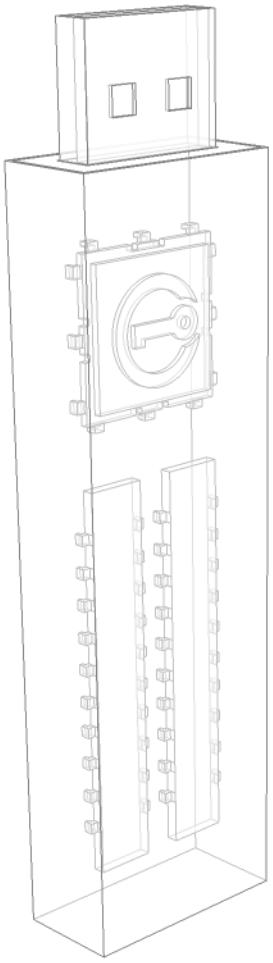
IRONKEY
User Guide

IronKey Basic
Secure Flash Drive

IRONKEY



Thank you for your interest in IronKey.

IronKey is committed to creating and developing the best security technologies and making them simple-to-use, affordable, and available to everyone. Years of research and millions of dollars of development have gone into bringing this technology to you in the IronKey.

For a quick product overview, you can also view our online demos at *https://www.ironkey.com/demo*.

We are very open to user feedback and would greatly appreciate hearing about your comments, suggestions, and experiences with the IronKey.

Standard Feedback:
feedback@ironkey.com

Anonymous Feedback:
https://www.ironkey.com/feedback

User Forum:
https://forum.ironkey.com

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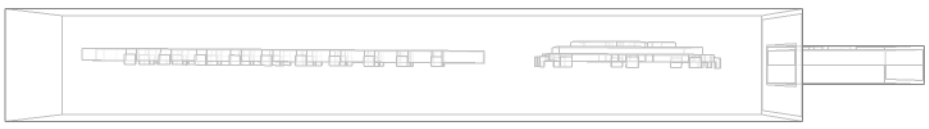


What is it?

Meet the IronKey

IronKey Basic is designed to be the world's most secure USB flash drive. Now you can safely carry your files and data with you wherever you go. And even if your IronKey is lost or stolen, your data remains protected and can even be restored to a new IronKey from an encrypted backup. While it uses some of today's most advanced security technologies, it is simple to use and you only need to remember one password to unlock it.

Core Features

Hardware-Encrypted Flash Drive
Your IronKey can safely store 1, 2, 4 or 8 gigabytes of documents, applications, files and other data. The IronKey Cryptochip inside the IronKey protects your data to the same level as highly classified government information. This encryption technology is always on and cannot be disabled. Your IronKey is FIPS 140-2 Level 2 validated.

Self-Destruct Sequence
If the IronKey Cryptochip detects physical tampering by a thief or a hacker, it will self-destruct. Also, to protect against brute force password attacks, entering 10 consecutive invalid password attempts will securely erase all onboard data using patent-pending flash-trash technology—***so don't forget your password***.

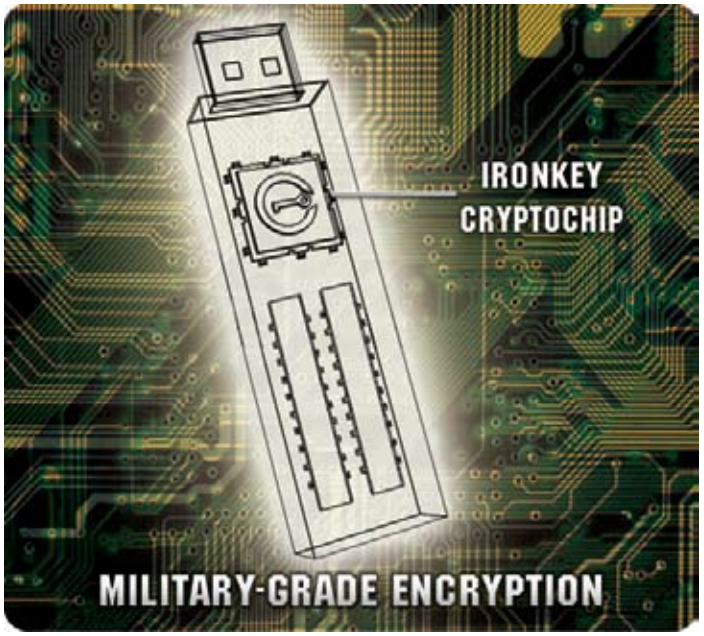
Anti-Malware Autorun Protection
Your IronKey helps protect you from many of the latest malware threats targeting USB flash drives. It will detect and prevent autorun execution of unapproved programs, and it can be unlocked in a Read-Only Mode.

