist function. Format: `&count=n`
resolver	Specifies the resolver for the domainforresolver function. Format for ipv6: `&resolver=nnnn:nnnn::nnnn` Format for ipv4: `&resolver=::nnn.nnn.nnn.nnn`
domain	Specifies the domain for the resolverfordomain function Format: `&domain=foo.se`

2.2 The XML output

The response of all querys is in xml format and contain only the data requested. The following tags are in use.

Tag	Function
<items>	list container
<item>	container for each list item
<position>	index of the list item
<qcount>	number of queries per minute
<domain>	domain name
<displaytext>	displaytext
<status>	contains status information for the nodes in the system
<node>	a status entry per node inside the status tag
<filter>	available filters, only used in the response to the filterlist function
<server>	node description, only used in the response to the nodelist function

3 Functions

3.1 Function: nodelist

The nodelist function returns an xml formatted list with available DNS2db collection nodes. The nodelist function is not available from the dns2dbnode.php script.

Parameter	Comment
function	must be "nodelist"

Example:

```
http://servername/dns2db.php?function=nodelist
```

Example output:

```
<?xml version="1.0" encoding="ISO-8859-1">
<items>
 <server name="a" dnsname="a.ns.tld" displayname="A" description="Big server"/>
 <server name="a" dnsname="b.ns.tld" displayname="B" description="Small server"/>
</items>
```

3.2 Function: filterlist

The filterlist function returns an xml formatted list with available filters. A gui should ideally list the returned <filter> tags as a set of check boxes and combobuttons. Any filter item with an opts attribute should be considered a combobutton or some kind of multiselect. The filters are not configurable but the number of filters and their names may change with future versions of DNS^{2db}.
The filterlist function is not available from the dns2dbnode.php script.

Parameter	Comment
function	must be "filterlist"

Example:

```
http://server/dns2db.php?function=filterlist
```

Example output:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<items>
  <filter name="tcp" code="T" default="1"/>
  <filter name="udp" code="U" default="1"/>
  <filter name="v4" code="4" default="1"/>
  <filter name="v6" code="6" default="1"/>
  <filter name="qtype" code="QT" default="ALL"
      opts="ALL,A,NS,MD,MF,CNAME,SOA,MB,MG,MR,NULL,WKS,PTR,HINFO,MINFO,MX,TXT,
          RP,AFSDB,X25,ISDN,RT,NSAP,NSAP-PTR,SIG,KEY,PX,GPOS,AAAA,LOC,NXT,EID,
          NIMLOC,SRV,ATMA,NAPTR,KX,CERT,A6,DNAME,SINK,OPT,APL,DS,SSHFP,IPSECKEY,
          RRSIG,NSEC,DNSKEY,DHCID,SPF,UINFO,UID,GID,UNSPEC,TKEY,TSIG,IXFR,AXFR,
          MAILB,MAILA,*,TA,DLV,"/>
</items>
```

3.3 Function: topresolvers

The topresolvers function returns an xml formatted list of the top resolvers.

Parameter	Comment
function	must be "topresolvers"
day	Required
time	Required
count	Required
nodes	Optional, not used by dns2dbnode.php
filters	Optional, comma separated list of filters to be used.

Example:

```
http://server/dns2db.php?function=topresolvers&day=20081224&time=1500&count=2&nodes=a,b
```

Example output:

```
<?xml version="1.0" encoding="ISO-8859-1">
<items>
 <item>
  <position>1</position>
  <qcount>48</qcount>
  <domain>ip-address1</domain>
  <displaytext>hostname1</displaytext>
 </item>
 <item>
  <position>2</position>
  <qcount>6</qcount>
  <domain>ip-address2</domain>
  <displaytext>hostname2</displaytext>
 </item>
 <status>
  <node name="a" result="1" />
  <node name="b" result="1" />
 </status>
</items>
```

3.4 Function: topdomains

The topdomains function returns an xml formatted list of the top domains.

Parameter	Comment
function	must be "topdomains"
day	Required
time	Required
count	Required
nodes	Optional, not used by dns2dbnode.php
filters	Optional, comma separated list of filters to be used.

Example:

```
http://servername/dns2db.php?function=topdomains&day=20081224&time=1500&count=2&nodes=a,b
```

Example output:

```
<?xml version="1.0" encoding="ISO-8859-1">
<items>
 <item>
  <position>1</position>
  <qcount>48</qcount>
  <domain>foo.se.</domain>
  <displaytext>foo.se.</displaytext>
 </item>
 <item>
  <position>2</position>
  <qcount>6</qcount>
  <domain>ns.se.</domain>
  <displaytext>ns.se</displaytext>
 </item>
 <status>
  <node name="a" result="1" />
  <node name="b" result="1" />
 </status>
</items>
```

3.5 Function: domainforresolver

The domainforresolver function returns an xml formatted list of the top domains for a specific resolver.

Parameter	Comment
function	must be "domainforresolver"
resolver	Required
day	Required
time	Required
count	Required
nodes	Optional, not used by dns2dbnode.php
filters	Optional, comma separated list of filters to be used.

Example:

