

# The Tor VM Project

## Installing the Build Environment & Building Tor VM

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## 1) Introduction and disclaimer

The operating system that was used for the production of Tor VM is Ubuntu 8.04 Desktop edition. You can install Ubuntu on to a physical computer for this process or you can use a virtual machine. Tor VM development was done inside a virtual machine. VMware Player (free) and Workstation (not-free) were used for the production of Tor VM. Other virtualization engines such as QEMU, Virtual Box, and Microsoft Virtual PC could probably be used as an alternative to VMware.

All third-party software is copyrighted to their respective companies. VMware is a registered trademark of VMware, Inc. Microsoft Windows and Driver Development Kit are registered trademarks and copyright of Microsoft Corp. Ubuntu is a registered trade mark of Canonical Ltd. These software companies may require you to agree to their respective EULA's in order to use their software.

All instructions beyond this point are based upon using VMware for the virtualization and Ubuntu 8.04 Desktop for the operating system. It should be possible to do this on other Linux based distributions and other virtualization technologies, but we make no warranty about the functionality of the final results if Tor VM is built on any other OS and/or with a different virtualization engine.

FOR ALL INTENTS AND PURPOSES, THIS SOFTWARE IS IN THE LATE ALPHA STAGES OF DEVELOPMENT. BETA AT BEST. THINGS COULD GO WRONG AND CAUSE YOUR SYSTEM TO BE MISCONFIGURED IF Tor VM CRASHES AND LEAVES YOUR SYSTEM IN AN UNUSABLE STATE. WHILE WE DO ATTEMPT TO COVER HOW TO RECOVER YOUR CONFIGURATIONS IF TOR VM CRASHES, YOU BUILD AND USE THIS AT YOUR OWN RISK!

## 2) Creating the virtualization build environment

There are a few different options to building an Ubuntu VM. You can download a premade VM from VMware website or you can build one yourself from an Ubuntu ISO. This will cover how to build one yourself.

#### 2.1) Required Downloads

Create a directory to store the following downloads. Please download all of the requirements before you continue on with this process.

#### 2.1.1) VMware Player 2.5 for Windows (65MB, EXE)

URL: <u>http://download3.vmware.com/software/vmplayer/VMware-player-2.5.0-118166.exe</u> MD5: e94f1be6a96867419bf31e42be12f29c

#### 2.1.2) 20GB Linux VMware Image Template (7KB, ZIP)

URL: <u>http://www.janusvm.com/tor\_vm\_cache/20GB\_Linux\_VMware\_Image.zip</u> MD5: 7a136coc91d1bf34b6c657cd49d38813

#### 2.1.3) Ubuntu 8.04 Destkop Edition (694MB, ISO)

URL: <u>http://mirrors.us.kernel.org/ubuntu-releases/hardy/ubuntu-8.04.1-desktop-i386.iso</u> URL: <u>http://www.janusvm.com/tor\_vm\_cache/ubuntu-8.04.1-desktop-i386.iso</u> MD5: c69e34e92d5402d1b87e6babc739f774

#### 2.1.4) Windows Driver Development Kit (230MB, ISO)

URL: http://download.microsoft.com/download/9/0/f/90f019ac-8243-48d3-91cf-81fc4093ecfd/1 830\_usa\_ddk.iso

MD5: e9193a1e80c3dd13b66af81d4fbb9369

#### 2.1.5) DAEMON Tools Lite v4.30.1 (496KB, EXE)

URL: <u>http://www.disc-tools.com/request?</u> p=8893e3cf57305128d9b26f48f7ac9a50/daemon347.exe MD5: fe36ef3abf2589bef67f0113f40ff845

#### 2.1.6) Windows XP or Server 2003

#### 2.2) Installing the build environment dependencies

#### 2.2.1) Install VMware Player 2.5

Open the directory that you saved the downloads to, and launch **Vmware-player-2.5.0-118166.exe**.

If you get Security Warning asking you "Do you want to run this file?", click on "Run".

Open File	- Security \	₩arning	X
Do you	ı <del>w</del> ant to ru	n this file?	
	Name:	VMware-player-2.5.0-118166.exe	
	Publisher:	VMware, Inc.	
	Туре:	Application	
	From:	C:\Documents and Settings\User\Desktop	
		<u>R</u> un Cancel	
✓ Al <u>w</u> a	ays ask before	e opening this file	
:	While files fr potentially h you trust. <u>W</u>	rom the Internet can be useful, this file type can arm your computer. Only run software from publishers <u>'hat's the risk?</u>	

Follow the instructions VMware provides with their installer. If you ever installed an application on Windows before, then installing VMware should not be a problem for you.