Portable Cross-Platform Data Access
The IronKey Unlocker allows you to access your encrypted files on Windows 2000, XP, Vista, Mac OS X and numerous distributions of Linux.

Simple Device Management
Your IronKey includes the IronKey Control Panel, a central management area for accessing your files, editing your preferences, changing your device password and safely locking your IronKey.

Secure Local Backup and Data Recovery
Securely back up the data on your IronKey using IronKey's Secure Backup software. It allows you to recover you data to a new IronKey in case your IronKey is ever lost or stolen, or to synchronize data between multiple IronKeys.

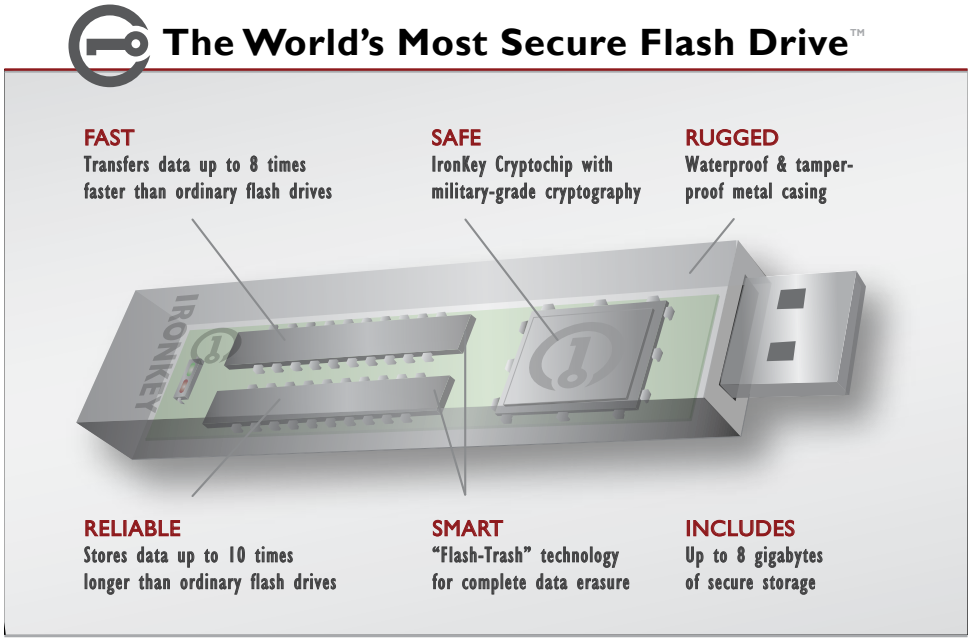
Waterproof & Tamper-Resistent
The IronKey was designed to survive the extremes. The IronKey's rugged metal casing is injected with an epoxy compound that makes it not only tamper-resistent, but waterproof to military specifications (*MIL-STD-810F*).



Device Diagrams

The IronKey has been designed from the ground up with security in mind. A combination of advanced security technologies are used to ensure that only you can access your data. Additionally, the IronKey has been designed to be physically secure, to prevent hardware-level attacks and tampering, as well as to make the device rugged and long-lasting. You can rest assured that your data is secured when you carry an IronKey.

