

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

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Table of Contents

Chapter 1: Internet Risks	6
Malware.....	6
Know Thy Enemy	7
Malware Can Ruin Your Day	8
But I Already Use Antivirus Software	8
Cracks in the Wall	11
The Black Swan Named Melissa	12
Chapter 2: Virtually Secure.....	14
Virtualization.....	14
Matryoshka Dolls.....	15
How Virtualization Protects Your Computer.....	17
How My Technique Uses Virtualization.....	17
A Big, Fat, Giant Undo Button.....	18
Virtualization Products.....	20

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Chapter 3: Creating a Virtual Machine	22
Getting Ready	22
Installing the Virtualization Software	23
Install VirtualBox.....	23
Configure VirtualBox.....	24
Install 7-Zip.....	25
Extract the Ubuntu Virtual Machine.....	25
Creating Your Virtual Machine	26
Creating a Blank Virtual Machine.....	26
Creating a Virtual Machine With Ubuntu.....	28
Installing an Operating System in Your Virtual Machine	30
Configuring Your Virtual Machine	30
Configuring a Windows Virtual Machine.....	31
Configuring an Ubuntu Virtual Machine.....	32
Installing the Guest Additions.....	33

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Configuring Auto Login.....	34
Configuring Shared Folders.....	35
Ubuntu steps for configuring shared folders.....	36
Windows Steps for Configuring Shared Folders.....	38
Configuring Email in Your Virtual Machine.....	39
Backing Up Your Virtual Machine.....	39
Chapter 4: Using Your Virtual Machine.....	41
Daily Usage.....	41
Pausing Your Virtual Machine.....	41
Reset.....	42
ACPI Shutdown.....	42
Fullscreen Mode.....	43
Seamless Mode.....	44
Snapshots and Reverting.....	44
Chapter 5: The Sweet Life	48

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Malware Protection.....	48
Recovering From Malware Attacks.....	48
Recovering From a Computer Crash.....	49
Moving to a New Physical Machine.....	49
Thank You.....	50

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Chapter 1: Internet Risks

If you're reading this book, you probably have a good idea of the nasty stuff out there on the Internet. In fact, you have probably personally experienced the hassle of losing valuable information to a virus infection. 37,000 new malicious viruses were developed each day in 2008 alone!

A virus infection doesn't just cause data loss, it costs you time as well. It takes time to recreate files, re-install corrupted software, and get your computer back to the way it should be.

Malware

Computer pros have many different names for software that damages your computer, depending on exactly how it does its dirty work. In this book, we will simplify things by using one word for software that damages your computer: Malware. Malware is MALicious SoftWARE.

In case you're interested, here are all the computer brainiac words for different types of malware. Again, in this book I'll just use the word malware when discussing these:

- Virus
- Worm
- Trojan Horse
- Phishing attack

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Know Thy Enemy

"The clever combatant imposes his will on the enemy, but does not allow the enemy's will to be imposed on him." - Sun Tzu

Let's take a look at the most common malware, as of this writing. You can always get an up-to-date list of the most prevalent malware here:

<http://www.viruslist.com/en/analysis>

I've simplified the explanation of what each piece of malware does. As you read this list, think about how much you stand to lose from each of these pieces of malware:

Malware Name	What it Does
Net-Worm.Win32.Kido.ih	Works very hard to spread to other computers and prevent its own removal
Virus.Win32.Sality.aa	Opens a backdoor to your computer, allows a hacker to control the computer remotely
not-a-virus:AdWare.Win32.Boran.z	Opens a backdoor to your computer, allows a hacker to control the computer remotely
Trojan.Spoclick	Downloads bogus files to your computer, slows your internet connection
W32.Fnumbot	Opens a backdoor to your computer, allows a hacker to control the computer remotely

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Malware Can Ruin Your Day

Now that you've seen what your enemy looks like, let's take a quick look at how malware can cost you time, money, and stress! A malware infection can force you to to:

- Reinstall the computer's operating system
- Reinstall all the computer's software
- Set up your favorite settings all over again
- Recreate Bookmarks or Shortcuts for all your favorite Internet sites
- Remember all those passwords you saved for various accounts

On top of that, you can lose:

- Saved emails containing important information

- All your digital photos
- Money, if the malware is designed to steal credit card numbers or bank account information

and, most importantly, you can lose lots of:

- **TIME**

but hey, you get more of one thing:

- **STRESS!!!**

But I Already Use Antivirus Software

Congratulations! You've taken an important step towards protecting yourself from losing valuable time and money to a malware infection! But you can easily do more.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

The first thing you can do is educate yourself about what antivirus software can and can't do for you. Antivirus software works by monitoring your computer's activity and checking for malware whenever you do one of the following things:

- Receive or open an email
- Send an email
- Open a web page
- Open a file

Whenever antivirus software sees malware in an email, a web page, or a file, it prevents that malware from harming the computer, if possible. Antivirus software has two basic ways of recognizing malware:

1. Using a large list of known malware. This is like the FBI's Most Wanted list. It lists known

malware, and when the antivirus software sees an email, web page or file that matches the "mugshot" of a known piece of malware, the antivirus software tries to block the malware from causing harm.

2. Looking for web pages, emails, and files that act like malware. This is like the "profiling" that the FBI does when looking for a criminal. They look for people who act like the perpetrator, even if that person isn't currently committing a crime. With this method, antivirus software looks for software that has sneaky behavior, just like malware would.

The problem with method #1 is that new types of malware are constantly being created, at the rate of 37,000 per day!

(<http://sunbeltblog.blogspot.com/2009/05/growth-of-malware-update.html>) That's like a good-sized American town, full of malware, cloning itself every

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

day!

Virus software companies are constantly updating their list of malware. BUT, and that is a big BUT, **this updating takes time!** Every time a new piece of malware is put out "in the wild" on the Internet, several days pass before the antivirus software makers can update their list of malware. And then, your virus software has to go grab this list from the software maker's web site, which can take more time.

In some cases, your computer can be unprotected for several days or weeks. Believe me, this is PLENTY of time for malware to do its dirty work.

A couple of computer braniacs did an experiment a

year or two ago. They set up a Microsoft Windows XP computer with no antivirus software or firewall or Windows Updates, and connected it to the Internet. It took 4 minutes for that computer to get infected by malware!

(<http://isc.sans.org/survivaltime.html>) Four minutes!!! That's like a skinny, underweight computer nerd (hey, that's me!) getting in the ring with Mike Tyson in his heyday. It's just not fair! Read on and I'll show you how to even the odds.

