

Manually Installing Androidx86 Emulator into Virtualization Software

This document will be a walkthrough on installing the Androidx86 emulator in VirtualBox.

In reality, when doing mobile security, it will be best to have an actual device, but for the purpose of this training, we're using an emulator so everyone will have the same software.

Let's begin.

1. Go to Androidx86 page here → [Android-x86 - Porting Android to x86 \(android-x86.org\)](https://www.android-x86.org/)
2. Scrolling down we're going to select the Android-x86 9.0-r2 (or click this link) → [Release 9.0-r2 | Android-x86 \(android-x86.org\)](https://www.android-x86.org/Release%209.0-r2)
3. We're now presented with the downloads page. There are two different links. It doesn't matter which link you choose.

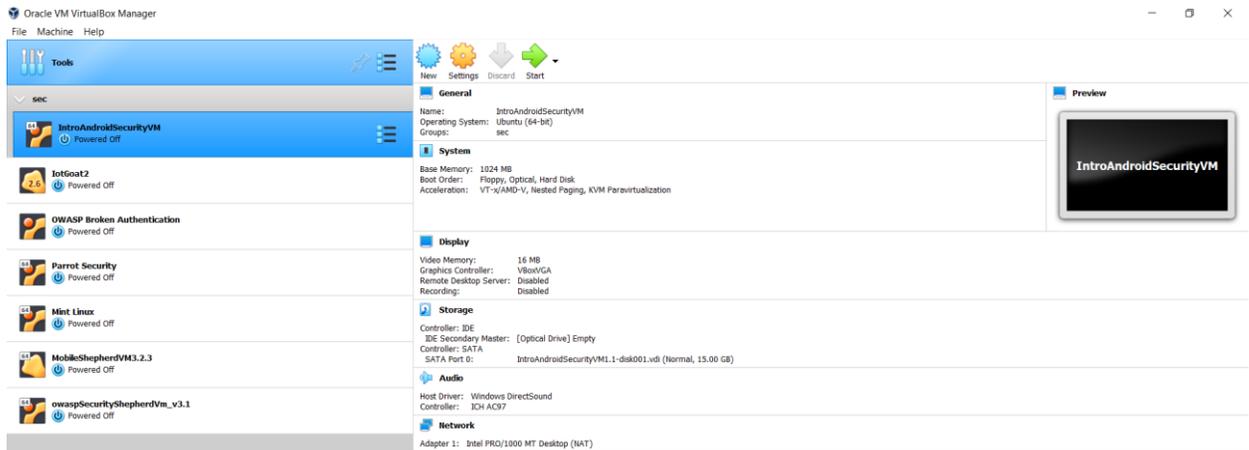
Link → <https://www.fosshub.com/Android-x86.html>

Link → <https://osdn.net/rel/android-x86/Release%209.0>

4. Click the above link, I picked the first one (fosshub), and I have this webpage

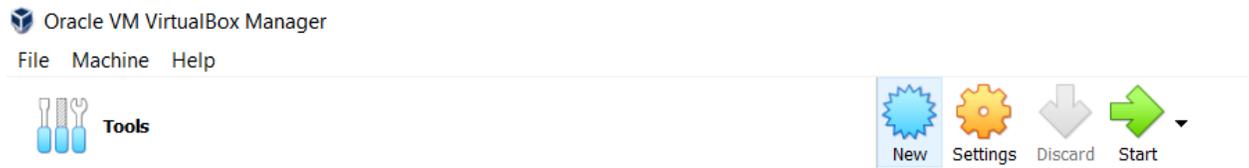
FILE	SIZE	VERSION	ANTIVIRUS
Android-x86 64-bit ISO file	921 MB	9.0-r2	0 / 0
Android-x86 32-bit ISO file	726 MB	9.0-r2	0 / 0

5. In the above screenshot, you will see there are two image (iso) files shown. Pick one of these two files. If you have a 64-bit computer use the 64-bit ISO. If you have a 32-bit computer use the 32-bit ISO. I have a 64-bit ISO, so I will use that one
6. Click the file to download it. Make note on where this file is saved
7. Open VirtualBox. You will be presented with VirtualBox home screen.

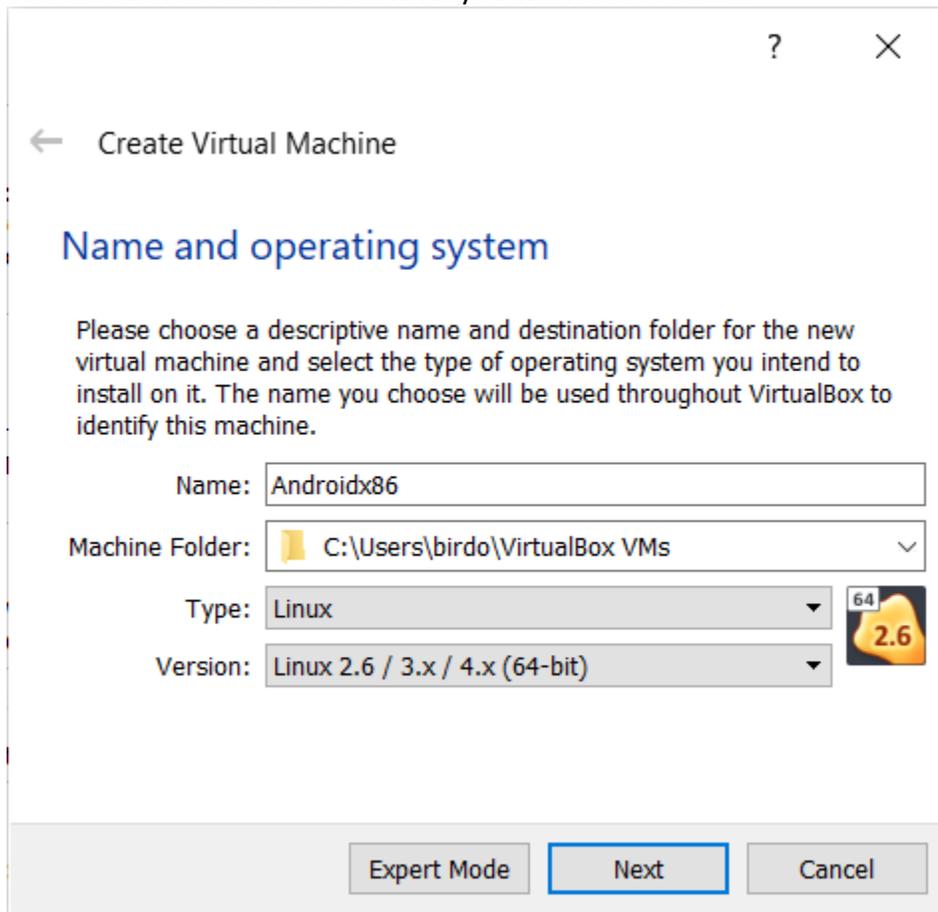


Note: My home screen looks different as I have other virtual machines.

- Click on the New button (blue)



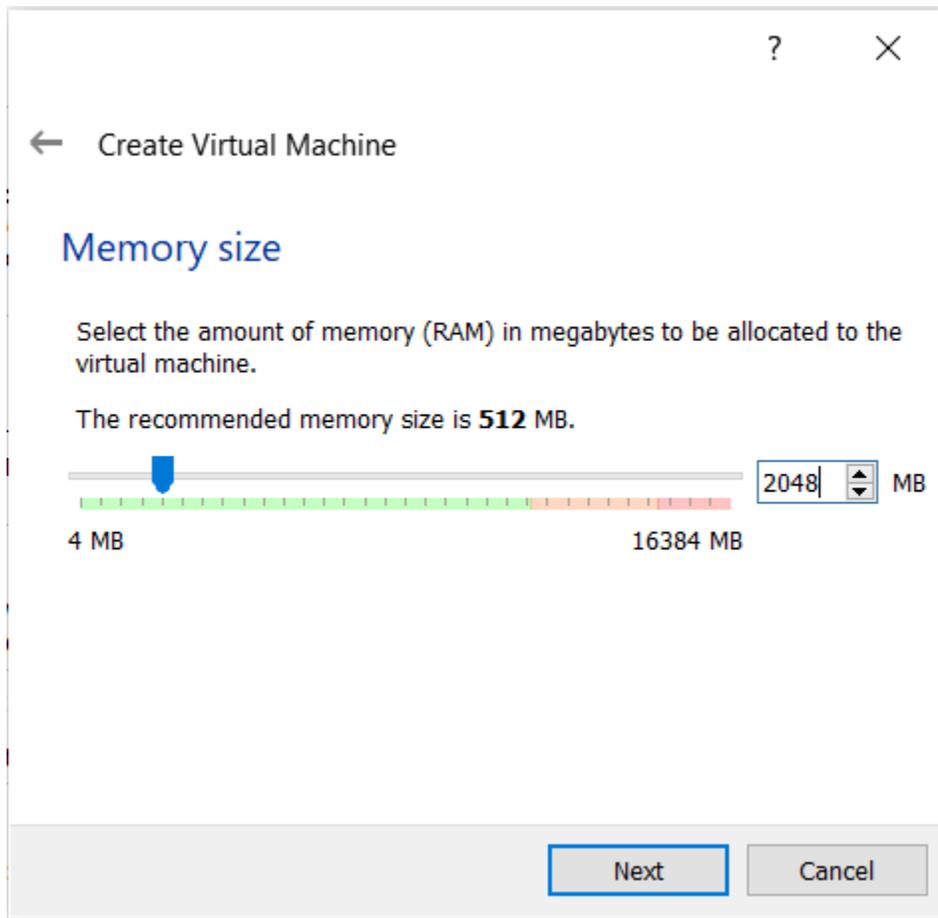
- You'll be presented with the Create Virtual Machine prompt.
- See the above screenshot on what you will need to enter.



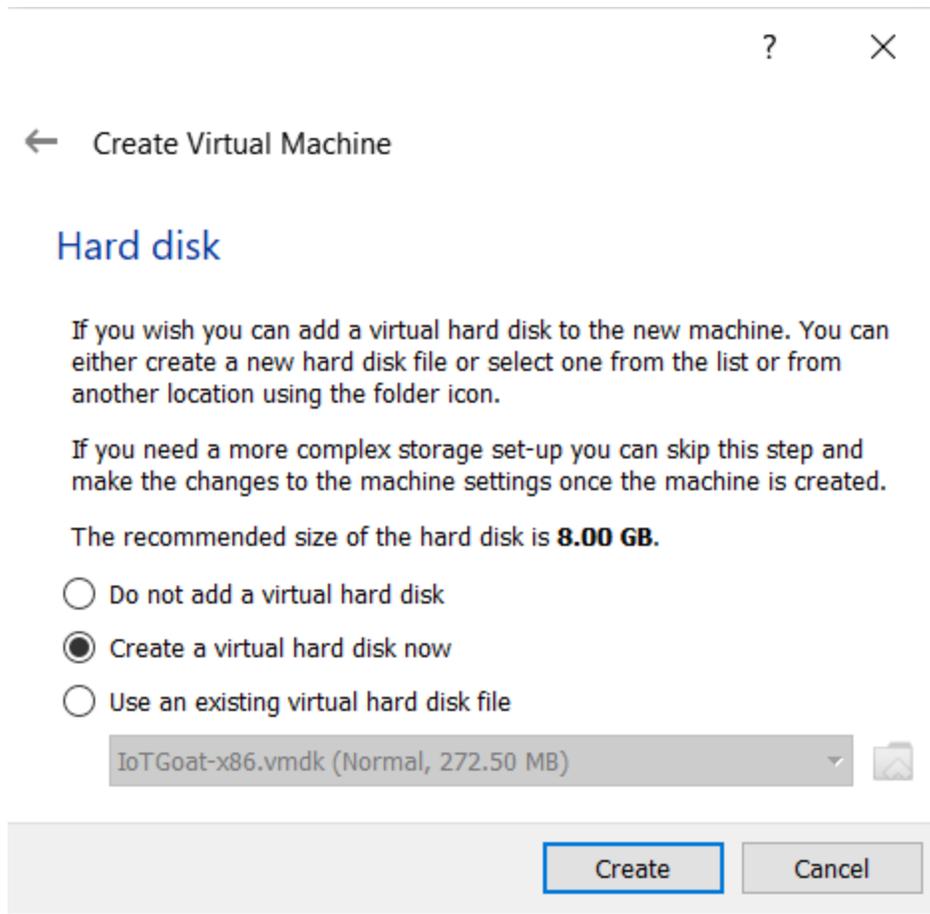
Note: The Machine Folder is where you will save the virtual machine. I am saving mine to an external hard drive, but you don't need to do this.

Also, I'm using a 64-bit image (ISO), so that is why my version is the 64-bit version.

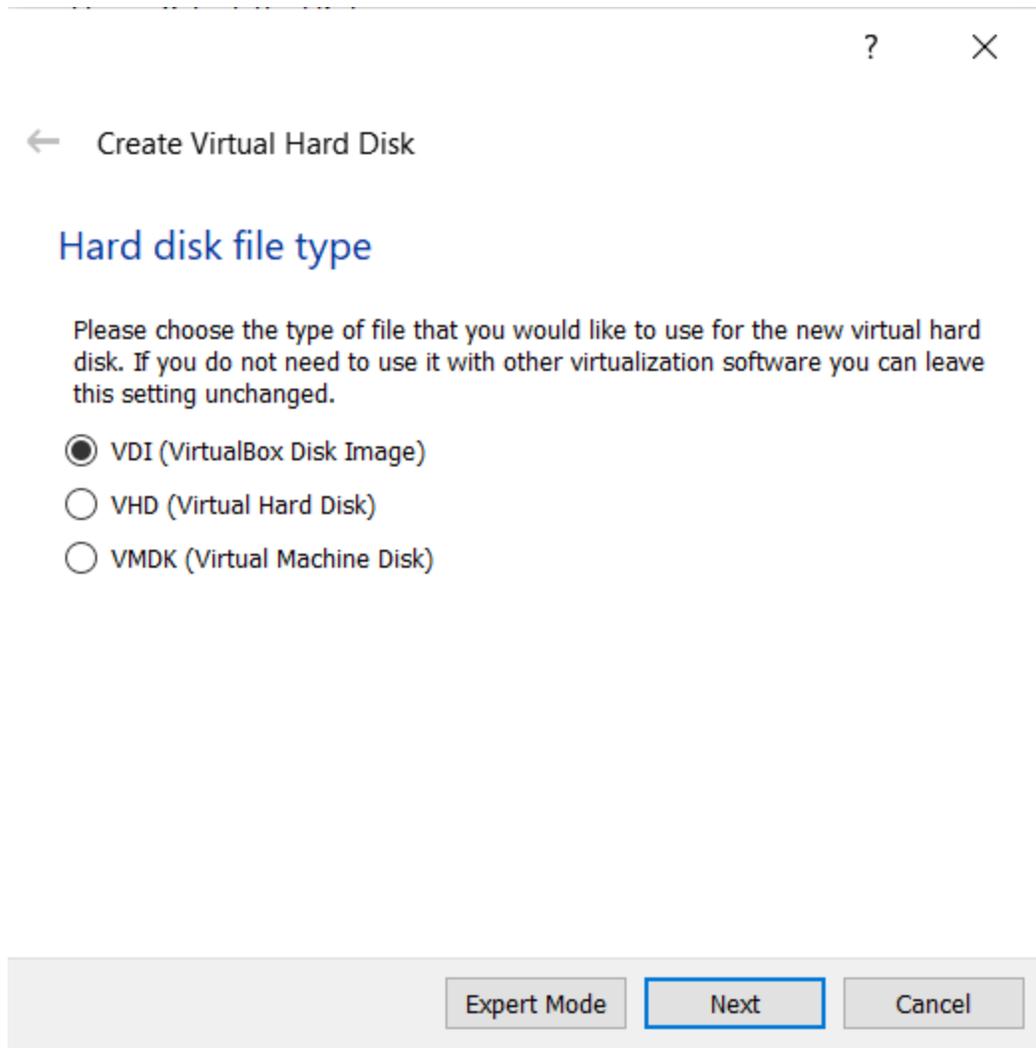
11. After entering the information, press Next
12. Next screen is memory size. Change the value from 512 to 1024 (1GB). If you have more RAM on your computer change this value to 2048 (2GB). Note: If you're using the 32-bit, the highest you can use is 2048 (2GB). If you're using the 64-bit, you can use any RAM size.



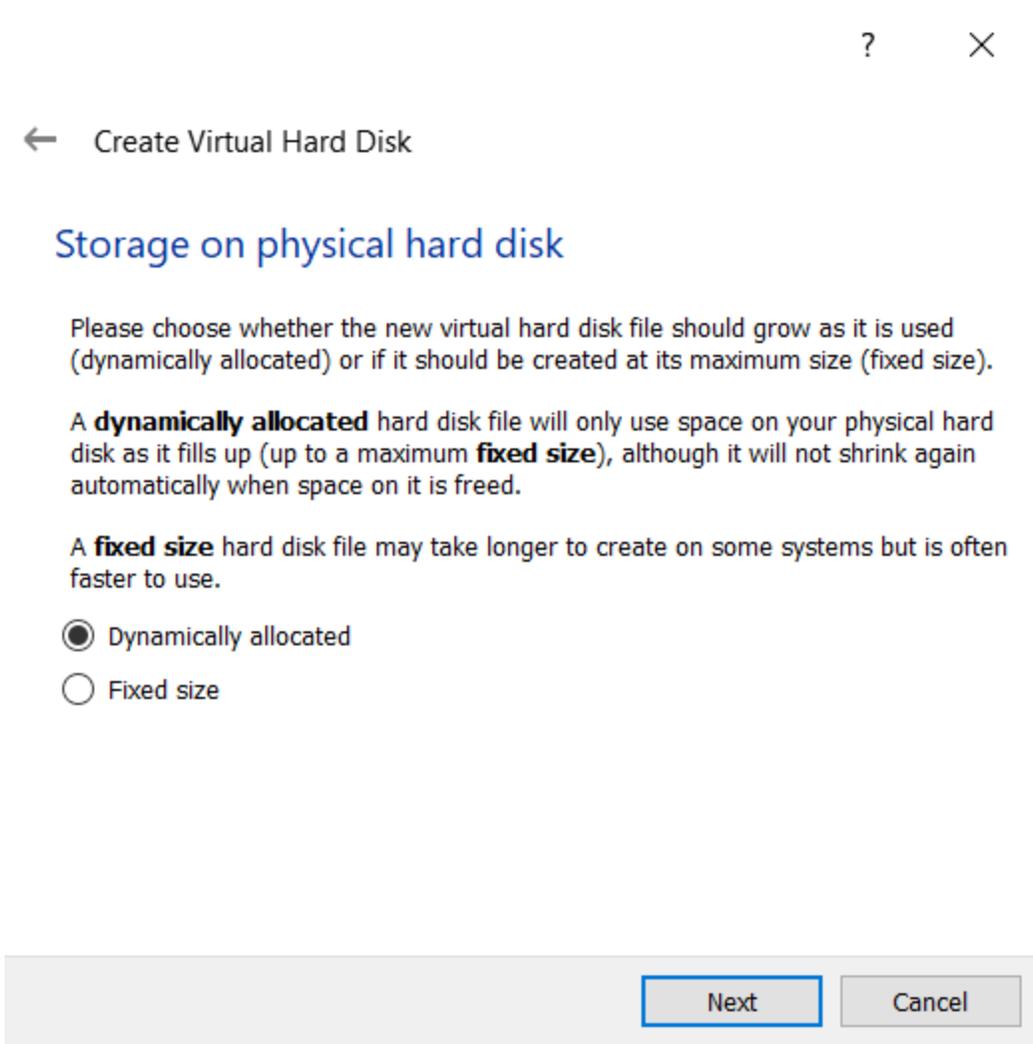
13. Press Next
14. Next screen is Hard disk. We're not changing anything on this screen, press Create.



15. Next screen is Hard disk file type, we're not changing anything on this screen, press Next.



16. Next screen is Storage on physical hard disk. We're not changing anything on this screen, so press Next.



17. Next screen is File location and size, we're not changing anything on this page, so press Create



← Create Virtual Hard Disk

File location and size

Please type the name of the new virtual hard disk file into the box below or click on the folder icon to select a different folder to create the file in.



Select the size of the virtual hard disk in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard disk.



18. Our virtual machine has been created! It's on the left-hand pane on the VirtualBox home screen.



Tools

▼ sec

-   **IntroAndroidSecurityVM**
 Powered Off
-   **Androidx86**
 Powered Off 
-  **IotGoat2**
 Powered Off
-  **OWASP Broken Authentication**
 Powered Off
-   **Parrot Security**
 Powered Off
-   **Mint Linux**
 Powered Off
-   **MobileShepherdVM3.2.3**
 Powered Off
-   **owaspSecurityShepherdVm_v3.1**
 Powered Off

19. Right-click on Androidx86 and select Settings

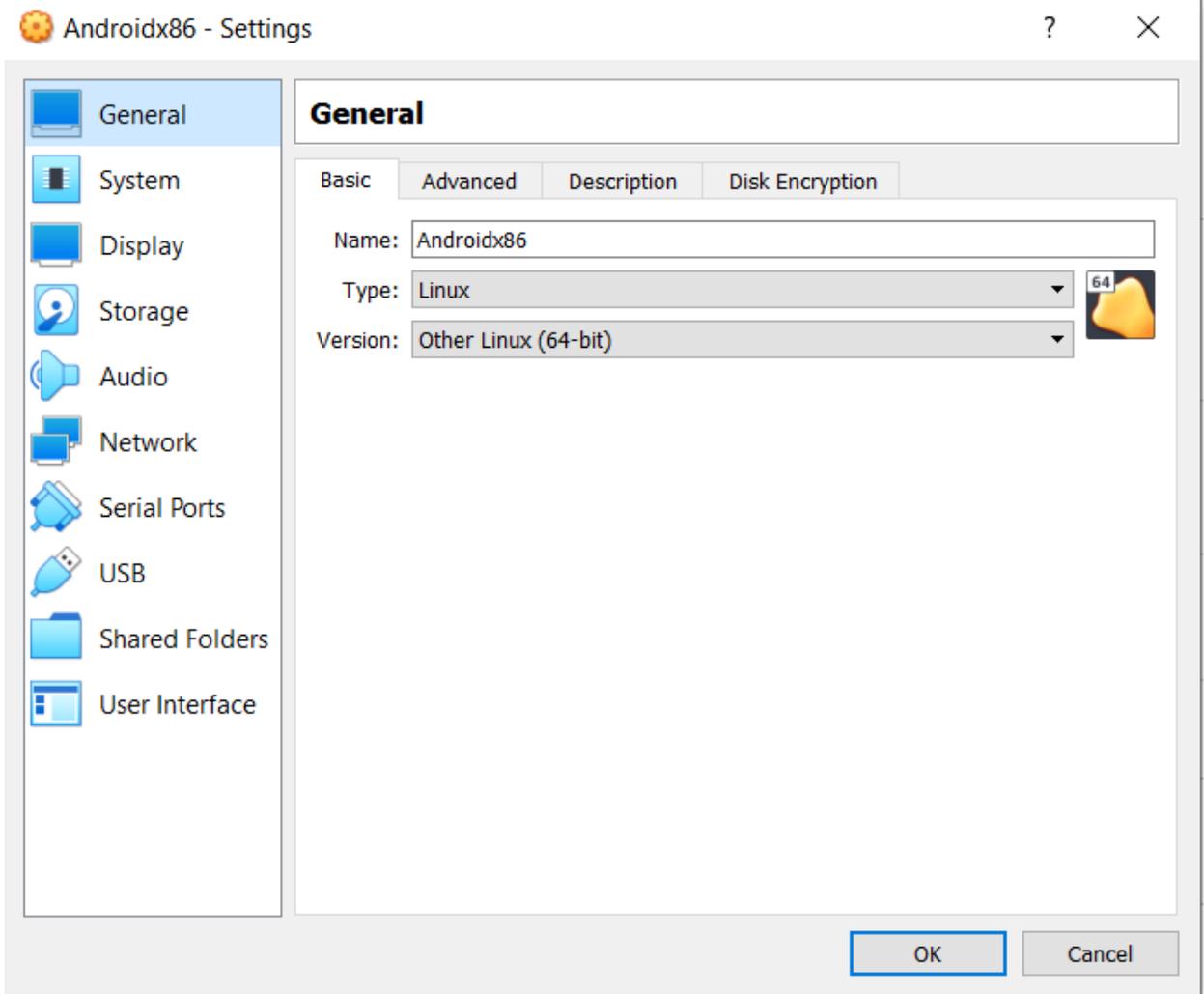


sec

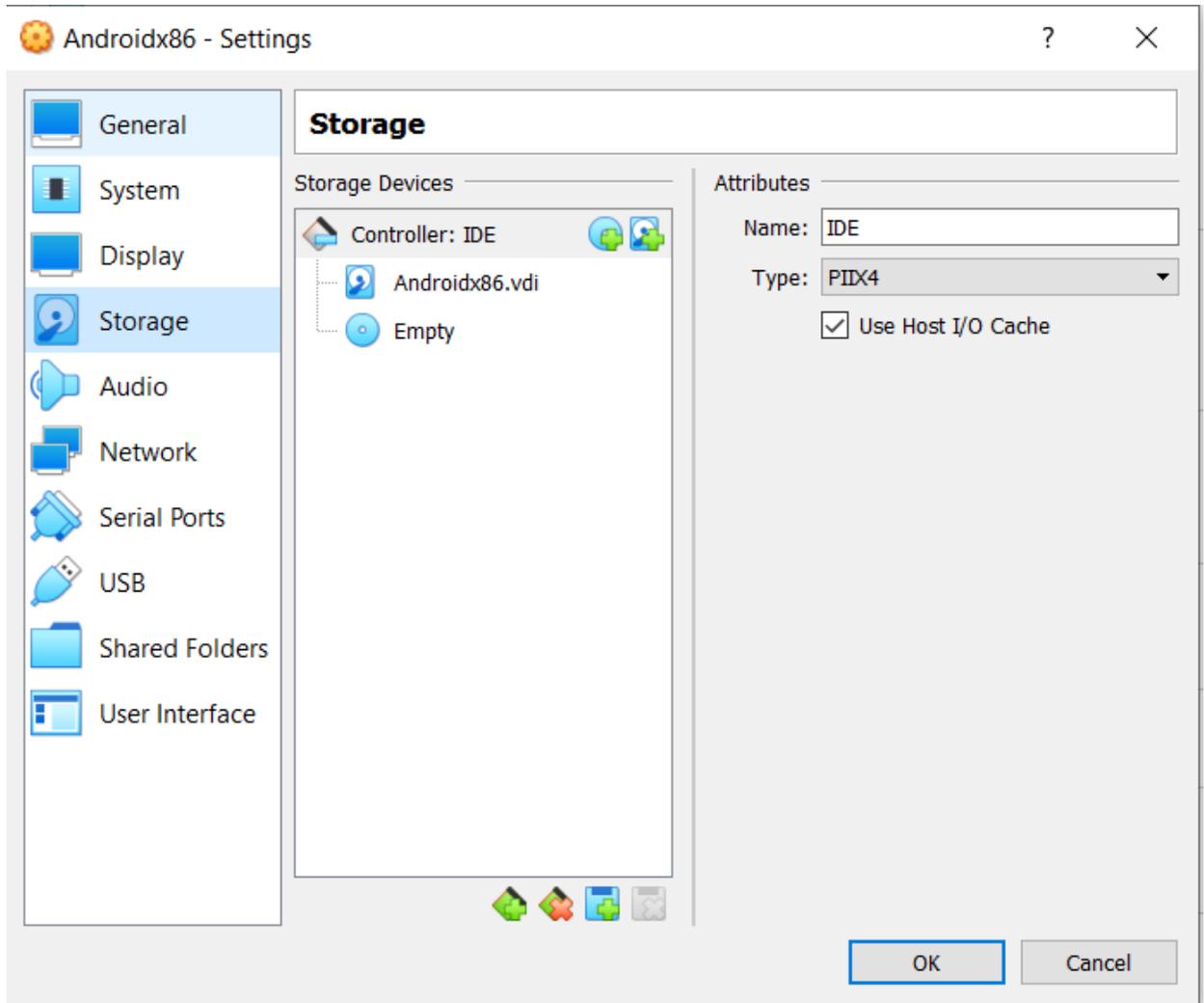
- 64 IntroAndroidSecurityVM Powered Off
- 64 Androidx86 Powered Off
- 2.6 IotGoat2 Powered Off
- OWASP Broken Authent Powered Off
- 64 Parrot Security Powered Off
- 64 Mint Linux Powered Off
- 64 MobileShepherdVM3.2.3 Powered Off
- 64 owaspSecurityShepher Powered Off

