

A close-up photograph of a person's hand holding a brass key. The hand is positioned on the left side of the frame, with the thumb and index finger gripping the key's bow. The key is held horizontally, pointing towards the right. The background is a solid dark blue color.

Effortless Encryption for Anxious Users

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June 19, 2010

Osher Lifelong Learning Institute – Computer Club
&
Washington Area Computer User Group



Presentation Available At...

At the table in the back of the room

WACUG:

- Go to <http://wacug.org/>
- Select "Recent Meeting Topics"

OLLI Computer Club:

- Go to <http://www.oli.gmu.edu/>
- Select "Other" → "Computer Club"
- Select "Recent Meetings"



Outline

- The threat
- What information to encrypt
- What is encryption?
- Encryption products
 - Cypherix LE
 - TrueCrypt
- Downloading TrueCrypt
- Using a TrueCrypt vault




The Threat

- Deleted files → recycle bin are not erased
- Files emptied from the recycle bin are not erased
- Laptops are targets for thieves (~600,000/year stolen or lost)
- Intruders can “farm” your computer for private information via the Internet
- Very easy to search for “password”, “social security” “bank” “login”, etc.



What Happens When a File is Deleted?

- File is marked as deleted in the Master File Table (MFT)
- Clusters allocated to the file are marked as free in \$BitMap (1 cluster = 4 KB)
- The actual data remain on the disk until clusters are re-used
- For more information, see  [← Click for information](#)



What to Encrypt

- Financial data
 - Credit card information
 - Tax records
 - Social Security numbers
 - Bank statements
 - Payroll or pension payments
 - Receipts



What to Encrypt (cont.)

- Medical information
- Legal documents
- Collections of IDs & Passwords
- Private correspondence



What is Encryption?

- Encryption is scrambling of information in a systematic and recoverable manner
 - **to ensure privacy and security**



How Much Protection Is Needed?





- Guaranteed privacy & security is impossible
- Excellent privacy & security is easily achievable
- Reasonable protection encourages the “bad guys” to look for an easier mark

In other words:

- If your house is locked and your neighbor's isn't, guess where the thief goes?
- If you and your friend are chased by an angry, hungry bear— you don't need to outrun the bear... just your friend!





Password Management

- Login with one master password and one click; fill forms automatically
- RoboForm (\$29.95 and \$9.95)... 
- LastPass (free)... 
- Password Safe (free from SourceForge)... 
- SecureIT (free)... 



Encrypt Microsoft Office Files

- MS Office documents (Word, Excel and PowerPoint) can be encrypted (a) to open and/or (b) to modify
- For instructions, see 
- Office 2007 uses strong encryption, but requires good password. How secure is this encryption? See 




Creating Strong Passwords

- Very poor passwords:
 - password
 - guest
 - test
 - admin
 - garson
 - any single word
 - <8 characters, etc.





Creating Strong Passwords (cont.)

- Strong, but forgettable passwords:
 - CQL\$8eMOy@8z01P
 - 86CBA1D7CEB8B0F
 - 6387C73F825A2C298796C3B7B7EA9F
 - 7@iB%tuD6i3tUA&ZQ2s6UjG5sWTS6G
 - h1L#v3EJMyD*x#fjGpRrcD3J&e8ZNP5uZT0T2@by
- Discussion of strong passwords, see 



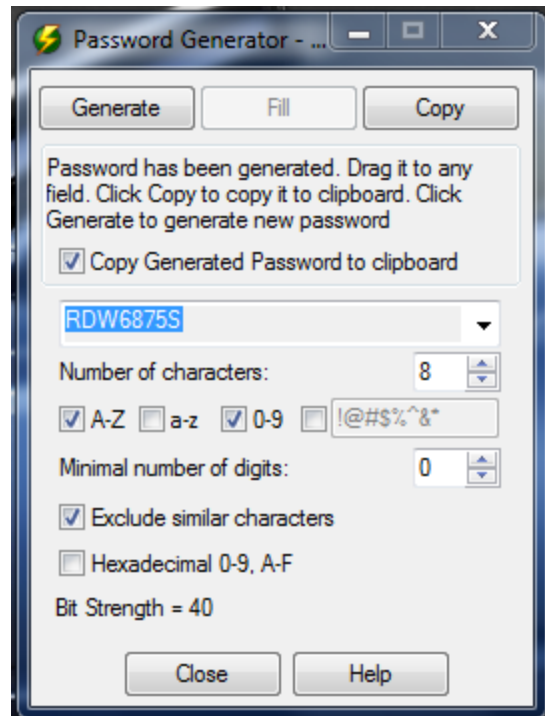
Creating Strong Passwords (cont.)

- Strong, practical passwords:
 - 2BeeOarKnot2Bea?
 - NaturalLog2.71828
 - AMoleIs6.02x1023
 - ILieIWasBornIn1777
- For picking strong passwords, see 
- To check strength of passwords, see 
<https://www.microsoft.com/protect/fraud/passwords/checker.aspx>



Creating Strong Passwords (cont.)

- RoboForm “Tools” to generate random passwords





Creating Strong Passwords (cont.)

- See <http://www.passwordcard.org/en>  for Password card

■♣○○◻⊗▲! ?Δ↑▲⊙□♪●※♥★◆€;⊕⊗♠¥\$;£
c39phLaYC8D9Q3JjhY7DTCmSJ9EvF
CDusNdG2qtrsbSSQfvhcrS3A4BHGZ
QjwjV68e7CFY6hQpqKBVYZDRXSBxy
vQV8euHs6tcHkzSrUjNRdMFUVV7zp
e2cTrdE2TkDCRUjtZArCyxhAAg2qV
YLGcEQ3GQrvsdrSyaeAB2DHWacdvu
pn2janZtuk7CuThmM2pTSyhpHTXFh
Kv6FF7W9pbg5QTycf9p7jmm2FtRpc





8aaaf33bc16e376b

♠◆▲◻⊗♪●▲⊕★\$↑♣¥♥※£□;■◆?⊙⊙€;!⊙
WhUBARr8bd36JTs jKuutXSfytWe8J
rhV2KAphmAwSXSbApWRarMN6kGJf9
zfKHCZxGeHcRMjTDSYhjkG6ejS4tR
SKwUDHTvNMZ4uVrQGTUKtesj8Uc45
35786921585898202693864168006
50210641170845337688527861212
82210084070919296840559338262
91942372690459276880994102023

c544e900ae19faed



General Encryption Products

- Cypherix* LE 8.1.0.0 (LE free; other products for sale)
 - Download 
 - For more information... 
- TrueCrypt 6.3a (free)
 - Download 
 - For more information... 

*Formerly known as Cryptainer



General Encryption Products (cont.)

- Androsa FileProtector (free) 
- AxCrypt (free) 
- PowerCrypt (free) 
- CryptoForge (\$30-\$40) 
- Symantec Endpoint Encryption* (\$133) 
- PGP** (**P**retty **G**ood **P**rivacy)  and Philip Zimmerman 

* Symantec to acquire PGP Corp. and GuardianEdge Technologies, Inc. 

** See Wikipedia discussion 



Cypherix LE (free)

- Creates containers (vaults) up to 25 MB each
- Create vaults on hard drives, thumb drives, CDs, DVDs, etc.
- Drag and drop files or folders into vaults
- Secure e-mail
- 128 bit Blowfish encryption

Cypherix Products

No. of Licenses	Cypherix ME 2.5 GB vaults	Cypherix PE 25 GB vaults	Cypherix 8.1 500 GB vaults	Cypherix SE 500 GB vaults	SecureIT
	Price	Price	Price	Price	Price
1	\$29.95	\$45.00	\$69.95	---	\$29.95
2	\$49.95	\$79.95	\$129.95	\$129.95	\$49.95
3	\$74.95	\$119.95	\$194.95	\$194.95	\$74.95
5	\$124.95	\$199.95	\$324.95	\$324.95	\$124.95
10	\$249.95	\$399.95	\$649.95	\$649.95	\$249.95
20	\$499.95	\$799.95	\$1299.95	\$1299.95	\$499.95
25	\$623.95	\$998.95	\$1524.95	\$1524.95	\$623.95

For more than 25 Licenses, please **contact us** for pricing information.



TrueCrypt 6.3a

- Creates a virtual encrypted disk in a file
- Encrypt a entire hard drive, USB flash drive, CD, DVD, etc.
- Encrypts automatically in real time
- Drag and drop files or folders into vaults
- Secure e-mail (by attaching a small vault)
- 256 bit AES* encryption

*Advanced Encryption Standard



Downloading TrueCrypt

- Go to <http://www.truecrypt.org/downloads>

TrueCrypt - Free Open-Source On-The-Fly Disk Encryption Software for Windows 7/Vista/XP, Mac OS X and Linux - Download

File Edit View History Bookmarks Tools Help

http://www.truecrypt.org/downloads

RoboForm Search Logins (passcards) Ann Garson Save Generate Sy

TrueCrypt - Free Open-Source On-Th...