This IronKey Cryptochip is hardened against physical attacks such as power attacks and bus sniffing. It is physically impossible to tamper with its protected data or reset the password counter. If the Cryptochip detects a physical attack from a hacker, it will destroy the encryption keys, making the stored encrypted files inaccessible.



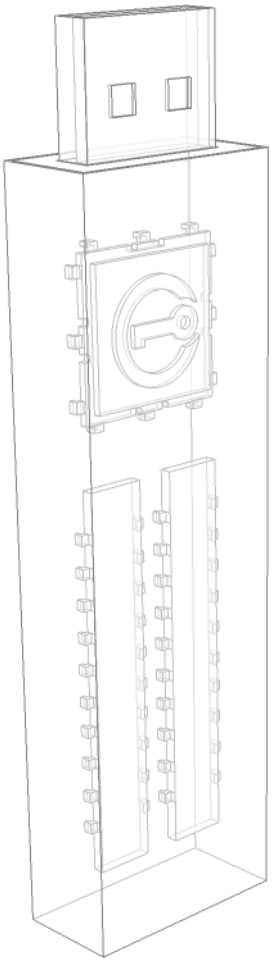
Technical & Security Notes

We are endeavoring to be very open about the security architecture and technology that we use in designing and building the IronKey. There is no hocus-pocus or handwaving here. We use established cryptographic algorithms, we develop threat models, and we perform security analyses (internal and third party) of our systems all the way through design, development and deployment. ***Your IronKey is FIPS 140-2 Level 2 validated.***

IRONKEY DEVICE SECURITY

Data Encryption Keys

- AES key generated by onboard Random Number Generator
- AES key generated by customer at initialization time and encrypted
- AES key never leaves the hardware and is not stored in NAND flash



Self-Destruct Data Protection

- Secure volume does not mount until password is verified in hardware
- Password try-counter implemented in tamper-resistent hardware
- Once password try-count is exceeded, all data is erased by hardware

Additional Security Features

- USB command channel encryption to protect device communications

Physically Secure

- Solid, rugged metal case
- Encryption keys stored in the tamper-resistent IronKey Cryptochip
- All chips are protected by epoxy-based potting compound
- Exceeds military waterproof standards (MIL-STD-810F)

Device Password Protection

The device password is hashed using salted SHA-256 before being transmitted to the IronKey Secure Flash Drive over a secure and unique USB channel. It is stored in an extremely inaccessible location in the protected hardware. The hashed password is validated in hardware (there is no "getPassword" function that can retrieve the hashed password), and only after the password is validated is the AES encryption key unlocked. The password try-counter is also implemented in hardware to prevent memory rewind attacks. Typing your password incorrectly too many times initiates a patent-pending "flash-trash" self-destruct sequence, which is run in hardware rather than using software, ensuring the ultimate protection for your data.

How does it work?

Product Walkthrough

The IronKey Basic consists of the following components:

- **IronKey Unlocker**: Securely unlocks your IronKey
- **IronKey Control Panel** *(Windows only)*
- **IronKey Secure Backup** *(Windows only)*
- **IronKey Virtual Keyboard** *(Windows only)*

Standard Usage Requires:

- Windows 2000 (SP4), XP (SP2), Vista, Mac OS X (10.4+) or Linux (2.6+) computer
- A USB 2.0 port for high-speed data transfer

INITIALIZING YOUR IRONKEY ON WINDOWS

When you open the package, you will find one IronKey Secure Flash Drive, one lanyard, and a Quick Start Guide. Below is a brief description of the standard way of setting up an IronKey:

	Step	Description
1	Plug the IronKey into your Windows computer's USB port. 	Your IronKey can be initialized on a Windows 2000, XP or Vista computer (see Mac and Linux instructions below). To use the full speed of the IronKey, plug it into a USB 2.0 port.
2	The "Initialize Your IronKey" screen will appear.	The IronKey autoruns as a virtual CD-ROM. This screen may not appear if your computer does not allow devices to auto-run. You can start it manually by double-clicking on the IronKey icon in "My Computer" and running "IronKey.exe".

