

Online Security is More Than Just Passwords

By Denise A. Garofalo
Mount Saint Mary College



http://www.americanbar.org/content/dam/aba/images/law_national_security/resources_carousel_image1.jpg

Itinerary

- Cybersecurity
- Passwords
- Spam
- Phishing
- Privacy





Cybersecurity and you:

Stop. Think. Connect.



<https://www.nitrd.gov/images/cybersecurity.jpg>



From <https://multimedia.telos.com/assets/sites/6/2015/10/TGIF-10-02-15-700x469.jpg>

Keep a Clean Machine



<https://www.pchelpsoft.com/wp-content/uploads/2015/07/clean-2.jpg>

Remember to...

- Keep security software current
- Automate software updates
- Protect all devices that connect to the Internet
- Plug & scan



http://blog.protectmyid.com/wp-content/uploads/2012/11/shutterstock_78032146.jpg

Protect your personal information



https://securethoughts.com/wp-content/uploads/2015/09/shutterstock_115174897.jpg

Protect your online information

- Secure your accounts
- Make passwords long and strong
- Unique account, unique password
- Write it down and keep it safe
- Own your online presence



Connect with care



Connect With Care

Never access personal or financial information over public wireless networks. Eavesdroppers can observe and change unencrypted communications.

Connect with care



- When in doubt, throw it out
- Get savvy about Wi-Fi hotspots
- Protect your \$\$

Be wise



- Stay current
- Think before you act
- Back it up

Passwords

How secure are yours?



From https://userimages.ittoolbox.com/blogs/1813/75925/m_42ee201d-ee1d-4e4b-b53c-5b2c9b343bb6.jpg

YOU KNOW YOUR
EMAIL PASSWORD?



THAT'S A UNIQUE
PASSWORD, RIGHT?



OF COURSE



Supply your password to enter...



From <http://marvelmadness-cory.blogspot.com/2011/05/heimdall.html>

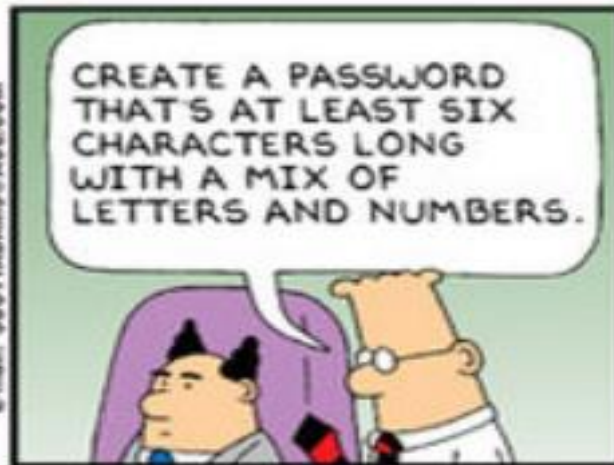


DILBERT®

BY
SCOTT ADAMS



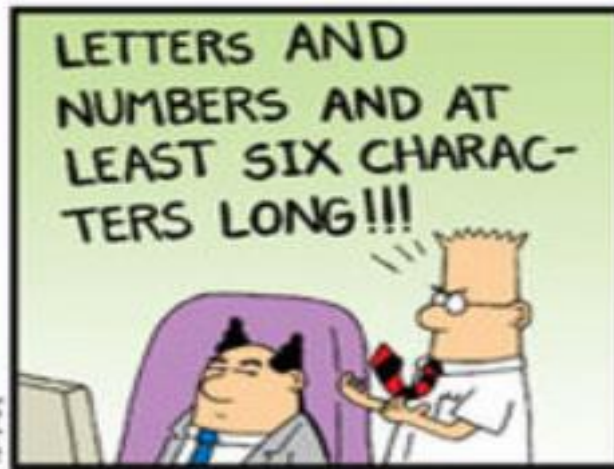
E-mail: SCOTTADAMS@AOL.COM



© 2004 Scott Adams, Inc. Dist. by UFS, Inc.



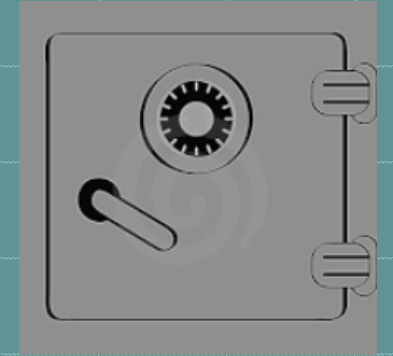
12-5-99



www.dilbert.com



Create a secure password



- A minimum length: 8 characters
- Include uppercase and lowercase letters
- Use at least one number
- Use at least one special character

Password creation

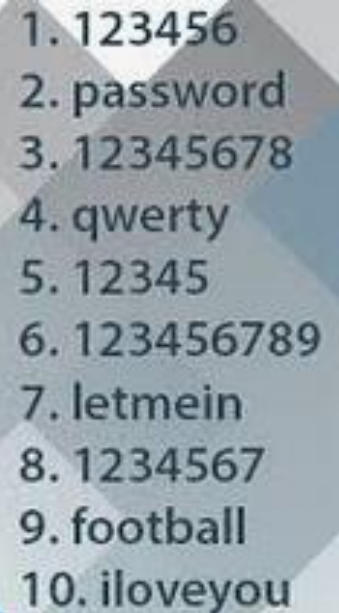
- DO NOT USE
 - Birthdates
 - Children's names
 - Sports teams
 - Words on password blacklists



From <https://jokideo.com/honey-whats-the-password-cartoon/>

Password blacklists

- lists of passwords that are too easily cracked
- passwords on these lists are not secure