TRUECRYPT

FREE OPEN-SOURCE ON-THE-FLY ENCRYPTION

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TrueCrypt - Free Open-Source Disk Encryption Software

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[256-bit file encryption](#)
NIST FIPS 140-2 protection for your files. Free How to Guide.
get.datacastlecorp.com

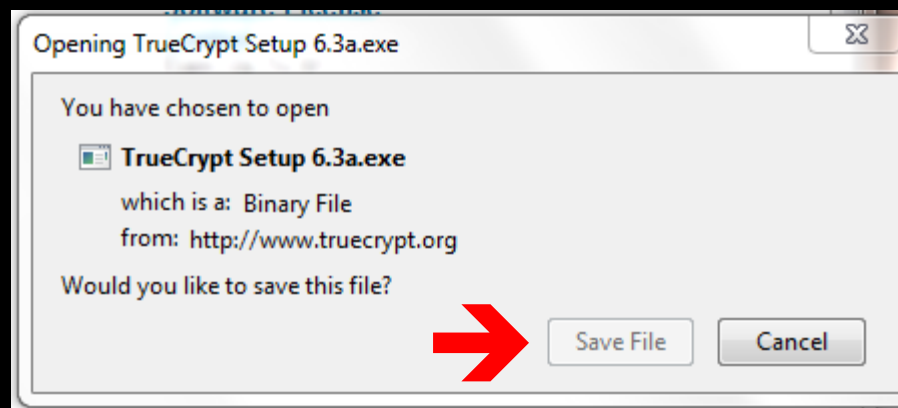
[Documentation](#) • [Frequently Asked Questions](#)

Versions available for
Macintosh & Linux

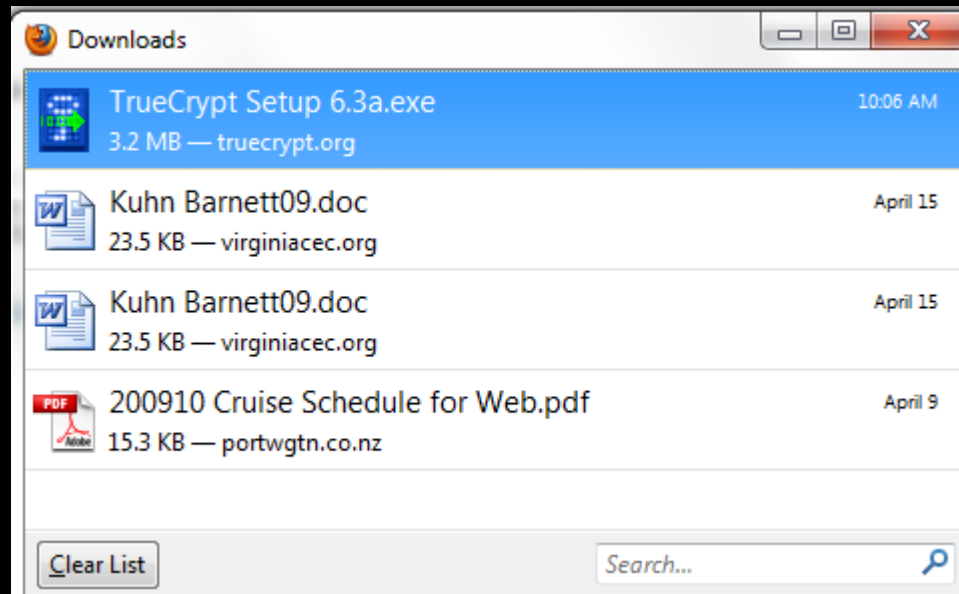
Latest Stable Version - 6.3a

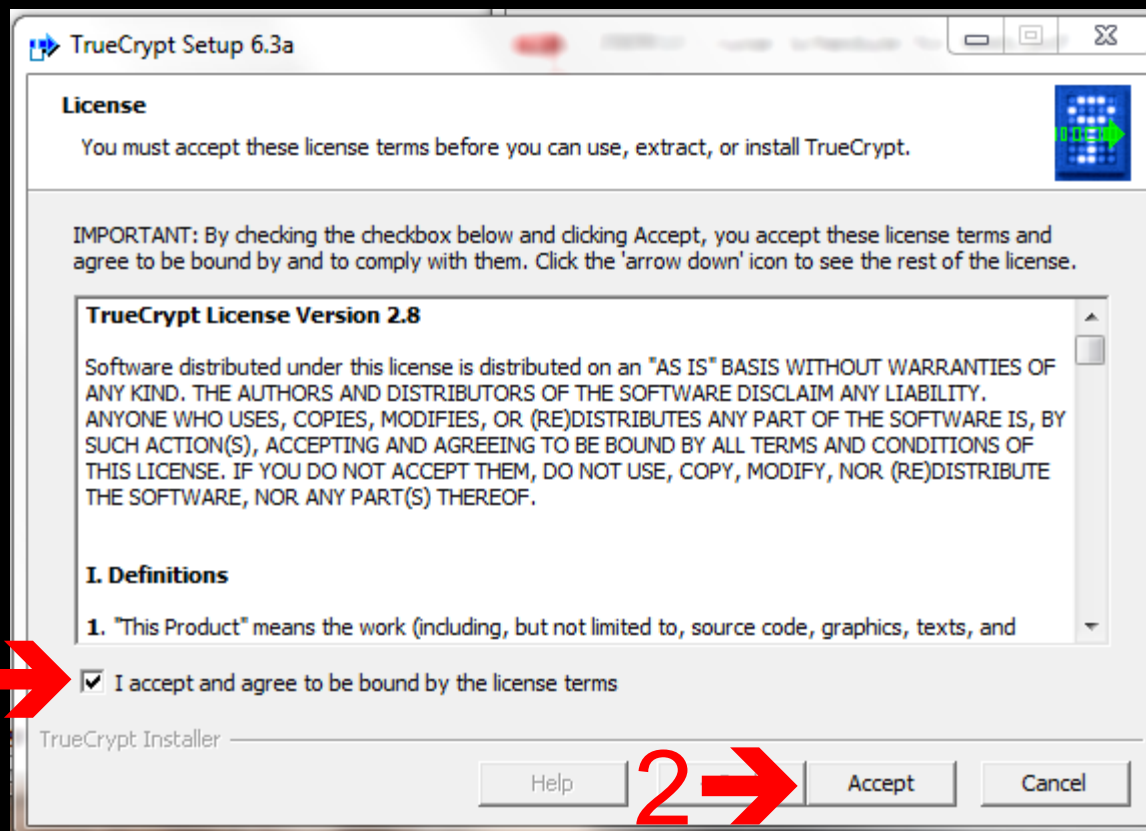
Windows 7/Vista/XP/2000

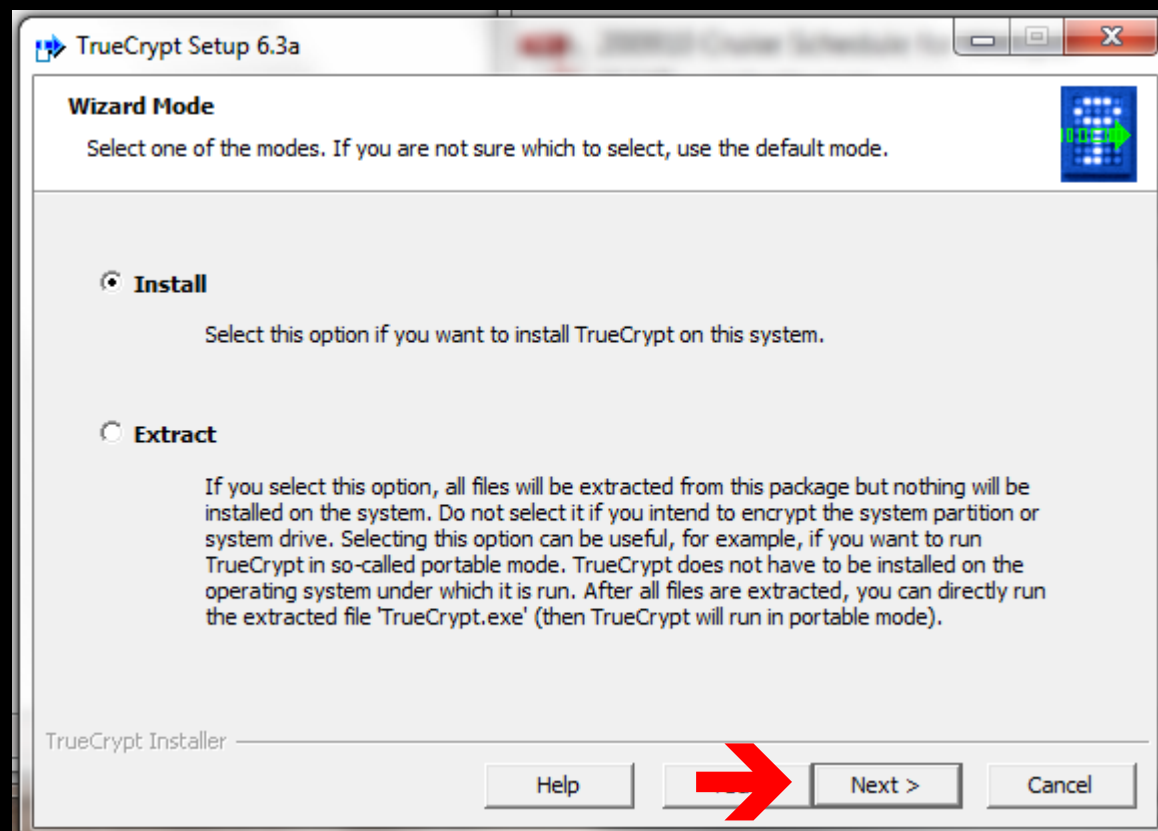
 [Download](#) TrueCrypt Setup 6.3a.exe (3.2 MB) [PGP Signature](#)

