

## LINUX NETWORKING MODULE 7 AND 8 ASSESSMENT SOLUTION

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1. Try Test-Connection and nslookup commands for below websites: [www.google.com](http://www.google.com), [www.facebook.com](http://www.facebook.com), [www.amazon.com](http://www.amazon.com), [www.github.com](http://www.github.com), [www.cisco.com](http://www.cisco.com)

### Test-Connection

This command is similar to ping and helps in checking the reachability of a website.

```
Windows PowerShell
PS C:\Users\sakthi kumar> Test-Connection -ComputerName www.google.com -Count 4

Source      Destination      IPV4Address      IPV6Address      Bytes      Time(ms)
-----
LAPTOP-S1T... www.google.com  142.250.199.132  2404:6800:4009:82d::2004  32         116
LAPTOP-S1T... www.google.com  142.250.199.132  2404:6800:4009:82d::2004  32         71
LAPTOP-S1T... www.google.com  142.250.199.132  2404:6800:4009:82d::2004  32         65
LAPTOP-S1T... www.google.com  142.250.199.132  2404:6800:4009:82d::2004  32         63

PS C:\Users\sakthi kumar> Test-Connection -ComputerName www.facebook.com -Count 4

Source      Destination      IPV4Address      IPV6Address      Bytes      Time(ms)
-----
LAPTOP-S1T... www.facebook... 163.70.138.35    2a03:2880:f184:81:face:b00c:0:25de  32         839
LAPTOP-S1T... www.facebook... 163.70.138.35    2a03:2880:f184:81:face:b00c:0:25de  32         681
LAPTOP-S1T... www.facebook... 163.70.138.35    2a03:2880:f184:81:face:b00c:0:25de  32         208
LAPTOP-S1T... www.facebook... 163.70.138.35    2a03:2880:f184:81:face:b00c:0:25de  32         205

PS C:\Users\sakthi kumar> Test-Connection -ComputerName www.amazon.com -Count 4

Source      Destination      IPV4Address      IPV6Address      Bytes      Time(ms)
-----
LAPTOP-S1T... www.amazon.com  23.209.198.147   2600:9000:24d9:c200:7:49a5:5fd4:b121  32         155
LAPTOP-S1T... www.amazon.com  18.161.217.215   2600:9000:24d9:c200:7:49a5:5fd4:b121  32         546
LAPTOP-S1T... www.amazon.com  18.161.217.215   2600:9000:24d9:c200:7:49a5:5fd4:b121  32         571
LAPTOP-S1T... www.amazon.com  18.161.217.215   2600:9000:24d9:c200:7:49a5:5fd4:b121  32         571

PS C:\Users\sakthi kumar> Test-Connection -ComputerName www.github.com -Count 4

Source      Destination      IPV4Address      IPV6Address      Bytes      Time(ms)
-----
LAPTOP-S1T... www.github.com  20.207.73.82     64:ff9b::14cf:4952  32         980
LAPTOP-S1T... www.github.com  20.207.73.82     64:ff9b::14cf:4952  32         680
LAPTOP-S1T... www.github.com  20.207.73.82     64:ff9b::14cf:4952  32         909
LAPTOP-S1T... www.github.com  20.207.73.82     64:ff9b::14cf:4952  32         206
```