3	Create a device password and a nickname for your IronKey. 	Your password is case-sensitive and must be at least 4 characters long. The threat of brute-force password attacks is removed by the IronKey's self-destruct feature.
4	The IronKey will initialize. 	During this process, it will generate the AES encryption keys, create the file system for the secure volume, and copy over secure applications and files to the secure volume. Once initialization is complete, the IronKey Control Panel will appear. Your IronKey is then ready to protect your data.

USING THE IRONKEY UNLOCKER ON WINDOWS

The IronKey Unlocker allows you to securely access your files on multiple operating systems. It prompts you for your password, securely validates it, and then mounts your secure volume where all of your files are stored on the IronKey.

Here is how to unlock your IronKey on Windows 2000 (SP4), XP (SP2), and Vista:

	Step	Description
1	Plug in your IronKey and unlock it with your password. 	When you plug your IronKey in, the "Unlock Your IronKey" window appears (if it does not, you can go to "My Computer" and double-click on the IronKey drive). Entering your password correctly (which is verified in hardware) will mount your secure volume with all your secure applications and files. Entering the wrong password too many times will permanently erase all of your data. After every three attempts, you must unplug and reinsert the IronKey.
2	Choose which action to take when you unlock it.	By selecting the corresponding checkboxes before unlocking your IronKey, you can view your secure files and/or launch the IronKey Control Panel.

INITIALIZING YOUR IRONKEY ON A MAC

If you prefer to use a Mac, you can choose to initialize your IronKey on a Mac OS X computer:

	Step	Description
1	Plug the IronKey into your computer's USB port.	Your IronKey will run on Mac OS X (10.4 or 10.5), PowerPC or Intel computers. It can also be setup and used on Windows and Linux. To use the full speed of the IronKey, plug it into a USB 2.0 port.
2	Launch the IronKey Unlocker. The "Initialize Your IronKey" screen will appear. 	The IronKey has a virtual CD-ROM. Launch the IronKey Unlocker by opening the IronKey CD and double-clicking the IronKey icon (IronKey Unlocker).
3	Create your device password.	Your password is case-sensitive and must be 4 or more characters long. The threat of brute-force password attacks is removed by IronKey's self-destruct feature.
4	Agree to the License Agreement 	A screen with IronKey's End-User License Agreement will appear. This can also be found online at: *https://www.ironkey.com/terms*
5	The IronKey will initialize. 	During this process, it will generate the AES encryption key, and create the file system for the secure volume. This process may take a minute.

Your IronKey is now ready for use.

USING THE IRONKEY UNLOCKER ON A MAC

The IronKey Unlocker for Mac will allow you to access your files and change your device password on a Mac. You can use the other IronKey applications on a Windows computer.

	Step	Description
1	Plug in your IronKey and unlock it with your password. 	Launch the IronKey Unlocker by opening the IronKey CD and double-clicking the IronKey icon (IronKey Unlocker). Entering your password correctly (which is verified in hardware) will mount your secure volume with all your secure files. Entering the wrong password too many times will permanently erase all of your data. After every three attempts, you must unplug and reinsert the IronKey.
2	Choose which action to take when you unlock it.	By selecting the corresponding checkbox before unlocking your IronKey, you can view your secure files or unlock your IronKey in Read-Only Mode.
3	Locking & unplugging the IronKey 	Clicking "Lock Drive" will exit open IronKey applications and lock the device. It is then safe to unplug it from your computer.

INITIALIZING YOUR IRONKEY ON LINUX

If you prefer to use a Linux computer, you can choose to initialize your IronKey on Linux:

	Step	Description
1	Plug it into your computer's USB port	Your IronKey can be initialized on Linux 2.6+ (x86 systems only). It can also be setup and used on Windows and a Mac. To use the full speed of the IronKey, plug it into a USB 2.0 port.
2	Run the `ironkey` program from the IronKey's `linux` folder	The IronKey has a virtual CD-ROM. You must start the IronKey Unlocker manually by going to `linux` folder and running `ironkey`
3	Create a device password and a nickname for your IronKey.	Since you can have multiple IronKeys, the nickname helps you distinguish between different IronKey devices. Your password is case-sensitive and must be at least 4 characters long . The threat of brute-force password attacks is removed by the IronKey's self-destruct feature.
4	Agree to the license agreement	IronKey's End-User License Agreement will appear. This can also be found online at: *https://www.ironkey.com/terms*
5	The IronKey will initialize.	During this process, it will generate the AES encryption key, and create the file system for the secure volume. This process may take a minute.

