

# Bug 1053890 - [UX] define user-experience when downloads are detected as malware

Prepared by Sevaan Franks and the Firefox UX team



# Introduction

Firefox uses Google's Safe Browsing tool to identify unsafe websites and notify users so they can protect themselves from harm. The service allows us to flag malicious downloads that can hurt users computers.

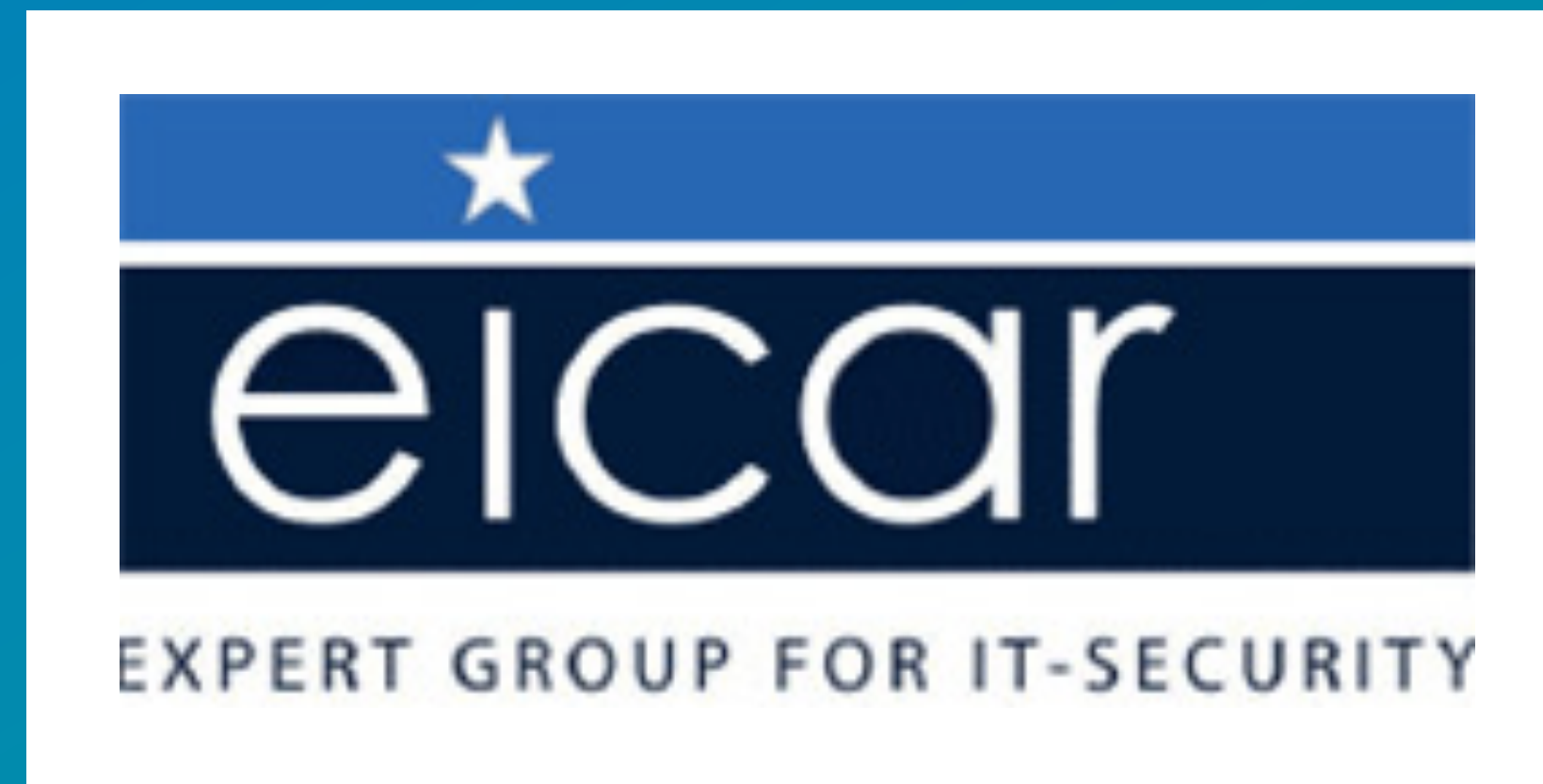
Now the Safe Browser program has expanded to also flag any “Potentially Unwanted” and “Uncommon” downloads that may be dangerous to users.

The work in this document shows a revised UX for malicious files, and introduces how potentially unwanted files should be handled as well.



## Note: Testing Malware Downloads

The European Institute for Computer Antivirus Research (EICAR) and Computer Antivirus Research Organization (CARO) have developed a test file to trigger malware alerts which can be downloaded here: <http://www.eicar.org/85-0-Download.html>



Instead of using real malware, which could do real damage, this test file allows people to test anti-virus software without having to use a real computer virus.



## Current State

If a user downloads a file that contain malware, Firefox blocks the file and displays the following error message in the downloads panel/window:



Right-clicking on the file allows a user to remove the item from their history, go to the download page, copy the download link, and clear the entire list of downloads.

### Problems:

- We don't educate/inform the user as to why a download was blocked
- We don't offer a way to unblock the file

# Design Principles

## Earn and keep my trust

Look legitimate and polished

Perceived trustworthiness is just as important

Minimize scare tactics

Provide measured facts instead

Protect me upfront

If it keeps me safe, you don't need my permission

## Help me make a thoughtful decision

Use consistent emotional cues

Positive cues emphasize safety, while negative ones, danger

Make safe choices easier to select

Make it harder to put myself at risk

Lower the impact of making mistakes

Reduce the pressure of making the "right" choice right now

## Respect my time and task

Focus on the impact to my task

Spend less time explaining the technical issue

Flag threats; don't assume I notice

The absence of positive indicators isn't enough

Avoid interrupting me

Wait until I'm done or choose a safe default

## Offer control without harming me

When I have no choice, explain why

Helping me understand stills gives me some control

Make the effect of each option clear

Novices want guidance, not a control panel

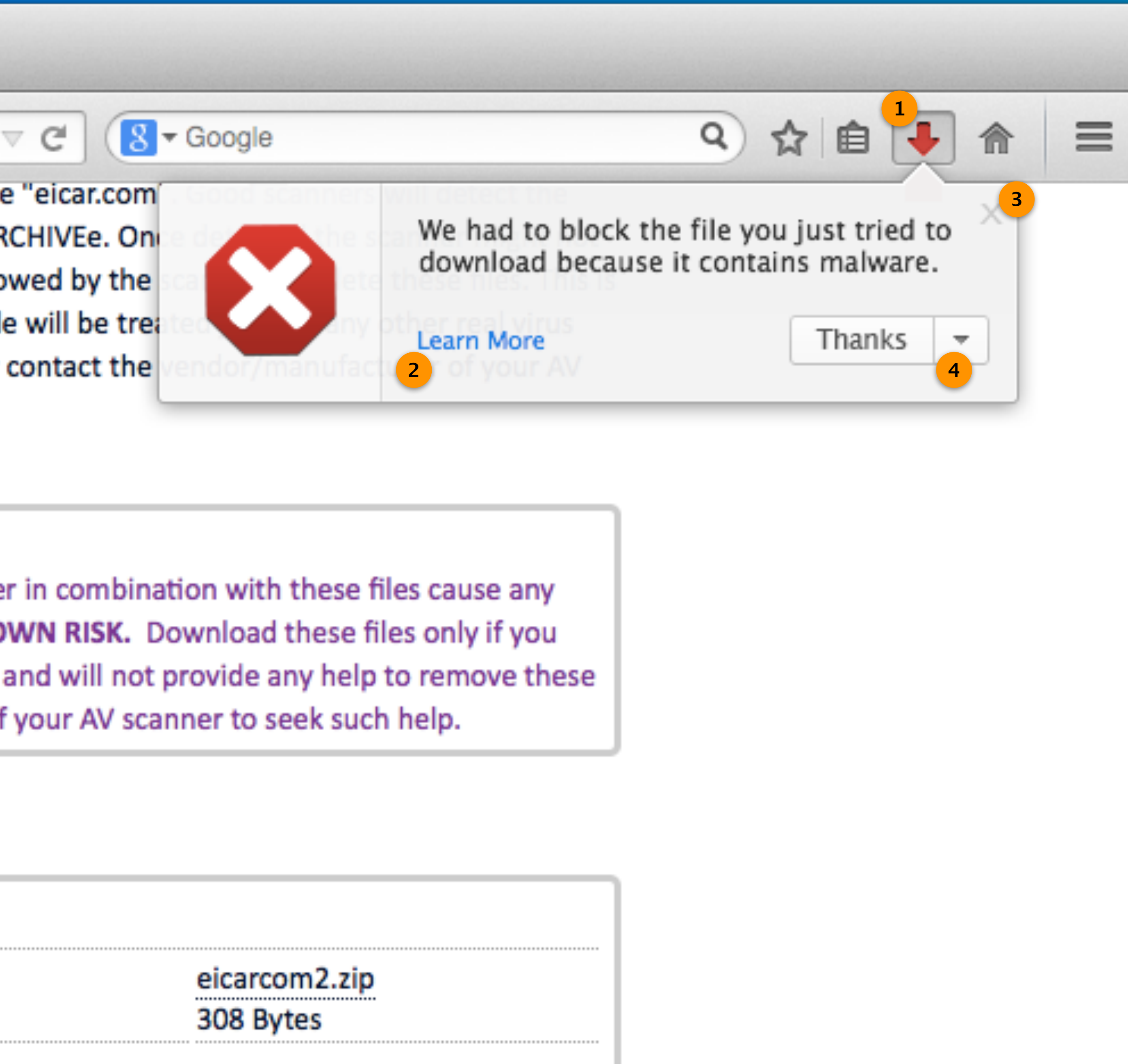
Give Pros configurable controls

Technical users want precision and flexibility

# Suggested Changes

- When a download is blocked for containing malware, a doorhanger appears to alert the user.
  - Currently, the user has no way of knowing a download was blocked until they go to open the file, at which point it is a surprise. The user should be informed right away.
- A “Learn More” link in the doorhanger should take users to a page which explains why/how we handle malware blocking in Firefox.
- Highlight Downloads toolbar button red to indicate there is a contained alert.
- In the downloads panel the user should have a more apparent way to quickly delete the offending file.
- In the downloads panel the user should be able to “unblock” the malicious download.
  - This prompts a modal dialog the user must acknowledge which warns of the ramifications of “unblocking” the file.

