How to install a Linux server distribution

Introduction

This document will provide instructions on how to install a Linux server distribution onto a virtual machine using a Type 2 Hypervisor. The guide will be written with CentOS Stream 9 in mind

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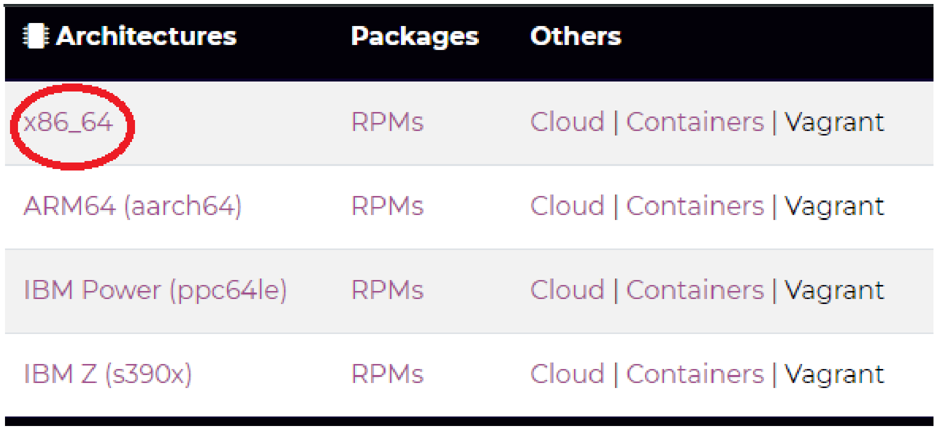
Prerequisites

- Tier 2 Hypervisor (Guide will be utilizing VMware Workstation 17)
- Internet access to download CentOS
- PuTTY or another SSH tool

Step 1: Download CentOS Server

1. The first and arguably most important step is to select your preferred server distribution or as some call it, your favorite flavor of Linux. The easiest way to do this is to go onto your favorite search engine and lookup the website for them. Today we will be using CentOS.

2. As we have selected CentOS, we will now head to the CentOS' website (https://www.centos.org/download/) then click on "x86_64" to download the .iso

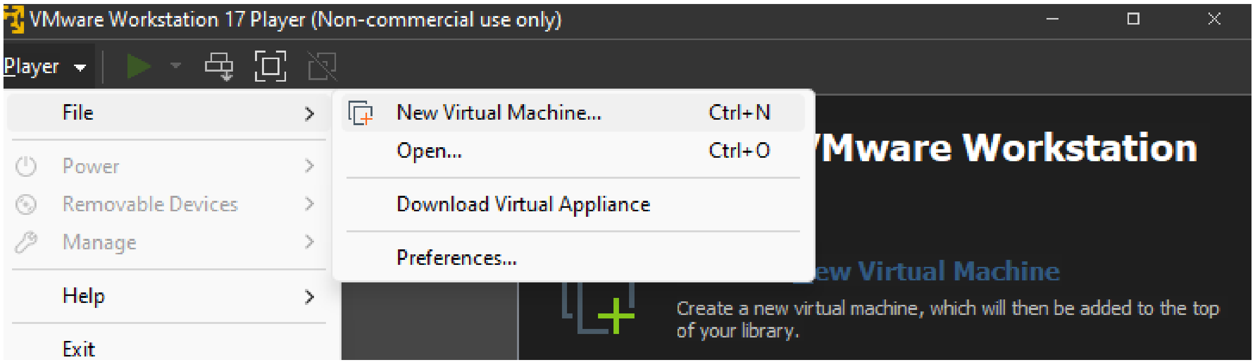


Architectures	Packages	Others
[✓ x86_64]	RPMs	Cloud | Containers | Vagrant
ARM64 (aarch64)	RPMs	Cloud | Containers | Vagrant
IBM Power (ppc64le)	RPMs	Cloud | Containers | Vagrant
IBM Z (s390x)	RPMs	Cloud | Containers | Vagrant

Step 2: Create a Virtual Machine with CentOS Server

1. Now that you have CentOS Server downloaded, you need to open your hypervisor which for the purpose of this guide will be VMware Workstation 17.

