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