- Settings... Ctrl+S
- Clone... Ctrl+O
- Move...
- Export to OCI...
- Remove...
- Group
- Start ▶
- Pause
- Reset
- Close ▶
- Discard Saved State...
- Show Log... Ctrl+L
- Refresh
- Show in Explorer
- Create Shortcut on Desktop
- Sort
- Search Ctrl+F

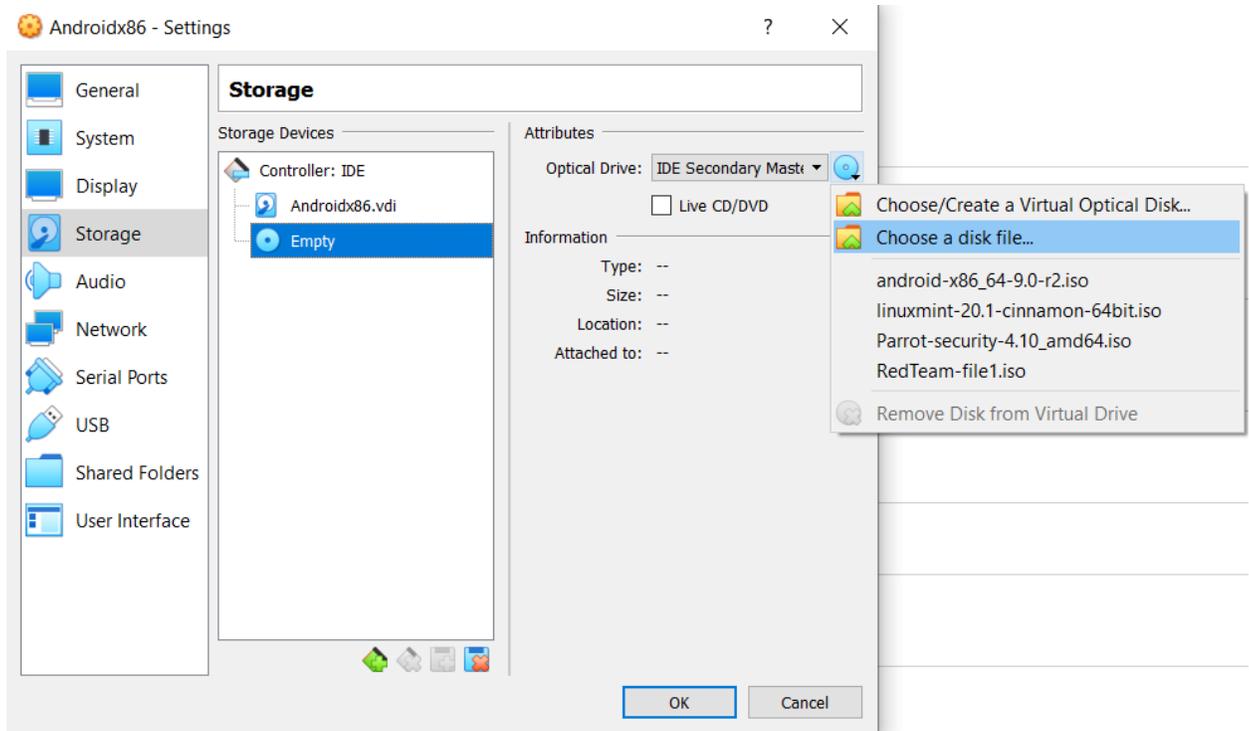
20. We're presented with the General Screen



21. Navigate to the Storage screen

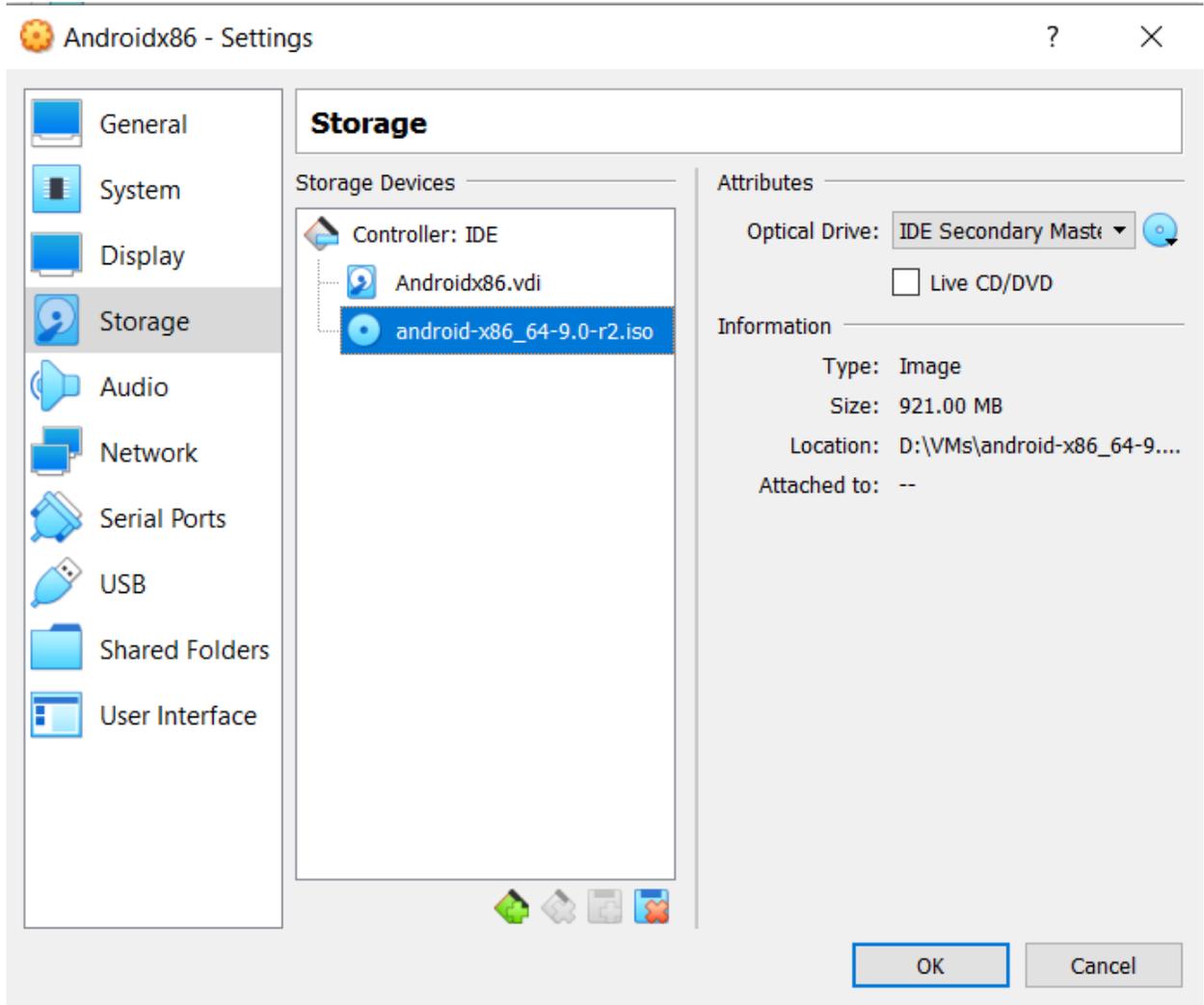


22. Click on the Empty CD and the CD on the right-side of the screen, and choose a disk file



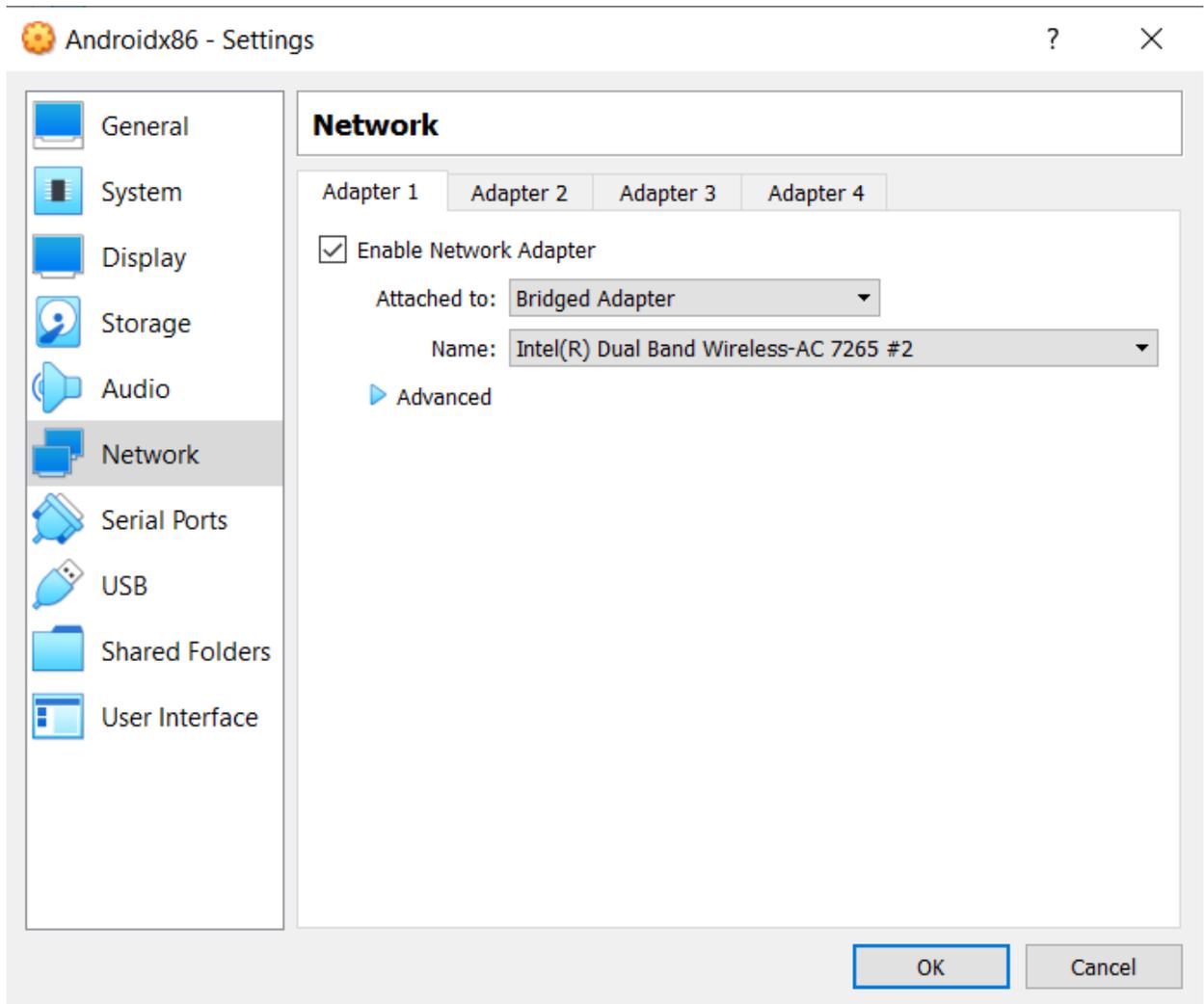
23. Navigate to where you saved the image file from step 6

24. After opening the file from 23, the image is now in our virtual machine



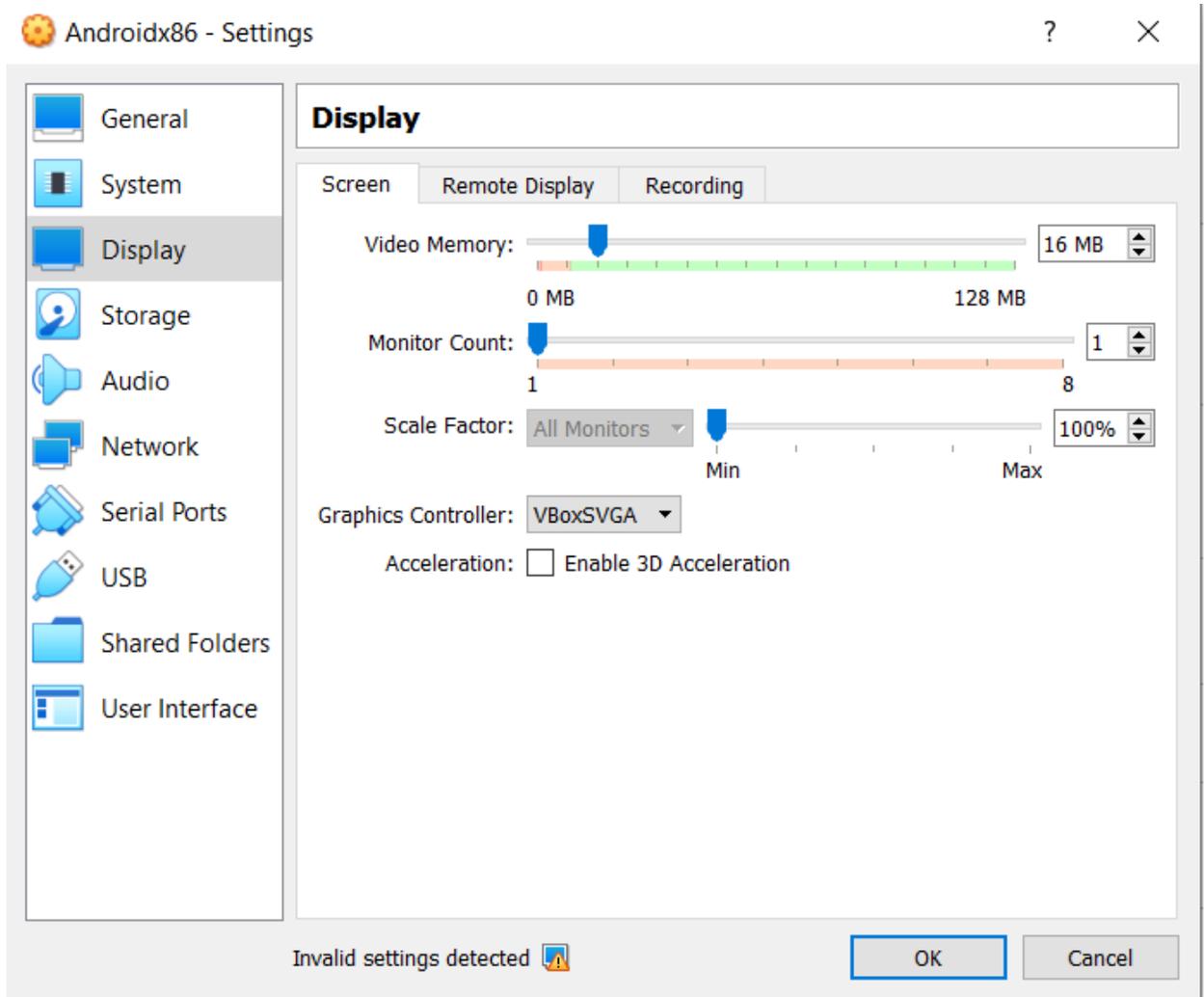
25. Click on Network on the left side

26. Change the Attached to on the right side from NAT to Bridged

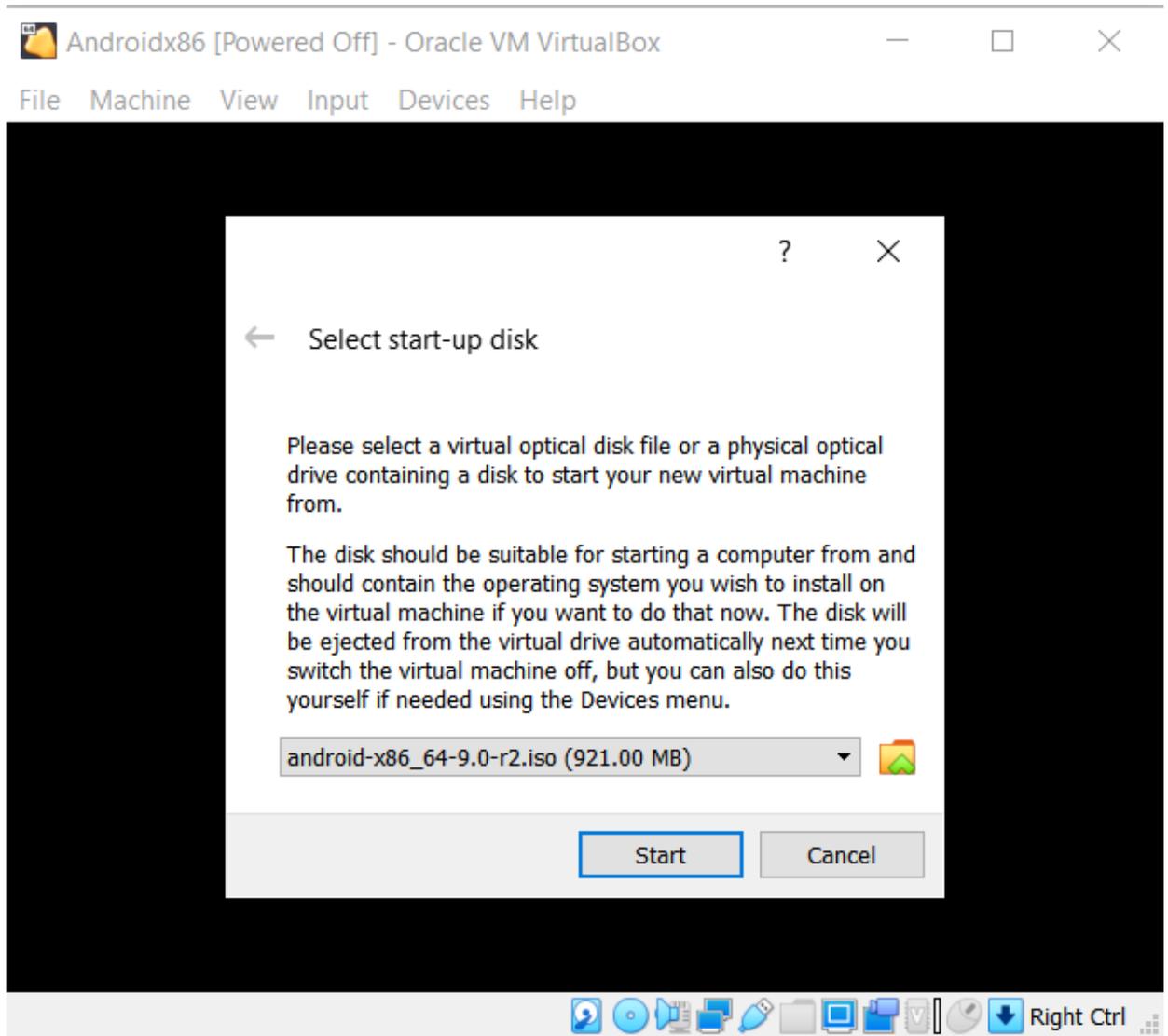


27. Go to the Display option

28. Under Graphics Controller, change from VMSGA, to VBoxSVGA, and press OK

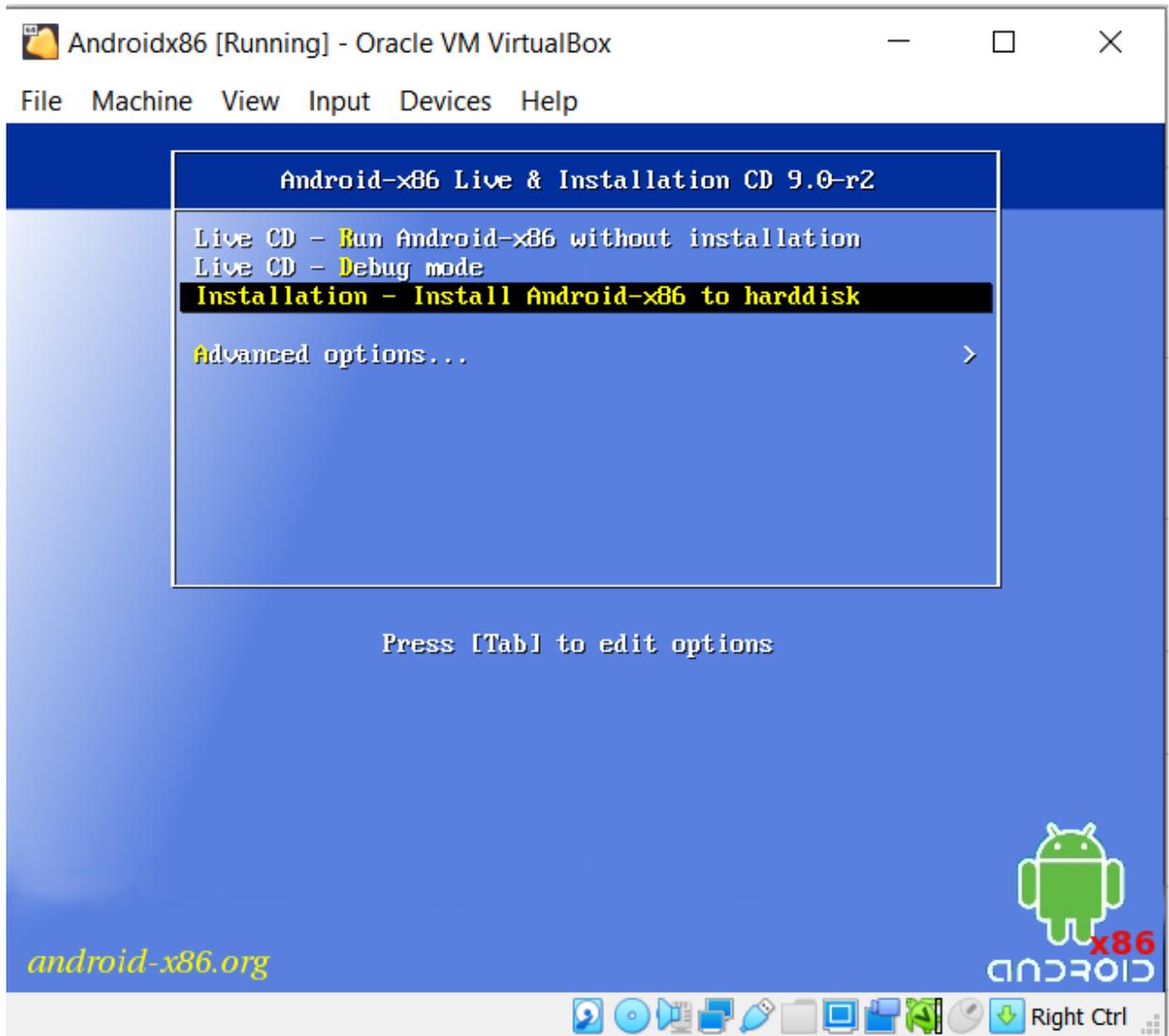


29. At this point we're back to the home screen of VirtualBox
30. Double click on the Androidx86 virtual machine
31. The virtual machine will start
32. If you're presented with a start disk screen, select the Androidx86 image that was download on step 6, and press Start