Antivirus software makers have tried to fix the shortcomings of method #1 (the FBI Most Wanted method) with method #2:

With method #2 (The FBI Profiling method), if some malware is new and not on the "Most Wanted" list yet, there's still a chance that the antivirus software

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

will catch it because of how that malware acts. Sounds pretty good right? Sounds like the antivirus software makers have covered all the bases, right? Well, read on and see what can go wrong, even with these two methods trying to protect you.

Cracks in the Wall

Things aren't always rosy in Antivirus Software Land. I've personally seen numerous computers that are using antivirus software that still manage to get one or more malware infections. I really feel bad for the people who have:

- Spent good money for antivirus software
- Spent the time to regularly update that antivirus software
- And THEN had to spend \$75 an HOUR paying me (or another computer professional) to

remove the malware that GOT THROUGH THEIR DEFENSES!

There are several ways antivirus software can FAIL to catch malware:

- The malware is new, and the antivirus software doesn't recognize it (see below for a [heartbreaking story](#) about this).
- You made a mistake configuring the antivirus software (have you SEEN how many options most antivirus software has?! It's really easy to make a configuration mistake.)
- The antivirus software was turned off, either accidentally or on purpose.
- The antivirus software is not very good at its job.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Do you still feel like your computer, with all its valuable information, emails, and pictures, is 100% protected against malware? Do you think that all those bored teenager computer brainiacs out there are going to stop making new malware just because antivirus software makers claim to protect your computer?

The Black Swan Named Melissa

Nassim Nicholas Taleb wrote a book titled "The Black Swan: The Impact of the Highly Improbable." Before the 17th century, Europeans thought that all swans were white. Then, in the 17th Century, black swans were discovered in Australia. This blew people's minds. For them, a swan had always been a white bird, no exceptions.

Nassim Nicholas Taleb reminds us that not only does the unexpected happen, but it happens a lot more than we would like to think:

We Like to Think That...	But Sometimes...
America has a good defense system	Things like September 11, 2001 happen
Banks are very trustworthy	They screw up royally, and the whole system falters
Using antivirus software is enough	The Melissa virus causes \$1 billion in damages (http://melissavirus.com)

Here's what one security expert wrote about the Melissa virus:

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

"The virus was discovered on Friday, late evening in Europe, early morning in the US. For this reason, the virus spread in the USA during Friday. Many multinational companies reported widespread infections, including Microsoft and Intel. Microsoft closed down their whole e-mail system to prevent any further spreading of the virus. The number of infected computers is estimated to be tens of thousands so far and it is rising quickly."

Are you ready to protect your computer against "Black Swans", AKA the malware you don't know about and don't WANT to know about? The technique I'll show you in the next chapter takes just an two or three hours to put in place, works on any Windows PC with more than 2 Gigabytes of RAM and a reasonable fast processor, and offers a type of protection that antivirus software just can't offer. After you've virus-proofed your computer with this technique, you'll enjoy greater peace of mind when using the Internet. Read on friend!

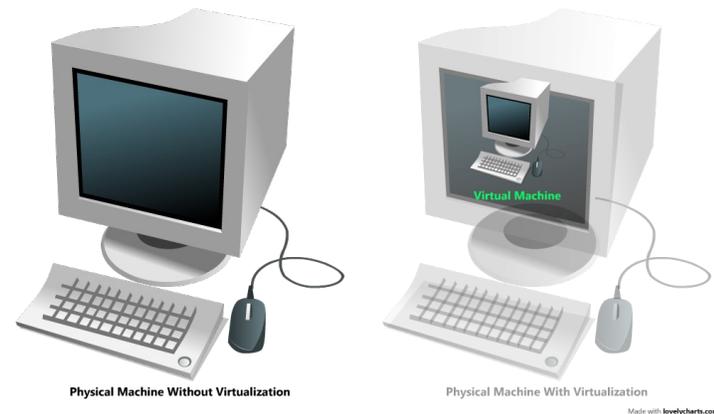
Chapter 2: Virtually Secure

There is a very easy way to protect your computer against damage from malware. In simple terms (the only kind of terms I will use in this chapter), you will install some free software on your computer. This free software creates a place on your computer that is like a solitary confinement cell in a prison. Any time you want to do something that might expose your computer to malware, you will use this extra-protected area in your computer to do it.

Just like in a maximum security prison, there will be extra gates between the solitary confinement cell part of the computer and the rest of the computer (the "Gen Pop," to use prison terminology!).

Virtualization

The free software that I am going to walk you through setting up is called virtualization software. Have a look at the picture below, then I'll explain what's going on when you use virtualization software.



Virtualization can be a somewhat mind boggling concept. To understand it, let's compare your

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

computer to some Russian toys.

Matryoshka Dolls

Matryoshka dolls originally come from Russia. They are little wooden dolls that are designed to fit inside each other. Sometimes they are called Babushka dolls. Here's what they look like:



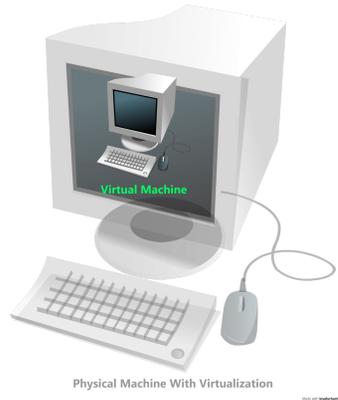
As you can see, each doll is basically the same as the others, just smaller or larger. Each doll opens up into two pieces, and the smaller dolls fit inside of the larger dolls. Like this:



Now, have a look at that picture of how virtualization software works again below, and see if you notice any resemblance between the Matryoshka dolls and virtualization software.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC



Can you see how the Virtual Machine is like a smaller computer inside of a larger computer? That is just like how a Matryoshka doll is a smaller doll inside of a larger doll.

Each Matryoshka doll is a complete doll. Each one has a (painted on) face, a body, (painted on) hands, etc. In that way, they're all the same. It's the same

with virtualization. The Virtual Machine is just like the Physical Machine, except it fits inside the Physical Machine. A Virtual Machine is a computer within a computer!

Anything you can do on your Physical Machine, you can also do in the Virtual Machine.

The logical next question is: Why would I want two Machines? Especially if they're both the same!?