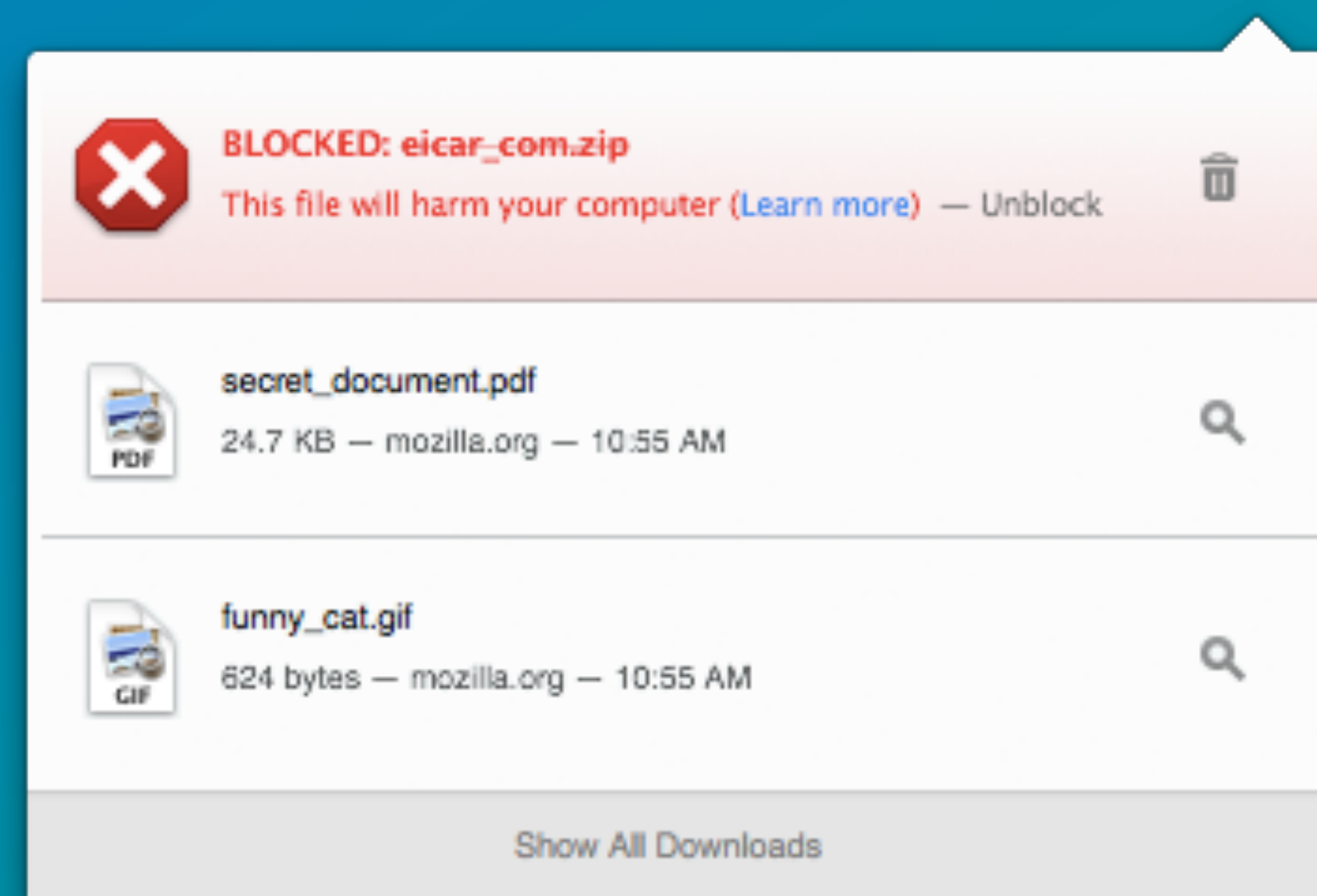
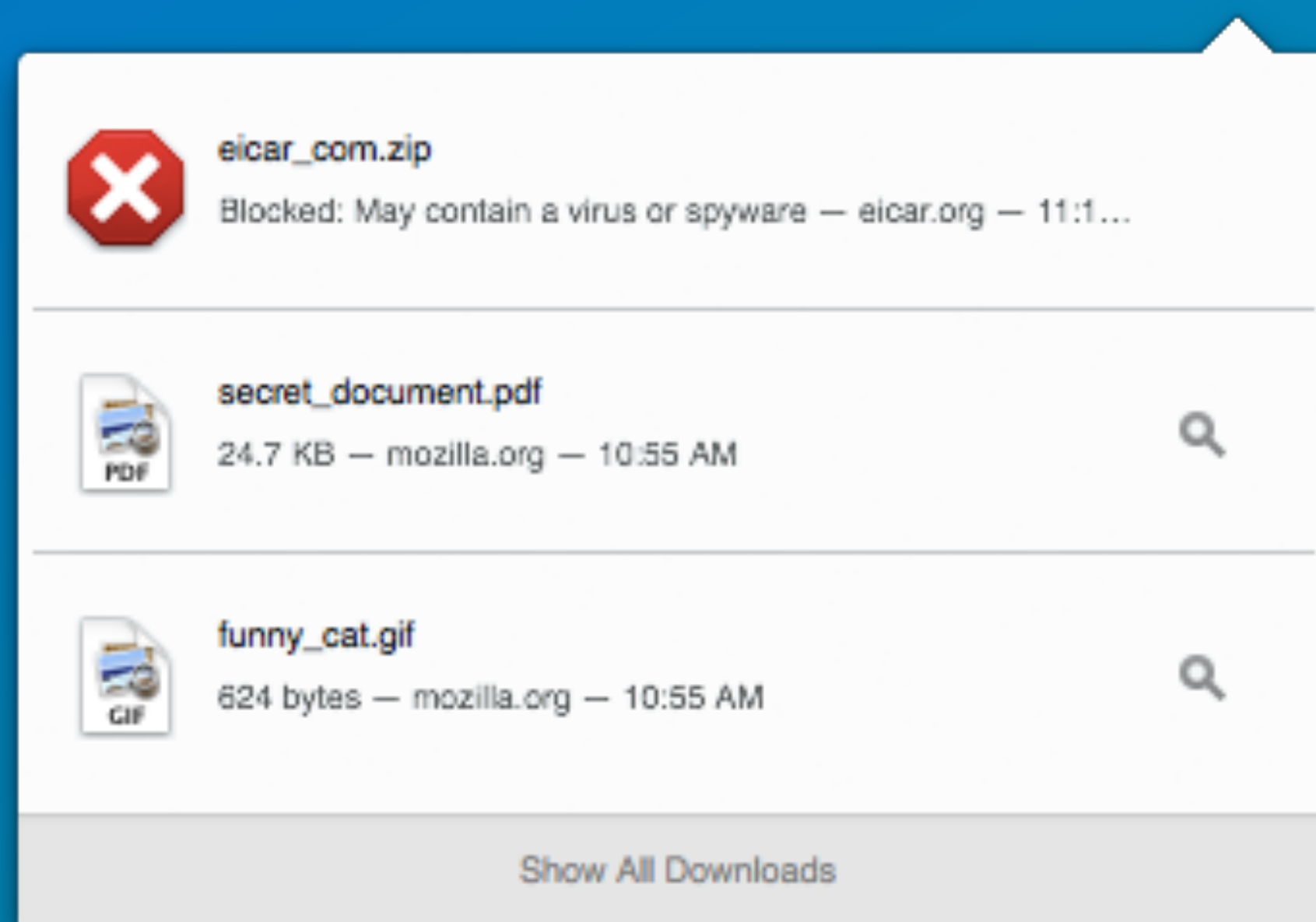




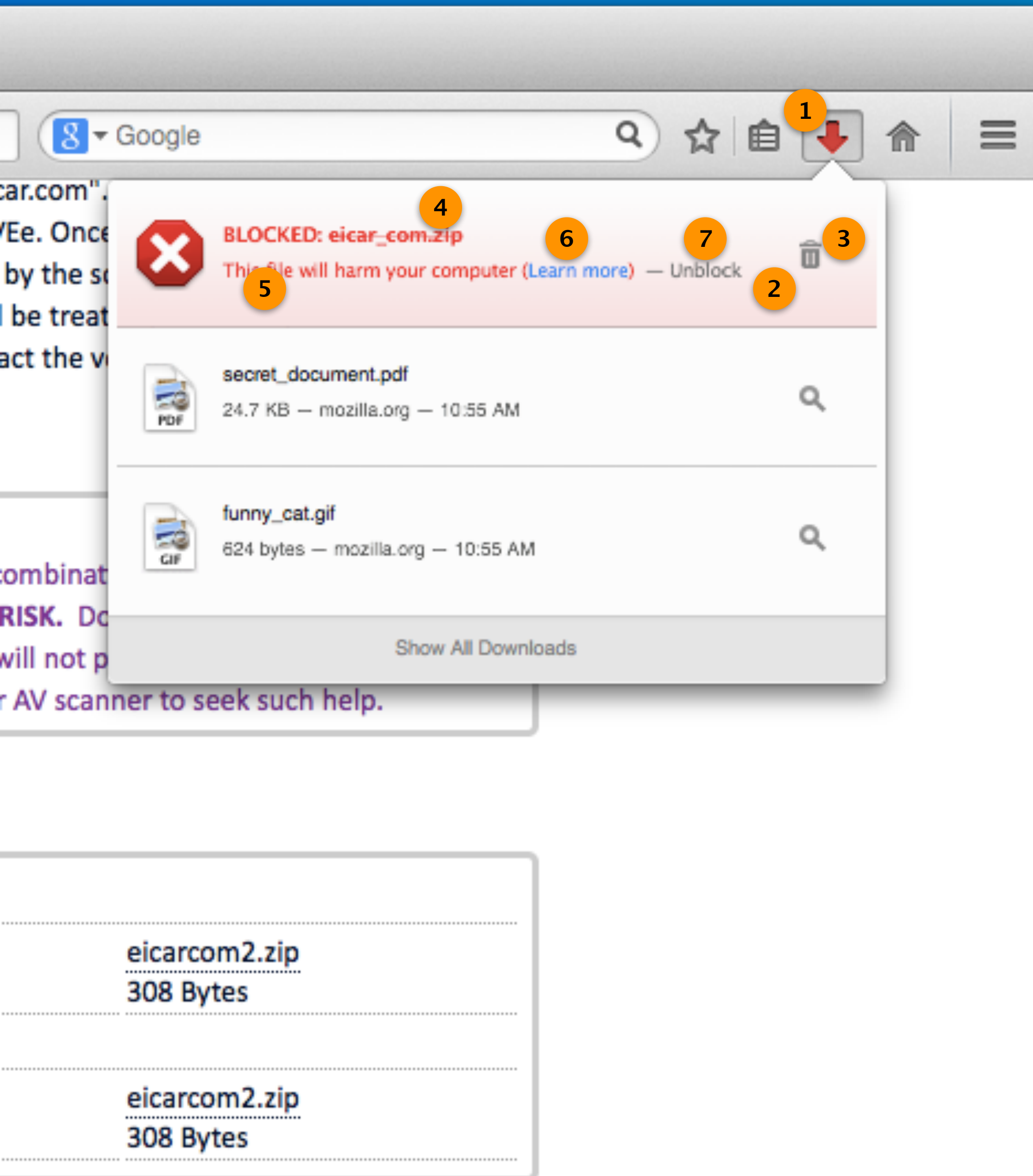
1. Icon turns red and pulses once when there is a malicious download in the list.
2. “Learn more” takes user to Mozilla help page regarding malicious and potentially unwanted downloads.
3. Dismisses doorhanger.
4. Dismisses doorhanger and opens download panel.
  - Sub-option: “Don’t show me this alert again”

## Malicious Files in Download Panel (Before/After)

mozilla









European Exp...