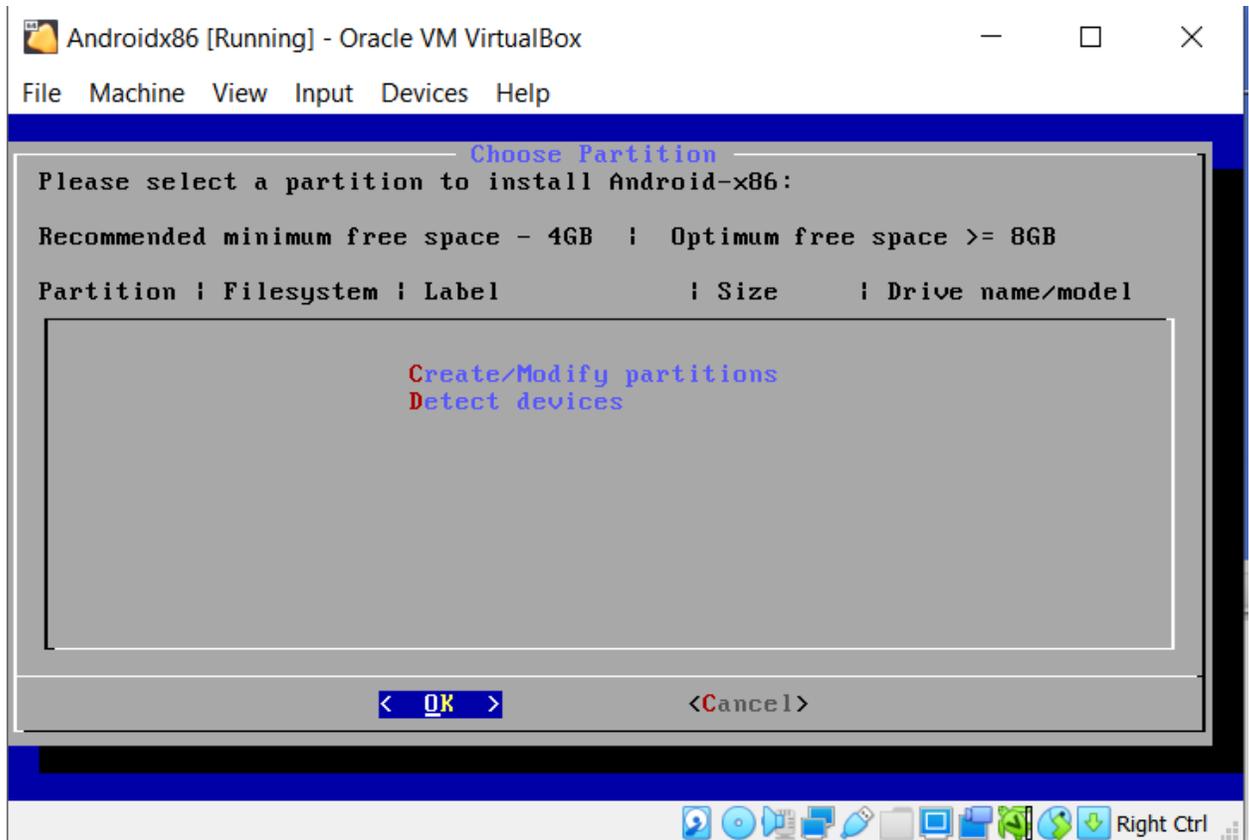


33. The virtual machine will continue to start

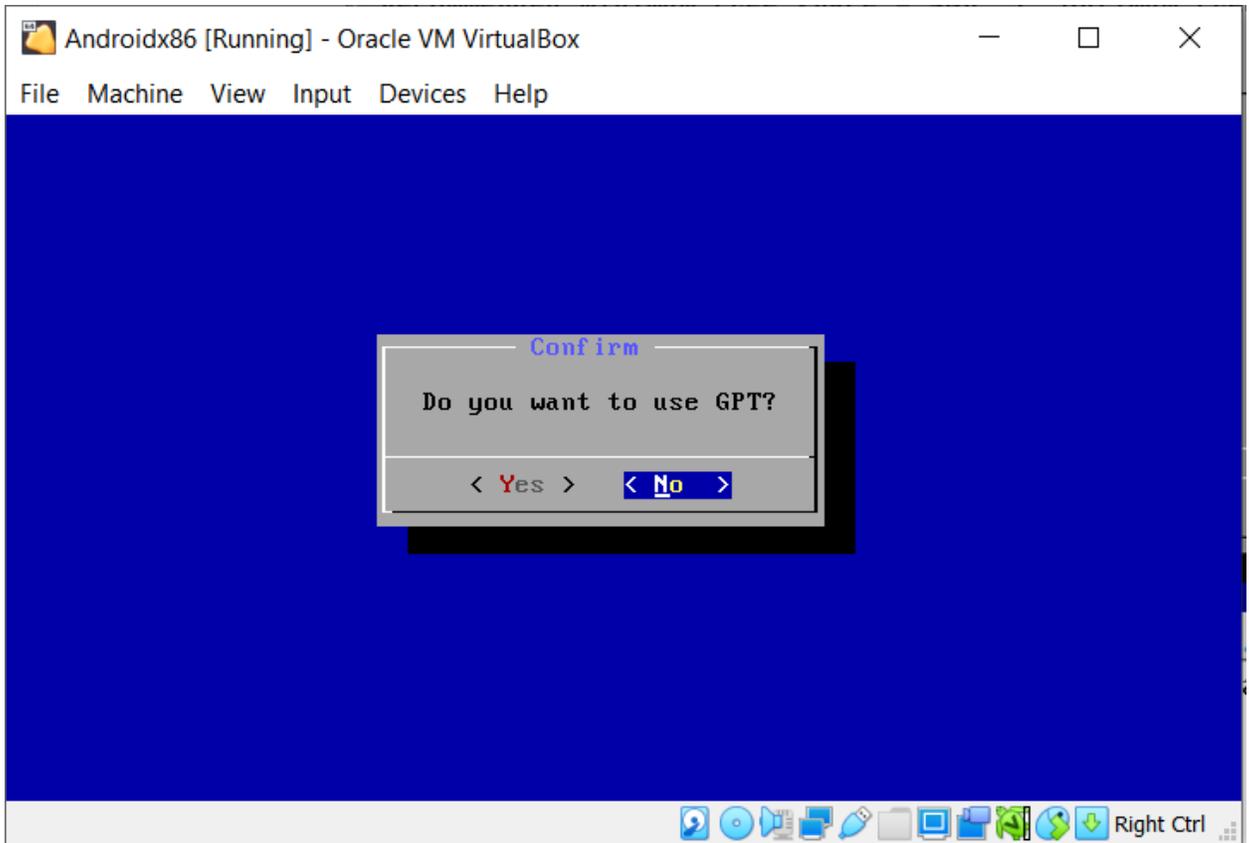
34. There's a menu that will display. Select the third option to install to hard disk and press Enter



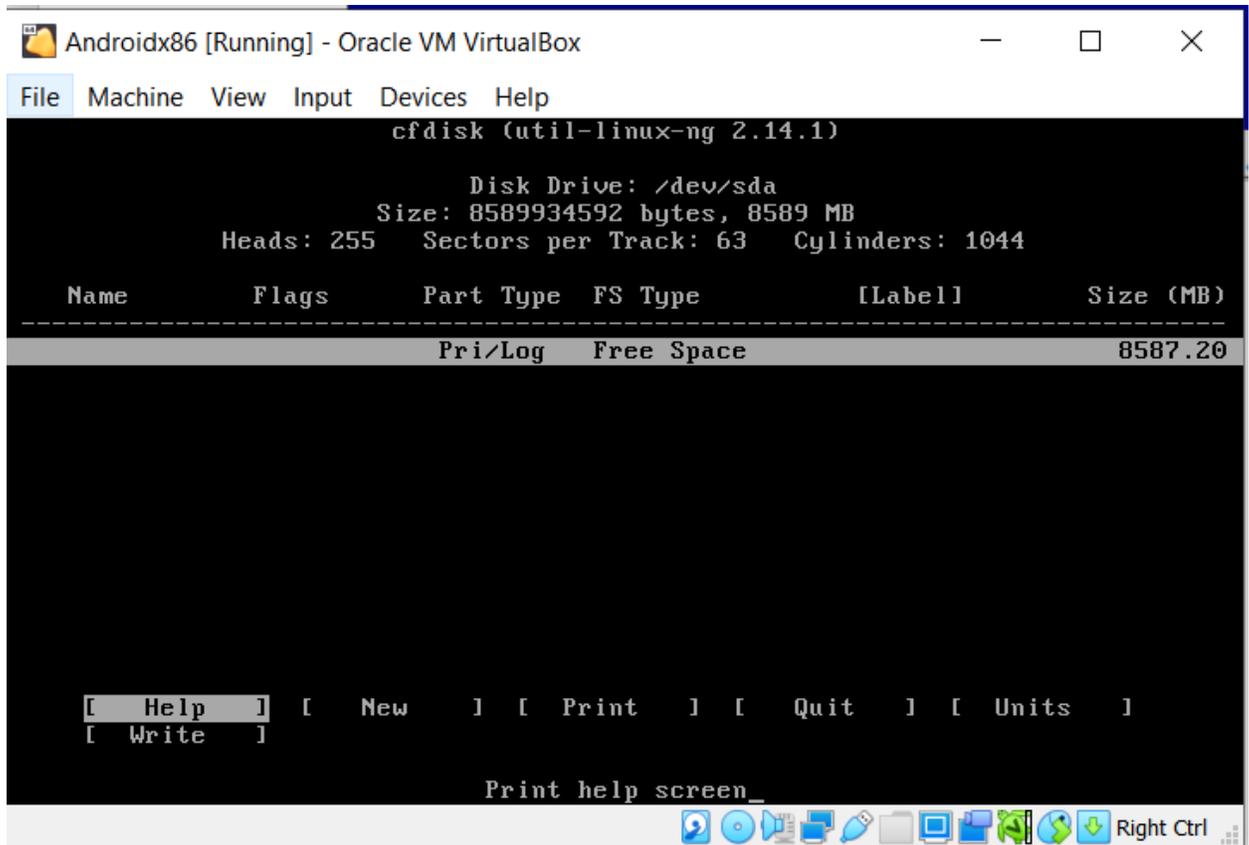
- 35. The virtual machine will keep loading
- 36. Next screen is choose partition screen



37. Use the up arrow or press c to select “create/modify partitions” and press Enter
38. Next screen asks if we want to use GPT, keep it as no and press Enter

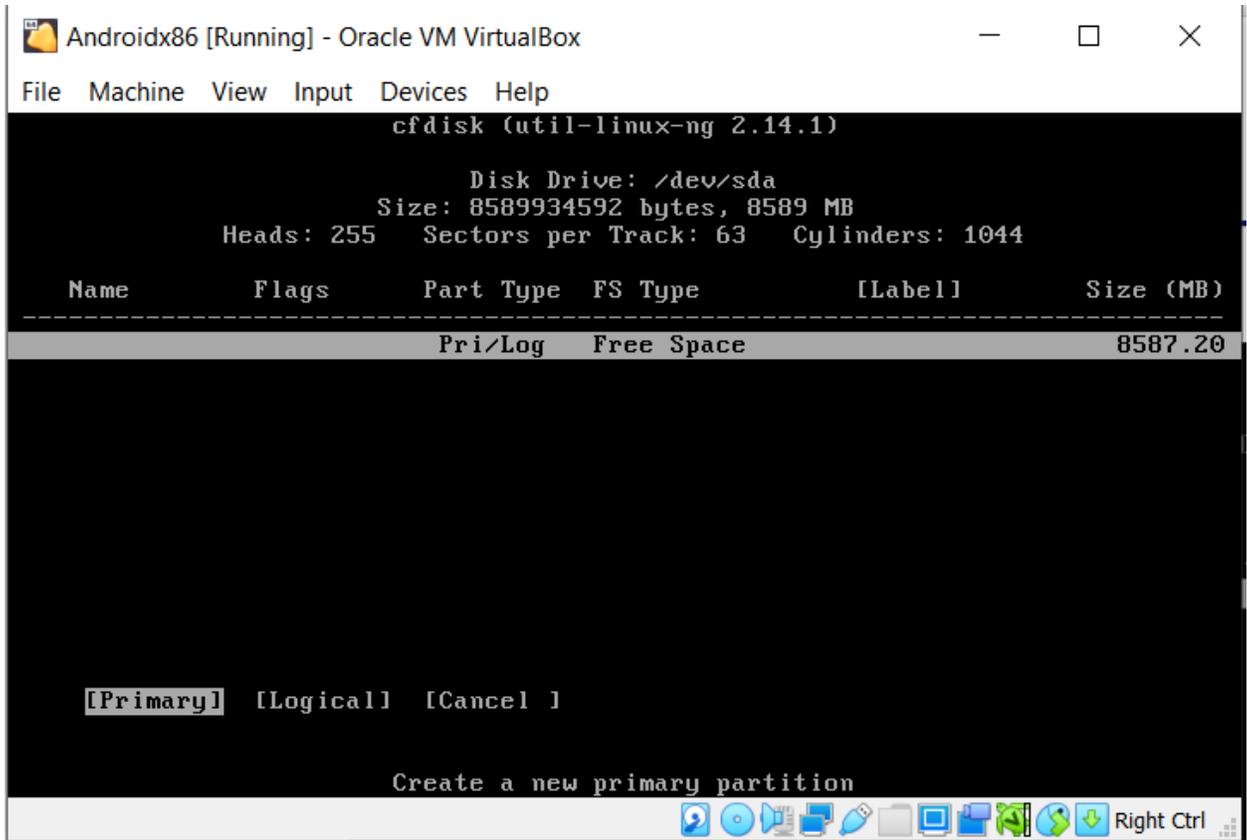


39. Next screen is to actually create the disk

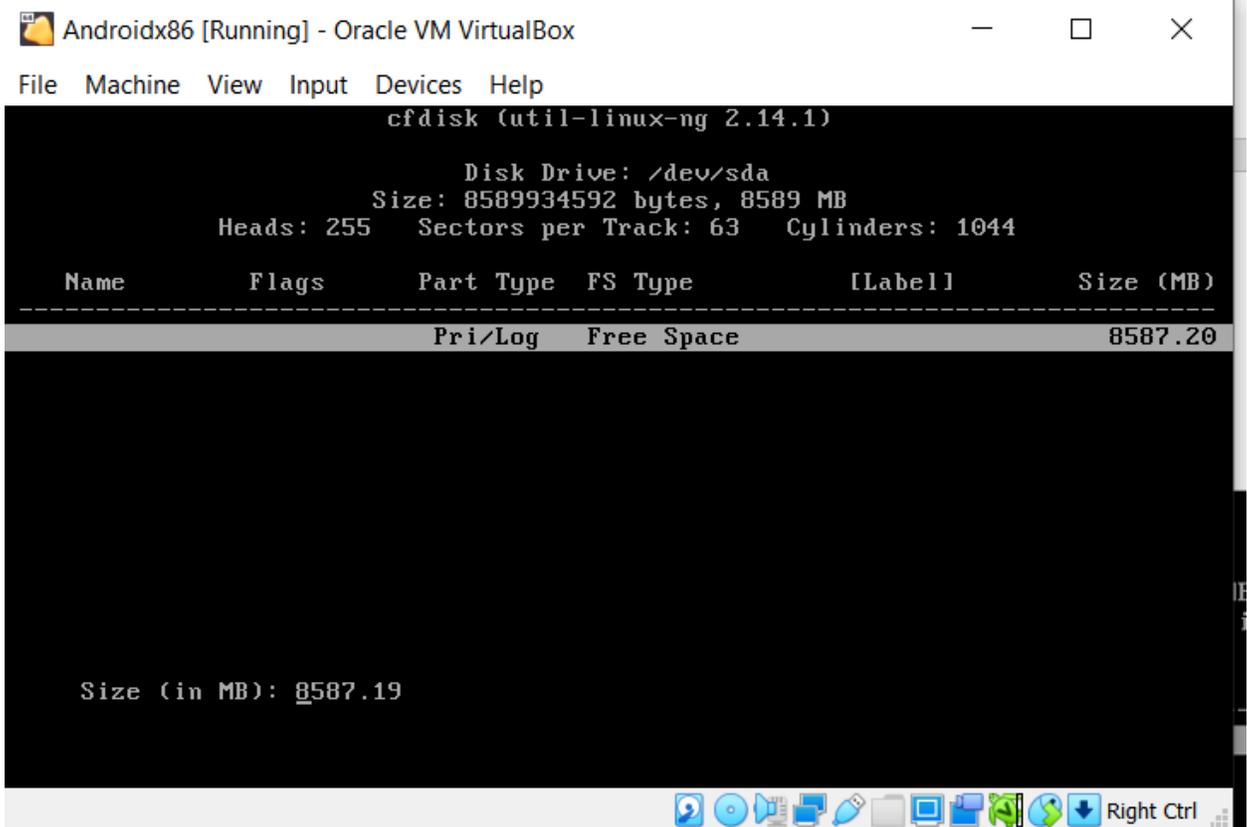


40. Press the right arrow to "New"

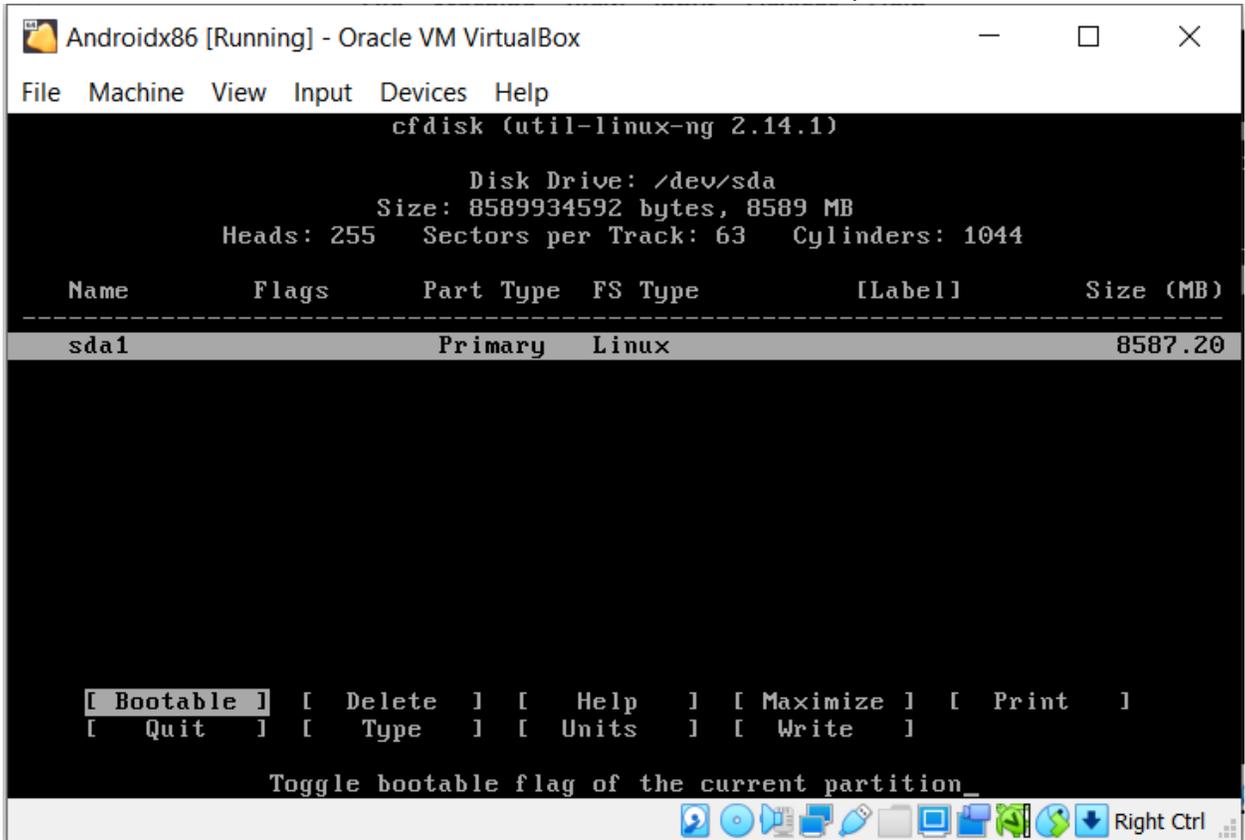
41. The next screen will have the selection on Primary. We're not going to change that, so press Enter



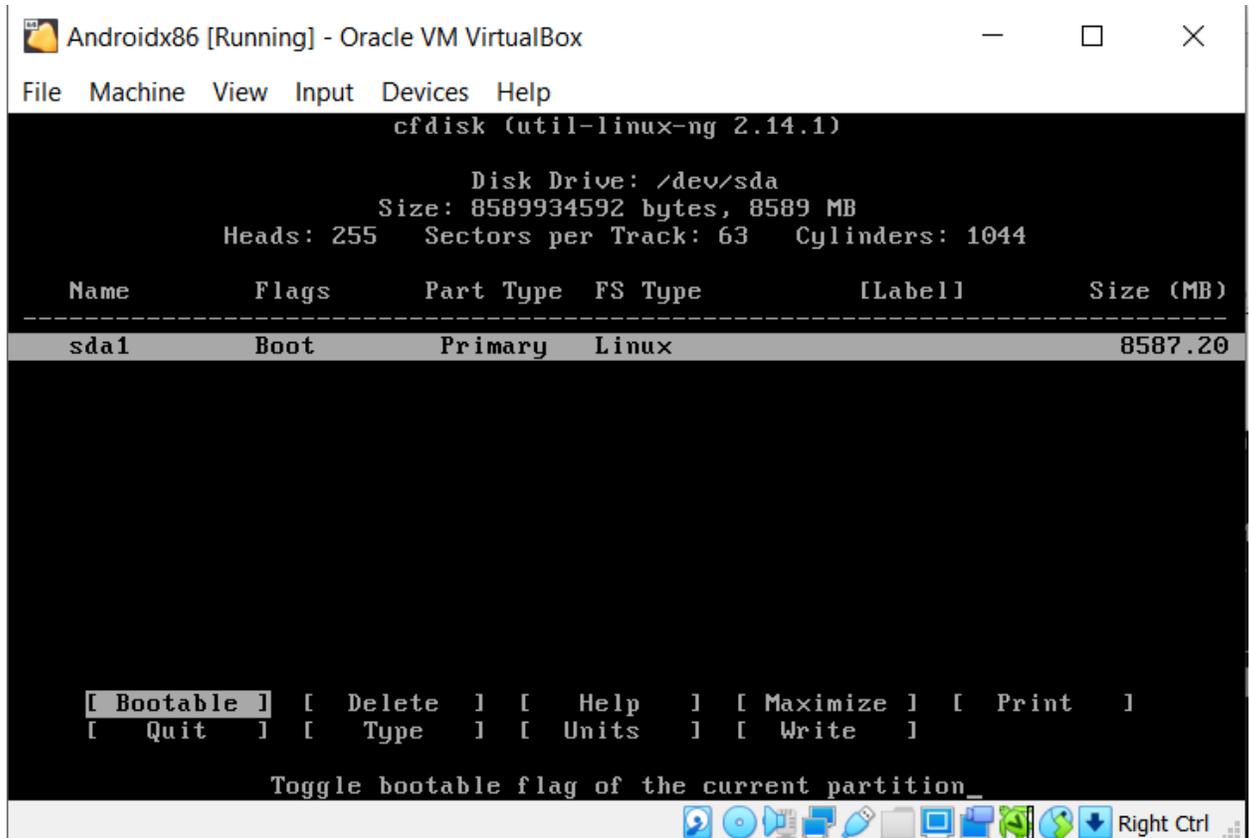
42. Next the size will appear we're not changing that so press Enter.