The main difference between the Physical Machine and the Virtual Machine is that any damage that happens to the Virtual Machine can easily be fixed. That's why you would want two Machines. The Virtual Machine is extremely easy to fix if something slips past your antivirus software, while the Physical Computer is much more difficult to fix if that

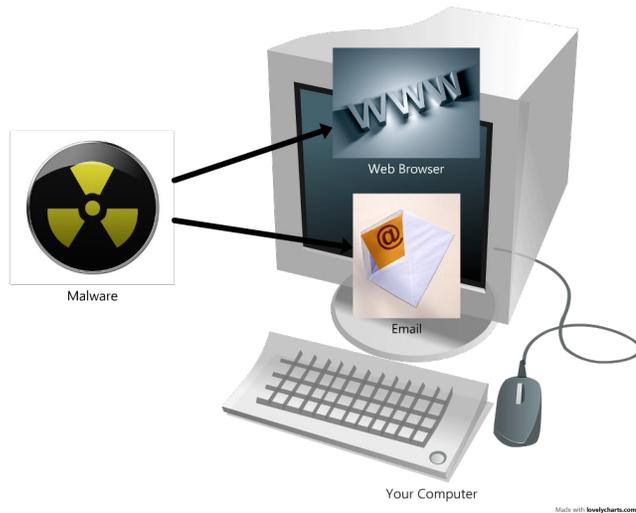
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A Big, Fat, Giant Undo Button For Your PC

happens.

How Virtualization Protects Your Computer

Have a look at the picture below. It shows how malware gets into your computer in the first place.



Web browsing and email are the main ways

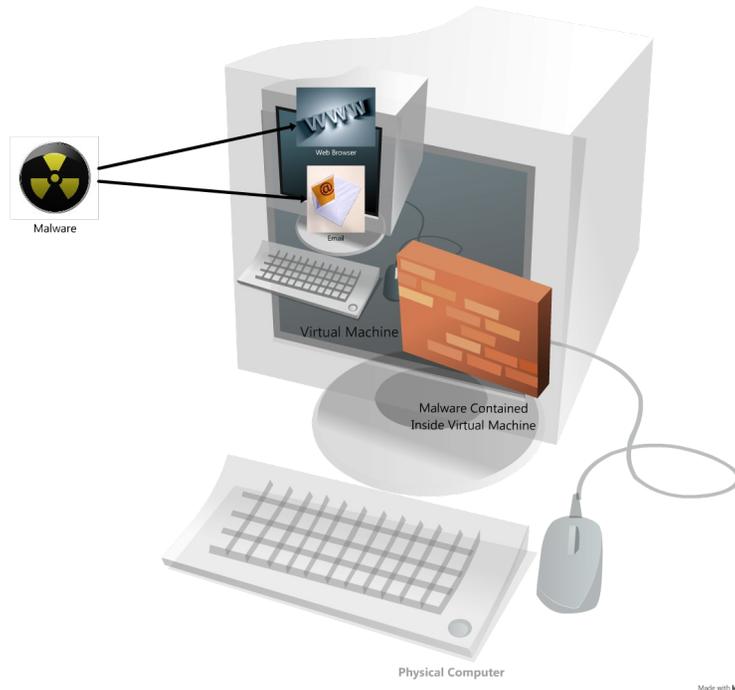
malware gets into your computer.

How My Technique Uses Virtualization

Have a look at the picture below. It puts all the pieces together to show the whole picture of my virusproofing technique.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC



From the picture above, you can see that **if** a virus does enter your computer, it will only be able to damage the Virtual Machine. Tiny disclaimer: *For this technique to work, you have to use your Virtual*

Machine when browsing the web or getting email.

Now I'll be the first to admit, my technique would be a pretty crappy way of protecting your computer if all it did was contain the damage caused by malware. It would be like buying insurance on **half** of your house or car, and then hoping the other half never has a problem!

Remember how I said that the main difference between the Physical Machine and the Virtual Machine is that any damage that happens to the Virtual Machine can easily be fixed? Well, read on to see how!

A Big, Fat, Giant Undo Button

Using a Virtual Machine does something that no

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

other computer security technique can. It give you a big, fat, giant, undo button that fixes any damage that malware could cause!

When you press this "undo button," your entire Virtual Machine is reset to the way it was **before** it had a problem. Let's take a look at some examples of how this "undo button" (it's called VM Snapshots, by the way) is the best thing since Ibuprofen:

Monday: You read this course, create a Virtual Machine, and then you create a snapshot of the Virtual Machine. Life is dandy.

Wednesday: You get **another** stupid email from your Aunt Geyne. You are distracted, so you automatically open it up and double-click the link inside. All of a sudden, your Virtual Machine freezes. You shut it down and restart it and it is still

acting funny. Snap! You just got some malware. Recognizing this, you apply the snapshot you created on Monday. Instantly, the malware is gone and your Virtual Machine is exactly the way it was on Monday!

Friday: A friend at work tells you about this great new game. You download it, play it in the evenings for a week, then forget about it.

A month later: You notice that your Virtual Machine has been running really slow. You think back to when this started and you remember it started after installing that game your coworker told you about. You un-install the game and the Virtual Machine is **still** slow! You apply the snapshot you made after you first created the Virtual Machine. Instantly, the Virtual Machine starts running at normal speed! You wonder if there was malware

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

hidden in that game...

Wednesday: You turn on your computer and the screen stays black **forever**. You take your computer to a computer shop, and they fix it for you. When you bring it home and start it up, **none** of your programs and files are on the computer. You call the computer shop and they say, "Uh, yeah, we had to reinstall the operating system to fix it. Sorry!"

Wednesday, after your blood stops boiling: you remember that you copied your Virtual Machine to a writeable DVD. You copy it back to your computer, and all your emails and Internet bookmarks are restored! Woohoo!

Okay, that last example isn't related to VM Snapshots, but it does show another way a Virtual Machine can save the day when disaster strikes.

Virtualization Products

There are several software products that will allow you to create a Virtual Machine on your Physical Machine. Some of them are pay products, and some of them are free. Here's a short list, in alphabetical order, current as of this writing:

- Microsoft Virtual Server (free, but not ideal for this method)
- Sun VirtualBox (free and ideal for this method)
- VMWare Workstation (pay, but would work for this method)
- VMWare Player (free, but very limited: won't work for this method)

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

This malware protection technique is written to match Sun VirtualBox. Feel free to use VMWare Workstation, but you will have to adjust for a different menu system in the VMWare product.

OK folks, the next chapter is where the rubber meets the road! In the next chapter, you'll get simple, easy-to-follow instructions about setting up a Virtual Machine on your computer and closing **all** the holes where malware could get in and cause damage.

