VMWARE
by Randolph Osterroht

Here's a real quick paper on installing vmware, it was written on my last day of my old job, so if it's a bit scrappy-slapdash, sorry 'bout that. This install was done on an acer laptop 630 using fedora 7.

Vmware is a tool that will let you run another machine within your own box, so, say for example you wanted to run a windows box within your linux box to test programs (ie. That cool virus you are busy crafting) or whatever, you could set up a vmware box (networklessly to prevent the virus spread) another cool thing you could set up a windows box in vmware and use bridging network interface, and it's like another machine on the network. You can practice your hack.. ahem.. PEN TESTING skills here, and the cool thing about vmware, is that the virtual machines that you make are just a file that you can copy accross so they are very easy to back up and revive, so if you wanted to run, say a small webserver, a DNS and DHCP server in one box using multiple virtual machines, they would be really easy to back up and restore. Also... it's useful if you move your servers around a lot, all you have to do is move two files and run vmware and your server comes up. Oh, vmware can run just about ANY distro. It is like a VIRTUAL MACHINE.

What do you need?
Ok, you will need (I will be assuming you are running vmware on a Linux box)

1. vmware player - http://www.vmware.com/download/player/player_reg.html (they ask you to fill in a whole lotta stuff, but, just fill in rubbish)
2. qemu – you can yum/apt for this or get it from http://fabrice.bellard.free.fr/qemu/
3. Linux machine, decent processor and ram
4. your Linux kernel headers and kernel devel files
5. another distro cd, say oh, WinXP for example.
6. A little patience and a cuppa coffee

so... install your vmware player, extract tar file, cd into file and run *vmware-install.pl* it's going to ask you a whole lotta questions and configure your system, but that makes life easy later on. So, and this is cool with fedora seven, you just GO here if you have all you need, (ie. It's just like a next, next, next, finish install)

```
# ./vmware-install.pl             (run the install script)
Creating a new VMware Player installer database using the tar4 format.

Installing VMware Player.  This may take from several minutes to over an hour
depending upon its size.

In which directory do you want to install the binary files?    (where the execs will sit, /
usr/bin for any Linux distro)
[/usr/bin]

What is the directory that contains the init directories (rc0.d/ to rc6.d/)?       (in a fedora
box, this is exactly where they are)
[/etc/rc.d]

What is the directory that contains the init scripts?       (same as above)
[/etc/rc.d/init.d]

In which directory do you want to install the daemon files?       (this should be the same
on most general distros)
[/usr/sbin]

In which directory do you want to install the library files?      (pretty much a vmware
thing, but the program makes this directory, just hit enter)
```

```
[/usr/lib/vmware]

The path "/usr/lib/vmware" does not exist currently. This program is going to
create it, including needed parent directories. Is this what you want?
[yes]

yes
In which directory do you want to install the documentation files?      (yes, whatever)
[/usr/share/doc/vmware]
The path "yes" is a relative path. Please enter an absolute path.

In which directory do you want to install the documentation files?      (yeah)
[/usr/share/doc/vmware]

The path "/usr/share/doc/vmware" does not exist currently. This program is
going to create it, including needed parent directories. Is this what you want?
[yes]

The installation of VMware Player 2.0.0 build-45731 for Linux completed
successfully. You can decide to remove this software from your system at any
time by invoking the following command: "/usr/bin/vmware-uninstall.pl".

Before running VMware Player for the first time, you need to configure it by
invoking the following command: "/usr/bin/vmware-config.pl". Do you want this
program to invoke the command for you now? [yes]                              (now
the second phase of the install)

Making sure services for VMware Player are stopped.

Stopping VMware services:
   Virtual machine monitor                                 [  OK  ]

Configuring fallback GTK+ 2.4 libraries.
In which directory do you want to install the theme icons?      (pretty much standard
fare)
[/usr/share/icons]

What directory contains your desktop menu entry files? These files have a    (this is
where the files sit on a fedora distro, if you don't know where these are,  .desktop file
extension. [/usr/share/applications]                          just do a find for *.desktop
files and find out the path and fill that in here)


In which directory do you want to install the application's icon?      (yeah, whatever you
say)
[/usr/share/pixmaps]

Trying to find a suitable vmmon module for your running kernel.      (most likely fail
here)

None of the pre-built vmmon modules for VMware Player is suitable for your
running kernel.  Do you want this program to try to build the vmmon module for
your system (you need to have a C compiler installed on your system)? [yes]
```

Using compiler "/usr/bin/gcc". Use environment variable CC to override.