If you've never installed an application in Windows before, then just remember the following. Click on anything that says "Next", "I accept ....", "Yes", "Agree" and/or "OK". That's sums it up in a nut shell.

#### 2.2.2) Prepare 20GB Linux VMware Image

Extract the previously downloaded **20GB\_Linux\_VMware\_Image.zip** file into a new directory. Move the **ubuntu-8.04.1-desktop-i386.iso** into the same directory that you extracted the **20GB Linux VMware Image** contents to.

🗁 20GB Linux VMware Image		
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🕞 Back 🔹 🕥 🖌 🏂 🔎 Search 🞼	Folders	32 🗙 🍤 🛄 ·
Address 🛅 ttings\User\My Documents\My Virtual	Machines\20GB Linu	ıx VMware Image 💌 🔁 Go
Name 🔺	Size	Туре
🐣 20GB Linux VMware Image.vmdk	2,624 KB	VMware virtual disk file
Dther Linux 2.6.x kernel.vmx	2 KB	VMware Configuration File
🖬 Other Linux 2.6.x kernel.vmxf	1 KB	VMXF File
🕼 ubuntu-8.04.1-desktop-i386.iso	711,154 KB	ISO File

## 2.2.3) Building the virtual machine

Now launch the VM by opening "Other Linux 2.6.x kernel.vmx". This will boot the VM from the **ubuntu-8.04.1-desktop-i386.iso**.

NOTE: You will have to agree to VMware's EULA before you can use their software.

👯 YMware Player	×
License Agreement	3,
Please read the following license agreement carefully.	
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	)
<ul> <li>Yes, I accept the terms in the license agreement</li> <li>No, I do not accept the terms in the license agreement</li> </ul>	
OK	

When Ubuntu boot's, choose your language setting then select "Install Ubuntu".



Try Ubuntu without any change to your computer Install Ubuntu Check CD for defects Test memory Boot from first hard disk

Press F4 to select alternative start–up and installation modes.

F1 Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Options

At step 1, select your language and click "Forward".



At step 2, select your time zone and click "Forward".

<del>-</del>	Insta	Ш	×
Where are you	u?		
Select a city in your after selecting the o system.	country and time zone. If the indic correct time zone, you can adjust it	ated current time is incorrect even after rebooting into the installed	
Selected city:	Vancouver 😂	Selected region: Canada	
Time zone:	PDT (GMT-7:00)	Current time: 02:23:57 AM	

At step 3, pick a keyboard layout that best suites your needs and click "Forward".

	Install	
Keyboard layout		
Which layout is most similar to y	vour keyboard?	
Syria	USA	
Tajikistan	USA - Alternative international (form	ner us_intl)
Thailand	USA - Classic Dvorak	
Turkey	USA - Colemak	
USA	USA - Dvorak	
Ukraine	USA - Dvorak international	
United Kingdom	USA - Group toggle on multiply/divid	de key
Uzbekistan	USA - International (AltGr dead keys	s)
Vietnam	USA - International (with dead keys)	)
United Kingdom Uzbekistan Vietnam You can type into this box to tes	USA - Group toggle on multiply/divid USA - International (AltGr dead keys) USA - International (with dead keys) t your new keyboard layout.	de key s) )

At step 4, make sure that "Guided – use entire disk" and "SCSI 1 (0,0,0) (sda) " are selected and click "Forward".

	Install
Prepare disk space	
How do you want to partition the dis	sk?
Guided - use entire disk	
🖲 SCSI1 (0,0,0) (sda) - 21.5 GB	VMware, VMware Virtual S
🔿 Manual	
Step 4 of 7	Cancel 👍 Back 🔂 📥 Forwar

At step 5, pay close attention. When asked "What is your name?", type "Guest". When asked "What name do you want to use to log in?", type "guest" When asked to "Choose a password to keep your account safe.", pick a password. Click on "Forward".