Chapter 3: Creating a Virtual Machine

Now that you understand how a Virtual Machine can help protect your computer against malware, let's create one!

Getting Ready

You need to do a few things to get ready. First, you need to get the free software that creates your Virtual Machine. Then, you need to create the virtual machine. After that, you will install an operating system inside your Virtual Machine. You will tweak the Virtual Machine settings so it's just the way you want. Then finally, you will back up your Virtual Machine so that you can instantly restore it if anything ever happens to the Virtual

Machine.

At this point, you have to make a decision. After you create your Virtual Machine, you will need to install some software inside it to run the Virtual Machine. This software is called an Operating System. Most copies of Windows can only be installed on one machine at a time. So if you have an **extra** copy of Windows, great. If not, you will need to download a free Operating System to use with your Virtual Machine.

There are lots of free Operating Systems based on Linux. I recommend Ubuntu, which is very easy to use, and many experts say it is **more secure** than Windows! Grab your free copy here:
<http://sourceforge.net/projects/vmhost/files/ubuntu>

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

[/ubuntu10/ubuntu1004.7z/download](#)

If you download this file, you need to also download this one so that you can uncompress the first file you downloaded:

<http://downloads.sourceforge.net/sevenz/7z465.exe>

Installing the Virtualization Software

The first step is to download some free virtualization software. I recommend Sun(r) VirtualBox. This is an excellent, free piece of software that will allow you to create as many Virtual Machines as you want.

1) Click on this link:

[\[ualBox-3.2.4-62467-Win.exe\]\(#\)](http://download.virtualbox.org/virtualbox/3.2.4/Virt</p></div><div data-bbox=)

2) Download the VirtualBox binary from the link you just clicked on (the binary is the ready-to-use version of the software)

- Make sure you are downloading the VirtualBox binary that is correct for your type of computer (Windows, OS X, or Linux).
- Make sure you do not download the "Virtual Box Open Source Edition (OSE)"

Double-click the VirtualBox file that you just downloaded, and then complete the steps below:

Install VirtualBox

1. A window named **Sun VirtualBox Setup** appears.
2. Click **Next**.
3. The **End-User License Agreement** page

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

appears.

4. Click **I accept the terms in the License Agreement**, then click **Next**.
5. The **Custom Setup** page appears. Click **Next**.
6. The **Custom Setup** page appears. Click **Next**.
7. The **Warning: Network Interfaces** page appears. Click **Yes**.
8. The **Ready to Install** page appears. Click **Install**.
9. A progress bar page appears. Allow the installation process to complete.
10. If any **Windows Security** windows appear, click **Install**.
11. A page that says **Sun VirtualBox installation is complete** appears. Make sure **Start Sun VirtualBox after installation** is checked, and then click

Finish.

12. The **Sun VirtualBox** program window will open, as well as the **VirtualBox Registration Dialog**. Enter your registration information, and then click **Register**.

Next, you need to configure a few things in VirtualBox, so complete the steps below:

Configure VirtualBox

1. In the **Sun VirtualBox** window, click **File**, and then click **Preferences**.
2. The **VirtualBox – Settings** window appears.
3. Erase what is in the **Default Hard Disk Folder** box and type **C:\VirtualMachines**
4. Erase what is in the **Default Machine Folder** box and type **C:\VirtualMachines**

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

5. Click **OK**.

Congratulations! You have successfully installed and configured VirtualBox on your computer.

If you are going to install an **extra** copy of Windows inside your Virtual Machine, you can skip the steps below and go directly to **Creating Your Virtual Machine**.

Install 7-Zip

1. Double-click the 7-Zip file you downloaded earlier (and if you didn't download it earlier, download it now from here: <http://downloads.sourceforge.net/sevenzip/7z465.exe>)
2. The **7-Zip Setup** window appears. Click **Install**.

3. After a short installation process, the installation will complete. Click **Finish**.
4. Click **Start, All Programs, 7-Zip**, and then click **7-Zip File Manager**.
5. The **7-Zip File Manager** window appears. In this window, click the **Tools** menu and then click **Options**.
6. The **Options** window appears. In this window, put a checkmark next to **7z**, and then click **OK**.
7. Close the **7-Zip File Manager** window.

Extract the Ubuntu Virtual Machine

1. Double-click the Ubuntu file you downloaded earlier (and if you didn't download it earlier, download it now from here: <http://sourceforge.net/projects/vmhost/files>)

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

[es/ubuntu/ubuntu10/ubuntu1004.7z/download](#))

2. The **7-Zip** window will open again. Inside the **7-Zip** window, click on the folder named **Ubuntu 9.04**, and then click the **Extract** button (it looks like a black minus sign).
3. The **Copy** window appears. In the **Copy to** box, type [c:\VirtualMachines](#) and then click **OK**.
4. The **Copying** window appears. Allow the copy process to complete.
5. Close the **7-Zip** window.

Creating Your Virtual Machine

Next, you're going to create your Virtual Machine! Remember that by using a Virtual Machine to access web sites, you completely eliminate the chances of

malware screwing up your computer.

If you have an **extra** copy of Windows to use in your Virtual Machine, complete the steps in the section named [Creating a Blank Virtual Machine](#) below. If you do not have an extra copy of Windows and are instead using Ubuntu in your virtual machine, then skip to the section named [Creating a Virtual Machine With Ubuntu](#).

Creating a Blank Virtual Machine

Only complete these steps if you have an extra copy of Windows.

1. In the **Sun VirtualBox** window, click **New**.
2. The **Create New Virtual Machine** window appears. Click the **Next** button.
3. The **VM Name and OS Type** page

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

appears. In the **Name** box, type **Windows Virtual Machine**, and then click **Next**.

4. The **Memory** page appears.

You are going to take a portion of your Physical Machine's memory and dedicate that memory to your Virtual Machine. You want to give the Virtual Machine enough memory to operate efficiently, but not so much that it bogs down your Physical Machine. The table below lists some suggested amounts of memory. If in doubt, just use the amount suggested by VirtualBox.

If Your Physical Computer Has:	Then Give Your Virtual Machine:
2 Gigabytes (GB) of RAM	512 Megabytes (MB) of RAM

3 Gigabytes (GB) of RAM	768 Megabytes (MB) of RAM
4 Gigabytes (GB) of RAM	1024 Megabytes (MB) of RAM

5. The **Virtual Hard Disk** page appears.

Make sure that **Create new hard disk** is listed, and then click **Next**.