What is the location of the directory of C header files that match your running
(now, if you don't have kernel header files here, you need to get them, because the program will build modules for your specific kernel. In fedora, you can just yum for these files, eg- yum install kernel-devel)
kernel? [/lib/modules/2.6.20-1.2307.fc5/build/include] *(or wherever your distro keeps it's kernel dev files)*

a whole lot of messages appear here as your Linux machine builds modules for vmware, note, obviously if you update your kernel, you will have to re-compile this, but it's pretty much just re-running vmware-install.pl again.

Then it asks you if you want to configure your Ethernet, I recommend using only the bridged net options, if you try to start messing with the NAT or host only networking options, you have to know what you are doing and the build instructions are a bit obscure, so I answer yes to the first question, and that configures bridging, and no to the other two about NAT and host only.

Do you want networking for your virtual machines? (yes/no/help) [yes] *(bridged networking)*

Configuring a bridged network for vmnet0.

The following bridged networks have been defined:

. vmnet0 is bridged to eth0 *(sorted! Yay!)*

All your Ethernet interfaces are already bridged.

Do you want to be able to use NAT networking in your virtual machines? (yes/no)
[yes] no *(not unless you are creating a firewall-type box)*

Do you want to be able to use host-only networking in your virtual machines?
[no] *(dunno what this does yet, but I can tell you it caused havoc with my first attempt at install because it started a DHCP server, killed my home network in the process because I had a DHCP server already, LOL)*

and after a few lines... it presents you with...
You can now run VMware Player by invoking the following command:
`"/usr/bin/vmplayer".`

Yaay! Thanks vmware! But no.. not yet, you see... this free version of vmware is designed to only run preconfigured vmware machines, *qemu* to the rescue! Install qemu now if you have not already, or just yum or apt it, or get it from source from the link at the beginning of this tut. Qemu will basically help you create one of the two files required to run a virtual machine, one file is your virtual disk, and the other is a file that sort of tells vmware what the machine is and what resources to use. We will now look at these two files separately.

Now, in your home folder, or in a nice warm place, create a directory where you will keep your vmware files (for sanity's sake) call it vmware or what have you, and run qemu in this folder.

The virtual disk file, or the vmdk file.
Basically, this is a fixed disk space file, that vmware uses as the virtual disk for your distro. The cool thing is, you specify how big it will be so it cannot grow above that size, so say, you specify a 10Gb file, it will never go over

10Gb, but, it will only use as much disk space as it needs to, so right off the bat, if you have not filled the virtual disk, it won't take up 10Gb straightaway, it grows as you need it. So.. without further ado...

```
qemu-img create -f vmdk winXP.vmdk 5G
```