2. Once opened you will click on player > File > New Virtual Machine

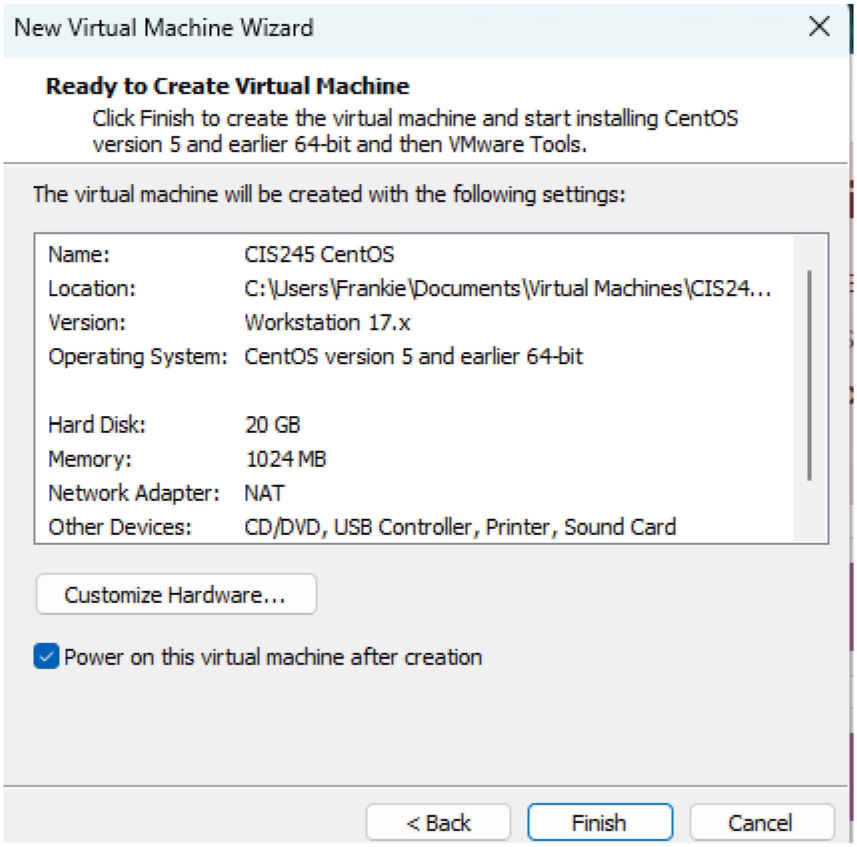


Create a new virtual machine, which will then be added to the top of your library.

3. You will be prompted for your name and setup a username and password. Then after submitting that information you will be prompted to name your Virtual Machine. Make sure to name your VM with it's purpose in mind.

4. After entering your information, you will be asked to either split your vDisks into server files or a single file. For the purpose of this guide we will be storing the vDisk as a single file.

5. After selecting the vDisk style, you will be prompted to finish the server and have the option of powering on the virtual machine after it's creation. For the purpose of the guide, we will power on the virtual machine so tick the box that provides us the option and click finish.



Ready to Create Virtual Machine

Click Finish to create the virtual machine and start installing CentOS version 5 and earlier 64-bit and then VMware Tools.

The virtual machine will be created with the following settings:

Name:	CIS245 CentOS
Location:	C:\Users\Frankie\Documents\Virtual Machines\CIS24...
Version:	Workstation 17.x
Operating System:	CentOS version 5 and earlier 64-bit
Hard Disk:	20 GB
Memory:	1024 MB
Network Adapter:	NAT
Other Devices:	CD/DVD, USB Controller, Printer, Sound Card