+


load.html

BE UP TO DATE  
RSS FEED

Order eicar news and events as rss feed.

[EICAR News](#)
[EICAR Events](#)





Are you sure you want to unblock this file?

This file contains malware that will harm your computer.

You can search for an alternate download source or try to download the file again later.

Unblock anyway

Keep me safe

ne file "eicar.com". Good scanners will detect the

ip ARCHIVEe. Once detected the scanner might not

e allowed by the scanner to delete these files. This is

est file will be treated just like any other real virus

lo or contact the vendor/manufacturer of your AV

scanner.

IMPORTANT NOTE

EICAR cannot be held responsible when these files or your AV scanner in combination with these files cause any damage to your computer. **YOU DOWNLOAD THESE FILES AT YOUR OWN RISK.** Download these files only if you are sufficiently secure in the usage of your AV scanner. EICAR cannot and will not provide any help to remove these files from your computer. Please contact the manufacturer/vendor of your AV scanner to seek such help.

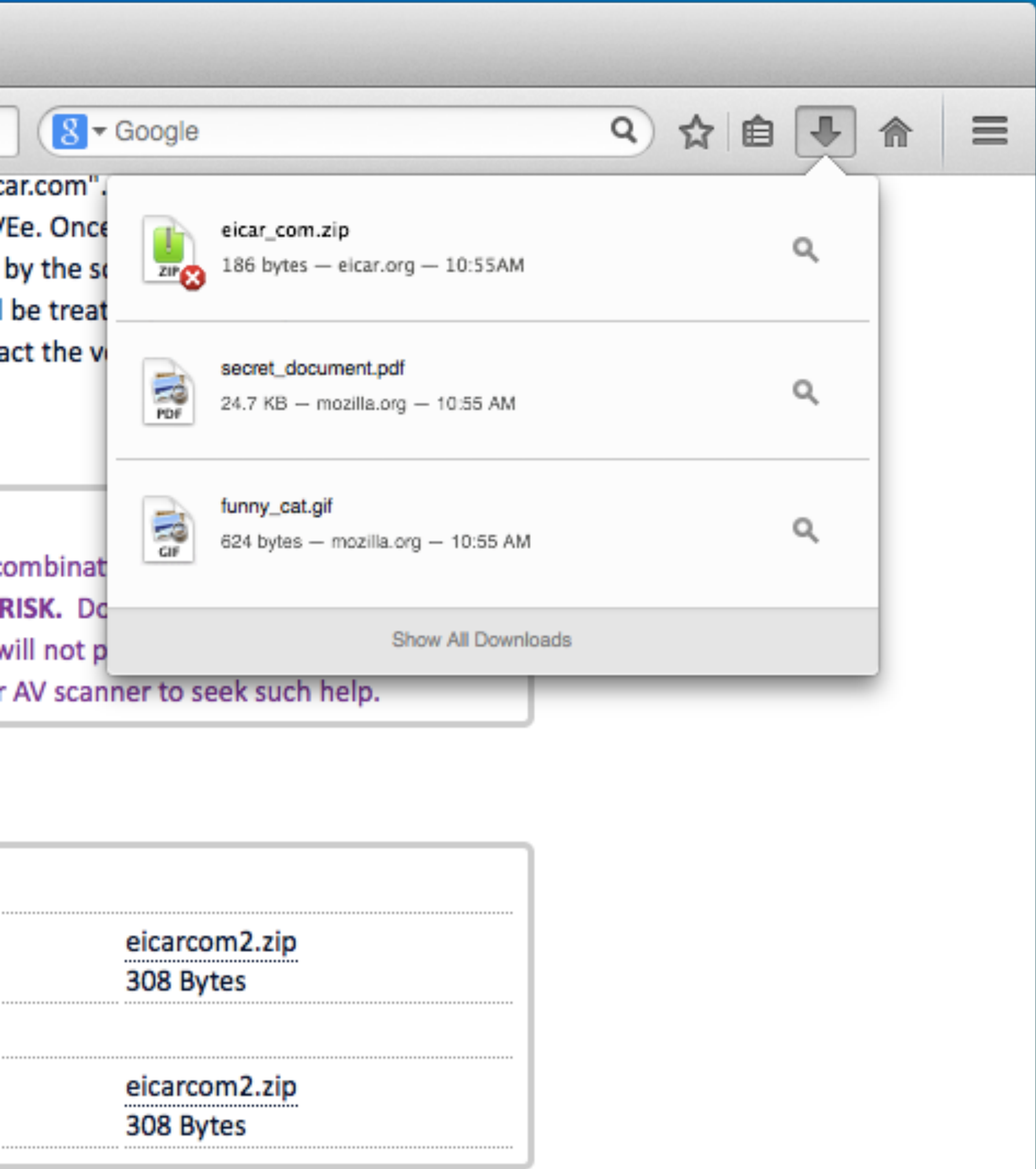
Download area using the standard protocol http

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes

Download area using the secure, SSL enabled protocol https

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes

## Unblocked Malicious Files in Download Panel



When a user unblocks a malicious file, the download icon is no longer highlighted red and the row in the download panel changes format to look like a normal download.

The only addition is a badge on the download icon which indicates to the user that the download was previously flagged.

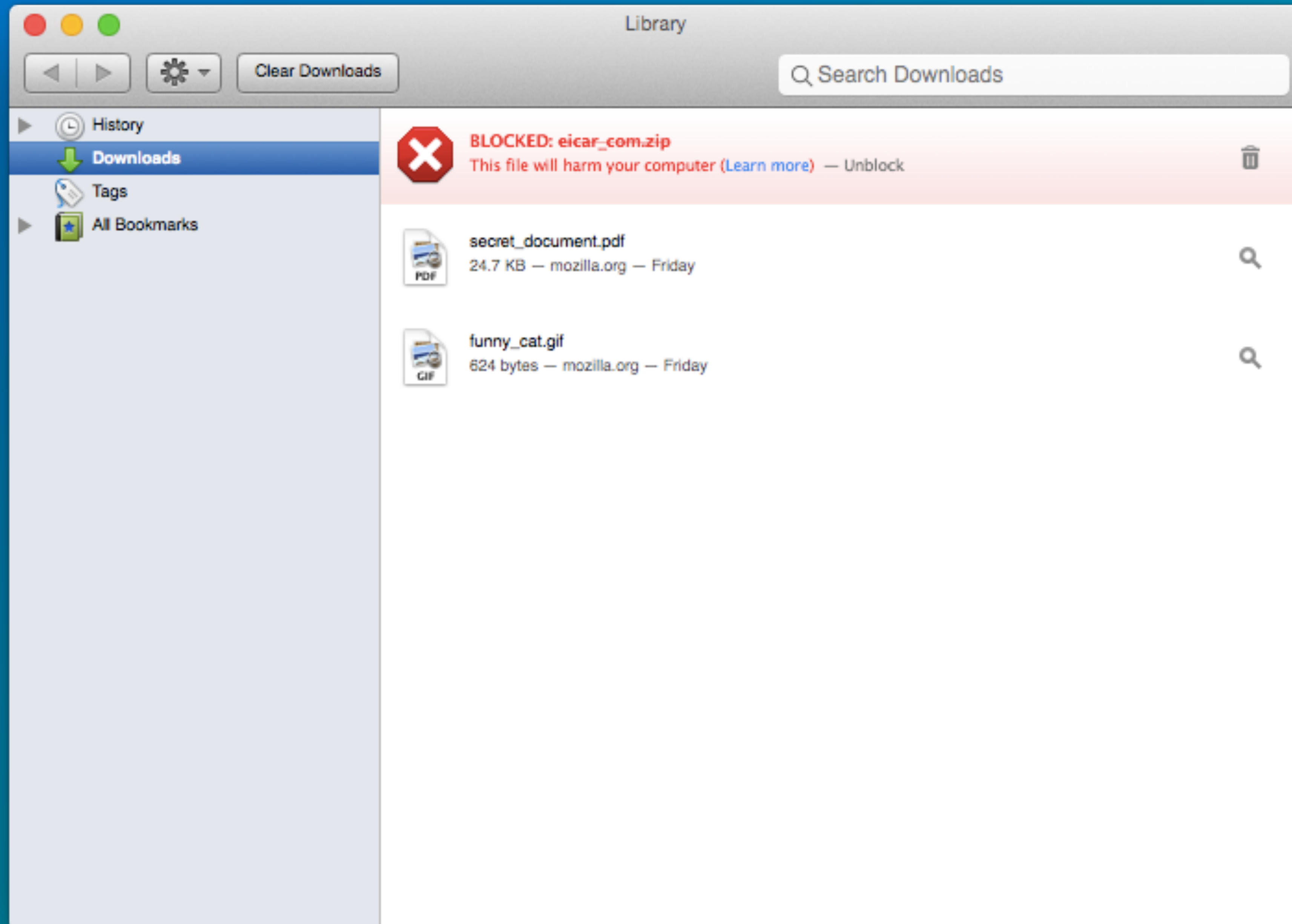
Hovering over the icon prompts a tool-tip stating that the file was flagged:

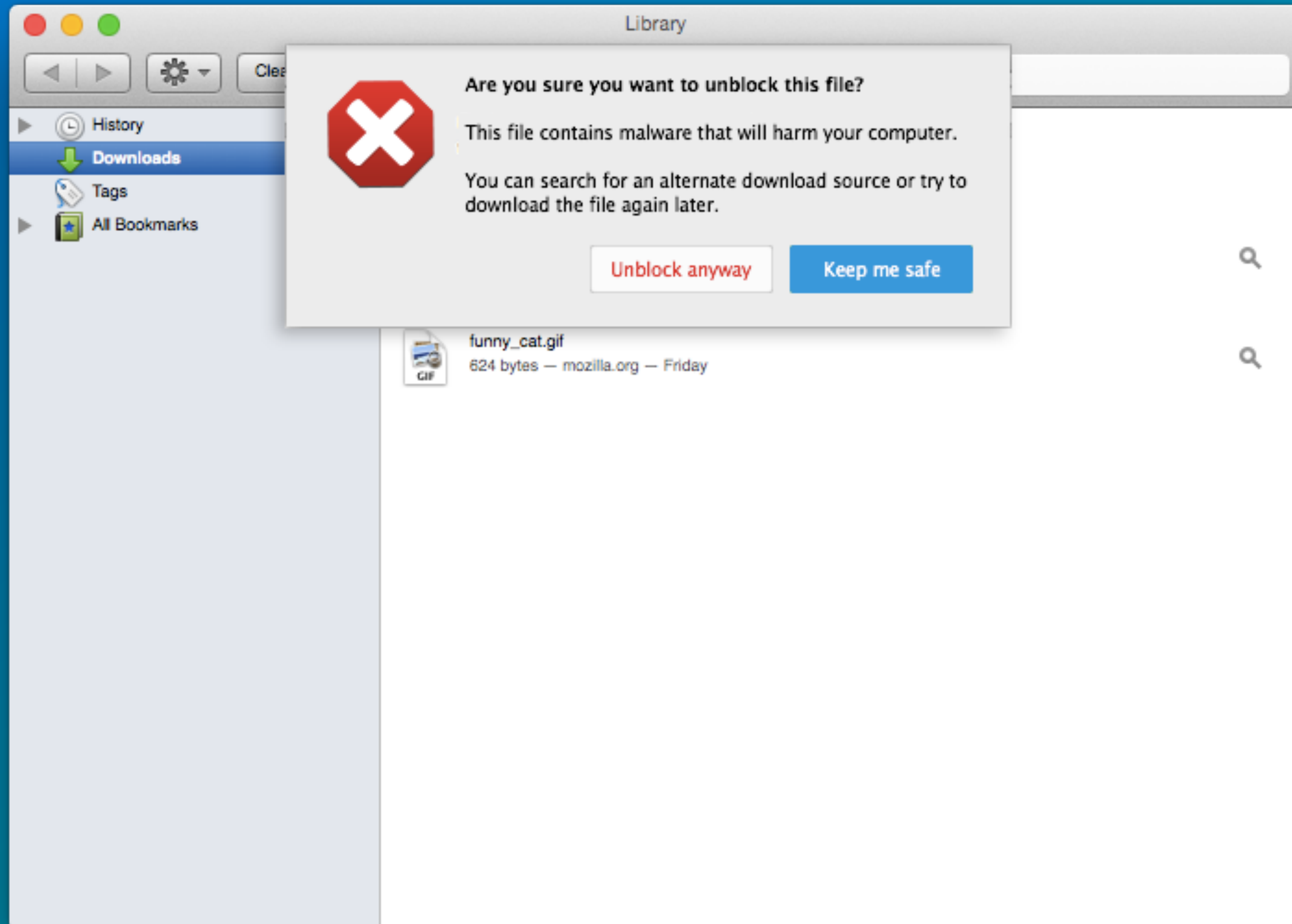
This file was flagged as being malicious



## Download Library (Blocked Malicious Files)

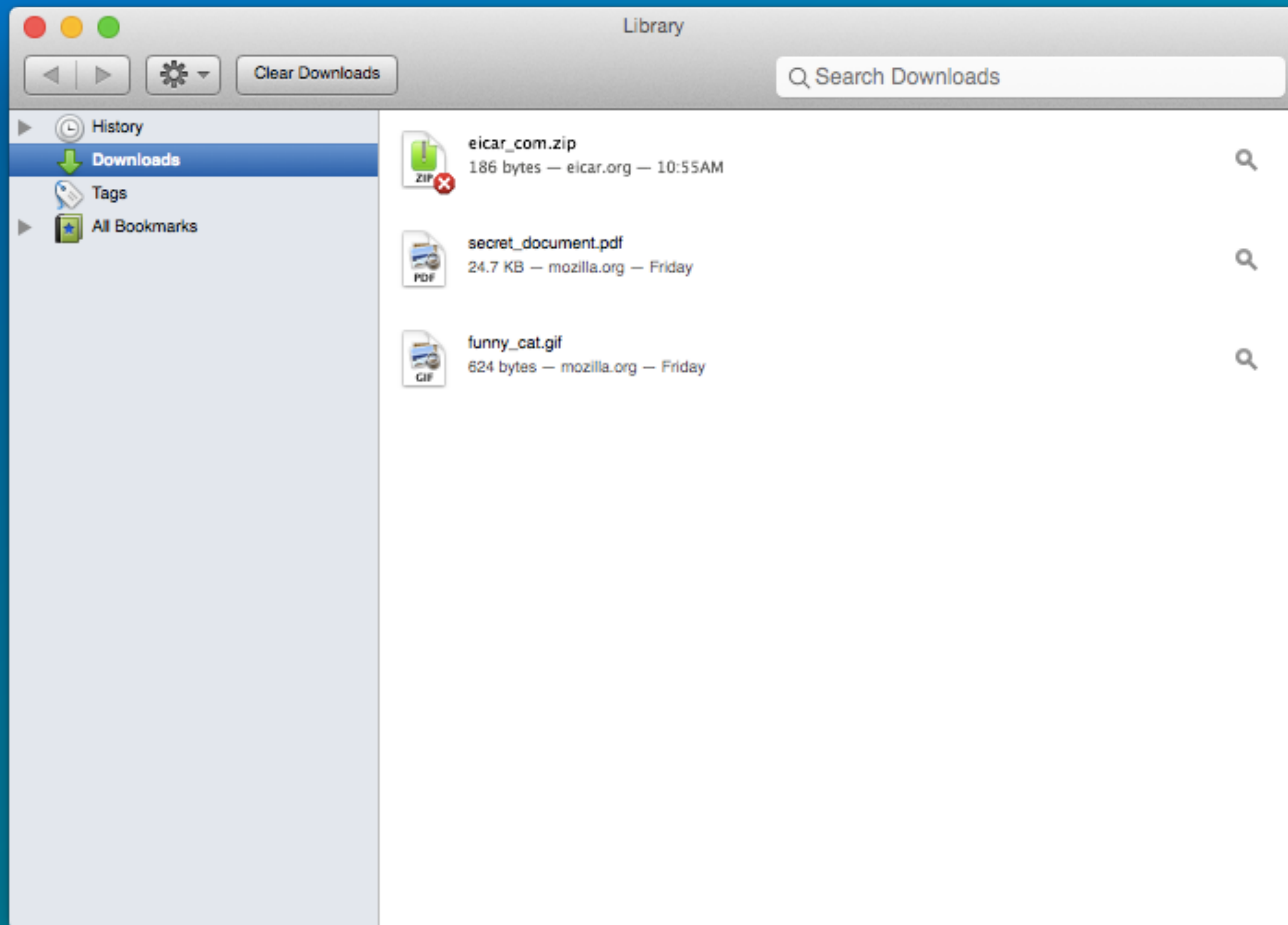
mozilla





## Download Library (Unblocked Malicious Files)

mozilla





downloaded run your AV scanner. It should detect at least the file "eicar.com" in the single zip ARCHIVEe and may be even in the double zip ARCHIVEe. Once detected the scanner will delete the file(s) and may even delete any other real virus files. You might not even be allowed by the scanner which puts the file into quarantine. The test file will be treated as a normal file. Read the user's manual of your AV scanner what to do or contact the vendor/manufacturer of your AV scanner.

We had to block the file you just tried to download because it might be harmful to your computer.

[Learn More](#)

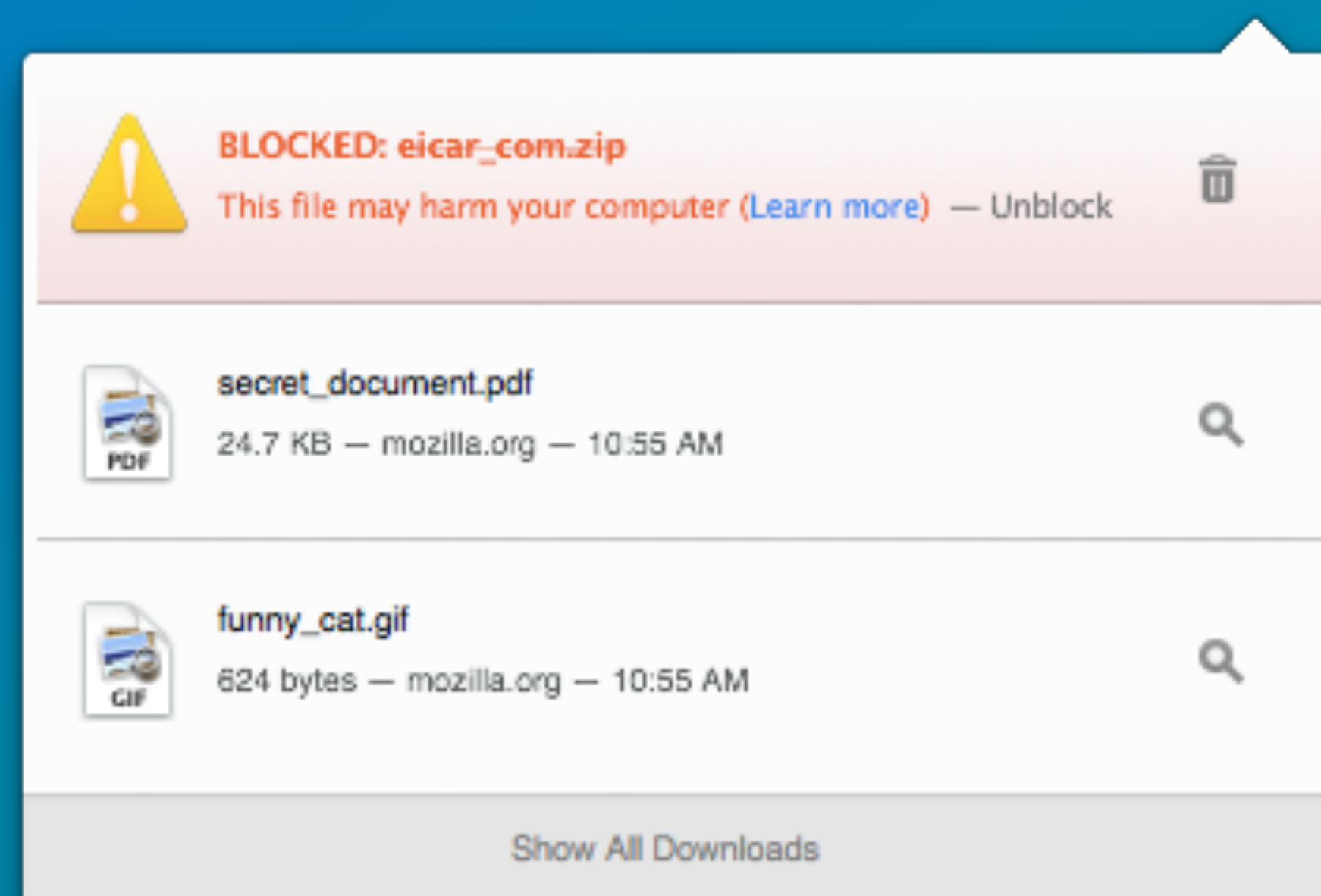
Thanks

### IMPORTANT NOTE

EICAR cannot be held responsible when these files or your AV scanner in combination with these files cause any damage to your computer. **YOU DOWNLOAD THESE FILES AT YOUR OWN RISK.** Download these files only if you are sufficiently secure in the usage of your AV scanner. EICAR cannot and will not provide any help to remove these files from your computer. Please contact the manufacturer/vendor of your AV scanner to seek such help.