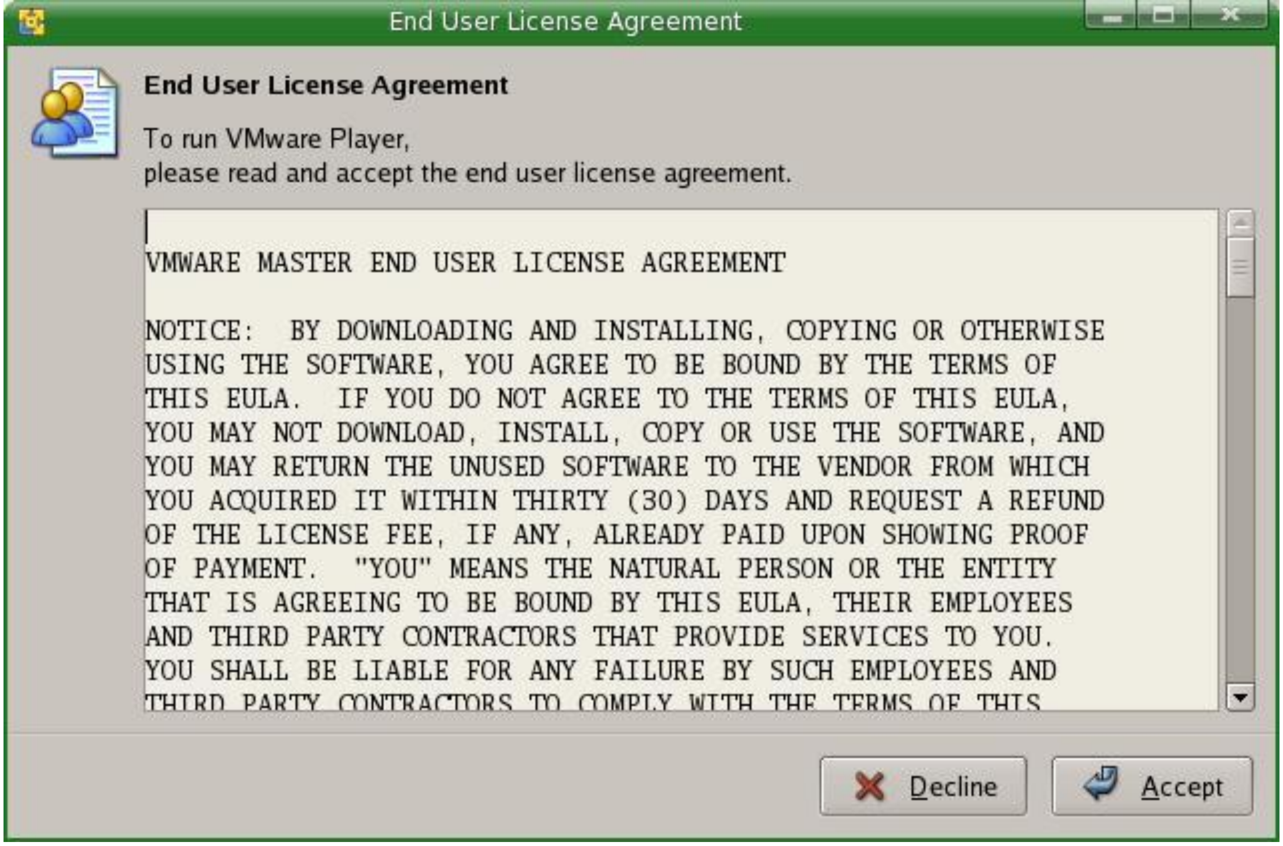
this command will create a virtual disk that is called winXP.vmdk and is 5Gb big. That's it. Nothing else the next file takes a little more effort...

The vmx file.
This is the file that tells the vmware player what the virtual machine can use, if it has access to cdroms, how much physical memory it can use etc. etc. lets look at a typical windows XP virtual machine file.

```
#!/usr/bin/vmware
config.version = "8"
virtualHW.version = "4"
memsize = "256"          # this line tells vmware how much memory it can use for this
particular virtual machine
ide0:0.present = "TRUE"         # obviously lets vmware know if there is ide present
ide0:0.fileName = "winXP.vmdk"    # lets vmware know where the image file is
ide1:0.present = "TRUE"         # points machine to cdrom location for your install point
it to an ISO image of your OS
ide1:0.fileName = "/path/to/iso"      # where the install iso is on your disk
ide1:0.deviceType = "cdrom-image" # filetype of cd-rom
floppy0.present = "FALSE"      # no need for floppy disk really, change to TRUE if you
want
#floppy0.fileName = "/dev/fd0"      # I have commented this out, but you will need to
point floppy device to this if you want to use floppy
ethernet0.present = "TRUE"      # the Ethernet config.
usb.present = "TRUE"         # whether USB is used or not.
sound.present = "TRUE"         # sound, do you need it?
sound.virtualDev = "es1371"      # what the virtual sound uses
displayuName = "winXP"         # just  a display name, you can call it jeremy if you want.
guestOS = "winXPPro"         # this is apparently important to vmware, there are a list of
supported OS's later on.

scsi0:0.redo = ""
ethernet0.addressType = "generated"

displayName = "winXP"

checkpoint.vmState = "test.vmss"

ide0:0.redo = ""
```

Copy this and save it in a file called *winXP.vmx* and this is now your configured vmx file for your winXP virtual box, change the ram size if you want, change the floppy options if you want. Play and learn. Apparently the only setting here that is finicky, is the guestOS option, but I stand to be corrected. Save this file in your vmware folder and get your winXP iso ready. To do this, just *dd* a winxp cd.