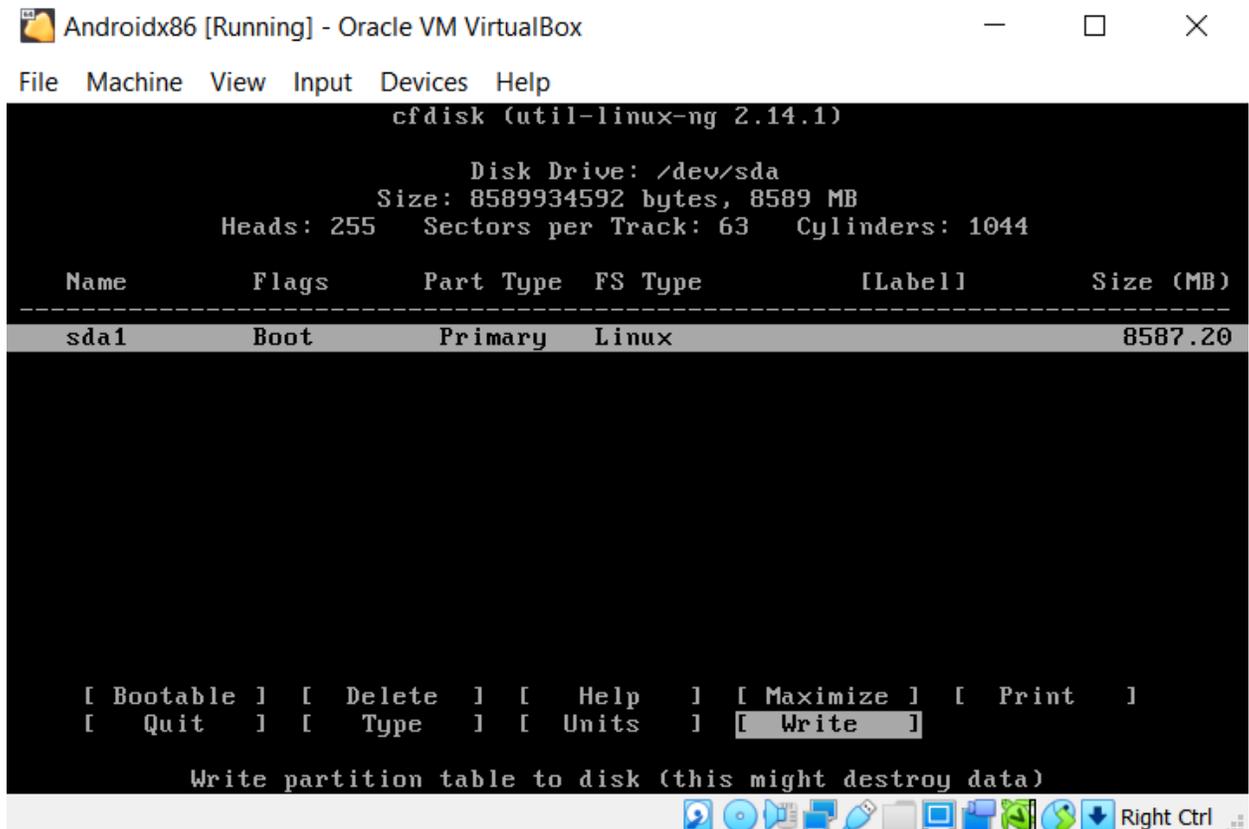
43. We're back to the disk drive screen. The selection is on Bootable, press Enter



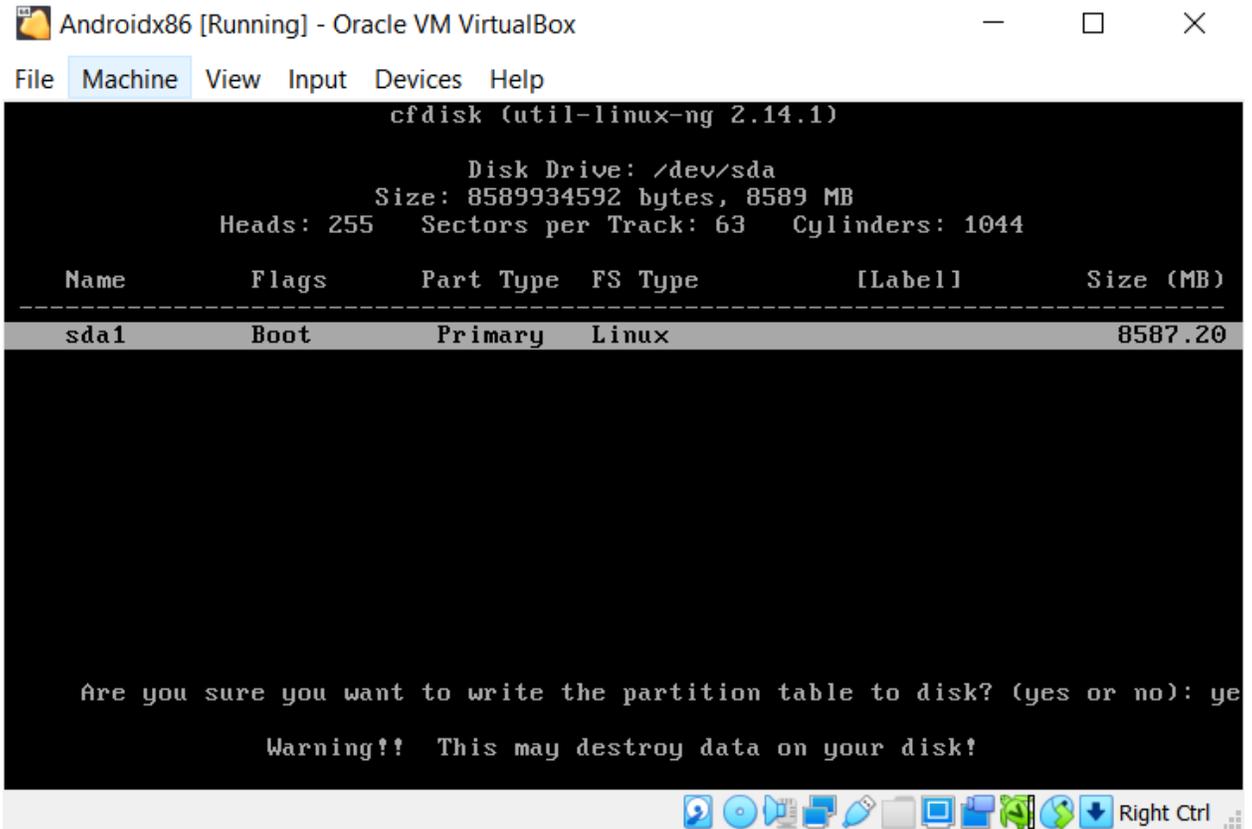
44. The partition now has the flag set to boot



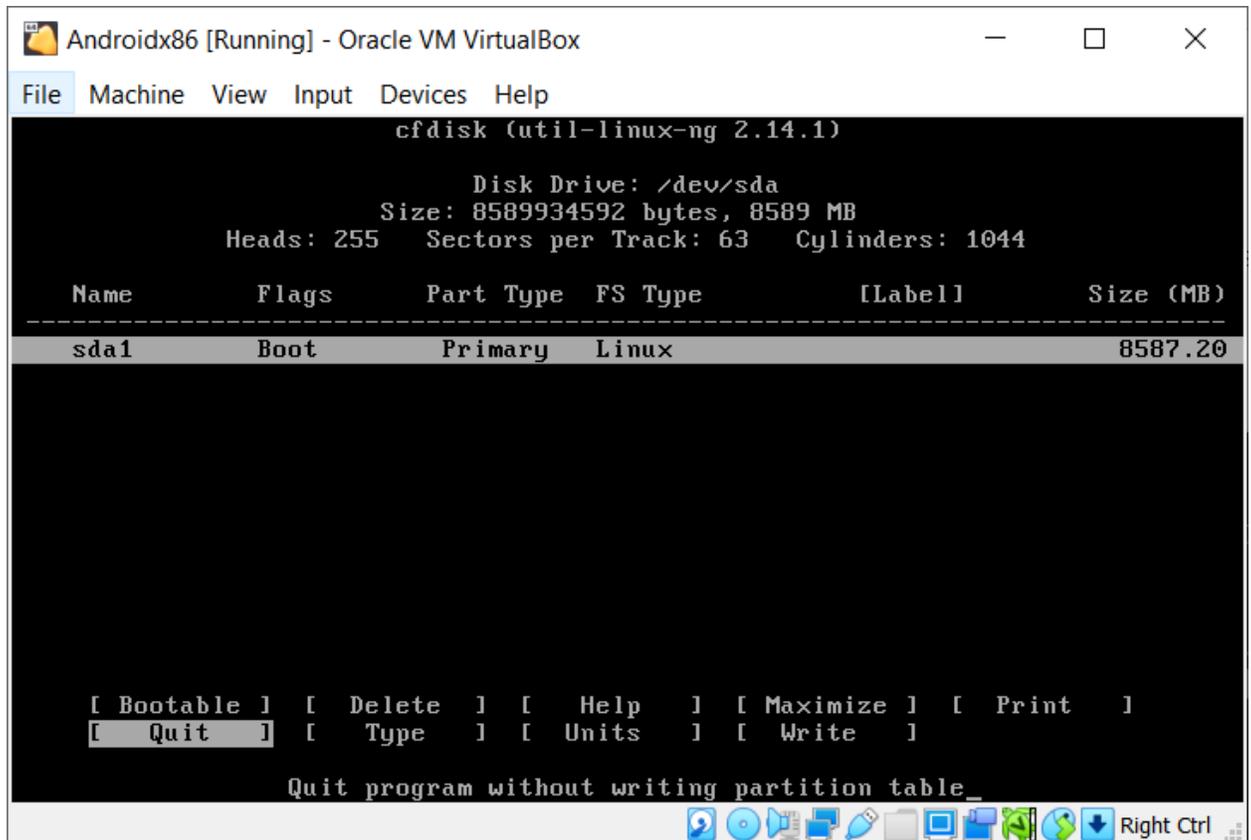
45. Use the right arrow to go to Write and press Enter



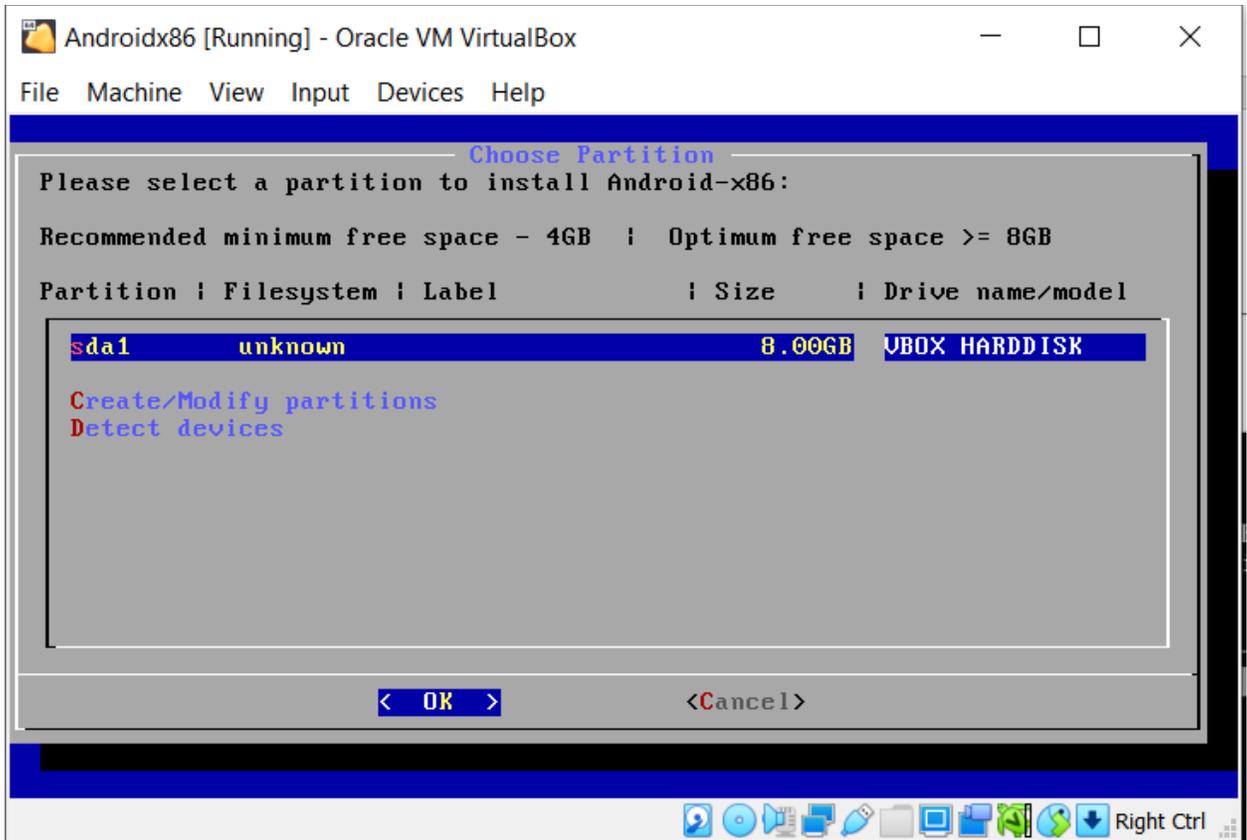
46. At the bottom of the screen there's a question that asks if you want to write the partition to disk. Type yes and press Enter.



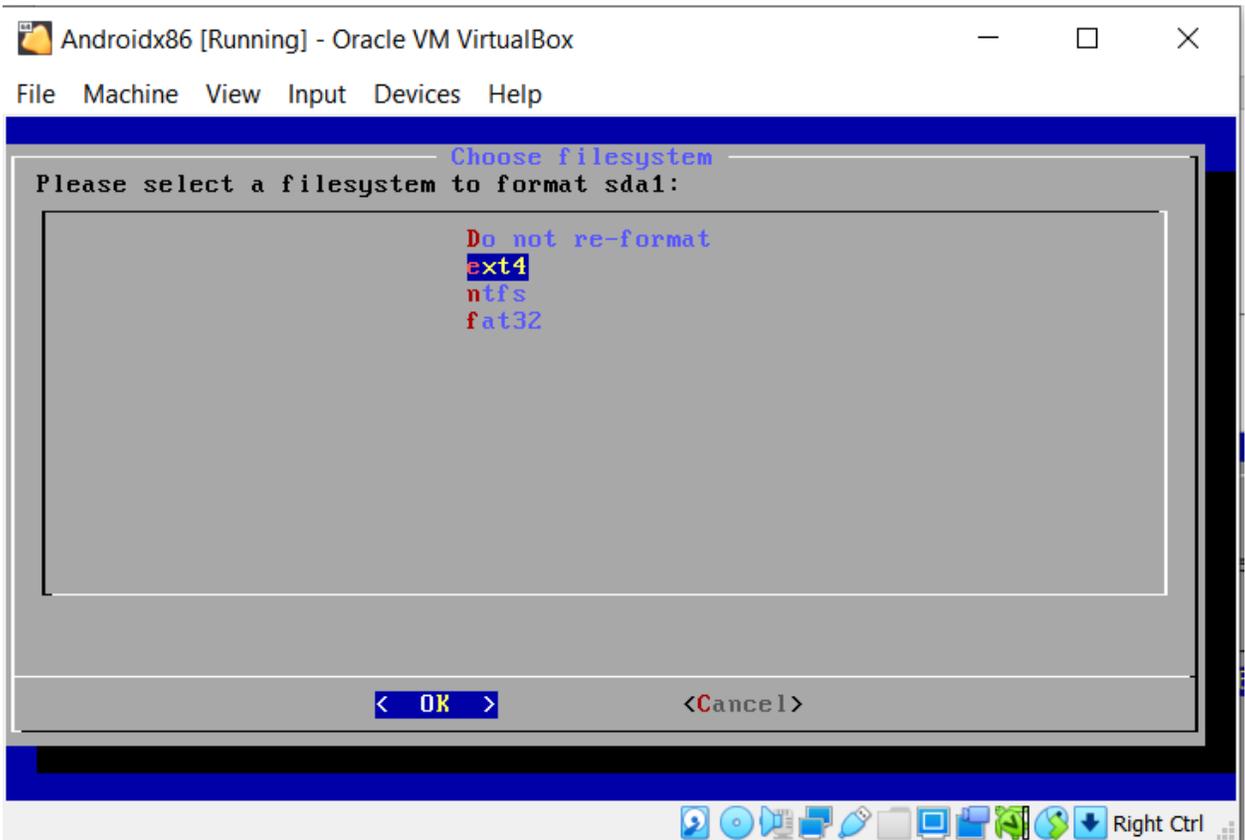
47. Use the right arrow to move to the Quit selection and press Enter.



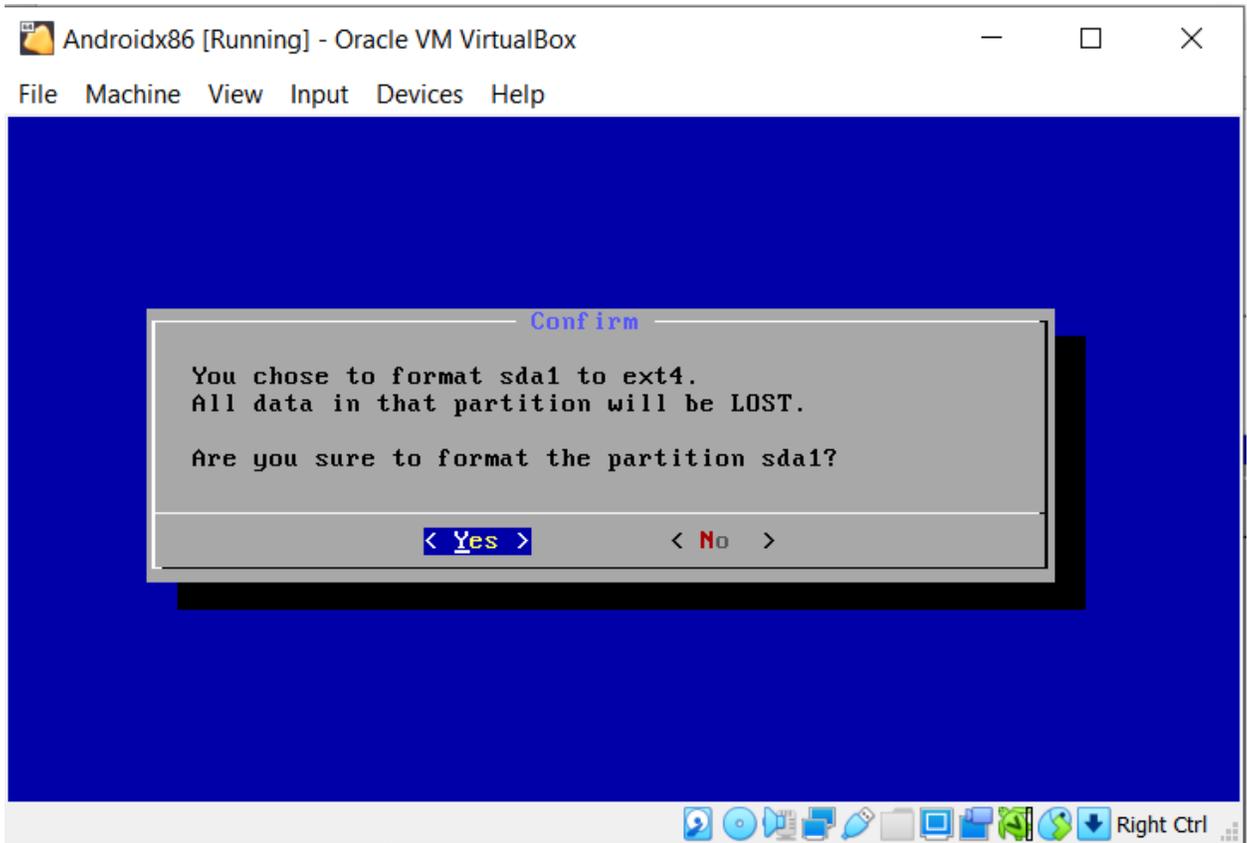
48. We're back to the choose partition screen. Press Enter, as our disk is now completed



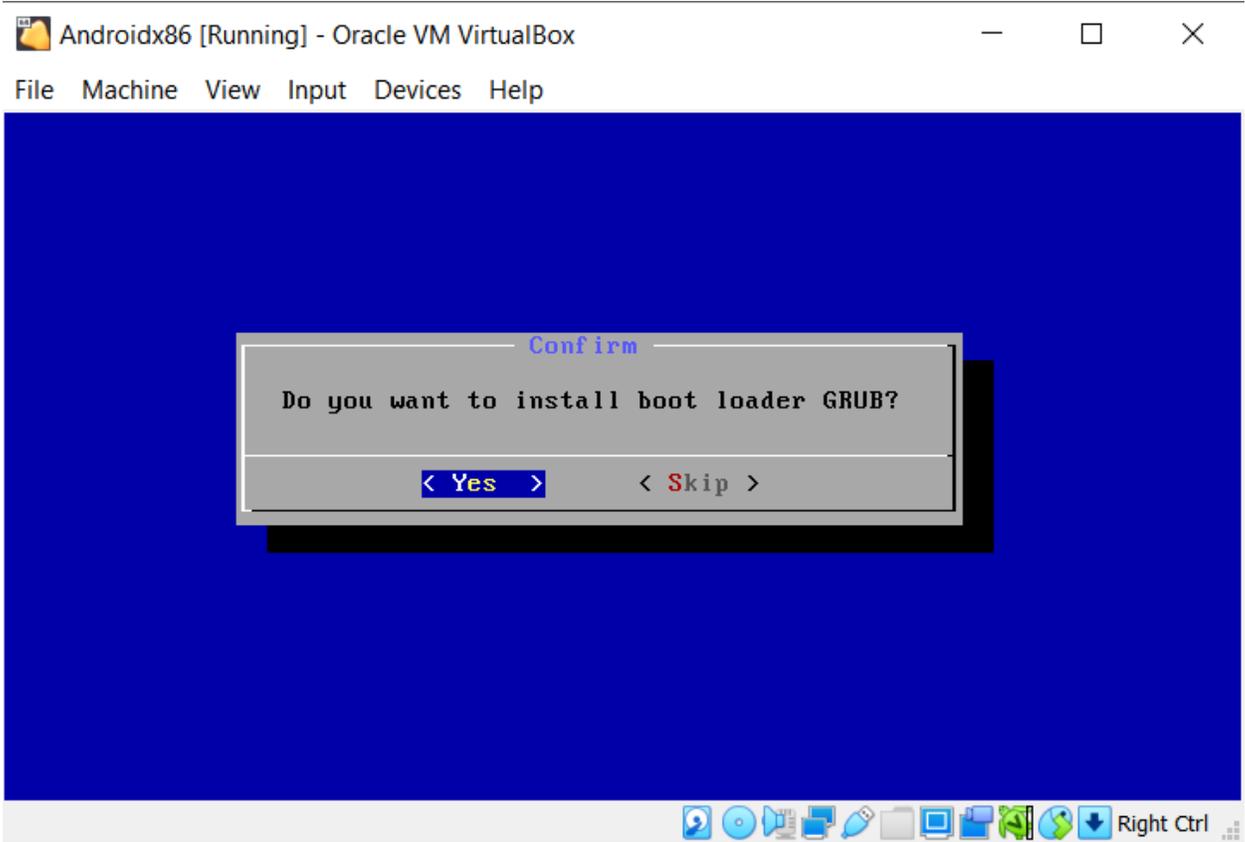
49. We're at the filesystem screen, we want to use the ext4 file system. Use the down arrow to move to that option and press Enter.



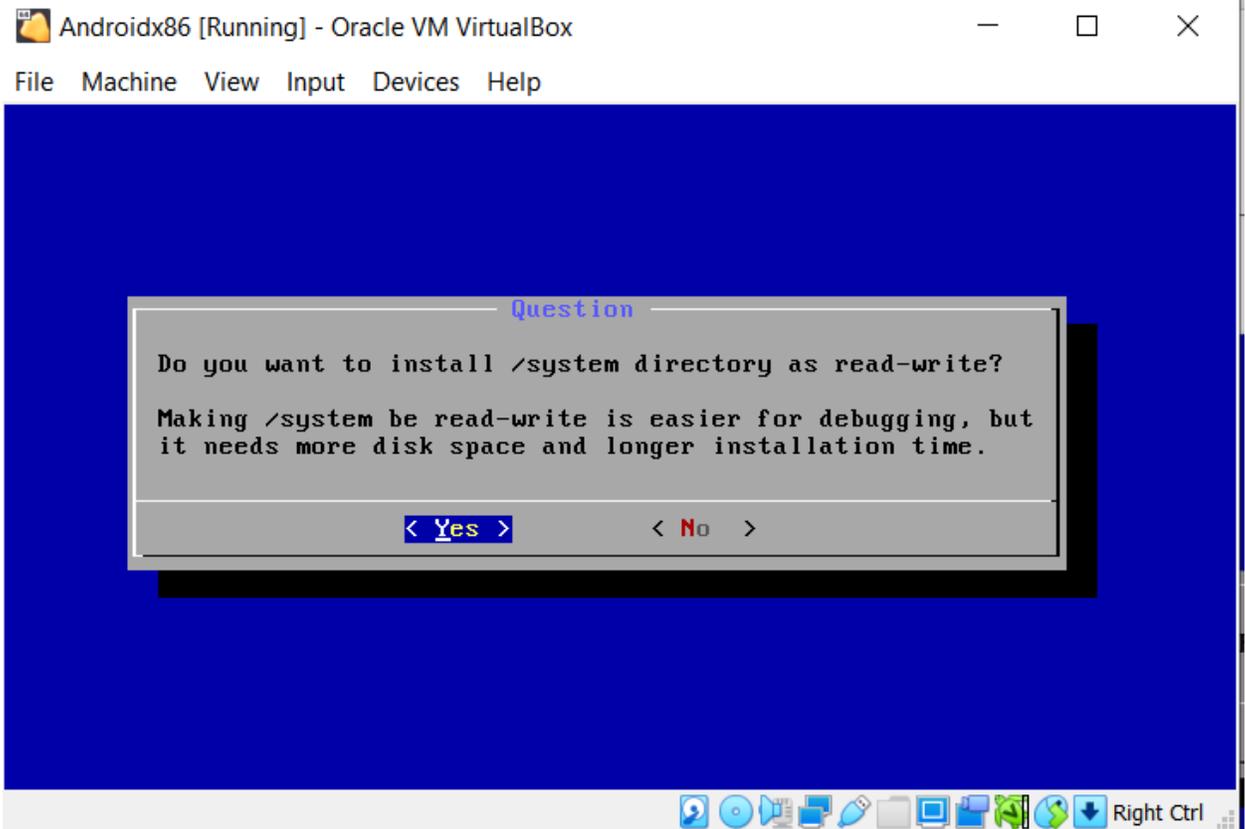
50. We're presented with the confirmation screen. Move the left arrow to select Yes and press Enter.