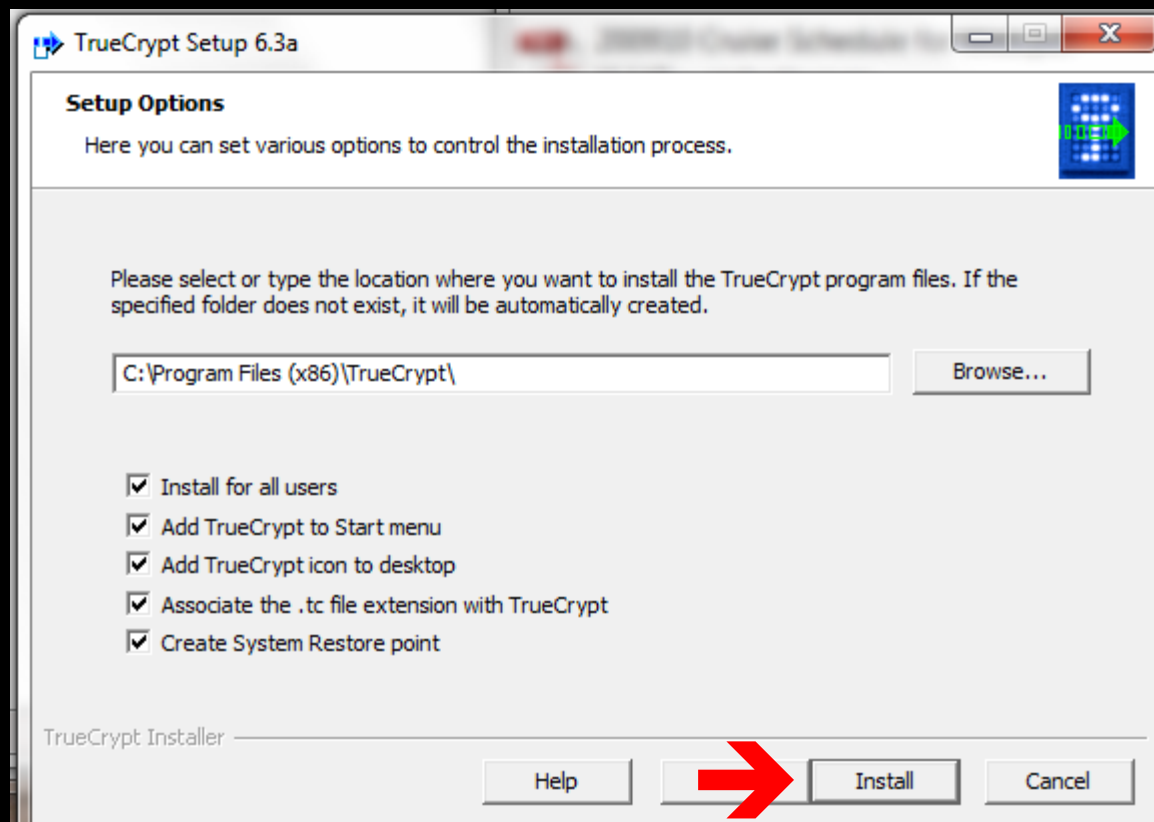


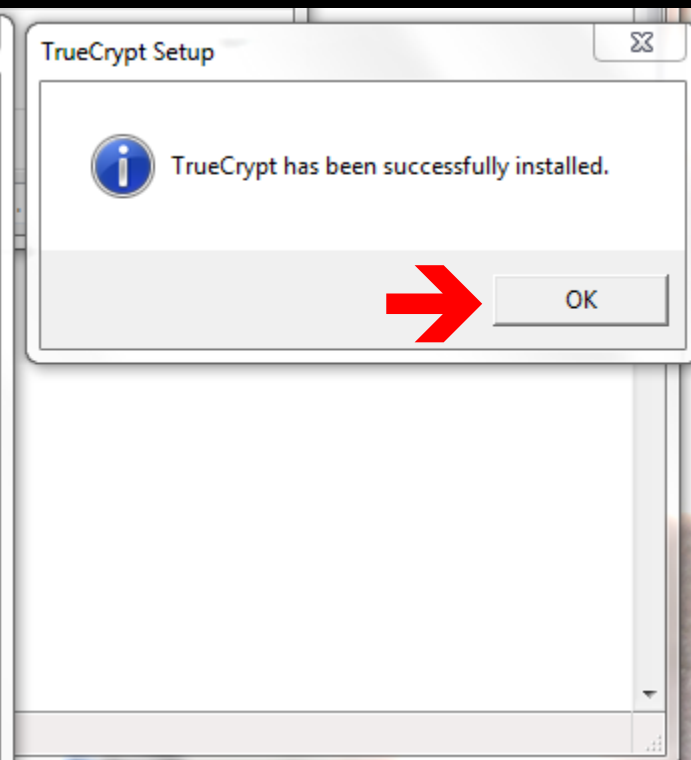
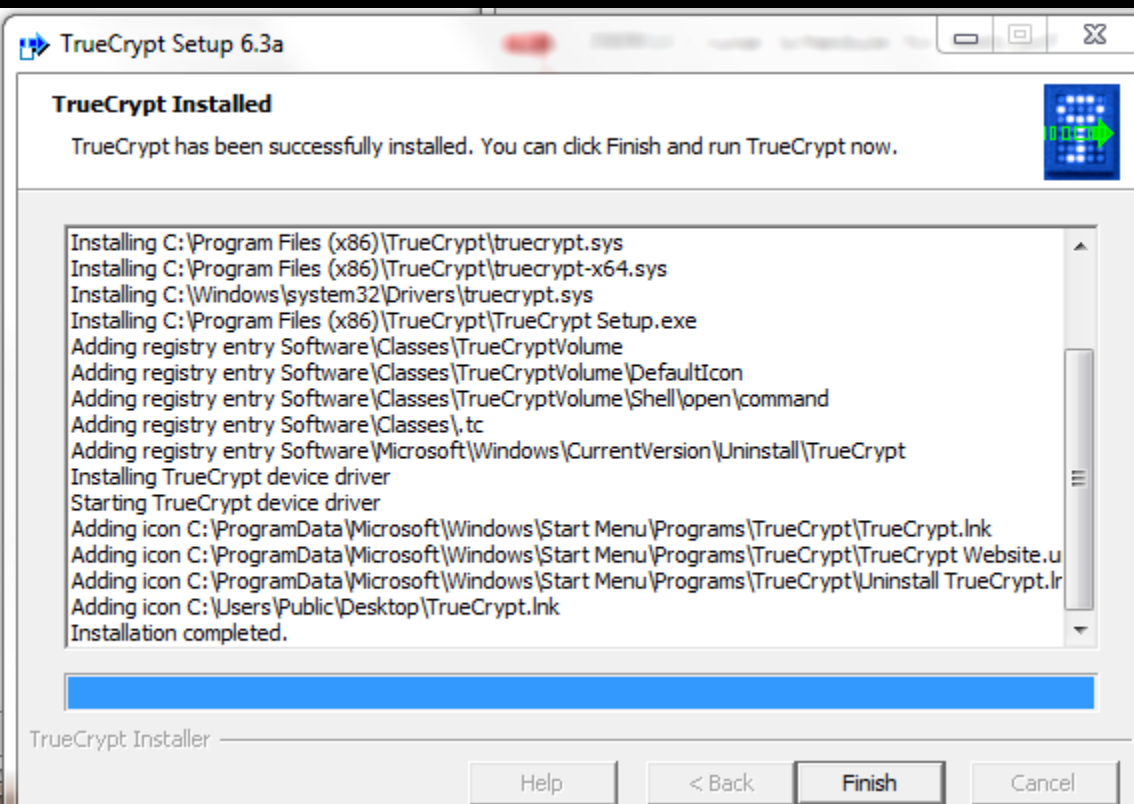
Double Click →

