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Tutorial: Installing Windows 95 (on VM or physical machine)

Written by: noone

Expertise Level Required: Beginner

Time Required: 45 minutes to 3 hours (depending on machine)

Installing Windows 95:

Windows 95 was one of the biggest changes to computer software back when it was released. Initially released in May 1995, it became one of the most sold pieces of software for its day and basically cemented Microsoft's name in the personal computing market. Most competitors eventually would fade away due to the fact that this OS and its later versions (Windows 98, Windows ME) came on every personal computer afterwards.

Required:

One of the following:

Physical machine:

486 or later recommended with floppy drive (required) and/or CD drive with at least 100-200 MB free disk space

Virtual Machine:

Either VMWare Player or VirtualBox (VirtualBox recommended due to it being open source)

Steps:

You'll need a copy of Windows 95 to actually perform this, either physical or disk images. If you're doing this in an emulator, I strongly suggest using disk images, one since you will need to boot the virtual machine using a boot disk image, plus modern computers don't come with floppy drives.

If this is being performed on a physical machine, if you have a CD drive, I would suggest utilizing that if possible due to the time required to swap floppies every few minutes.

As a comparison, below are two copies of Windows 95, the CD copy is Windows 95 OSR 2.1 (aka Windows 95 B), and the floppy image is actually Windows 95 A (the original market release of 95 back in the day).

If using floppies, you won't be using all the floppies, however it's still quite tedious to swap those every so often.

If using disk images, I suggest you try to find a copy of OSR 2.1, which will show up on various sites as Windows 95 B (4.03.1212. OSR2.1). This version includes USB support out of the box. There is basically no difference between 95 B and 95 C, except for the fact

95 C comes bundled with Internet Explorer 4 and a bunch of other unnecessary junk, which if you're performing this on a physical computer would slow it down greatly. There's no real advantages to using 95 C over B.

Using 95B over 95A does give you an advantage however since that the CD is bootable, which is a great advantage (skips several steps on a VM), however most machines in that era did not support bootable CDs. If downloaded from a site, there should be some kind of serial provided either on the download page or with the files afterwards. If a physical copy, there might be a booklet with a serial number on it (like above). Write those down for later. If you're lazy, go ahead and use the one in the photo above, its actually the code that came with my Gateway desktop back in the mid 90's and is for 95B. I'd suggest against this though.

If you're using a version of Windows older than OSR 2.1, you will also need a bootdisk. I suggest using a modified copy of a Windows 98 bootdisk without the ramdisk enabled. If you are using a bootdisk with the ramdisk enabled, you will run into issues on first boot later on down the road where 95 has no idea where the CD drive is, and will result in problems. These problems are recoverable however. A copy of the bootdisk image used in this tutorial can be found here (raw disk image here). If this is being performed on a physical machine, you will need to write the image to a floppy. If you're working with older machines a lot, I suggest you go invest in a USB floppy drive. If you have WinImage installed or run Linux/OS X, you can write the disk image directly to the floppy. If you're running Windows and don't have WinImage installed, download the self extracting version and run the executable file.

If installing into a virtual machine, download the raw disk image.

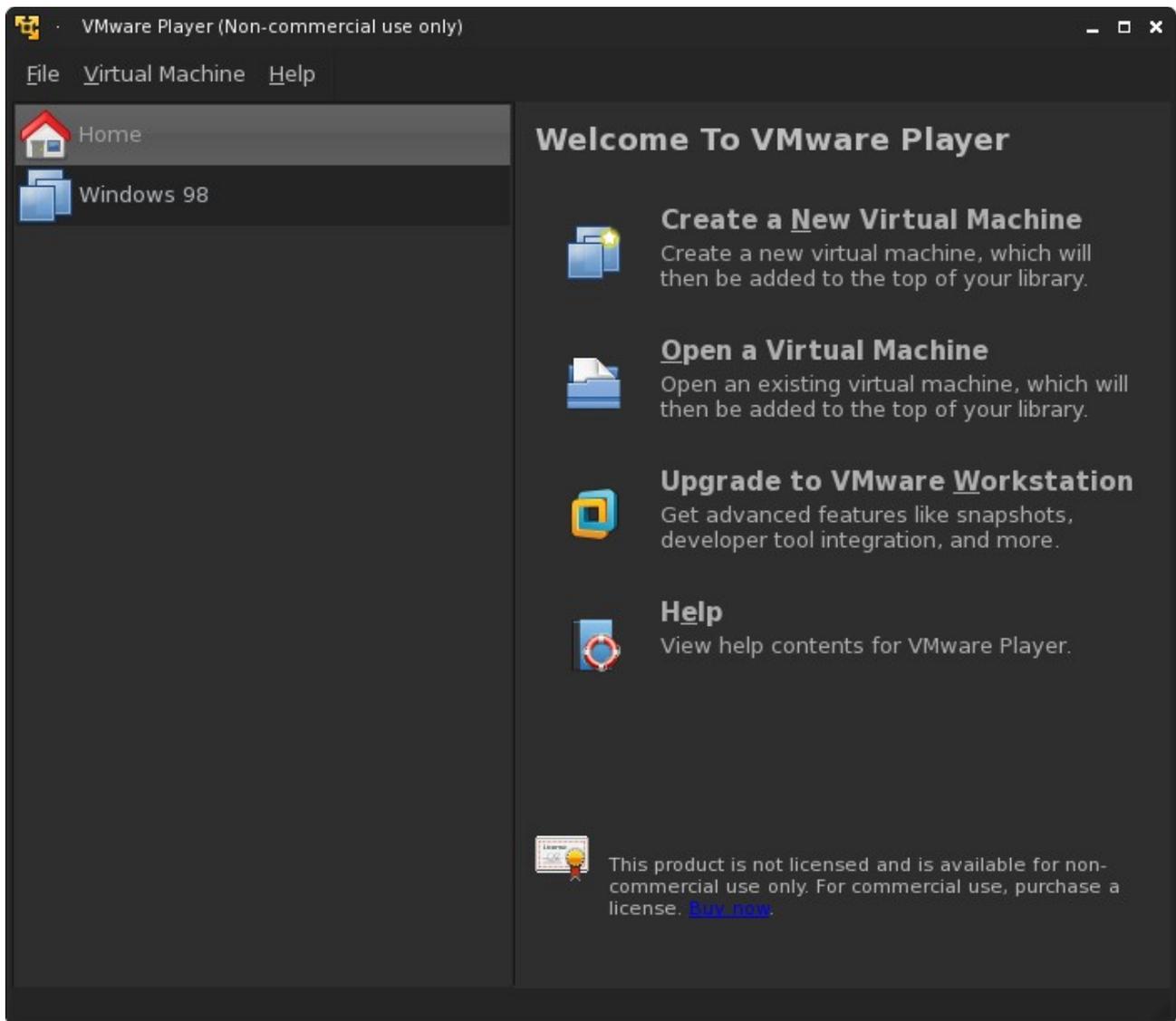
Setting up the virtual machine:

If you're using a physical machine, skip this step.

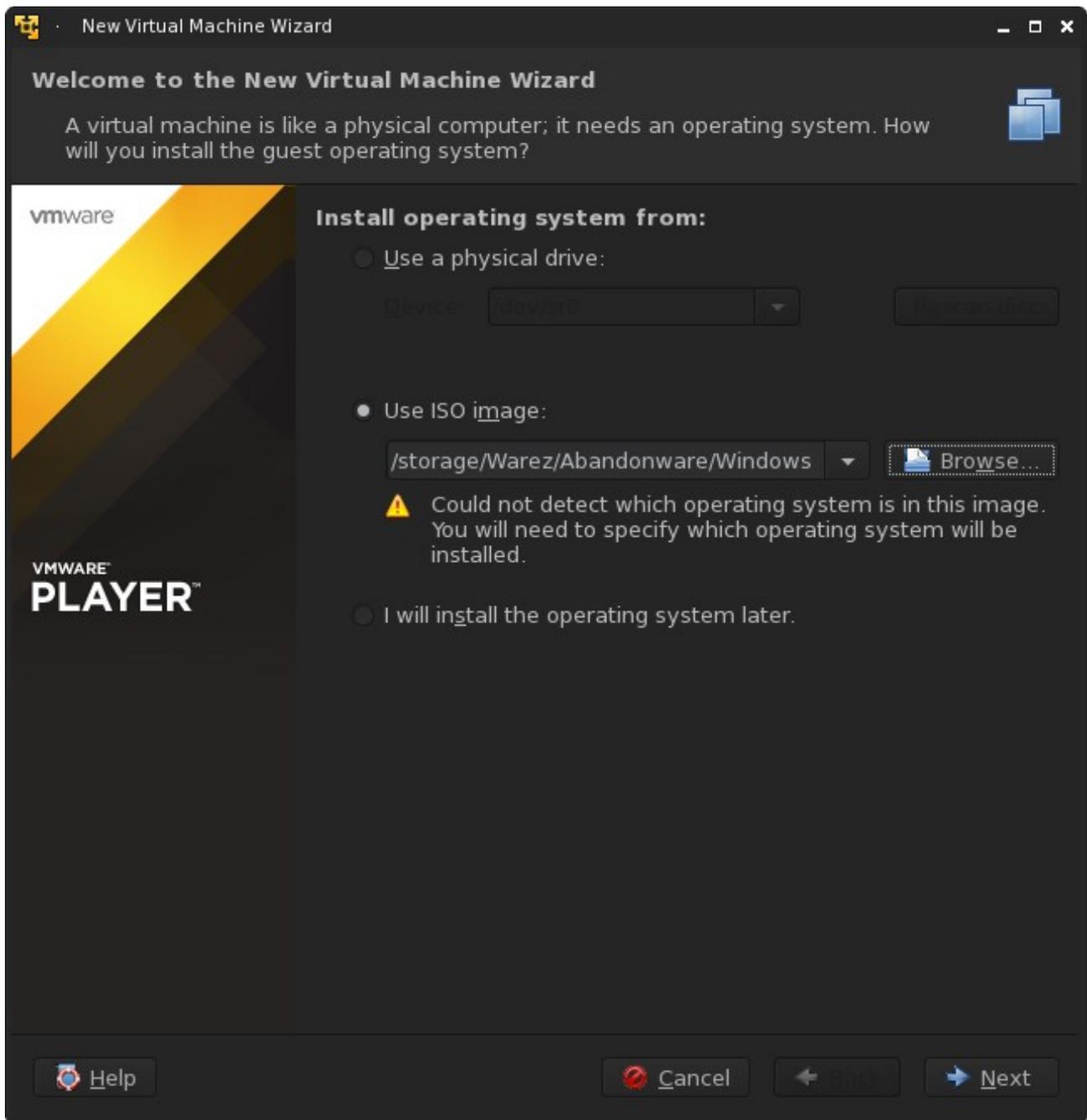
Note: These steps were performed on a machine running Linux. Changes might be slightly different between platforms but the general instructions should be the same.

Setting up a VMWare Virtual Machine:

The Default screen for VMWare Player should be like this. To create a virtual machine, just click "Create a New Virtual Machine" (no brainer)

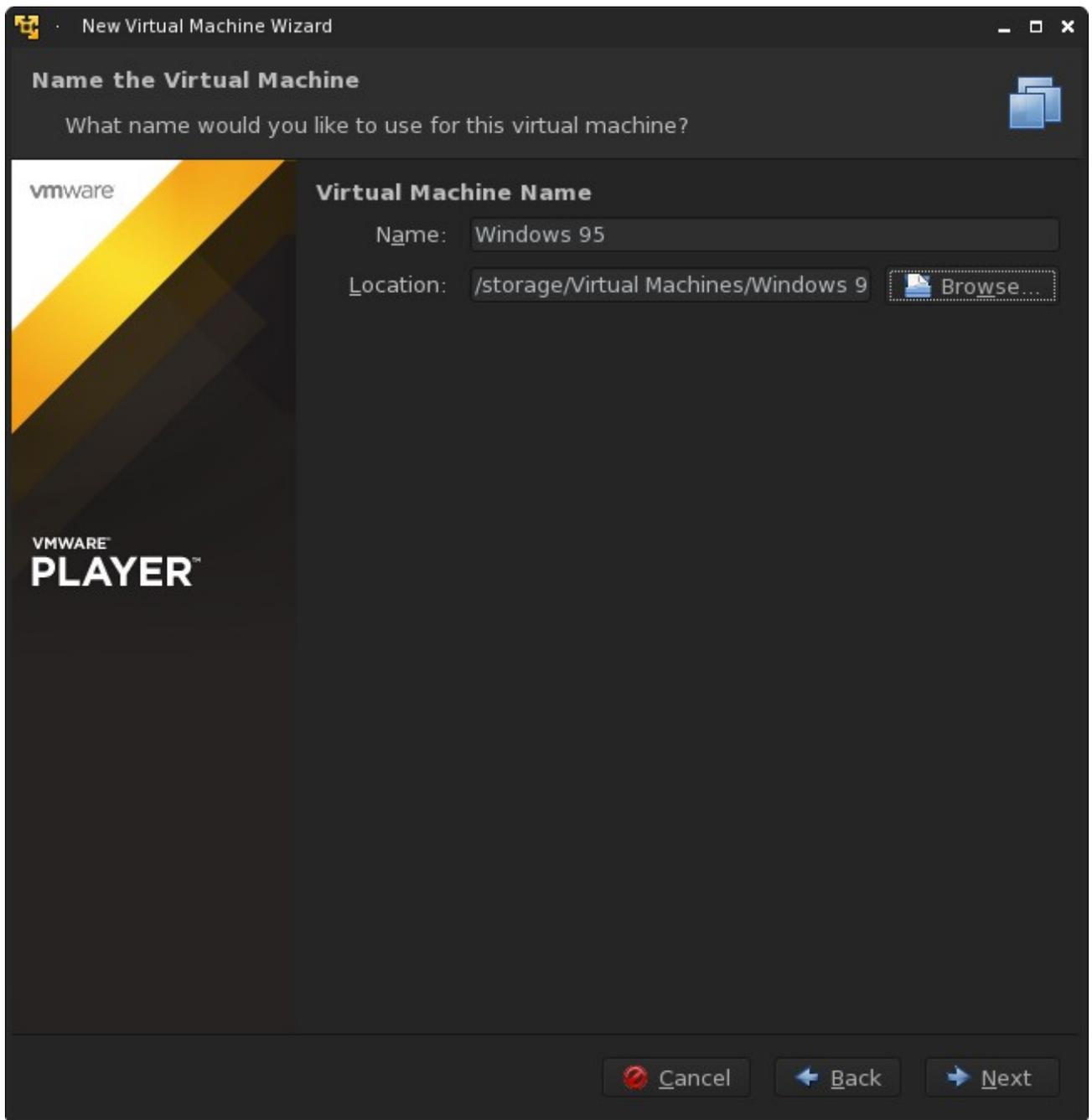


Next, depending if you're using an image file or a disc image for 95, choose where your copy of Windows is:



In the case of my ISO image of 95B, VMWare did not detect what OS this is. That's normal and it only works for newer versions (and Linux distros).