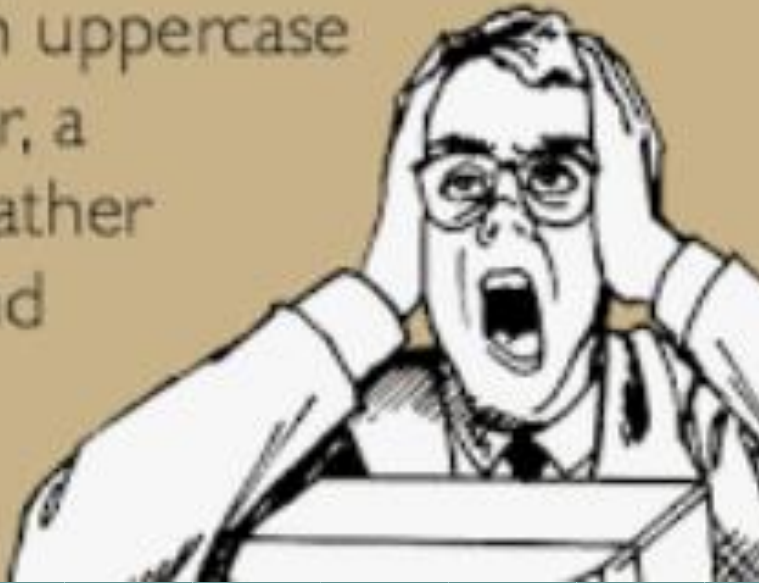
A vertical list of 10 common passwords, numbered 1 through 10. The list is displayed on a light blue background with a subtle geometric pattern. The passwords are: 1. 123456, 2. password, 3. 12345678, 4. qwerty, 5. 12345, 6. 123456789, 7. letmein, 8. 1234567, 9. football, 10. iloveyou.

1. 123456
2. password
3. 12345678
4. qwerty
5. 12345
6. 123456789
7. letmein
8. 1234567
9. football
10. iloveyou

From <https://snoormunications.com/blog/must-no-one-is-good-security-advice-but-a-bad-password>

Password generators

Sorry, but your password must contain an uppercase letter, a number, a hieroglyph, a feather from a hawk and the blood of a unicom.



From <https://www.smarthomeblog.net/secure-gadgets-iot-botnets/>

Password generators



- Random password generator
<https://www.random.org/passwords/>
- RoboForm
<https://www.roboform.com/password-generator>
- Secure memorable password generator
<https://xkpasswd.net/s/>
- Secure password generator
<https://passwordsgenerator.net/>

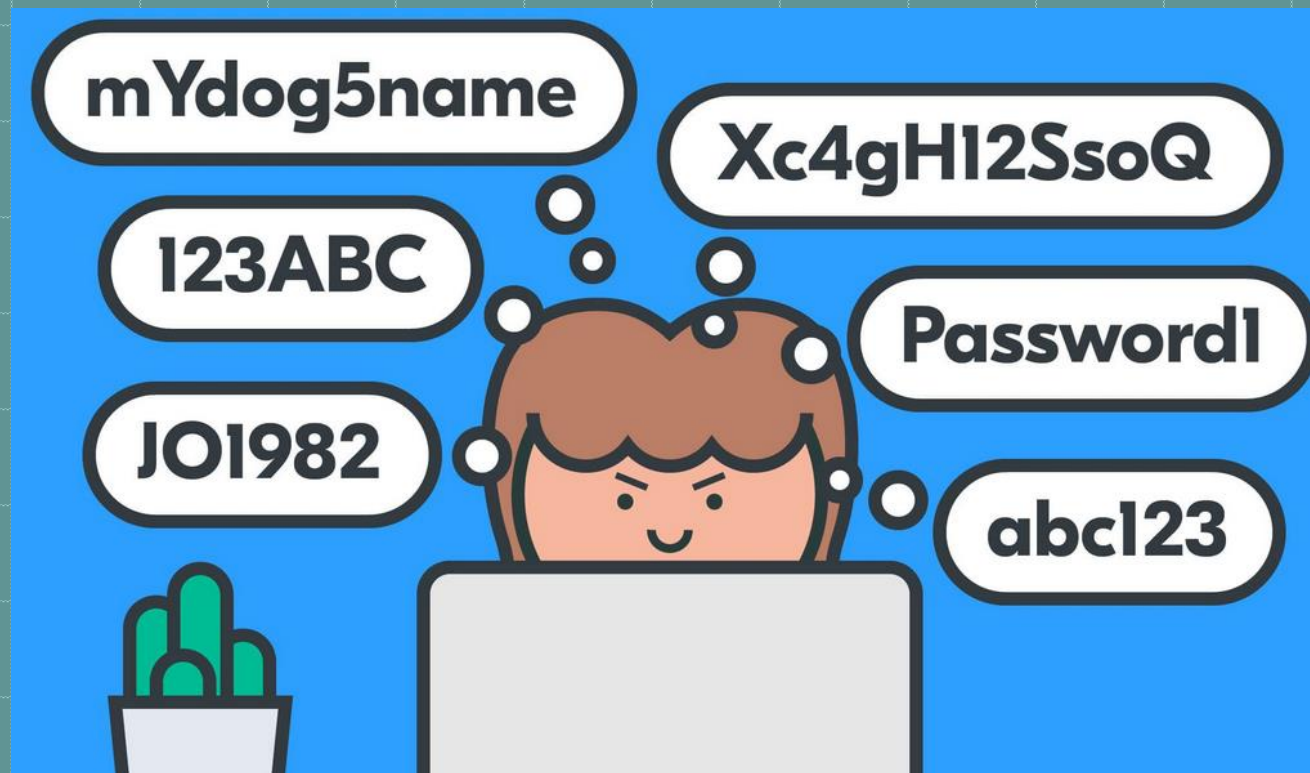
Passphrases instead of passwords



From <https://medium.com/@tribetornado/training-your-users-to-use-passphrases-2a42669e141>

- Take the first letter of each word
- The **q**uick **b**rown **f**ox **j**umps
over **t**he **l**azy **d**og
 - Tqbfjotld
- Add number and a random character
 - 8Tqbfjotld&

Password managers



From <https://www.yoti.com/blog/introducing-yoti-password-manager/>

Password managers



- DashLane <https://www.dashlane.com/>
- KeePass <https://keepass.info/>
- LastPass <https://lastpass.com/>
- LogMeOnce <https://www.logmeonce.com/>
- Roboform <https://www.roboform.com/>
- Stickypassword <https://www.stickypassword.com/>
- TrueKey <https://www.truekey.com/>

How secure is YOUR password?

HOW SECURE IS MY PASSWORD?

ENTER PASSWORD

<https://howsecureismypassword.net/>

HOW SECURE IS MY PASSWORD?



Your password would be cracked

INSTANTLY

HOW SECURE IS MY PASSWORD?