Once you have your disk image, run vmware.

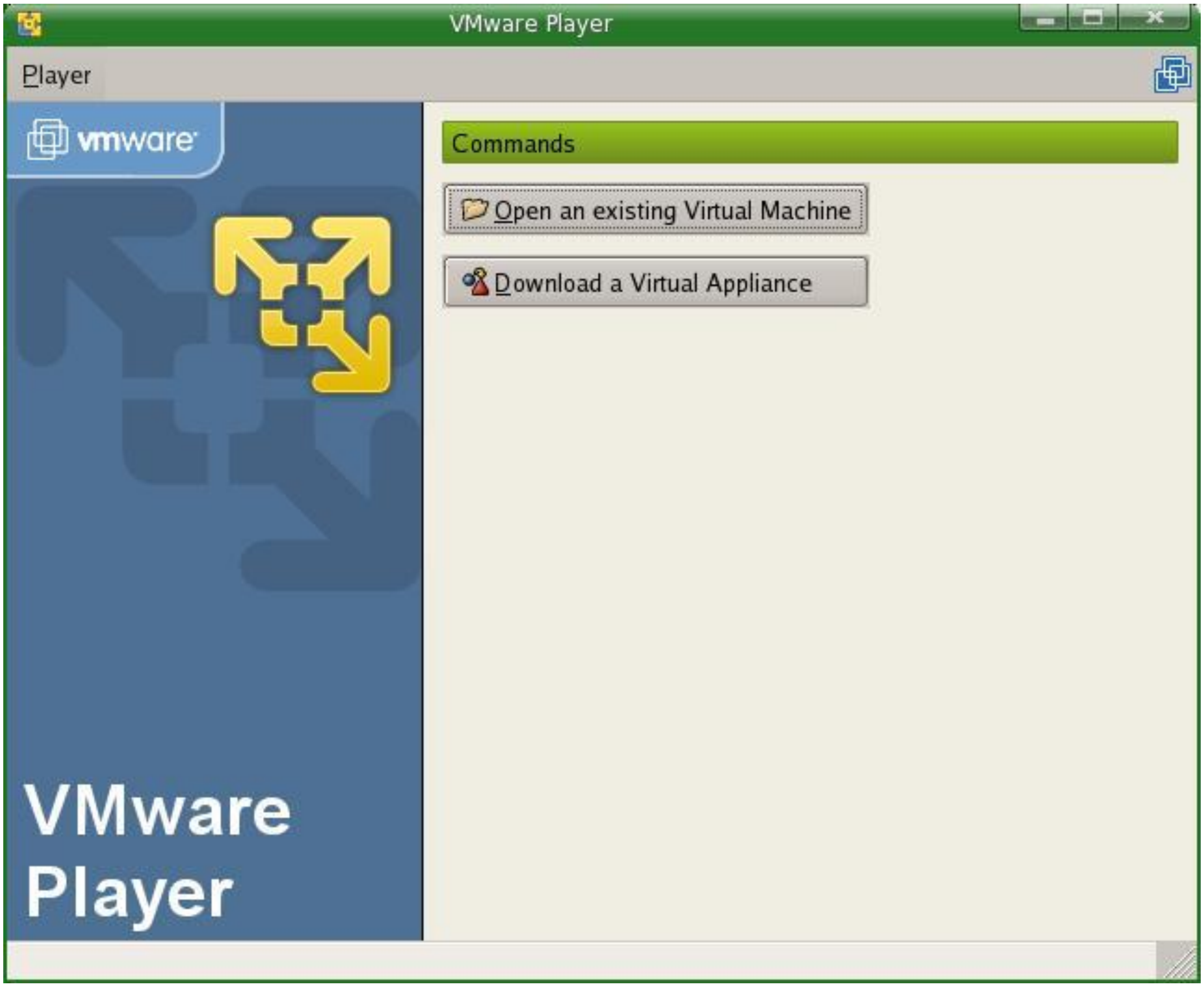


End User License Agreement

To run VMware Player,
please read and accept the end user license agreement.