\$1 •••		Install		
Who are you?				
What is your name?				
Guest				
What name do you want	to use to log in?			
guest				
If more than one pers	on will use this computer	r, you can set up multiple	accounts after installati	on.
Choose a password to k	eep your account safe.			
***	lek 📄			
Enter the same passv	ord twice, so that it can	be checked for typing err	ors.	
What is the name of this	computer?			
guest-desktop				
This name will be used	l if you make the compu	iter visible to others on a i	network.	
Stop 5 of 7		Capcel	A Back	ward

## At step 7, click "Install"

200 	l.	nstall		
Ready to install				
Your new operating syster	n will now be installed wi	th the following settings:		
Language: English				F
Name: Guest				
Login name: guest				
Location: America/Van	couver			1
Migration Assistant:				
If you continue, the cha	nges listed below will be bla to make further char	written to the disks.		
otherwise, you will be a	ble to make further cha	nges manually.		
WARNING: This will dest	roy all data on any parti	tions you have removed as		
well as on the nartitions	that are going to be for	rmatted		
			Advand	ced
Step 7 of 7		Cancel	두 <u>B</u> ack 🛛 📫 Ins	stall

When the installation is finished, you will see a "Installation complete" window inside the VM window. Click on the "Reboot Now" button.



At the black shutdown screen, hit enter one more time to make the VM reboot.



You have now installed Ubuntu 8.04 Desktop in a VM. This will be your build environment for Tor VM.

#### 2.3) Download the build script

Now that you have finished installing Ubuntu, you will need to download the build script for Tor VM. Start by logging into your new VM. You will have to type in your username and password.



Open up a Terminal session. You can start a Terminal session by going to the "Applications" menu, then "Accessories", and then "Terminal".

Applications Place	s System 🕘 😭 🕢	Guest 🖖	🚽 剩 Sun 12 Oct, 02:58 😈
Accessories	Calculator		
🚯 Games 🔹 🕨	a Character Map		
🔏 Graphics 🔹 🕨	🔊 Dictionary		
🥪 Internet 🔹 🕨	🔊 Disk Usage Analyzer		
0ffice •	崖 Manage Print Jobs		
🧊 Sound & Video 🔹 🕨	< Passwords and Encryption Keys	2	
Add/Bemove	💼 Take Screenshot		
	🔟 Terminal	<b>0 [_</b> )/	
	🕎 Text Editor		
	🗾 Tomboy Notes		
	🛐 Tracker Search Tool		

## 3) Building tor\_vm.iso and w32build.iso

#### 3.1) Get the build script and execute it

Now that you have downloaded, installed, and configured Ubuntu, you are ready to build the ISO images for Tor VM. Type in the following commands in the Terminal.

> sudo su -

(enter the password you set for the "guest" user)

> mkdir /build

> cd /build

> wget <u>www.janusvm.com/tor\_vm\_cache/build-Tor VM.sh</u>



## > chmod +x build-Tor VM.sh > ./build-Tor VM.sh



This will start your build process which will take a couple of hours to complete. The build process will download and install any necessary tools that are required to build Tor VM. After the tools have been installed, the Tor VM source code is downloaded and SHA-1 checksums of the source code are checked. If the checksums pass, then Tor VM is compiled.

When the build is complete, it should bring you back to the command prompt with no errors.



#### 3.1.1) Copy the results to a Windows Share

Now we must copy the created ISO images over to a Windows XP machine, or VM. In order to do that, we must share a directory.

Create a folder called "ISO".

Right-click on the ISO folder and select "Sharing and Security...".

My Docur	ments Downloads	
My Comp	Duter DAEMON Tools	
5	}	
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	Search	
2	Shaving and Security	
Decuch	Mining and Deconcy	
Recycli	Add to "ISO rar"	
	Compress to "ISO rar" and email	
2		
Interi	Send To 🕨	
Explo	Cut	
	Cody	
2	Create Shortcut	
Mozilla F	Delete	
	Rename	
0	Properties	
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ISO		
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Check the "Share this folder on the network" box. Check the "Allow network users to change my files" box. Click on "Apply" then click on "OK".



Now that your ISO folder on Windows is shared, the ISO images can be copied over. In order to do this we mount the windows share to a directory in Ubuntu. Login as root and do the following commands.

## (NOTE! Use the IP address of your Windows computer or VM, not 192.168.1.4 unless that is your Windows IP.)

> cd /mnt/ > mkdir iso > mount -t smbfs //192.168.1.4 (Type in your password on your Windows computer) > cp /build/torvm/trunk/build/iso/vm.iso iso/tor\_vm.iso

> cp /build/torvm/trunk/build/win32/w32build.iso iso/tor\_vm.iso



If all goes well, you should now have the tor\_vm.iso and the w32build.iso on your Windows computer.