Click Next, on the following screen, pick your version of Windows. Since this is a tutorial on 95, choose 'Windows 95'.



Choose where you want to store the VM. Yet again, this should be a no brainer.

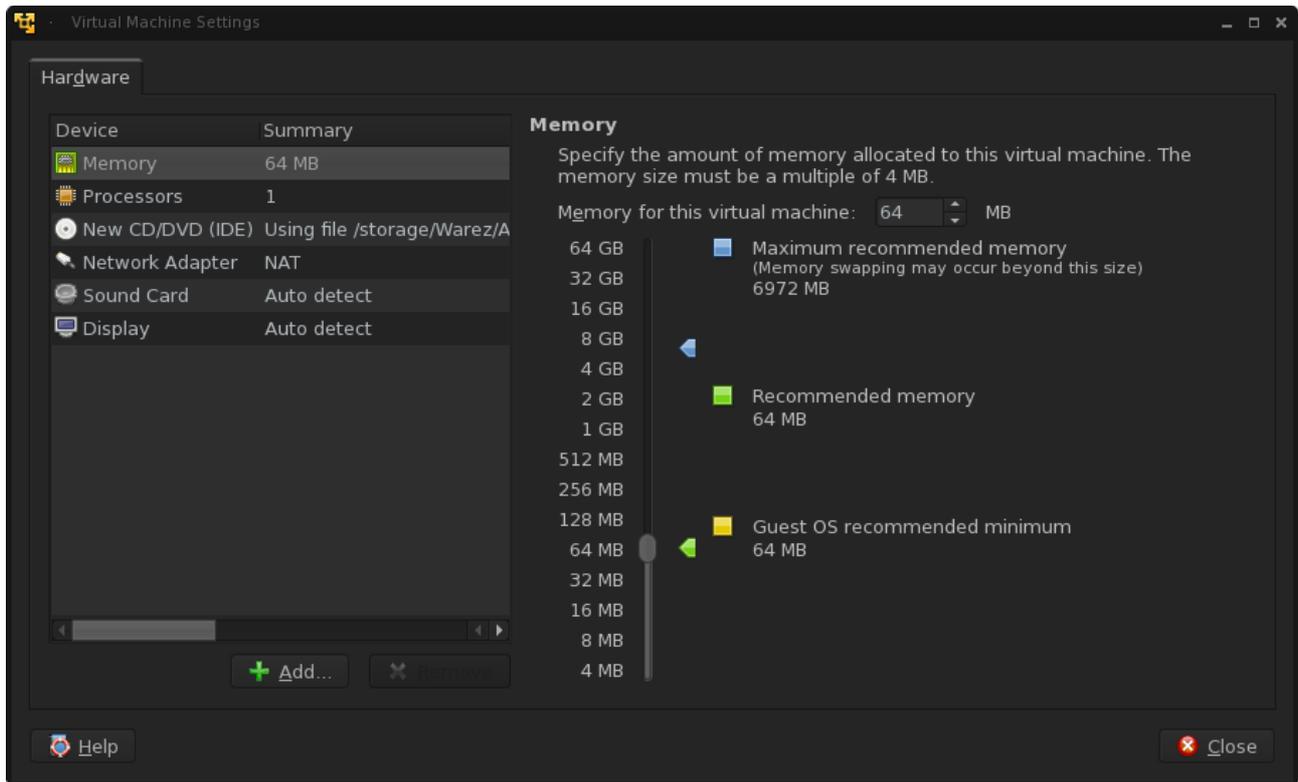


The default disk allocation for 95 on VMWare Player is quite generous. Machines of this era typically did not have drives this size. Unless you want to dump a ton of games in your virtual machine, lower the space to around 2 to 4 GB. Another reason we suggested 95B was for FAT32 support, which allows you to use partitions greater than 2GB. If you're using the floppy version, you **MUST** change this to 2GB unless you want to create multiple partitions.



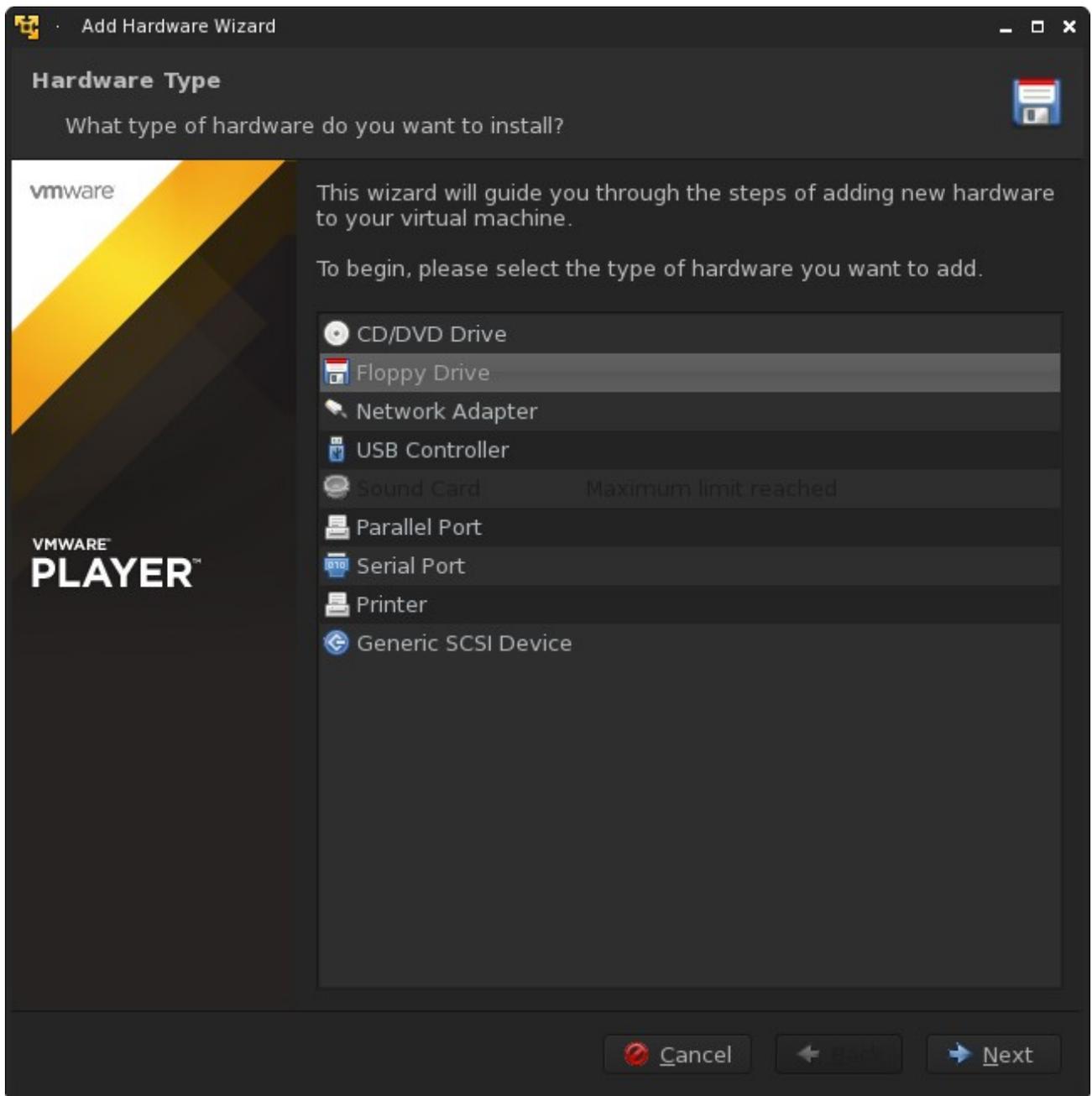
Finally we're to the last point in the setup screen. VMWare player gives by default 64MB of ram. This also is a bit generous and if you might run into problems with DOS games with this setting. Leave it as is for now and if you encounter problems, you can lower it later.

Now, click "Customize Hardware".

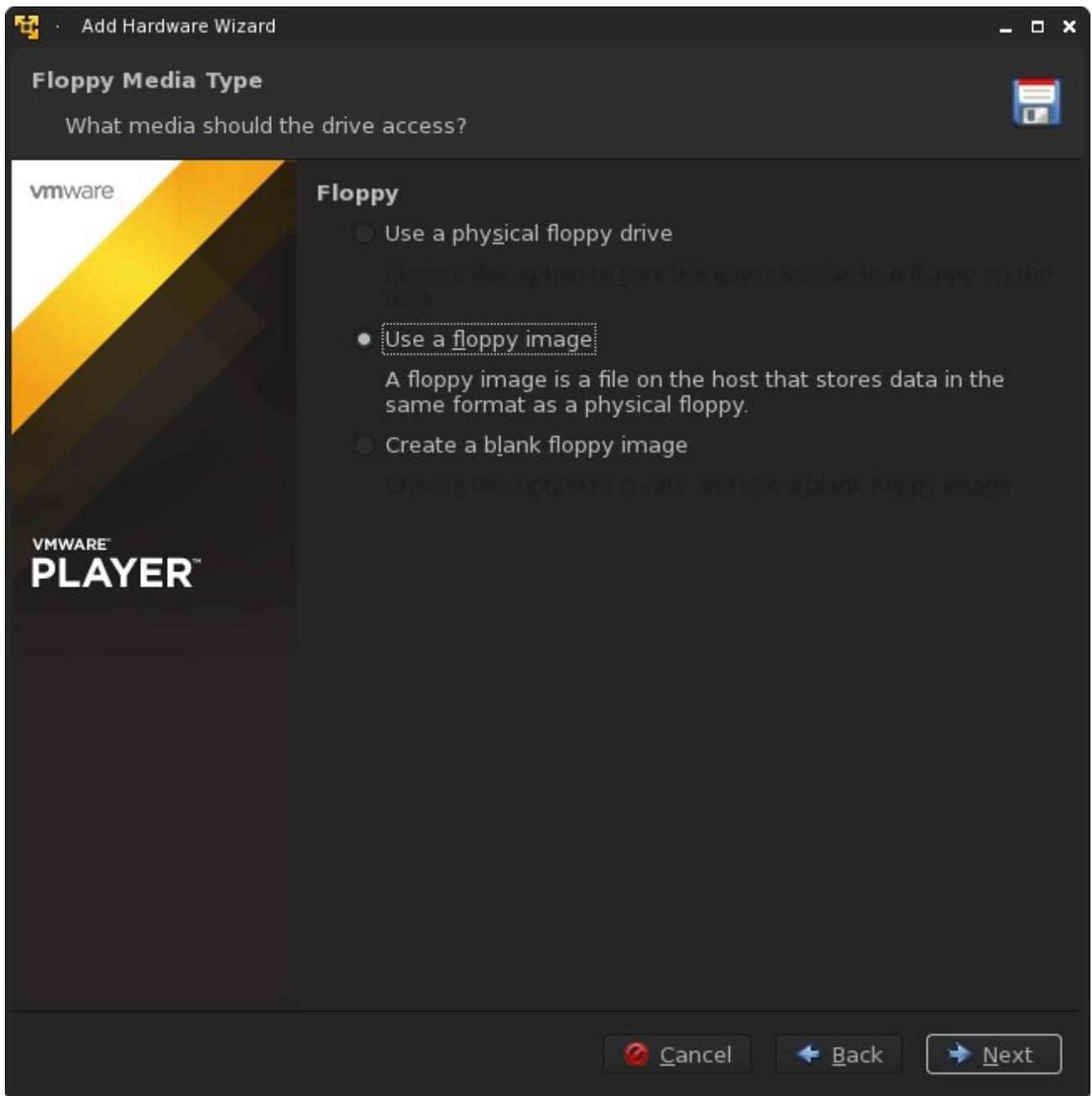


We're going to add in floppy support. This is required and I have no idea why they removed support from it by default.