Your IronKey is now ready for use.

USING THE IRONKEY UNLOCKER ON LINUX

The IronKey Unlocker for Linux will allow you to access your files and change your device password on Linux, allowing you to securely transfer files from and between Windows, Mac, and Linux computers. You can use the other IronKey applications on a Windows computer.

Depending on your Linux distribution, you may need root privileges to use the program '*ironkey*' found in the Linux folder of the mounted virtual CD-ROM. If you have only one IronKey attached to the system, simply run the program from a command shell with no arguments (e.g. `ironkey`). If you have multiple IronKeys, you will have to specify the device name of the one you wish to unlock.

Note that `ironkey` only unlocks the secure volume; it must then be mounted. Many modern Linux distributions will do this automatically; if not, run the mount program from the command line, using the device name printed by `ironkey`.

`ironkey` may also be used to change the password or to lock the device. Use:

```
ironkey --changepwd [devicename]
```

to change the password of the IronKey named "devicename". Similarly, use:

```
ironkey --lock [devicename]
```

to lock the IronKey named "devicename", and:

```
ironkey --read-only
```

to unlock the IronKey in Read-Only Mode.

Note that simply unmounting the device will not automatically lock the secure volume. To lock the device you will have to either unmount and physically remove (unplug) it, or else run:

```
ironkey --lock
```

Please note the following important details for using your IronKey on Linux:

1. Kernel Version must be 2.6 or higher

If you compile your own kernel, you must include the following in it:

- `DeviceDrivers->SCSIDeviceSupport-><*>SCSICDROMSupport`
- `DeviceDrivers-><*> Support for Host-side USB`
- `DeviceDrivers-><*> USB device filesystem`
- `DeviceDrivers-><*> EHCI HCD (USB 2.0) support`
- `DeviceDrivers-><*> UHCI HCD (most Intel and VIA) support`
- `DeviceDrivers-><*> USB Mass Storage Support`

The kernels that are included by default in most major distributions already have these features, so if you are using the default kernel that comes with a supported distribution you do not need to take any other action.

Also, on 64-bit linux systems the 32-bit libraries will have to be installed in order to run the ironkey program.

2. Mounting problems

Make sure you have permissions to mount external SCSI & USB devices

» Some distributions do not mount automatically and require the following command to be run:

```
mount /dev/<name of the device> /media/<name of the mounted device>
```

» The name of the mounted device varies depending on the distribution. The names of the IronKey devices can be discovered by running:

```
ironkey --show
```

3. Permissions

You must have permissions to mount external/usb/flash devices

» You must have permissions to run executables off the IronKey CD-ROM in order to launch the IronKey Unlocker

» You may need root user permissions

4. Supported distributions

Not all distributions of Linux are supported. Please visit *https://support.ironkey.com/linux* for the latest list of supported distributions.

5. The IronKey Unlocker for Linux only supports x86 systems at this time.

See *https://support.ironkey.com/linux* for more information.