### Download area using the standard protocol http

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes



Note: Text colour changed to orange to represent that this is one-step down from a 100% malicious file (red text)




European Exp...

+


download.html

BE UP TO DATE  
RSS FEED



Order eicar news and events as rss feed.

[EICAR News](#)
[EICAR Events](#)



Are you sure you want to unblock this file?

This file could harm your computer and/or make unwanted changes to Firefox.

You can search for an alternate download source or try to download the file again later.

Unblock anyway

Keep me safe

Google

ne file "eicar.com". Good scanners will detect the

ip ARCHIVEe. Once detected the scanner might not

e allowed by the scanner to delete these files. This is

est file will be treated just like any other real virus

lo or contact the vendor/manufacturer of your AV

IMPORTANT NOTE

EICAR cannot be held responsible when these files or your AV scanner in combination with these files cause any damage to your computer. **YOU DOWNLOAD THESE FILES AT YOUR OWN RISK.** Download these files only if you are sufficiently secure in the usage of your AV scanner. EICAR cannot and will not provide any help to remove these files from your computer. Please contact the manufacturer/vendor of your AV scanner to seek such help.

Download area using the standard protocol http

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes

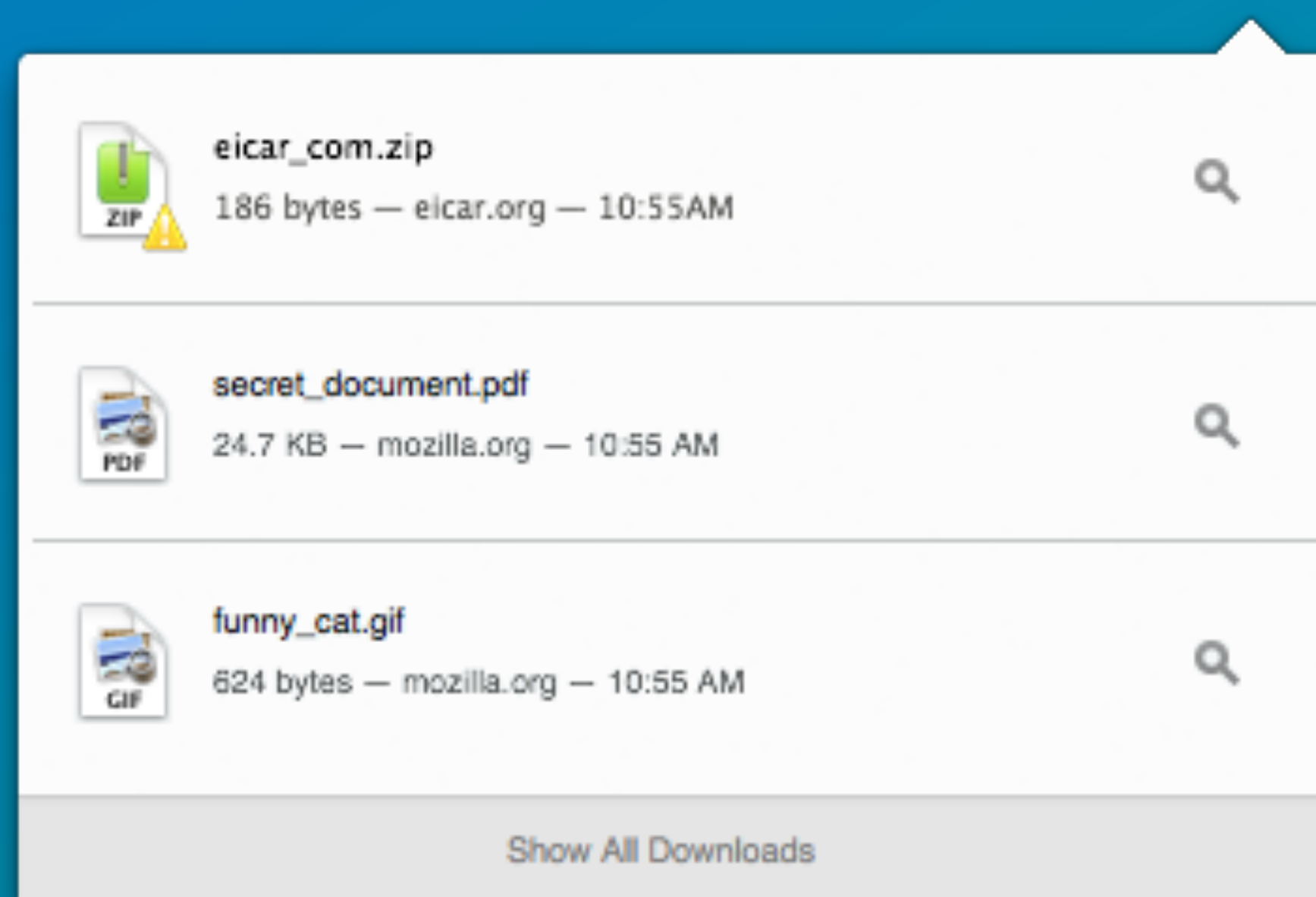
Download area using the secure, SSL enabled protocol https

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes



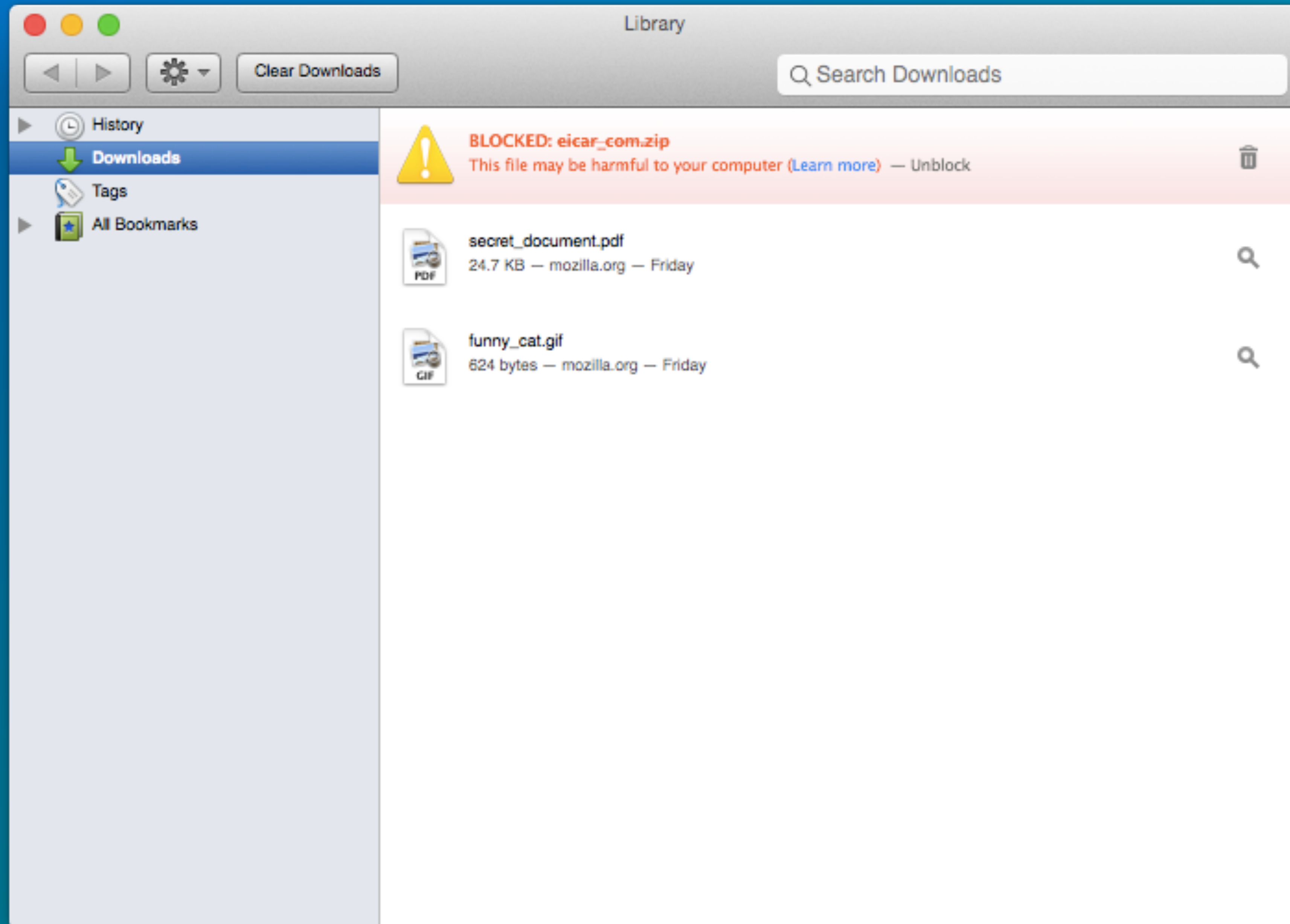
## Unblocked Potentially Unwanted Files in Download Panel