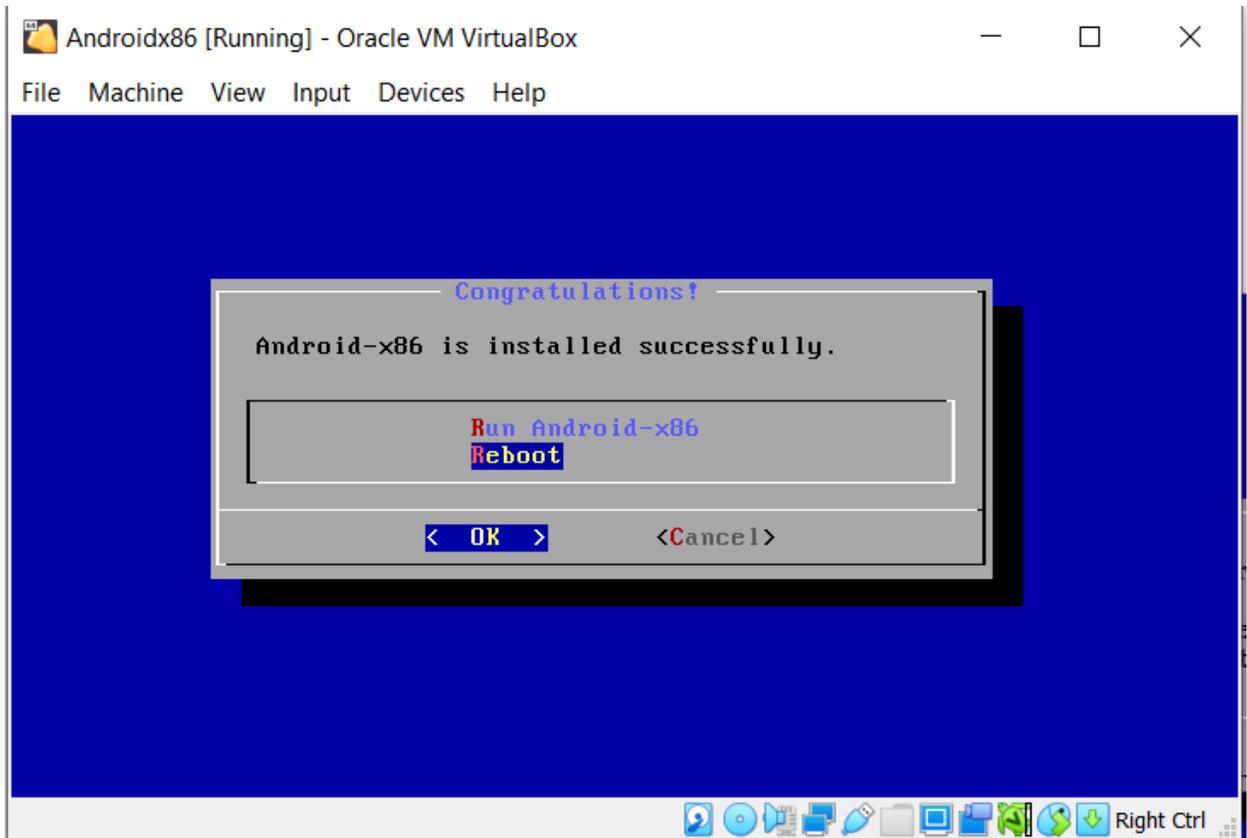
51. The hard disk now formatted with the ext4 file system.
52. Next screen asks if we want to install the GRUB, move the left arrow to select Yes, and press Enter.



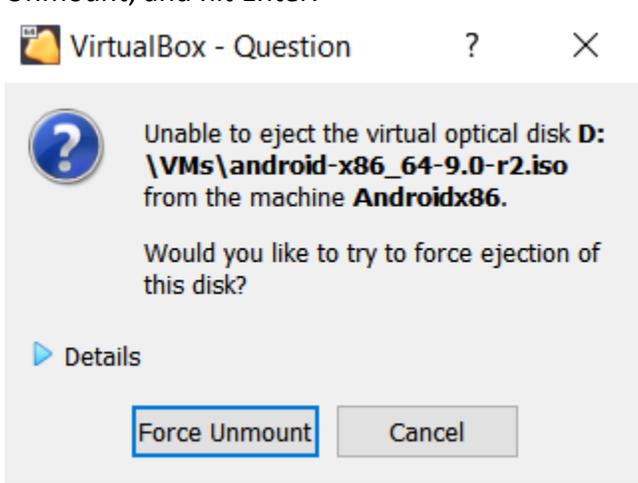
53. The following screen will ask if we want to make the system read-writeable? We're going to move the left arrow to Yes and press Enter. Note: in actually we do not want to do this, but for the class we will.



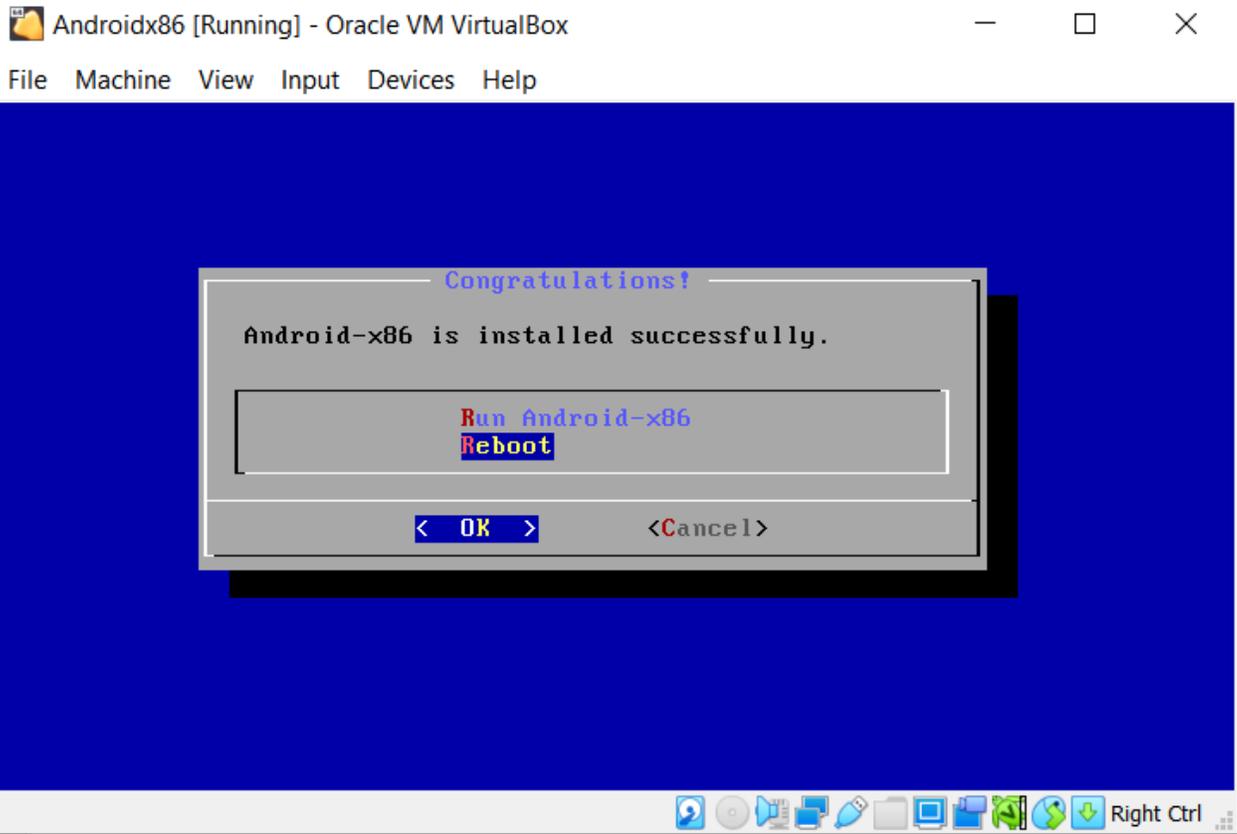
54. We're presented with a screen that Androidx86 was successfully installed! But we're not done. It's asking if we want to start Androidx86 or reboot. We're going to select reboot.



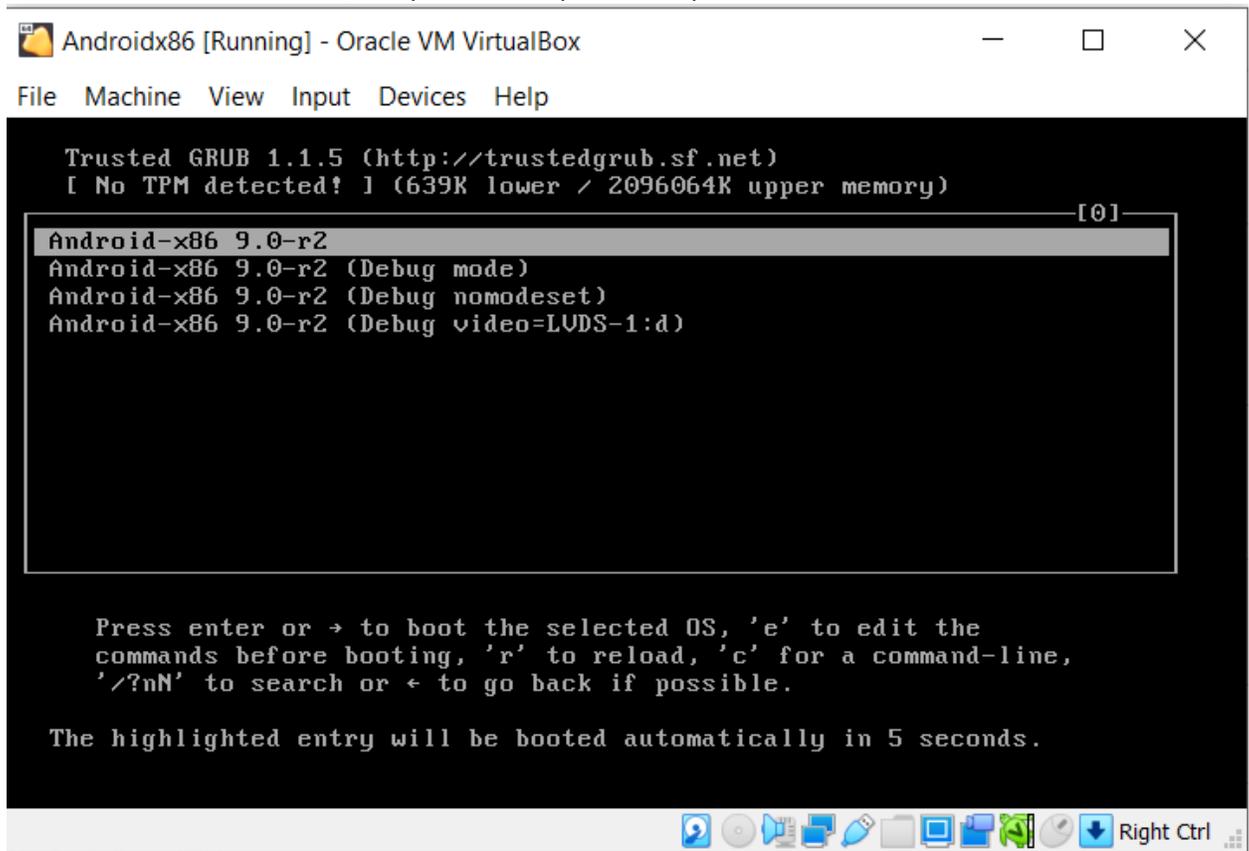
55. Before we press Enter, we need to remove the image, or else the installation will start again. To do this we will right-click on the CD at the bottom, and select "remove disk from virtual disk".
56. A confirmation box will come that asks if we want to eject the disk. Select the Force Unmount, and hit Enter.



57. You will notice the CD is now greyed out which let us know the image has been ejected
58. Select the Reboot and press Enter

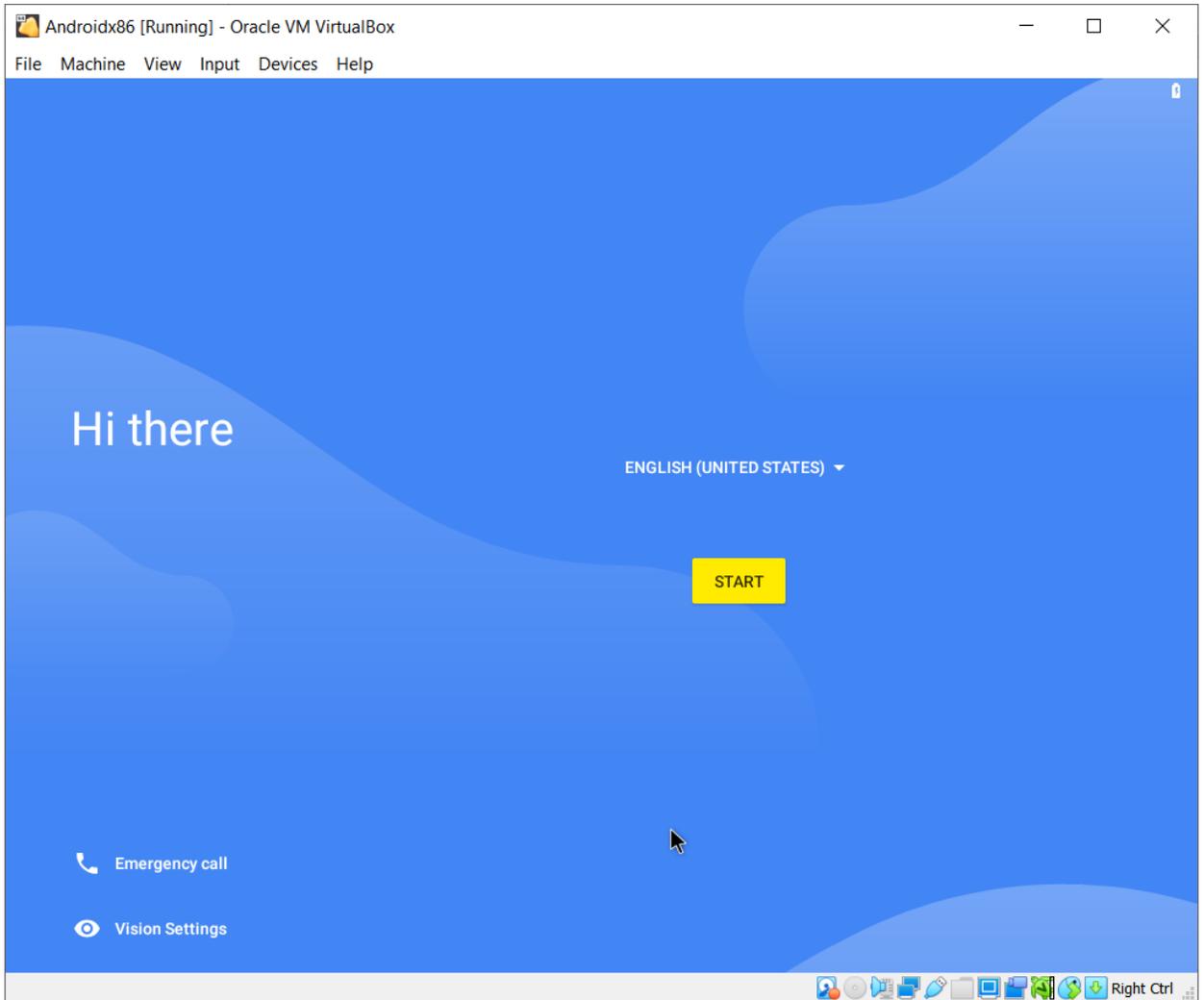


59. After the machine reboots, keep the first option and press Enter



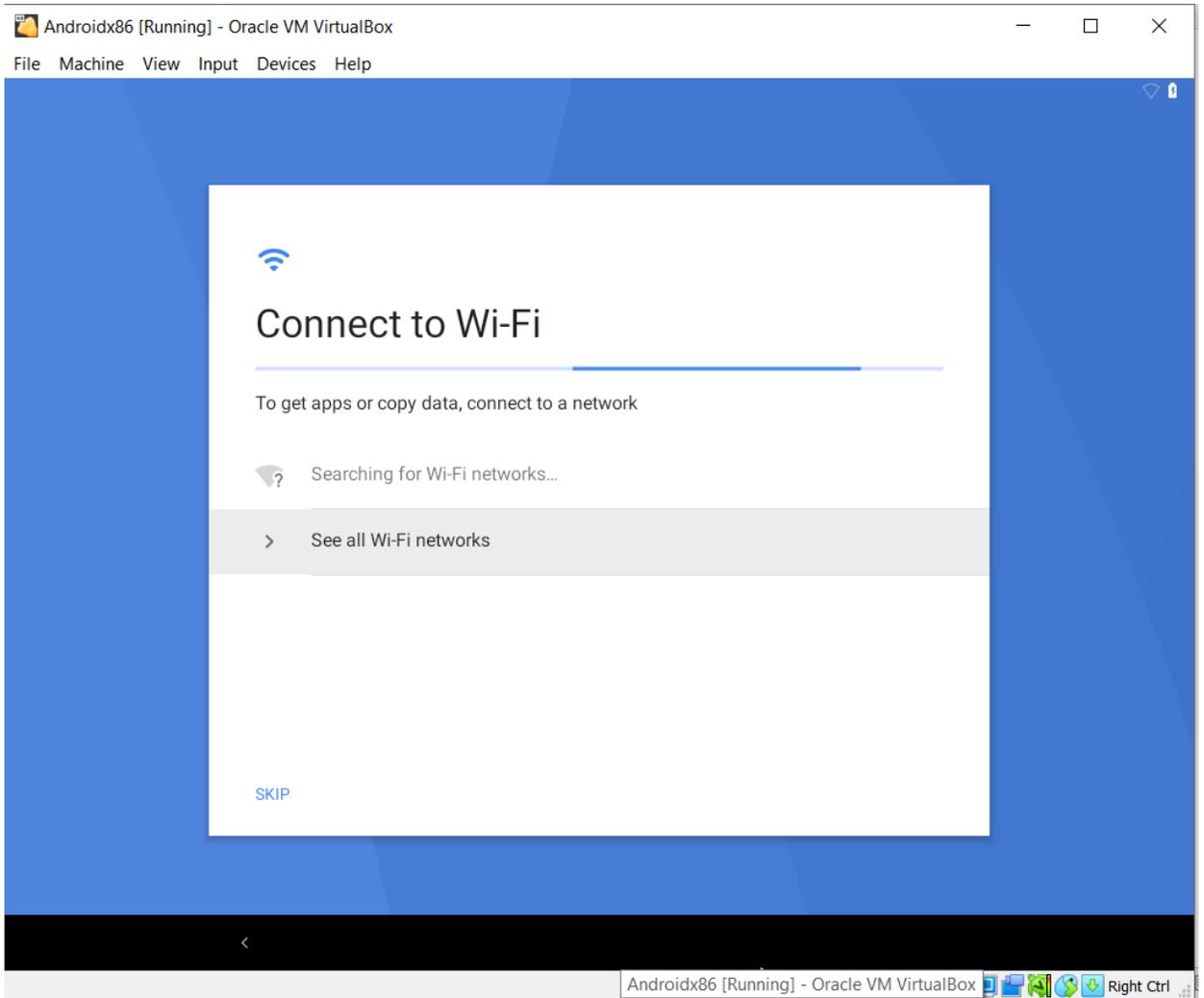
60. The machine will keep booting and you will be presented with a console. Do not press anything as the Android screen will appear

61. After a while the first step of configuring your Android emulator will appear

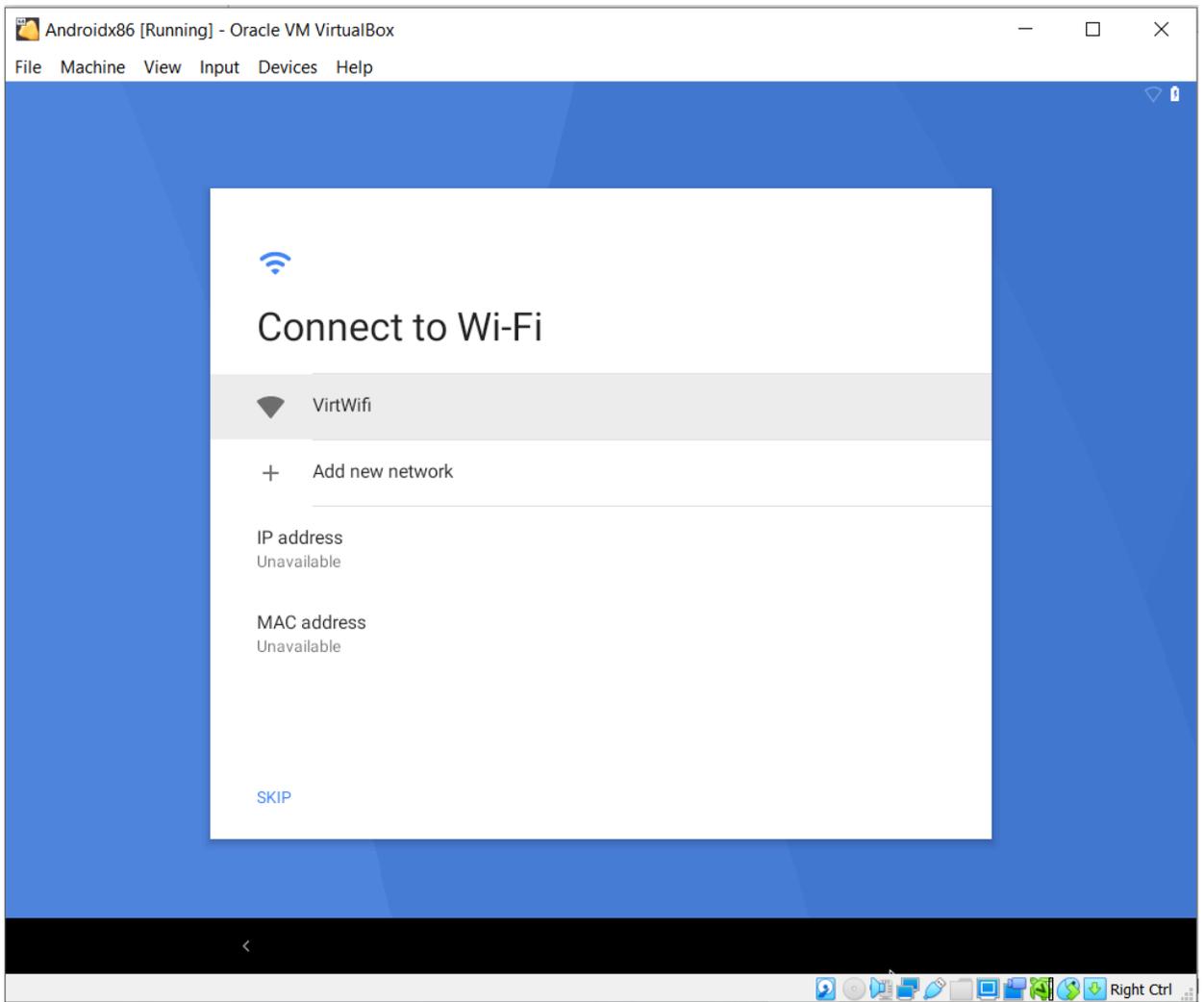


62. Click the Start button

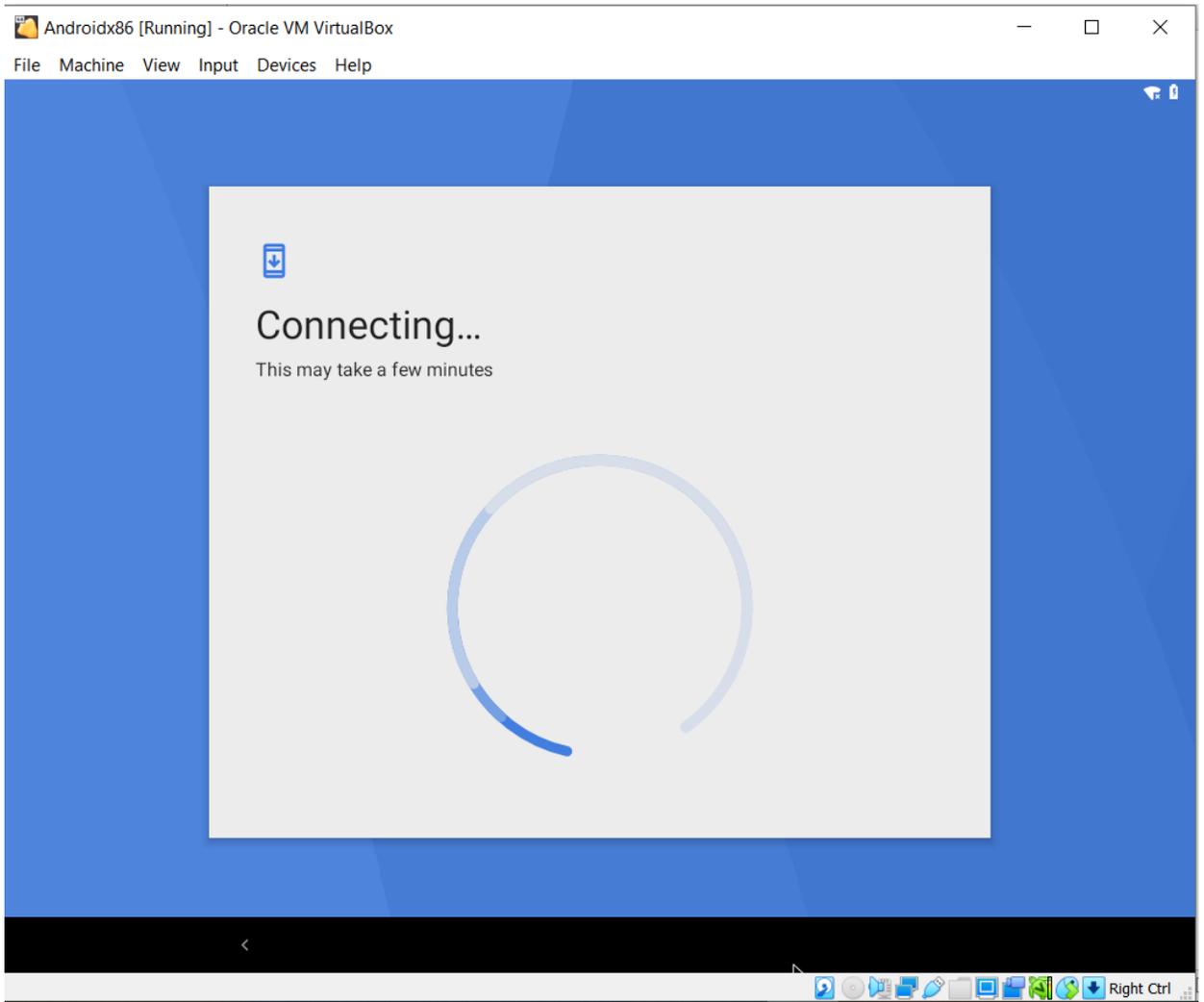
63. The next phase will try to connect to the internet let the emulator find the available networks