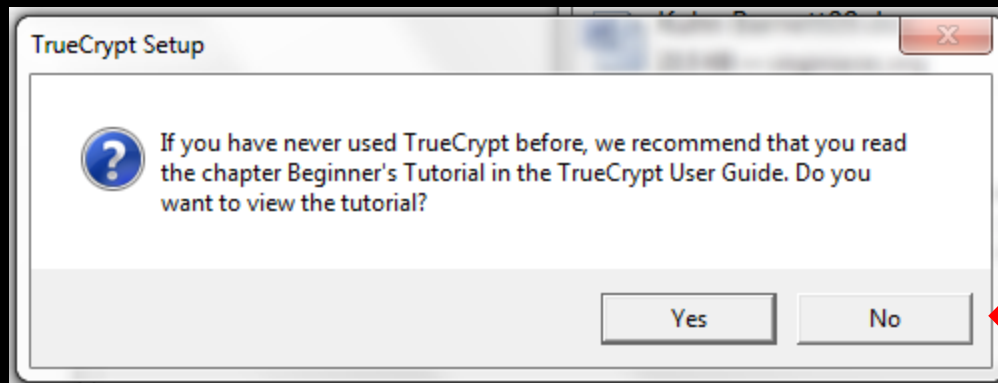












TrueCrypt 6.3a has now been installed

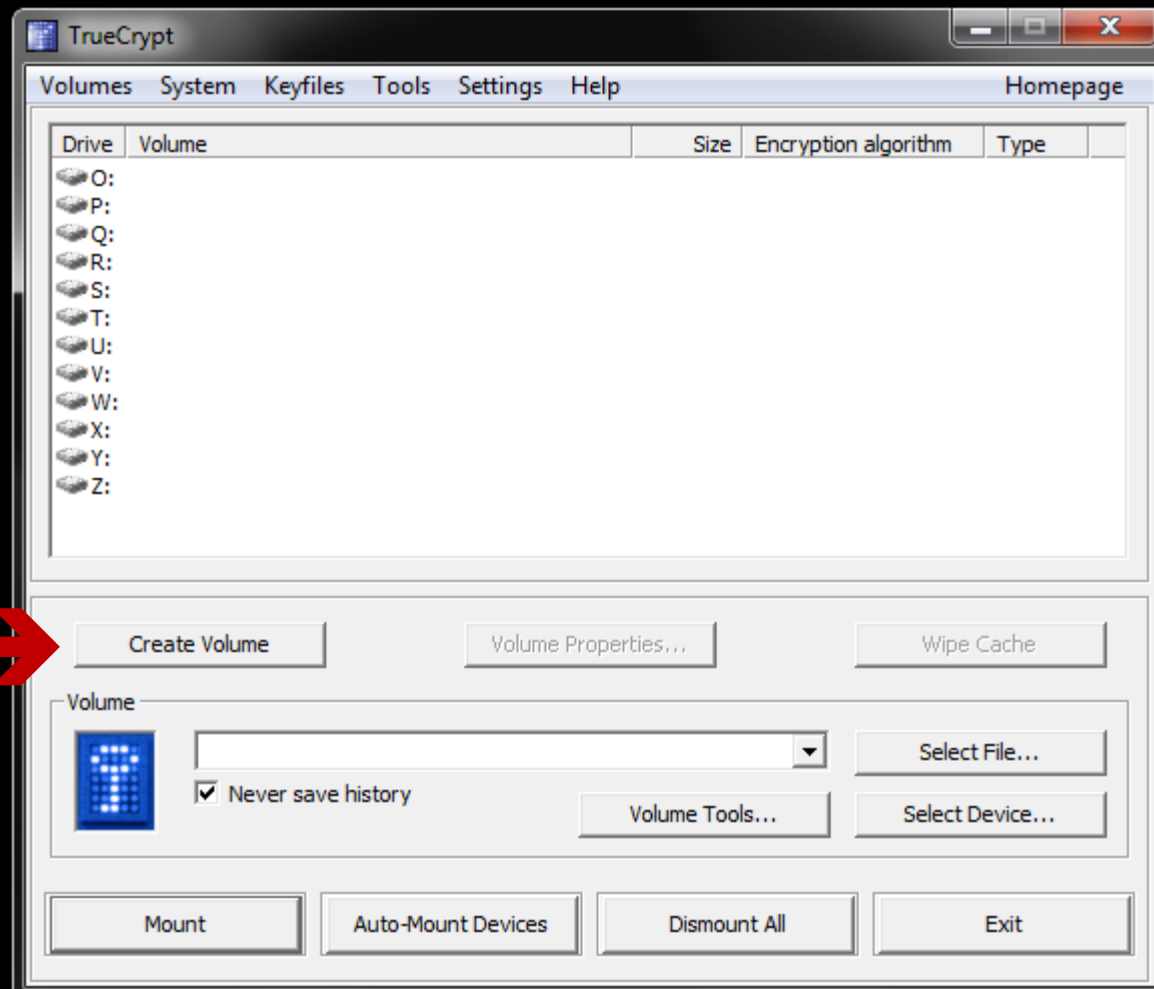


Creating a TrueCrypt Safe



Windows 7 Toolbar





Volume = safe = vault = secure container



TrueCrypt Volume Creation Wizard

☒ **Create an encrypted file container**

Creates a virtual encrypted disk within a file. Recommended for inexperienced users.

[More information](#)

☐ **Encrypt a non-system partition/drive**

Encrypts a non-system partition on any internal or external drive (e.g. a flash drive). Optionally, creates a hidden volume.

☐ **Encrypt the system partition or entire system drive**

Encrypts the partition/drive where Windows is installed. Anyone who wants to gain access and use the system, read and write files, etc., will need to enter the correct password each time before Windows boots. Optionally, creates a hidden system.

[More information about system encryption](#)

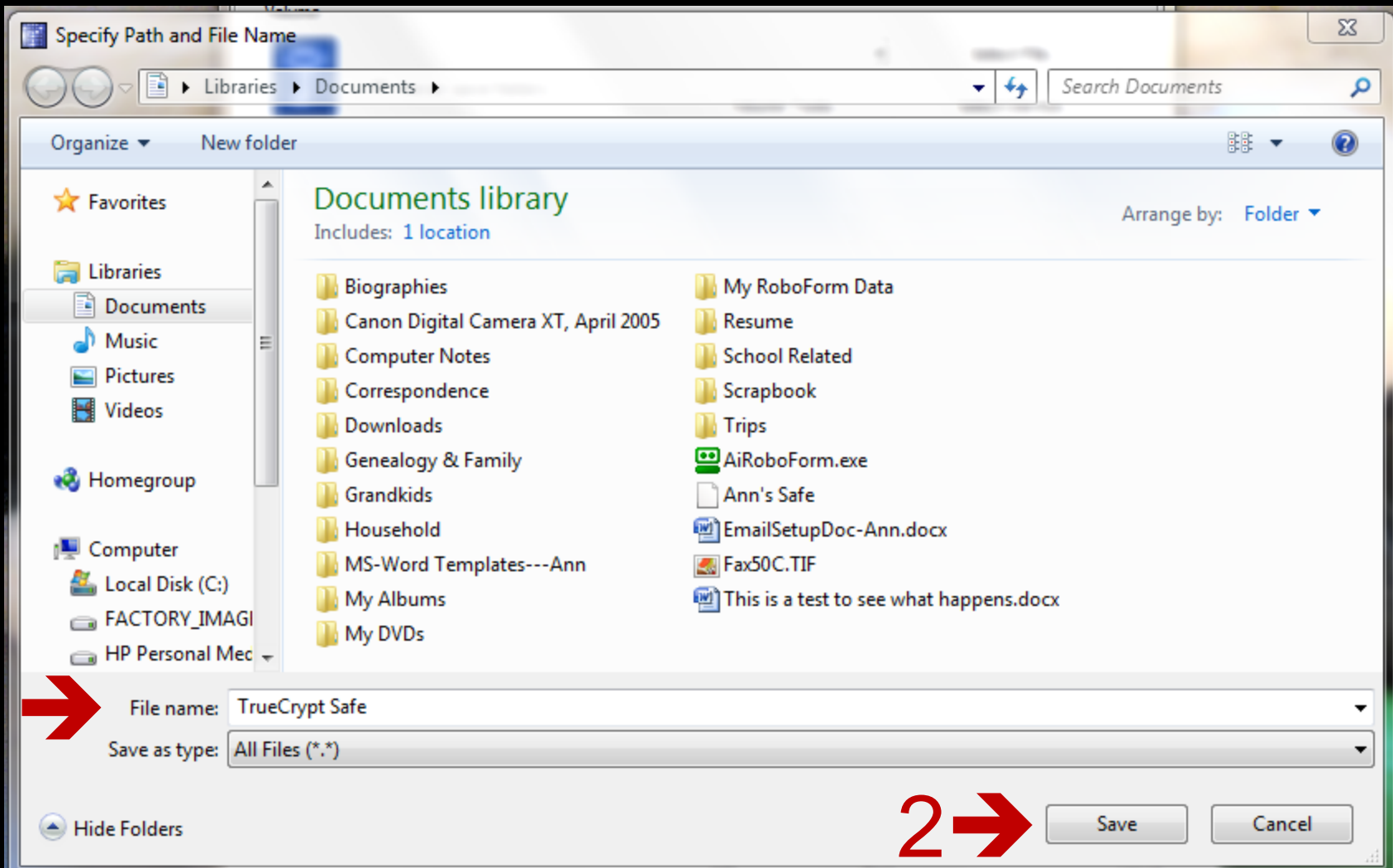
Help

Next >

Cancel











TrueCrypt Volume Creation Wizard



Volume Size

☐ KB

☒ MB

☐ GB

Free space on drive C:\ is 397.09 GB

Please specify the size of the container you want to create.

If you create a dynamic (sparse-file) container, this parameter will specify its maximum possible size.

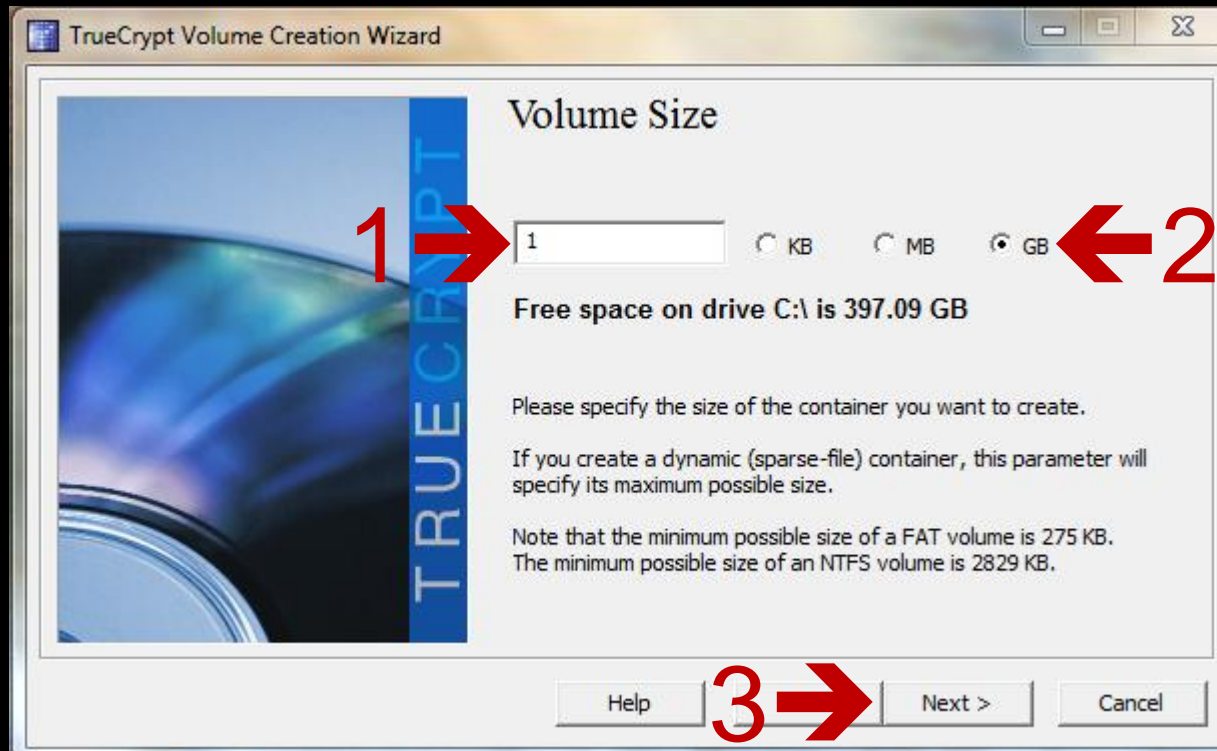
Note that the minimum possible size of a FAT volume is 275 KB.
The minimum possible size of an NTFS volume is 2829 KB.