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My Docur	iso		
	File Edit View Favorites T	ools Help	
5	🕞 Back 🔹 🌍 👻 🏂 🔎	Search 😥 Folders 🕼 🎲 🗙 🕻	9
My Com	Address 🛅 C:\Documents and Set	tings\Build\Desktop\ISO	💌 🄁 Go
æ	Name 🔺	Size Type Da	ate Modified
	Etorvm.iso	3,718 KB WinRAR archive 10	D/17/2008 12:38 AM
My Nat	🔚 w32build.iso	51,946 KB WinRAR archive 10	0/17/2008 12:39 AM
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#### 3.2) Troubleshooting

Tor VM uses open software that has to be downloaded from various different locations on the Internet. Sometimes those sites change their directory structure, go down for maintenance, or simply just timeout. When this happens, the build scripts do not handle it very well. As a result of this, you may have to manually start the build from where it broke.

#### 3.2.1) Restarting a build that broke

According to the build script, your build directory is /build/torvm/trunk. You can simply change to this directory and restart the build.

> cd /build/torvm/trunk
> make

#### 3.2.2) Some of the sources changed or are missing

The are many possible things that can go wrong when your software build depends on several different pieces of software. The good news is that there is an online cache of all the open source files that are used in this project. If you download the cached files, you must reconfigure your build instance to use it. The following commands show how to download the cache, reconfigure the build instance, and restart the build.

> cd /build/torvm/trunk/build/kamikaze/common/dl > wget -R <u>http://www.janusvm.com/tor\_vm\_cache/dl/</u> > cd ../../win32/dl > wget -R <u>http://www.janusvm.com/tor\_vm\_cache/wdl/</u> > cd ../../.. > chown -R guest.users \* > make

## 4) Using tor\_vm.iso

You can use Tor VM in a couple of different ways. The recommended way is to build a portable Tor VM for Microsoft Windows. You can also use VMware or any virtualization engine that supports bridged, or raw, network interfaces. The version of QEMU that is built in this process has been modified to be able to support a emulating a raw Ethernet device through your existing NIC. Sun's VirtualBox or Microsoft's Virtual PC may be able to do this too.

You can build a portable version of Tor VM that uses QEMU for the virtualization engine and a modified WinPCAP driver with a OpenVPN Tap32 adapter for the bridged or raw Ethernet networking. The following sections will walk you through how to build a portable version of Tor VM for Microsoft Windows XP. This has only been tested on Windows XP.

#### 4.1) Building Tor VM for Windows

This documentation will cover how to install all the required tools and dependencies in order to create a portable version of Tor VM.

#### 4.1.1) Installing DAEMON Tools Lite

The Ubuntu build stage creates ISO's that need to either be burned to CD or mounted using a third party program. For the development of Tor VM, DAEMON Tools Lite was used to mount ISO images as a CD-ROM device under My Computer.

You should already have daemon347.exe from downloading the software in section 2.1. Run daemon347.exe to install DAEMON Tools Lite.

My Documents Downloads 🕽 Downloads - 🗆 🗵 Edit View Favorites File Tools Help My Computer 🛆 - 🍙 Search Folders 🛛 🗠 😚 🗙 🖌 -Open File - Security Warning × 💌 🔁 Go Addre The publisher could not be verified. Are you sure you want to Name odified run this software? 18 2008 11:45 PM Mv Network 🕢 da Name: daemon347.exe 2008 11:40 PM Places Publisher: Unknown Publisher Type: Application 2 From: C:\Documents and Settings\Build\Desktop\Downloads Recycle Bin Cancel <u>R</u>un Always ask before opening this file Internet Explore This file does not have a valid digital signature that verifies its publisher. You should only run software from publishers you trust. How can I decide what software to run? Mozilla Firefox ISO 💑 🛃 🕘 📵 11:57 PM 🐮 Start 🧕 🕑 📄 Downloads

If you see a security warning, click on "Run"

