How to Read a File Line by Line on Linux?

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I have a file containing many IPs that I want to ping the rest of the IPs.

Problem

How to read a file line by line on Linux?

Solution

I have an ip.txt file that contains IP addresses, and in this article, I will only limit it to 3 IP addresses:

192.168.56.2
192.168.56.12
192.168.56.100

To read a file line by line on Linux, you can use the format below:

```
cat your_file | while read line
do
        the-commands-that-you-want-to-run
        .......
        .......
done
```

In this case, the format above has changed as below to ping each IP in the file:

```
cat ip.txt | while read line
do
        ping -c 3 $line
        echo
done
```

The command above means to run the ping command 3x on each IP in the ip.txt file by separating one line for each IP. If we run the command, it will look like the image below:

```
[sysadmin@RockyLinux9 ~]$ cat ip.txt | while read line; do ping -c 3 $line; echo; done
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.053 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.091 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.045 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 0.045/0.063/0.091/0.020 ms

PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=2.25 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=0.869 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=1.67 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.869/1.598/2.252/0.567 ms

PING 192.168.56.100 (192.168.56.100) 56(84) bytes of data.
64 bytes from 192.168.56.100: icmp_seq=1 ttl=64 time=2.47 ms
64 bytes from 192.168.56.100: icmp_seq=2 ttl=64 time=2.19 ms
64 bytes from 192.168.56.100: icmp_seq=3 ttl=64 time=2.02 ms

--- 192.168.56.100 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2006ms
rtt min/avg/max/mdev = 2.018/2.225/2.469/0.185 ms

[sysadmin@RockyLinux9 ~]$
```

Ping the IPs from the file

Change the script above to be as below if you want to enter the results of each ping IP into one file:

```
cat ip.txt | while read line
do
    ping -c 3 $line
    echo
done > ping_ip.txt
```

Look at the picture below:

```
[sysadmin@RockyLinux9 ~]$ cat ip.txt | while read line; do ping -c 3 $line; echo; done > ping_ip.txt
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat ping_ip.txt
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.052 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.058 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.073 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2053ms
rtt min/avg/max/mdev = 0.052/0.061/0.073/0.008 ms

PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=1.71 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=2.01 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=2.19 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 1.709/1.972/2.194/0.200 ms

PING 192.168.56.100 (192.168.56.100) 56(84) bytes of data.
64 bytes from 192.168.56.100: icmp_seq=1 ttl=64 time=2.84 ms
64 bytes from 192.168.56.100: icmp_seq=2 ttl=64 time=2.40 ms
64 bytes from 192.168.56.100: icmp_seq=3 ttl=64 time=1.84 ms

--- 192.168.56.100 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.837/2.359/2.840/0.410 ms

[sysadmin@RockyLinux9 ~]$
```

Ping IP results are saved in one file

But if you want to enter the results of each ping IP into several files based on the IP, change the script above to be as below:

```
cat ip.txt | while read line
do
    ping -c 3 $line
    echo
done > ping_ip.txt
```

There should be new files after you run the script above, and each file will contain the results of the ping IP as in the image below:

```
[sysadmin@RockyLinux9 ~]$ ls
ip.txt
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat ip.txt | while read line; do ping -c 3 $line > $line.txt; echo; done



[sysadmin@RockyLinux9 ~]$ ls
192.168.56.100.txt  192.168.56.12.txt  192.168.56.2.txt  ip.txt
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat 192.168.56.2.txt
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.040 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.118 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.100 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2033ms
rtt min/avg/max/mdev = 0.040/0.086/0.118/0.033 ms
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat 192.168.56.12.txt
PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=1.31 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=1.30 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=2.64 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2006ms
rtt min/avg/max/mdev = 1.296/1.748/2.640/0.630 ms
[sysadmin@RockyLinux9 ~]$
```

Ping IP results are saved in each file

Note

In addition to using the script above, you can use the script below to read line by line in a Linux file:

```
while IFS= read -r line; do ping -c 3 $line ; echo; done < ip.txt
```

```
[sysadmin@RockyLinux9 ~]$ while IFS= read -r line; do ping -c 3 $line ; echo; done < ip.txt
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.042 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.174 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.073 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.042/0.096/0.174/0.056 ms

PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=0.763 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=1.90 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=1.99 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.763/1.550/1.988/0.557 ms

PING 192.168.56.100 (192.168.56.100) 56(84) bytes of data.
64 bytes from 192.168.56.100: icmp_seq=1 ttl=64 time=1.66 ms
64 bytes from 192.168.56.100: icmp_seq=2 ttl=64 time=2.60 ms
64 bytes from 192.168.56.100: icmp_seq=3 ttl=64 time=2.07 ms

--- 192.168.56.100 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.658/2.109/2.604/0.387 ms

[sysadmin@RockyLinux9 ~]$
```

Another method to read line by line

References

cyberciti.biz
linuxhint.com
linuxize.com
stackoverflow.com