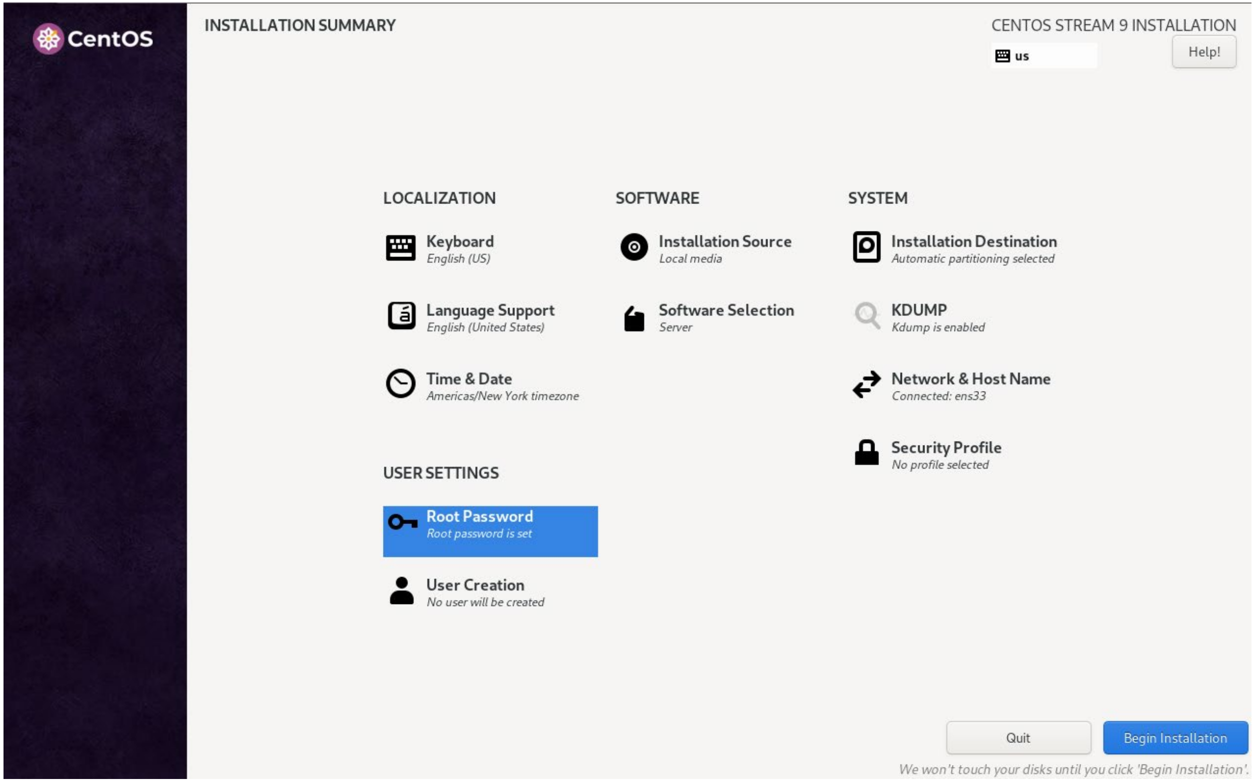
☑ Power on this virtual machine after creation

Step 3: Setup CentOS Server

1. Once the server is powered on, you will be prompted to select a language for your server. For the purpose of the guide and the language it's written in, we will be selecting English. After it will also ask the language of the keyboard configuration, we will also be selecting English there.

2. For Server installation, select Server and ensure it's the one that does not say "Server with GUI" as we will be going for a CLI based server.

3. Setup your user as well as your passwords and after finishing your screen should look like the screenshot below. Once finished, press begin installation



INSTALLATION SUMMARY

CENTOS STREAM 9 INSTALLATION

LOCALIZATION

Keyboard
English (US)

Language Support
English (United States)

Time & Date
Americas/New York timezone

SOFTWARE

Installation Source
Local media

Software Selection
Server

SYSTEM

Installation Destination
Automatic partitioning selected

KDUMP
Kdump is enabled

Network & Host Name
Connected: ens33

Security Profile
No profile selected

USER SETTINGS

Root Password
Root password is set

User Creation
No user will be created

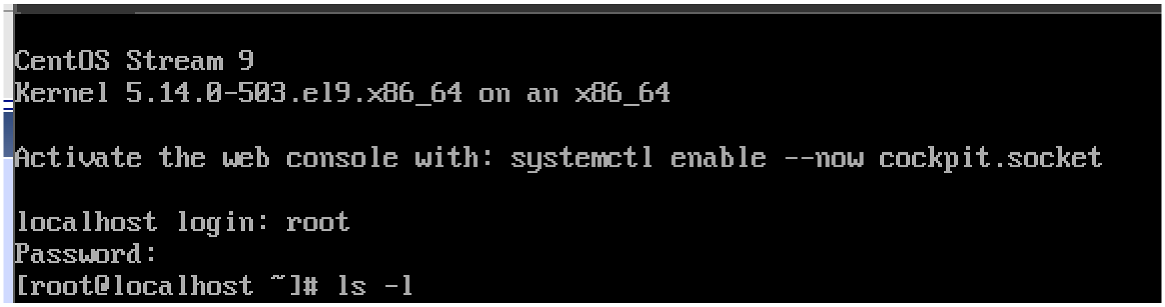
We won't touch your disks until you click 'Begin Installation'.