My Documents Downloads 🔁 Download - 🗆 🗵 DAEMON Tools Setup × -My Computer EULA Readme History \* DAEMON Tools End User License Agreement 💌 🔁 Go This program is NOT freeware. If you don't use this program for commercial purposes you do not have to register a license and are allowed to use this software for free. But Network Places if you want to support our work you may do so, of course. Please check our homepage at http://www.daemon-tools.cc and click 'Register' for details. 2 This private license is always limited until the next version of this software is released. Recycle Bin If you use this program commercially (e.g. in a company, internet cafe etc.) somehow you must license it! Please check our homepage at http://www.daemon-tools.cc and click 'Register' for details. You are only allowed to use this program if you are a legal owner of the original CD and you want to create or use a backup of your original CD. Internet Feel free to use this package in other FREE products, as long as you leave this Explorer package unmodified and include credits to the authors. Commercial Programs that • Logged Install (DAEMON Tools will create an installation log called daemon.log) Mozilla Firefox Install Exit ISO 🛃 🔊 🚱 📵 11:57 PM 🏄 Start 🥭 🥹 🚱 🗀 Downloads CAEMON Tools Setup

### You will then be prompted with and EULA, click on "Install".



My Documents Download	ds	
My Computer	Devenloads DAEMON Tools 3.47.0 Select Installation Options	
My Network Places	The installer will install DAEMON Tools with default options specified below. To install with these options, click "Next". To modify options enter them below.	PM
Recycle Bin	Eolder: C:\Program Files\D-Tools\ Browse Disk Cost Disk Cost	
Internet Explorer	Miniport driver name: d347prt	
Mozilla Firefox	Cancel < Back Next >	
ISO		
🏄 Start 🧉 🥹 🚱	Downloads	📑 🔊 🕲 💼 11:58 PN

My Documents Downlo	ads	
My Computer	Confirm Installation	
My Network Places	The installer is ready to install DAEMON Tools on your computer. Click "Next" to start the installation.	FPM PM
Recycle Bin		
Internet Explorer		
Mozilla Firefox	Cancel < Back Next >	
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After DAEMON Tools has finished installing, click on "Close".

My Documents	Downloads			
My Computer	DAEMON Toc	Downloads DAEMON Tools 3.47.0 Installation Complete		
My Network Places Recycle Bin		DAEMON Tools has been successfully installed. Click "Close" to exit.		5 PM D PM
Internet Explorer				
Mozilla Firefox		Cancel	K Back Close	
ISO	866	Downloads		🕂 🔊 🕗 🗊 11:58 PM

You will then be prompted to restart your computer, click "Yes". Your computer will reboot.



After your computer or VM has rebooted, DAEMON Tools will be installed and running.

#### 4.1.2) Installing Windows Driver Development Kit

In order to build the drivers that are required, you need to install the Windows Driver Development Kit. You will have to use DAEMON Tools or burn the ISO to a CD in order to do this. The following is how to install the Windows DDK with DAEMON Tools.

Left-click the red lighting bolt in the lower left corner and click on "Device O: [E:] No media".



Goto the folder that you downloaded the Windows Driver Development Kit ISO to. Select "1830\_usa\_ddk.iso" and click "Open".

My Documents	Downloads				
	Select new imag	e file			<u>?×</u>
My Computer	DAEMC Look in:	🚞 Downloads	•	🚱 🔌 📂 🛄∙	
My Network Places	My Recent Documents	1830_usa_ddk.iso			
CONTRACTOR RECYCLE BIN	Desktop				
) Internet	My Documents				
Explorer Mozilla Firefox	My Computer	File name: 1830	usa ddk.iso		Open
<b>)</b> 150	Places	Files of type: All ima	_ ges (cue,iso,bwt,cdi,b5t,ccd,	mds,nrg,pdi)	Cancel //
🎒 Start  🧭	<b>8</b>				<u>∎</u> ≹∎03

If autorun is enabled on Windows, then the ISO will be mounted as a CD and will open some of Microsoft's legal babel. Just close the browser window.



Right-click on "My Computer" and select "Explore".



DAEMON Tools mount the ISO image as the "E:" drive under My Computer.

My Documents My Computer	Downloads	: Help arch 🎼 Folders 🎼 🎲 🎲	× 19 .	
My Network Places Recycle Bin Internet Explorer	Folders       X <sup>(i)</sup> Desktop <sup>(i)</sup> My Documents <sup>(i)</sup> My Computer <sup>(i)</sup> My	Name A manded common debuggers ia64 state autorun.inf drvfast_install.htm install.htm prefast_install.htm reinote.htm sdbusapi.doc setup.exe srcindex.htm	Size Type File Folder File Folder File Folder File Folder File Folder File Folder 1 KB Setup Info 150 KB Firefox Do 46 KB Firefox Do 61 KB Firefox Do 201 KB Wordpad I 22 KB Application 411 KB Firefox Do	rmation cument cument cument cument cument
ISO	<ul> <li>Build's Documents</li> <li>Build's Documents</li> </ul>			上

Right-click on "setup.exe" and select "Open".



