



## Basic Network Information

### Network Configuration

<code>ip addr show</code> or <code>ifconfig</code>	Displays network interface configurations including IP addresses, MAC addresses, and status.
<code>ip route show</code> or <code>route -n</code>	Shows the kernel's IP routing table. <code>-n</code> option displays numerical addresses instead of trying to determine symbolic host names.
<code>netstat -rn</code>	Displays network routing information, including the destination network, gateway, and interface.
<code>hostname</code>	Displays the system's hostname.
<code>hostname -I</code>	Displays all IP addresses of the host.
<code>resolvectl status</code>	Show current DNS configuration. (systemd-resolved required)

### DNS Lookup

<code>nslookup &lt;domain&gt;</code>	Queries DNS servers to find the IP address associated with a domain.
<code>dig &lt;domain&gt;</code>	A more advanced DNS lookup utility, providing detailed DNS record information.
<code>host &lt;domain&gt;</code>	Performs DNS lookups to find the IP address of a domain.
<code>resolvectl query &lt;domain&gt;</code>	Resolve domain name to IP addresses and vice versa using systemd-resolved.
<code>cat /etc/resolv.conf</code>	Check what DNS server is used.

## Remote Access and File Transfer

### Secure Shell (SSH)

<code>ssh &lt;user&gt;@&lt;host&gt;</code>	Connects to a remote host via SSH.
<code>ssh -p &lt;port&gt; &lt;user&gt;@&lt;host&gt;</code>	Connects to a remote host using a specific port.
<code>ssh-copy-id &lt;user&gt;@&lt;host&gt;</code>	Copies your public key to the remote host for passwordless login.
<code>ssh -L &lt;local_port&gt;: &lt;remote_host&gt;: &lt;remote_port&gt; &lt;user&gt;@&lt;ssh_server&gt;</code>	Creates a local port forwarding via SSH.
<code>ssh -R &lt;remote_port&gt;: &lt;local_host&gt;: &lt;local_port&gt; &lt;user&gt;@&lt;ssh_server&gt;</code>	Creates a remote port forwarding via SSH.

### Secure Copy (SCP)

<code>scp &lt;file&gt; &lt;user&gt;@&lt;host&gt;: &lt;destination&gt;</code>	Copies a file to a remote host.
<code>scp &lt;user&gt;@&lt;host&gt;: &lt;file&gt; &lt;destination&gt;</code>	Copies a file from a remote host.
<code>scp -r &lt;directory&gt; &lt;user&gt;@&lt;host&gt;: &lt;destination&gt;</code>	Copies a directory recursively to a remote host.
<code>scp -P &lt;port&gt; &lt;file&gt; &lt;user&gt;@&lt;host&gt;: &lt;destination&gt;</code>	Copies a file to a remote host using a specific port.

### rsync

<code>rsync -avz &lt;source&gt; &lt;destination&gt;</code>	Synchronizes files/directories between two locations (local or remote). <code>-a</code> archive mode; <code>-v</code> verbose; <code>-z</code> compression.
<code>rsync -avz &lt;source&gt; &lt;user&gt;@&lt;host&gt;: &lt;destination&gt;</code>	Synchronizes files/directories to a remote host.
<code>rsync -avz &lt;user&gt;@&lt;host&gt;: &lt;source&gt; &lt;destination&gt;</code>	Synchronizes files/directories from a remote host.

## Network Diagnostics

### Ping

<code>ping &lt;host&gt;</code>	Tests network connectivity by sending ICMP echo requests to a host.
<code>ping -c &lt;count&gt; &lt;host&gt;</code>	Sends a specific number of ping requests.
<code>ping -i &lt;interval&gt; &lt;host&gt;</code>	Specifies the interval between ping requests in seconds.
<code>ping -s &lt;size&gt; &lt;host&gt;</code>	Sets the size of the ping packet.

### Traceroute

<code>traceroute &lt;host&gt;</code>	Traces the route packets take to a destination host.
<code>traceroute -m &lt;max_hops&gt; &lt;host&gt;</code>	Sets the maximum number of hops to search for the destination.
<code>traceroute -n &lt;host&gt;</code>	Prints hop addresses numerically rather than symbolically.

### netcat (nc)

<code>nc -zv &lt;host&gt; &lt;port&gt;</code>	Performs a port scan to check if a port is open. <code>-z</code> : zero-I/O mode, <code>-v</code> : verbose.
<code>nc -l -p &lt;port&gt;</code>	Listen on a specified port for incoming connections.
<code>nc &lt;host&gt; &lt;port&gt;</code>	Connect to a specified port on a remote host.

# Network Management

## Network Interface Management

<code>ip link set &lt;interface&gt; up</code>	Brings up a network interface.
<code>ip link set &lt;interface&gt; down</code>	Brings down a network interface.
<code>ip addr add &lt;ip_address&gt;/&lt;cidr&gt; dev &lt;interface&gt;</code>	Assigns an IP address to a network interface.
<code>ip addr del &lt;ip_address&gt;/&lt;cidr&gt; dev &lt;interface&gt;</code>	Removes an IP address from a network interface.

## Firewall Management (iptables)

<code>iptables -L</code>	Lists the current iptables rules.
<code>iptables -A INPUT -p tcp --dport &lt;port&gt; -j ACCEPT</code>	Allows incoming TCP traffic on a specific port.
<code>iptables -A INPUT -p tcp --dport &lt;port&gt; -j DROP</code>	Blocks incoming TCP traffic on a specific port.
<code>iptables -F</code>	Flushes all existing iptables rules (use with caution).

## Firewall Management (firewalld)

<code>firewall-cmd --state</code>	Check if firewalld is running.
<code>firewall-cmd --list-all</code>	Lists all settings of the default zone.
<code>firewall-cmd --zone=public --add-port=&lt;port&gt;/tcp --permanent</code>	Opens a port permanently in the public zone.
<code>firewall-cmd --reload</code>	Reloads firewalld to apply changes.