Network Configuration

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Starting Out

All servers are shipped with a default static IP address of `192.168.5.6`. The server's network configuration can be modified through a command line utility. This utility is accessed via a USB keyboard and an HDMI monitor plugged directly into the server.

Logging in

Once you have a keyboard and monitor plugged into the user, you should see a prompt such as this:

```
Ubuntu 22.04.6 LTS pico-sbarql000194zx2 tty1

pico-sbarql000194zx2 login: _
```

At this prompt, type in the networking config username: `pico-config` and press the `Enter` key. You should then be prompted with a password entry. The default password is `PicoPico`.

```
Ubuntu 22.04.6 LTS pico-sbarql000194zx2 tty1

pico-sbarql000194zx2 login: pico-config_

Password:
```

Enter the password on the screen, `PicoPico`, and press enter. You won't see anything change on the screen as you type in the password - don't worry. Once you've typed in the password, press the `Enter` key. If you successfully login, the screen should show a command prompt such as:

```
pico-config@sbarql000194zx2:~$ _
```

Show Current IP Address

In the bash prompt type in the following command to print the current network configuration: `ifconfig | grep '^en' -A8` and then press Enter.

```
pico-config@sbarql000194zx2:~$ ifconfig | grep '^en' -A3
enp85s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.18  netmask 255.255.255.0  broadcast
192.168.1.255
        inet6 fe80::4a21:bff:fe37:b069  prefixlen 64  scopeid 0x20<link>
        ether 48:21:0b:37:b0:69  txqueuelen 1000  (Ethernet)
```

In the above example, the ethernet IP address is `192.168.1.18`.

Switching to DHCP

By default, the server is configured with a Static IP. If you instead want the server to use DHCP, you can run the `switcher.sh` script which will update the network configuration to use DHCP. Run this script by typing `./network/switcher.sh` in the command prompt and then press Enter:

```
pico-config@sbarql000194zx2:~$ sudo ./networking/switcher.sh
Removed static IP
```

If you see the text `Removed static IP` then the server should now be using DHCP. Use the `ifconfig` command above to print out the current IP address of the server.

If you see the text `Applied static IP` then the server should now be using a Static IP configuation.

Update the Static IP

To update the Static IP, you will need to know the IP address, the Subnet Mask, the Gateway IP, and the DNS server IPs necessary for your network. You can then type in `sudo ./networking/setup.sh` and press Enter to begin the command line utility to reconfigure the network.

```
pico-config@sbarql000194zx2:~$ sudo ./networking/setup.sh
WELCOME! This wizard will guide you through updating the networking
settings on this machine. Every prompt requires a value. Press
Enter/Return to continue
```

The first print out should give you a description. Press Enter to continue:

```
pico-config@sbarql000194zx2:~$ sudo ./networking/setup.sh
WELCOME! This wizard will guide you through updating the networking
settings on this machine. Every prompt requires a value. Press
Enter/Return to continue
Enter new static IP in CIDR format, EG: 192.168.1.100/24 (currently
192.168.1.18/24):
```

In this prompt, type the static IP you'd like to use followed by the subnetmask in CIDR format. Typically when the subnet is `255.255.255.0` the CIDR format will be `/24`. You can view your subnet value as shown here: https://www.calculator.net/ip-subnet-calculator.html. In this example, we're using `192.168.1.98/24` as shown:

```
pico-config@sbarql000194zx2:~$ sudo ./networking/setup.sh
WELCOME! This wizard will guide you through updating the networking
settings on this machine. Every prompt requires a value. Press
Enter/Return to continue
Enter new static IP in CIDR format, EG: 192.168.1.100/24 (currently
192.168.1.18/24): 192.168.1.98/24
Enter new gateway IP in CIDR format, EG: 192.168.1.1 (currently
192.168.1.1):
```

For the next prompt, enter the Gateway IP address and then press Enter. In this example we're using `192.168.1.1` as shown:

```
pico-config@sbarql000194zx2:~$ sudo ./networking/setup.sh
WELCOME! This wizard will guide you through updating the networking
settings on this machine. Every prompt requires a value. Press
Enter/Return to continue
Enter new static IP in CIDR format, EG: 192.168.1.100/24 (currently
192.168.1.18/24): 192.168.1.98/24
```

```
Enter new gateway IP in CIDR format, EG: 192.168.1.1 (currently
192.168.1.1): 192.168.1.1
Enter new DNS nameservers comma separated, EG: 8.8.8.8,8.8.4.4
(currently 8.8.8.8,):
```

Lastly, we'll need the DNS server(s). In our example below we'll enter the default Google DNS server, `8.8.8.8`. Multiple DNS server can be added by separating them with a comma such as `8.8.8.8,8.8.4.4`:

```
pico-config@sbarql000194zx2:~$ sudo ./networking/setup.sh
WELCOME! This wizard will guide you through updating the networking
settings on this machine. Every prompt requires a value. Press
Enter/Return to continue
Enter new static IP in CIDR format, EG: 192.168.1.100/24 (currently
192.168.1.18/24): 192.168.1.98/24
Enter new gateway IP in CIDR format, EG: 192.168.1.1 (currently
192.168.1.1): 192.168.1.1
Enter new DNS nameservers comma separated, EG: 8.8.8.8,8.8.4.4
(currently 8.8.8.8,): 8.8.8.8
--------------------------------
network:
  version: 2
  ethernets:
    enp85s0:
      addresses:
        - 192.168.1.98/24
      gateway4: 192.168.1.1
      nameservers:
        addresses: [8.8.8.8]
--------------------------------
Press Enter/Return to commit the above config, or ctrl+c to exit
```

Once we've entered all the information, we will be presented with an example configuration file to review. If everything looks correct, press the Enter key to apply the above change. You may see some text logging indicating the changes have been made.

The messages will end with:

```
...
Do you want to keep these settings?

Press ENTER before the timeout to accept the new configuration

Changes will revert in 100 seconds
```

At this point, press the `Enter` key to keep the changes. The configuration should be applied and you'll see the final confirmation:

```
...
Netplan configuration applied successfully.
```

Again, you can use the `ifconfig` shown earlier to confirm the current IP address of the server.

Confirm Access

Now that the ethernet network is configured on your server, connect the server to your network. On a PC on that same network, attempt to access the server in a browser by going to `http://192.168.1.18` being use to use the IP address of your server.