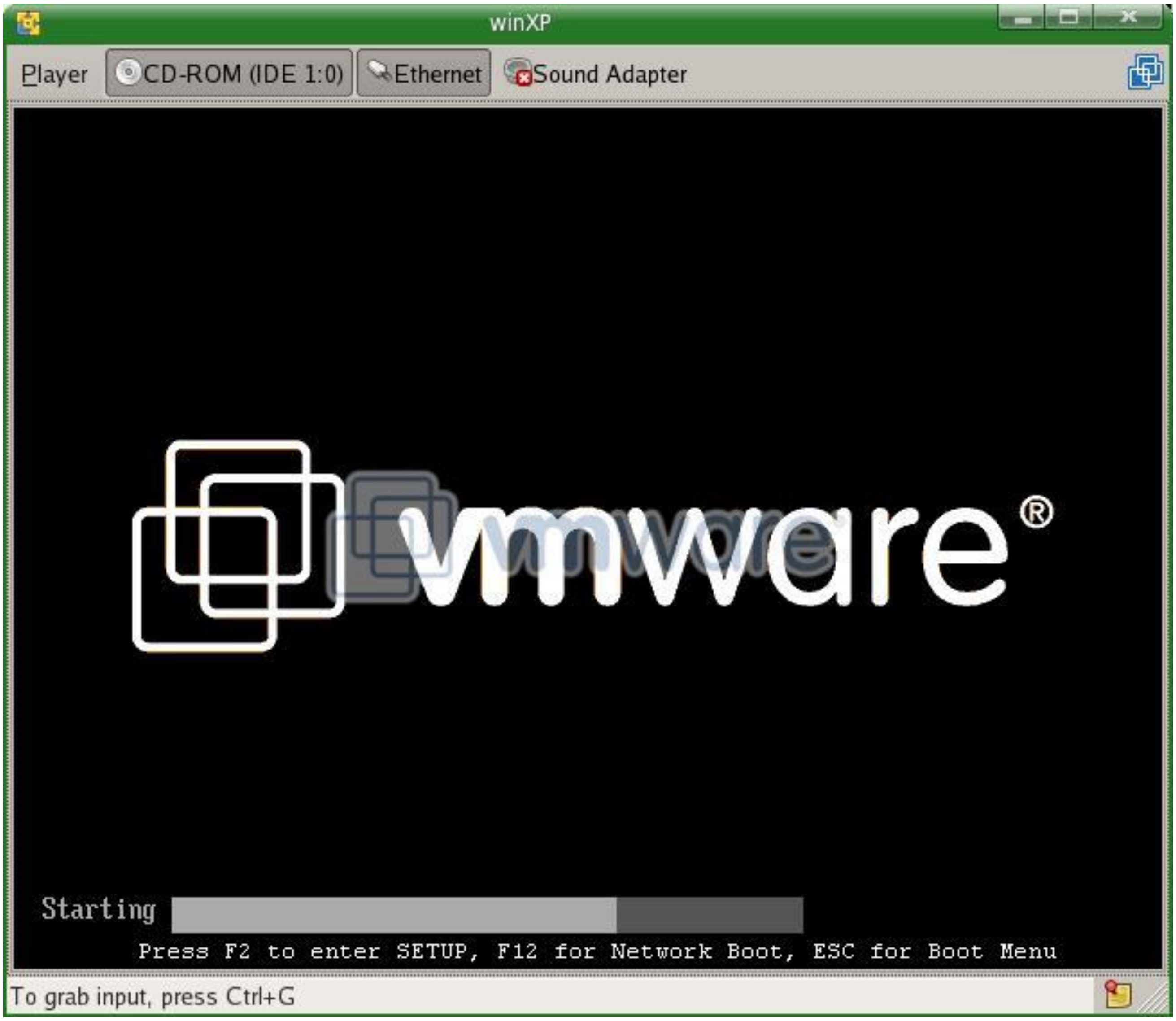
```
VMWARE MASTER END USER LICENSE AGREEMENT

NOTICE:  BY DOWNLOADING AND INSTALLING, COPYING OR OTHERWISE
USING THE SOFTWARE, YOU AGREE TO BE BOUND BY THE TERMS OF
THIS EULA.  IF YOU DO NOT AGREE TO THE TERMS OF THIS EULA,
YOU MAY NOT DOWNLOAD, INSTALL, COPY OR USE THE SOFTWARE, AND
YOU MAY RETURN THE UNUSED SOFTWARE TO THE VENDOR FROM WHICH
YOU ACQUIRED IT WITHIN THIRTY (30) DAYS AND REQUEST A REFUND
OF THE LICENSE FEE, IF ANY, ALREADY PAID UPON SHOWING PROOF
OF PAYMENT.  "YOU" MEANS THE NATURAL PERSON OR THE ENTITY
THAT IS AGREEING TO BE BOUND BY THIS EULA, THEIR EMPLOYEES
AND THIRD PARTY CONTRACTORS THAT PROVIDE SERVICES TO YOU.
YOU SHALL BE LIABLE FOR ANY FAILURE BY SUCH EMPLOYEES AND
THIRD PARTY CONTRACTORS TO COMPLY WITH THE TERMS OF THIS
```