It would take a computer about

38 BILLION YEARS

to crack your password

WHAT DATABASE IS UP TO 14X
FASTER THAN AMAZON REDSHIFT?

action

FIND OUT NOW

Test Your Password

Minimum Requirements

Password:

Hide: ☒

Score:

100%

Complexity: Very Strong

- Minimum 8 characters in length
- Contains 3/4 of the following items:
 - Uppercase Letters
 - Lowercase Letters
 - Numbers
 - Symbols

Additions	Type	Rate	Count	Bonus
<input checked="" type="checkbox"/> Number of Characters	Flat	$+(n*4)$	<input type="text" value="8"/>	+ 68
<input checked="" type="checkbox"/> Uppercase Letters	Cond/Incr	$+\left(\left(\text{len}-n\right)*2\right)$	<input type="text" value="1"/>	+ 32
<input checked="" type="checkbox"/> Lowercase Letters	Cond/Incr	$+\left(\left(\text{len}-n\right)*2\right)$	<input type="text" value="3"/>	+ 8
<input checked="" type="checkbox"/> Numbers	Cond	$+(n*4)$	<input type="text" value="1"/>	+ 8
<input checked="" type="checkbox"/> Symbols	Flat	$+(n*6)$	<input type="text" value="1"/>	+ 6
<input checked="" type="checkbox"/> Middle Numbers or Symbols	Flat	$+(n*2)$	<input type="text" value="2"/>	+ 4
<input checked="" type="checkbox"/> Requirements	Flat	$+(n*2)$	<input type="text" value="5"/>	+ 10

Deductions

<input checked="" type="checkbox"/> Letters Only	Flat	$-n$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Numbers Only	Flat	$-n$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Repeat Characters (Case Insensitive)	Comp	-	<input type="text" value="8"/>	- 3
<input checked="" type="checkbox"/> Consecutive Uppercase Letters	Flat	$-(n*2)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Consecutive Lowercase Letters	Flat	$-(n*2)$	<input type="text" value="12"/>	- 24
<input checked="" type="checkbox"/> Consecutive Numbers	Flat	$-(n*2)$	<input type="text" value="1"/>	- 2
<input checked="" type="checkbox"/> Sequential Letters (3+)	Flat	$-(n*3)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Sequential Numbers (3+)	Flat	$-(n*3)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Sequential Symbols (3+)	Flat	$-(n*3)$	<input type="text" value="0"/>	0

Legend

☒ Exceptional:

Exceeds minimum standards. Additional bonuses are applied.

☒ Sufficient:

Meets minimum standards. Additional bonuses are applied.

☒ Warning:

Advisory against employing bad practices. Overall score is reduced.

☒ Failure:

Does not meet the minimum standards. Overall score is reduced.

WHAT DATABASE IS UP TO 14X
FASTER THAN AMAZON REDSHIFT?

action

FIND OUT NOW

Test Your Password

Minimum Requirements

Password:

Hide: ☒

Score:

8%

Complexity: Very Weak

- Minimum 8 characters in length
- Contains 3/4 of the following items:
 - Uppercase Letters
 - Lowercase Letters
 - Numbers
 - Symbols

Additions	Type	Rate	Count	Bonus
<input checked="" type="checkbox"/> Number of Characters	Flat	$+(n*4)$	<input type="text" value="7"/>	+ 28
<input checked="" type="checkbox"/> Uppercase Letters	Cond/Incr	$+\left(\left(\text{len}-n\right)*2\right)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Lowercase Letters	Cond/Incr	$+\left(\left(\text{len}-n\right)*2\right)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Numbers	Cond	$+(n*4)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Symbols	Flat	$+(n*6)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Middle Numbers or Symbols	Flat	$+(n*2)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Requirements	Flat	$+(n*2)$	<input type="text" value="1"/>	0

Deductions

<input checked="" type="checkbox"/> Letters Only	Flat	$-n$	<input type="text" value="7"/>	- 7
<input checked="" type="checkbox"/> Numbers Only	Flat	$-n$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Repeat Characters (Case Insensitive)	Comp	-	<input type="text" value="2"/>	- 1
<input checked="" type="checkbox"/> Consecutive Uppercase Letters	Flat	$-(n*2)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Consecutive Lowercase Letters	Flat	$-(n*2)$	<input type="text" value="6"/>	- 12
<input checked="" type="checkbox"/> Consecutive Numbers	Flat	$-(n*2)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Sequential Letters (3+)	Flat	$-(n*3)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Sequential Numbers (3+)	Flat	$-(n*3)$	<input type="text" value="0"/>	0
<input checked="" type="checkbox"/> Sequential Symbols (3+)	Flat	$-(n*3)$	<input type="text" value="0"/>	0

Legend

☒ Exceptional:

Exceeds minimum standards. Additional bonuses are applied.

☒ Sufficient:

Meets minimum standards. Additional bonuses are applied.

☒ Warning:

Advisory against employing bad practices. Overall score is reduced.

☒ Failure:

Does not meet the minimum standards. Overall score is reduced.

