

Herramientas de resolución de problemas de red

Práctica de laboratorio 5

Parte 1: Inicie la máquina virtual de DEVASC.

Listo!

Parte 2: Explore la herramienta de solución de problemas ifconfig

Usando comando:

```
ifconfig
```

```
devasc@labvm:~/labs/devnet-src/parsing$ ifconfig
dummy0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.0.2.1 netmask 255.255.255.255 broadcast 0.0.0.0
    inet6 fe80::b41d:cdff:fe16:5f15 prefixlen 64 scopeid 0x20<link>
    ether b6:1d:cd:16:5f:15 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 61 bytes 8094 (8.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fee9:3de6 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:e9:3d:e6 txqueuelen 1000 (Ethernet)
    RX packets 16653 bytes 23801879 (23.8 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 4193 bytes 337635 (337.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 165 bytes 16853 (16.8 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 165 bytes 16853 (16.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

Usando flags

- help: Muestra manual

```
devasc@labvm:~/labs/devnet-src/parsing$ ifconfig -help
Usage:
  ifconfig [-a] [-v] [-s] <interface> [[<AF>] <address>]
  [add <address>[/<prefixlen>]]
  [del <address>[/<prefixlen>]]
  [[-]broadcast <address>] [[-]pointopoint <address>]
  [netmask <address>] [dstaddr <address>] [tunnel <address>]
  [outfill <NN>] [keepalive <NN>]
  [hw <HW> <address>] [mtu <NN>]
  [[-]trailers] [[-]arp] [[-]allmulti]
  [multicast] [[-]promisc]
  [mem_start <NN>] [io_addr <NN>] [irq <NN>] [media <type>]
  [txqueuelen <NN>]
  [[-]dynamic]
  [up|down] ...

<HW>=Hardware Type.
List of possible hardware types:
  loop (Local Loopback) slip (Serial Line IP) cslip (VJ Serial Line IP)
  slip6 (6-bit Serial Line IP) cslip6 (VJ 6-bit Serial Line IP) adaptive (Adaptive
  Serial Line IP)
  ash (Ash) ether (Ethernet) ax25 (AMPR AX.25)
  netrom (AMPR NET/ROM) rose (AMPR ROSE) tunnel (IPIP Tunnel)
  ppp (Point-to-Point Protocol) hdlc ((Cisco)-HDLC) lapb (LAPB)
  arcnet (ARCnet) dlci (Frame Relay DLCI) frad (Frame Relay Access Device)
  sit (IPv6-in-IPv4) fddi (Fiber Distributed Data Interface) hippi (HIPPI)
  irda (IrLAP) ec (Econet) x25 (generic X.25)
  eui64 (Generic EUI-64)
<AF>=Address family. Default: inet
List of possible address families:
  unix (UNIX Domain) inet (DARPA Internet) inet6 (IPv6)
  ax25 (AMPR AX.25) netrom (AMPR NET/ROM) rose (AMPR ROSE)
  ipx (Novell IPX) ddp (Appletalk DDP) ec (Econet)
  ash (Ash) x25 (CCITT X.25)
```

- add: Agregar una interfaz
- delete: Eliminar una interfaz
- down: Apagar una interfaz
- up: Encender una interfaz
- hw ether: Cambiar la dirección MAC

Usando el comando ip

- ip addr: Muestra las direcciones IP

```

devasc@labvm:~/labs/devnet-src/parsing$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:e9:3d:e6 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 81835sec preferred_lft 81835sec
    inet6 fe80::a00:27ff:fee9:3de6/64 scope link
        valid_lft forever preferred_lft forever
3: dummy0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN group default qlen 1000
    link/ether b6:1d:cd:16:5f:15 brd ff:ff:ff:ff:ff:ff
    inet 192.0.2.1/32 scope global dummy0
        valid_lft forever preferred_lft forever
    inet 192.0.2.2/32 scope global dummy0
        valid_lft forever preferred_lft forever
    inet 192.0.2.3/32 scope global dummy0
        valid_lft forever preferred_lft forever
    inet 192.0.2.4/32 scope global dummy0
        valid_lft forever preferred_lft forever
    inet 192.0.2.5/32 scope global dummy0
        valid_lft forever preferred_lft forever
    inet6 fe80::b41d:cdff:fe16:5f15/64 scope link
        valid_lft forever preferred_lft forever
devasc@labvm:~/labs/devnet-src/parsing$ ip

```

Parte 3: Explore la herramienta de resolución de problemas de ping

Primero procedí a ejecutar el comando ping a google.com; luego usé el flag -help para ver el manual de uso:

```

devasc@labvm:~/labs/devnet-src/parsing$ ping google.com
PING google.com (64.233.190.138) 56(84) bytes of data:
64 bytes from ce-in-f138.1e100.net (64.233.190.138): icmp_seq=1 ttl=103 time=99.7 ms
64 bytes from ce-in-f138.1e100.net (64.233.190.138): icmp_seq=2 ttl=103 time=57.8 ms
64 bytes from ce-in-f138.1e100.net (64.233.190.138): icmp_seq=3 ttl=103 time=49.0 ms
64 bytes from ce-in-f138.1e100.net (64.233.190.138): icmp_seq=4 ttl=103 time=72.7 ms
^C
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3011ms
rtt min/avg/max/mdev = 49.029/69.795/99.650/19.208 ms
devasc@labvm:~/labs/devnet-src/parsing$ ping -help