6. The **Create New Virtual Disk** window appears. Click **Next**.

7. The **Hard Disk Storage Type** page appears. Make sure that **Dynamically expanding storage** is selected, and then click **Next**.

8. The **Virtual Disk Location and Size** page appears. In the **Size** box, type **40 GB** and then click **Next**.

9. The **Summary** page appears. Click

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Finish.

10. Another **Summary** page appears.
Click **Finish**.
11. Take your Windows install CD or DVD and place it in your Physical Computer's optical drive.
12. In the **Sun VirtualBox** window, select **Windows Virtual Machine**, and then click **Settings**.
13. The **Windows Virtual Machine - Settings** window appears. On the left side of this window, click **CD/DVD-ROM**.
14. Under **CD/DVD-ROM**, click **Mount CD/DVD Drive**.
15. Make sure **Hosts CD/DVD Drive** is selected, and the correct drive letter is selected, and then click **OK**.

Creating a Virtual Machine With Ubuntu

Only complete these steps if you DO NOT have an extra copy of Windows. Also, make sure you have already downloaded and extracted the Ubuntu file.

1. The **Sun VirtualBox** window should be open. If it is not, click **Start, All Programs, Sun VirtualBox, VirtualBox**.
2. In the **Sun VirtualBox** window, click the **New** button (it looks like a circle with spikey edges).
3. The **Create New Virtual Machine** window appears. Click **Next**.
4. On the **VM Name and OS Type** page, in the **Name** box, type **Ubuntu Virtual Machine**.
5. In the **Operating System** box, choose **Linux**.
6. In the **Version** box, choose **Ubuntu**, and

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

then click **Next**.

7. The **Memory** page appears. Read the next paragraph to decide what choice to make on this page.

You are going to take a portion of your Physical Machine's memory and dedicate that memory to your Virtual Machine. You want to give the Virtual Machine enough memory to operate efficiently, but not so much that it bogs down your Physical Machine. The table below lists some suggested amounts of memory. If in doubt, just use the amount suggested by VirtualBox.

If Your Physical Computer Has:	Then Give Your Virtual Machine:
2 Gigabytes (GB) of RAM	512 Megabytes (MB) of RAM

3 Gigabytes (GB) of RAM	768 Megabytes (MB) of RAM
4 Gigabytes (GB) of RAM	1024 Megabytes (MB) of RAM

8. After selecting the amount of Memory, click **Next**.
9. The **Virtual Hard Disk** page appears. Click **Use existing hard disk**, and then click the folder icon to the right of the **Use existing hard disk** box (it looks like a file folder with a green arrow on top of it).
10. The **Virtual Media Manager** window appears. Click the **Add** button at the top of the window.
11. The **Select a hard disk image file** window appears.
12. Double-click the **Ubuntu 9.04**

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Desktop folder.

13. Double-click the **Ubuntu 9.04 Desktop.vmdk** file.

14. Back in the **Virtual Media Manager** window, click **Next**.

15. The **Summary** page appears. Click **Finish**.

Installing an Operating System in Your Virtual Machine

This section is only for folks with an **extra** copy of Windows. If you don't have an extra copy of Windows and instead you downloaded the Ubuntu file, you can skip this section and head straight to **Configuring Your Virtual Machine!**

1. Back in the **Sun VirtualBox** window, click on **Windows Virtual Machine**, and then click **Start**.

2. The **Windows Virtual Machine** window appears. Inside this window, after a few seconds, you should see the Windows setup process begin.

At this point, what you need to do depends on which version of Windows you are installing. I would not recommend any version of Windows older than Windows XP.

Install Windows in your virtual machine.

Configuring Your Virtual Machine

Now that you've created your Windows or Ubuntu Virtual Machine, you can use the browser inside your Virtual Machine to access **any** website on the Internet with complete peace of mind! Your computer is basically indestructible, because as long

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

as you use the web browser inside the Virtual Machine, if something does go wrong, you can just restore the Virtual Machine to the way it was **before** the damage happened.

If you are using a Windows Virtual Machine, you might want to install antivirus software inside the Virtual Machine. Avast antivirus is a good free antivirus product that you can download here:

http://download.cnet.com/Avast-Free-Antivirus/3000-2239_4-10019223.html?part=dl-85737&subj=dl&tag=button

You still need to do a few more things to get your Virtual Machine completely configured. If you've created a Windows Virtual Machine, follow only the steps below in the section **Configuring a Windows Virtual Machine**. If you've created an Ubuntu Virtual Machine, follow only the steps below in the

section **[Configuring an Ubuntu Virtual Machine](#)**.

Configuring a Windows Virtual Machine

1. In the **Windows Virtual Machine** window, click **Devices, Install Guest Additions**.
2. In a moment, the **AutoPlay** window appears. Click **Run VboxWinowsAdditions.exe**.
3. If the **User Account Control** window appears, click **Yes**.
4. The **Sun VirtualBox Guest Additions Setup** window appears. Click **Next**.
5. The **License Agreement** page appears. Click **I Agree**.
6. The **Choose Install Location** page appears. Click **Next**.
7. The **Choose Components** page appears. Put a check mark next to **Direct3D**

Support, and then click **Install**.

8. The **Installing** page appears. Allow the install process to complete.
9. If a **Windows Security** window appears, put a check mark next to **Always trust software from "Sun Microsystems, Inc."** and then click **Install**.
10. Allow the install process to complete. This may take a few minutes.
11. After the install process completes, the **Completing the Sun VirtualBox Guest Additions Setup Wizard** page appears. Click **Next** to reboot now, and then click **Finish**.
12. Your **Windows Virtual Machine** will restart.
13. Skip ahead to the section named **Configuring Shared Folders** below.

Configuring an Ubuntu Virtual Machine

1. The **Sun VirtualBox** window should be open. If it is not, click **Start, All Programs, Sun VirtualBox, VirtualBox**.
2. In the **VirtualBox** window, click **Ubuntu Virtual Machine**, and then click **Start**.
3. The **Ubuntu Virtual Machine** window appears. A **VirtualBox-Information** window will also appear. Click **OK** to make this window go away.
4. You will see the **Ubuntu Operating System** start up *inside* the **Ubuntu Virtual Machine** window. Allow this process to complete.
5. Another **VirtualBox-Information** window appears. Click **Do not show this message again**, and then click **OK** to make this window go away.
6. Inside the **Ubuntu Virtual Machine**

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

window, you will see a **Username** box.