Wow, cool little app. With the license thing and… whatever.


VMware Player
Player
vmware
Commands
Open an existing Virtual Machine
Download a Virtual Appliance
VMware Player

Sweet, click on open existing and look for your vmx file.

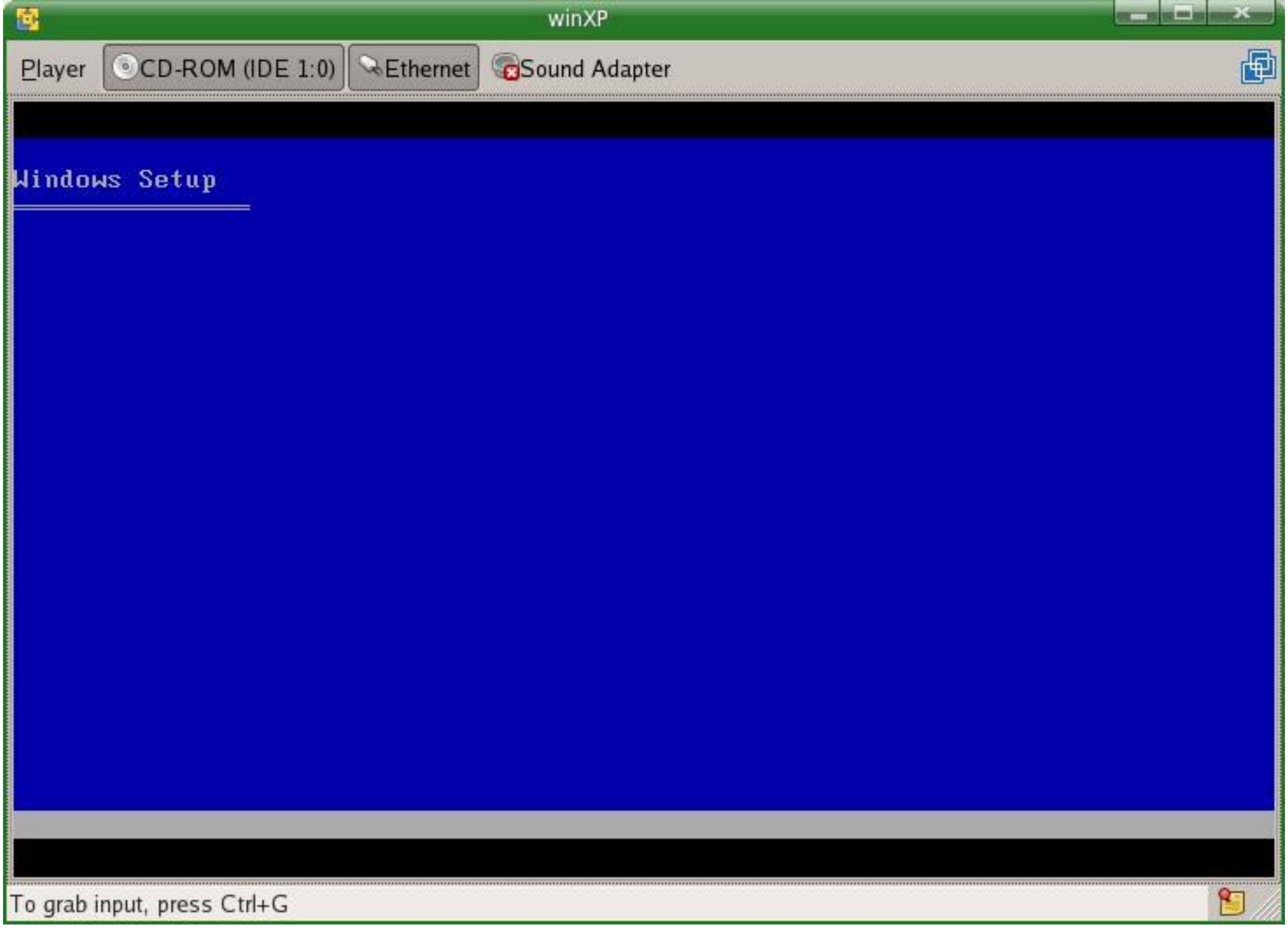
This will run vmware and start up your install if you have pointed the cdrom image to the right place.



