

# Solid Tools : User Guide

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# Domain & DNS Tools

These tools allow you to query and discover information about domains and the DNS system.

# Dig

"Dig" is a tool on Unix and Linux servers that queries the Domain Name System for DNS records.

## About the Dig tool

Computers use the Domain Name System (or DNS for short) to convert human-readable domain names (e.g. [www.soliddevtools.com](http://www.soliddevtools.com)) into an IPv4 address (e.g. **109.228.50.239**) or an IPv6 address (e.g. **2a00:da00:1800:15a::1**).

DNS records also store information about the millions of domains and websites that are on the Internet - such as an approved list of servers that can send mail on your domain's behalf (known as SPF records.)

## Use Cases

Use the Dig tool on Solid Tools for Developers to:

- Find the IP address of a website
- Check if a DNS record exists
- Check if a change made in DNS has been published

## Usage

Enter a DNS record you wish to query in the "Domain name/record" field - e.g. **www.google.com**.

If you wish to query a specific DNS server, enter it's hostname or IP address in the "DNS server" field. If you don't know what this is, leave it as **localhost**.

Select the type of record you would like to query. For example: to find the IP address of a domain name, use the query type **A (IP address)**.

By default, Solid Tools for Developers will use its own DNS server to return your results. This may include cached data if the record was recently queried. To force the use of "live" data, tick the "Trace" option.

# Results

The complete output from the "Dig" tool will be displayed.

The "flags" line at the top will include a line like **QUERY: 1, ANSWER: 1, AUTHORITY: 4**. The figure next to **ANSWER** will tell you how many results were found.

The results themselves will be displayed under the section labelled **:: ANSWER SECTION**.

The following example shows a successful query to find the IPv4 address of [www.google.com](http://www.google.com):

```
; <<>> DiG 9.10.3-P4-Ubuntu <<>> @localhost www.google.com A
; (2 servers found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 25982
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 4, ADDITIONAL: 5

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags::; udp: 4096
;; QUESTION SECTION:
;www.google.com. IN A

;; ANSWER SECTION:
www.google.com. IN A 216.58.213.100

;; AUTHORITY SECTION:
google.com. IN NS ns2.google.com.
google.com. IN NS ns3.google.com.
google.com. IN NS ns1.google.com.
google.com. IN NS ns4.google.com.

;; ADDITIONAL SECTION:
ns1.google.com. IN A 216.239.32.10
ns2.google.com. IN A 216.239.34.10
ns3.google.com. IN A 216.239.36.10
ns4.google.com. IN A 216.239.38.10

;; Query time: 109 msec
;; SERVER: ::1#53(::1)
```

;; WHEN: Wed Dec 06 11:48:51 GMT 2017

;; MSG SIZE rcvd: 195

# Domain Whois

"Whois" is a tool on Unix and Linux servers that queries WHOIS servers for ownership of domains, IP addresses and networks.

## About the Domain WHOIS Lookup tool

Computers use the Domain Name System (or DNS for short) to convert human-readable domain names (e.g. **soliddevtools.com**) into an IPv4 address (e.g. **109.228.50.239**) or an IPv6 address (e.g. **2a00:da00:1800:15a::1**).

You can perform a query known as "WHOIS" to identify which organisation a domain name belongs to.

## Use Cases

Use the Domain WHOIS tool on Solid Tools for Developers to:

- Identify which organisation is responsible for a domain name
- Find out who to contact about a domain name

## Usage

Enter a domain name (without the "www") in the "domain name" field.

## Results

The raw output from the WHOIS database will be displayed.

The following example shows a WHOIS lookup for **soliddevtools.com**.

```
Domain Name: SOLIDDEVTOOLS.COM
Registry Domain ID: 2171825417_DOMAIN_COM-VRSN
Registrar WHOIS Server: whois.1api.net
Registrar URL: http://www.1api.net
```

Updated Date: 2023-11-10T12:52:47Z

Creation Date: 2017-10-08T16:54:08Z

Registry Expiry Date: 2028-10-08T16:54:08Z

Registrar: 1API GmbH

Registrar IANA ID: 1387

Registrar Abuse Contact Email: abuse@1api.net

Registrar Abuse Contact Phone: +49.68949396850

Domain Status: clientTransferProhibited <https://icann.org/epp#clientTransferProhibited>