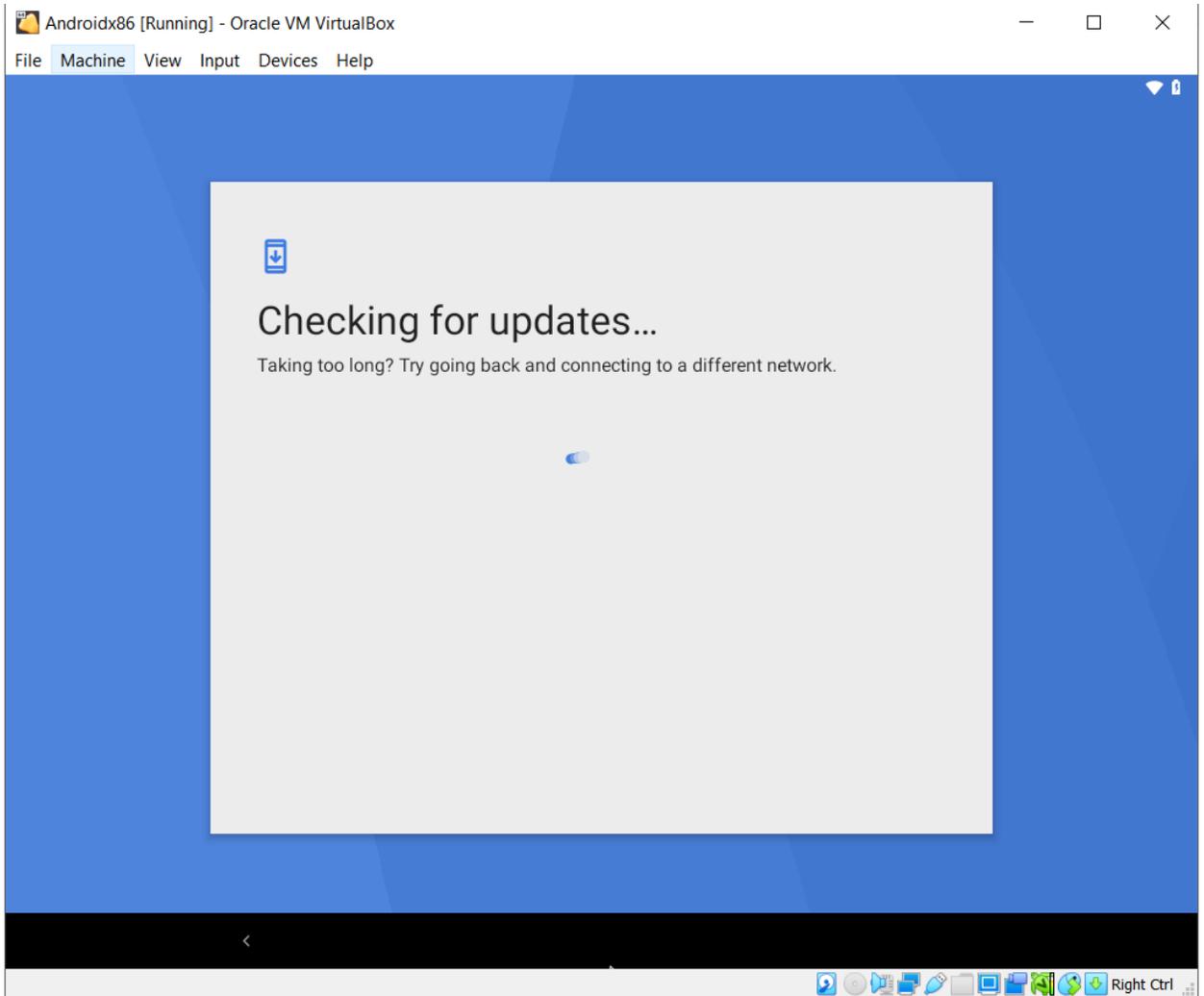
64. The available network is VirtWifi, this is what we want.



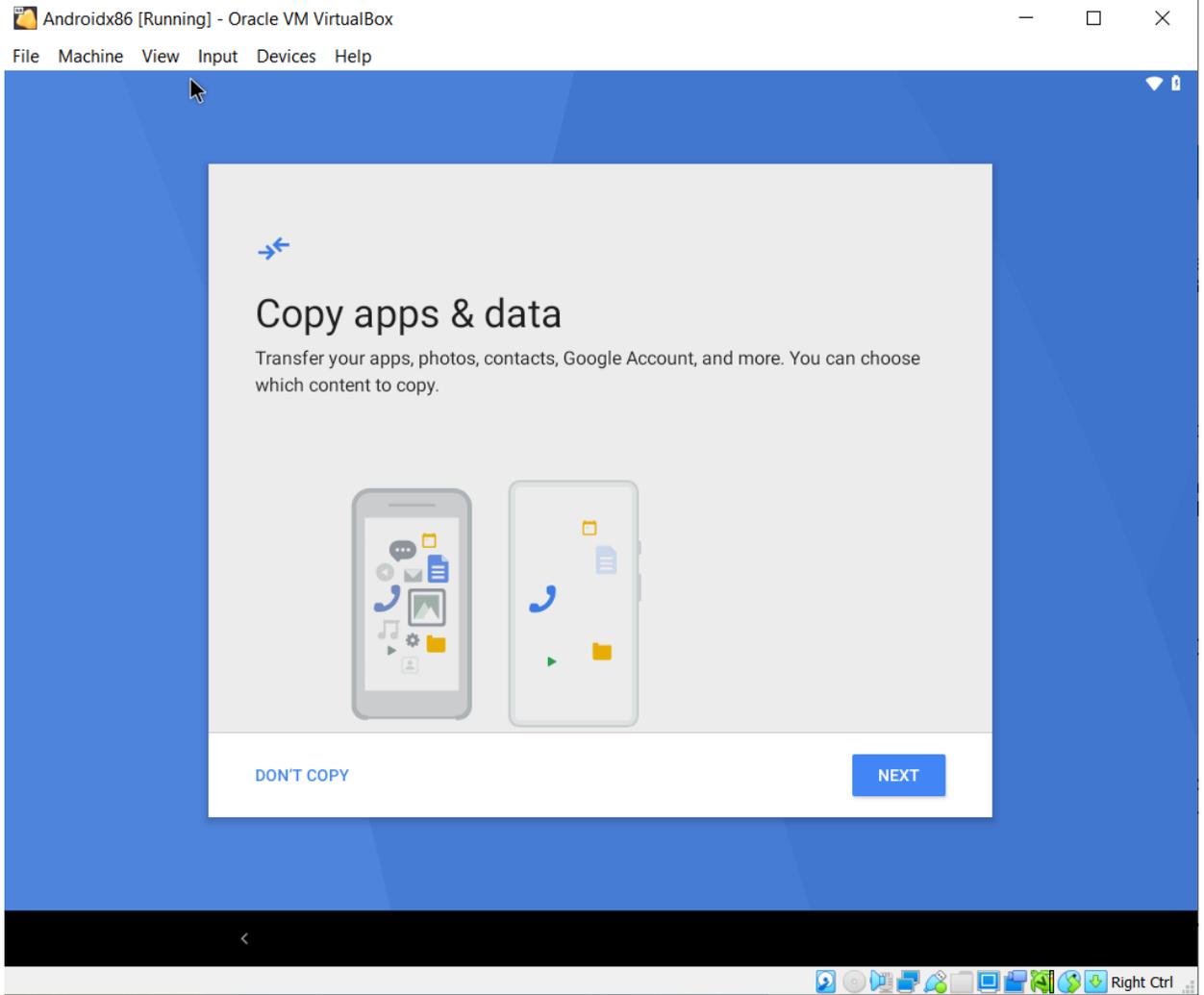
65. Double click on VirtWifi. Next step will be connecting to this network.



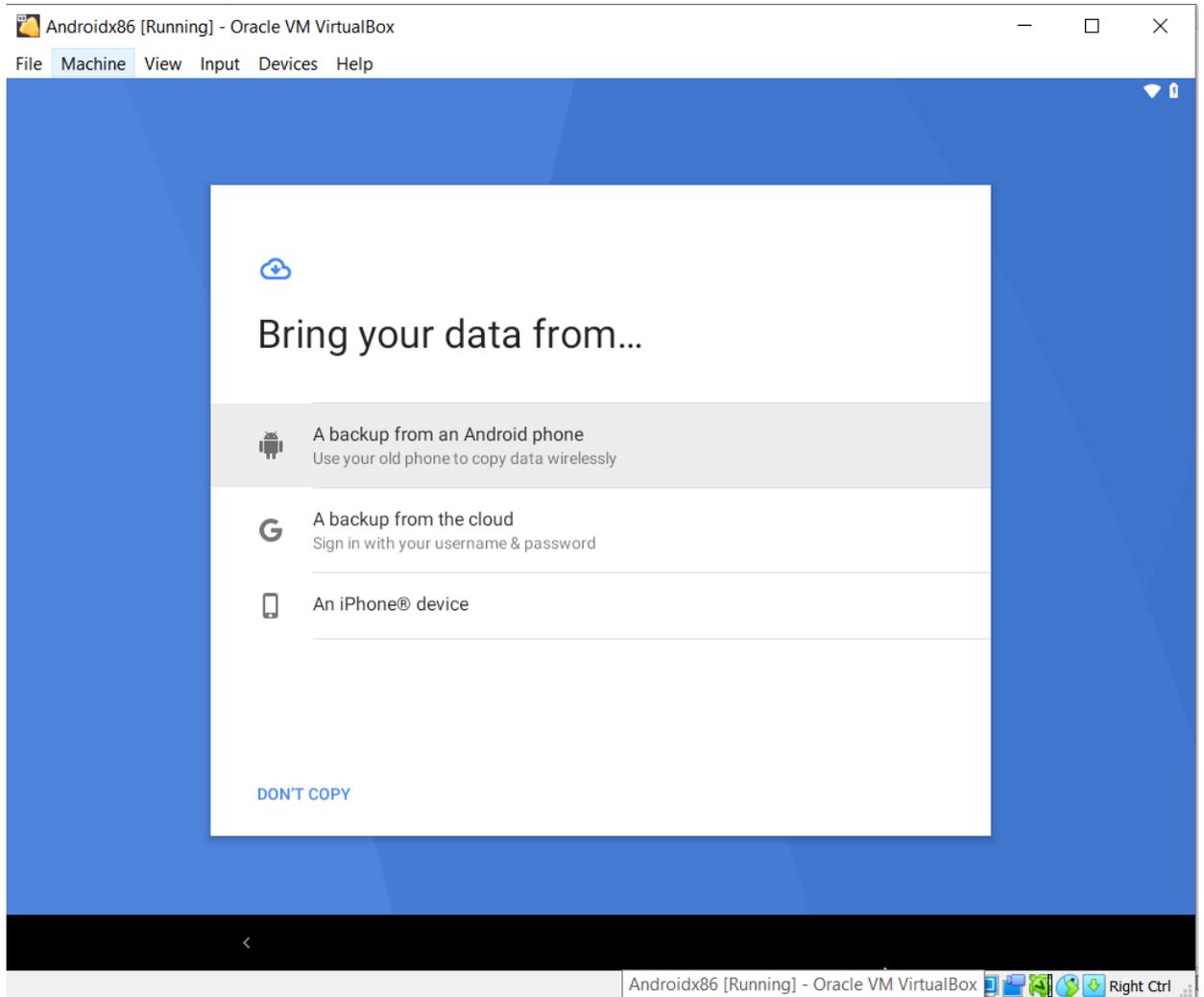
66. We're connected. Next step is to check for updates – let this complete



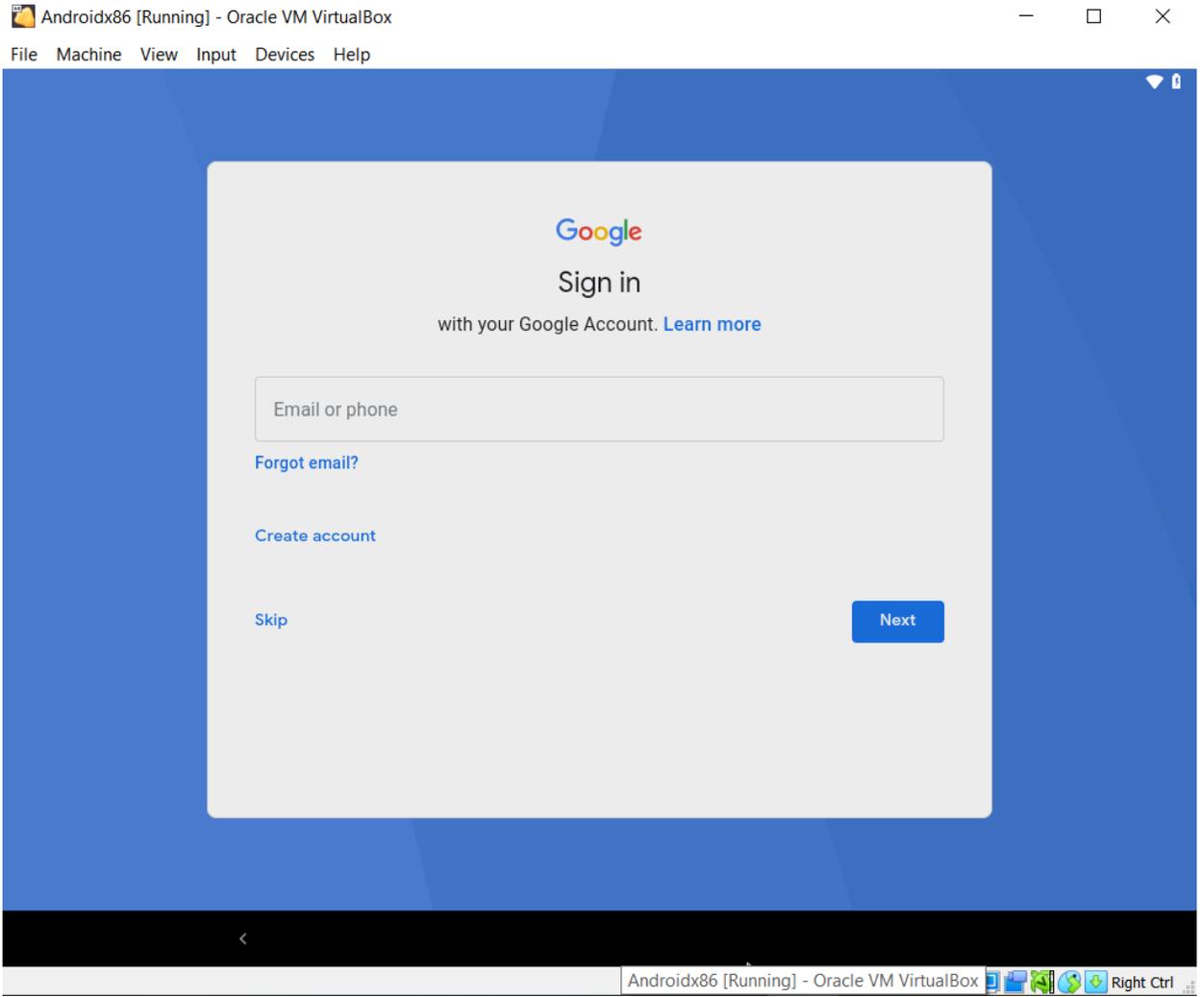
67. Next step is to copy apps & data. We can skip this, and press Next



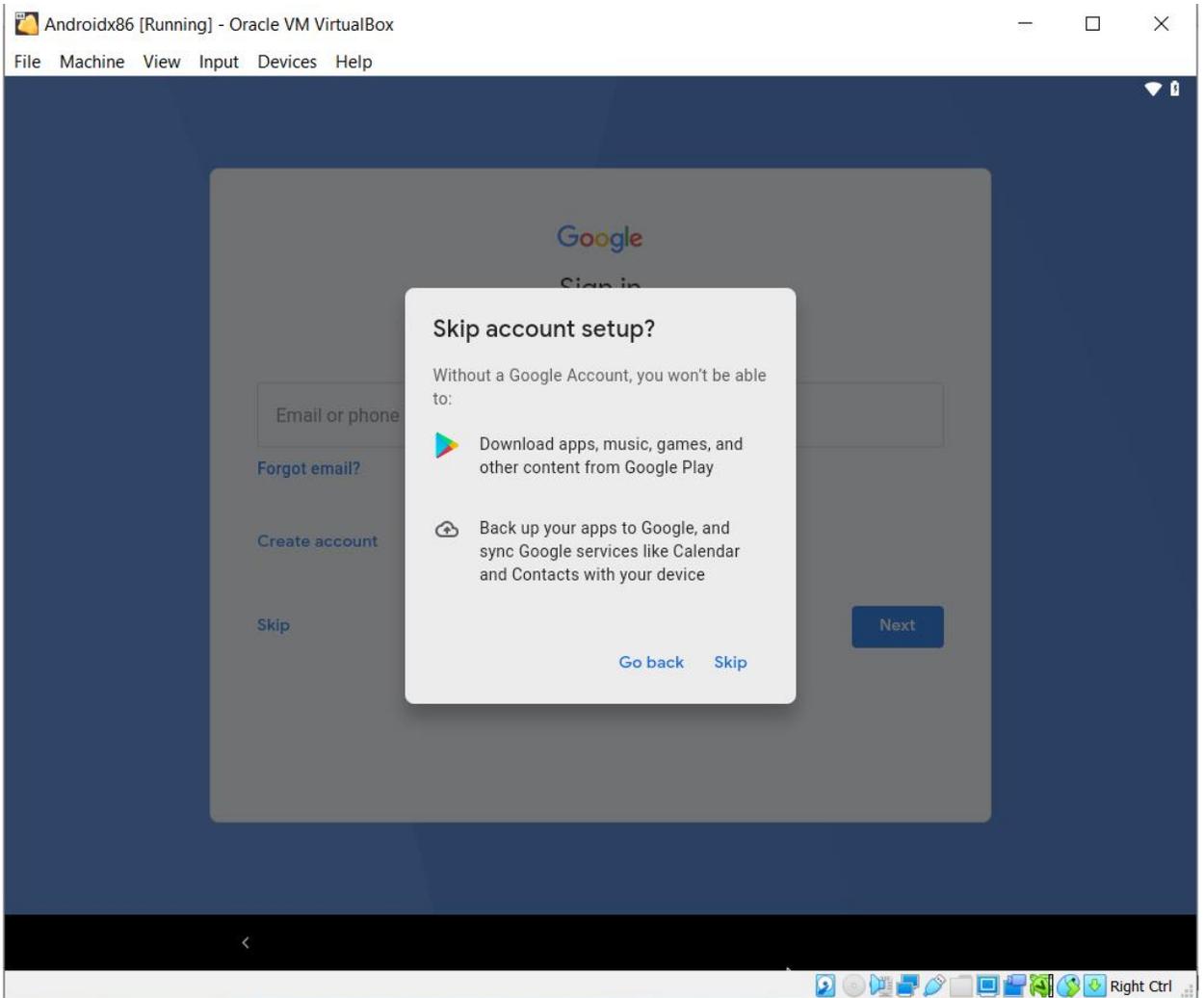
68. Next step is bring your data, we're going to select the don't copy link on the left



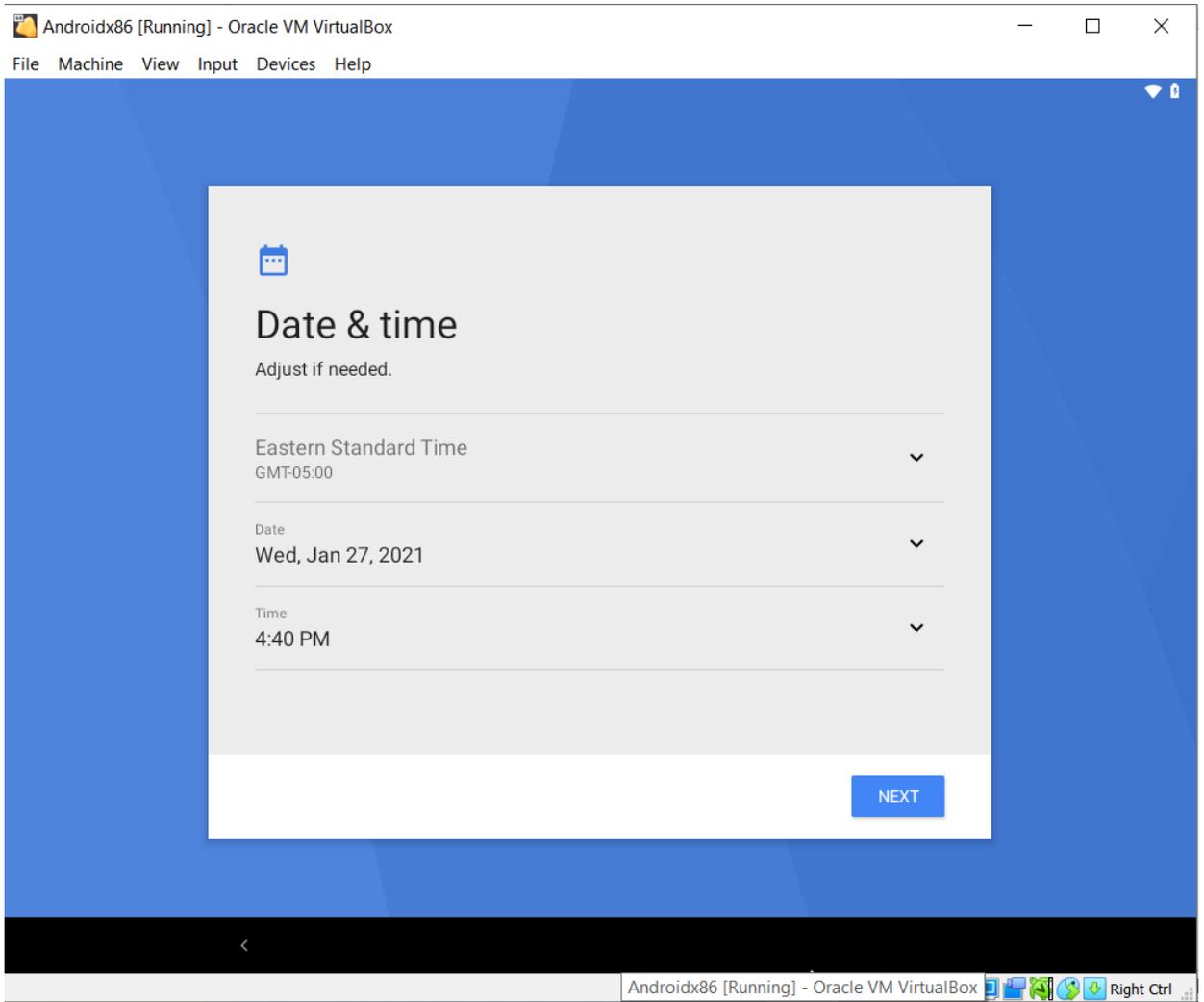
69. The next step is to log into Gmail. I am going to skip this. If you want to download apps from the Google Play Store (official repository) you will need to sign in. If that is the case, I would use a dummy email account.