4. Once finshed installing it will ask you to reboot the system, do so.

Step 4: Connecting to our CentOS Server

1. Now that the server is created we must connect to our server. To sign into the server, use the root account login.

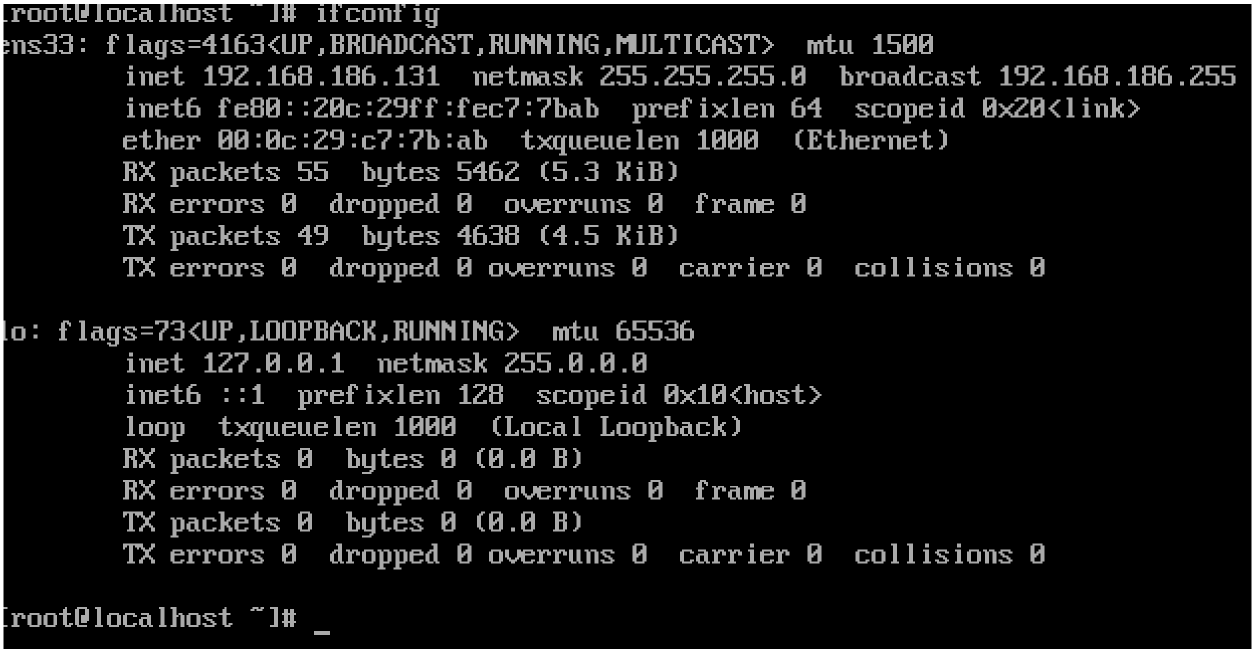
   Localhost login: root
   Password: yoursecurepasswordhere



```
CentOS Stream 9
Kernel 5.14.0-503.el9.x86_64 on an x86_64

Activate the web console with: systemctl enable --now cockpit.socket

localhost login: root
Password:
[root@localhost ~]# ls -l
```

2. Now we must setup the user account and pasword that you will be using as using root for your daily driver is extremely unsafe. To do so, type adduser youruseraccounthere (put your own username instead of my placeholder). After passwd yourpasswordhere (put your own password instead of my placeholder).