Name Server: NS1.DNSIMPLE.COM

Name Server: NS2.DNSIMPLE-EDGE.NET

Name Server: NS3.DNSIMPLE.COM

Name Server: NS4.DNSIMPLE-EDGE.ORG

DNSSEC: signedDelegation

DNSSEC DS Data: 63451 8 2 5ADDD7E73699F49C156B53C35884F503B830057A1A9F6197CC002BFDEFB7F0E9

URL of the ICANN Whois Inaccuracy Complaint Form: <https://www.icann.org/wicf/>

>>> Last update of whois database: 2023-12-12T19:45:15Z <<<

For more information on Whois status codes, please visit <https://icann.org/epp>

NOTICE: The expiration date displayed in this record is the date the registrar's sponsorship of the domain name registration in the registry is currently set to expire. This date does not necessarily reflect the expiration date of the domain name registrant's agreement with the sponsoring registrar. Users may consult the sponsoring registrar's Whois database to view the registrar's reported date of expiration for this registration.

TERMS OF USE: You are not authorized to access or query our Whois database through the use of electronic processes that are high-volume and automated except as reasonably necessary to register domain names or modify existing registrations; the Data in VeriSign Global Registry Services' ("VeriSign") Whois database is provided by VeriSign for information purposes only, and to assist persons in obtaining information about or related to a domain name registration record. VeriSign does not guarantee its accuracy. By submitting a Whois query, you agree to abide by the following terms of use: You agree that you may use this Data only for lawful purposes and that under no circumstances will you use this Data to: (1) allow, enable, or otherwise support the transmission of mass unsolicited, commercial advertising or solicitations via e-mail, telephone, or facsimile; or (2) enable high volume, automated, electronic processes that apply to VeriSign (or its computer systems). The compilation,

repackaging, dissemination or other use of this Data is expressly prohibited without the prior written consent of VeriSign. You agree not to use electronic processes that are automated and high-volume to access or query the Whois database except as reasonably necessary to register domain names or modify existing registrations. VeriSign reserves the right to restrict your access to the Whois database in its sole discretion to ensure operational stability. VeriSign may restrict or terminate your access to the Whois database for failure to abide by these terms of use. VeriSign reserves the right to modify these terms at any time.

The Registry database contains ONLY .COM, .NET, .EDU domains and Registrars.

Domain Name: SOLIDDEVTOOLS.COM

Registry Domain ID: 2171825417\_DOMAIN\_COM-VRSN

Registrar WHOIS Server: whois.1api.net

Registrar URL: <http://www.1api.net>

Updated Date: 2023-11-10T12:52:47Z

Creation Date: 2017-10-08T16:54:08Z

Registrar Registration Expiration Date: 2028-10-08T16:54:08Z

Registrar: 1API GmbH

Registrar IANA ID: 1387

Registrar Abuse Contact Email: [abuse@1api.net](mailto:abuse@1api.net)

Registrar Abuse Contact Phone: +49.68949396x850

Reseller: DNSimple <https://dnsimple.com>

Domain Status: clientTransferProhibited - <http://www.icann.org/epp#clientTransferProhibited>

Registry Registrant ID:

Registrant Name: c/o WHOISTrustee.com Limited

Registrant Organization: Registrant of soliddevtools.com

Registrant Street: 6 Thornes Office Park Monckton Road

Registrant City: Wakefield

Registrant State/Province: West Yorkshire

Registrant Postal Code: WF2 7AN

Registrant Country: GB

Registrant Phone: +49.68416984300

Registrant Phone Ext:

Registrant Fax:

Registrant Fax Ext:

Registrant Email: [bfc0ea6438@soliddevtools.com.whoistrustee.com](mailto:bfc0ea6438@soliddevtools.com.whoistrustee.com)

Registry Admin ID:



Admin Name: c/o WHOISt trustee.com Limited  
Admin Organization: Registrant of soliddevtools.com  
Admin Street: 6 Thornes Office Park Monckton Road  
Admin City: Wakefield  
Admin State/Province: West Yorkshire  
Admin Postal Code: WF2 7AN  
Admin Country: GB  
Admin Phone: +49.68416984300  
Admin Phone Ext:  
Admin Fax:  
Admin Fax Ext:  
Admin Email: bfc0ea6438@soliddevtools.com.whoistrustee.com  
Registry Tech ID:

Tech Name: c/o WHOISt trustee.com Limited  
Tech Organization: Registrant of soliddevtools.com  
Tech Street: 6 Thornes Office Park Monckton Road  
Tech City: Wakefield  
Tech State/Province: West Yorkshire  
Tech Postal Code: WF2 7AN  
Tech Country: GB  
Tech Phone: +49.68416984300  
Tech Phone Ext:  
Tech Fax:  
Tech Fax Ext:  
Tech Email: bfc0ea6438@soliddevtools.com.whoistrustee.com

Name Server: ns1.dnsimple.com 162.159.24.4 2400:cb00:2049:0001:0000:0000:a29f:1804  
Name Server: ns3.dnsimple.com 162.159.26.4 2400:cb00:2049:0001:0000:0000:a29f:1a04  
Name Server: ns4.dnsimple-edge.org  
Name Server: ns2.dnsimple-edge.net 199.247.153.53 2620:0111:8005:0000:0000:0000:0000:0053  
DNSSEC: signedDelegation  
URL of the ICANN WHOIS Data Problem Reporting System:  
<http://wdprs.internic.net/>  
>>> Last update of WHOIS database: 2023-12-12T19:45:36Z <<<

For more information on Whois status codes, please visit <https://www.icann.org/resources/pages/epp-status-codes-2014-06-16-en>.

; This data is provided for information purposes, and to assist persons  
; obtaining information about or related to domain name registration  
; records. We do not guarantee its accuracy.

; By submitting a WHOIS query, you agree that you will use this data  
; only for lawful purposes and that, under no circumstances, you will  
; use this data to  
; 1) allow, enable, or otherwise support the transmission of mass  
; unsolicited, commercial advertising or solicitations via E-mail  
; (spam); or  
; 2) enable high volume, automated, electronic processes that apply  
; to this WHOIS server.  
; These terms may be changed without prior notice.  
; By submitting this query, you agree to abide by this policy.

; Buy, connect, and operate your domains like a pro.  
; Visit [dnsimple.com](https://dnsimple.com) to get started with domain management automation!

# SPF Record Analyser

SPF records indicate what servers (IP addresses) are allowed to send mail for a domain.

## About the SPF Record Analyser tool

To reduce spammers from sending e-mail that appears to come from your domain (known as e-mail spoofing) you can publish an SPF record to your domain name's DNS records.

An SPF record tells receiving mail servers which servers are explicitly allowed to send e-mail that comes from your domain name.

It is strongly recommended you publish an SPF record to prevent e-mail spoofing. You can use the SPF Record Analyser to validate your record applies the rules you expect.

## Use Cases

Use the SPF Record Analyser tool on Solid Tools for Developers to:

- Check if your SPF record is published in DNS
- Check your SPF record is valid and allows the servers you expect
- Validate a record before you publish it in DNS

## Usage

If you wish to test a live SPF record, enter the domain name the SPF record belongs to in the "Domain name to check" field.

If you wish to test a record before publishing it, enter the content of the record in the "SPF record text" field.

## Results

Whichever option you have chosen, the results will be the same.

The actual SPF record analysed will be displayed, followed by a breakdown of the servers that are present in the SPF record, and an indication of whether they are authorised to send e-mails on behalf of the domain.

The example below shows the analysis of the SPF record for simplyremind.me. This record imports the SPF rules from the amazonses.com domain, which in turn allows the following IP addresses to send e-mails addressed from @simplyremind.me: 199.255.192.0/22, 199.127.232.0/22 and 54.240.0.0/18.

```
v=spf1 include:amazonses.com ~all
```

Included from **amazonses.com**:

Sender's IP address matches **199.255.192.0/22**  
The message will be allowed to send

Sender's IP address matches **199.127.232.0/22**  
The message will be allowed to send

Sender's IP address matches **54.240.0.0/18**  
The message will be allowed to send

All messages not matching any other rule  
The message would not normally be allowed to send

# Network Tools

These tools allow you to query and perform operations on networks and IP addresses.

# AS Network WHOIS Lookup

AS (autonomous systems) are individual networks that, together, make up the global Internet as we know it.

## About the AS Network WHOIS Lookup tool

Network packets (traffic) are transmitted over the Internet by traversing multiple networks run by different organisations - known as Autonomous Networks. Each of these organisations is assigned a number for their network, known as an ASN (Autonomous System Number.)

Each network peers with other networks, sharing the AS numbers of the networks they peer with.

You can perform a query known as "WHOIS" to identify which organisation operates a particular AS network.