mozilla

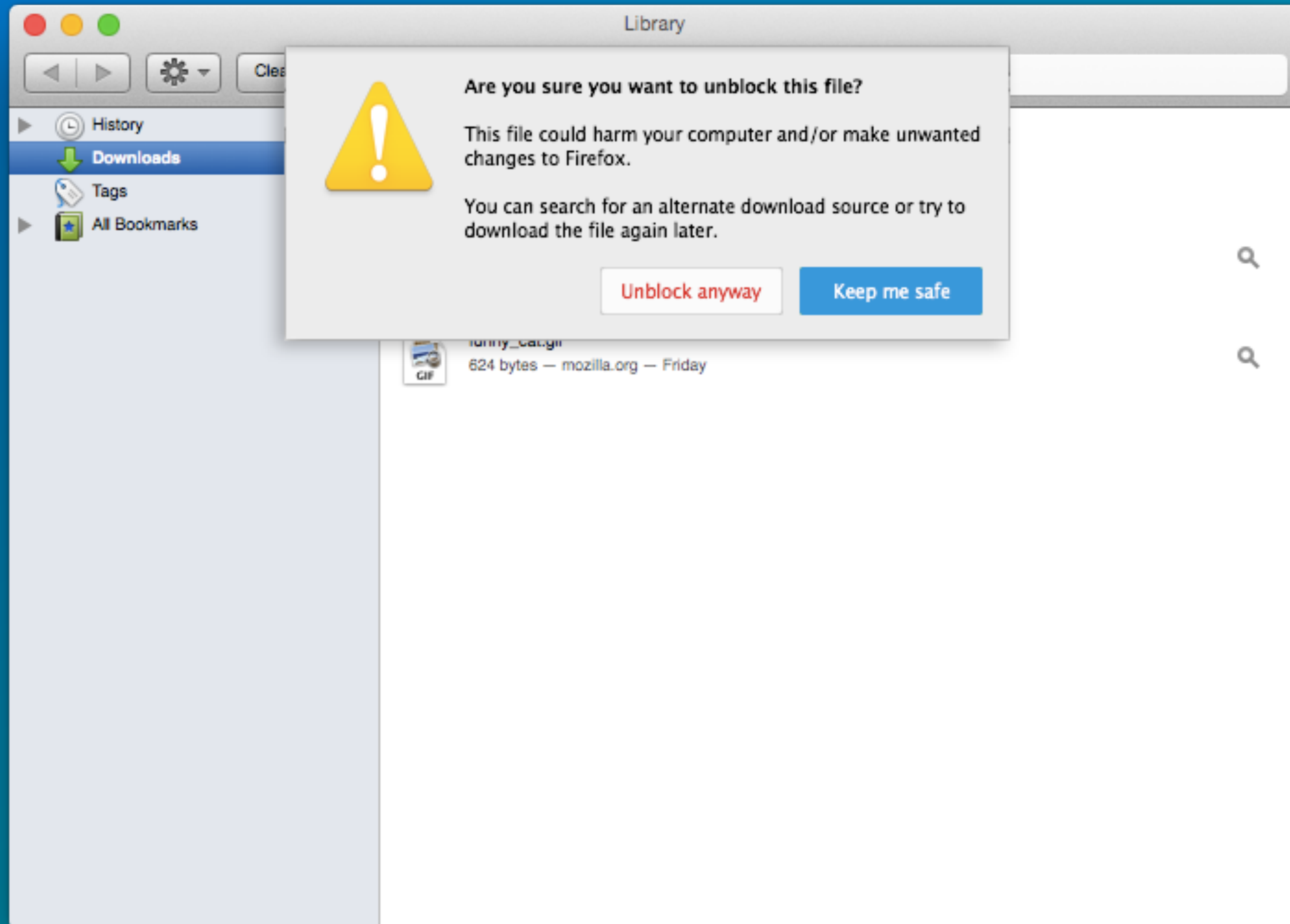


## Download Library (Blocked Potentially Unwanted Files)

mozilla



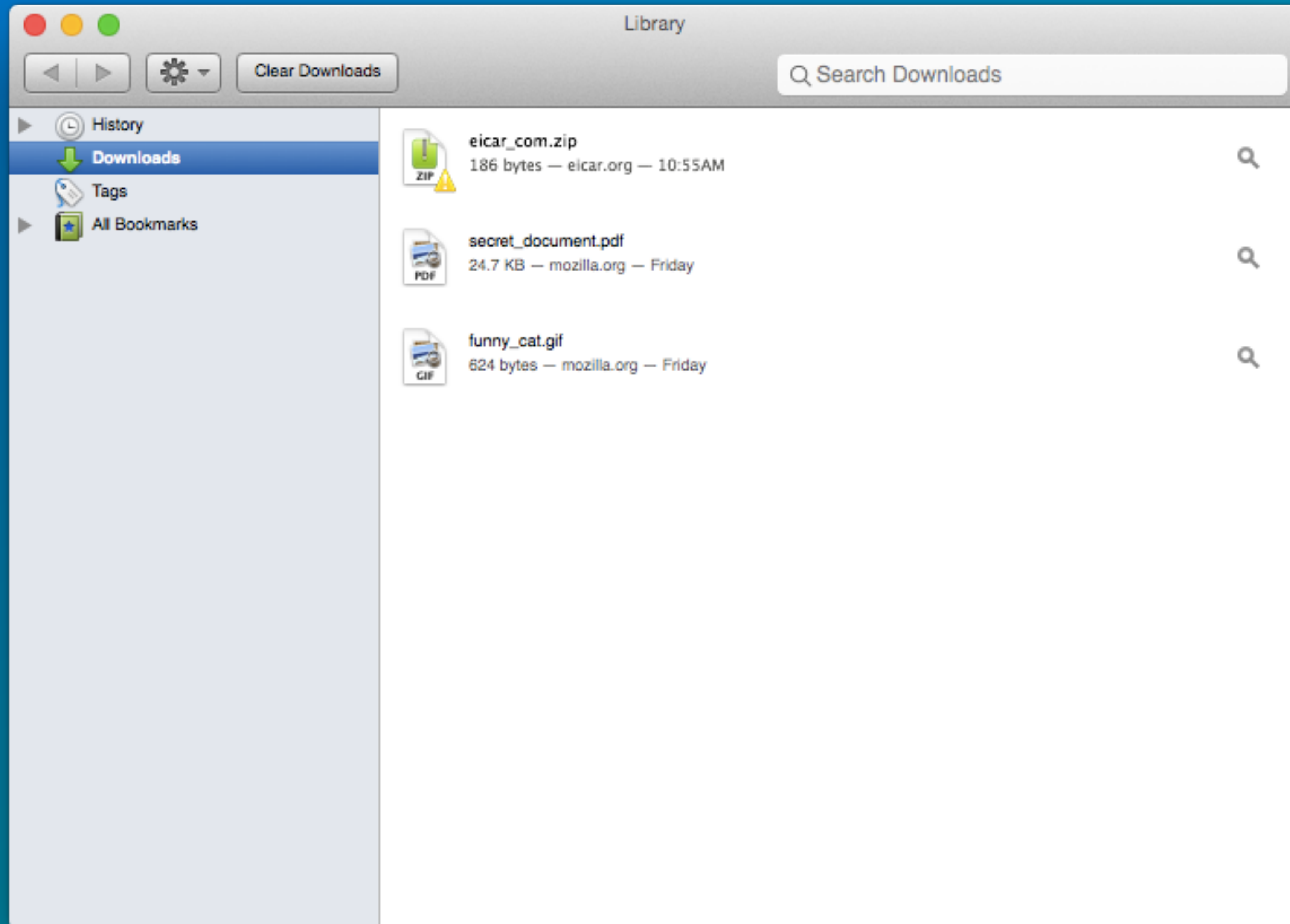
## Download Library (Potentially Unwanted Files Modal)





## Download Library (Unblocked Potentially Unwanted Files)

mozilla



The file you just tried to save is not often downloaded and may be harmful. We've blocked it just in case!

[Learn More](#)

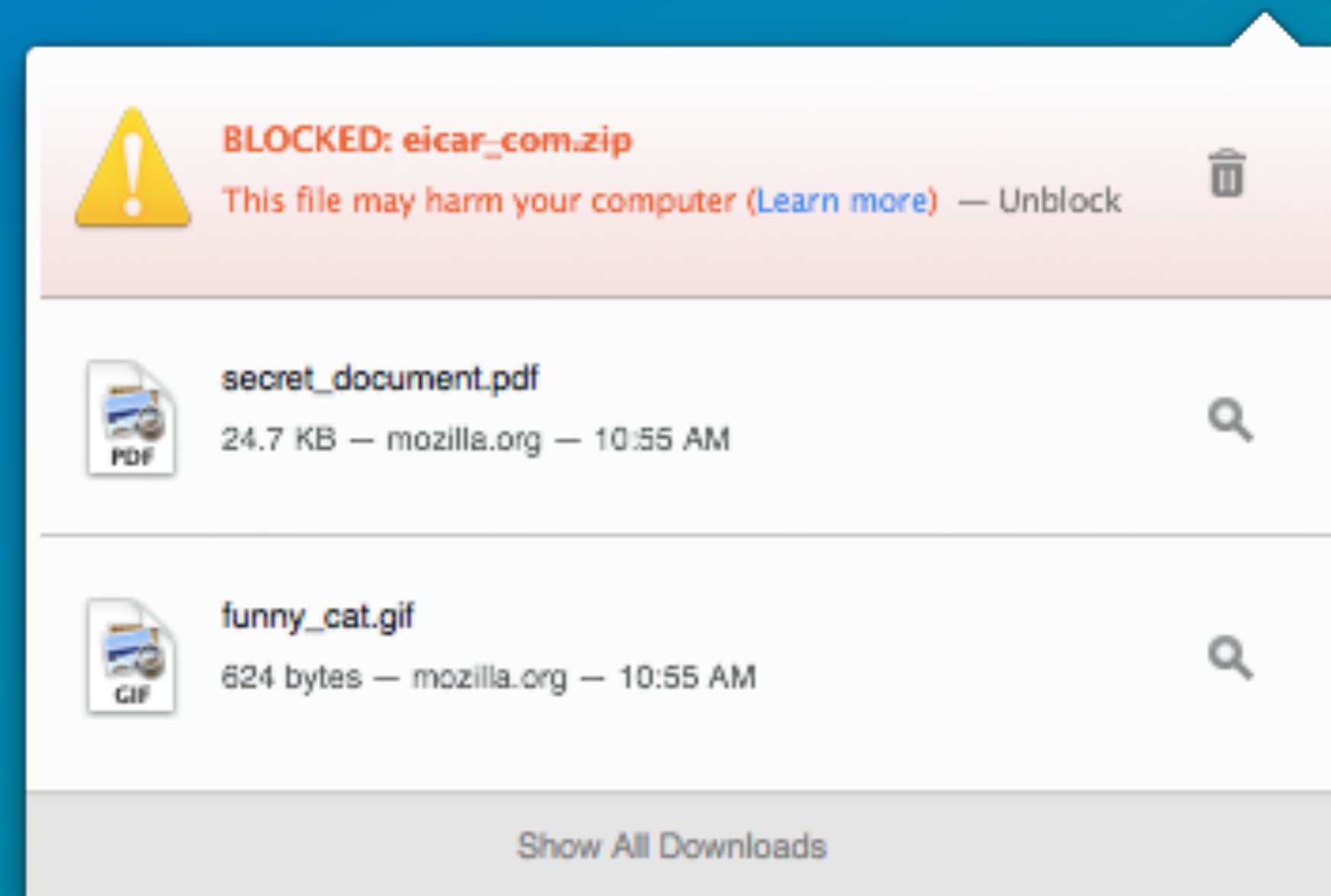
Thanks

**IMPORTANT NOTE**

EICAR cannot be held responsible when these files or your AV scanner in combination with these files cause any damage to your computer. **YOU DOWNLOAD THESE FILES AT YOUR OWN RISK.** Download these files only if you are sufficiently secure in the usage of your AV scanner. EICAR cannot and will not provide any help to remove these files from your computer. Please contact the manufacturer/vendor of your AV scanner to seek such help.

Download area using the standard protocol http

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes



Note: This is the same as Potentially Unwanted downloads.



European Exp...

+


download.html

BE UP TO DATE  
RSS FEED

Order eicar news and events as rss feed.

EICAR News

EICAR Events



!

Are you sure you want to unblock this file?

It may be harmful to your computer and/or make unwanted changes to Firefox.

You can search for an alternate download source or try to download the file again later.

Unblock anyway

Keep me safe

Google

file "eicar.com". Good scanners will detect the

p ARCHIVEe. Once detected the scanner might not

allowed by the scanner to delete these files. This is

st file will be treated just like any other real virus

o or contact the vendor/manufacturer of your AV

IMPORTANT NOTE

EICAR cannot be held responsible when these files or your AV scanner in combination with these files cause any damage to your computer. **YOU DOWNLOAD THESE FILES AT YOUR OWN RISK.** Download these files only if you are sufficiently secure in the usage of your AV scanner. EICAR cannot and will not provide any help to remove these files from your computer. Please contact the manufacturer/vendor of your AV scanner to seek such help.