USING THE IRONKEY CONTROL PANEL *(WINDOWS ONLY)*

The IronKey Control Panel is a central location for:

» Accessing your secure files

» Launching Secure Backup software

» Configuring your IronKey settings

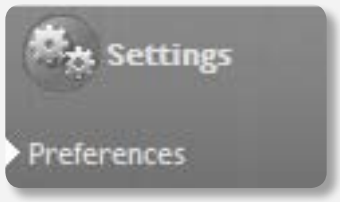
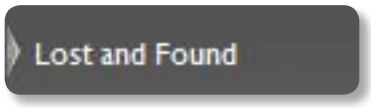
» Changing your IronKey password

» Reformatting your IronKey

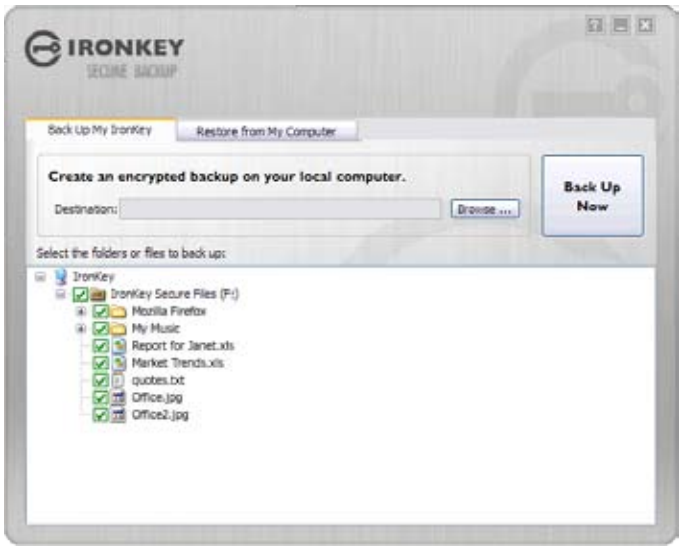
» Safely locking your device

Most of the Control Panel's options are located in the "Settings" menu.

	Step	Description
1	Creating, editing, deleting secure files 	When you click on "Secure Files" in the IronKey Control Panel, Windows Explorer will open directly to your secure volume. All files on your IronKey are strongly encrypted with military-grade AES encryption. Encrypting files is as simple as moving them into the secure volume. Dragging files onto your desktop will decrypt them on-the-fly in hardware. The IronKey gives you the convenience of working as you normally would with a regular flash drive, while at the same time providing strong and "always-on" security.

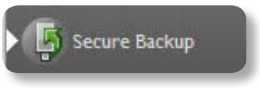
2	Reformatting your IronKey's file system 	Click on "Settings" to view a number of other options. You can reformat your secure volume by clicking on the corresponding reformat button. This will perform a quick reformat that restores your file system to the way it was after you first initialized your IronKey. ***All of your data (not counting your password) will be deleted, so use with caution.***
3	Creating a Lost & Found Message 	This feature allows you to create a message that will appear on the IronKey Unlocker window. In the event that you lose your IronKey, someone can return it to you if you provide your contact information.
4	Changing your device password 	You can change your device password, that you use to unlock your IronKey. Changing your password on a regular basis is a good security practice. However, be especially careful to remember your IronKey password.
5	Adding, renaming, and removing applications to the Applications List 	To manage the items in the Application List of the IronKey Control Panel, simply right-click anywhere in Application List. A menu will appear allowing you to: 1. Browse to a new application to add it to the list 2. Rename existing applications in the list 3. Delete an application from the list 4. Modify the way the list is presented Please note that: » Items in the list are shortcuts to actual files. Managing the items in the list will not alter the actual file. » Items are automatically sorted alphabetically » Any file can be added to the list, including documents, images, and batch files » For items that are not applications, Windows will open the item with the default program associated with that filetype
6	Locking & unplugging the IronKey 	Clicking "Lock Drive" will exit open IronKey applications and lock the device. It is then safe to unplug it from your computer. Do not unplug your IronKey while applications are still running. This could result in data corruption.

USING THE SECURE BACKUP SOFTWARE *(WINDOWS ONLY)*



If your IronKey is lost or stolen, you have peace of mind knowing that your confidential information cannot be seen by anyone but you. Getting your data back is simple with IronKey's Secure Backup software, which securely restores your data to a new or existing IronKey.

Secure Backup works by saving an encrypted backup of some or all of your IronKey files to your local computer. You can also restore one or all of your files.

