ip (iproute2) Linux networking

CONCEPTS

ip is OBJECT COMMAND: objects are link, addr, route, neigh, netns. Any word can be abbreviated (ip a, ip r, ip l).

Network namespace own devices, routes, rules

Link (interface) MAC, MTU, up/down

Address IPv4 / IPv6 on a link

Route which link and gateway for a prefix

What lives where

Changes made with ip are not persistent: they vanish on reboot. Use NetworkManager, systemd-networkd or netplan for permanent config.

OPTIONS

`ip -br a`
Brief one-line-per-interface view

`ip -c <cmd>`
Colour output

`ip -4 <cmd> / ip -6 <cmd>`
Only IPv4 / only IPv6

`ip -j -p <cmd>`
JSON output, pretty-printed

`ip -s link show <dev>`
Packet and error counters

`ip -n <ns> <cmd>`
Run in a network namespace

ADDRESSES

`ip addr`
Show all addresses

`ip addr show dev <dev>`
Addresses of one interface

`ip addr add <cidr> dev <dev>`
Add an address

`ip addr del <cidr> dev <dev>`
Remove an address

`ip addr flush dev <dev>`
Remove all addresses of a link

`ip -4 addr show scope global`
Only global IPv4 addresses

LINKS

`ip link`
List interfaces

`ip link set <dev> up`
Enable an interface

`ip link set <dev> down`
Disable an interface

`ip link set <dev> mtu <n>`
Set the MTU

`ip link add <name> type <type>`
Create a virtual link

`ip link add <name> type veth peer name <peer>`
Create a veth pair

`ip link del <dev>`
Delete a virtual link

ROUTES

`ip route`
Show the main routing table

`ip -6 route`
Show IPv6 routes

`ip route get <addr>`
Show the route a destination would use

`ip route add default via <gw> dev <dev>`
Set the default gateway

`ip route add <cidr> via <gw>`
Add a static route

`ip route add <cidr> dev <dev>`
Add an on-link route

`ip route del <cidr>`
Delete a route

NEIGHBOURS

`ip neigh`
Show the ARP / NDP cache

NAMESPACES

`ip netns`
List network namespaces

`ip netns add <ns>`
Create a namespace

`ip netns exec <ns> <cmd>`
Run a command inside