## Use Cases

Use the AS Network WHOIS tool on Solid Tools for Developers to:

- Identify which organisation is responsible for an ASN
- Find out contacts to report abuse or technical problems with an ASN

## Usage

Enter an ASN in the "AS Number" field.

Optionally select a regional WHOIS server to send your query to.

## Results

The raw output from the WHOIS database will be displayed.

The following example shows a WHOIS lookup for **AS15418**, the AS number allocated to Fasthosts - the company and data centre that hosts the server running Solid Tools for Developers.

% This is the RIPE Database query service.  
% The objects are in RPSL format.  
%  
% The RIPE Database is subject to Terms and Conditions.  
% See <https://apps.db.ripe.net/docs/HTML-Terms-And-Conditions>

% Note: this output has been filtered.  
% To receive output for a database update, use the "-B" flag.

% Information related to 'AS15400 - AS15474'

as-block: AS15400 - AS15474  
descr: RIPE NCC ASN block  
remarks: These AS Numbers are assigned to network operators in the RIPE NCC service region.  
mnt-by: RIPE-NCC-HM-MNT  
created: 2018-11-22T15:27:25Z  
last-modified: 2018-11-22T15:27:25Z  
source: RIPE

% Information related to 'AS15418'

% Abuse contact for 'AS15418' is 'abuse@fasthosts.co.uk'

aut-num: AS15418  
as-name: FASTHOSTS-INTERNET  
descr: Fasthosts Internet Ltd. Gloucester, UK.  
org: ORG-FHL1-RIPE  
admin-c: FHUK-RIPE  
tech-c: FHUK-RIPE  
status: ASSIGNED  
mnt-by: RIPE-NCC-END-MNT  
mnt-by: AS8560-MNT  
mnt-by: AS15418-MNT  
created: 2002-06-18T12:26:34Z  
last-modified: 2018-05-08T12:24:45Z  
source: RIPE # Filtered

organisation: ORG-FHL1-RIPE  
org-name: Fasthosts Internet Limited  
country: GB

org-type: LIR  
address: Discovery House  
154 Southgate Street  
address: GL1 2EX  
address: Gloucester  
address: UNITED KINGDOM  
phone: +443330142700  
fax-no: +441452541633  
mnt-ref: AS15418-MNT  
mnt-ref: RIPE-NCC-HM-MNT  
mnt-by: RIPE-NCC-HM-MNT  
mnt-by: AS15418-MNT  
admin-c: FHUK-RIPE  
tech-c: FHUK-RIPE  
abuse-c: FH4126-RIPE  
created: 2004-04-17T12:14:35Z  
last-modified: 2023-01-09T16:11:45Z  
source: RIPE # Filtered

role: Fasthosts Networks UK  
address: Fasthosts Internet Limited  
address: Discovery House  
address: 154 Southgate Street  
address: Gloucester, GL1 2EX  
phone: +44 1452 561874  
abuse-mailbox: abuse@fasthosts.co.uk  
nic-hdl: FHUK-RIPE  
remarks: -----  
remarks: Please report abuse to abuse@fasthosts.co.uk  
remarks: Abuse reports via other channels may be ignored  
remarks: -----  
org: ORG-FHL1-RIPE  
admin-c: GD8691-RIPE  
admin-c: MM24449-RIPE  
tech-c: GD8691-RIPE  
tech-c: MM24449-RIPE  
mnt-by: AS15418-MNT  
mnt-by: AS8560-MNT  
created: 2015-02-26T14:57:35Z  
last-modified: 2019-01-28T10:09:16Z



source: RIPE # Filtered

% This query was served by the RIPE Database Query Service version 1.109 (BUSA)

# IP Whois

"Whois" is a tool on Unix and Linux servers that queries WHOIS servers for ownership of domains, IP addresses and networks.

## About the IP WHOIS Lookup tool

All computers or servers on the Internet have an IP address. IP addresses are allocated to organisations in blocks of contiguous addresses, who then allocate ranges within their allocation to their customers.

You can perform a query known as "WHOIS" to identify which organisation an IP address is allocated to.

## Use Cases

Use the IP WHOIS tool on Solid Tools for Developers to:

- Identify which organisation is responsible for an IP address
- Find out contacts to report abuse or technical problems with an IP address

## Usage

Enter an IPv4 or IPv6 address in the "IP address" field.

Optionally select a regional WHOIS server to send your query to.

## Results

The raw output from the WHOIS database will be displayed.