Help

< Back

Next >

Cancel



TrueCrypt Volume Creation Wizard

Volume Password

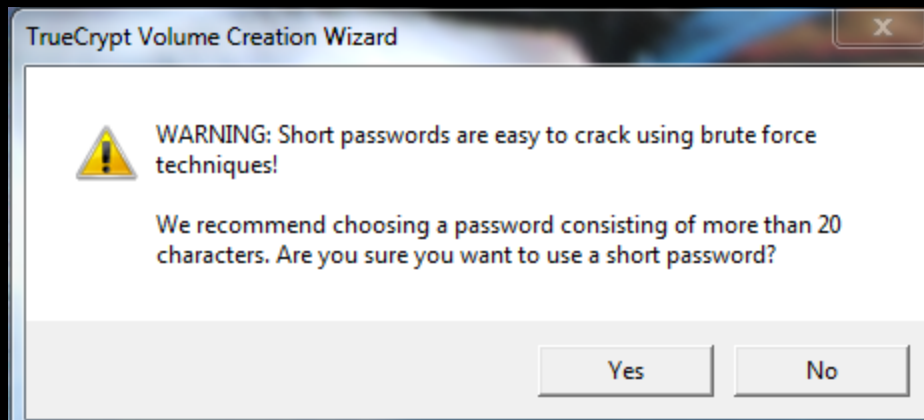
 Password:

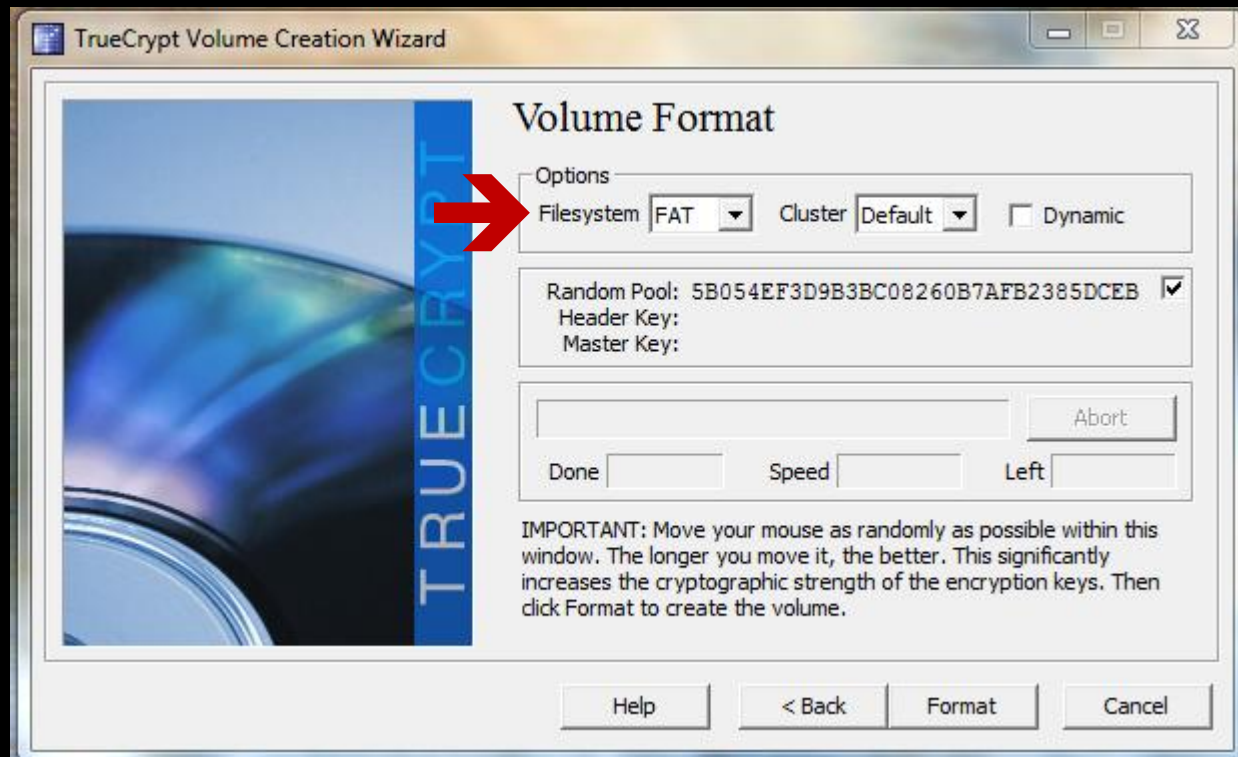
Confirm:

☐ Use keyfiles

☐ Display password

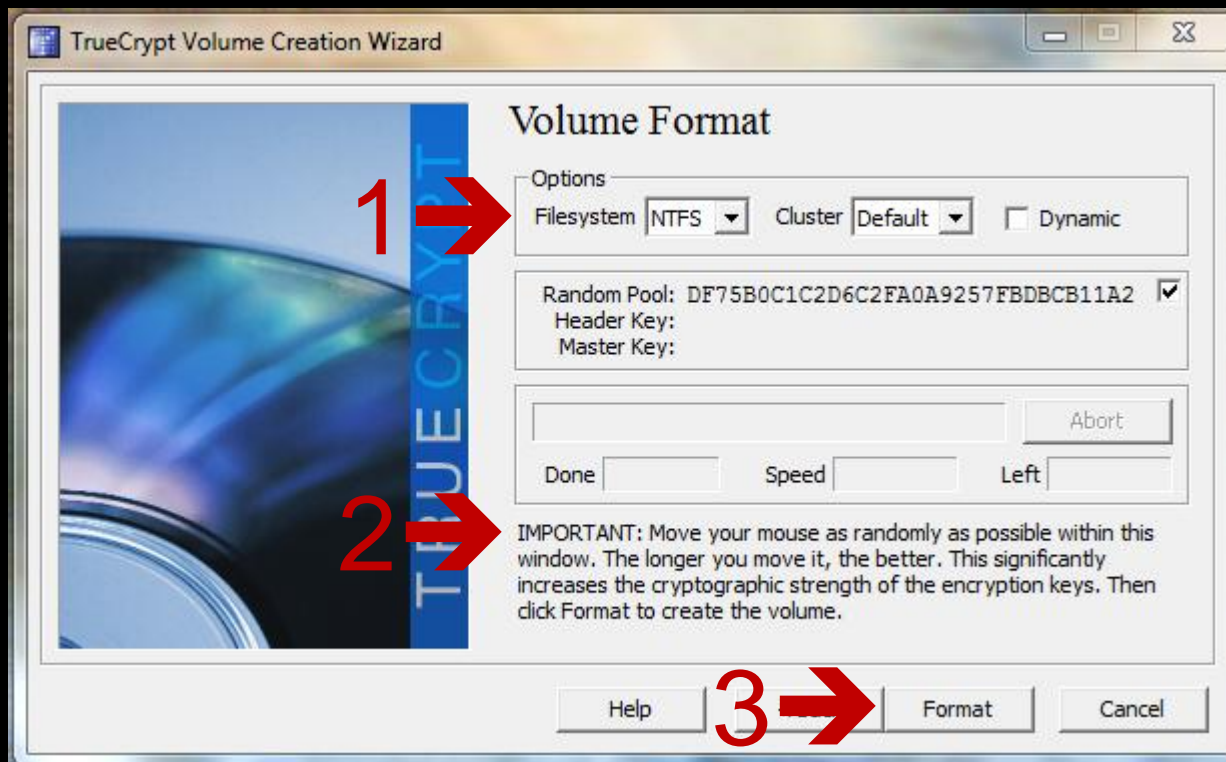
It is very important that you choose a good password. You should avoid choosing one that contains only a single word that can be found in a dictionary (or a combination of 2, 3, or 4 such words). It should not contain any names or dates of birth. It should not be easy to guess. A good password is a random combination of upper and lower case letters, numbers, and special characters, such as @ ^ = \$ * + etc. We recommend choosing a password consisting of more than 20 characters (the longer, the better). The maximum possible length is 64 characters.



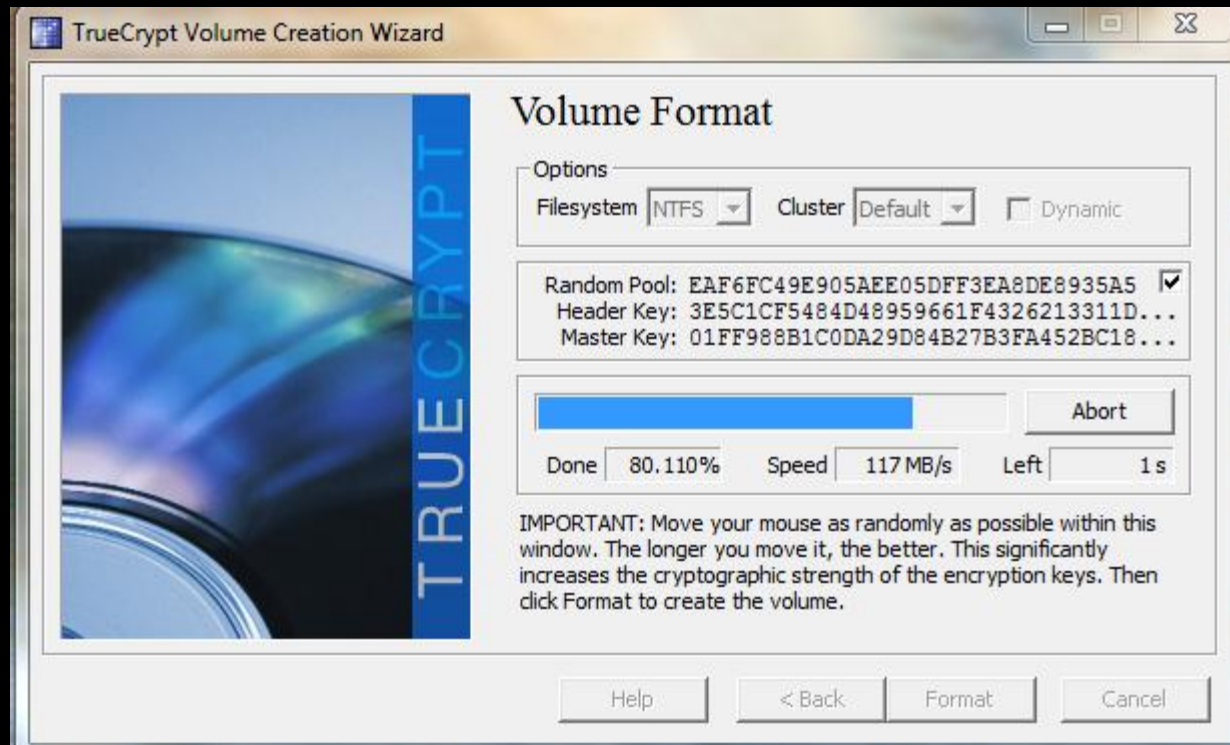


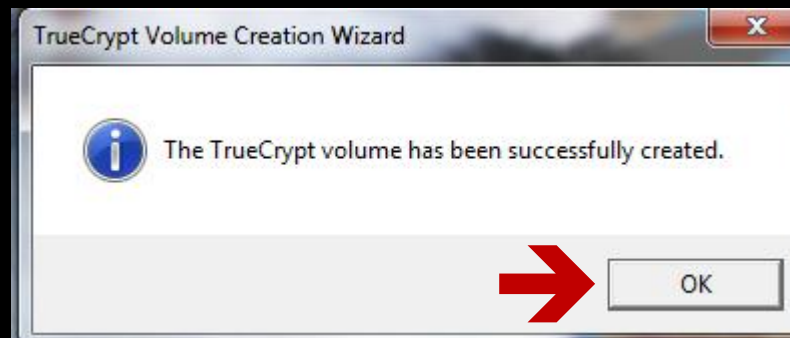
FAT is default... use device format (NTFS)