```
http://server/dns2db.php?function=domainforresolver&day=20081224&time=1500
                        &count=2&resolver=::f00d:1234&filters=T,U,4,6,QT:ALL
```

Example output:

```
<?xml version="1.0" encoding="ISO-8859-1">
<items>
 <item>
  <position>1</position>
  <qcount>100</qcount>
  <domain>foo.se.</domain>
  <displaytext>foo.se.</displaytext>
 </item>
 <item>
  <position>2</position>
  <qcount>67</qcount>
  <domain>bar.se.</domain>
  <displaytext>bar.se.</displaytext>
 </item>
 <status>
  <node name="a" result="1" />
  <node name="b" result="1" />
 </status>
</items>
```

3.6 Function: resolversfordomain

The resolversfordomain function returns an xml formatted list of the top resolvers that have asked for a specific domain.

Parameter	Comment
function	must be "resolversfordomain"
domain	Required
day	Required
time	Required
count	Required
nodes	Optional, not used by dns2dbnode.php
filters	Optional, comma separated list of filters to be used.

Example:

```
http://servername/dns2db.php?function=resolversfordomain&day=20081224&time=1500&count=2&domain=foo.se
```

Example output:

```
<?xml version="1.0" encoding="ISO-8859-1">
<items>
 <item>
  <position>1</position>
  <qcount>4</qcount>
  <domain>ip-address1</domain>
  <displaytext>hostname1</displaytext>
 </item>
 <item>
  <position>2</position>
  <qcount>3</qcount>
  <domain>ip-address2</domain>
  <displaytext>hostname2</displaytext>
 </item>
 <status>
  <node name="a" result="1" />
  <node name="b" result="1" />
 </status>
</items>
```

4 XML Tags

4.1 Tag:<items>

The <**items**> tag is the XML root tag for all responses in DNS[2db]

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
<**item**>	See comment	Required for all functions except nodelist or filterlist
<**status**>	Optional	for all functions except nodelist or filterlist
<**filter**>	See comment	Required only for the filterlist function
<**server**>	See comment	Required only for the nodelist function

Subtags

4.2 Tag:<item>

The item tag is a subtag of <**items**> that contains the resulting rows from the database query. Found in the <items> root tag.

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
<**position**>	Required	
<**qcount**>	Required	
<**domain**>	Required	
<**displaytext**>	Required	

Subtags

4.3 Tag:<position>

Contains a simple counter specifiying the order of the rows. Always starts at 1 and increases for each item.
Specified as tag content only and found in the <item> tag.

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
none		

Subtags

4.4 Tag:<qcount>

Specifies the number of occurrances of this item. i.e. number of queries for a specific domain.
Specified as tag content only and found in the <item> tag.

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
none		

Subtags

4.5 Tag:<domain>

Specifies a domain or somewhat misleading host depending on the current function.
Specified as tag content only and found in the <item> tag.

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
none		

Subtags

4.6 Tag:<displaytext>

The content of <displaytext> is either the same as found in <domain> or a humanreadable version of whats found in <domain> such as the hostname for an ip adress.
Specified as tag content only and found in the <item> tag.

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
none		

Subtags

4.7 Tag:<status>

The <status> tag is included under the <items> tags after the <item> tags and is used to specify which nodes has answered the query.

Attribute	Importance	Comment
none		

Attributes

Subtags	Importance	Comment
<**node**>		A node tag would be expected here but if it's not there it should not be treated as an error.

Subtags

4.8 Tag:<node>

The <node> tag is used to specify which nodes has responded to a query. This is currently used by the DNS^{2db}flash interface to tag nodes as green or red depending on wheter they returned data or not. Found in the <status> tag.

Attribute	Importance	Comment
name	Required	Specifies the name of a node
result	Required	result is 1 when the node has returned data otherwise 0

Attributes

Subtags	Importance	Comment
none		

Subtags

4.9 Tag:<filter>

Speficies an available filter. Returned by the filterlist function inside the <items> tag.

Attribute	Importance	Comment
name	Required	Specifies the name of the filter
code	Required	Specifies the code to be used in the filter parameter string
default	Required	default value can be 0 or 1 or one of the values in opts
opts	Optional	A string with comma separated values for the dropdown menu

Attributes

Subtags	Importance	Comment
none		

Subtags

4.10 Tag:<server>

Contains rows of output from running the nodelist function inside the <items> tag.

Attribute	Importance	Comment
name	Required	The uniqe name of the node. Should contain characters and digits only.
dnsname	Required	The fully qualitfied domain name of the node.
displayname	Required	The name to display.
description	Required	A string describing the node (may be empty).

Attributes

Subtags	Importance	Comment
none		

Subtags