	Step	Description
1	Backing up your IronKey 	You can create an encrypted backup of a single file or your entire IronKey to your local computer. Click on the "Secure Backup" button in the IronKey Control Panel, select which files to back up, and choose where those files should be backed up to (destination folder). It's that simple.
2	Restoring encrypted backups	If you ever lose your IronKey, you can restore your data from an encrypted backup. Open the Secure Backup software, select the location on your local computer where the backup is located, and select which files/folders to restore. If the data is coming from a different IronKey, you will have to supply the device password for that IronKey.

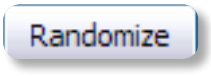
USING THE IRONKEY VIRTUAL KEYBOARD *(WINDOWS ONLY)*

If you are using your IronKey on an unfamiliar computer and are concerned about keylogging and screenlogging spyware, use the IronKey Virtual Keyboard, which helps protects your passwords by letting you click out letters and numbers. The underlying techniques in the IronKey Virtual Keyboard will bypass many trojans, keyloggers, and screenloggers.

The IronKey Virtual Keyboard can be launched in a couple of ways:

- In places where you enter a password into the IronKey (e.g. the IronKey Unlocker, changing your device password, initializing your device), click on the Virtual Keyboard icon
- Use the keyboard shortcut of CTRL + ALT + V

The IronKey Virtual Keyboard can be used in a number of other applications when you need extra security typing out information (e.g. email, documents, etc.).

	Step	Description
1	Click the IronKey Virtual Keyboard icon.  The IronKey Virtual Keyboard will appear. Alternatively, you can press CTRL + ALT + V	
2	Click on the keys to type out your password. Click on 'Enter' when you are finished.	Note that you can use the IronKey Virtual Keyboard in conjunction with the actual keyboard if you wish, so that some characters are typed and some are clicked.
3	You can optionally click the "Randomize" button to randomize where the keys are. This helps protect against screenloggers.  	Notice that when you click on a key in the Virtual Keyboard, all of the keys will go blank. This is a protection that prevents screenloggers from capturing what you clicked on. If you do not wish to use this protection, simple disable it in the options menu next to the close button. You can also have the Virtual Keyboard automatically launch when it encounters password fields. This too is configured in the options menu.

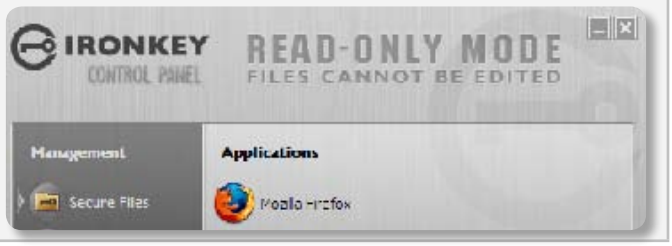
USING YOUR IRONKEY IN READ-ONLY MODE *(WINDOWS, MAC, LINUX)*

You can unlock your IronKey in a read-only state such that files on your IronKey cannot be edited. An example of when this is useful is when you want to access a file on your IronKey while using an untrusted or unknown computer. If you unlock your IronKey in Read-Only Mode, you need not fear that malware on that machine will infect your IronKey or modify your files.

When you unlock your IronKey in Read-Only Mode, you will remain in Read-Only Mode until you lock your IronKey.

Note that some features are not available in Read-Only Mode because they require modifying files on your IronKey. Examples of unavailable features include reformatting, updating and restoring applications and files to your IronKey, and using the Applications List.

On Windows and Mac OS X Computers:

	Step	Description
1	When unlocking your IronKey, select the "Unlock IronKey in Read-Only Mode" checkbox	
2	You will see a message in the IronKey Control Panel that confirms you are in Read-Only Mode.	