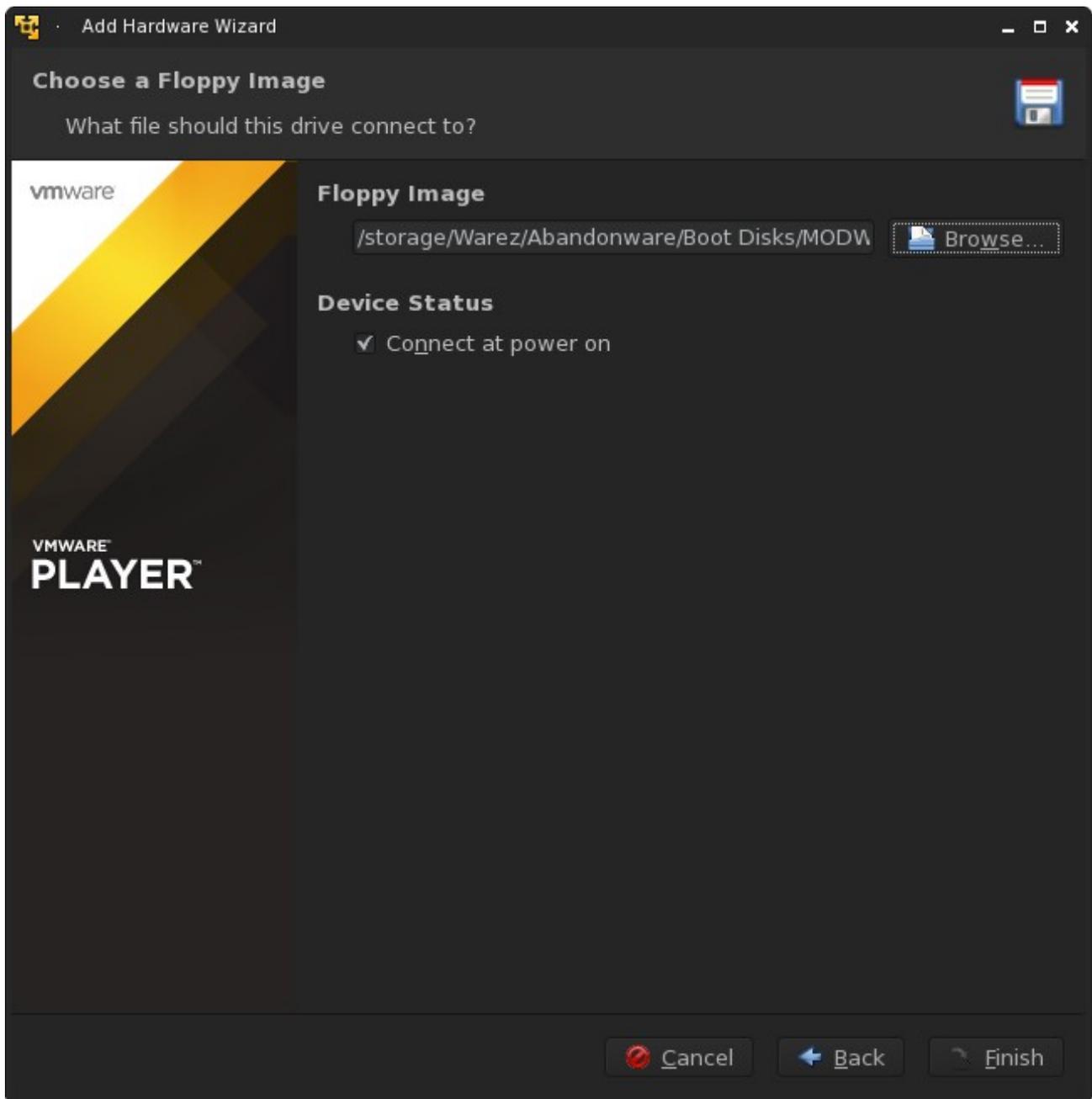
Click "Add"



Choose "Floppy Drive" and hit 'Next'.



I highly doubt you have a floppy drive installed in your computer, so click on "Use a floppy image" and hit next.



If you're using a version of 95 older than OSR 2.1, navigate to where you saved the floppy image you downloaded above. You will have to make sure you select "show all files" in order to see it as it's an .IMA format (WinImage format, but still basically a raw image with a different extension).

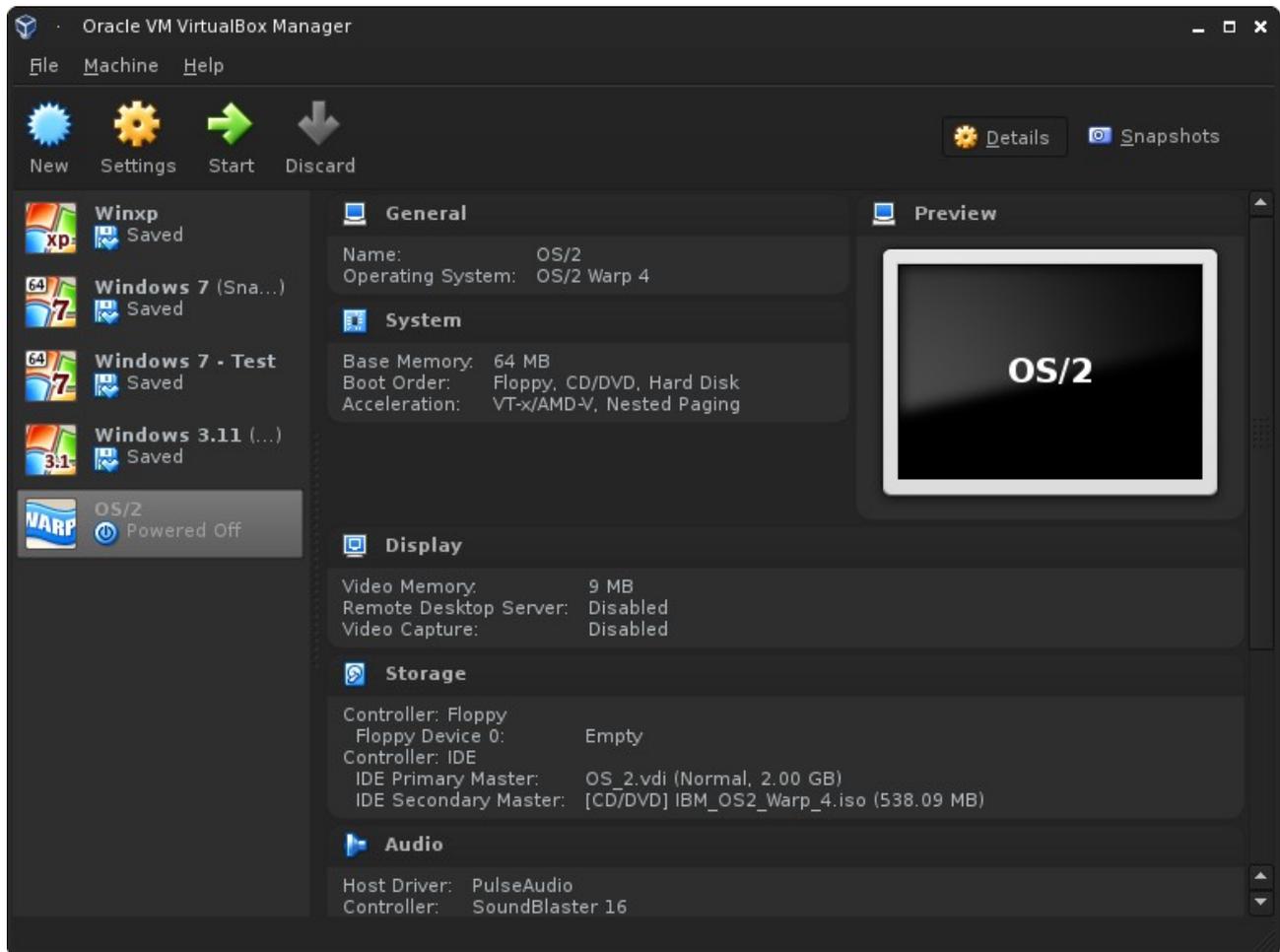
Otherwise, just leave it blank. The ISO should be bootable if its 95B or newer.

Hit "Finish" and start up your Virtual Machine.

The rest of this tutorial will be using VirtualBox to set up the VM. Instructions are the same between softwares and on desktops.

Setting up a VirtualBox VM:

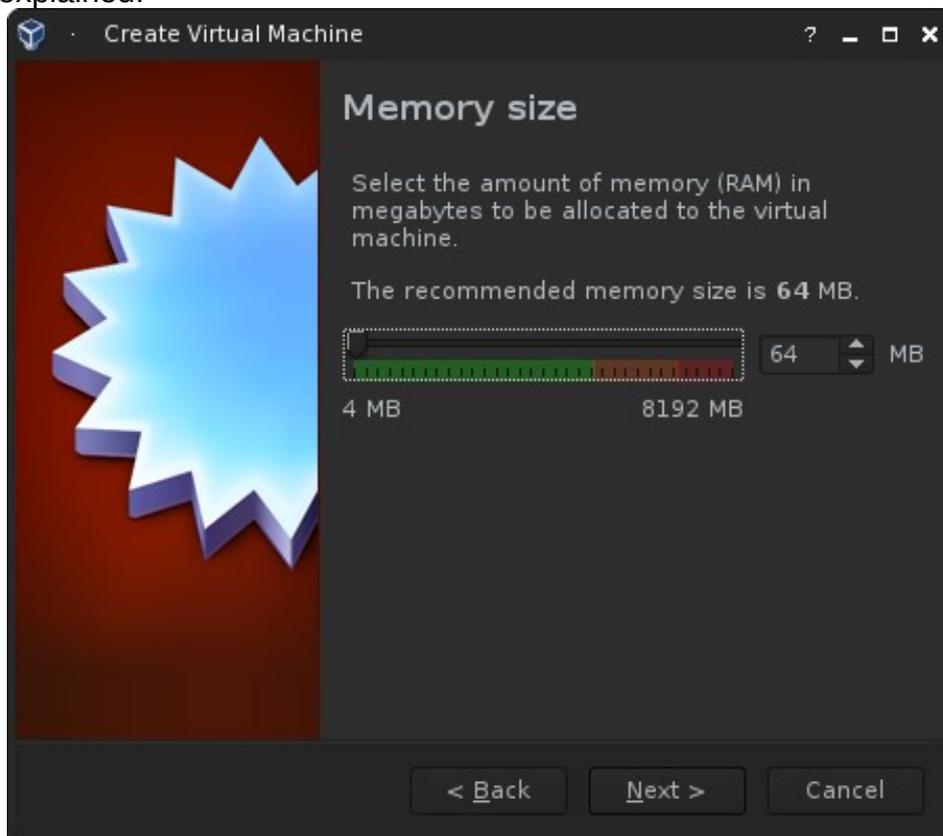
Fire up VirtualBox.



Hit the new button (this should be obvious)



Select your version from the pull down menu, I don't think this really needs to be completely explained.



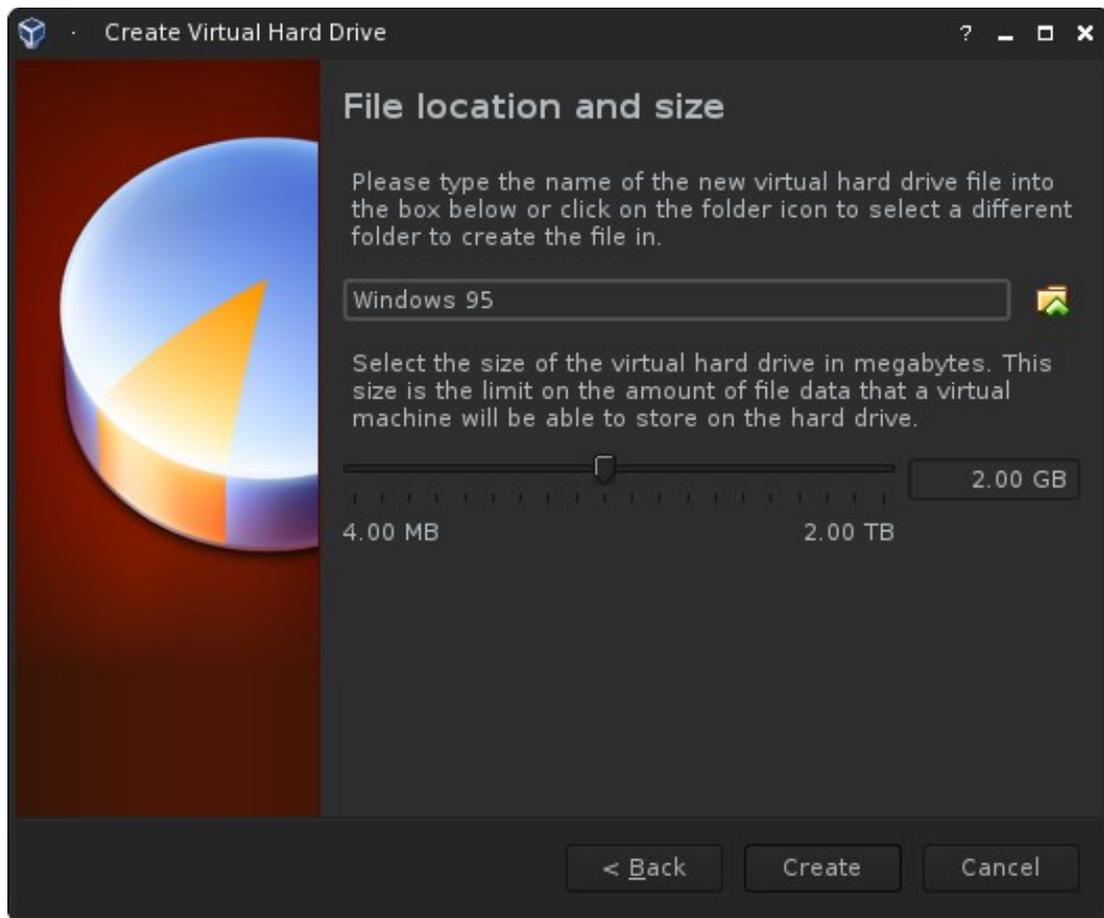
The defaults given for 95 by virtualbox should be enough for any use you put at it. I've seen 95 machines work fine with 128mb+ of ram but nothing in that era used anything really above 64mb.