For an explanation of these file systems, see... 



NOTE: Win-7 users may be prompted for Administrator password







Organize Share with Burn New folder

Favorites

Libraries

Documents

Music

Pictures

Videos

Homegroup

Computer

Local Disk (C:)

FACTORY_IMAGE (D:)

HP Personal Media Drive (M:)

READYBOOST (N:)

Network

BACKUPSERVER

GARSON1

GARSON2

Documents library

Includes: 1 location

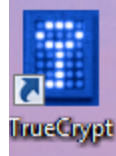
Arrange by: Folder

Name	Date modified	Type	Size
Biographies	12/24/2009 9:19 AM	File folder	
Canon Digital Camera XT, April 2005	12/24/2009 9:19 AM	File folder	
Computer Notes	12/24/2009 9:19 AM	File folder	
Correspondence	4/22/2010 8:08 AM	File folder	
Downloads	2/3/2010 2:13 PM	File folder	
Genealogy & Family	12/24/2009 9:19 AM	File folder	
Grandkids	12/24/2009 9:19 AM	File folder	
Household	4/23/2010 8:37 PM	File folder	
MS-Word Templates---Ann	12/24/2009 9:19 AM	File folder	
My Albums	12/30/2007 8:32 PM	File folder	
My DVDs	12/30/2007 8:32 PM	File folder	
My RoboForm Data	12/24/2009 9:19 AM	File folder	
Resume	12/24/2009 9:19 AM	File folder	
School Related	12/24/2009 9:19 AM	File folder	
Scrapbook	4/11/2010 8:56 AM	File folder	
Trips	4/14/2010 7:52 AM	File folder	
AiRoboForm.exe	11/8/2008 7:43 AM	Application	2,873 KB
Ann's Safe	1/30/2007 4:13 PM	File	25,600 KB
EmailSetupDoc-Ann.docx	12/29/2009 11:02 ...	Microsoft Office ...	305 KB
Fax50C.TIF	4/23/2010 2:07 PM	TIFF image	125 KB
This is a test to see what happens.docx	12/24/2009 2:08 PM	Microsoft Office ...	14 KB
TrueCrypt Safe	4/24/2010 10:37 AM	File	1,048,576 KB