Type **vadmin** in this box, and then press ENTER.

- Note: If you can't type in the **Username** box, use your mouse to click inside the **Username** box, then try typing **vadmin**.

7. Next, you will see a **Password** box. Type **vadmin** in the Password box, and then press **ENTER**.

8. Wait a few moments for the Ubuntu desktop to appear.

Congratulations! You've started and logged in to your Ubuntu Virtual Machine! Next, you're going to do a few things to really simplify this process, so that in the future you don't have to type a username and password to use your Virtual Machine.

Installing the Guest Additions

9. Click the **Devices** menu at the top of the **Ubuntu Virtual Machine** window, and then click **Install Guest Additions**.

10. A picture of a CD ROM appears on the desktop of your Virtual Machine. This CD ROM will be labeled

VBOXADDITIONS_3.0.6_52128.

Double-click this CD ROM.

11. Note: If the **VirtualBox – Information** window appears, just click **Capture**. Do this any time the **VirtualBox – Information** window appears.

12. The **cdrom0 – File Browser** window appears. In this window, double-click **autorun.sh**

13. A small window appears, asking whether you want to run **autorun.sh**. Click **Run**.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

14. The **Enter your password to perform administrative tasks** window appears. Type **vadmin** and then click **OK**.
15. The **VirtualBox 3.0.6 Guest Additions for Linux** window appears. Wait until you see **Press Return** to close this window. This will usually take a few minutes. Press **ENTER**.
16. In the **Ubuntu Virtual Machine** window, click the power button. This button is in the very top right-hand corner of the window, and is a red box with a circle inside it. Then click **Restart**.
17. The **Restart** window appears. Click **Restart**.
18. The **Ubuntu Operating System** will restart. Nothing will happen to your Physical Machine, but the Virtual Machine will restart. Allow this process to

complete.

Configuring Auto Login

19. Inside the **Ubuntu Virtual Machine** window, you will see a **Username** box. Type **vadmin** in this box, and then press **ENTER**.
 - Note: If you can't type in the **Username** box, use your mouse to click inside the **Username** box, then try typing **vadmin**.
20. Next, you will see a **Password** box. Type **vadmin** in the **Password** box, and then press **ENTER**.
21. Wait a few moments for the Ubuntu desktop to appear.
22. Inside the **Ubuntu Virtual Machine** window, click **System, Administration, Login Window**.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

23. The **Enter your password to perform administrative tasks** window appears. In the **Password** box, type **vadmin** and then click **OK**.
24. The **Login Window Preferences** window appears. Click the **Security** tab.
25. Click to put a check mark next to **Enable Automatic Login**.
26. In the **User** box, type **vadmin** and then click **Close**.

Now that you've configured Auto Login, the next time you start your Ubuntu Virtual Machine, it will go straight to the desktop without requiring a username or password!

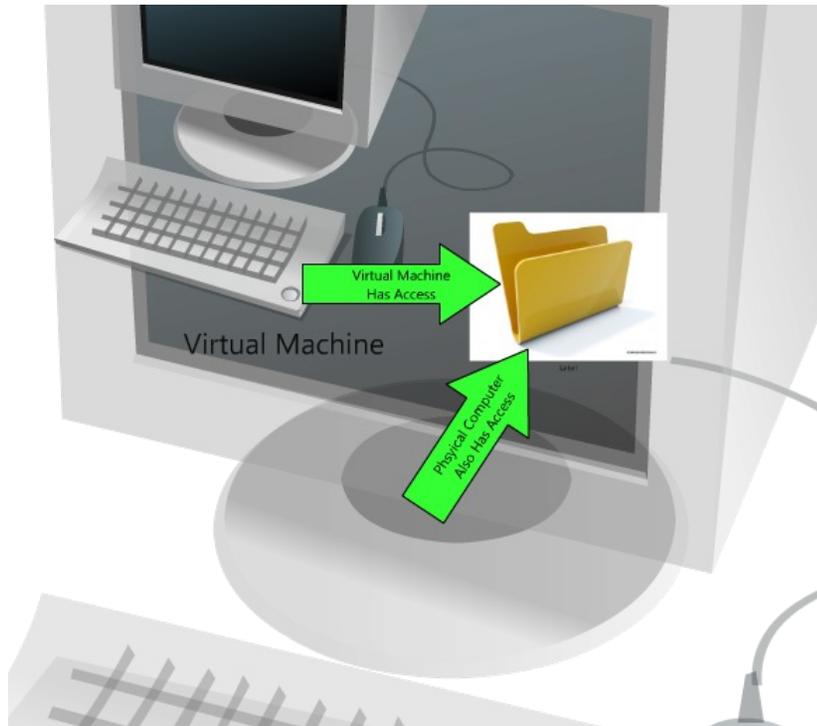
Configuring Shared Folders

This step is pretty crucial. Your Virtual Machine is

fully functional, with web browsing and email capabilities (and lots of other programs, if you want to explore them). However, you need a way to move files from your Physical Machine to your Virtual Machine, and visa-versa. This is where Shared Folders comes in. Shared Folders are like a pipeline between your Physical and Virtual machines. Have a look at the picture below:

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A Big, Fat, Giant Undo Button For Your PC



If you've created a Windows Virtual Machine, follow only the steps below in the section **Windows steps for configuring shared folders**. If you've created an Ubuntu Virtual Machine, follow only the steps below in the section **Ubuntu steps for**

configuring shared folders.

Ubuntu steps for configuring shared folders.

27. Inside the **Ubuntu Virtual Machine** window, right-click the **Desktop**, and then click **Create Folder**.
28. A new icon for a folder appears. Immediately type **Windows Desktop**, and then press **ENTER**.
29. Inside the **Ubuntu Virtual Machine** window, click **Devices**, and then click **Shared Folders**.
30. The **Shared Folders** window appears. Click the **Add** button. The **Add** button looks like a small folder with a green plus sign on top of it.
31. The **Add Share** window appears. In the **Folder Path** box, click the **down-pointing arrow**, then click **Other**.

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

32. The **Browse For Folder** window appears. Click **Desktop**, and then click **OK**.
33. Back in the **Add Share** window, click to put a check mark next to **Make Permanent**, and then click **OK**.
34. Back in the **Shared Folders** window, click **OK**.
35. Inside the **Ubuntu Virtual Machine** window, click **Applications, Accessories**, and then click **Terminal**.
36. The **vadmin@vadmin** window appears. Type the following commands exactly as it appears, and then press ENTER.

```
sudo gedit /etc/rc.local
```
37. You will be asked for the password for the vadmin account. Type **vadmin** and then press **ENTER**.