3. Now we need to find the IP of the server. To do so, type ifconfig to see your IP. My server's IP is 192.168.186.131.



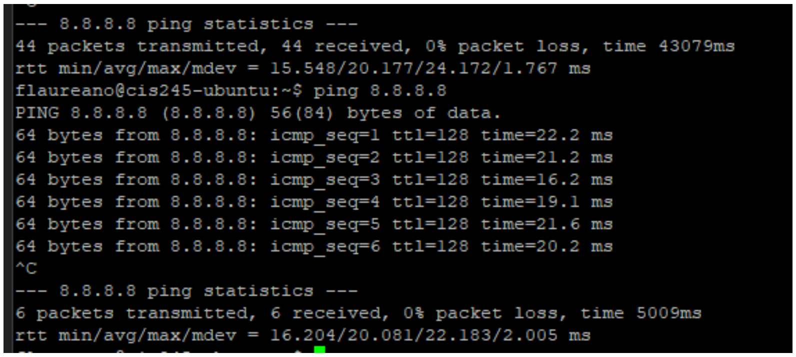
```
[root@localhost ~]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.186.131  netmask 255.255.255.0  broadcast 192.168.186.255
        inet6 fe80::20c:29ff:fec7:7bab  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:c7:7b:ab  txqueuelen 1000  (Ethernet)
        RX packets 55  bytes 5462 (5.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 49  bytes 4638 (4.5 KiB)
        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 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[root@localhost ~]# _
```

4. Open PuTTY or whichever SSH tool you prefer and enter the IP address of your server. My server's IP address is 192.168.186.131 so that is the address we will type in the IP address bar and the port we will be using is port 22 (SSH).

5. PuTTY will now bring up the server login window where we will have to enter our username and password that we made earlier. Sign in correct and you will be greated with the login splash screen of your server.

Step 5: Testing Internet Connectivity

1. Now that we are connected to our server, lets see if we can access the internet with it. To do so, type ping 8.8.8.8. This action pings the Google DNS server to see if it can connect out. If you are successful, you will see packets received from 8.8.8.8 with no packet loss (press Control+C to end the ping test)

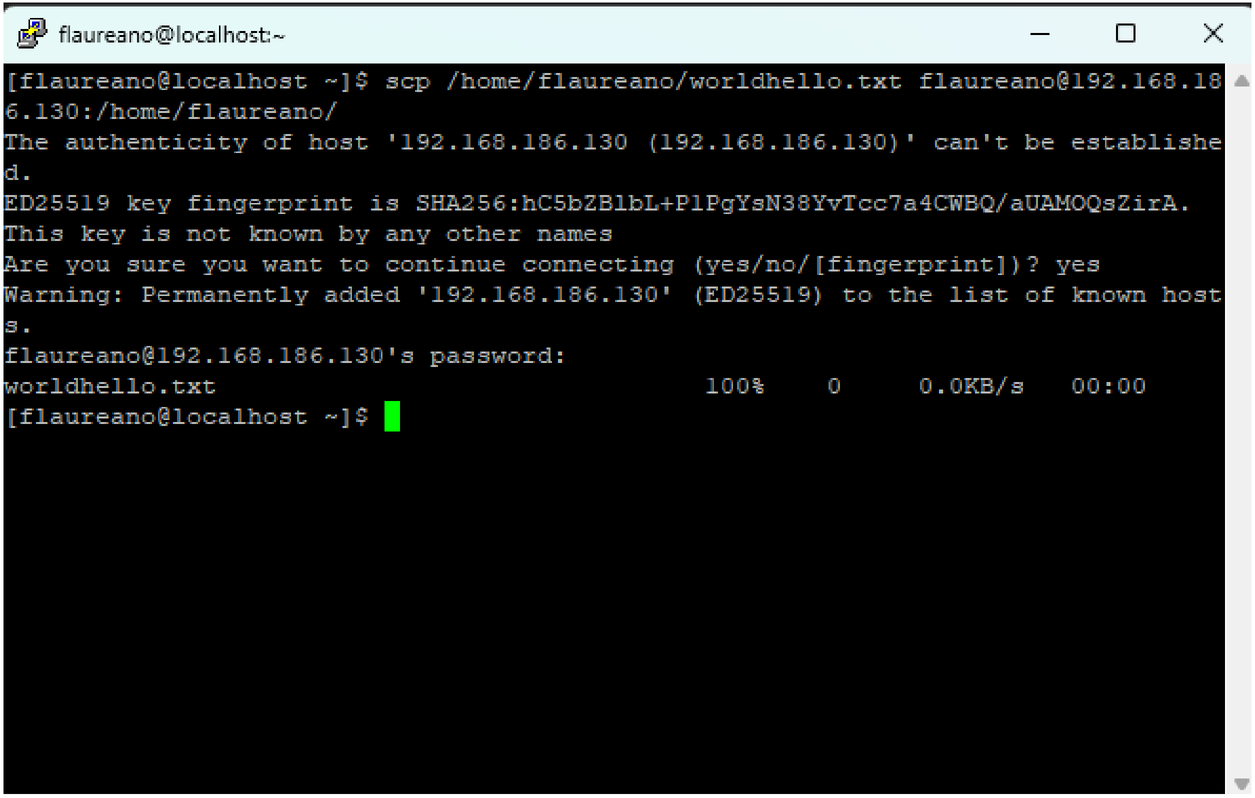


```
--- 8.8.8.8 ping statistics ---
44 packets transmitted, 44 received, 0% packet loss, time 43079ms
rtt min/avg/max/mdev = 15.548/20.177/24.172/1.767 ms
flaureano@cis245-ubuntu:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=128 time=22.2 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=128 time=21.2 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=128 time=16.2 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=128 time=19.1 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=128 time=21.6 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=128 time=20.2 ms
^C
--- 8.8.8.8 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5009ms
rtt min/avg/max/mdev = 16.204/20.081/22.183/2.005 ms
```