The following example shows a WHOIS lookup for **2a00:da00:1800:15a::6** - the IPv6 address of the Solid Tools for Developers web application.

```
% This is the RIPE Database query service.  
% The objects are in RPSL format.
```

%

% The RIPE Database is subject to Terms and Conditions.

% See <https://apps.db.ripe.net/docs/HTML-Terms-And-Conditions>

% Note: this output has been filtered.

% To receive output for a database update, use the "-B" flag.

% Information related to '2a00:da00:1800::/43'

% Abuse contact for '2a00:da00:1800::/43' is 'abuse@fasthosts.co.uk'

inet6num: 2a00:da00:1800::/43  
netname: IONOS-UK-NGCS  
descr: IONOS UK Next Generation Cloud Server (NGCS)  
country: GB  
admin-c: FHUK-RIPE  
tech-c: FHUK-RIPE  
status: ALLOCATED-BY-LIR  
mnt-by: AS15418-MNT  
mnt-by: AS8560-MNT  
created: 2018-03-20T10:29:44Z  
last-modified: 2020-11-27T17:15:42Z  
source: RIPE

role: Fasthosts Networks UK  
address: Fasthosts Internet Limited  
address: Discovery House  
address: 154 Southgate Street  
address: Gloucester, GL1 2EX  
phone: +44 1452 561874  
abuse-mailbox: abuse@fasthosts.co.uk  
nic-hdl: FHUK-RIPE  
remarks: -----  
remarks: Please report abuse to abuse@fasthosts.co.uk  
remarks: Abuse reports via other channels may be ignored  
remarks: -----  
org: ORG-FHL1-RIPE  
admin-c: GD8691-RIPE  
admin-c: MM24449-RIPE  
tech-c: GD8691-RIPE

tech-c: MM24449-RIPE  
mnt-by: AS15418-MNT  
mnt-by: AS8560-MNT  
created: 2015-02-26T14:57:35Z  
last-modified: 2019-01-28T10:09:16Z  
source: RIPE # Filtered

% Information related to '2a00:da00::/32AS8560'

route6: 2a00:da00::/32  
descr: Fasthosts Internet ltd  
origin: AS8560  
mnt-by: AS15418-MNT  
mnt-by: AS8560-MNT  
created: 2014-11-12T15:52:10Z  
last-modified: 2014-11-12T15:52:10Z  
source: RIPE

% This query was served by the RIPE Database Query Service version 1.109 (DEXTER)

# Ping

Ping is a mechanism for checking if a host (IP address) is alive and responding.

## About the Ping tool

All computers or servers on the Internet have an IP address. "Pinging" this IP address is the quickest way to check if you can reach a particular computer, server or router.

If you are unable to ping an IP address, it may mean the computer or server is turned off, or another network problem is preventing you from accessing it.

## Use Cases

Use the Ping tool on Solid Tools for Developers to:

- See if an IP address can be reached from the Internet
- Check if your local firewall is blocking ping requests (ICMP traffic)
- Eliminate your own network from being at fault during your investigations

## Usage

Enter a hostname, IPv4 or IPv6 address in the "Hostname or IP address" field.

To ping a server if you don't know its IP address, enter its hostname (e.g. **www.google.com**) and select whether to use an IPv4 or IPv6 connection for the ping. If you select IPv6, the hostname must have an IPv6 (AAAA) DNS record.

To ping a server using its IPv4 address, enter the IP address and ensure the IPv4 option is selected.

To ping a server using its IPv6 address, enter the IP address and ensure the IPv6 option is selected.

The ping tool will send 4 packets to the destination address you provided.

## Results

A successful ping result will be displayed in **green**. The following example shows a successful ping result to [www.google.com](http://www.google.com).

You can see that 4 packets were transmitted, and all 4 had a response back from [www.google.com](http://www.google.com) - resulting in no packet loss.

```
PING www.google.com (172.217.26.196) 56(84) bytes of data.  
64 bytes from maa03s23-in-f4.1e100.net (172.217.26.196): icmp_seq=1 ttl=49 time=320 ms  
64 bytes from maa03s23-in-f4.1e100.net (172.217.26.196): icmp_seq=2 ttl=49 time=320 ms  
64 bytes from maa03s23-in-f4.1e100.net (172.217.26.196): icmp_seq=3 ttl=49 time=320 ms  
64 bytes from maa03s23-in-f4.1e100.net (172.217.26.196): icmp_seq=4 ttl=49 time=320 ms  
  
--- www.google.com ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3003ms  
rtt min/avg/max/mdev = 320.400/320.489/320.635/0.409 ms
```

A failed ping result will be displayed in red. The following example shows a failed result to the unrouteable IP address 10.100.1.2.

