

DNS

2016 6 16

DNS

DNS

DNS

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DNS

DNS Domain Name System

IP

math.stackexchange.com

151.101.129.69

IP

IP

DNS

dig

```
$ dig math.stackexchange.com
```

Image not found or type unknown



Image not found or type unknown



Image not found or type unknown



math.stackexchange.com | A | A | address

DNS

Image not found or type unknown



math.stackexchange.com | A | 600 | TTL Time to live 600

stackexchange.com | NS Name Server | stackexchange.com | DNS

Image not found or type unknown



stackexchange.com | math.stackexchange.com | IP

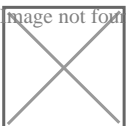
IP

Image not found or type unknown



DNS

Image not found or type unknown



192.168.1.253 53 DNS 305

+short

```
$ dig +short math.stackexchange.com
```

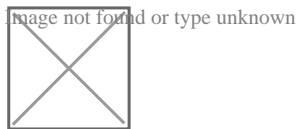
```
151.101.129.69
151.101.65.69
151.101.193.69
151.101.1.69
```

```
math.stackexchange.com | A | IP
```

DNS

```
math.stackexchange.com | IP
```

DNS IP DNS IP



DNS IP /etc/resolv.conf Linux DNS IP

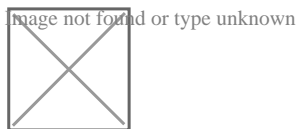
```
D | 192.168.1.253 |                  8.8.8.8 | $ | Level | 4.2.2.2 |      Google
```

```
dig | @ |                  DNS
```

```
$ dig @4.2.2.2 math.stackexchange.com
```

```
4.2.2.2 |
```

DNS IP

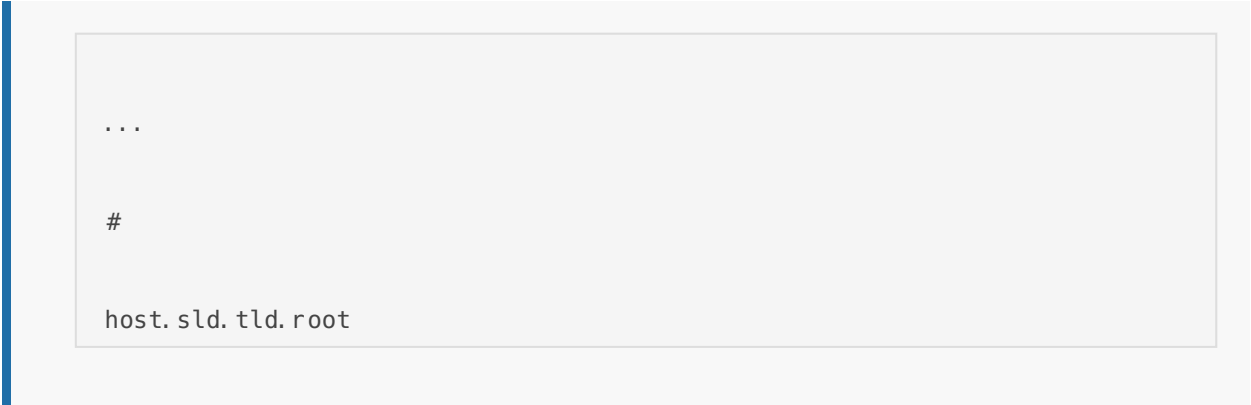


```
math.stackexchange.com | math.stackexchange.com. |
```

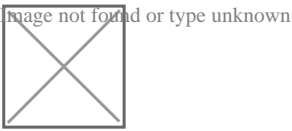
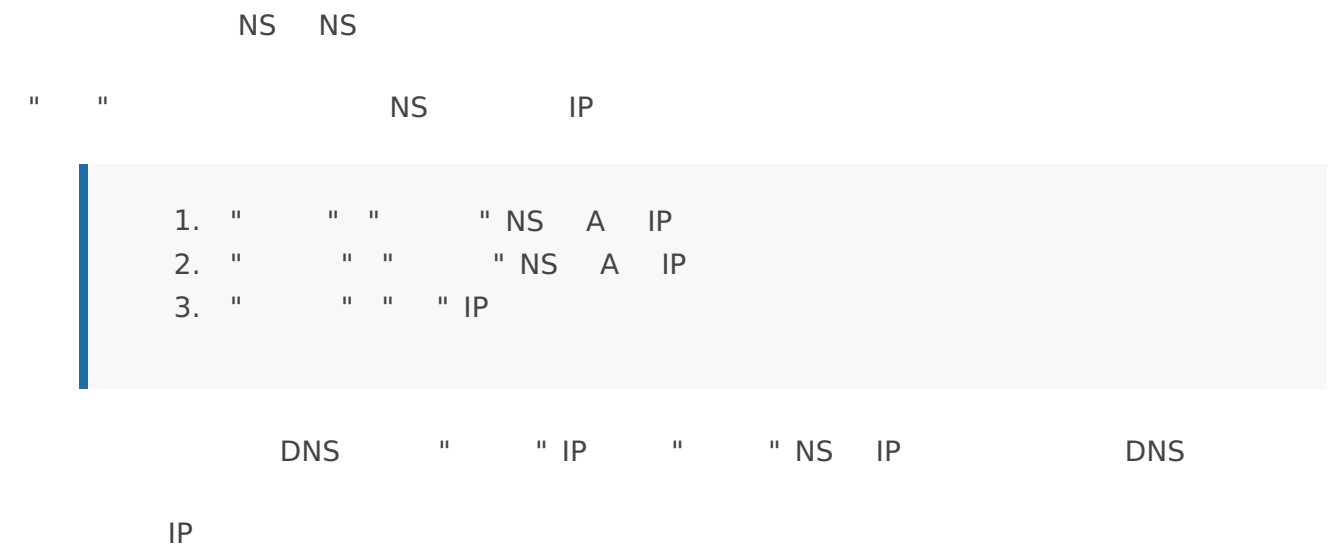
www.example.com | www.example.com.root | www.example.com. | .root |