Spam

Not just for breakfast anymore



From <http://www.cookedmedia.co.za/email-spam/>

Spam email



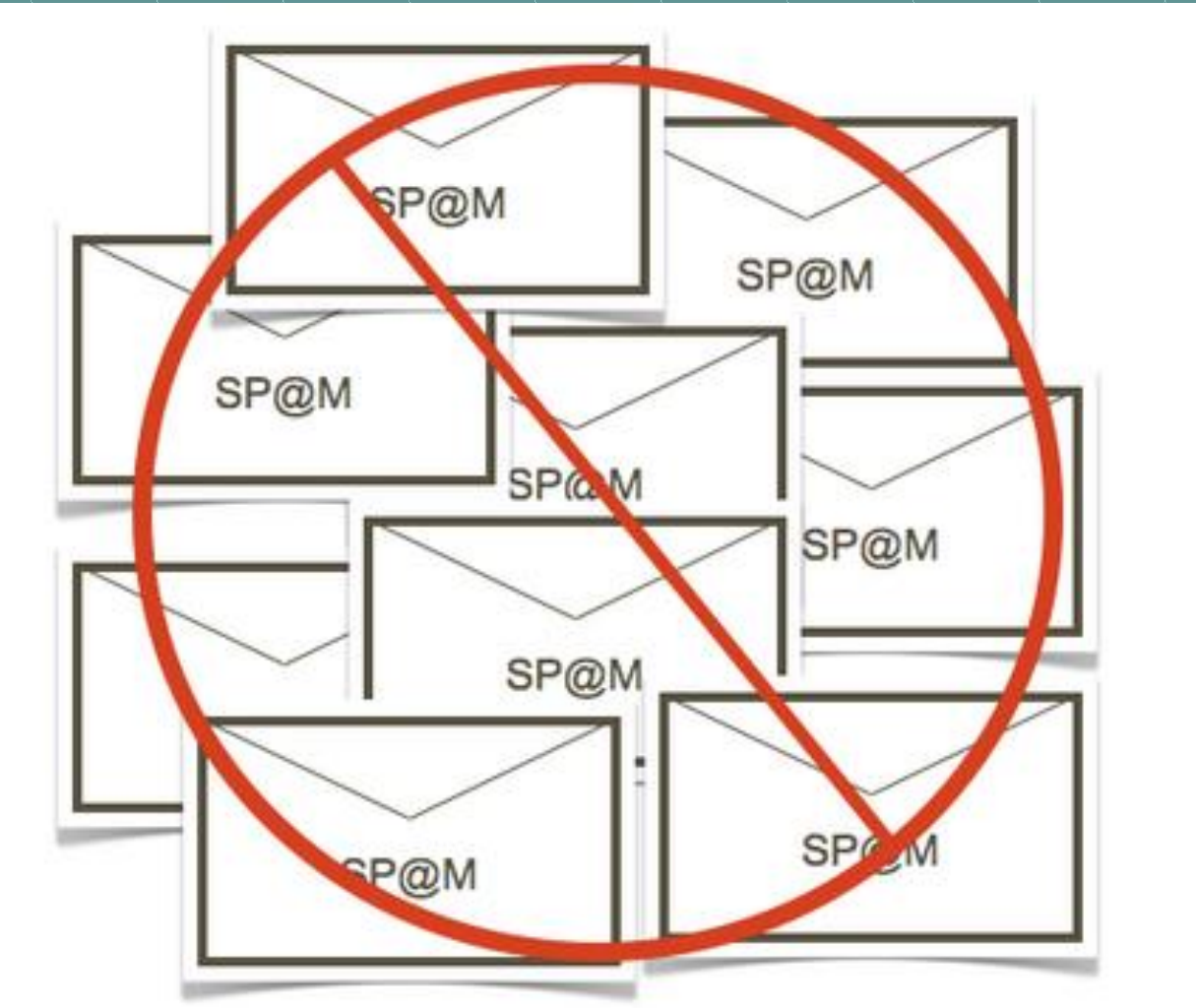
"We must be on a mailing list."

- Do not
 - respond to spam
 - click to unsubscribe (unless it's legitimate email, from a store or website you know is real)
 - open any attachment unless it is expected and from someone you know and trust
- If you do reply
 - you confirm for the spammers that it is a live, active email address
 - then they can intensify their efforts at targeting you for their (nefarious) purposes

Get a handle on spam

- Train your spam filter
- Remember to unsubscribe
- Employ alternative email addresses
- Download third-party extensions and an email client (if you're not already using one)
- Protect your email address





Phishing

Phishing....



www.dilbert.com scottadams@aol.com



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© Scott Adams, Inc./Dist. by UFS, Inc.

From <https://www.pacific.net/images/phishingcartoon.gif>

No phishing allowed



http://www.uidaho.edu/~media/Uidaho-Responsive/Images/Infrastructure/ITS/Departments/Security/phishing03_web.aspx

- What is phishing?
 - Attack
 - Used to steal user data
 - Login credentials
 - Credit card numbers
- How does it work?
 - Attacker masquerades as a trusted entity
 - Victim is duped into opening an email, instant message, or text message

Foil phishing attacks

- Delete email and text messages that ask you to confirm or provide personal information
- Don't reply to suspect messages
- Don't click on links provided in suspect messages
- Prevent images from automatically downloading in emails
- Don't call numbers from suspect messages
- Instead, call the number on your statement or back of credit card to verify



Steps to avoid phishing attacks



- Use trusted security software (McAfee, AVG, Sophos, etc.)
- Don't email personal or financial information
- Only provide personal or financial info through an organization's website that **you** type in the URL to reach
- Review credit card and bank account statements for unauthorized charges
- Be cautious about opening attachments and downloading files from emails

From: First Generic Bank <accounts@firstgenericbank.com>
Subject: Please update your account information
Date: Sep 12, 2006 3:23 PM PST

Dear First Generic Bank user,

As a courtesy to our valued customers, First Generic Bank conducts regular account information verification processes. During the most recent process, we found that we could not verify your information.

In order to ensure your account information is not made vulnerable, please visit <http://www.firstgenericbank.com.account-updateinfo.com>.

Please click on the above link to our Web site and confirm or update your account information. If you do not do this within 48 hours of receipt of this e-mail, you will not be able to use your First Generic Bank account for 30 days. This is an extra precaution we take to ensure your account remains secure.

Sincerely,

First Generic Bank

From: First Generic Bank <accounts@firstgenericbank.com>
Subject: Please update your account information
Date: Sep 12, 2006 3:23 PM PST

Generic greeting

Dear First Generic Bank user,

As a courtesy to our valued customers, First Generic Bank conducts regular account information verification processes. During the most recent process, we found that we could not verify your information.

No "https"

In order to ensure your account information is not made vulnerable, please visit <http://www.firstgenericbank.com.account-updateinfo.com>.

Forged link

Requests personal info

Please click on the above link to our Web site and confirm or update your account information. If you do not do this within 48 hours of receipt of this e-mail, you will not be able to use your First Generic Bank account for 30 days. This is an extra precaution we take to ensure your account remains secure.

Sense of urgency

Sincerely,

Generic sender

First Generic Bank

Identifying phishing emails

- Company
- Spelling and grammar
- No mention of account information
- Deadlines
- Links



