

An Introduction to iPerf3

iPerf3 is a network performance tool that tests bandwidth, latency, and packet loss on a network between two computers. iPerf3 is mainly used for diagnosing network issues, stress testing connections, and benchmarking network performance. Within iPerf3, the two computers act in a client-server relationship. The server listens to the traffic that the client sends to it, and outputs network data based on the flow of traffic. Below will be a guide on how to install and use iPerf3.

The Network

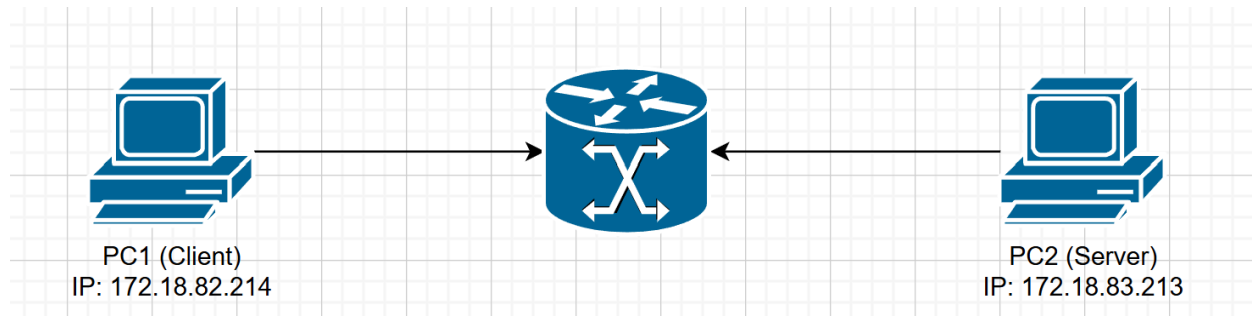


Figure 1

As shown in Figure 1, the network consists of two PCs and a multiservice switch. Both PCs are on the same network and can ping each other.

```
rishmani@srv1:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.18.82.214 netmask 255.255.240.0 broadcast 172.18.95.255
    inet6 fe80::215:5dff:fe38:101 prefixlen 64 scopeid 0x20<link>
    ether 00:15:5d:38:01:01 txqueuelen 1000 (Ethernet)
    RX packets 67 bytes 8835 (8.8 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 25 bytes 2416 (2.4 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 84 bytes 6352 (6.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 84 bytes 6352 (6.3 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

rishmani@srv1:~$ _
```

Figure 2

```

rishmani@server2:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.18.83.213 netmask 255.255.240.0 broadcast 172.18.95.255
    inet6 fe80::215:5dff:fe38:104 prefixlen 64 scopeid 0x20<link>
    ether 00:15:5d:38:01:04 txqueuelen 1000 (Ethernet)
    RX packets 410 bytes 540227 (540.2 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 248 bytes 19971 (19.9 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 118 bytes 9940 (9.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 118 bytes 9940 (9.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

rishmani@server2:~$

```

Figure 3

The IP info for PC1 and PC2 are shown in Figure 2 and Figure 3 respectively.

Installing iPerf3

```

sudo apt install iperf3
[sudo] password for rishmani:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
iperf3 is already the newest version (3.16-1build2).
0 upgraded, 0 newly installed, 0 to remove and 34 not upgraded.
rishmani@srv1:~$

```

Figure 4

The command to install iPerf3 is detailed in Figure 4. Both computers need to have iPerf3 installed in order for the network tests to properly function.

Setting Up Client and Server

```

rishmani@srv1:~$ ping 172.18.83.213
PING 172.18.83.213 (172.18.83.213) 56(84) bytes of data.
64 bytes from 172.18.83.213: icmp_seq=1 ttl=64 time=0.323 ms
64 bytes from 172.18.83.213: icmp_seq=2 ttl=64 time=0.363 ms
^C
--- 172.18.83.213 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1026ms
rtt min/avg/max/mdev = 0.323/0.343/0.363/0.020 ms
rishmani@srv1:~$ _

```

Figure 5

As shown in Figure 5, it imperative that the client PC can ping the server PC.

```
rishmani@server2:~$ iperf3 -s
-----
Server listening on 5201 (test #1)
-----
```

Figure 6

Figure 6 shows the command to set up PC2 as the iPerf3 server. This computer will be responsible for analyzing and outputting traffic data from the client.

```
rishmani@srv1:~$ iperf3 -c 172.18.83.213
```

Figure 7

Figure 7 shows the command to set up PC1 as the client. This computer will be responsible for sending traffic to the server.

Results

[ID]	Interval		Transfer	Bandwidth	Retr	Cwnd	
[4]	0.00-1.00	sec	26.5 MBytes	222 Mbits/sec	0	1.16 MBytes	
[4]	1.00-2.00	sec	23.8 MBytes	199 Mbits/sec	71	1.07 MBytes	
[4]	2.00-3.00	sec	25.0 MBytes	210 Mbits/sec	0	1.15 MBytes	
[4]	3.00-4.00	sec	25.0 MBytes	210 Mbits/sec	0	1.21 MBytes	
[4]	4.00-5.00	sec	23.8 MBytes	199 Mbits/sec	0	1.25 MBytes	
[4]	5.00-6.00	sec	23.8 MBytes	199 Mbits/sec	0	1.28 MBytes	
[4]	6.00-7.00	sec	26.2 MBytes	220 Mbits/sec	0	1.30 MBytes	
[4]	7.00-8.00	sec	23.8 MBytes	199 Mbits/sec	0	1.30 MBytes	
[4]	8.00-9.00	sec	23.8 MBytes	199 Mbits/sec	0	1.30 MBytes	
[4]	9.00-10.00	sec	23.8 MBytes	199 Mbits/sec	0	1.30 MBytes	

[ID]	Interval		Transfer	Bandwidth	Retr		
[4]	0.00-10.00	sec	245 MBytes	206 Mbits/sec	71		sender
[4]	0.00-10.00	sec	243 MBytes	204 Mbits/sec			receiver

iperf Done.

Figure 8

Figure 8 shows the results of the iPerf3 testing process. Some key pieces of information that are shown are bandwidth and transfer speed.