" " top-level | .com | .net | TLD " second-level | www.example.com | .example |

www.example.com | www | " "



DNS



.root | A. ROOT- SERVERS. NET | B. ROOT- SERVERS. NET | C. ROOT- SERVERS. NET | A | 198. 41. 0. 4 | 192. 228. 79. 201 | 192. 33. 4. 12 |

TTL 3600000 1000 1000

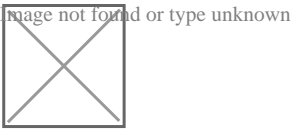
A. ROOT- SERVERS. NET | M. ROOT- SERVERS. NET |

dig | +trace |

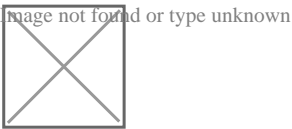
DNS

```
$ dig +trace math.stackexchange.com
```

. | NS

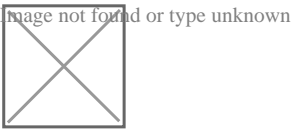


math.stackexchange.com | com. | NS



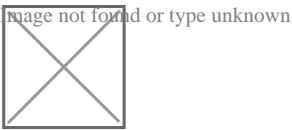
. com | 13 NS IP

D math.stackexchange.com | stackexchange.com | NS



stackexchange.com | NS NS IP

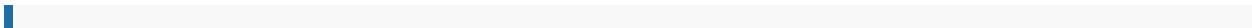
DNS math.stackexchange.com |



math.stackexchange.com | A | ns-463.awsdns-57.com | 205.251.193.207 |

NS

dig | NS



```
$ dig ns com
$ dig ns stackexchange.com
```

+short

```
$ dig +short ns com
$ dig +short ns stackexchange.com
```

DNS

IP " A NS cord " type

DNS

1 A	Address	IP
2 NS	Name Server	IP
{ MX }	Mail eXchange	
{ CNAME }	Canonical Name	
{ PTR }	Pointer Record	IP

NS A MX

CNAME facebook.github.io CNAME

```
$ dig facebook.github.io

...
```

```
;; ANSWER SECTION:
```

```
facebook.github.io. 3370      IN      CNAME    github.map.fastly.net.  
github.map.fastly.net. 600 IN      A       103.245.222.133
```

```
facebook.github.io CNAME github.map.fastly.net | facebook.github.io | github.map.fastly.net | IP  
github.map.fastly.net | facebook.github.io |
```

```
CNAME | CNAME | A | MX | foo.com | bar.com | MX | MX | CNAME |
```

```
PTR | dig | - x | PTR |
```

```
$ dig -x 192.30.252.153
```

```
...
```

```
;; ANSWER SECTION:
```

```
153.252.30.192.in-addr.arpa. 3600 IN      PTR    pages.github.com.
```

```
192.30.252.153 | pages.github.com |
```

IP

```
dig |
```

```
$ dig a github.com
```

```
$ dig ns github.com
```

```
$ dig mx github.com
```

DNS

```
dig |
```

1 host

```
host | dig |
```

```
$ host github.com
```

```
github.com has address 192.30.252.121
```

```
github.com mail is handled by 5 ALT2.ASPMX.L.GOOGLE.COM.
```

```
github.com mail is handled by 10 ALT4.ASPMX.L.GOOGLE.COM.
```

```
github.com mail is handled by 10 ALT3.ASPMX.L.GOOGLE.COM.
```

```
github.com mail is handled by 5 ALT1.ASPMX.L.GOOGLE.COM.
```

```
github.com mail is handled by 1 ASPMX.L.GOOGLE.COM.
```

```
$ host facebook.github.com
```

```
facebook.github.com is an alias for github.map.fastly.net.
```

```
github.map.fastly.net has address 103.245.222.133
```

```
host | dig -x <ip> | IP
```

```
$ host 192.30.252.153
```

```
153.252.30.192.in-addr.arpa domain name pointer pages.github.com.
```

2 nslookup

```
nslookup
```

```
$ nslookup
```

```
> facebook.github.io
```

```
Server:      192.168.1.253
```

```
Address:     192.168.1.253#53
```

```
Non-authoritative answer:
```

```
facebook.github.io canonical name = github.map.fastly.net.
```

```
Name:       github.map.fastly.net
```



```
Address: 103. 245. 222. 133
```

```
>
```

3 whois

```
whois
```

```
$ whois github.com
```

Revision #2

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