# Network Tools

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

- AS Network WHOIS Lookup
- IP Whois
- Ping
- Open Port Checker
- Traceroute
- What Is My IP Address?

# 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.

You can see that 4 packets were transmitted, and all 4 had a response back from 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.

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## 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**.