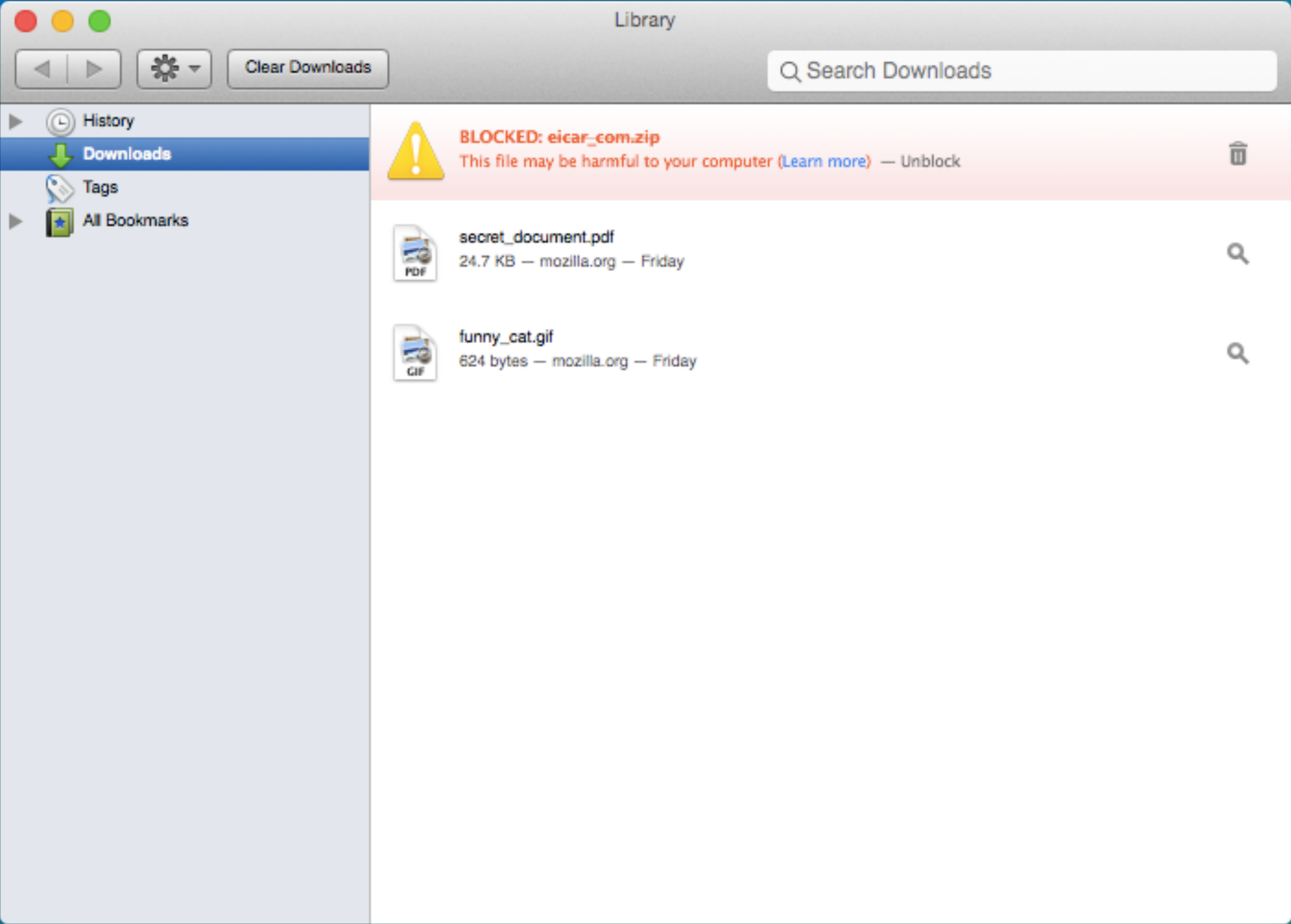
Download area using the standard protocol http

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes

Download area using the secure, SSL enabled protocol https

eicar.com	eicar.com.txt	eicar_com.zip	eicarcom2.zip
68 Bytes	68 Bytes	184 Bytes	308 Bytes

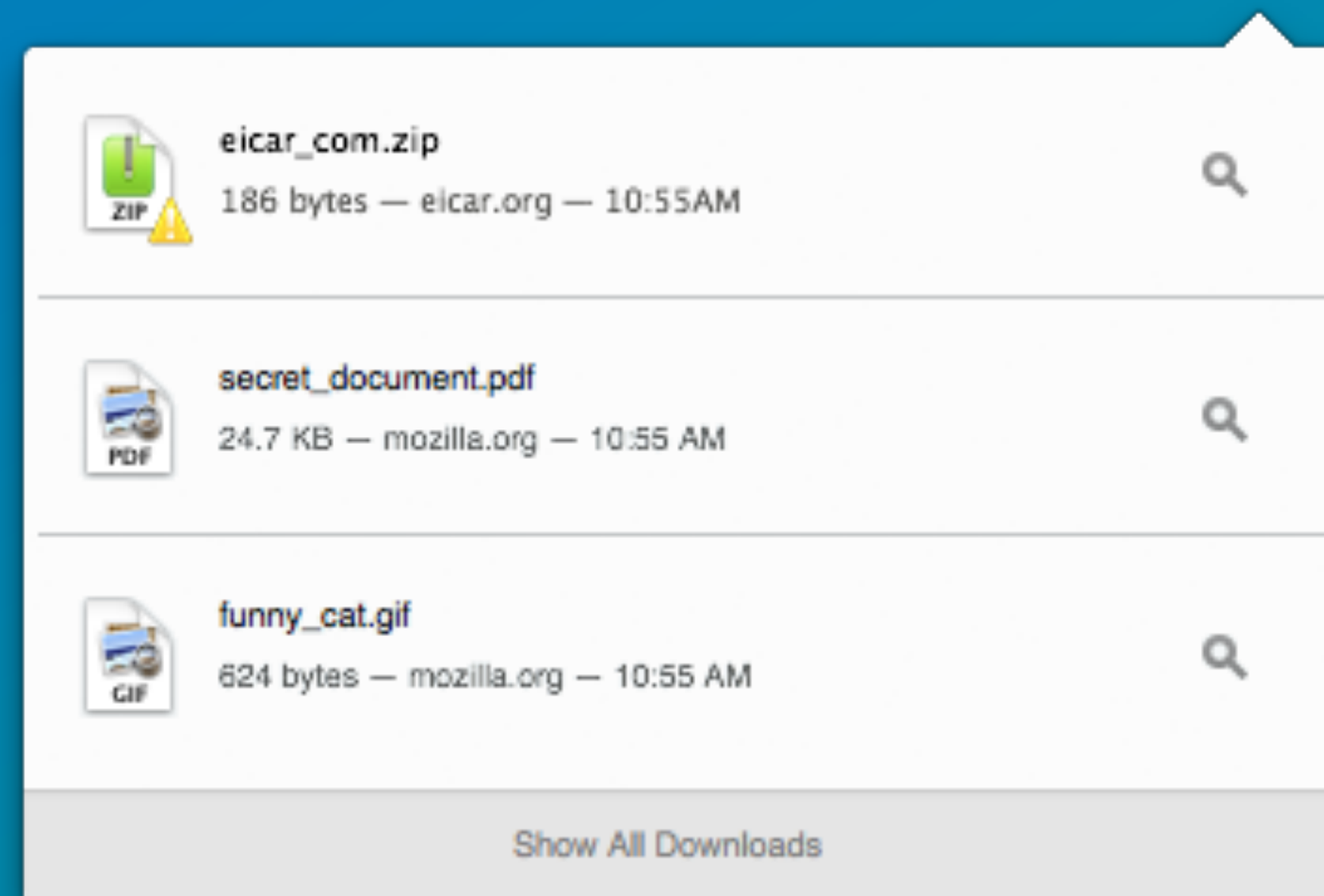
Download Library (Blocked Uncommonly Downloaded Files)



Note: This is the same as Potentially Unwanted downloads.