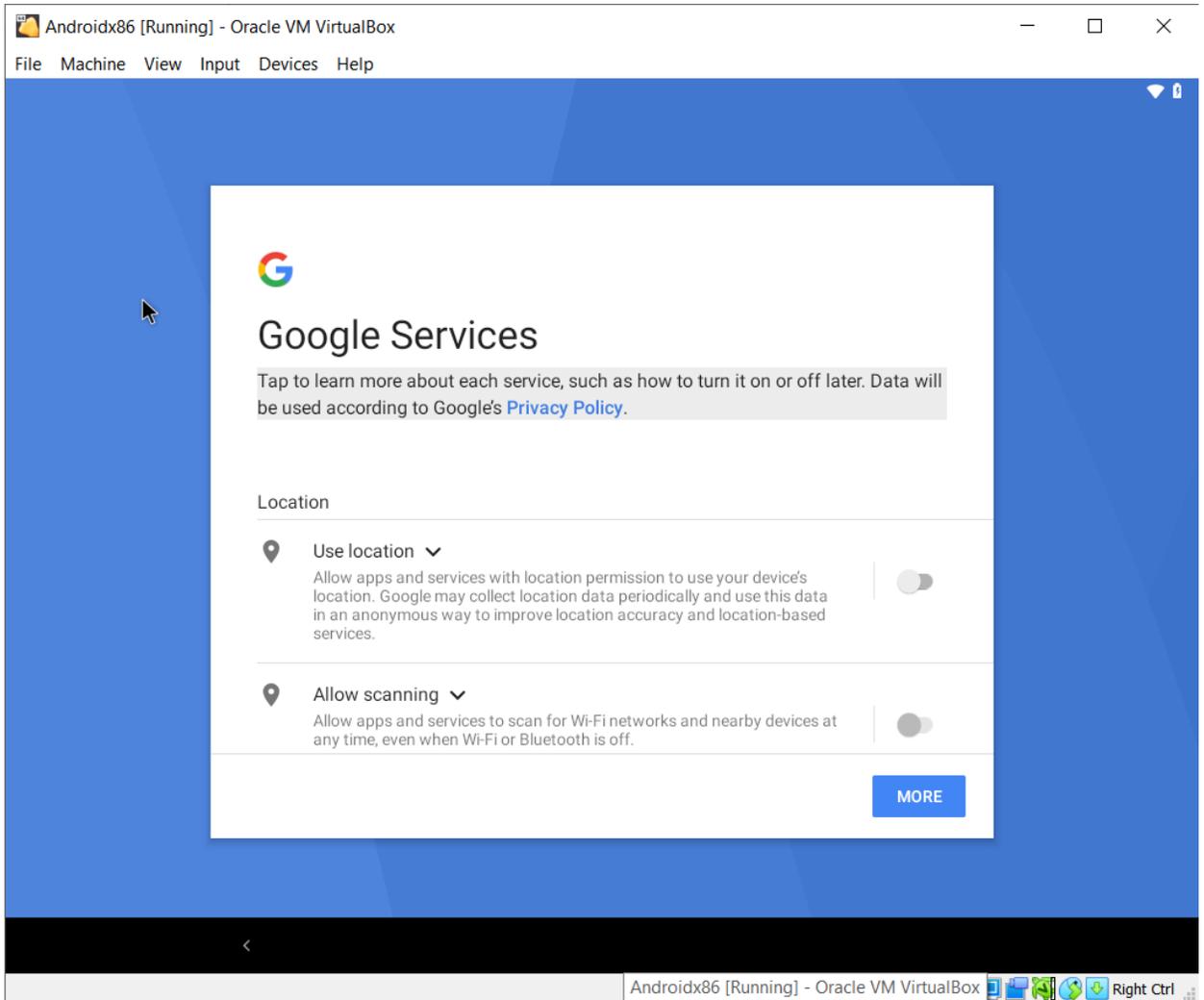
70. There's a confirmation screen that asks if you want to skip. Select Skip



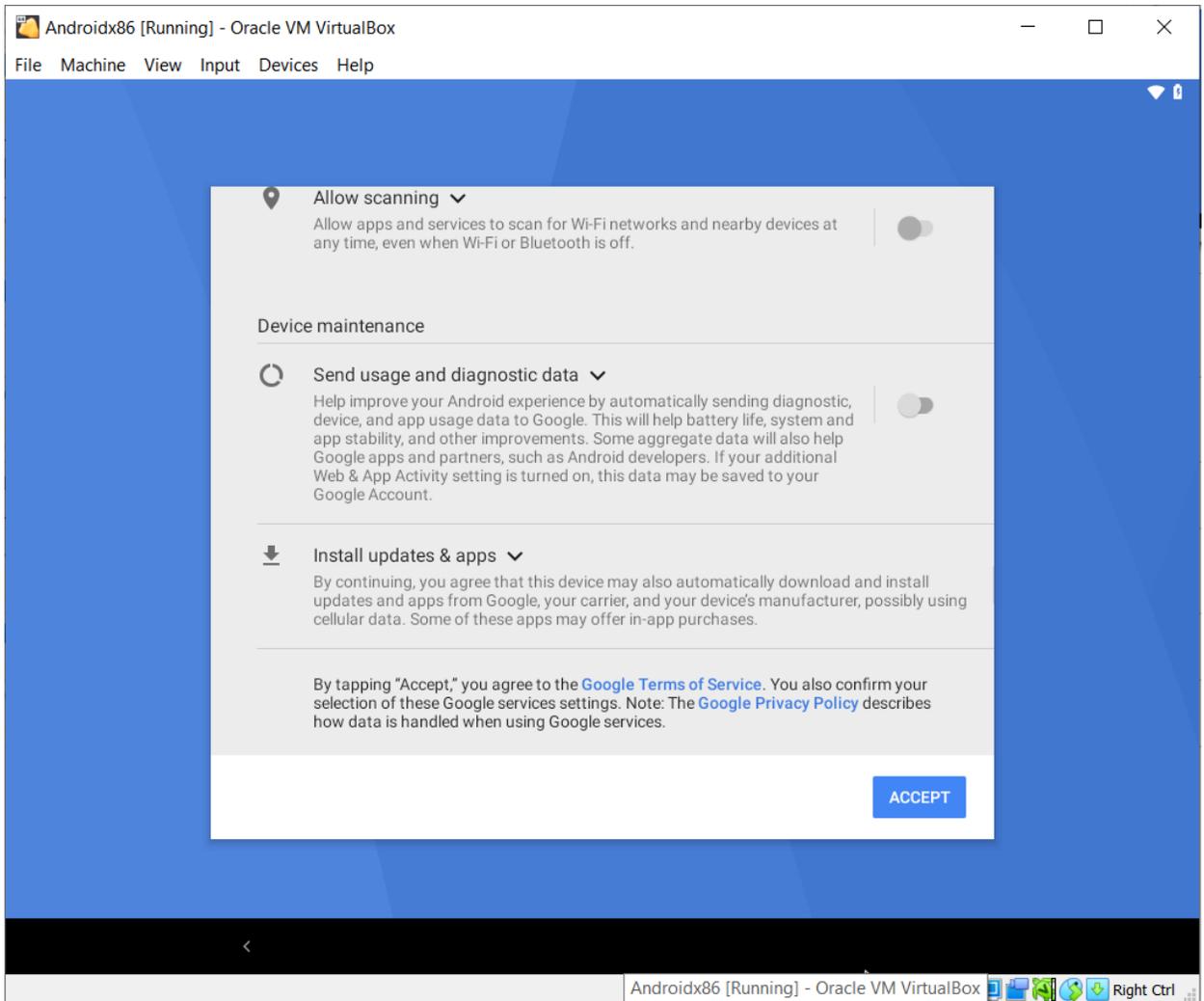
71. Next step is to set up the date and time. If it's correct, select next



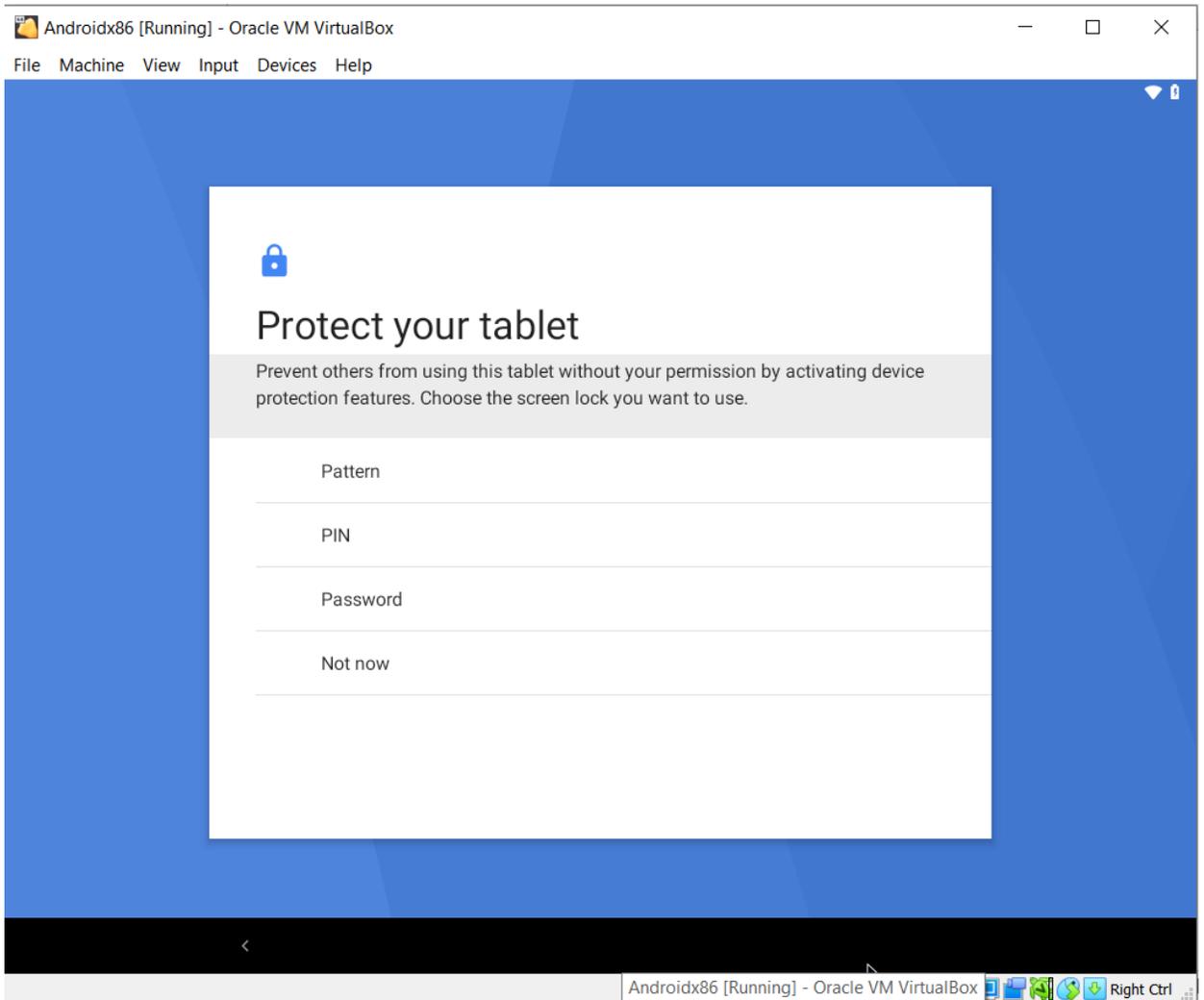
72. Next step is Google Services we want to disable everything as it's not needed. Move the dials from the right to the left to turn it off.



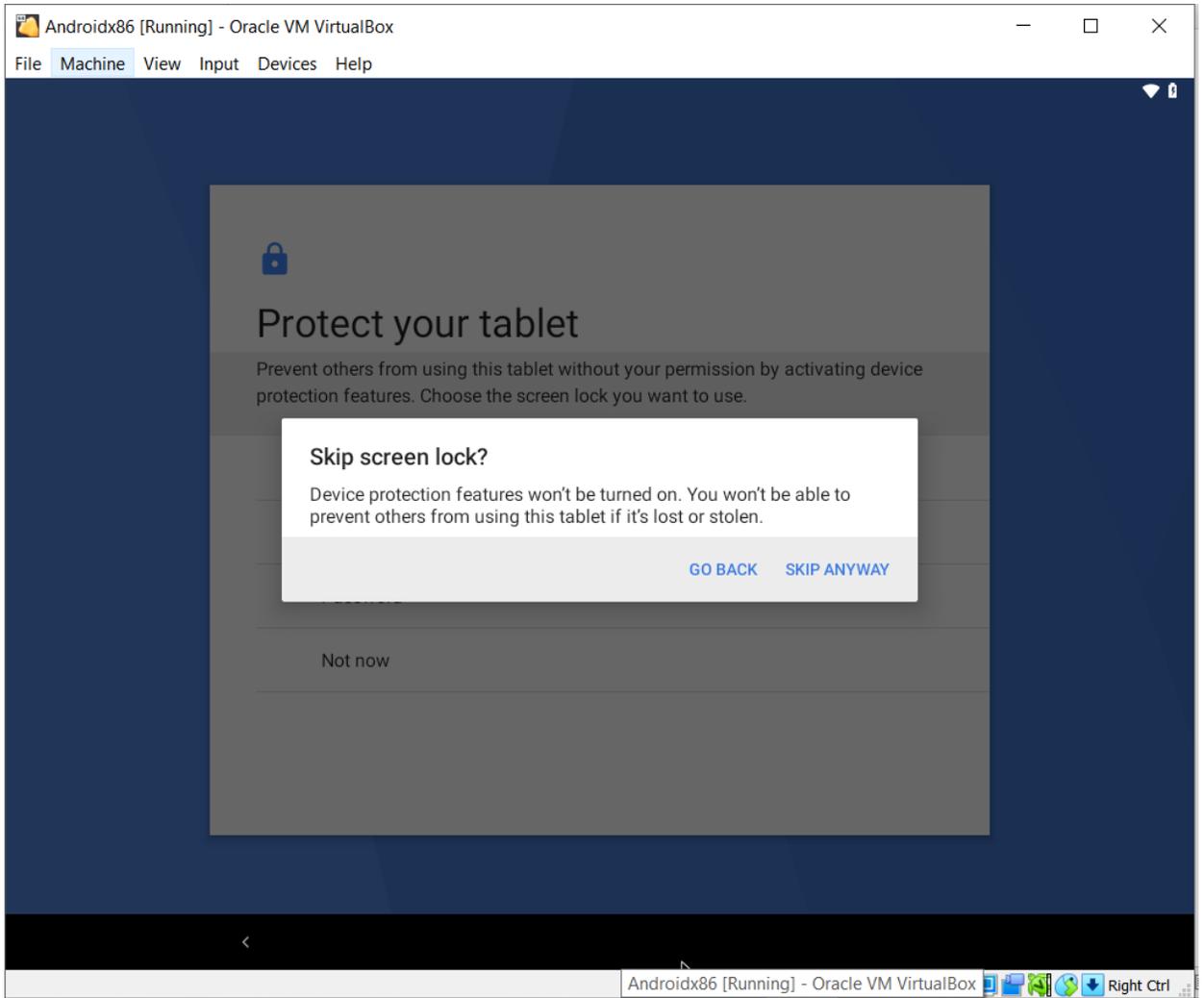
73. Click More and turn this service off as well and press Accept.



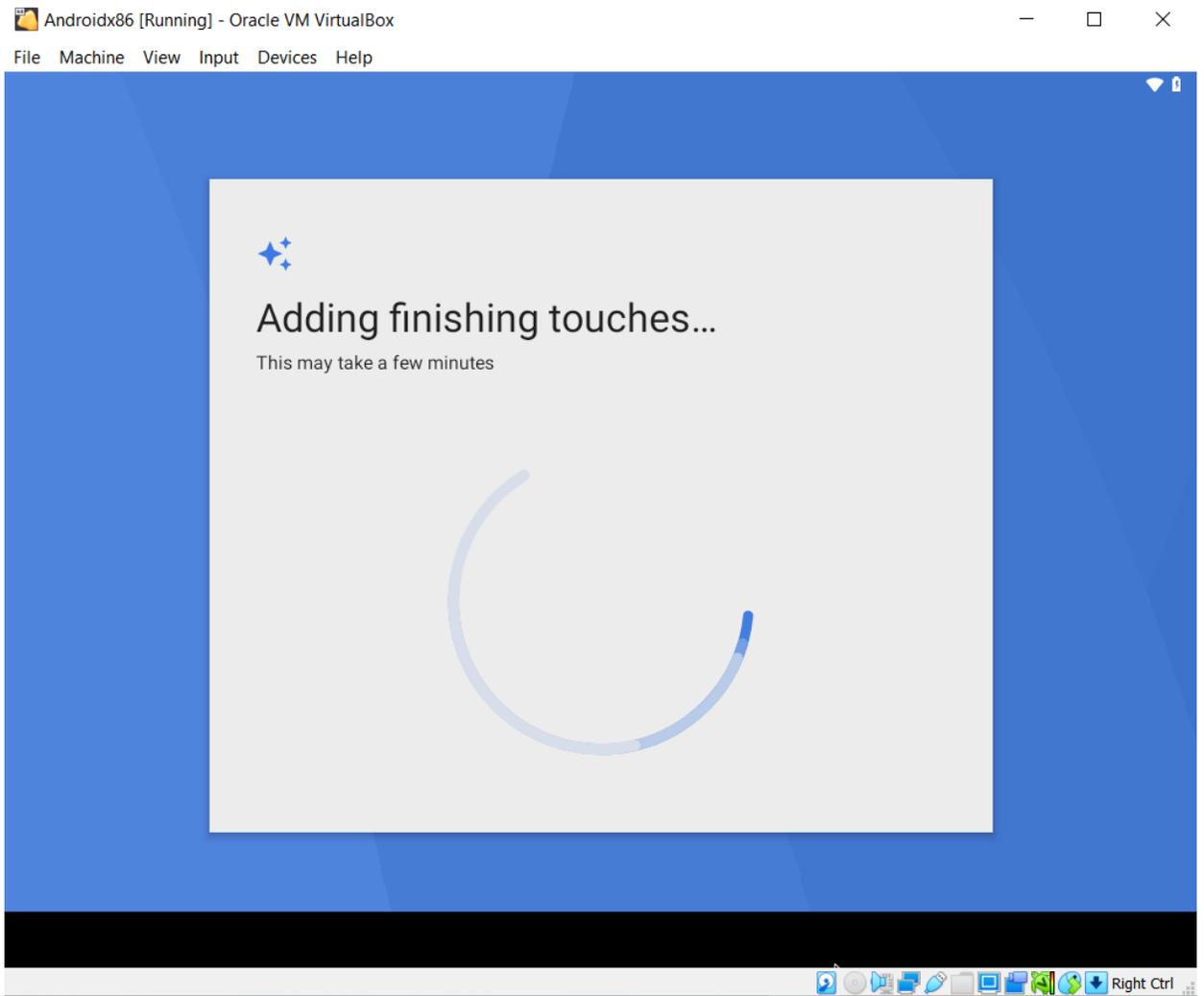
74. Next screen is to protect your tablet. Since this is an emulator, I am not going to protect it. If this was a real device then you would protect it.



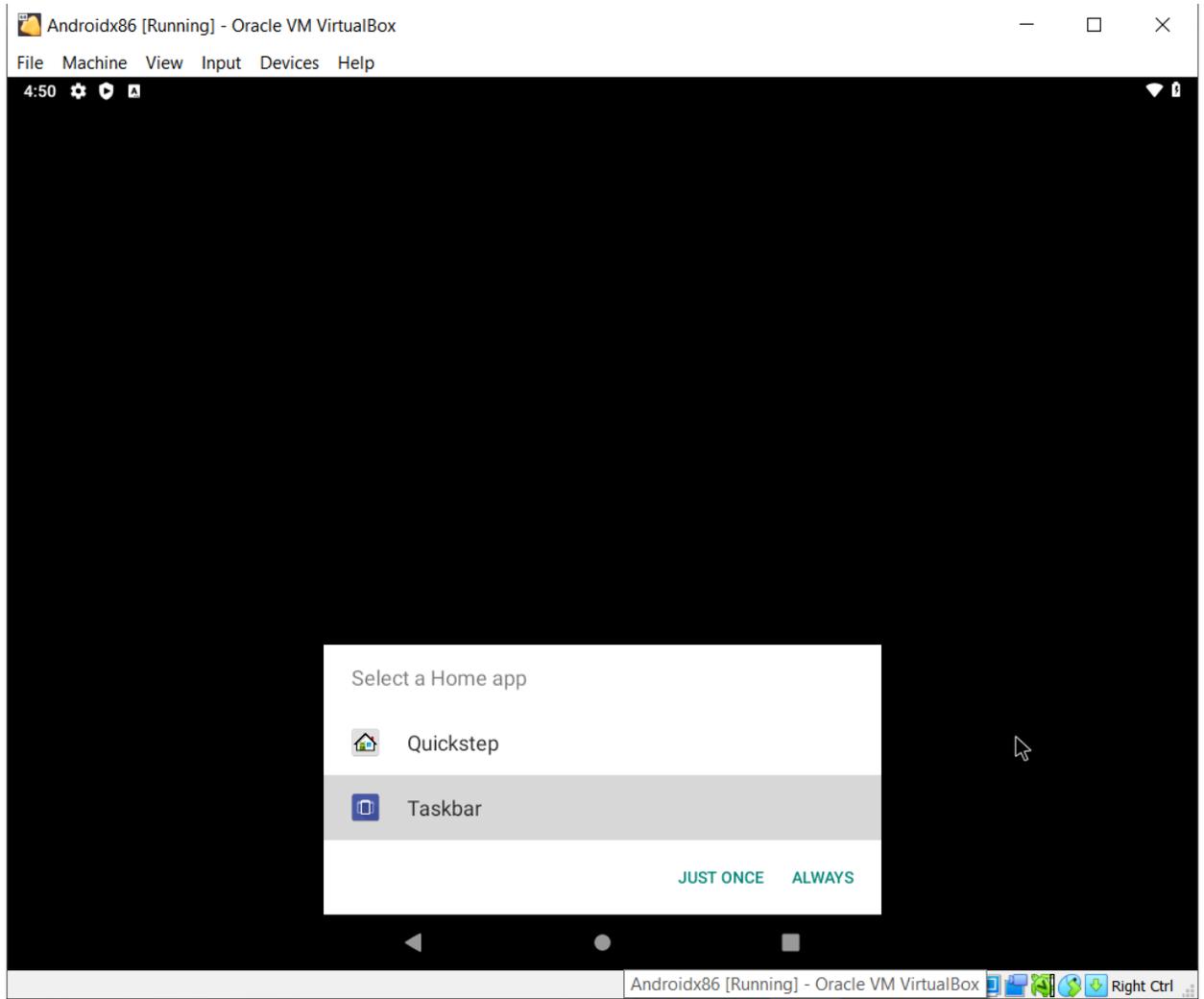
75. A confirmation will come asking if we want to skip, select skip anyway



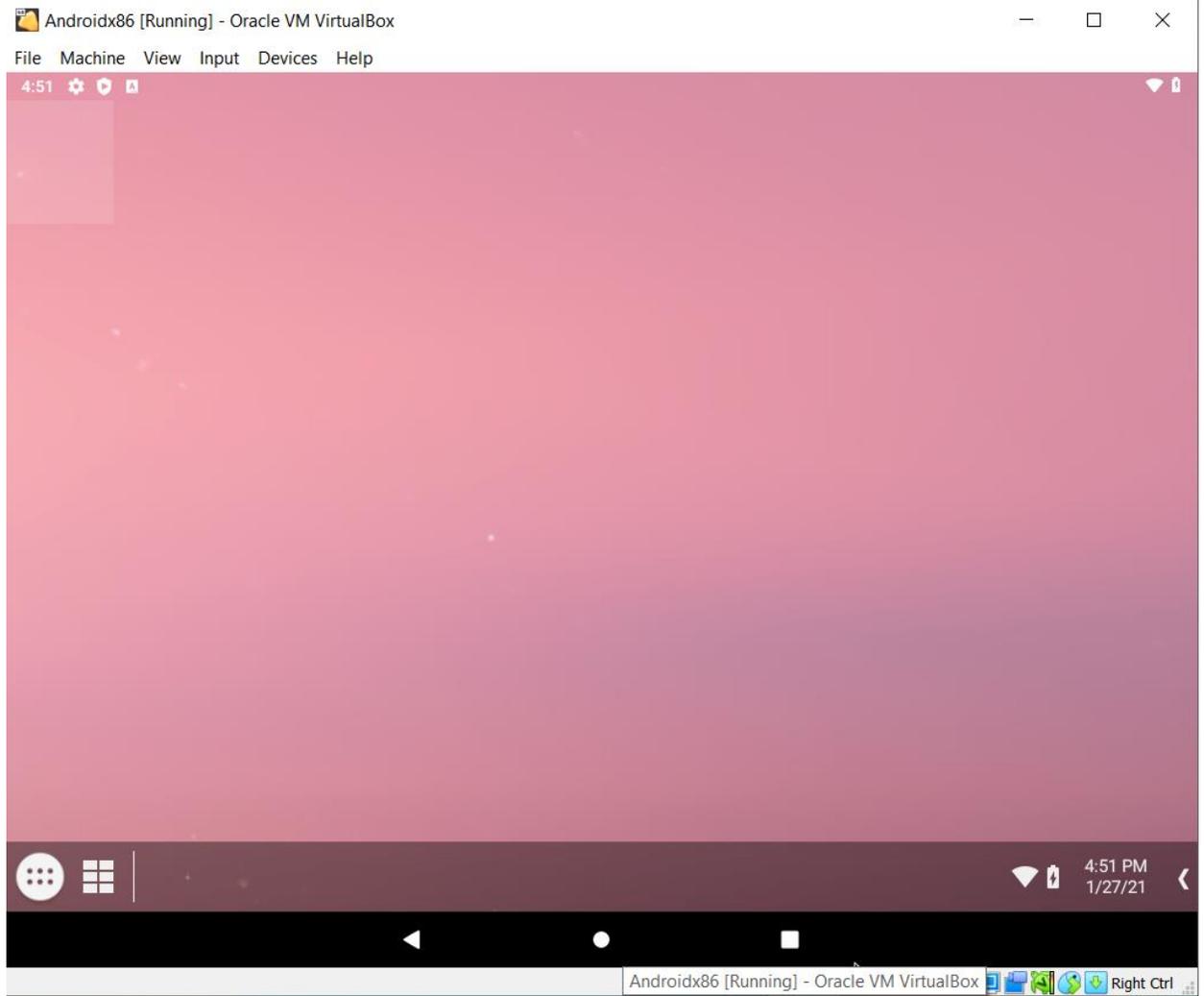
76. Next step is to add finishing touches



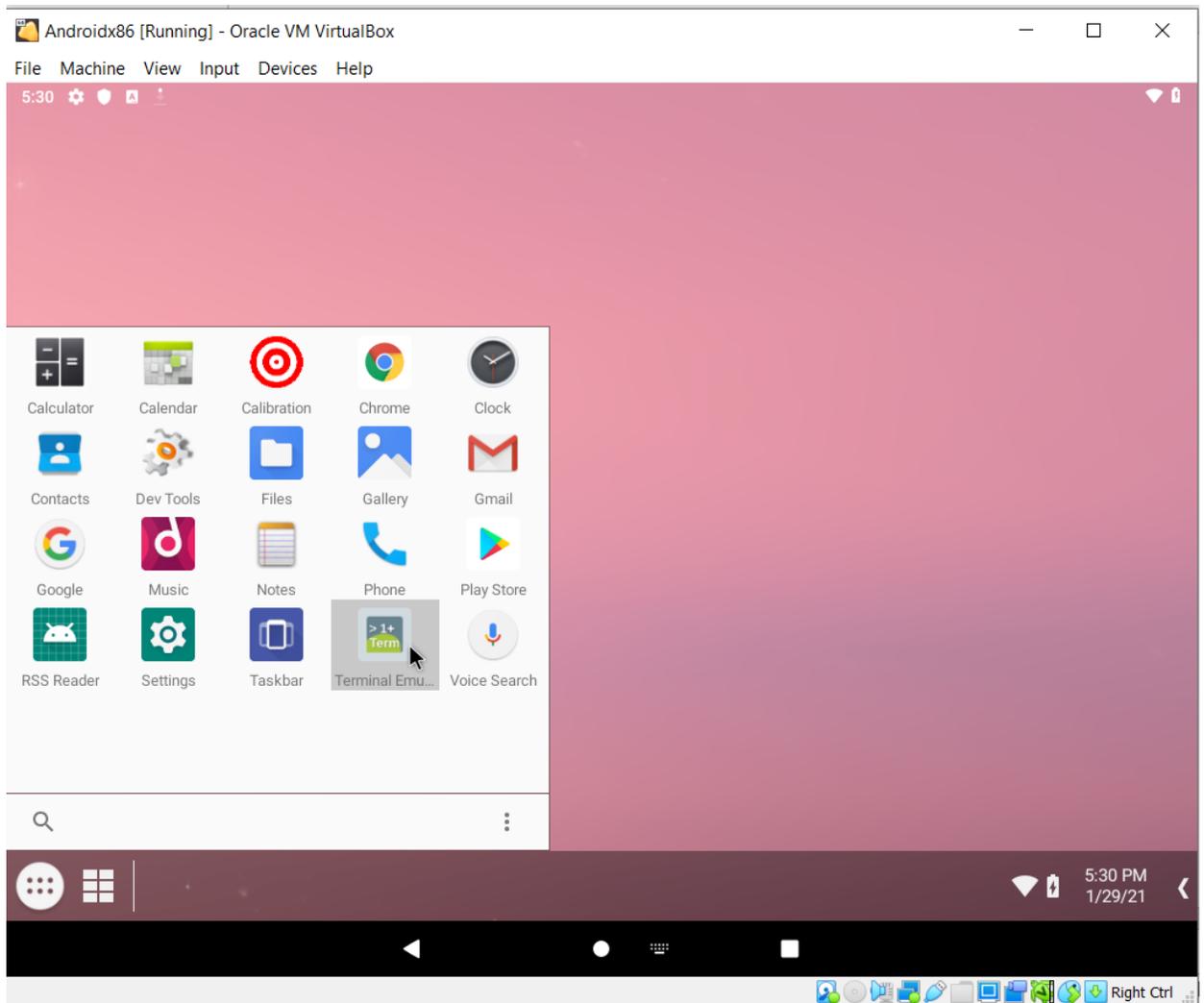
77. We're presented with a menu that asks how we want our home screen to appear. I select the Taskbar option and select Always.