You can see that out of 4 packets transmitted, not a single response was received.

```
PING 10.100.1.2 (10.100.1.2) 56(84) bytes of data.  
  
--- 10.100.1.2 ping statistics ---  
4 packets transmitted, 0 received, 100% packet loss, time 3023ms
```

## What is an IP address?

An IP address is an "address" for any device that is connected to a network - a computer, phone, tablet or even a smart fridge. It's how the Internet knows where to send your web pages, email and streaming music, in the same way a postal address tells your mail-person where to deliver your mail.

There are 2 types of IP address currently in widespread use today - [IPv4](#) (the most common) and [IPv6](#) (a newer standard for an ever-expanding Internet.)

## IPv4

IPv4 addresses are four groups of between 1 and 3 digits, separated by dots.

For example, the server that runs Solid Tools for Developers has the IPv4 address:  
**109.228.50.239.**

## IPv6

IPv6 addresses are longer than IPv4 and contain letters as well as numbers. IPv6 networks can accommodate a significantly larger number of devices than IPv4 networks and are growing in popularity.

For example, the server that runs Solid Tools for Developers has the IPv6 address:  
**2a00:da00:1800:15a::1.**

# Open Port Checker

Check if a port on your device is open to the Internet (or not.)

## About the Open Port Checker tool

Most Internet-based applications, such as websites, communicate using a TCP/IP endpoint - that is, an IP address and port number.

If a remote computer cannot connect to your application or website's port number, it will be unable to use it.

Ports can be blocked using hardware- or software-based firewalls, which can restrict access conditionally based on the IP address or machine that is trying to connect.

## Use Cases

Use the Open Port Checker tool on Solid Tools for Developers to:

- See if your application's port can be accessed from the Internet
- Check if your firewall is correctly blocking an unknown IP address

## Usage

Enter a hostname, IPv4 or IPv6 address in the "Hostname or IP address" field.

To connect to a server if you don't know its IP address, enter its hostname (e.g. **www.google.com**) and select whether to use an IPv4 or IPv6 connection. If you select IPv6, the hostname must have an IPv6 (AAAA) DNS record.

To connect to a server using its IPv4 address, enter the IP address and ensure the IPv4 option is selected.

To connect to a server using its IPv6 address, enter the IP address and ensure the IPv6 option is selected.

Select one of the common TCP/IP port numbers from the list, or enter your own port number to connect to.



# Results

A successful connection will be displayed in **green**. This means the Solid Tools for Developers was successfully able to connect to the port - the port is open.

A failed connection will be displayed in **red**. This means the Solid Tools for Developers was unable to connect to the port - the port is either blocked or the application is not listening.

# Traceroute

Track how packets traverse the Internet.

## About the Trace Route tool

Network packets traverse the global Internet by "hopping" from one router to another.

Every router knows where it needs to send a packet next to reach its destination, by using routing tables that are dynamically shared across the Internet.

Examining the hops a packet takes to reach its destination can give an indication of where a fault lies.

## Use Cases

Use the Trace Route tool on Solid Tools for Developers to:

- See the path a packet takes from the Solid Tools for Developers server to an IP address
- Find out where a fault may lie in reaching your IP address from an external network

## Usage

Enter a hostname, IPv4 or IPv6 address in the "Hostname or IP address" field.

To trace the route to a server if you don't know its IP address, enter its hostname (e.g. **www.google.com**) and select whether to use an IPv4 or IPv6 connection. If you select IPv6, the hostname must have an IPv6 (AAAA) DNS record.

To trace the route to a server using its IPv4 address, enter the IP address and ensure the IPv4 option is selected.

To trace the route to a server using its IPv6 address, enter the IP address and ensure the IPv6 option is selected.

## Results

The raw output from the "mtr" command will be displayed. The following example shows a traceroute to **www.google.com**.

Each line represents another "hop" in the packet's journey.

Hop number 1 is the Solid Tools for Developers server's upstream router. The final hop is the last known position of the packet, which will be the final destination if the trace successful reached the target.

The time displayed is a cumulative elapsed time from when the packet was transmitted.