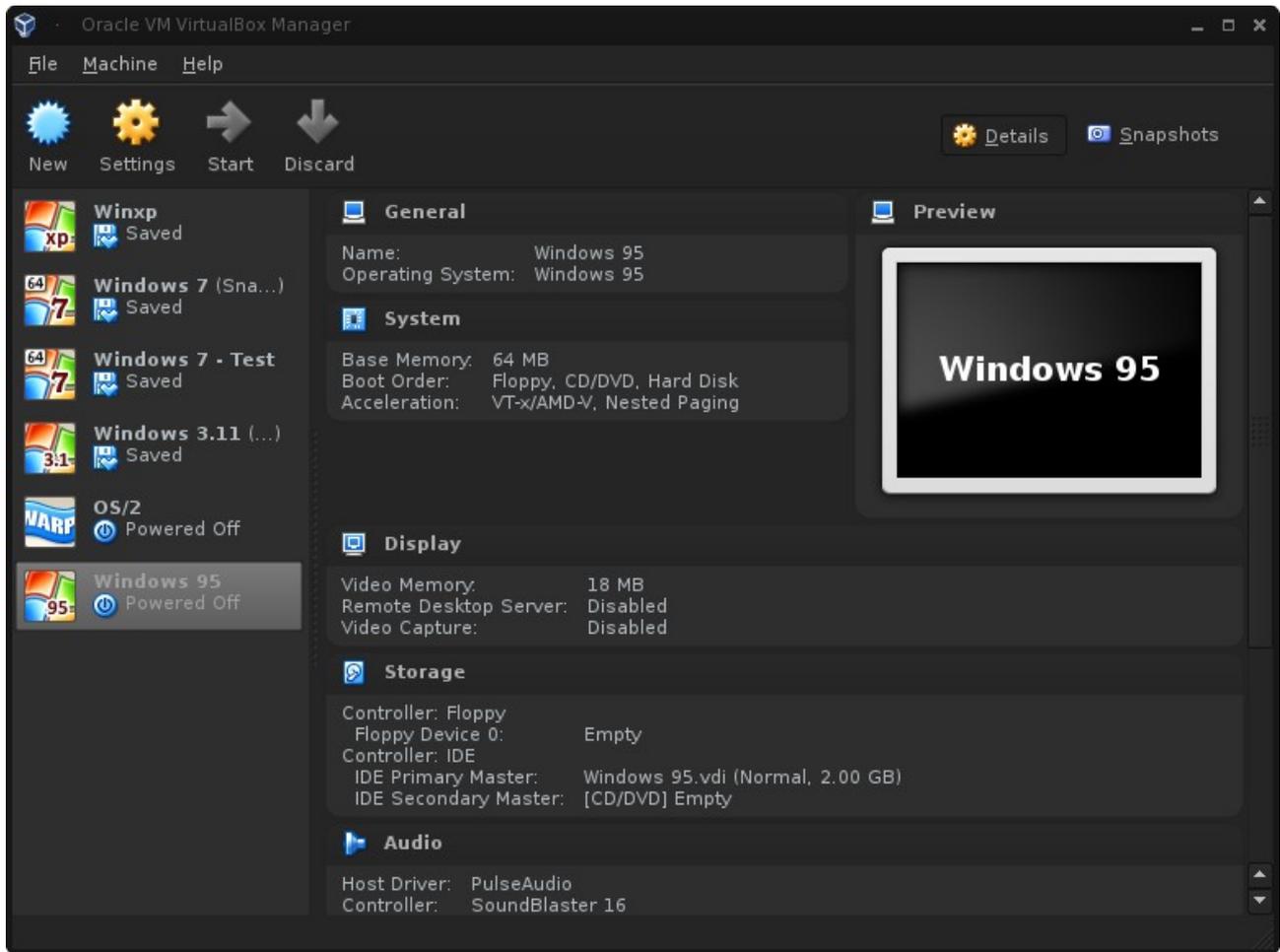
We will be creating a new disk image for this tutorial. If you have a disk image already made or from another site, you can easily just select the use an existing and continue on.



You can use the VDI format which is default. If you want to use this in another piece of emulation software later, just make sure you select VHD. If you want to mount this image in Windows 8 or later for moving stuff, Select VHD.



The default disk allocation for 95 on VirtualBox is sufficient. Machines of this era typically did not have drives beyond 2GB in size . Unless you want to dump a ton of games in your virtual machine, keep the space to around 2 to 4 GB. Another reason we suggested 95B was for FAT32 support, which allows you to use partitions greater than 2GB. If you're using the floppy version, you **MUST** change this to 2GB unless you want to create multiple partitions.

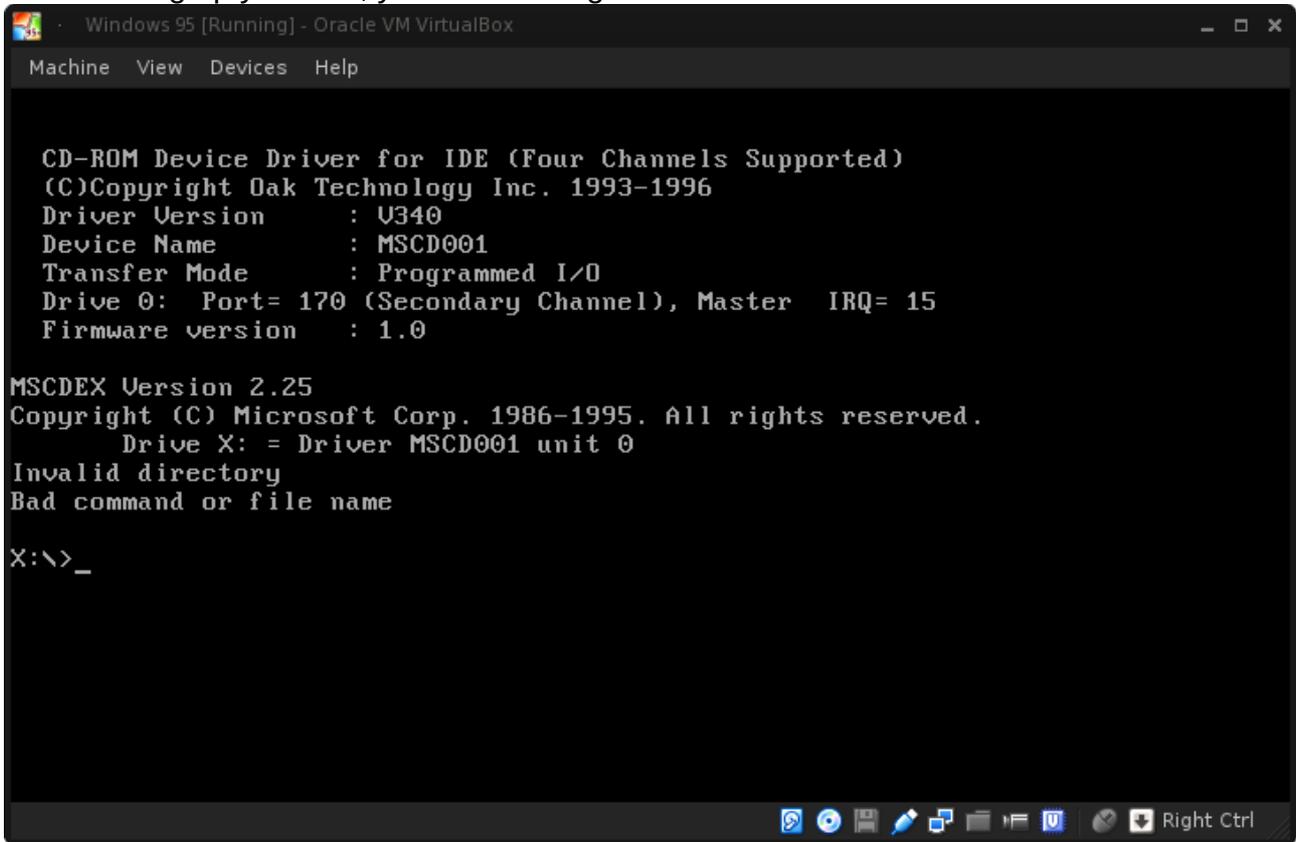


Once you hit create, you will return back to the home screen again. Go ahead and hit start. It will ask you where your install CD is, navigate to that location and hit next.

Installing Windows 95:

You should now be running your virtual machine. Screenshots from here on forward will reflect using VirtualBox instead of VMWare player, and steps from here on out will be exactly the same no matter what software you're using.

After booting up your VM, you should be greeted with a screen like this:



```
Windows 95 [Running] - Oracle VM VirtualBox
Machine View Devices Help

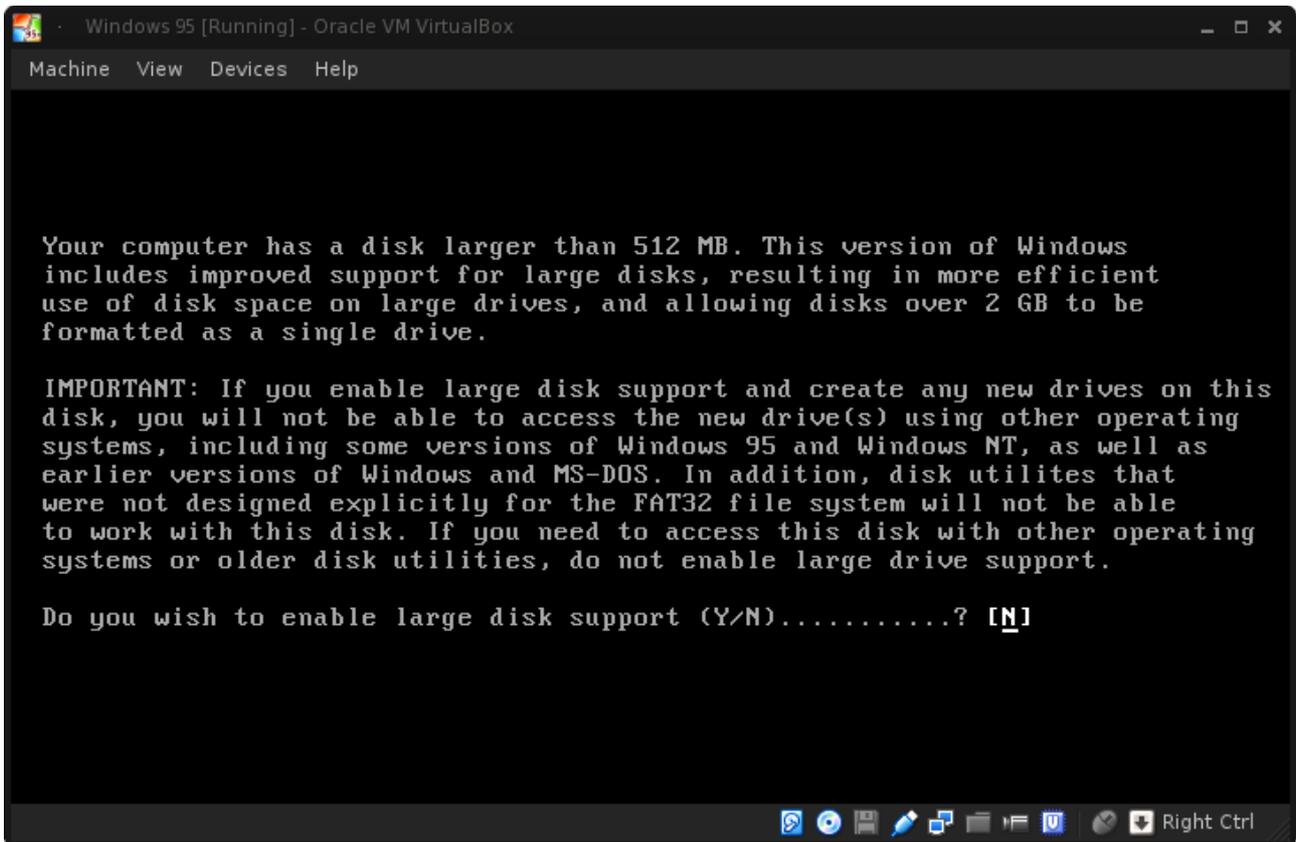
CD-ROM Device Driver for IDE (Four Channels Supported)
(C)Copyright Oak Technology Inc. 1993-1996
Driver Version      : U340
Device Name        : MSCD001
Transfer Mode      : Programmed I/O
Drive 0: Port= 170 (Secondary Channel), Master  IRQ= 15
Firmware version   : 1.0

MSCDEX Version 2.25
Copyright (C) Microsoft Corp. 1986-1995. All rights reserved.
  Drive X: = Driver MSCD001 unit 0
Invalid directory
Bad command or file name

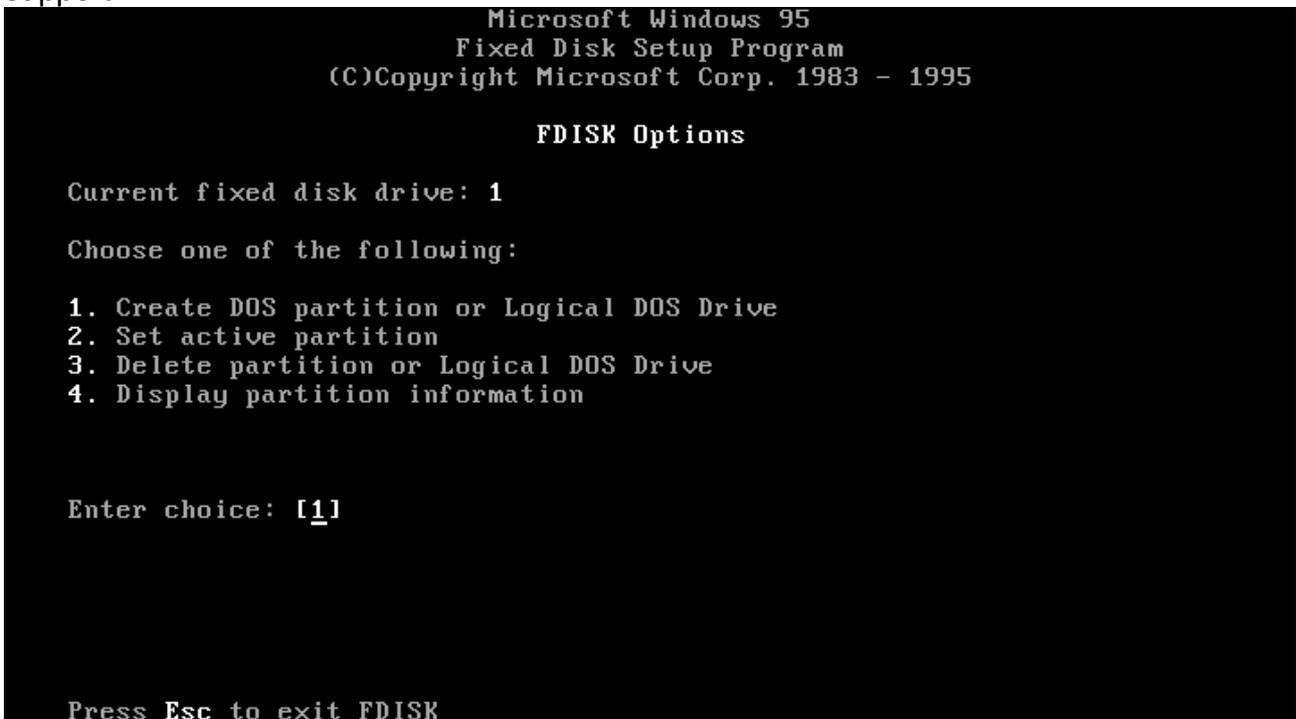
X:\>_

Right Ctrl
```

If you're using a virtual machine or a machine with a wiped hard drive, you will need to create partitions now. Type "a:" then type "fdisk" and hit enter. If you booted from the 95B CD, floppies are being emulated at this point.