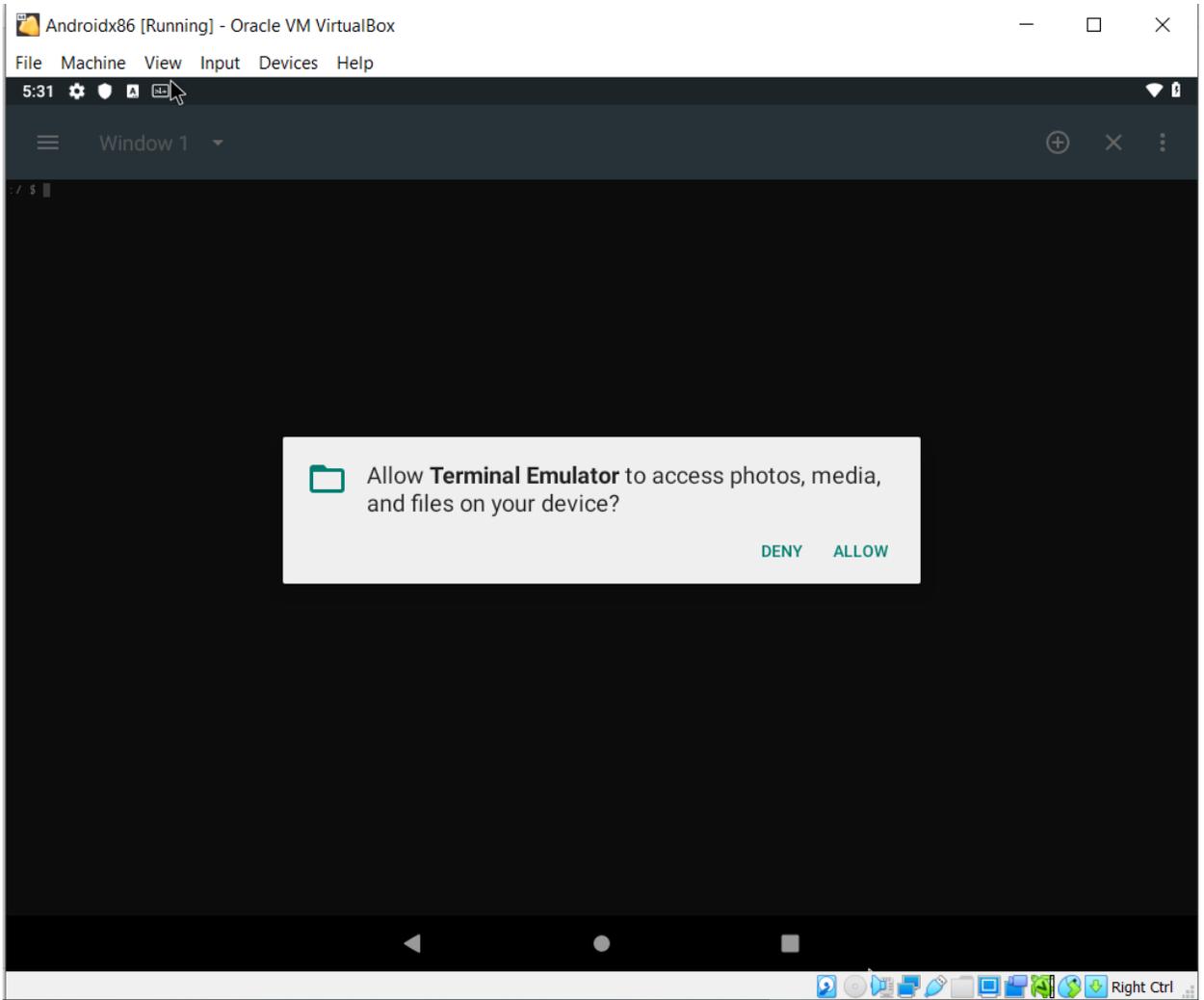
78. The home screen now appears, congrats we have successfully installed and configured our emulator!



79. Now we need to check if we have internet connectivity, and if we have an assigned IP address
80. Click on the Button with the 6 dots
81. Select Terminal Emulator



82. If a pop-up box comes up asking if you want to allow access to the emulator, select allow. NOTE: We're ONLY doing this as we're using an emulator. If this was a real device, you probably would select DENY.



83. When the terminal comes up type ifconfig

```
./ $ ifconfig
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536 Metric:1
          RX packets:214 errors:0 dropped:0 overruns:0 frame:0
          TX packets:214 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:32974 TX bytes:32974

wlan0     Link encap:Ethernet HWaddr 08:00:27:dd:43:0d
          inet addr:192.168.1.114 Bcast:192.168.1.255 Mask:255.255.255.0
          inet6 addr: 2600:1700:62d0:840:a00:27ff:fedd:430d/64 Scope:Global
          inet6 addr: 2600:1700:62d0:840:b050:fd02:20f0:5d53/64 Scope:Global
          inet6 addr: fe80::a00:27ff:fedd:430d/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 TX bytes:0

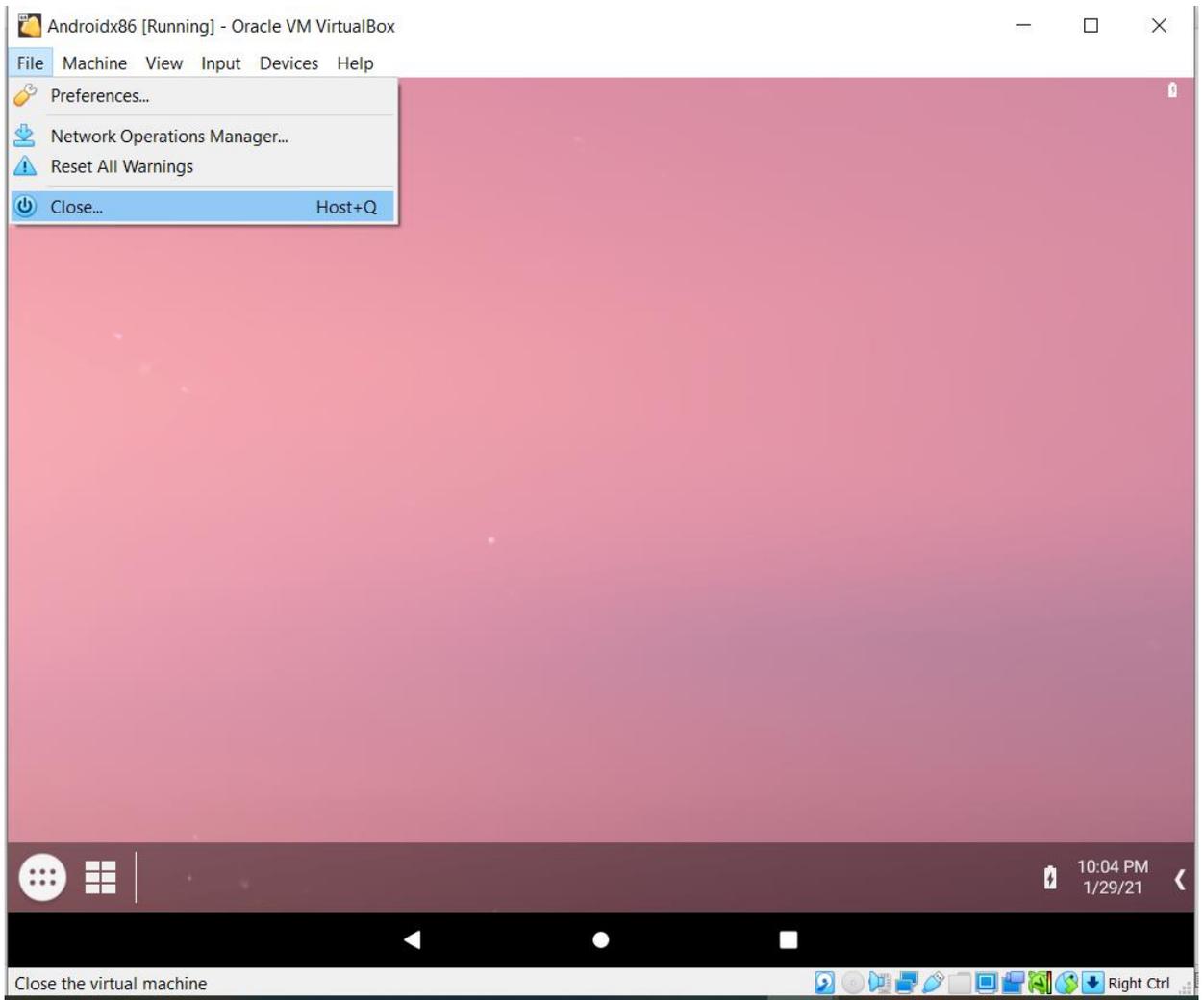
wifi_eth  Link encap:Ethernet HWaddr 08:00:27:dd:43:0d Driver e1000
          inet6 addr: 2600:1700:62d0:840:a00:27ff:fedd:430d/64 Scope:Global
          inet6 addr: fe80::a00:27ff:fedd:430d/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:32834 errors:0 dropped:396 overruns:0 frame:0
          TX packets:6091 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:42565667 TX bytes:1141486

./ $
```

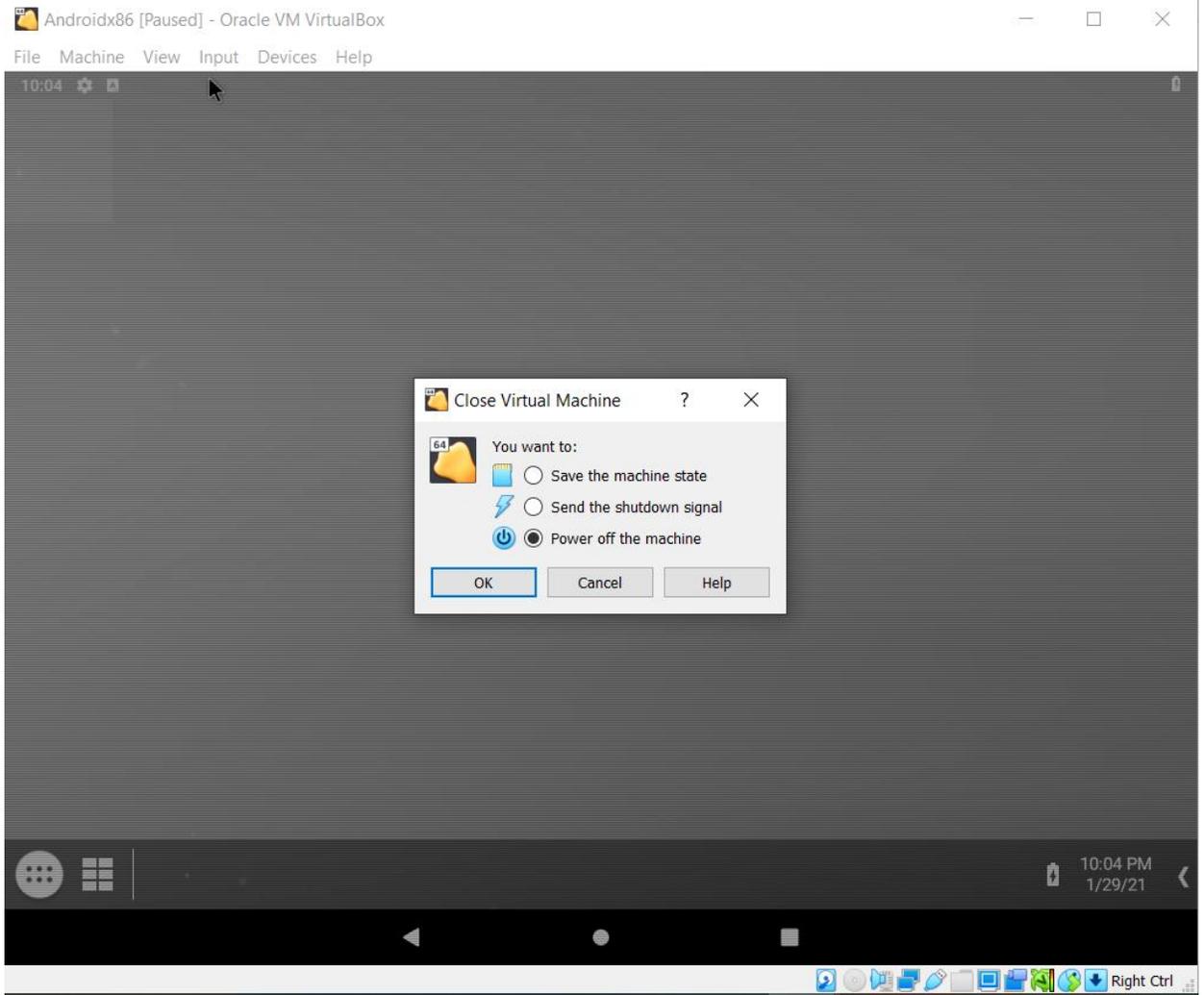
84. If you see an entry for wlan0 with an address of 192.168.xxx.xxx, then everything was successful and you can stop here.

****NOTE CONTINUE ON IF you do not see a wlan0 entry in step 83****

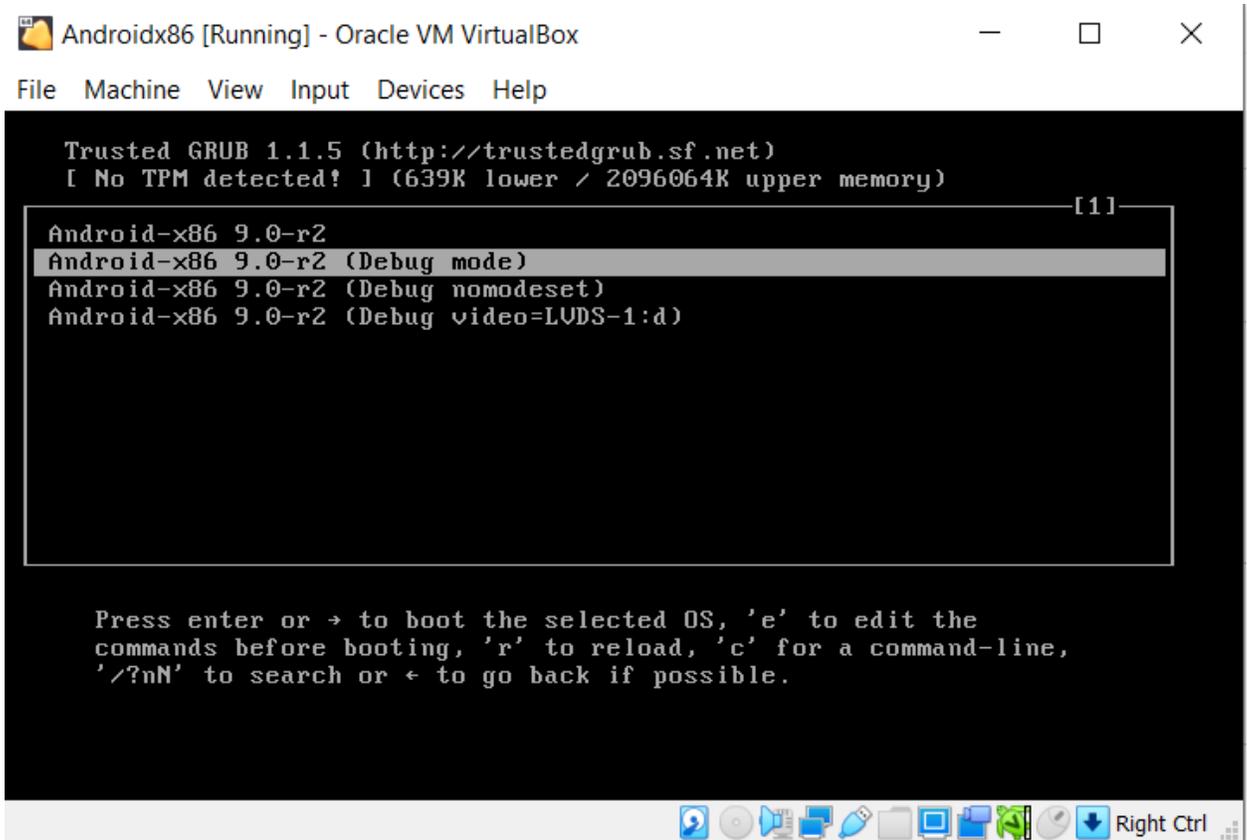
85. Now we need to restart the computer as our network settings are not saved. To do this we will do the following File → Close



86. Select Shut down machine and press OK



87. We're back to the VirtualBox home screen. Double click on the Androidx86 virtual machine to start it.
88. Once the machine reboots select the Androidx86 9.0-r2 (debug) and press Enter



89. There will be an assortment of commands being printed to the screen. We want this as the emulator will pick up the settings we have on our computer.

90. There will be a point where the screen seems to be hanging. At this time, type “exit” and press enter. Then type exit again to continue saving the settings.

```
Androidx86 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
found at /dev/sda1
[ 5.188169] input: AT Translated Set 2 keyboard as /devices/platform/i8042/serio0/input/input4

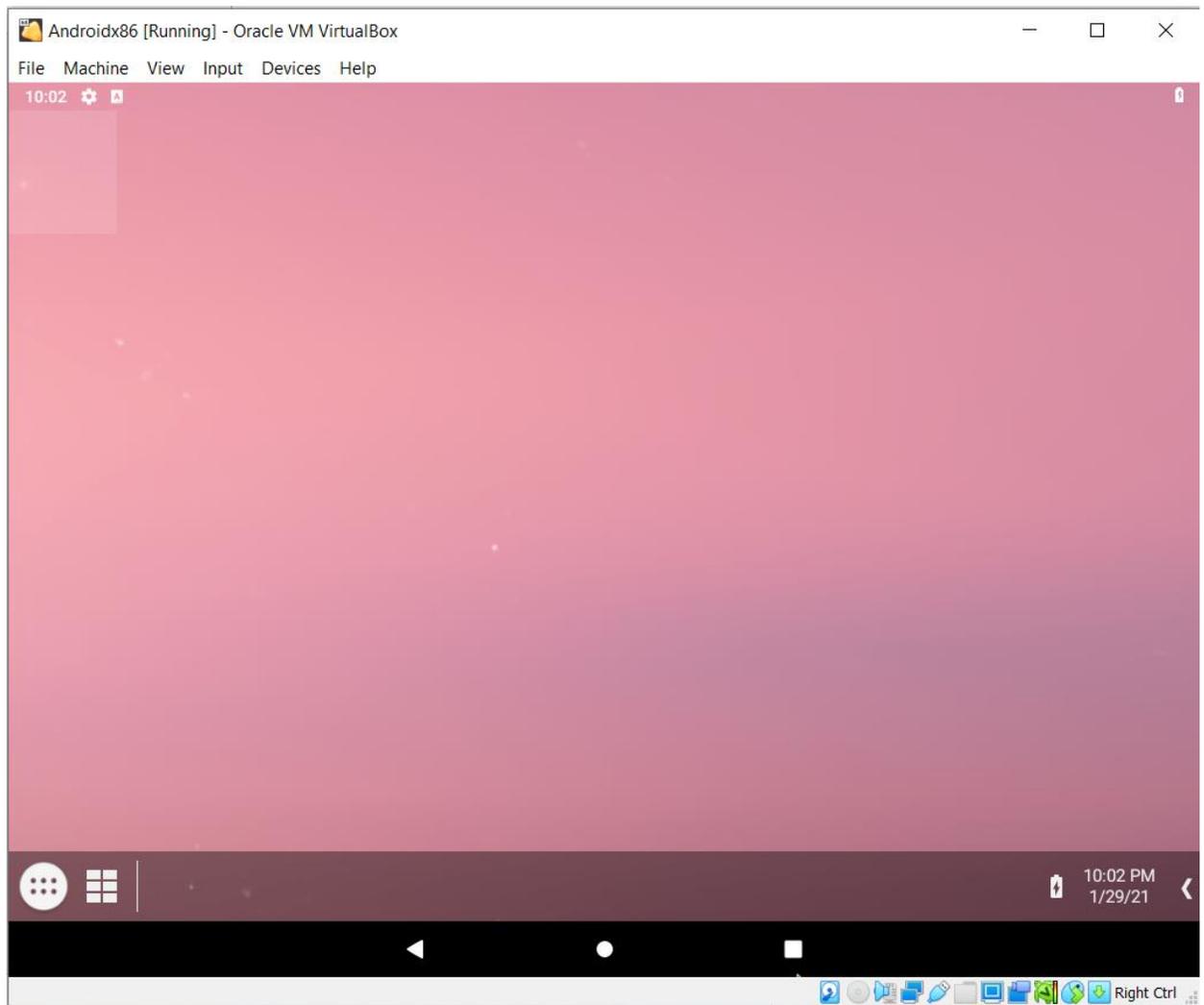
Type 'exit' to continue booting...

Running MirBSD Korn Shell...
:/android # [ 10.437696] e1000: Intel(R) PRO/1000 Network Driver - version 7.3 .21-k8-NAPI
[ 10.441851] e1000: Copyright (c) 1999-2006 Intel Corporation.
[ 11.244200] e1000 0000:00:03.0 eth0: (PCI:33MHz:32-bit) 08:00:27:cb:5c:06
[ 11.248988] e1000 0000:00:03.0 eth0: Intel(R) PRO/1000 Network Connection
[ 11.269562] piix4_smbus 0000:00:07.0: SMBus Host Controller at 0x4100, revision 0
[ 11.288695] input: PC Speaker as /devices/platform/pcspkr/input/input6
[ 11.578940] input: ImExPS/2 Generic Explorer Mouse as /devices/platform/i8042/serio1/input/input7
exit
[ 102.210132] EXT4-fs (sda1): re-mounted. Opts: (null)

Use Alt-F1/F2/F3 to switch between virtual consoles
Type 'exit' to enter Android...

Running MirBSD Korn Shell...
:/android #
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91. Once the settings are saved – the Androidx86 emulator will start.
92. We're presented with the home screen of the Android emulator



93. Close the Virtual Machine down by selecting File → Close, and then select shut down the machine and press OK
94. We're back to the VirtualBox home screen. Double click on the Androidx86 virtual machine to boot it
95. When the virtual machine starts, keep it on the first option (Android-x86 9.0-r2) and press Enter
96. When the machine boots, click on the six dots
97. Select Terminal Emulator
98. Type ifconfig
99. You should now have an entry for wlan0 that has an IP address of 192.168.xxx.xxx