<https://www.woodgrovebank.com/loginscript/user2.jsp>

<http://192.168.255.205/wood/index.htm>

Common phishing tactics



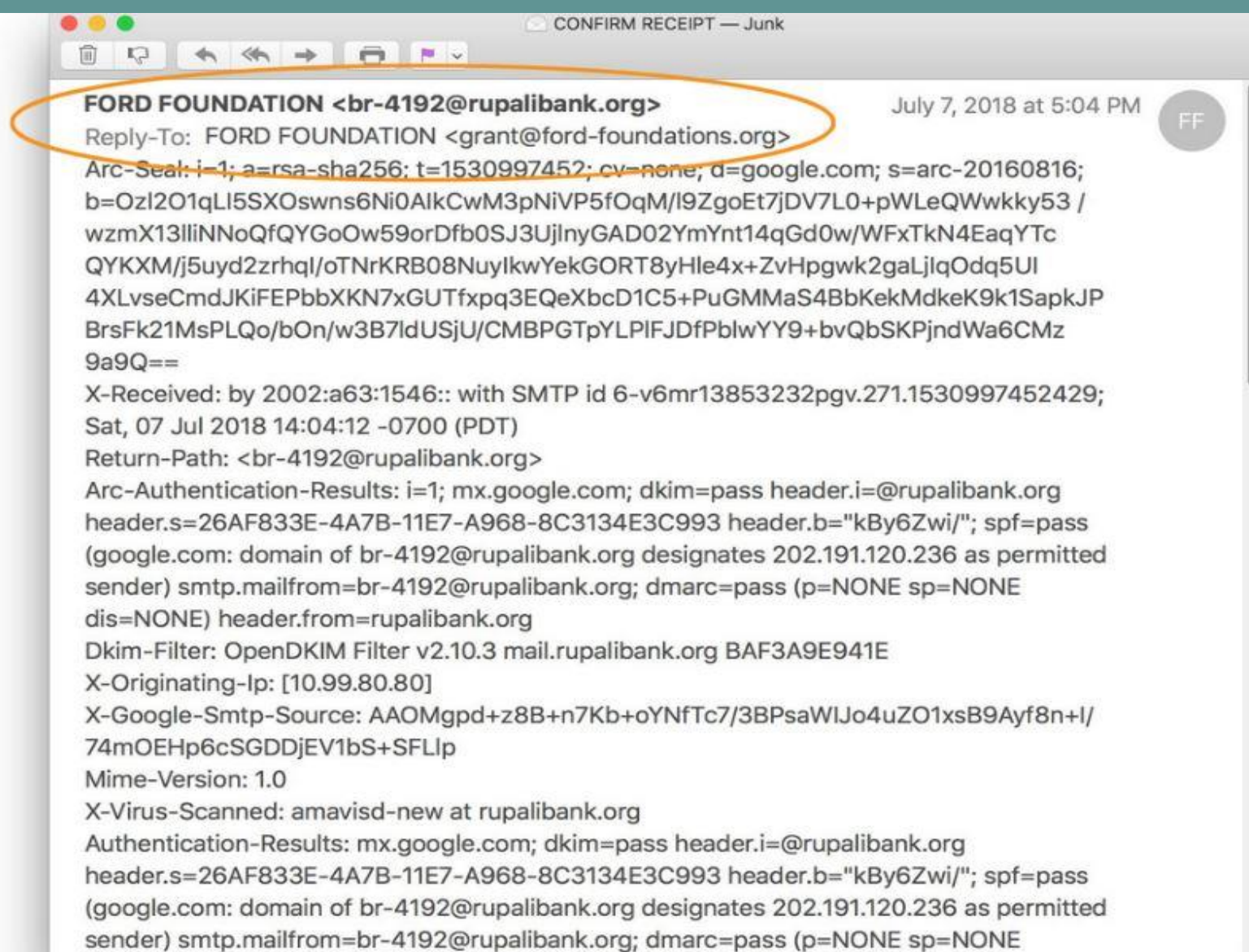
http://cdn.makeuseof.com/wp-content/uploads/2011/12/detect_phishing_intro.jpg?187d39

- Your account has issues
- Personal information issues, including theft
- Confirming recent transactions



<https://www.hackread.com/wp-content/uploads/2015/07/5-mil-bitstamp-bitcoins-hacked-phishing-attack.gif>





The email header information of a suspicious message can reveal a forged return address and other details. The New York Times

WEB SERVICES

Dear Employee,

A recent security synchronization for your Mailbox has failed. Kindly proceed to the manual sync portal to synchronize your mailbox immediately.

[==>Manual Sync Service<==](#)

It is important you proceed to sync your mailbox to prevent functionality issues.

Regards.

Web Central.

Technology Department.

E-post.

WEB SERVICES

Dear Employee,

A recent security synchronization for your Mailbox has failed. Kindly proceed to the manual sync portal to synchronize your mailbox immediately.

[=>Manual Sync Service<=<](#)

It is important you proceed to sync your mailbox to prevent functionality issues.

Regards

Web Central.
Technology Department.
E-post.

Subject:Important Message

Date:Mon, 7 Dec 2015 19:54:41 +0000 (UTC)

From:Lehigh University Alert <slowmotions12@comcast.net>

You have two security messages

Kindly sing in to view

[Sign In](#)

Lehigh University

Subject:Important Message

Date:Mon, 7 Dec 2015 19:54:41 +0000 (UTC)

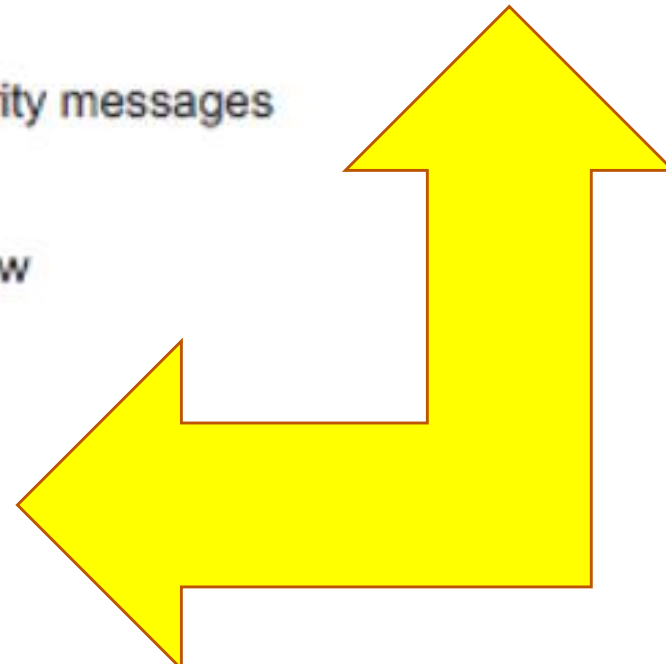
From:Lehigh University Alert <slowmotions12@comcast.net>

You have two security messages

Kindly sing in to view

[Sign In](#)

Lehigh University



Google



Gmail ▾



Important: Your Password will expire in 1 day(s)



Inbox x



MyUniversity

12:18 PM (50 minutes ago)



to me ▾

Dear network user,

This email is meant to inform you that your MyUniversity network password will expire in 24 hours.