The Microsoft Windows Driver Development Kit installation is fairly simple. Click on "Next".



Select "I Agree" and click on "Next".



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	F							
Mu Documente	Dow	plands						
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		Microsoft Windo	ows Driver Develo	pment Kit			×	
		Calcal Davies	line Disenter					
My Computer	C _	Setup recom	mends installing the W	/indows Driver De	velopment Kit on t	he following hard drive.		
<b>S</b>								
	Ļ							
My Network		Install kit at:						
Places		C:\WINDDK\379	0.1830				Browse:	
		,						
2		Installation Location	on:					
Recycle Bin		Volume	Disk Size	Available	Bequired	Difference		
		C:N	19 GB	15 GB	746 MB	14 GB		
æ								
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<b>a</b>	<b>10</b> -		1.5	-	•			
🌌 Start 🥭	9	🖉 🛄 RTM (E:)	9	🚽 Microsoft Wii	ndows Dr		S 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<mark>/</mark> @ 12:2

My Documents	Downloads	×
My Computer	Driver Development Kit Component Groups Select components to install. A red X' means the component is n not all entries under that component are selected to install	iot available. A greyed out box means
My Network Places Recycle Bin	Microsoft Windows Driver Development Kit     Microsoft Windows Driver Development Kit     Documentation     Occumentation     Occumen	Feature Description Microsoft Windows Driver Development Kit
Internet Explorer	Network Samples     Printer Samples     Smart Card Samples     Smart Card Samples     Original Card Samples	Space Requirements Disk Space available: 15 GB Disk space needed: 682 MB Install Path: C:\WINDDK\3790.1830
Mozilla Firefox		< Back Next > Cancel
🏄 Start   🥘	🖲 🚱 🏠 RTM (E:) 🛛 🙀 Microsoft Windows Dr	🕵 🕏 🖗 12:23 AM

È		
My Documents	Downloads	
	America Sector America Sector	×
My Computer	Confirmation     Setup is ready to install the components you have selected.	<u></u>
My Network	- = Are you sure you want to install?	
Places	Installed kit location: C:\WINDDK\3790.1830	
3	Kit install Size: 682 MB	
Recycle Bin		
Internet Explorer		
Mozilla Firefox	To accept the choices click next. To make any changes click back	
	<back next=""></back>	Cancel
ISO		
🍂 Start  🥭	🖲 🚱 🏠 RTM (E:) 🥵 Microsoft Windows Dr	🕵 🛃 🔍 🌮 👜 12:23 АМ

The installation will take a couple of minutes. Install times will be relative to the speed of your computer.

My Documents	Downloads	
	👔 🚰 Microsoft Windows Driver Development Kit	×
My Computer	Installation Progress Setup will now install the components you have selected.	A
My Network		
Recycle Bin	Installing: Windows Driver Development Kit Required Build Tools Installing Cab: X86dBINS	
Johannat		
Explorer	Uverall Progress:	_
gila Firefox		
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ISO		
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When the installation is complete, click on "Finish".

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You have now installed the Microsoft Windows Driver Development Kit.

Next you must unmount the ISO image. Left-click on the red lighting bolt and select "Unmount all drives".



#### 4.1.3) Build a portable Tor VM for Windows

Now that the Windows DDK has been installed, you can build the portable Windows version.

Left-click on the DAEMON Tools icon (red electric bolt) in the lower left corner of the screen, and choose "Device o: [E:] No Media".



Select the "w32build.iso" file that you copied over earlier, and click "Open.".

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If you have autorun enabled, the build will start automatically.



If you do not have autorun enabled, then you will have to open the "install.bat" under the mounted ISO image (E Drive). This will launch a build of the portable Tor VM for Windows.

When the build is complete, you can find the final results in <u>C:\Tor\_VM</u>.



That's it. You now have a virtual machine that routes all your DNS requests and TCP traffic through Tor. To use Tor VM, just open "Tor VM.exe". Please refer to the Tor VM – Usage document for usage instructions.

## 4.2) Using tor\_vm.iso with different virtualization engines.

(To be done)

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