Usage
  ping [options] <destination>

Options:

```

Luego ejecuté el comando ping a www.cisco.com con el flag -c 5 para que se ejecutara 5 veces:

```
devasc@labvm:~/labs/devnet-src/parsing$ ping -c 5 www.cisco.com
PING e2867.dsca.akamaiedge.net (23.222.253.33) 56(84) bytes of data.
64 bytes from a23-222-253-33.deploy.static.akamaitechnologies.com (23.222.253.33): icmp
_seq=1 ttl=52 time=40.8 ms
64 bytes from a23-222-253-33.deploy.static.akamaitechnologies.com (23.222.253.33): icmp
_seq=2 ttl=52 time=38.3 ms
64 bytes from a23-222-253-33.deploy.static.akamaitechnologies.com (23.222.253.33): icmp
_seq=3 ttl=52 time=38.7 ms
64 bytes from a23-222-253-33.deploy.static.akamaitechnologies.com (23.222.253.33): icmp
_seq=4 ttl=52 time=40.2 ms
64 bytes from a23-222-253-33.deploy.static.akamaitechnologies.com (23.222.253.33): icmp
_seq=5 ttl=52 time=47.1 ms

--- e2867.dsca.akamaiedge.net ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4009ms
rtt min/avg/max/mdev = 38.339/41.025/47.050/3.148 ms
```

Parte 4: Explore la herramienta de solución de problemas de trazar la ruta(traceroute)

Primero vi la documentación de traceroute:

```
devasc@labvm:~/labs/devnet-src/parsing$ traceroute --help
Usage: traceroute [OPTION...] HOST
Print the route packets trace to network host.

-f, --first-hop=NUM          set initial hop distance, i.e., time-to-live
-g, --gateways=GATES         list of gateways for loose source routing
-I, --icmp                   use ICMP ECHO as probe
-m, --max-hop=NUM            set maximal hop count (default: 64)
-M, --type=METHOD          use METHOD ('icmp' or 'udp') for traceroute
                             operations, defaulting to 'udp'
-p, --port=PORT              use destination PORT port (default: 33434)
-q, --tries=NUM              send NUM probe packets per hop (default: 3)
    --resolve-hostnames      resolve hostnames
-t, --tos=NUM                set type of service (TOS) to NUM
-w, --wait=NUM               wait NUM seconds for response (default: 3)
-?, --help                  give this help list
    --usage                  give a short usage message
-V, --version                print program version

Mandatory or optional arguments to long options are also mandatory or optional
for any corresponding short options.

Report bugs to <bug-inetutils@gnu.org>.
```

Luego ejecuté el comando traceroute a www.netacad.com con el comando:

```
traceroute www.netacad.com
```

```
devasc@labvm:~/labs/devnet-src/parsing$ traceroute www.netacad.com
traceroute to d1h6v4iwmfkzng.cloudfront.net (18.164.13.86), 64 hops max
 1  10.0.2.2  0.438ms  0.219ms  0.873ms
 2  10.0.2.2  6.556ms  2.191ms  2.794ms
```

La salida muestra que se dieron 2 saltos para llegar al destino.

Parte 5: Explore la herramienta de solución de problemas de nslookup

Primero quise determinar el IP de `www.cisco.com`, para eso usé el comando:

```
nslookup www.cisco.com
```

```
devasc@labvm:~$ nslookup www.cisco.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
www.cisco.com canonical name = www.cisco.com.akadns.net.
www.cisco.com.akadns.net canonical name = wwwds.cisco.com.edgekey.net.
wwwds.cisco.com.edgekey.net canonical name = wwwds.cisco.com.edgekey.net.globalredir.akadns.net.
wwwds.cisco.com.edgekey.net.globalredir.akadns.net canonical name = e2867.dsca.akamaiedge.net.
Name: e2867.dsca.akamaiedge.net
Address: 23.222.253.33
Name: e2867.dsca.akamaiedge.net
Address: 2600:1419:3200:189::b33
Name: e2867.dsca.akamaiedge.net
Address: 2600:1419:3200:181::b33
```

Luego consulté la dirección IP `8.8.8.8` para ver que pasaba y me arrojó que era un servidor DNS de Google:

```
devasc@labvm:~$ nslookup 8.8.8.8
8.8.8.8.in-addr.arpa name = dns.google.

Authoritative answers can be found from:
```

Paso 3: Consulte un dominio mediante un servidor DNS específico.

En este paso me salieron 'connection timed out' y no pude realizar la consulta.

```
devasc@labvm:~$ nslookup www.cisco.com 8.8.8.8
;; connection timed out; no servers could be reached

devasc@labvm:~$ nslookup www.cisco.com 8.8.8
;; connection timed out; no servers could be reached
```