38. The **gedit** window appears. On the line before **exit 0**, type the following text exactly as it appears (note that there is a space after **Windows** and before **Desktop** and even though it's too long to fit on one line here, it should fit on one line when you type it on your computer:

```
mount -t vboxsf Desktop  
/home/vadmin/Desktop/Windows\  
Desktop
```

39. In the **gedit** window, click **File** and then click **Quit**.
40. A window appears, asking you if you want to save. Click **Save**.

Congratulations! You've set up a shared folder so you can move files between your secure Virtual Machine and your Windows Desktop!

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Windows Steps for Configuring Shared Folders

41. In the **Windows Virtual Machine** window, click **Devices**, and then click **Shared Folders**.
42. The **Shared Folders** window appears. Click the **Add Share** button. This button looks like a file folder with a green plus sign on it.
43. The **Add Share** window appears. In the **Folder Path** box, click the drop-down arrow and then click **Other**.
44. The **Browse For Folder** window appears. Click **Desktop**, and then click **OK**.
45. Back in the **Add Share** window, make sure that the **Folder Name** box has the word **Desktop** in it, put a check mark next to **Make Permanent**, and then click **OK**.

46. Back in the **Shared Folders** window, click **OK**.
47. Click **Start**, right-click **Computer**, and then click **Map network drive**.
48. The **Map Network Drive** window appears. In the **Folder** box, type **\\vboxsvr\Desktop** and then click **Finish**.

Now that you've configured Shared Folders in your Windows Virtual Machine, you can go to the **Z:** drive anytime you want to move files to and from your Windows desktop!

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Tip: Check out Xmarks bookmark syncing software:

<http://www.xmarks.com/>

This is a great free piece of software that lets you synchronize your web browser bookmarks. This is an excellent way to ensure that if anything **nasty** ever happens to your Virtual Machine, you won't lose your bookmarks!

Configuring Email in Your Virtual Machine

If you are using an **Ubuntu Virtual Machine**, all the help you need is right here: <http://www.easy-ubuntu-linux.com/email-configure-3.html>

If you are using a **Windows Virtual Machine**, you can just repeat the steps you used to set up email on your Physical Machine, but do them inside your Virtual Machine.

Remember that you want to use your Virtual Machine to receive email because if you ever get any nasty malware through email, you can simply restore the Virtual Machine to the way it was **before** you got the malware.

Backing Up Your Virtual Machine

49. In the **Ubuntu Virtual Machine** window, click the **Machine** menu, and then click **ACPI Shutdown**.
50. The **Shut Down the Computer** window appears. Click **Shut Down**.
51. Back in the **Sun VirtualBox** window,

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

click **Ubuntu Virtual Machine** (or **Windows Virtual Machine**), and then click the tab labeled **Snapshots**.

52. Click the **Take Snapshot** button (it looks like a picture of a camera).

53. The **Take Snapshot of Virtual Machine** window appears. In the **Snapshot Name** box, type **Fully Configured VM** and then click **OK**.

If you want to make a backup of your Ubuntu or Windows Virtual Machine, all you need to do is copy the folder **C:\VirtualMachines** to a writeable (or re-writeable) DVD or an external hard drive. That way, if your computer ever has a huge problem and needs to be completely reinstalled or replaced, you can easily restore your **fully** configured Virtual Machine, and be back up and running with all your emails and Internet bookmarks very quickly!

Chapter 4: Using Your Virtual Machine

Now that you've created a Virtual Machine, you need to use it. You remember that if you do all your email access and web browsing inside your Virtual Machine, it will protect your Windows PC against malware damage. Remember also that if you are using a Virtual PC that uses Windows instead of Ubuntu, you will want to add antivirus software (http://download.cnet.com/Avast-Free-Antivirus/3000-2239_4-10019223.html?part=dl-85737&subj=dl&tag=button) inside the Virtual Machine, just to be sure.

Daily Usage

Day-to-day, you can keep your Virtual Machine running all the time, or you can start and stop it so

that it is running only when you need it. Which way you do things really depends on your needs and computer usage style. There's no wrong way though!

Your Virtual Machine can do some things your Physical Machine can't though, and I want to introduce those things to you so you understand all the power and flexibility you now have.

Pausing Your Virtual Machine

Your Virtual Machine can be paused, just like a DVD player. It doesn't really matter what is happening inside your Virtual Machine when you press the Pause button. When you click Resume, the Virtual Machine will pick up right where it left off, just like a paused DVD picks up right where it was when you

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

paused it.

Here's how you Pause your Virtual Machine:

1. In the **Windows Virtual Machine** or **Ubuntu Virtual Machine** window, click the **Machine** menu, and then click **Pause**.

Reset

Most computers have a Reset button. When you press this button, your computer turns off immediately and then starts back up. While it is true that you should not use this Reset button to turn your computer off, sometimes it comes in handy if the computer crashes or freezes.

Your Virtual Machine also has a Reset button. When

you click this button, your Virtual Machine will be “powered off” (although your Physical Machine will continue running with no changes) and then powered back on. Only use the Reset button if your Virtual Machine crashes or freezes.

Here's how to use the VirtualBox Reset button:

1. In the **Windows Virtual Machine** or **Ubuntu Virtual Machine** window, click the **Machine** menu, and then click **Reset**.

ACPI Shutdown

If you are not going to use your Virtual Machine for a while, you can turn it off. There are two ways to turn it off. The first is a complete shutdown using the Shutdown Signal. The second is like pausing it,

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

except it does something called Saving the Virtual Machine State. Think of this like Luke Skywalker getting frozen in Carbonite. He was still alive, but just in suspended animation.

Using the Shutdown Signal:

1. In the **Windows Virtual Machine** or **Ubuntu Virtual Machine** window, click the **Machine** menu, and then click **ACPI Shutdown**.

Saving State:

1. In the **Windows Virtual Machine** or **Ubuntu Virtual Machine** window, click the **Machine** menu, and then click **Close**.
2. The **Close Virtual Machine** window appears. Click **Save the machine state**, and then click **OK**.

Fullscreen Mode

By now you have begun to notice that your Virtual Machine runs inside a window on your Physical Machine. Most of the time, that will be just fine.