On Linux Computers:

	Step	Description
1	To unlock your IronKey in Read-Only Mode on Linux, use:	`ironkey --read-only`
2	To return to a normal state where you can edit files again, lock your IronKey	`ironkey --lock`

Product Specifications

CAPACITY*
1GB, 2GB, 4GB, 8GB

SPEED*
Up to 30 MB per second read speed
Up to 20 MB per second write speed

DIMENSIONS
75mm X 19mm X 9mm

WEIGHT
0.8 oz

WATERPROOF
MIL-STD-810F

OPERATING TEMPERATURE
-40 C, +85 C

OPERATING SHOCK
16G rms

ENCRYPTION
Hardware: 128-bit AES (CBC-Mode)
Hashing: 256-bit SHA
PKI: 2048-bit RSA

FIPS CERTIFICATIONS
FIPS 140-2 Level 2 (Certificate Number 938)
FIPS 186-2 (Certificate Numbers 305 and 380)
FIPS 197 (Certificate Numbers 655 and 689)

Designed and Assembled in the U.S.A.

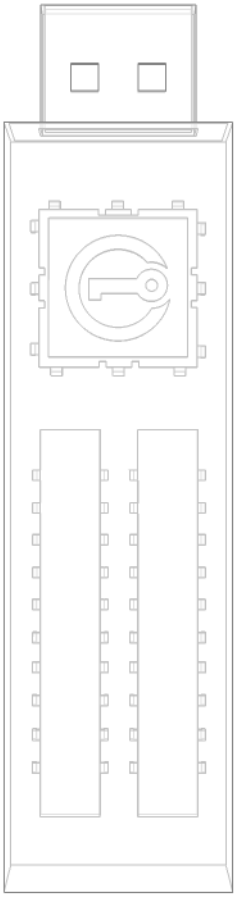
IronKey devices do not require any software or drivers to be installed.

HARDWARE
USB 2.0 High-Speed & USB 1.1

OS COMPATIBILITY
Windows 2000 (SP4), XP (SP2), Vista
IronKey Unlocker for Linux (2.6+, x86)
IronKey Unlocker for Mac (10.4+, PPC and Intel)

** Speeds tested with 4GB device in a laboratory environment with Iometer software. Actual speeds may vary. Advertised capacity is approximate and not all of it will be available for storage. Some space is required for onboard software.*

What's next?



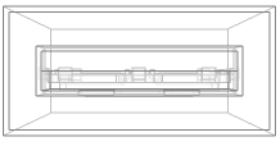
In many ways, that's up to you. We are focused on building not only the world's most secure flash drive, but also enabling technologies that are simple and enjoyable to use. Your feedback really matters to us, and we carefully review all feature requests and customer feedback for prioritization of our next great features and products.

Have a cool idea or suggestion? Please let us know. You can open a thread on the IronKey Forum (*forum.ironkey.com*) or submit feedback to *feedback@ironkey.com*. Let us know if you would like to be a beta tester of new functionality.

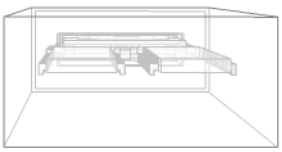
Where can I go for more info?

We are endeavoring to be very open about the security architecture and technology that we use in designing and building the IronKey devices and online services. A great deal of information can be found online on our websites:

www.ironkey.com	General Information
learn.ironkey.com	Technical Information, such as whitepapers & FAQs
support.ironkey.com	Customer support information



Who is the IronKey Team?



The IronKey Team consists of security, fraud, and industry experts with many years of background at companies such as Visa, RSA Security, PayPal, Authenex, Nokia, Cisco, Lexar, Netscape, Tumbleweed, Valicert, Apple, and the Department of Homeland Security. IronKey CEO Dave Jevans is also the chairman of the Anti-Phishing Working Group (*www.antiphishing.org*).

We have spent years and millions of dollars of research and development to create the IronKey. Simple, accessible, and of great value, now you can carry the world's most secure flash drive to protect your digital life.

Contact Information

Product Feedback
feedback@ironkey.com

Feature Requests
featurerequest@ironkey.com

IronKey Online
https://my.ironkey.com
https://learn.ironkey.com
https://support.ironkey.com
https://forum.ironkey.com
https://store.ironkey.com

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Los Altos, CA 94022 USA
Monday - Friday, 8am - 5pm PST

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