Step 6: Transferring a file from one server to another

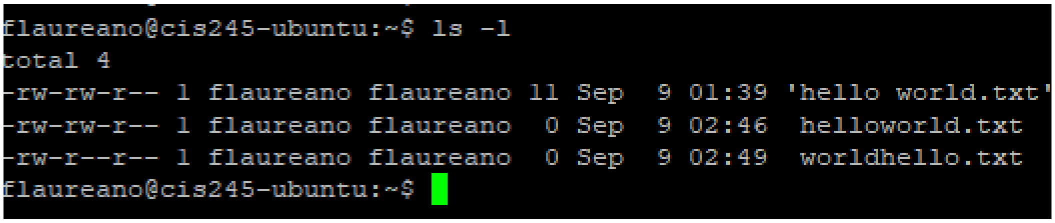
1. To transfer a file, we must first have a file so lets create one. Type ‘touch worldhello.txt’ and press enter. You have now created a simple text file that we are going to use to transfer to a server.
2. Now that we have our file, we will use SCP to transfer the file to another server with the IP of 192.168.186.130.
3. Enter the following command: scp /home/flaureano/worldhello.txt flaureano@192.168.186.130:/home/flaureano/ (replace the directory of the home and destination with your own server and the destination of your choice)
4. You will get a line asking if you want to trust the host as you have not connected before, type yes.

5. You will then be prompted to sign into the password of the user you are signing into. Enter the password and the file will transfer



```
[flaureano@localhost ~]$ scp /home/flaureano/worldhello.txt flaureano@192.168.18
6.130:/home/flaureano/
The authenticity of host '192.168.186.130 (192.168.186.130)' can't be establishe
d.
ED25519 key fingerprint is SHA256:hC5bZBlbL+PlPgYsN38YvTcc7a4CWBQ/aUAMOQsZirA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.186.130' (ED25519) to the list of known host
s.
flaureano@192.168.186.130's password:
worldhello.txt                                100%    0     0.0KB/s   00:00
[flaureano@localhost ~]$
```

6. Once transferred, check the other server to make sure that the file came over and you are finished!



```
flaureano@cis245-ubuntu:~$ ls -l
total 4
-rw-rw-r-- 1 flaureano flaureano 11 Sep  9 01:39 'hello world.txt'
-rw-rw-r-- 1 flaureano flaureano  0 Sep  9 02:46  helloworld.txt
-rw-r--r-- 1 flaureano flaureano  0 Sep  9 02:49  worldhello.txt
flaureano@cis245-ubuntu:~$
```

Final Review

Summary of actions taken:

- Installed CentOS without GUI on VMware Workstation 17
- Configured user account
- Enabled SSH and tested remote functionality with PuTTY
- Tested and confirmed internet connectivity by pinging Google DNS (8.8.8.8)
- Transferred files between two servers using SCP