If you're not installing 95 B OSR 2 or later, make sure that says N, if not, type "N" and hit enter. If you are, or are installing 98, you can type "Y" and hit enter. This will enable FAT32 support.



The default selection is 1. Go ahead and hit enter if it is.

Create DOS Partition or Logical DOS Drive

Current fixed disk drive: 1

Choose one of the following:

1. Create Primary DOS Partition
2. Create Extended DOS Partition
3. Create Logical DOS Drive(s) in the Extended DOS Partition

Enter choice: [1]

Press Esc to return to FDISK Options

We want to create a primary partition, if you're using a disk larger than 2GB and are going to run an earlier version of 95, you'll have to create additional partitions by using options 2 and 3 after you make your first primary partition.

Create Primary DOS Partition

Current fixed disk drive: 1

Do you wish to use the maximum available size for a Primary DOS Partition and make the partition active (Y/N).....? [Y]

Press Esc to return to FDISK Options

Fdisk will scan your disk and if the drive has not been initialized or all partitions were deleted, you will be greeted with this. If the disk is 2GB or smaller or you're using the suggested version for this tutorial and selected large disk support, go ahead and just hit enter.

```
You MUST restart your system for your changes to take effect.  
Any drives you have created or changed must be formatted  
AFTER you restart.
```

```
Shut down Windows before restarting.
```

```
Press Esc to exit FDISK
```

Heed this warning. It's a bad idea to format the newly created partitions right after exiting fdisk. Go ahead and hit escape on your keyboard and reboot your virtual machine.

```
CD-ROM Device Driver for IDE (Four Channels Supported)  
(C)Copyright Oak Technology Inc. 1993-1996  
Driver Version      : U340  
Device Name        : MSCD001  
Transfer Mode      : Programmed I/O  
Drive 0:  Port= 170 (Secondary Channel), Master  IRQ= 15  
Firmware version   : 1.0
```

```
MSCDEX Version 2.25  
Copyright (C) Microsoft Corp. 1986-1995. All rights reserved.  
Drive X: = Driver MSCD001 unit 0  
Invalid directory  
Bad command or file name
```

```
X:\>a:
```

```
A:\>format c:
```

```
WARNING, ALL DATA ON NON-REMOVABLE DISK  
DRIVE C: WILL BE LOST!  
Proceed with Format (Y/N)?_
```

After rebooting your VM, it's finally time to format your drives. Go to a: by and type "format c:". You can go ahead, accept that and hit enter for all the defaults it gives you.

```

WARNING, ALL DATA ON NON-REMOVABLE DISK
DRIVE C: WILL BE LOST!
Proceed with Format (Y/N)?y

Formatting 2,047.46M
Format complete.
Writing out file allocation table
Complete.
Calculating free space (this may take several minutes)...
Complete.

Volume label (11 characters, ENTER for none)?

2,142,720,000 bytes total disk space
2,142,720,000 bytes available on disk

    4,096 bytes in each allocation unit.
    523,124 allocation units available on disk.

Volume Serial Number is 0E34-1AE4

A:\>_

```

It's time to install 95 finally after pages of easy steps (This is page 21 on the pdf version). Remember the letter you saw for the CD drive when you booted? Time to go to that drive and start setup. If you booted from the CD, it'll give you drive X: for some weird reason, but I won't complain about it.

```

A:\>X:
X:\>dir

Volume in drive X is WIN95B
Directory of X:\

ADMIN          <DIR>          09-29-97  7:47p
OTHER          <DIR>          09-29-97  7:48p
README   TXT           3,893    09-12-96  2:07a
SETUP        <DIR>          09-29-97  7:54p
SETUP   TXT           296     03-11-97  1:20a
USBSUPP      <DIR>          09-29-97  7:54p
 2 file(s)                4,189 bytes
 4 dir(s)                  0 bytes free

X:\>_

```

The install CD should have a directory structure like this. Change the directory to the setup folder by typing "cd setup" and hitting enter. Begin setup by typing "setup" and hitting enter. Hit enter again for it to scan your disks.

Windows 95 Setup



Welcome to 95 setup finally. It looks a lot like Windows 3.x though. Go ahead and click "Continue"

Windows 95 Setup

Software License Agreement

 Please read the following license agreement. Press the PAGE DOWN key to see the rest of the agreement.

**END-USER LICENSE AGREEMENT FOR MICROSOFT SOFTWARE - MICROSOFT[r]
WINDOWS[r] 95 -**

IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and the manufacturer ("PC Manufacturer") of the computer system ("COMPUTER") with which you acquired the Microsoft software product(s) identified above ("SOFTWARE PRODUCT" or "SOFTWARE"). If the SOFTWARE PRODUCT is not accompanied by a new computer system, you may not use or copy the SOFTWARE PRODUCT. The SOFTWARE PRODUCT includes computer software, the associated media, any

Do you accept all of the terms of the preceding Microsoft License Agreement? If you choose No, Setup will close. To install Windows 95, you must accept this agreement.

Does anyone really read these besides me? Go ahead and click "Yes". Basically is telling you that you can't pirate this and other legal nonsense.

Windows 95 Setup

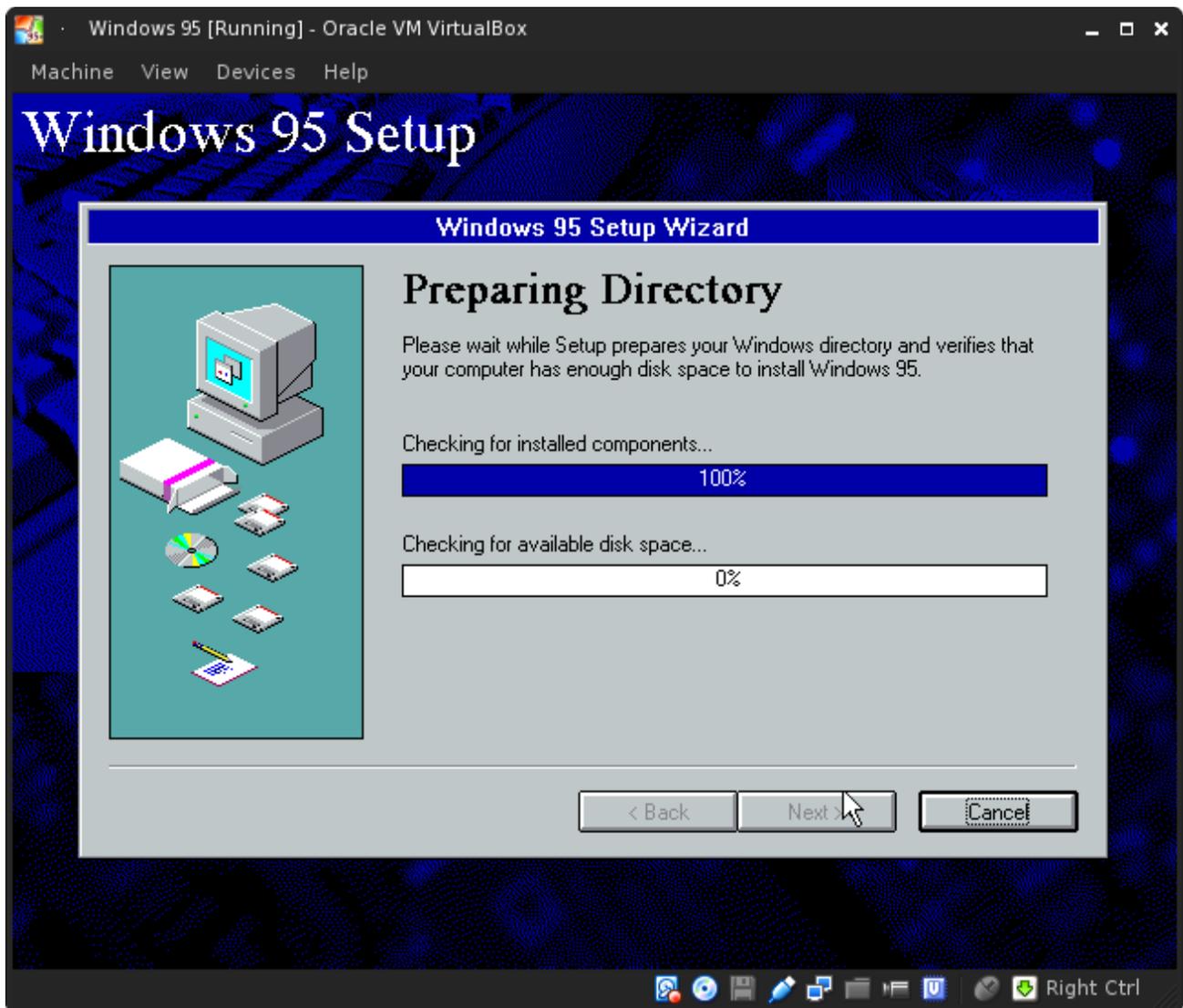


To make sure we're on the same page, you should now be seeing this. Hit next.

Windows 95 Setup



You can accept that as the default unless you want to run multiple versions of Windows on the same partition. I don't see any purpose of people doing this in the present day. I suppose though if you're not installing to the first disk, first partition you could choose another location, but for a VM or even a standalone machine, that'd be really rare.



If on a standalone machine from that era, this part will take a long while. Be patient if that's the case.

Windows 95 Setup



You can accept the typical setup here and hit next. If you have a computer with a smaller drive, I would suggest selecting compact or custom and trimming down the stuff you won't need.

Windows 95 Setup

Windows 95 Setup Wizard

Certificate of Authenticity

In the materials that came with your computer you should have received a Microsoft Windows 95 Certificate of Authenticity (similar to the picture at the left).

If you do not have one, click the Next button for more information.

Type the number shown above the bar code on your Certificate of Authenticity, excluding the "OEM" string and the dashes, and click the Next button to continue.

Use the tab key to move between boxes.

06697 -OEM- 0019882 - 68850

< Back Next > Cancel

You'll need a license key to install 95. Typically most sites (if you downloaded it) will be kind enough to provide you with a key. Enter yours and hit next.

Windows 95 Setup

Windows 95 Setup Wizard

User Information

Type your name below. If you want, you can also type the name of the company you work for.

Name:

Company:

< Back Next > Cancel



It's your VM, enter whatever you want into those boxes and hit next.

Windows 95 Setup



Make sure you have only the sound option selected and hit next. The following screen that indicates your computer is being scanned for hardware (not taken for this tutorial) will take forever on a standalone machine or a minute or two in a VM before it finishes. If you select "Network Adapter" and hit next, you'll be hit by a setup quirk (Explained later).

Windows 95 Setup



Yet again, accept the defaults and hit next.

Windows 95 Setup



You do not need a startup disk, hit no and then next.

Windows 95 Setup



More powerful

Windows 95 has been improved to provide high-powered performance.

- Smoother multitasking lets you use many programs at once: do more in less time!
- 32-bit networking provides speed and reliability at your desk or on the road.
- Windows 95 has faster printing and disk access.

Copying files...

30%

Exit (F3)

Go ahead and click next on the next few screens and you'll finally be installing 95, and this tutorial only took 33 pages so far. You can go ahead and get a nice laugh at the messages that setup says as its installing.

Windows 95 Setup

Windows 95 Setup Wizard



Finishing Setup

The Setup Wizard is ready to start Windows 95 and begin the last part of Setup.

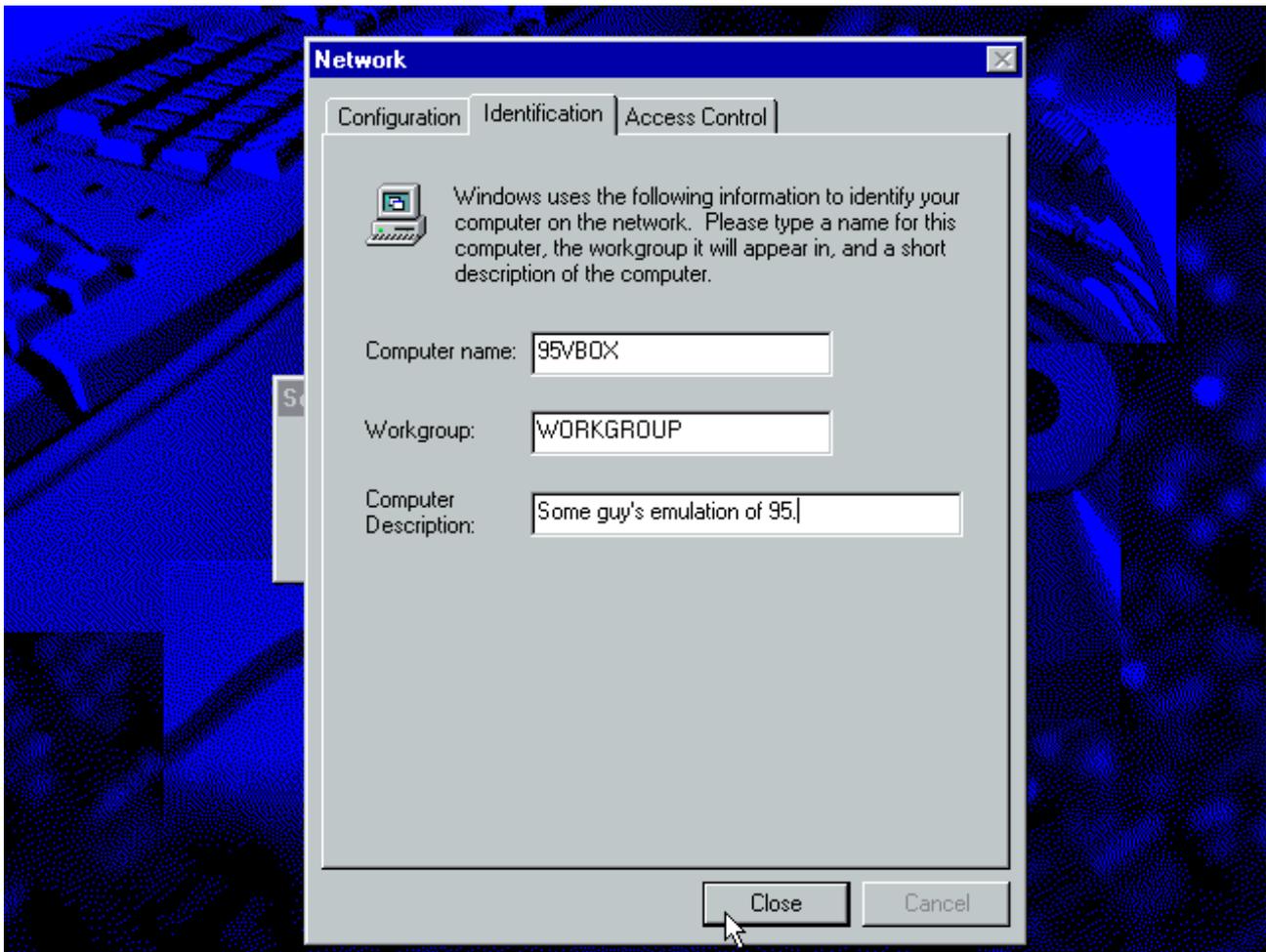
Remove any disks from their drives, and then click Finish to restart your computer and finish Setup.