Press F2 to enter SETUP, F12 for Network Boot, ESC for Boot Menu

To grab input, press Ctrl+G

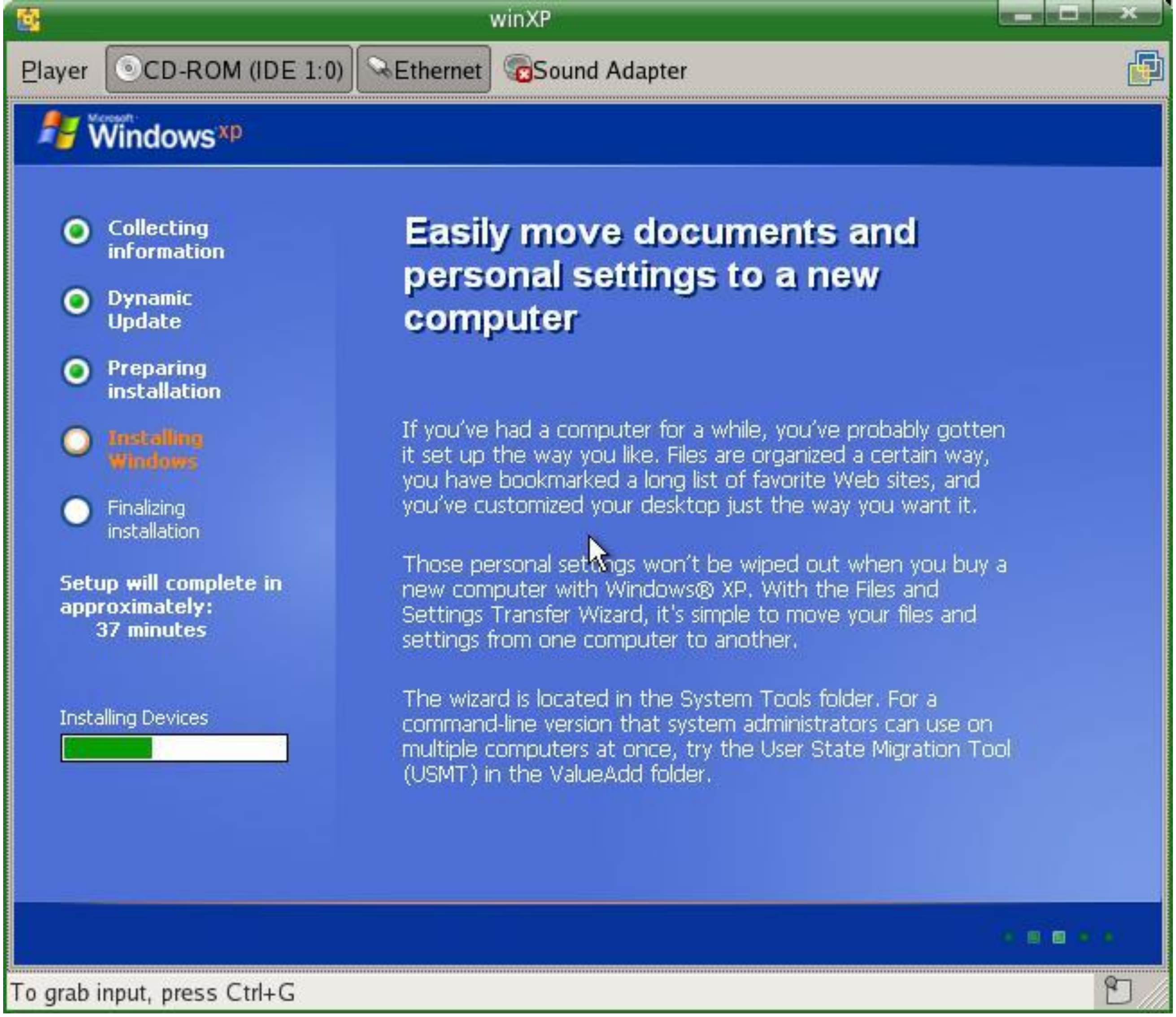
Oooo.



```
Windows Setup
```

To grab input, press Ctrl+G

OOO look! XP on linux!