Start: 2023-12-12T22:33:16+0000											
HOST: clermont.waggybytes.dev			Loss%	Snt	Last	Avg	Best	Wrst	StDev		
1.	--	10.255.255.2	0.0%	4	1.0	0.9	0.9	1.0	0.0		
2.	--	109.228.63.176	0.0%	4	1.4	5.3	1.3	17.2	7.9		
3.	--	ae-4-0.bb-a.ba.slo.gb.net.ionos.com (88.208.255.30)	0.0%	4	4.5	4.5	4.5	4.6	0.1		
4.	--	142.250.173.210	0.0%	4	5.5	5.4	5.4	5.5	0.1		
5.	--	216.239.41.193	0.0%	4	8.0	8.2	7.7	9.5	0.9		
6.	--	142.251.54.49	0.0%	4	5.0	5.0	5.0	5.1	0.0		
7.	--	lhr25s34-in-f4.1e100.net (142.250.187.228)	0.0%	4	5.4	5.4	5.3	5.4	0.0		

# What Is My IP Address?

Identify what IP address your device is using to access the Internet.

## About the What Is My IP Address? tool

All computers or servers on the Internet have an IP address. The What Is My IP Address tool tells you what IP address your current device is using to access the Internet.

## Use Cases

Use the What Is My IP tool on Solid Tools for Developers to:

- See what public IP address your device is using to connect to the Internet
- Check if your network supports IPv6 connectivity
- Check if your traffic is being routed through a corporate VPN

## Usage

Simply run the What Is My IP tool and it will tell you what IP address(es) have been detected on your device.

## What is an IP address?

An IP address is an "address" for any device that is connected to a network - a computer, phone, tablet or even a smart fridge. It's how the Internet knows where to send your web pages, email and streaming music, in the same way a postal address tells your mail-person where to deliver your mail.

There are 2 types of IP address currently in widespread use today - [IPv4](#) (the most common) and [IPv6](#) (a newer standard for an ever-expanding Internet.)

### IPv4

IPv4 addresses are four groups of between 1 and 3 digits, separated by dots.

For example, the server that runs Solid Tools for Developers has the IPv4 address:  
**109.228.50.239.**

## IPv6

IPv6 addresses are longer than IPv4 and contain letters as well as numbers. IPv6 networks can accommodate a significantly larger number of devices than IPv4 networks and are growing in popularity.

For example, the server that runs Solid Tools for Developers has the IPv6 address:  
**2a00:da00:1800:15a::1.**

# Software Development Tools

# Base64 Encoder

Base64 encoding is a popular way for applications to share data by converting bytes into human-readable characters.

## About the Base64 Encoder & Decoder tool

This online base64 encoder and base64 decoder allows you to convert plain text to and from the base64 encoding.

## Use Cases

Use the Base64 Encoder & Decoder tool on Solid Tools for Developers to:

- Convert plain text into base64 encoding to test applications that require base64-encoded text
- Convert base64-encoded text back into plain text to debug an application's response

## Usage

To encode plain text into base64-encoded text, type or paste the text into the first text-area (labelled "plain-text string") and click the "Encode" button. The base64-encoded string will appear in the second text-area.

To decode base64-encoded text back into plain text, type or paste the text into the second text-area (labelled "base64-encoded string") and click the "Decode" button. The plain-text string will appear in the first text-area.

# String Length Calculator

Calculate the length of a string in characters, words, sentences and paragraphs.

## About the String Length Calculator tool

When dealing with database fields or APIs that require text to be a specific length, it can be useful to have a tool that can quickly tell you exactly how long a string is.

Enter the String Length Calculator!

## Use Cases

Use the String Length Calculator tool on Solid Tools for Developers to:

- Count the exact number of characters in a string
- Analyse a string to count words and paragraphs

## Usage

Type or paste the string you wish to calculate into the text-area.

## Results

The calculator will tell you how many characters, paragraphs and words there are in the string you entered.

Example:

“ Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut non porta orci. Duis quis augue non lacus condimentum euismod nec vehicula sem. Quisque lacinia diam nec diam egestas, vel pretium ex luctus. Sed convallis odio ac leo tincidunt placerat. Nullam est lacus, lobortis eget pellentesque id, ultrices sit amet sapien. Nulla ligula diam, efficitur non ligula vitae, vehicula placerat tellus. Ut efficitur,



lacus nec mattis facilisis, neque lorem suscipit ligula, a tempor elit ex at libero. Nulla a purus faucibus, venenatis lectus eget, vehicula arcu. Fusce scelerisque eget neque iaculis convallis. Sed pretium ullamcorper odio. Fusce posuere hendrerit euismod. Duis posuere justo in mi pulvinar, nec mollis dolor vulputate. Duis vitae tristique ligula. Suspendisse vel sem et justo fermentum tempor vel eget leo.