- 1) Collecting information about your computer
- 2) Copying Windows 95 files to your computer
- ▶ **3) Restarting your computer and finishing Setup**



Setup is now ready to restart your computer and finish setting up Windows 95.

After installing files, you'll be greeted with this, go ahead and click finish and the machine will reboot.



After that awesome bootscreen, Windows will start and ask you to enter computer and workgroup names. Enter whatever you want here, but I usually leave workgroup as "WORKGROUP"



The next few screens are omitted as it's simply timezone and printer setup. Change your timezone to whatever you live in and on the printer screen hit cancel. You'll be greeted with this and you can reboot your computer.



Congrats! You now have a working 95 install. What you should do next is install your VM software's additions package now, or if you have a standalone machine, install drivers if you have the disks laying around.

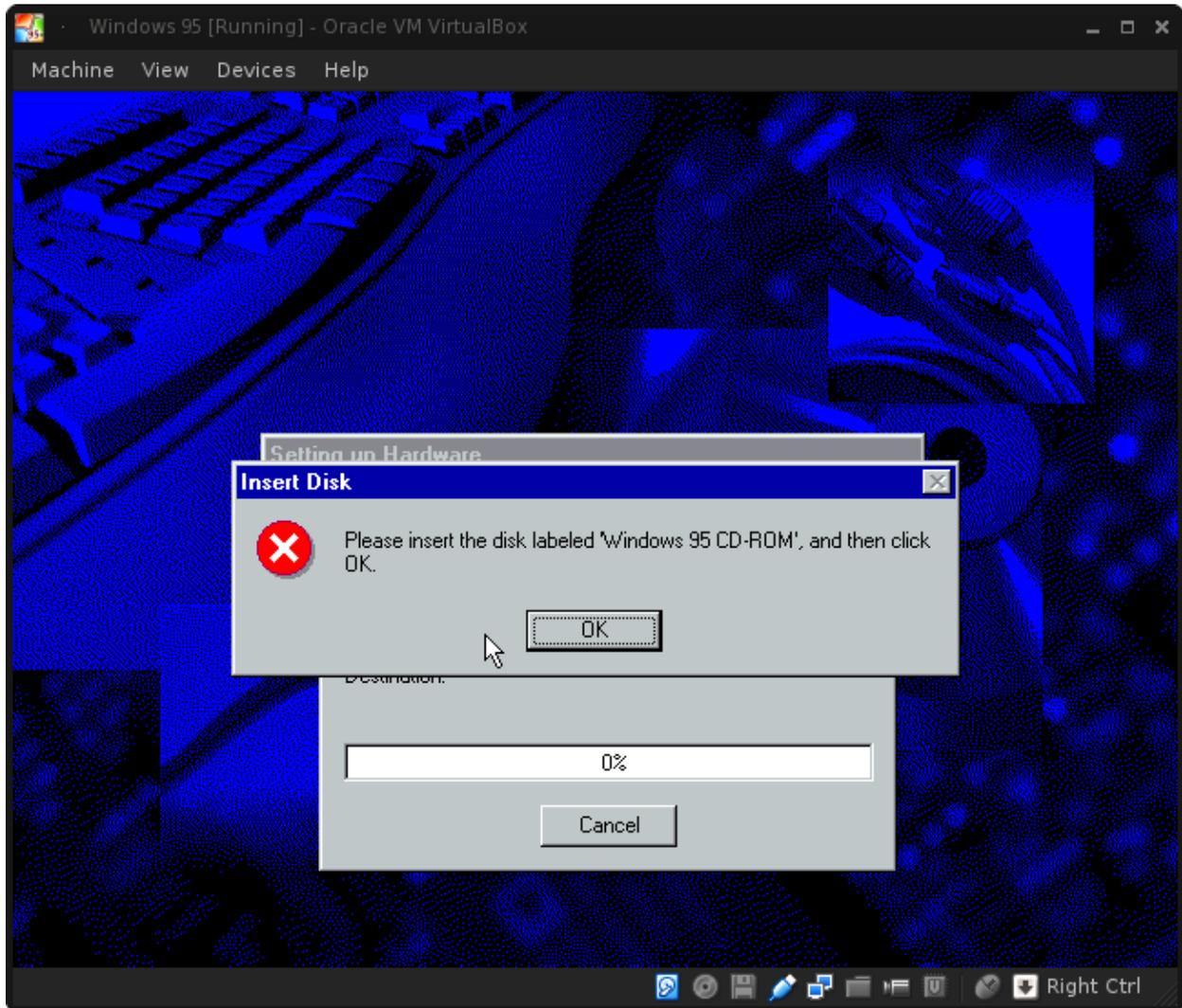
OABW's suggested software:

Browsing (Do you really want to on something this old): Seamonkey 1.6.x should work.

Games: Microsoft Flight Simulator 95, Frogger

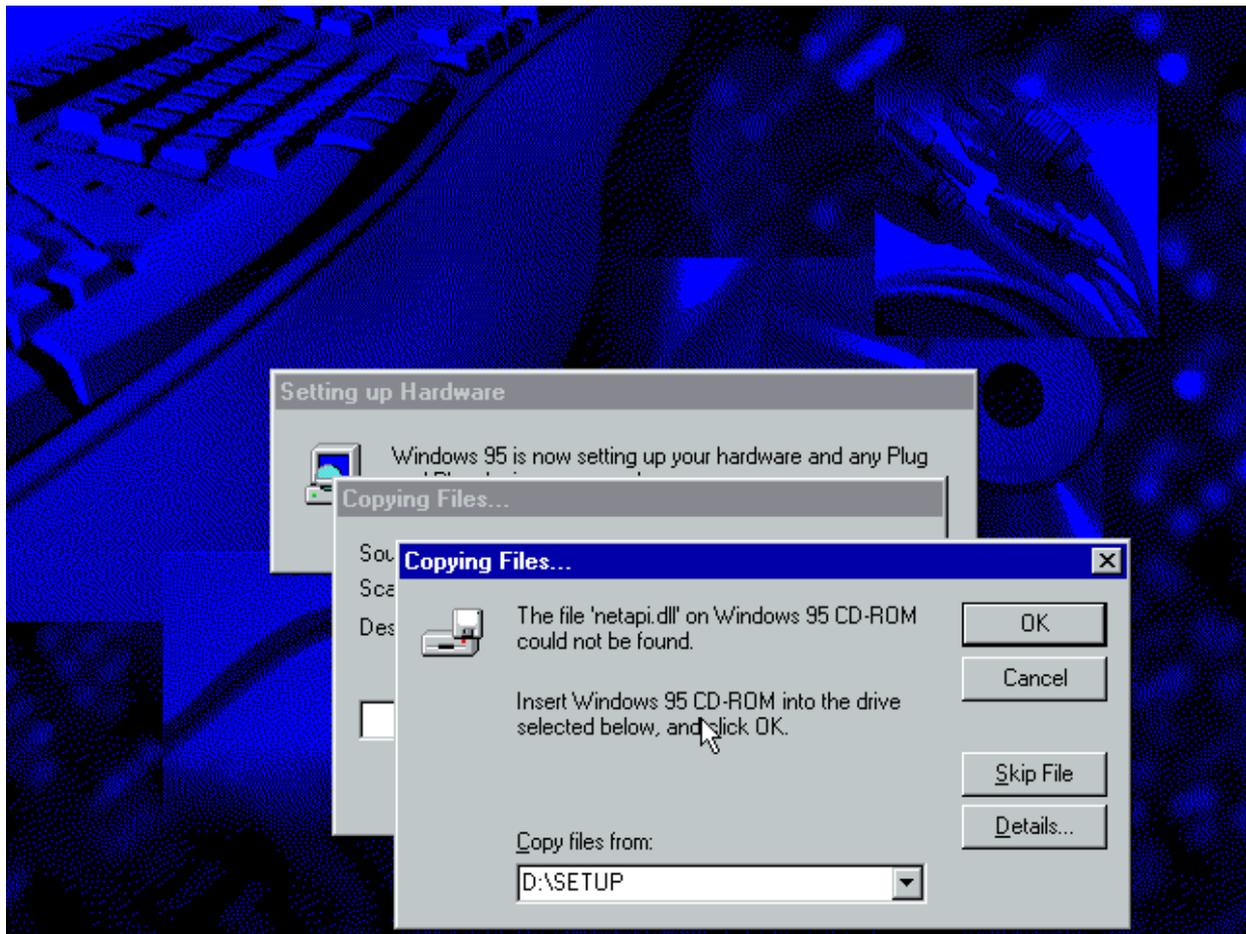
Suggested office suite for 95: Office 97 (Office 2k installs IE and isn't really much different)

Setup Quirks:



95 Setup Quirks begin here. If you selected "Network adapters" in the hardware portion of setup like I did, will give you results like this.

You were asked previously in setup to remove all disks in your drive and hit next to reboot. After reboot, typically drive labels change, so instead of X for your CD drive, it will now be D:. reinsert your disk and on the next screen after hitting Ok, change X to D and hit okay.



Sometimes this won't work also, so if that's the case, hit cancel and setup will continue.

If you hit cancel on the screen asking you to provide the 95 setup disk (and it wasn't detected), you'll be greeted with this on your next reboot:

```
Cannot find a device file that may be needed to run Windows or a  
Windows application.
```

```
The windows registry or SYSTEM.INI file refers to this device file, but  
the device file no longer exists.
```

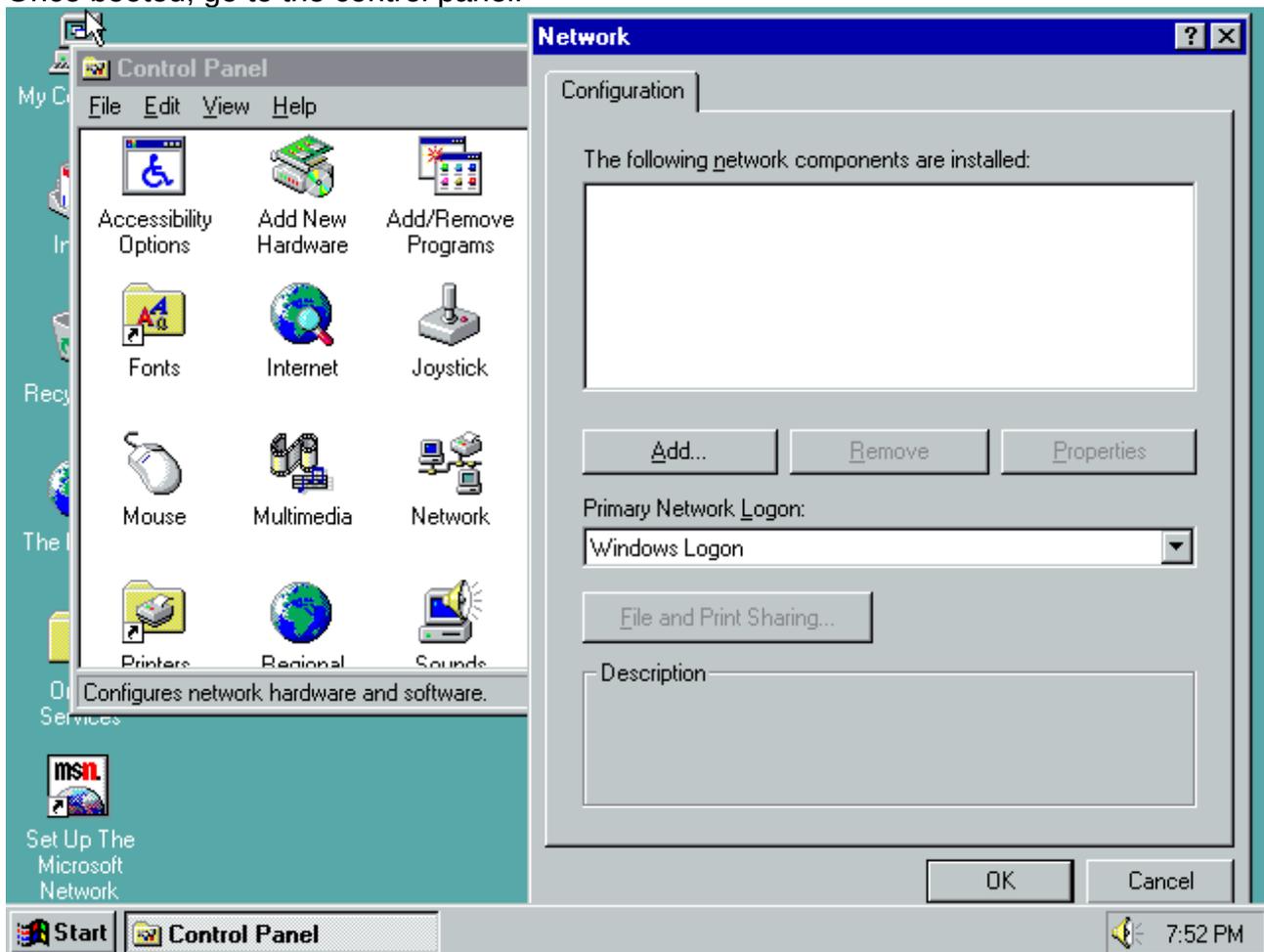
```
If you deleted this file on purpose, try uninstalling the associated  
application using its uninstall or setup program.
```

```
If you still want to use the application associated with this device file,  
try reinstalling that application to replace the missing file.
```