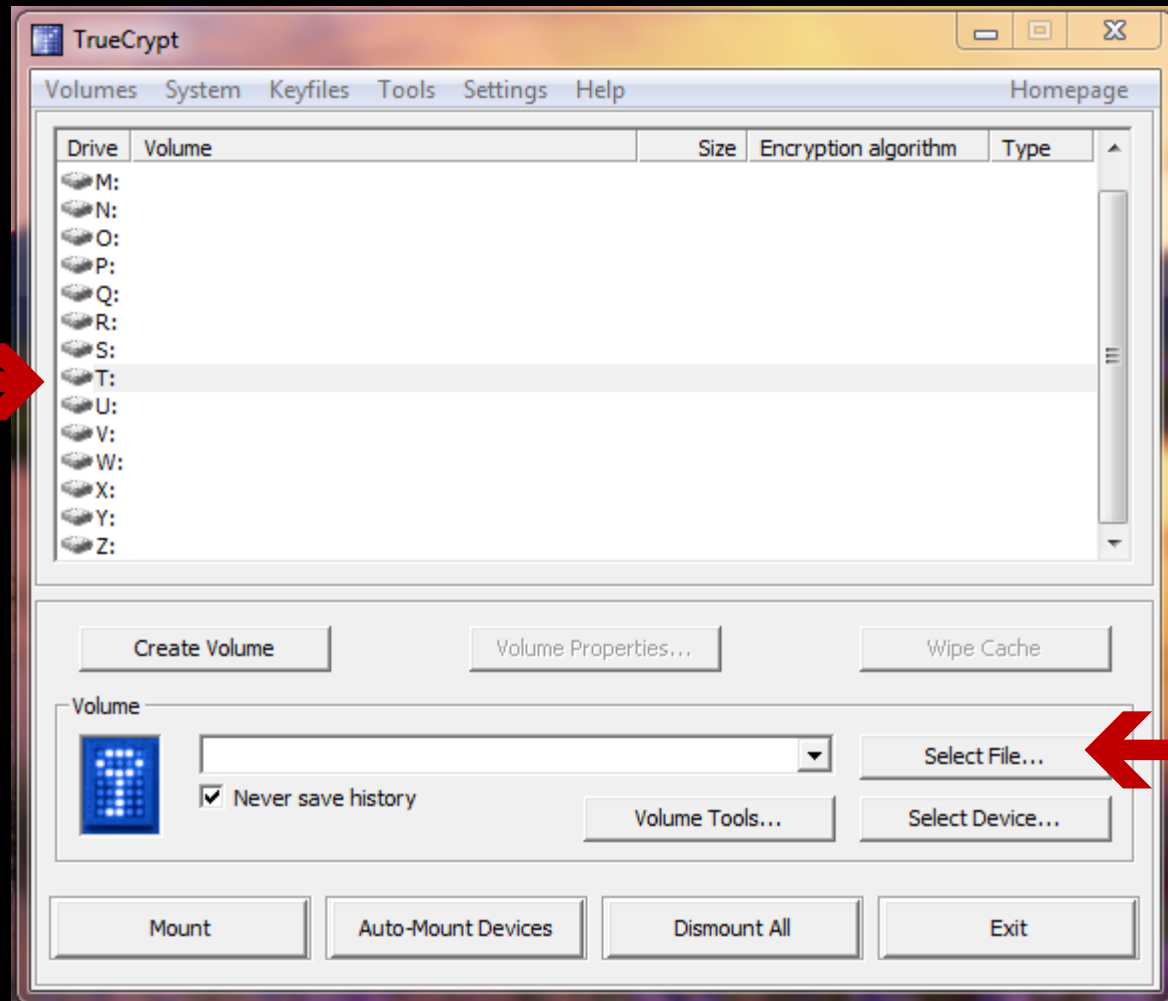




Using a TrueCrypt Safe



1 →



← 2

Select a TrueCrypt Volume

Libraries Documents

Search Documents

Organize New folder

★ Favorites

- Desktop
- Downloads
- Recent Places

Libraries

- Documents
- Much Used
- Music
- Pictures
- Videos

Homegroup

Computer

- Local Disk (C:)
- FACTORY_IMAGE (D:)
- HP Personal Media I

Network

- BACKUPSERVER
- GARSON1
- GARSON-LAPTOP

Documents library

Includes: 1 location

Arrange by: Folder

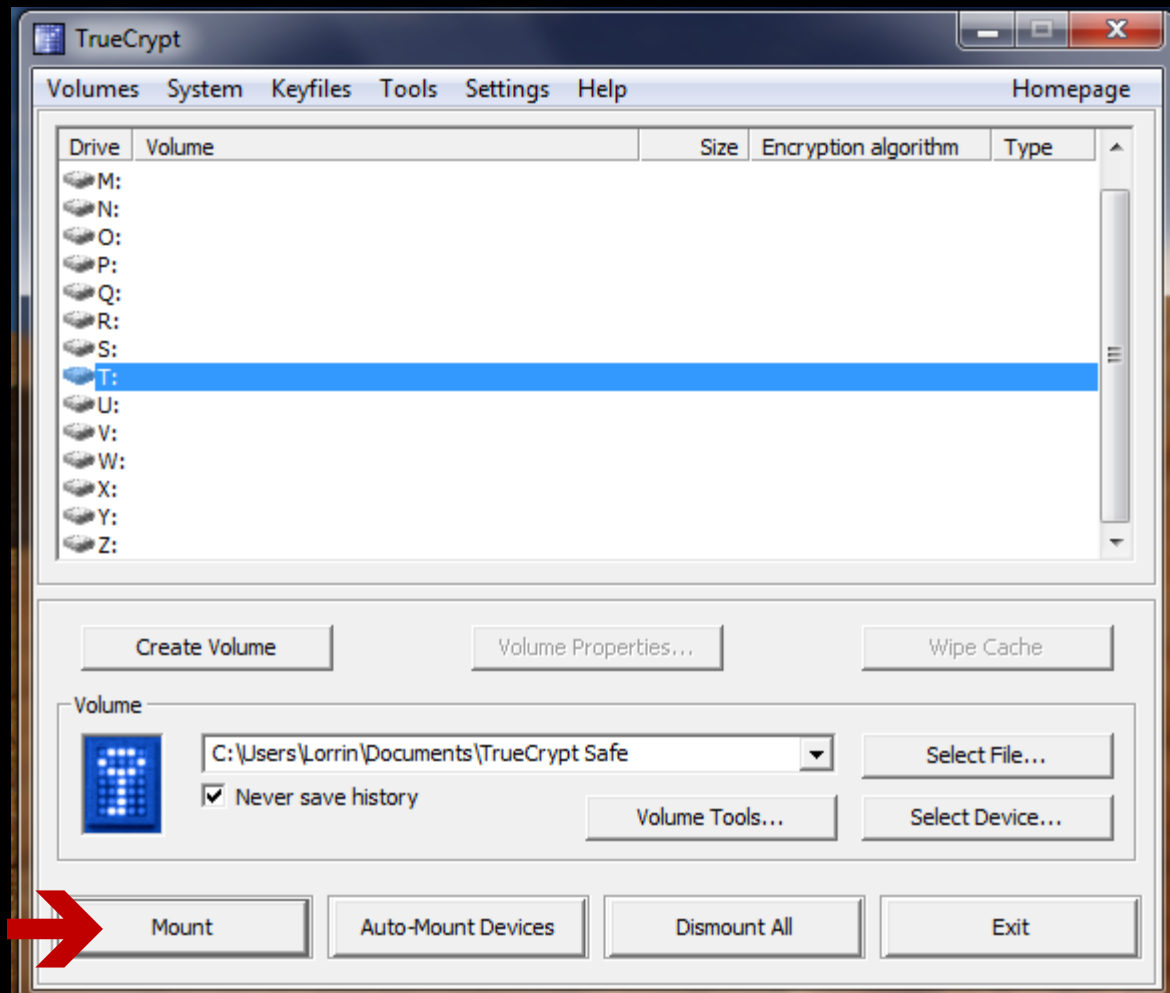
Government	Public Library, Fairfax County	Cryptainer-C
GPS	Publications & Resumes	CryptVault
Herman Skolnik Award Jury	Purchases, General	cxp1705
House, 9929 Bickley Court	Rachel Pictures	Data_011108_073338.roxio
Humorous Items	Radio	Default.rdp
Important Dates	References	gateway_settings.gws
Index Files	Remote Assistance Logs	Lorin - Shortcut
Items to Read	Scanned Documents	MS-Word Templates 2007 - Shortcut
Logs, Personal	Security---Privacy Issues	Notes, Trip to Florida Jan 2-8, 2007.doc
LRG's Archive	Shipping & Mailing	TrueCrypt Safe
MS-Word Templates 2007	Stuff for Brian	
MS-Word Templates--Ann 2007	Telephone	
My Archives	TEMPORARY	
My Received Files	TomTom	
My RoboForm Data	Travel Completed	
Nautical Information	Travel Planning	
OLD Logs, Personal	TV--Verizon FiOS	
OLLI	Updater5	
Palm OS Desktop	Visual Studio 2008	
Presentations	1994-9160.pdf	
Private Information & Letters	bookmark.htm	

File name:

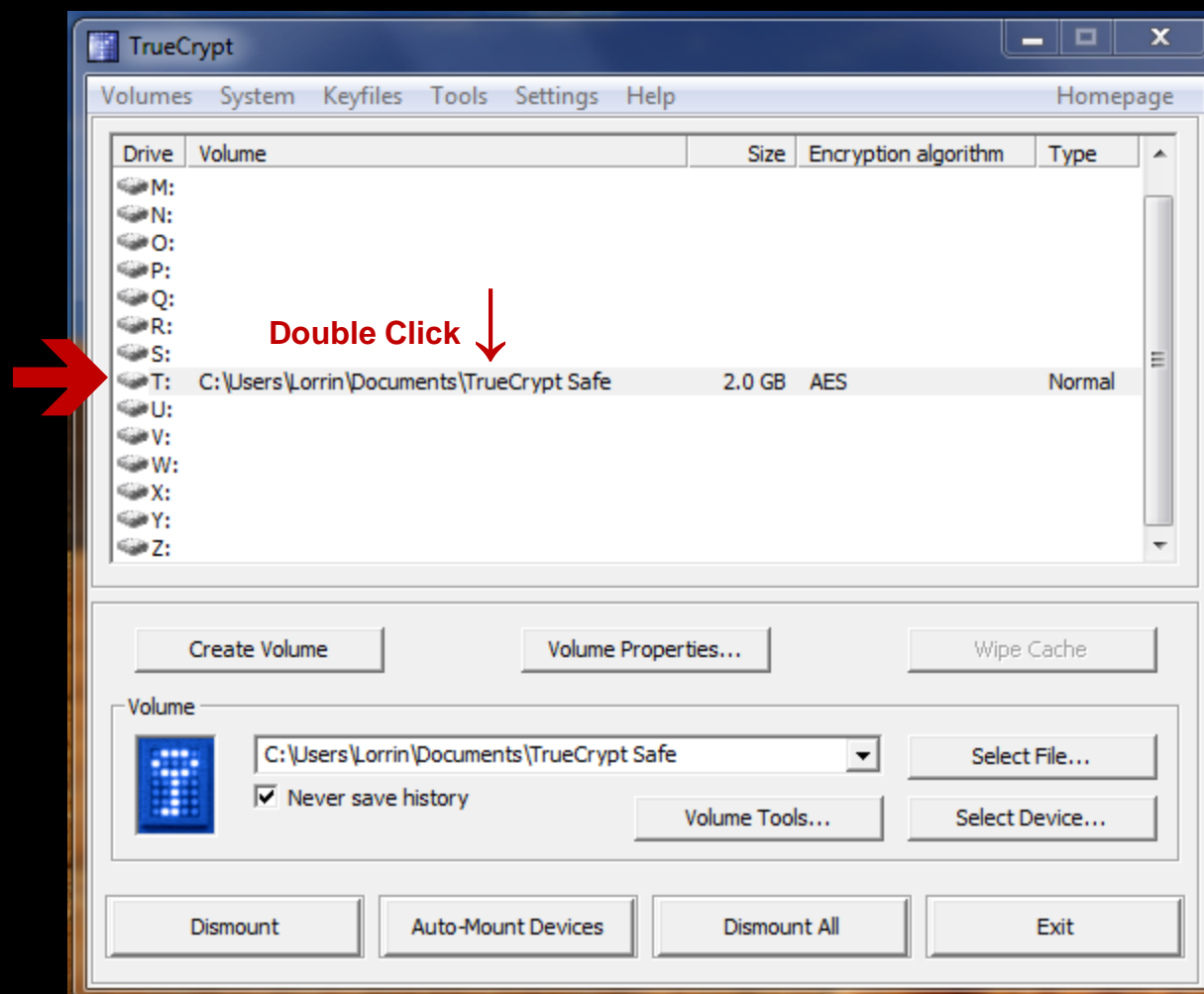
All Files (*.*)

Open Cancel

Double Click







ComputerLocal Disk (T:)

Search Local Disk (T:)

OrganizeInclude in libraryShare withBurnNew folder

★ Favorites

Desktop

Downloads

Recent Places

Libraries

Documents

Much Used

Music

Pictures

Videos

Homegroup

Computer

Local Disk (C:)

FACTORY_IMAGE (D:)

HP Personal Media Drive (H:)

Local Disk (T:)

Network

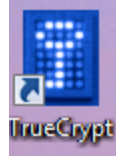
Name	Date modified	Type	Size
Backup Files	4/4/2010 6:01 PM	File folder	
Financial	3/13/2010 6:34 AM	File folder	
Medical Issues	3/13/2010 6:33 AM	File folder	
MS-Word Templates	3/13/2010 6:34 AM	File folder	
Photos of Credit Cards	3/13/2010 6:34 AM	File folder	
Photos of IDs	3/13/2010 6:34 AM	File folder	
Private-Letters	3/13/2010 6:34 AM	File folder	
Travel	3/13/2010 6:34 AM	File folder	
Ann's Outlook E-Mail Settings.docx	12/29/2009 11:07 ...	Microsoft Office ...	305 KB
Home Information.doc	2/22/2007 10:04 AM	Microsoft Office ...	33 KB
Key Passwords.docx	3/27/2010 7:10 AM	Microsoft Office ...	19 KB
Passwords, John Demakis.docx	4/9/2010 9:34 AM	Microsoft Office ...	29 KB
Passwords, Mary Scanlan.docx	4/19/2010 6:46 AM	Microsoft Office ...	28 KB
Passwords.docx	4/16/2010 8:15 AM	Microsoft Office ...	64 KB
Public Web Sites.xlsx	12/31/2007 9:20 AM	Microsoft Office E...	130 KB
Security Test.doc	1/25/2007 3:40 PM	Microsoft Office ...	26 KB
Shortwave Radio Log.xls	6/14/2006 10:10 AM	Microsoft Office E...	39 KB
Verizon Home Voice Mail.docx	3/30/2010 12:01 PM	Microsoft Office ...	21 KB
Visitor Account.doc	1/1/2007 9:09 AM	Microsoft Office ...	31 KB