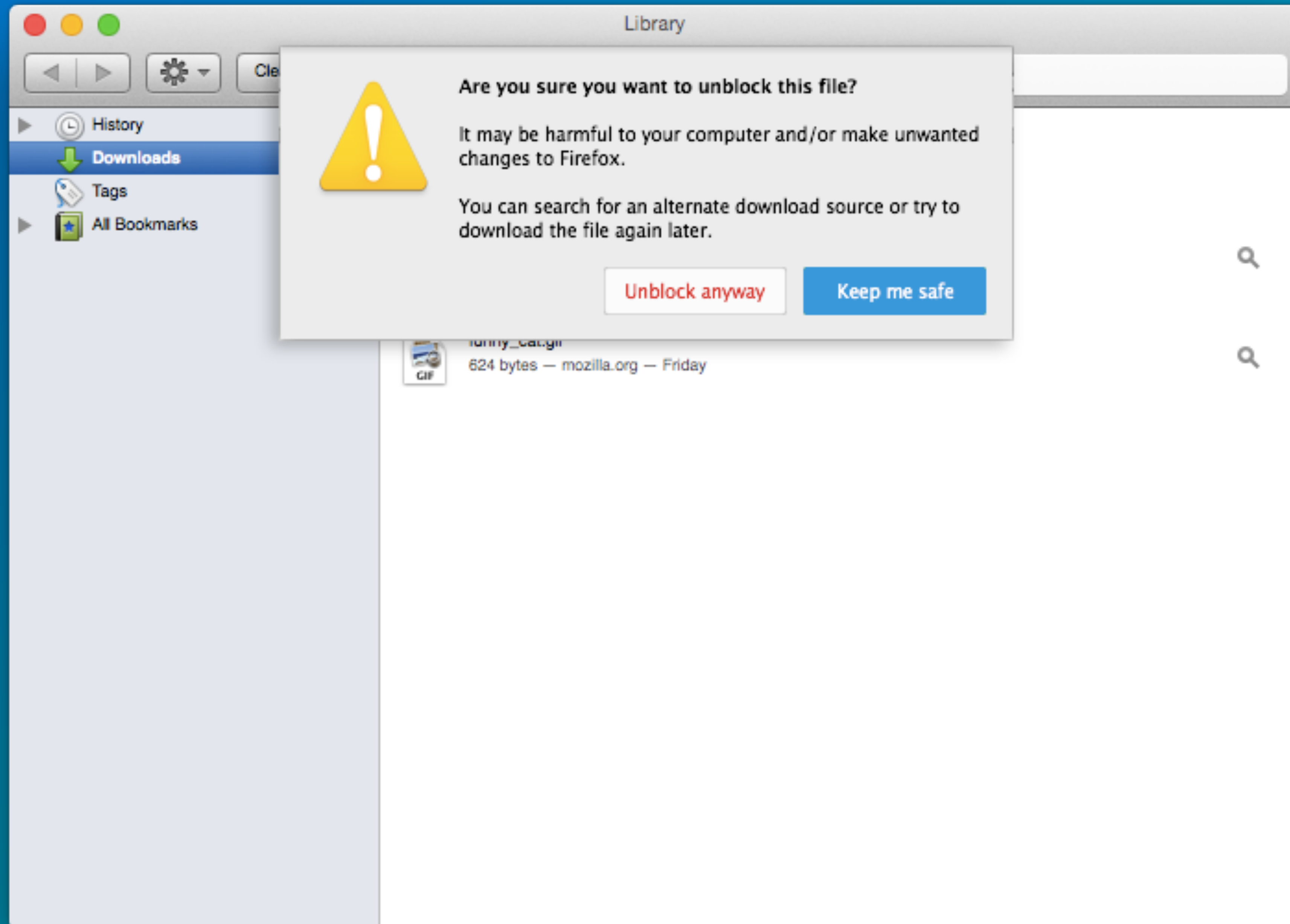


## Unblocked Uncommonly Downloaded Files in Download Panel

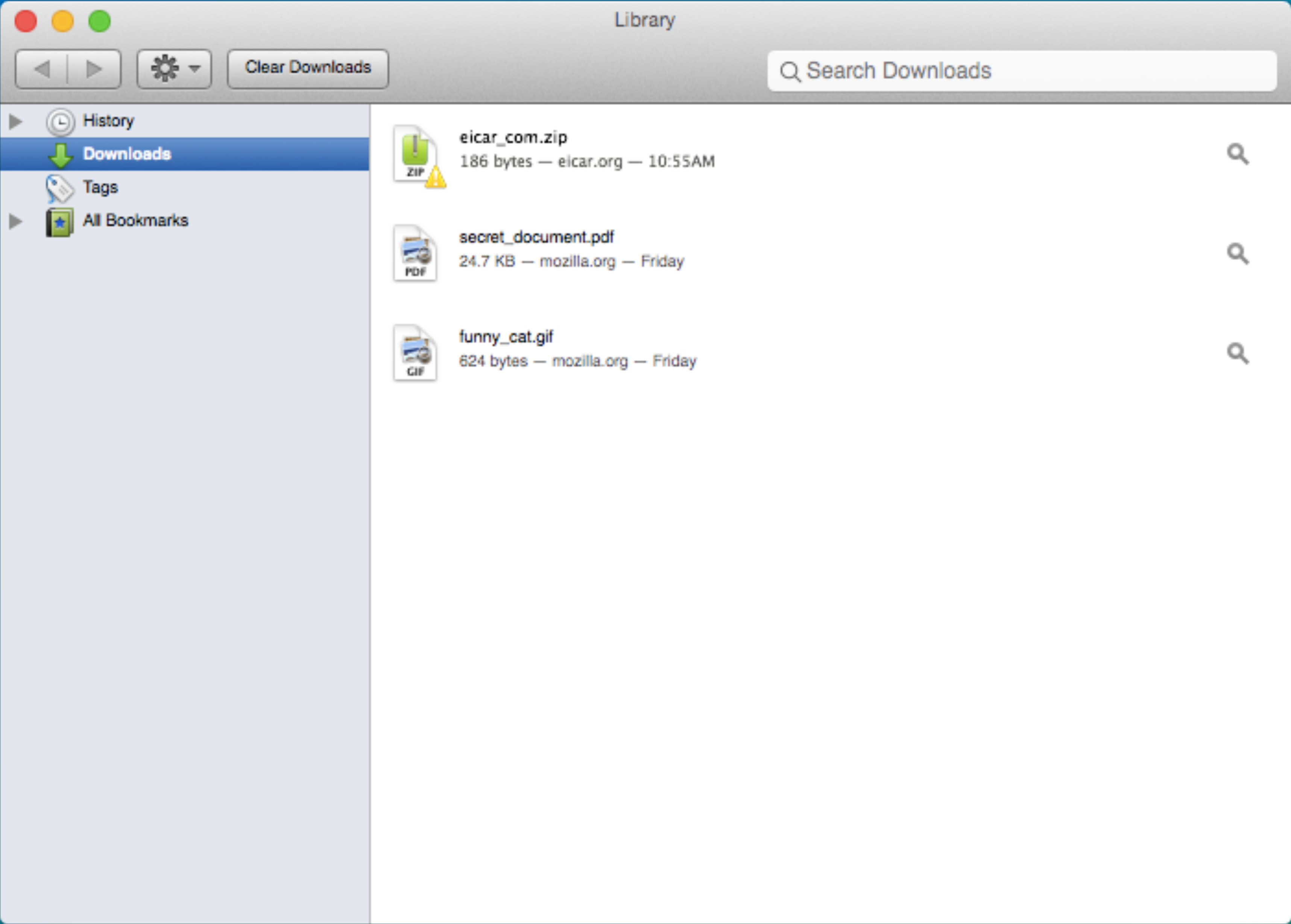


Note: This is the same as Potentially Unwanted downloads.





## Download Library (Unblocked Uncommonly Downloaded Files)



Note: This is the same as Potentially Unwanted downloads.

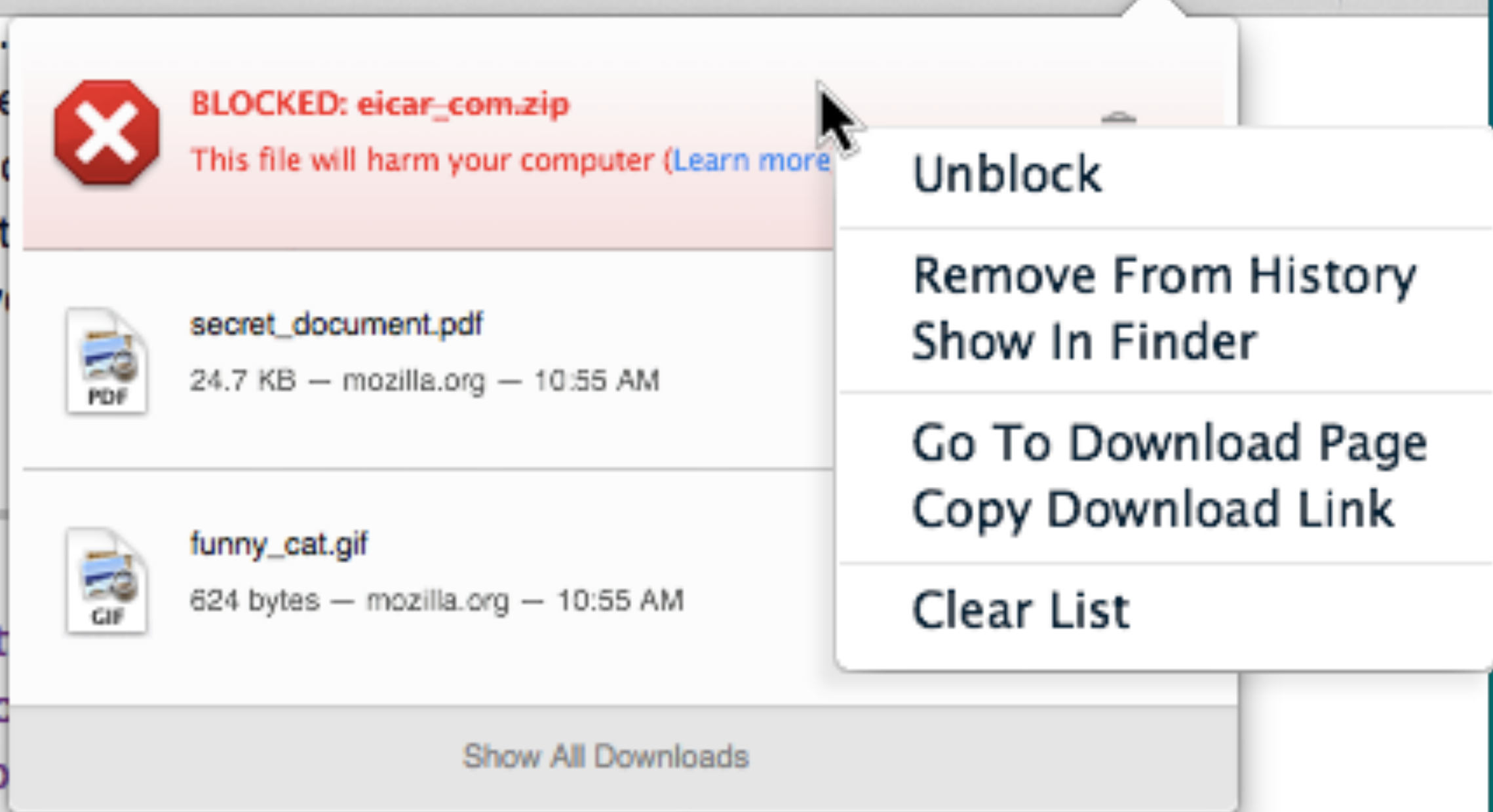


### IMPORTANT NOTE

Download area using the standard protocol http

<u>eicar.com</u>	<u>eicar.com.txt</u>	<u>eicar_com.zip</u>	<u>eicarcom2.zip</u>
68 Bytes	68 Bytes	184 Bytes	308 Bytes

Download area using the secure, SSL enabled protocol https

clear.com      clear.com.txt      clear.com.zip      clearcom3.zip



# Malicious Downloads Strings

- We had to block the file you just tried to download because it contains malware.
- Learn more
- Thanks
- Dismiss
- Don't show me this alert again
- Blocked
- This file will harm your computer (Learn more) – Unblock
- Are you sure you want to unblock this file?

This file contains malware that will harm your computer.

You can search for an alternate download source or try to download the file again later.

Unblock Anyway

- Keep Me Safe

# Potentially Unwanted Downloads Strings

- We had to block the file you just tried to download because it contains malware.
- Learn more
- Thanks
- Dismiss
- Don't show me this alert again
- Blocked
- This file may be harm your computer (Learn more) – Unblock
- Are you sure you want to unblock this file?

This file could harm your computer and/or make unwanted changes to Firefox.

You can search for an alternate download source or try to download the file again later.

- Unblock Anyway
- Keep Me Safe

# Uncommon Downloads Strings

- The file you just tried to save is not often downloaded and may be harmful. We've blocked it just in case!
- Learn more
- Thanks
- Dismiss
- Don't show me this alert again
- Blocked
- This file may be harm your computer (Learn more) – Unblock
- Are you sure you want to unblock this file?

It may be harmful to your computer and/or make unwanted changes to Firefox.

You can search for an alternate download source or try to download the file again later.

- Unblock Anyway
- Keep Me Safe





Questions? Comments? Suggestions?

IRC: @sevaan in #UX on IRC  
Email: sfranks@mozilla.com  
Twitter: @sevaanfranks