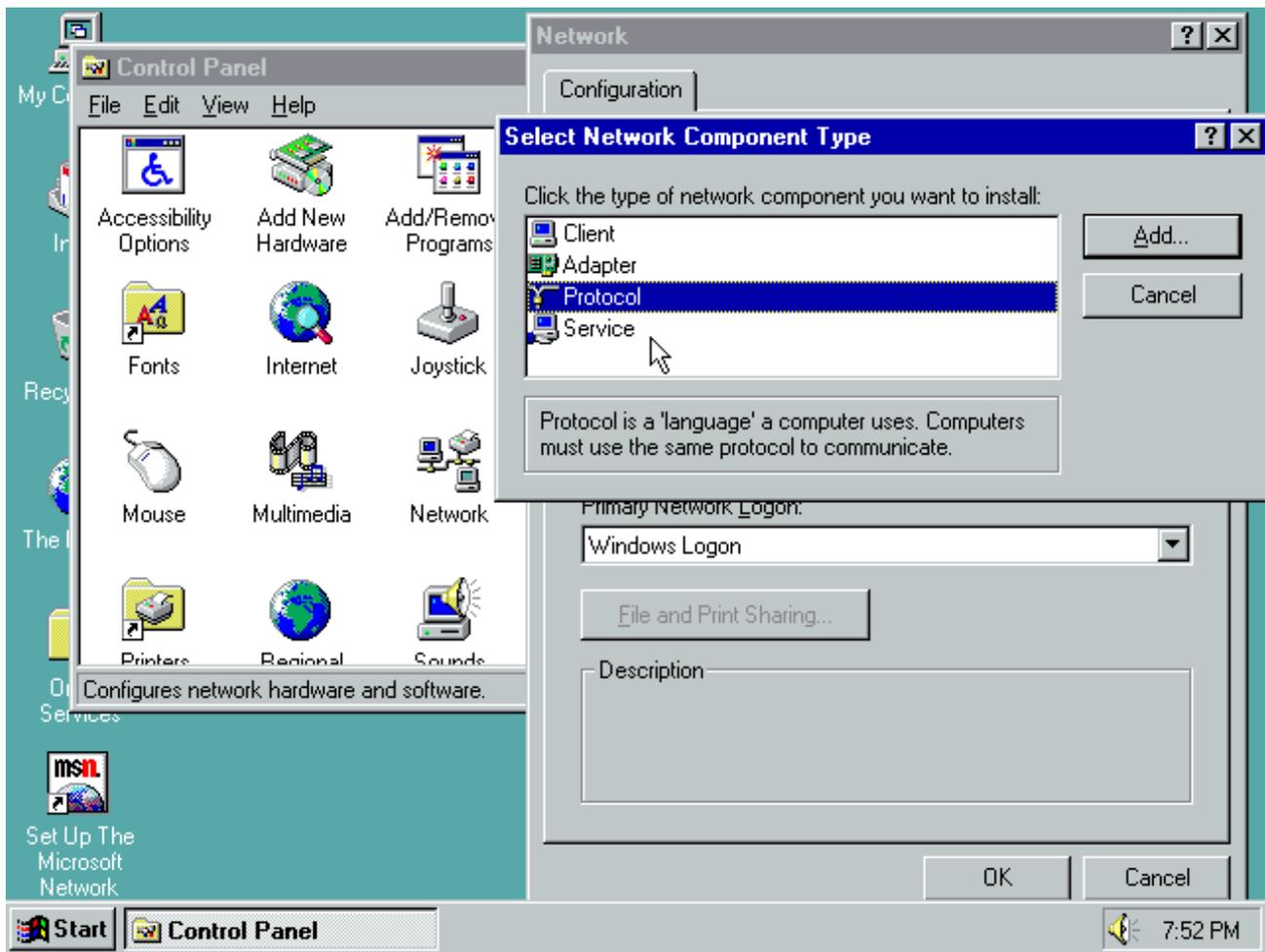
```
vnetsup.vxd  
Press a key to continue_
```

Don't worry, this is repairable and fairly easy too. The problem comes from us selecting that we had a networking card during setup. For some reason on first boot depending on the machine, the disc drive will not be detected. Go ahead and hit any key on your

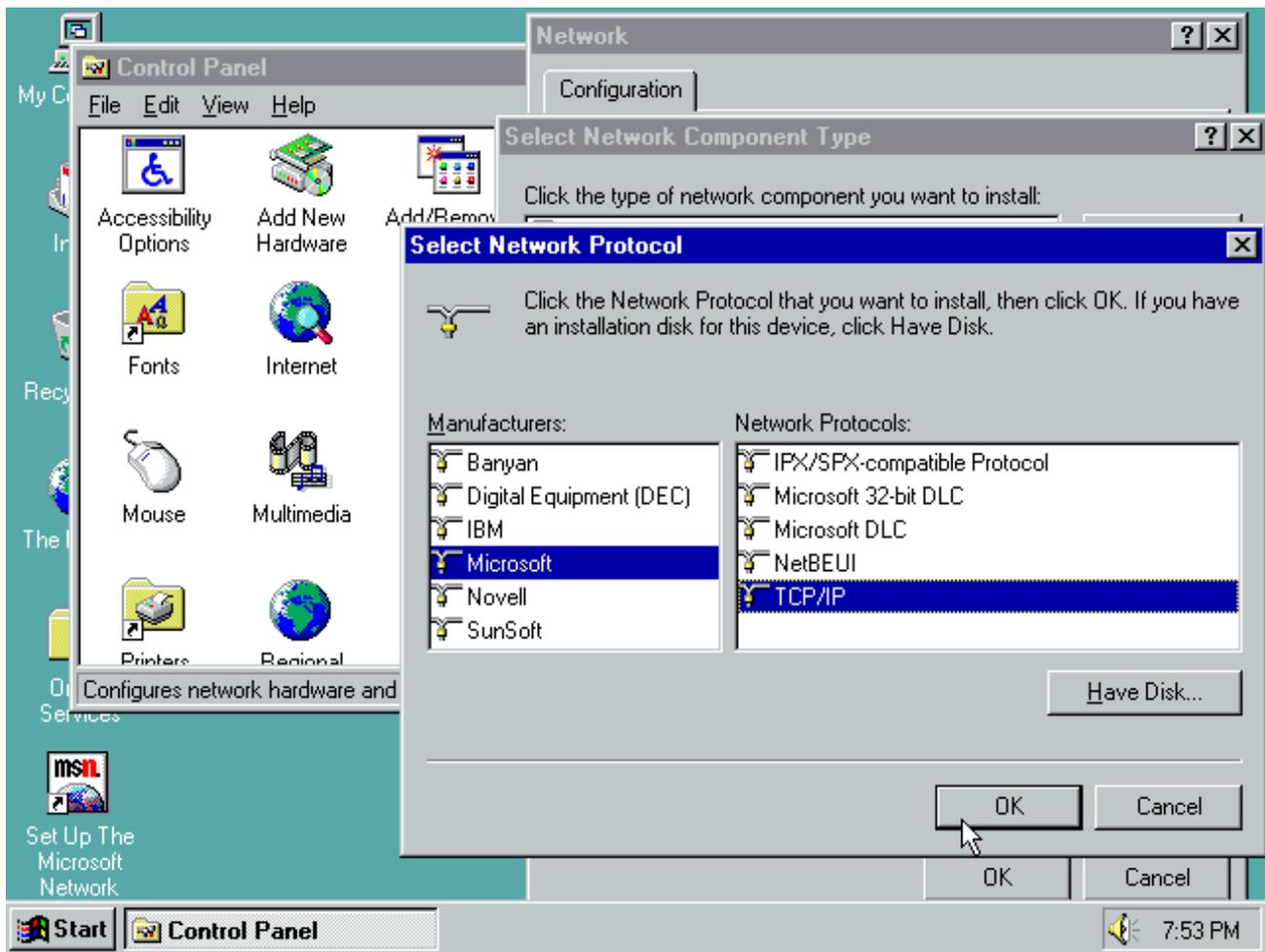
keyboard for the string of those errors and you will finally boot into 95. You might get another error or two after that, but they aren't show stoppers. Once booted, go to the control panel.



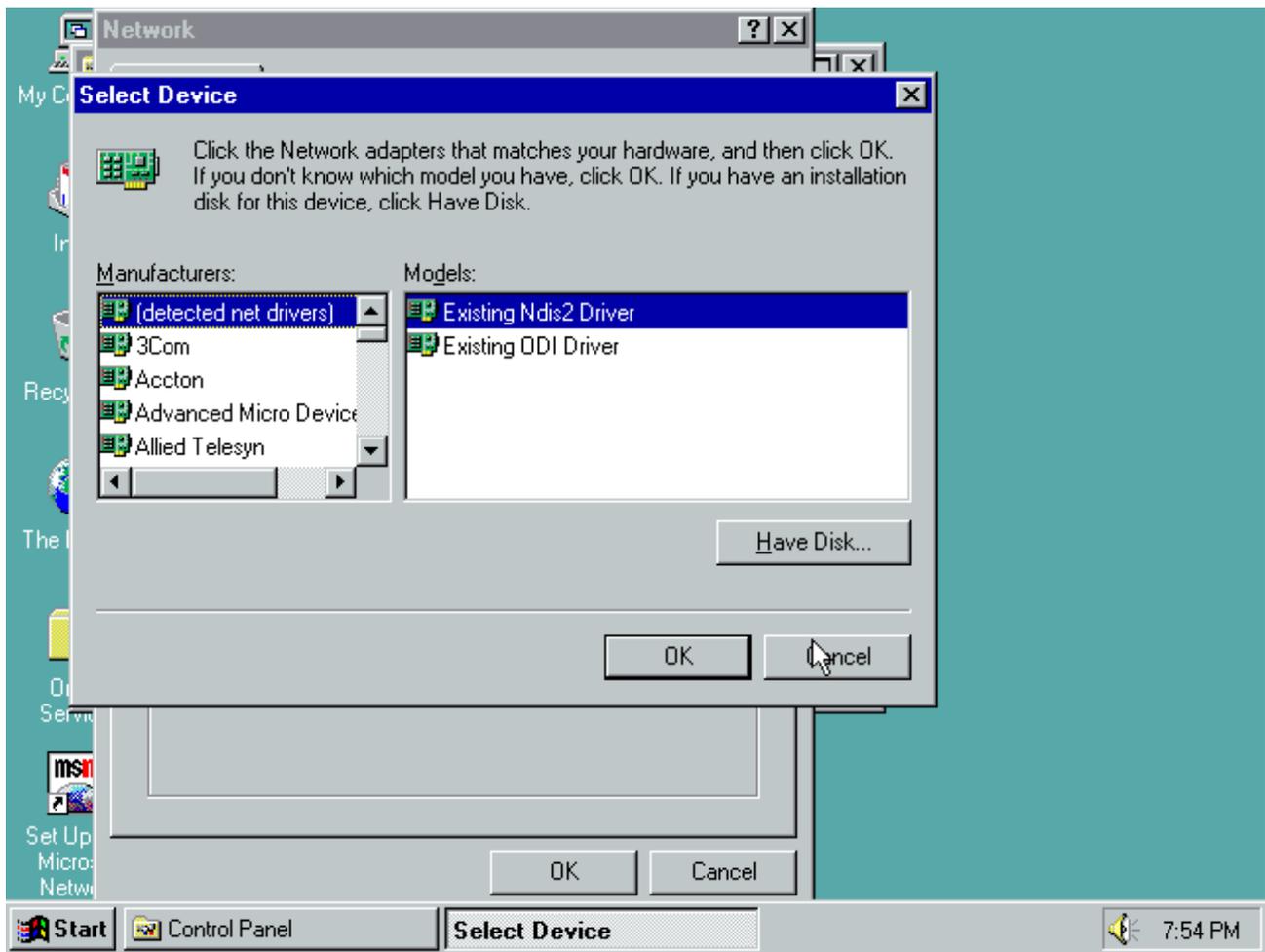
Select "Network" from the options. You will likely get a blank screen like this. Click Add.