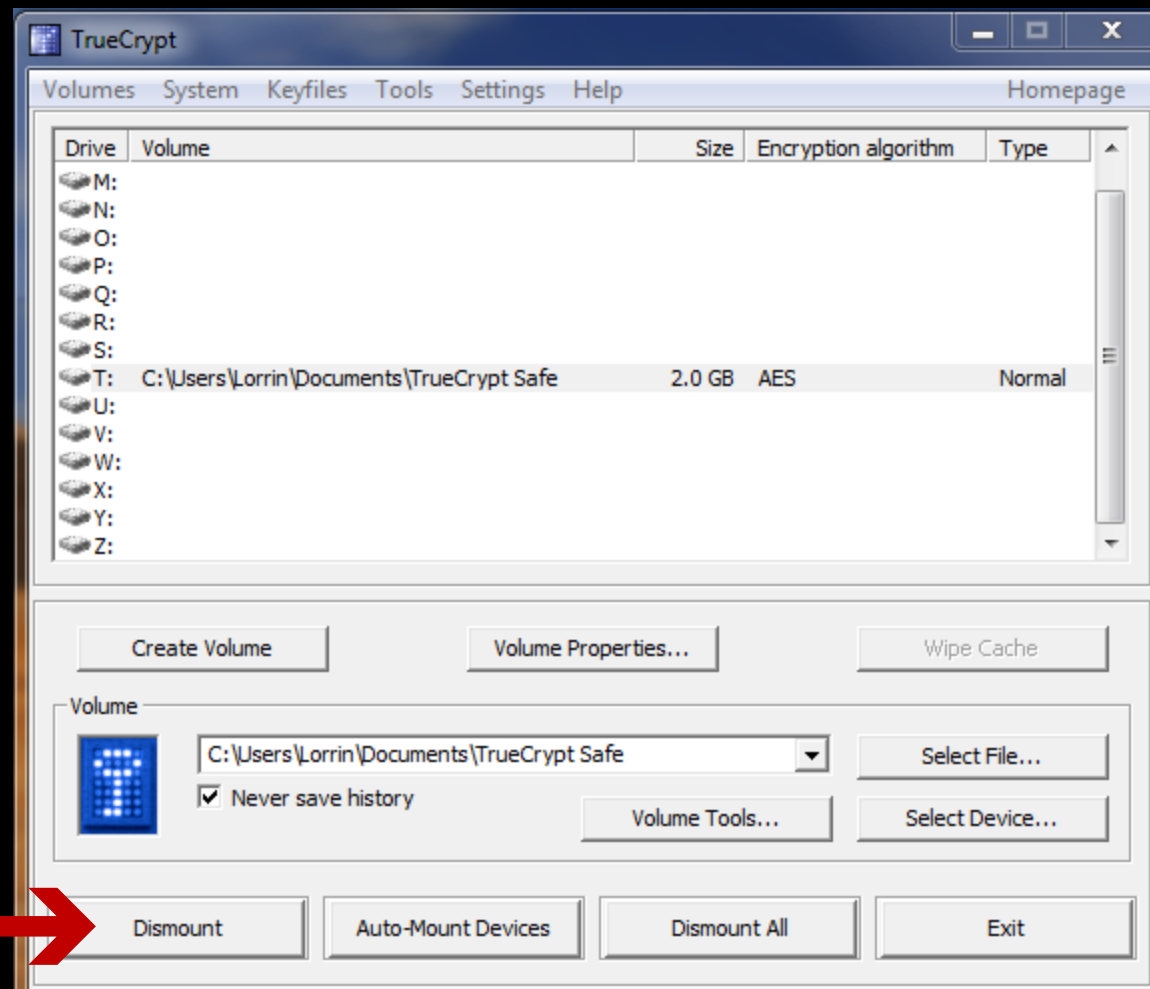
19 items

Access contents of vault

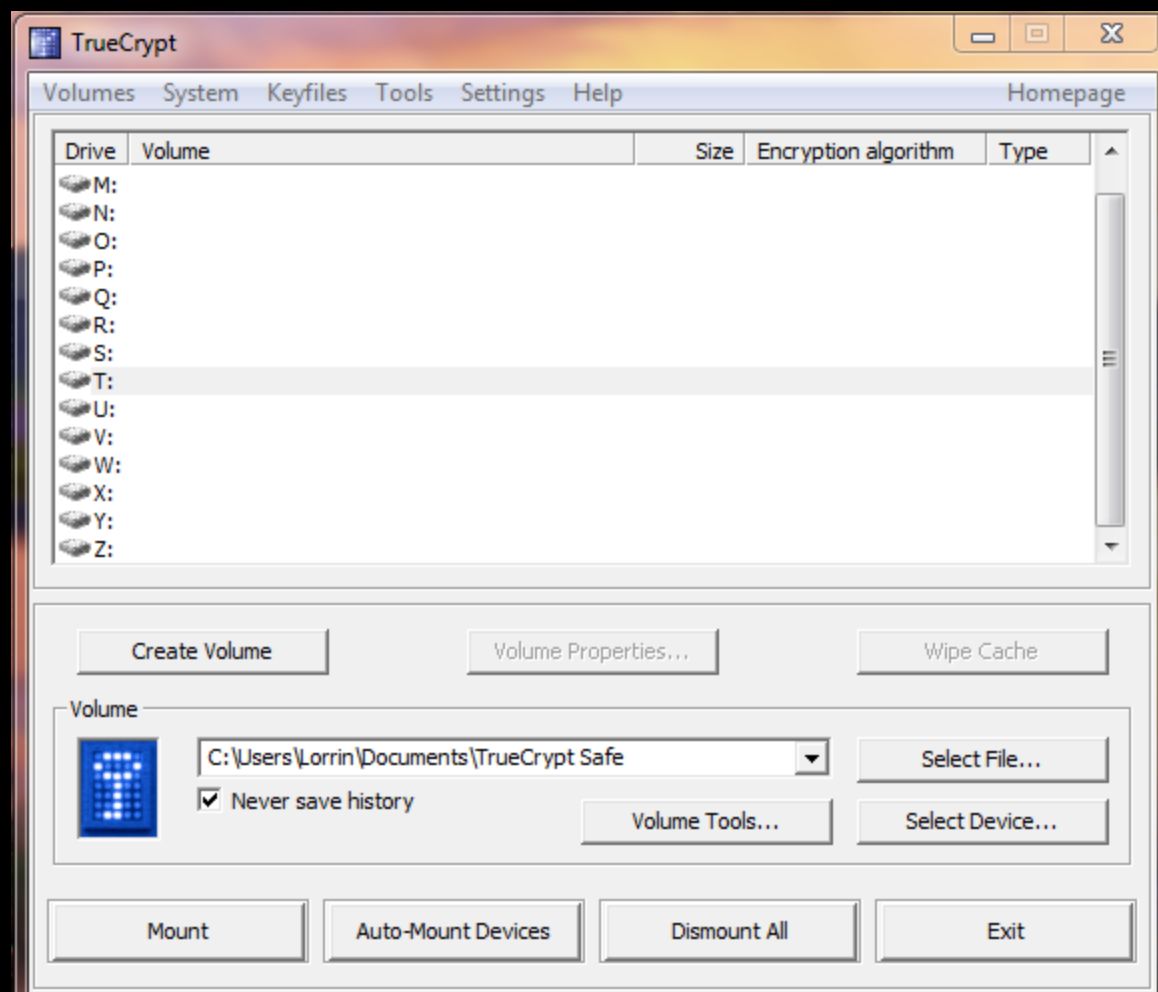


Closing a TrueCrypt Safe





TrueCrypt Vault is Closed





A Word of Caution!

- With either Cypherix or TrueCrypt, create or save sensitive documents *only within vaults*
- Sensitive files/folders created on non-secure media – then placed in vaults *are vulnerable* on the non-secure media



You Can't Be Too Careful...



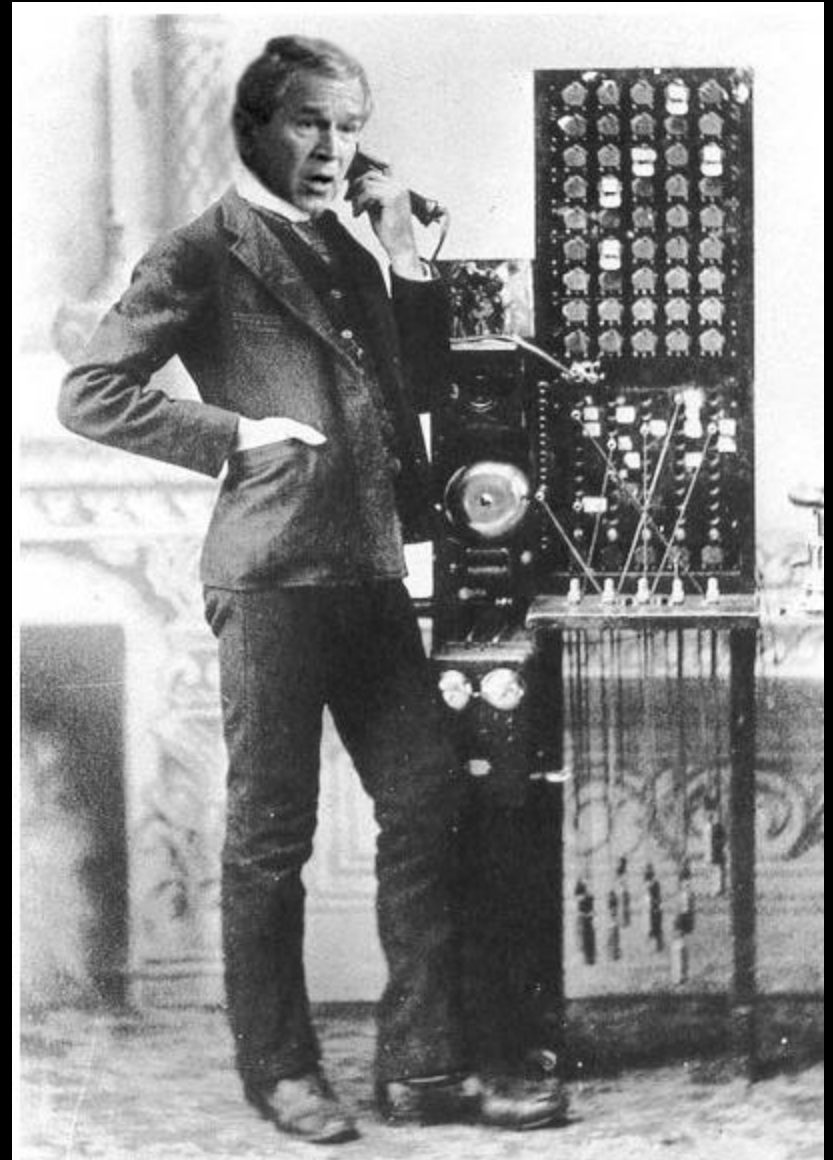
“Just because you’re paranoid does not mean someone *isn’t out to get you!*”

Mildly paranoid friend

In conclusion, you never know...



Who's watching
OR
Who's listening!



Thanks For Your Attention!