Easily move documents and personal settings to a new computer

If you've had a computer for a while, you've probably gotten it set up the way you like. Files are organized a certain way, you have bookmarked a long list of favorite Web sites, and you've customized your desktop just the way you want it.

Those personal settings won't be wiped out when you buy a new computer with Windows® XP. With the Files and Settings Transfer Wizard, it's simple to move your files and settings from one computer to another.

The wizard is located in the System Tools folder. For a command-line version that system administrators can use on multiple computers at once, try the User State Migration Tool (USMT) in the ValueAdd folder.

Setup will complete in approximately:
37 minutes

Installing Devices

To grab input, press Ctrl+G

LOL.

Anyway, that should be it, your install will go on and soon you can use windows in linux to test whatever, your distro if set up for bridge will get it's own ip address from the DHCP server and you should be able to browse your machine over the network like any other machine. ISN'T THAT INSANE!!! Anyway, look at these links if any of this sounds confusing...

- http://software.newsforge.com/software/06/05/16/1940214.shtml this page is very good and explains nicely
- http://www.ffnn.nl/pages/articles/linux/vmware-player-image-creation.php#oscodes this page gives you all the guestOS codes that seem to be important for vmware. But I'm gonna put them in here for you anyway...

```
Microsoft Windows, 32-bit
•    winVista = Windows Vista (experimental)
•    longhorn = Windows Longhorn (experimental)
•    winNetBusiness = Windows 2003 Small Business Server
•    winNetEnterprise = Windows 2003 Enterprise Server
•    winNetStandard = Windows 2003 Server
•    winNetWeb = Windows 2003 Web Server Edition
•    winXPPro = Windows XP Professional Edition
•    winXPHome = Windows XP Home Edition
•    win2000AdvServ = Windows 2000 Advanced Server
•    win2000Serv = Windows 2000 Server
•    win2000Pro = Windows 2000 Professional
•    winNT = Windows NT
•    winMe = Windows Me
•    win98 = Windows 98
•    win95 = Windows 95
•    win31 = Windows 3.1 / Windows 3.11
•    windows = Other Windows
Microsoft Windows, 64-bit
•    winVista-64 = Windows Vista x64 Edition (experimental)
•    longhorn-64 = Windows Longhorn x64 Edition (experimental)
•    winNetEnterprise-64 = Windows 2003 Enterprise Server x64 Edition
•    winNetStandard-64 = Windows 2003 Server x64 Edition
•    winXPPro-64 = Windows XP Professional x64 Edition

Linux, 32-bit
•    ubuntu = Ubuntu Linux
•    redhat = Red Hat Linux
•    rhel4 = Red Hat Enterprise Linux 4
•    rhel3 = Red Hat Enterprise Linux 3
•    rhel2 = Red Hat Enterprise Linux 2
•    suse = SuSE Linux
•    sles = SuSE Linux Enterprise Server
•    mandrake = Mandrake Linux
•    nld9 = Novell Linux Desktop 9
•    sjds = Sun Java Desktop System
•    turbolinux = Turbo Linux
•    other26xlinux = Other Linux on a 2.6.x kernel
•    other24xlinux = Other Linux on a 2.4.x kernel
•    linux = Other Linux

Linux, 64-bit
•    ubuntu-64 = Ubuntu Linux 64-bit
•    rhel4-64 = Red Hat Enterprise Linux 4 64-bit
•    rhel3-64 = Red Hat Enterprise Linux 3 64-bit
•    sles-64 = SuSE Linux Enterprise Server 64-bit
•    suse-64 = SuSE Linux 64-bit
•    other26xlinux-64 = Other Linux 2.6.x 64-bit
•    other24xlinux-64 = Other Linux 2.4.x 64-bit
•    otherlinux-64 = Other Linux 64-bit
```