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How to check the pulse of your network on an Ubuntu Server

This guide will help you gather your bearings when logging into a new ubuntu server for the first time. Mainly, this guide will focus on checking the network functionality of the server and we'll go over a few good commands to use to check the network configuration of the server.

What you'll need:

- SSH tool
- Admin account that has sudo permission
- IP of the server you're connecting to

Step 1: Connect to the Ubuntu Server

This is a fairly obvious step but you can't check many of the network settings without being on the server first! Open your favorite SSH tool and insert the IP of the server along with the username and password information for your account.

Step 2: Check the general network settings

Now that we're logged in, go ahead and run 'netplan status' and you will see 3 key things, network interface information, DNS information, and information on your IP. These three are the generally what you would need to know to start learning about the system's network you're taking over.

After netplan, we will run through a few more commands to see the type of settings in place on the server. route -n will show the routing table for the server. Routing tables are vital to the success of any network as your computer needs to know who to send data to. Send the route -n command to view what routes are in place on this server

After route -n, we want to check the dns information. You can do this by opening /etc/resolv.conf but only edit this file if you are 100% certain of what you are doing. If you make a mistake, you wont be able to resolve any domains which will cause your network major issues. Another way to view dns info is to enter the command 'resolvectl status'.

When entered you will be shown the DNS servers you're connected to and any servers that may be added manually.

```
flaureano@cis245-ubuntu:~$ resolvectl status
Global
         Protocols: -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported
  resolv.conf mode: stub

Link 2 (ens33)
    Current Scopes: DNS
         Protocols: +DefaultRoute -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported
Current DNS Server: 192.168.186.2
       DNS Servers: 192.168.186.2
        DNS Domain: localdomain
flaureano@cis245-ubuntu:~$
```

Step 3: Checking for internet connectivity

While we can connect to this server locally, we need to make sure that it's getting out to the internet and can resolve domain names. To check these two questions, we will first ping our favorite public dns server, 8.8.8.8. To do so, type 'ping 8.8.8.8' and let it run for 5 seconds before ending the test with Ctr+C. What you should see is successful pings making it out to the dns server and it's response to us. If you get any errors like packets not being received or packet loss, make sure your server is connected to the internet or contact your system administrator.

```
flaureano@cis245-ubuntu:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=128 time=19.9 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=128 time=20.2 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=128 time=19.5 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=128 time=17.7 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=128 time=19.7 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=128 time=19.4 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=128 time=16.6 ms
```

After pinging 8.8.8.8, we're going to perform a dig on amazon.com. Dig is looking up the domain name server (dns) information of a specific domain. Essentially, domain name servers have records stored in them that tell queries where to go or what type of information is stored on these servers (roughly). When we dig amazon, it shows A records which indicate IPV4 addresses which we see next to it.

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```
flaureano@cis245-ubuntu:~$ dig amazon.com

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> amazon.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 20926
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;amazon.com.                    IN      A

;; ANSWER SECTION:
amazon.com.             5       IN      A       54.239.28.85
amazon.com.             5       IN      A       205.251.242.103
amazon.com.             5       IN      A       52.94.236.248

;; Query time: 16 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Sat Oct 12 04:05:43 UTC 2024
;; MSG SIZE  rcvd: 87
```

Now that we've checked this, we can both verify that we are able to connect outside of our network and that we're able to resolve external domain names. With this, we can verify that our server is connected and that we have a full understanding of the network configuration.