Please follow the link below to update your password

myuniversity.edu/renewal



Thank you
MyUniversity Network Security Staff



Gmail ▾



Important: Your Password will expire in 1 day(s)



Inbox x



MyUniversity

12:18 PM (50 minutes ago)



to me ▾

Dear network user,

This email is meant to inform you that your MyUniversity network password will expire in 24 hours.

Please follow the link below to update your password

myuniversity.edu/renewal



Thank you
MyUniversity Network Security Staff

From: University Help Desk [mailto:noreply@its.edu]

Sent: Thursday, May 27, 2010 4:55 PM

Subject: Error Code #984455N.

Importance: High

Attention: Staff/Student,

We are currently carrying out scheduled maintenance, upgrade of our webmail service and we are changing our mailhost server as a result your original password will be reset. We are sorry for any inconvenience caused. To complete and validate your University Webmail Account, upgrade, you must reply to this email immediately and provide the information requested below:

CONFIRM YOUR EMAIL IDENTITY NOW

University Email Address:

Login ID/ Username:

Email Password:

Re-type Password :

Failure to do this will immediately render your Email Address deactivated from the University Email database. Reply to:

helpdesk01@mail2webmaster.com)

Thank you for being a part of the upgrading exercise.

From: University Help Desk [mailto:noreply@its.edu]

Sent: Thursday, May 27, 2010 4:55 PM

Subject: Error Code #984455N.

Importance: High

Attention **Staff/Student,**

We are currently carrying out scheduled maintenance, upgrade of our webmail service and we are changing our mailhost server as a result your original password will be reset. We are sorry for any inconvenience caused. To complete and validate your University Webmail Account, upgrade, you must reply to this email **immediately** and provide the information requested below:

CONFIRM YOUR EMAIL IDENTITY NOW

University Email Address:

Login ID/ Username:

Email Password:

Re-type Password :

Failure to do this will immediately render your Email Address deactivated from the University Email database. Reply to:

helpdesk01@mail2webmaster.com

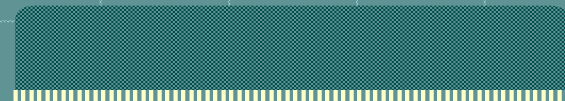
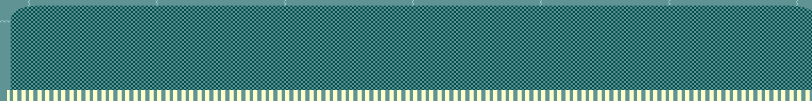
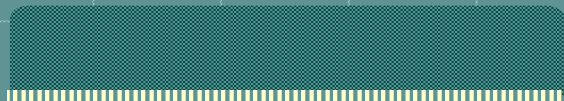
Thank you for being a part of the upgrading exercise.

Images within email messages

- known as web beacons
- can be malicious
 - secretly send a message back to the sender
- information sent back is used to locate active email addresses
- can also contain harmful codes to bypass spam filters
- prevent web beacons from doing harm
 - adjust email settings to prevent pictures from downloading until you've had a chance to review the message