### nslookup (Name Server Lookup)

This command helps find the IP addresses corresponding to domain names.

```
Windows PowerShell
PS C:\Users\sakthi kumar> Test-Connection -ComputerName www.cisco.com -Count 4

Source      Destination      IPV4Address      IPV6Address      Bytes      Time(ms)
-----
LAPTOP-S1T... www.cisco.com    23.63.219.126    2600:140f:4:e8e:b33  32         252
LAPTOP-S1T... www.cisco.com    23.63.219.126    2600:140f:4:e8e:b33  32         296
LAPTOP-S1T... www.cisco.com    23.63.219.126    2600:140f:4:e8e:b33  32         495
LAPTOP-S1T... www.cisco.com    23.63.219.126    2600:140f:4:e8e:b33  32         349

PS C:\Users\sakthi kumar> nslookup www.google.com
Server:      Unknown
Address:     192.168.149.125

Non-authoritative answer:
Name:        www.google.com
Addresses:   2404:6800:4009:82d::2004
             142.250.199.132

PS C:\Users\sakthi kumar> nslookup www.facebook.com
Server:      Unknown
Address:     192.168.149.125

Non-authoritative answer:
Name:        star-mini.c10r.facebook.com
Addresses:   2a03:2880:f137:182:face:b00c:0:25de
             157.240.192.35
Aliases:     www.facebook.com
```

```
Windows PowerShell
PS C:\Users\sakthi kumar> nslookup www.amazon.com
Server: UnKnown
Address: 192.168.149.125

Non-authoritative answer:
Name: d3ag4hukkh62yn.cloudfront.net
Addresses: 2600:9000:24d9:6000:7:49a5:5fd4:b121
           2600:9000:24d9:9600:7:49a5:5fd4:b121
           2600:9000:24d9:ba00:7:49a5:5fd4:b121
           2600:9000:24d9:2e00:7:49a5:5fd4:b121
           2600:9000:24d9:6600:7:49a5:5fd4:b121
           2600:9000:24d9:8a00:7:49a5:5fd4:b121
           2600:9000:24d9:7e00:7:49a5:5fd4:b121
           2600:9000:24d9:a800:7:49a5:5fd4:b121
           18.161.217.215
Aliases: www.amazon.com
          tp.47cf2c8c9-frontier.amazon.com

PS C:\Users\sakthi kumar> nslookup www.github.com
Server: UnKnown
Address: 192.168.149.125

Non-authoritative answer:
Name: github.com
Addresses: 64:ff9b::14cf:4952
           20.207.73.82
Aliases: www.github.com

PS C:\Users\sakthi kumar> nslookup www.cisco.com
Server: UnKnown
Address: 192.168.149.125

Non-authoritative answer:
Name: e2867.dsca.akamaiedge.net
Addresses: 2600:140f:4:e8e::b33
           2600:140f:4:eb1::b33
           23.63.219.126
Aliases: www.cisco.com
          www.cisco.com.akadns.net
          wwwds.cisco.com.edgekey.net
          wwwds.cisco.com.edgekey.net.globalredir.akadns.net
```

The Test-Connection command is a PowerShell cmdlet, primarily used in Windows to test network connectivity by sending ICMP Echo requests (ping). It is not a built-in command in Linux.

In Linux:

ping (Basic Alternative), nc (Netcat for TCP/UDP Testing), ping with timeout, traceroute, curl (To Check Website Availability, PowerShell in Linux can be used as some of few alternatives according to use case).

```
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ping -c 4 google.com
PING google.com (142.250.192.46) 56(84) bytes of data.
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=1 ttl=255 time=76.9 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=2 ttl=255 time=88.2 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=3 ttl=255 time=81.8 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=4 ttl=255 time=74.5 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3332ms
rtt min/avg/max/mdev = 74.471/80.340/88.156/5.233 ms
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ timeout 5 ping google.com
PING google.com (142.250.192.46) 56(84) bytes of data.
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=1 ttl=255 time=1044 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=2 ttl=255 time=353 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=3 ttl=255 time=120 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=4 ttl=255 time=198 ms

(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ nc -zv google.com 80
Connection to google.com (142.250.192.46) 80 port [tcp/http] succeeded!
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ curl -Is google.com | head -n 1
HTTP/1.1 301 Moved Permanently

(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ traceroute google.com
traceroute to google.com (142.250.196.46), 64 hops max
 1  10.0.2.2  0.017ms  0.014ms  0.010ms
 2  * * *
 3  * * *
 4  * * *
```

## Nslookup:

```
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox: $ nslookup www.google.com
nslookup www.facebook.com
nslookup www.amazon.com
nslookup www.github.com
nslookup www.cisco.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.250.195.132
Name:   www.google.com
Address: 2404:6800:4009:803::2004

Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
www.facebook.com canonical name = star-mini.c10r.facebook.com.
Name:   star-mini.c10r.facebook.com
Address: 157.240.23.35
Name:   star-mini.c10r.facebook.com
Address: 2a03:2880:f184:81:face:b00c:0:25de

Server:      127.0.0.53
Address:     127.0.0.53#53
```

```
Non-authoritative answer:
www.amazon.com canonical name = tp.47cf2c8c9-frontier.amazon.com.
tp.47cf2c8c9-frontier.amazon.com canonical name = d3ag4hukkh62yn.cloudfront.net.
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 18.161.217.215
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:e800:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:d400:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:6800:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:3000:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:7c00:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:9800:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:2800:7:49a5:5fd4:b121
Name:   d3ag4hukkh62yn.cloudfront.net
Address: 2600:9000:24d9:4600:7:49a5:5fd4:b121

Server:      127.0.0.53
Address:     127.0.0.53#53
```

```
Non-authoritative answer:
www.github.com canonical name = github.com.
Name:   github.com
Address: 20.207.73.82
Name:   github.com
Address: 64:ff9b::14cf:4952

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: 23.63.219.126
Name:   e2867.dsca.akamaiedge.net
Address: 2600:140f:4:eb1::b33
Name:   e2867.dsca.akamaiedge.net
Address: 2600:140f:4:e8e::b33
```