NAME

ip − show / manipulate routing, network devices, interfaces and tunnels

SYNOPSIS

ip [*OPTIONS*] *OBJECT* { *COMMAND* | **help** }

ip [**-force**] **-batch** *filename*

OBJECT := { **link** | **address** | **addrlabel** | **route** | **rule** | **neigh** | **ntable** | **tunnel** | **tuntap** | **maddress** | **mroute** | **mrule** | **monitor** | **xfrm** | **netns** | **l2tp** | **tcp_metrics** | **token** | **macsec** }

OPTIONS := { **−V**[*ersion*] | **−h**[*uman-readable*] | **−s**[*tatistics*] | **−d**[*etails*] | **−r**[*esolve*] | **−iec** | **−f**[*amily*] { **inet** | **inet6** | **ipx** | **dnet** | **link** } | **-4** | **-6** | **-I** | **-D** | **-B** | **-0** | **-l**[*oops*] { **maximum-addr-flush-attempts** } | **−o**[*neline*] | **−rc**[*vbuf*] [**size**] | **−t**[*imestamp*] | **−ts**[*hort*] | **−n**[*etns*] name | **−a**[*ll*] | **−c**[*olor*] | **−br**[*ief*] | **−j**[son] | **−p**[retty] }

OPTIONS

−V, **-Version**
: Print the version of the **ip** utility and exit.

−h, **−human**, **−human-readable**
: output statistics with human readable values followed by suffix.

−b, **−batch** <FILENAME>
: Read commands from provided file or standard input and invoke them. First failure will cause termination of ip.

−force Don't terminate ip on errors in batch mode. If there were any errors during execution of the commands, the application return code will be non zero.

−s, **−stats**, **−statistics**
: Output more information. If the option appears twice or more, the amount of information increases. As a rule, the information is statistics or some time values.

−d, **−details**
: Output more detailed information.

−l, **−loops** <COUNT>
: Specify maximum number of loops the 'ip address flush' logic will attempt before giving up. The default is 10. Zero (0) means loop until all addresses are removed.

−f, **−family** <FAMILY>
: Specifies the protocol family to use. The protocol family identifier can be one of **inet**, **inet6**, **bridge**, **ipx**, **dnet**, **mpls** or **link**. If this option is not present, the protocol family is guessed from other arguments. If the rest of the command line does not give enough information to guess the family, **ip** falls back to the default one, usually **inet** or **any**. **link** is a special family identifier meaning that no networking protocol is involved.

−4 shortcut for **-family inet**.

−6 shortcut for **−family inet6**.

−B shortcut for **−family bridge**.

−D shortcut for **−family decnet**.

–I shortcut for **–family ipx**.

–M shortcut for **–family mpls**.

–0 shortcut for **–family link**.

–o, **–oneline**
output each record on a single line, replacing line feeds with the **'\'** character. This is convenient when you want to count records with wc(1) or to grep(1) the output.

–r, **–resolve**
use the system's name resolver to print DNS names instead of host addresses.

–n, **–netns** <NETNS>
switches **ip** to the specified network namespace *NETNS*. Actually it just simplifies executing of:

ip netns exec *NETNS* **ip** [*OPTIONS*] *OBJECT* { *COMMAND* | **help** }

to

ip -n[etns] *NETNS* [*OPTIONS*] *OBJECT* { *COMMAND* | **help** }

–a, **–all**
executes specified command over all objects, it depends if command supports this option.

–c[**color**][={**always**|**auto**|**never**}
Configure color output. If parameter is omitted or **always**, color output is enabled regardless of stdout state. If parameter is **auto**, stdout is checked to be a terminal before enabling color output. If parameter is **never**, color output is disabled. If specified multiple times, the last one takes precedence. This flag is ignored if **–json** is also given.

–t, **–timestamp**
display current time when using monitor option.

–ts, **–tshort**
Like **–timestamp**, but use shorter format.

–rc, **–rcvbuf**<SIZE>
Set the netlink socket receive buffer size, defaults to 1MB.

–iec print human readable rates in IEC units (e.g. 1Ki = 1024).

–br, **–brief**
Print only basic information in a tabular format for better readability. This option is currently only supported by **ip addr show** and **ip link show** commands.

–j, **–json**
Output results in JavaScript Object Notation (JSON).

–p, **–pretty**
The default JSON format is compact and more efficient to parse but hard for most users to read. This flag adds indentation for readability.

IP - COMMAND SYNTAX

OBJECT

address
- protocol (IP or IPv6) address on a device.

addrlabel
- label configuration for protocol address selection.

l2tp - tunnel ethernet over IP (L2TPv3).

link - network device.

maddress
- multicast address.

monitor
- watch for netlink messages.

mroute - multicast routing cache entry.

mrule - rule in multicast routing policy database.

neighbour
- manage ARP or NDISC cache entries.

netns - manage network namespaces.

ntable - manage the neighbor cache's operation.

route - routing table entry.

rule - rule in routing policy database.

tcp_metrics/tcpmetrics
- manage TCP Metrics

token - manage tokenized interface identifiers.

tunnel - tunnel over IP.

tuntap - manage TUN/TAP devices.

xfrm - manage IPSec policies.

The names of all objects may be written in full or abbreviated form, for example **address** can be abbreviated as **addr** or just **a.**

COMMAND

Specifies the action to perform on the object. The set of possible actions depends on the object type. As a rule, it is possible to **add**, **delete** and **show** (or **list**) objects, but some objects do not allow all of these operations or have some additional commands. The **help** command is available for all objects. It prints out a list of available commands and argument syntax conventions.

If no command is given, some default command is assumed. Usually it is **list** or, if the objects of this class cannot be listed, **help**.

EXIT STATUS

Exit status is 0 if command was successful, and 1 if there is a syntax error. If an error was reported by the kernel exit status is 2.

EXAMPLES

ip addr
: Shows addresses assigned to all network interfaces.

ip neigh
: Shows the current neighbour table in kernel.

ip link set x up
: Bring up interface x.

ip link set x down
: Bring down interface x.

ip route
: Show table routes.

HISTORY

ip was written by Alexey N. Kuznetsov and added in Linux 2.2.

SEE ALSO

ip-address(8), ip-addrlabel(8), ip-l2tp(8), ip-link(8), ip-maddress(8), ip-monitor(8), ip-mroute(8), ip-neighbour(8), ip-netns(8), ip-ntable(8), ip-route(8), ip-rule(8), ip-tcp_metrics(8), ip-token(8), ip-tunnel(8), ip-xfrm(8)

IP Command reference **ip-cref.ps**

REPORTING BUGS

Report any bugs to the Network Developers mailing list **<netdev@vger.kernel.org>** where the development and maintenance is primarily done. You do not have to be subscribed to the list to send a message there.

AUTHOR

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