Intro to iproute2

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May 1, 2012

iproute2 is a collection of utilities for controlling TCP/IP networking in Linux

Net-tools inadequate for modern networks and is obsolete

- ifconfig
- route
- netstat
- arp
- rarp

- ip
- ip help
- ip link (network device)
- ip addr (IP or Ipv6 address on device)
- ip addrlabel (label configuration on protocol address)
- ip route (routing table entry)
- ip rule (rule and routing protocol entry)
- ip neigh (ARP or NDISC cache entry)

More new tools in iproute2

- ip tunnel (tunnel over IP)
- ip tuntap
- ip maddr (multicast address)
- ip mroute (multicast routing cache entry)
- ip monitor (show objects)
- ip xfrm
- ss investigates sockets

ip

- ip [options] object { command — help }
- tools are addressed as objects
- help goes at the end to get help on a specific object
- using help on ip directly gets all of the available commands
- man page not as current as ip help

ip link

- ip link modifies device state
- add device
- ip link add link [device to act on] name [name of new device]
- remove device
- ip link delete [device to act on]
- show device
- ip link show
- ip link set [device] {up — down — arp {on — off}}

ip neigh

- ip neigh {show — flush} [target address] dev [device name] [state]
- show shows things
- flush removes things
- can be manipulated with other commands
- ip neigh { add — del — change — replace } {[address] lladdr [ll address] {permanent — noarp — stale — reachable } — proxy Address} dev [Device name]

ip addr

- shows ip address
- ip addr add [ip address] dev [interface name]
- adds address
- ip addr del [ip address] dev [interface name]
- removes address

ip route

- updates and displays routing table
- it is possible to have multiple named routing tables
- quagga depends on this utility
- ip route { list — flush } [selector]
- ip route { add — del — change — append — replace — monitor } [source] [next hop {via [address] — dev [interface name] — weight [number] }

ip tunnel

- encapsulates packets in other packets
- ip tunnel { add — change — del — show — prl } [name of tunnel] [mode { ipip — gre — sit — isatap }] [remote address] [local address] [other options]

ip tuntap

- does user space networking
- allow applications to see raw network traffic at Ethernet or ip level
- tap = full Ethernet frames
- tun = raw packets
- ip tuntap { add — del } dev [device name] mode { tun — tap } user [user name] group [group name] [one_queue] [pi] [vnet_hdr]

- utility to investigate sockets
- can display more TCP and state information than other tools
- -a displays all sockets
- -l displays listening sockets
- -e show detailed socket information
- -m show socket memory usage
- -p show process using socket
- -s prints summary statistics
- -t TCP sockets
- -u UDP sockets
- -x Unix domain sockets

Source List

```
ip help
http://backreference.org/2010/03/26/
tuntap-interface-tutorial/
http://www.linuxfoundation.org/collaborate/
workgroups/networking/iproute2
man ip
/usr/share/doc/iproute-doc/
```

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