Privacy









NEARLY

90%

OF ALL PAGE LOADS
CONTAIN TRACKERS

*"The Tracker Tax" -
Ghostery report 2018*

AVERAGE PAGE LOAD TIME

WITH vs. WITHOUT TRACKERS

No trackers blocked

19.3

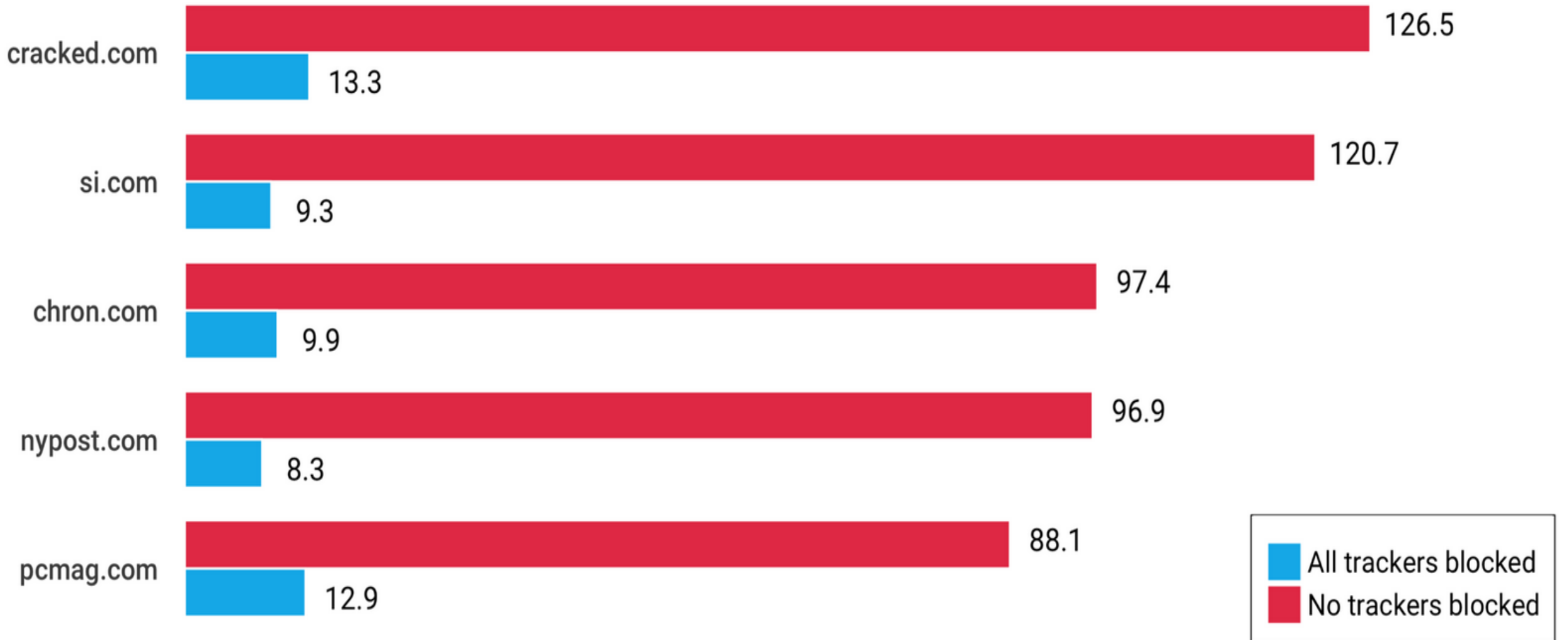
All trackers blocked

8.6

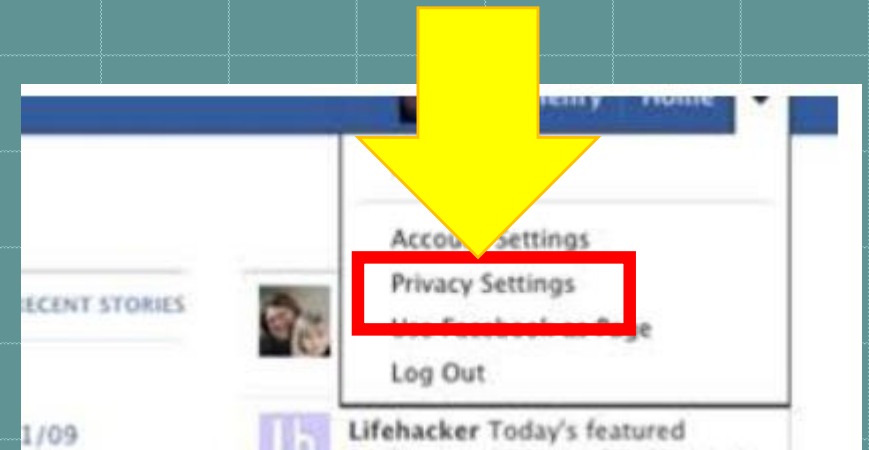
MORE THAN
2X SLOWER
WHEN NO TRACKERS
BLOCKED

SECONDS TO LOAD A WEBSITE

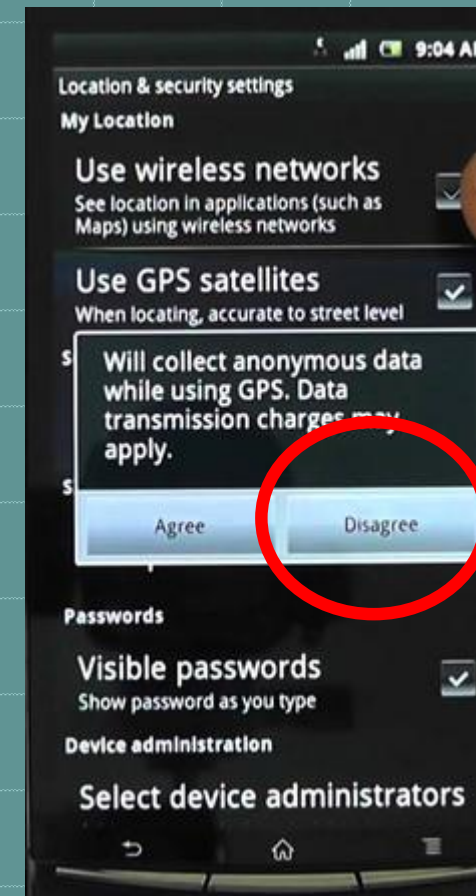
WITH vs. WITHOUT TRACKERS



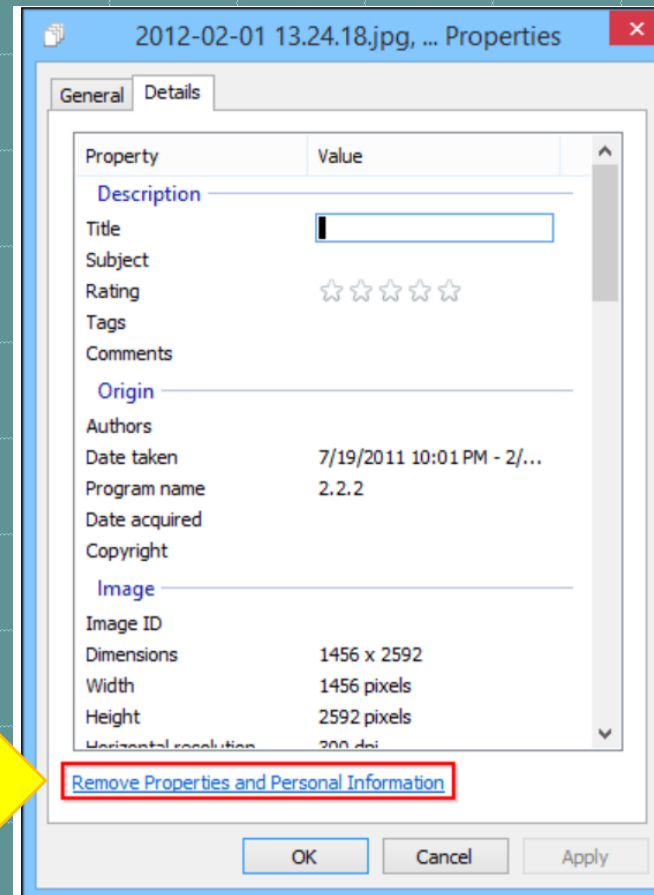
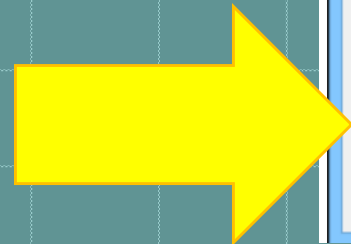
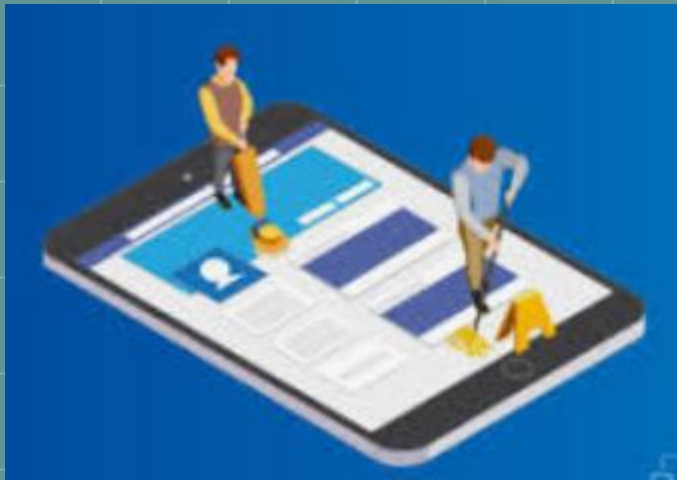
Consider changing your privacy settings on social media websites and apps



Consider disabling location-tagging on your phone and in the apps you use



Consider scrubbing your photos you add to social media



Social media safety

- Be selective with friend requests
- Click links with caution
- Be careful about what you share



If it's on the
Internet, it
isn't private.