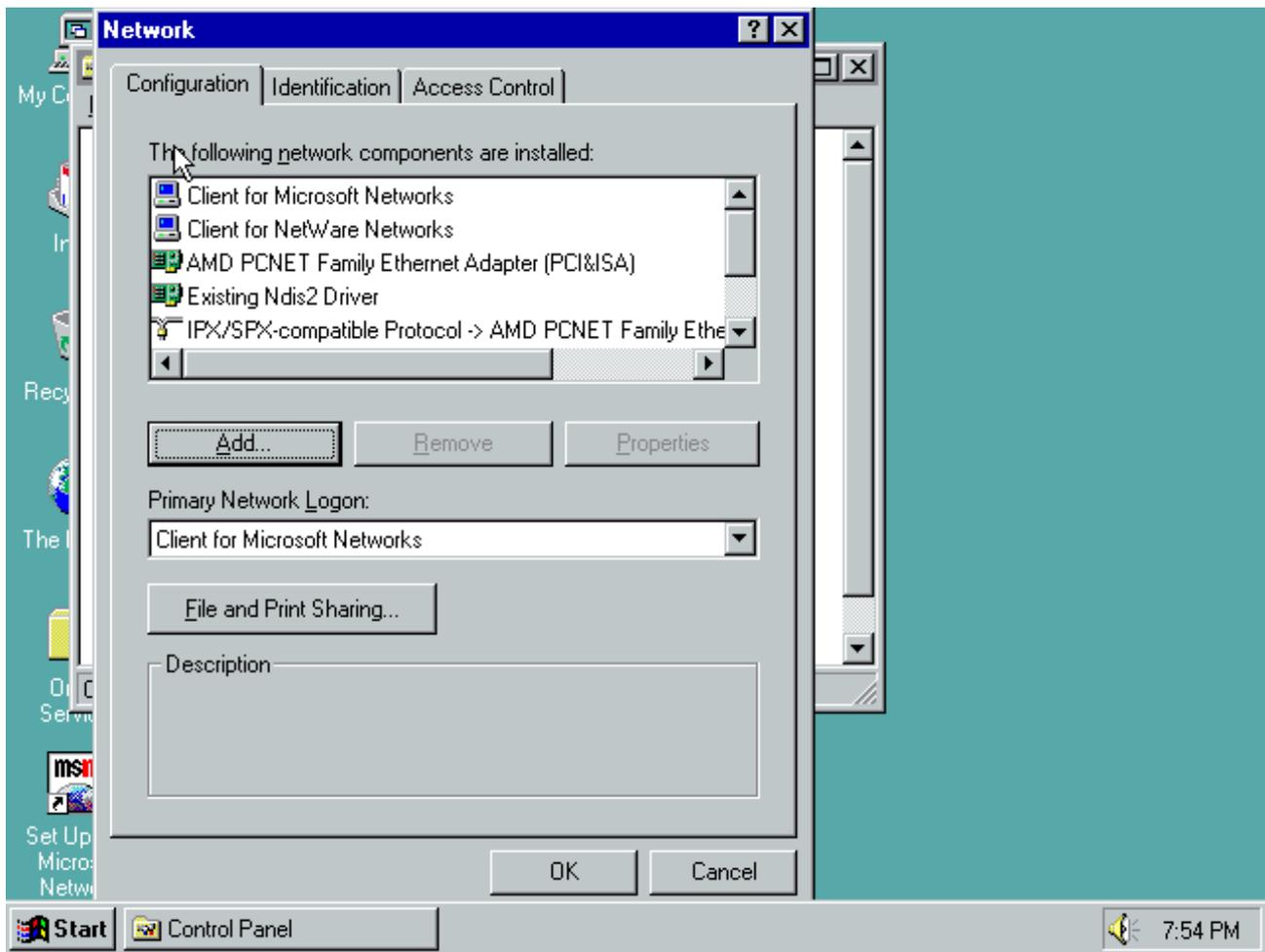
We will act like we're going to add TCP support (In reality it's actually already there but the drivers weren't properly installed). Click Protocol and hit add.



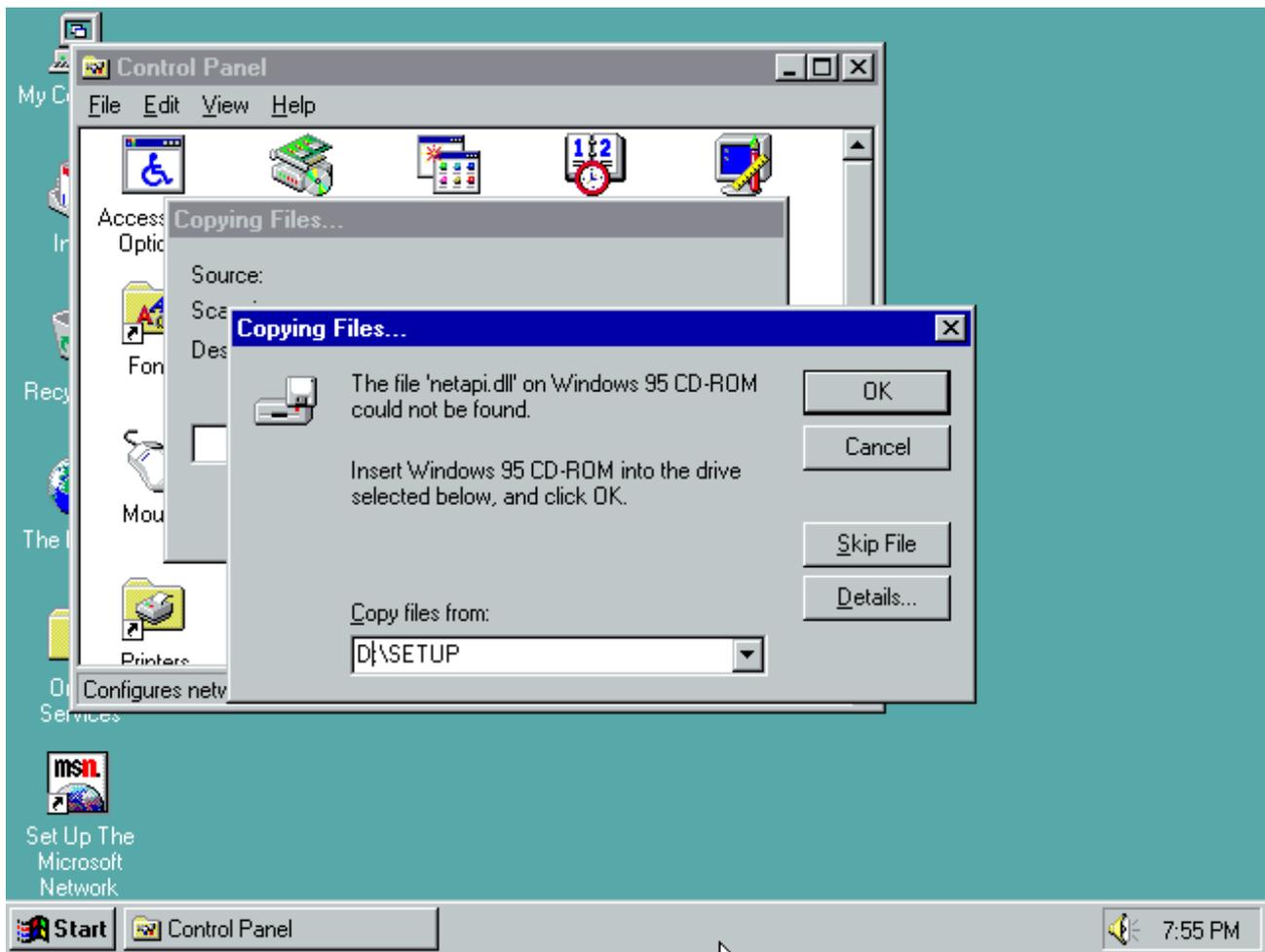
Choose Microsoft for the manufacturer and TCP/IP as the protocol. Hit Ok.



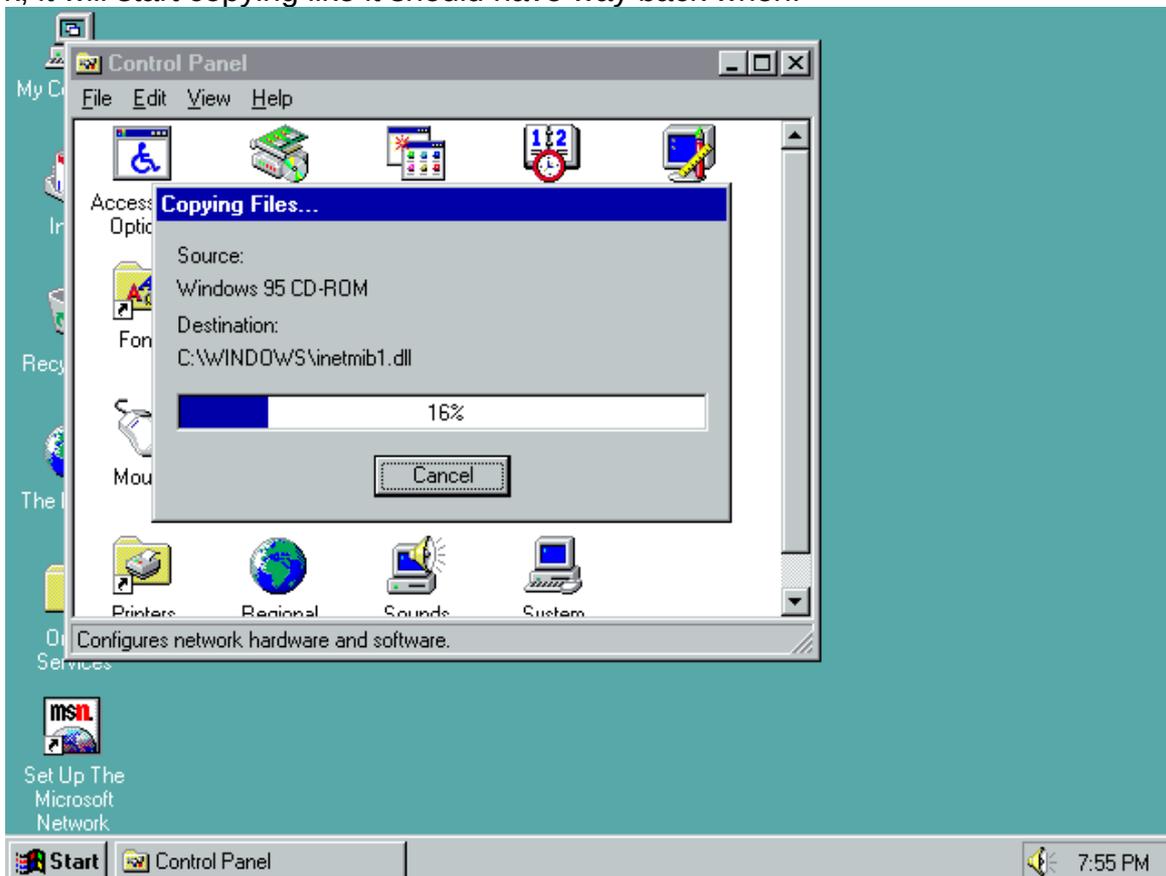
This screen will automatically appear. Hit cancel several times until it goes away.

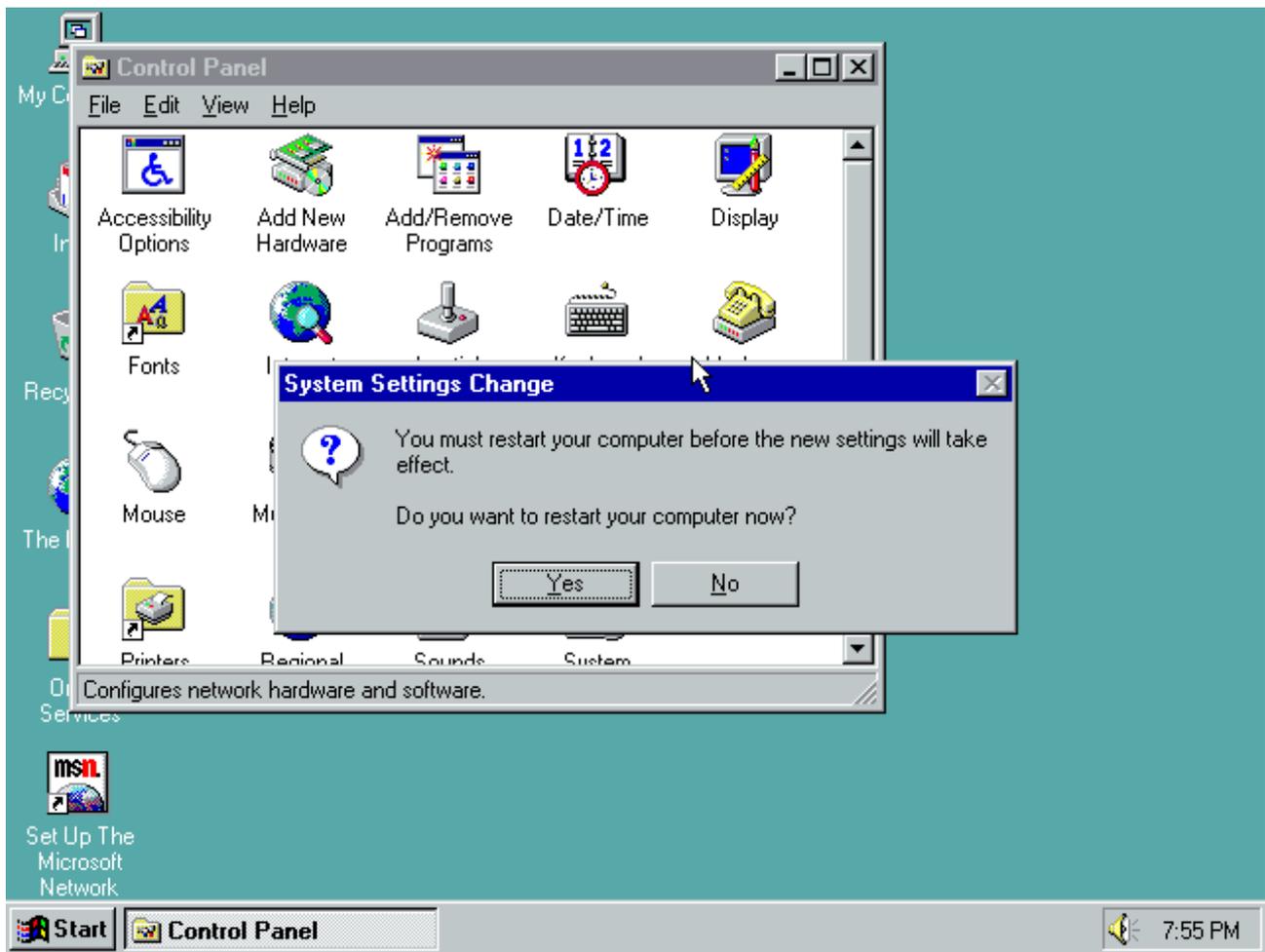


All the networking stuff randomly appears then. Change your Primary Network Logon to “Windows Logon” and hit Ok.



You'll get an error asking for your windows disc, yet again. This time, change X to D: and hit ok, it will start copying like it should have way back when.





After copying, you'll be asked to reboot, you can remove your disc and hit Yes. The errors you got on start will be gone.