If you want though, you can set your Virtual Machine to run in Fullscreen Mode. This means that your Virtual Machine window will completely fill up your Physical Machine's window, and you will only see your Virtual Machine's desktop.

Enabling Fullscreen Mode:

1. In the **Windows Virtual Machine** or **Ubuntu Virtual Machine** window, click the **Machine** menu, and then click **Fullscreen Mode**.

Turning Fullscreen Mode Off:

1. Press and hold down the **CTRL** key on the **right side** of your keyboard, press the **F** key, and then release both keys.

Seamless Mode

VirtualBox has an incredibly cool feature called Seamless Mode. In Seamless Mode, the Virtual Box window disappears, and each program running in your Virtual Machine gets its own window, right on the desktop of your Physical Machine. Kind of a mindbending feature, so just try it once or twice to see for yourself how cool it is!

Turning Seamless Mode On

1. In the **Windows Virtual Machine** or **Ubuntu Virtual Machine** window, click

the **Machine** menu, and then click **Seamless Mode**.

Turning Seamless Mode Off:

1. Press and hold down the **CTRL** key on the **right side** of your keyboard, press the **L** key, and then release both keys.

Snapshots and Reverting

If you followed the steps in Chapter 3, you've already created a Snapshot. And you already know that creating at least one Snapshot of your Virtual Machine is **critical** to protecting yourself against Malware.

But you should also know that you can make as many Snapshots as you want, as many times as

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

your want. Here's an example of when you might do that:

Saturday: You install your Virtual Machine, configure it, and make a Snapshot just like Chapter 3 says to.

Friday, a week later: Next weekend, you realize that you would like to install some software on your Virtual Machine to better take advantage of it. After you install this software, you make **another** Snapshot of your Virtual Machine.

Now you have two Snapshots of the Virtual Machine. If malware or something else damages your Virtual Machine, you would want to Revert to the **latest** snapshot you made. If you reverted to the first snapshot you made, your Virtual Machine

would not have the special software you installed on Friday. That is because when you made the **first** snapshot, the special software was not installed.

Tip: Every time you make a major change to your Virtual Machine, make a new snapshot.

You need to shut down the Virtual Machine before you make the snapshot.

Name the snapshot something logical, so you can easily choose the correct snapshot when you need to Revert.

Creating New Snapshots

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

1. In the **Sun VirtualBox** window, click on **Windows Virtual Machine** or **Ubuntu Virtual Machine** (depending on which you are using).
2. Click on the tab labeled **Snapshots**.
3. Click the **Take Snapshot** button (it looks like a picture of a camera).
4. The **Take Snapshot of Virtual Machine** window appears. In the **Snapshot Name** box, type a logical name for the snapshot, and then click **OK**.

It's very easy to use the snapshots you have created. All you have to do is use the Revert feature.

Now remember, when you use the Revert feature, you are taking your Virtual Machine **back in time** to exactly the way it was when you made the

Snapshot. If that was one year ago, **everything** you did on your Virtual Machine during that year will be gone. If you saved files on the Virtual Machine during the year since you made the Snapshot, they will be gone. If you created bookmarks on the Virtual Machine during the year since you made the Snapshot, they will be gone (unless you are using [Xmarks](#) to synchronize them). That's one more reason to use the Tip above, and make a new Snapshot every time you make a major change to your Virtual Machine.

If you have decided you need to Revert a Snapshot, then follow these steps.

Reverting to a Snapshot

1. In the **Sun VirtualBox** window, click on **Windows Virtual Machine** or **Ubuntu Virtual Machine** (depending on which

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A Big, Fat, Giant Undo Button For Your PC

you are using).

2. Click on the tab labeled **Snapshots**.
3. Right-click on the **Snapshot** you want to

Revert, and then click Revert to Current Snapshot.

Chapter 5: The Sweet Life

OK, let's wrap things up a bit with a summary.

Malware Protection

As far as malware goes, you're living the sweet life now! You have done two or three hours worth of work, and dramatically increased your Windows computer's ability to survive nasty malware attacks. As long as you use your Virtual Machine for email and web browsing, you've made it virtually impossible for malware to damage your computer!

Recovering From Malware Attacks

If malware does make its way into your Windows PC, it's going to do so through email or your web browser. Because you're using your Virtual Machine for email and web browsing, only your virtual machine can possibly be damaged by the malware.

It's like those special containers that bomb squads put suspected bombs into (see picture below). No matter how much your Virtual Machine gets damaged by malware, the Virtual Machine will "contain the blast" so the Physical Machine does not get damaged.



How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

Then, with the click of a button (the Restore button that is), you can restore a damaged Virtual Machine to its pristine, undamaged state in no time!

By the way, this also works if you make a mistake that damages your Virtual Machine. If you accidentally delete some important files that are in your Virtual Machine, or install a crappy piece of software that you wish you hadn't, you can Restore the Virtual Machine any time you want, and get things back to the way they should be.

But that's not all!

Recovering From a Computer Crash

The Virtual Machine can come in handy at other times. Let's imagine that you've created a Virtual

Machine, backed it up to DVD, and then a while later your Physical Computer crashes or has some other serious problem.

After the problem is fixed so that your Physical Computer works like it should, then you can copy the Virtual Machine from your DVD back to your Physical Computer, and then in a few minutes you will be back up and running. All the configuration you did for your Virtual Machine will be just the way it should be (as long as your backup is fairly current). Believe me, this takes **much less time** than if you are not using a Virtual Machine!

Moving to a New Physical Machine

Your Virtual Machine is also **portable**. This means that if you get a new computer, you can easily move

How to Use Free Software to Prevent Antivirus and Virus Removal Headaches

A Big, Fat, Giant Undo Button For Your PC

your Virtual Machine to that new computer. Here are the simplified steps for moving your Virtual Machine:

1. Install Sun VirtualBox on the new computer.
2. Copy the whole **C:\VirtualMachines** folder from the **old** computer to a writeable or re-writeable DVD.
3. Copy the VirtualMachines folder from the DVD to **C:** on your **new** computer.
4. From Chapter 3, follow the steps in the sections named **Configure VirtualBox** and **Creating a Virtual Machine With Ubuntu**.

Thank You

Your online life will be better if you use a Virtual Machine to do anything that puts your computer at risk. I hope that by now you are surfing easier, sleeping better, and enjoying your time online even more than before you read this course. If you agree, please let me know about your experience by emailing philip@wordlions.com. Also, please tell your friends about this course so that they can get the benefits too!

Happy Browsing,

Philip Morgan
wordlions.com