

ip COMMAND CHEAT SHEET

for Red Hat Enterprise Linux

IP QUERIES

SUBCOMMAND	DESCRIPTIONS AND TASKS
addr	Display IP Addresses and property information (abbreviation of address) ip addr Show information for all addresses ip addr show dev em1 Display information only for device em1
link	Manage and display the state of all network interfaces ip link Show information for all interfaces ip link show dev em1 Display information only for device em1 ip -s link Display interface statistics
route	Display and alter the routing table ip route List all of the route entries in the kernel
maddr	Manage and display multicast IP addresses ip maddr Display multicast information for all devices ip maddr show dev em1 Display multicast information for device em1
neigh	Show neighbour objects; also known as the ARP table for IPv4 ip neigh Display neighbour objects ip neigh show dev em1 Show the ARP cache for device em1
help	Display a list of commands and arguments for each subcommand ip help Display ip commands and arguments ip addr help Display address commands and arguments ip link help Display link commands and arguments ip neigh help Display neighbour commands and arguments

MULTICAST ADDRESSING

SUBCOMMAND	DESCRIPTIONS AND TASKS
maddr add	Add a static link-layer multicast address ip maddr add 33:33:00:00:00:01 dev em1 Add mutlicast address 33:33:00:00:00:01 to em1
maddr del	Delete a multicast address ip maddr del 33:33:00:00:00:01 dev em1 Delete address 33:33:00:00:00:01 from em1

MODIFYING ADDRESS AND LINK PROPERTIES

SUBCOMMAND	DESCRIPTIONS AND TASKS
addr add	Add an address ip addr add 192.168.1.1/24 dev em1 Add address 192.168.1.1 with netmask 24 to device em1
addr del	Delete an address ip addr del 192.168.1.1/24 dev em1 Remove address 192.168.1.1/24 from device em1
link set	Alter the status of the interface ip link set em1 up Bring em1 online ip link set em1 down Bring em1 offline ip link set em1 mtu 9000 Set the MTU on em1 to 9000 ip link set em1 promisc on Enable promiscuous mode for em1

ADJUSTING AND VIEWING ROUTES

SUBCOMMAND	DESCRIPTIONS AND TASKS
route add	Add an entry to the routing table ip route add default via 192.168.1.1 dev em1 Add a default route (for all addresses) via the local gateway 192.168.1.1 that can be reached on device em1 ip route add 192.168.1.0/24 via 192.168.1.1 Add a route to 192.168.1.0/24 via the gateway at 192.168.1.1 ip route add 192.168.1.0/24 dev em1 Add a route to 192.168.1.0/24 that can be reached on device em1
route delete	Delete a routing table entry ip route delete 192.168.1.0/24 via 192.168.1.1 Delete the route for 192.168.1.0/24 via the gateway at 192.168.1.1
route replace	Replace, or add if not defined, a route ip route replace 192.168.1.0/24 dev em1 Replace the defined route for 192.168.1.0/24 to use device em1
route get	Display the route an address will take ip route get 192.168.1.5 Display the route taken for IP 192.168.1.5

MANAGING THE ARP TABLE

SUBCOMMAND	DESCRIPTIONS AND TASKS
neigh add	Add an entry to the ARP Table ip neigh add 192.168.1.1 lladdr 1:2:3:4:5:6 dev em1 Add address 192.168.1.1 with MAC 1:2:3:4:5:6 to em1
neigh del	Invalidate an entry ip neigh del 192.168.1.1 dev em1 Invalidate the entry for 192.168.1.1 on em1
neigh replace	Replace, or adds if not defined, an entry to the ARP table ip neigh replace 192.168.1.1 lladdr 1:2:3:4:5:6 dev em1 Replace the entry for address 192.168.1.1 to use MAC 1:2:3:4:5:6 on em1

USEFUL NETWORKING COMMANDS (NOT NECESSARILY PROVIDED FROM IPROUTE)

SUBCOMMAND	DESCRIPTIONS AND TASKS
arping	Send ARP request to a neighbour host arping -I eth0 192.168.1.1 Send ARP request to 192.168.1.1 via interface eth0 arping -D -I eth0 192.168.1.1 Check for duplicate MAC addresses at 192.168.1.1 on eth0
ethtool	Query or control network driver and hardware settings ethtool -g eth0 Display ring buffer for eth0 ethtool -i eth0 Display driver information for eth0 ethtool -p eth0 Identify eth0 by sight, typically by causing LEDs to blink on the network port ethtool -S eth0 Display network and driver statistics for eth0
ss	Display socket statistics. The below options can be combined ss -a Show all sockets (listening and non-listening) ss -e Show detailed socket information ss -o Show timer information ss -n Do not resolve addresses ss -p Show process using the socket

COMPARING NET-TOOLS VS. IPROUTE PACKAGE COMMANDS

NET-TOOLS COMMANDS	IPROUTE COMMANDS
arp -a	ip neigh
arp -v	ip -s neigh
arp -s 192.168.1.1 1:2:3:4:5:6	ip neigh add 192.168.1.1 lladdr 1:2:3:4:5:6 dev eth1
arp -i eth1 -d 192.168.1.1	ip neigh del 192.168.1.1 dev eth1
ifconfig -a	ip addr
ifconfig eth0 down	ip link set eth0 down
ifconfig eth0 up	ip link set eth0 up
ifconfig eth0 192.168.1.1	ip addr add 192.168.1.1/24 dev eth0
ifconfig eth0 netmask 255.255.255.0	ip addr add 192.168.1.1/24 dev eth0
ifconfig eth0 mtu 9000	ip link set eth0 mtu 9000
ifconfig eth0:0 192.168.1.2	ip addr add 192.168.1.2/24 dev eth0
netstat	ss
netstat -neopa	ss -neopa
netstat -g	ip maddr
route	ip route
route add -net 192.168.1.0 netmask 255.255.255.0 dev eth0	ip route add 192.168.1.0/24 dev eth0
route add default gw 192.168.1.1	ip route add default via 192.168.1.1