Aenean eros nisi, vulputate sit amet aliquam quis, dignissim eget magna. Aenean tempus justo in nunc elementum malesuada. Proin odio metus, iaculis nec euismod accumsan, tincidunt eu metus. Quisque non augue vel libero ultricies tincidunt sit amet vitae lacus. Duis nec efficitur velit, vel laoreet justo. Ut volutpat, felis mollis commodo vehicula, dui nunc sodales elit, in vehicula metus elit eget tortor. Nunc accumsan eros ut ex semper dignissim at vitae sem. Nulla sed ullamcorper leo, eget maximus ex. Morbi tellus ligula, condimentum id pulvinar a, venenatis id lacus. Praesent porta tellus id est ornare porttitor. Nunc sollicitudin commodo interdum.

#### Result:

The string you entered is 1,479 characters long.

It contains 223 words.

It contains 26 sentences.

It contains 1 paragraph.

# URL Encoder

Convert strings to and from URL-safe encoding.

## About the URL Encoder & Decoder tool

There are several characters in a URL (web address) that have a special meaning - such as #, ?, & and =. If you need to pass these characters through to an application in its [URL \(Uniform Resource Locator\)](#) you need to encode them. This is known as URL encoding.

This online URL encoder and URL decoder converts a string to and from URL encoding.

## Use Cases

Use the URL Encoder & Decoder tool on Solid Tools for Developers to:

- Replace special characters in a string with their URL-encoded equivalent
- Replace URL-encoded characters with their original, un-encoded equivalent

## Usage

To replace special characters in a string with their URL-encoded equivalent, type or paste the text into the first text-area (labelled "string to URL-encode") and click the "Encode" button. The URL-encoded string will appear in the second text-area.

To replace encoded characters back into their un-encoded equivalent, type or paste the text into the second text-area (labelled "URL-encoded string") and click the "Decode" button. The un-encoded string will appear in the first text-area.

# XML/XHTML Encoder

Convert text to and from XML/XHTML-safe encoding.

## About the XML/XHTML Encoder & Decoder tool

There are several characters in XML and HTML documents that have a special meaning - such as < and >. If you need to include these characters in the content of an XML or HTML document, you need to encode them. This is known as XML encoding.

This online XML/XHTML encoder and URL decoder converts special characters in a string to and from XML encoding.

## Use Cases

Use the XML/XHTML Encoder & Decoder tool on Solid Tools for Developers to:

- Replace special characters in a string with their XML-encoded equivalent
- Replace XML-encoded characters with their original, un-encoded equivalent

## Usage

To replace special characters in a string with their XML-encoded equivalent, type or paste the text into the first text-area (labelled "string to encode") and click the "Encode" button. The XML-encoded string will appear in the second text-area.

To replace encoded characters back into their un-encoded equivalent, type or paste the text into the second text-area (labelled "string to decode") and click the "Decode" button. The un-encoded string will appear in the first text-area.

# System Administrator Tools

# Strong Password Generator

Strong, secure passwords are essential in the modern world. Use this tool to generate secure passwords.

## About the Strong Password Generator tool

Cyber-criminals are becoming more sophisticated every day. The proven way to thwart them is by using strong, secure passwords that are unique for each website.

But how do you ensure you always use a unique password when you've already used your date-of-birth, maiden name, place of birth and your dog's favourite snack?

Easy! Use this strong password generator in conjunction with a password manager such as [Dashlane - the security-first password manager](#).

## Use Cases

Use the Strong Password Generator tool on Solid Tools for Developers to:

- Generate strong passwords to use for anything from system or database administrator accounts to general uses, such as online banking or e-mail logins.

## Usage

Select how many passwords you would like to generate and the number of characters in each password.

Choose whether to include upper-case characters, lower-case characters, numeric digits and/or symbols.

It is strongly recommended to use symbols and at least one other group, or all 3 other groups if you do not want to include symbols.

## Results

The generated password(s) matching the rules you selected will be displayed. Simply copy and paste the password into your application or website.

If the password shown is unsuitable, feel free to hit the "Generate" button to get another one.