Don't Know

From <https://www.igmena.org/resizeCrop/resizeCrop.php?src=../userfiles/images/privacy%20cartoon.jpg&w=368&h=&wl=&hl=&wp=&hp=>

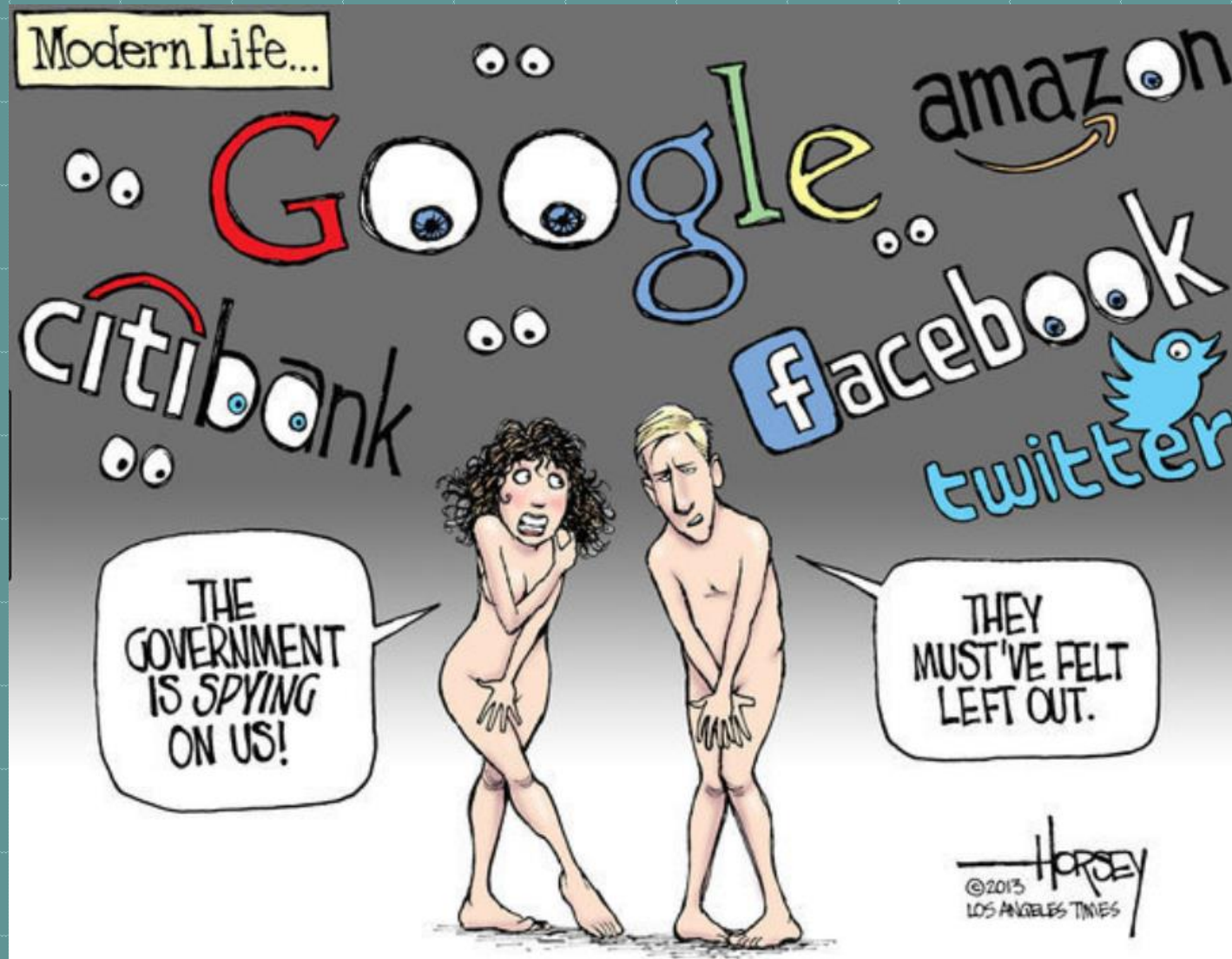
Tips to protect your privacy on the Internet



- Tape over all your webcams (when not in use)
- Install tracker blockers on your browser
- Use ad blockers
- Choose a private search engine as your default
- Select private browser sessions
- Use different browsers for different things
- Disable location services
- Say “no” to always on voice assistants



From <http://2.bp.blogspot.com/-FYeay2jS5U/UX-HOvWWjw/AAAAAAAAABw/SgNsoUGCwa/s1600/cartoon nicer than facebook.jpg>



From <http://historybud.com/wp-content/uploads/2013/06/nsa-spying.jpg>



From <http://communiccrossings.com/files/security/img/info-600.jpeg>

PUBLIC OPINION & KNOWLEDGE ON PRIVACY



12 OUT OF 15

PEOPLE ACCEPT THAT DISCLOSURE OF PERSONAL INFORMATION IS
'A FACT OF MODERN LIFE'

**40% OF 25-34 YEAR OLDS REGARD THEIR
PERSONAL INFORMATION AS A COMMODITY
TO BE TRADED WITH COMPANIES IN EXCHANGE
FOR FREE SERVICES OR BETTER BENEFITS.
(35% OF OTHER AGE GROUPS THINK THE SAME.)**



OF US ADULTS BELIEVE COMPANIES
SHOULD ONLY BE ABLE TO TRACK
THEIR ONLINE ACTIVITIES AFTER THEY
HAVE SPECIFICALLY GIVEN
PERMISSION TO DO SO



OF US ADULTS FEEL THAT THEY HAVE
LITTLE OR NO CONTROL OVER THE
PERSONAL INFORMATION
COMPANIES GATHER WHILE THEY
ARE ONLINE



OF US ADULTS SAY THEY
UNDERSTAND HOW TO PROTECT
THEIR ONLINE PRIVACY



OF US ADULTS ALWAYS CONSIDER
A COMPANY'S PRIVACY POLICIES
WHEN CHOOSING WHICH
WEBSITES TO VISIT OR ONLINE
SERVICES TO USE

From University of California at Riverdale



Friends of Friends



From <https://www.pixton.com/schools/teacher-resources/lesson-plans/privacy-online>

Think Twice

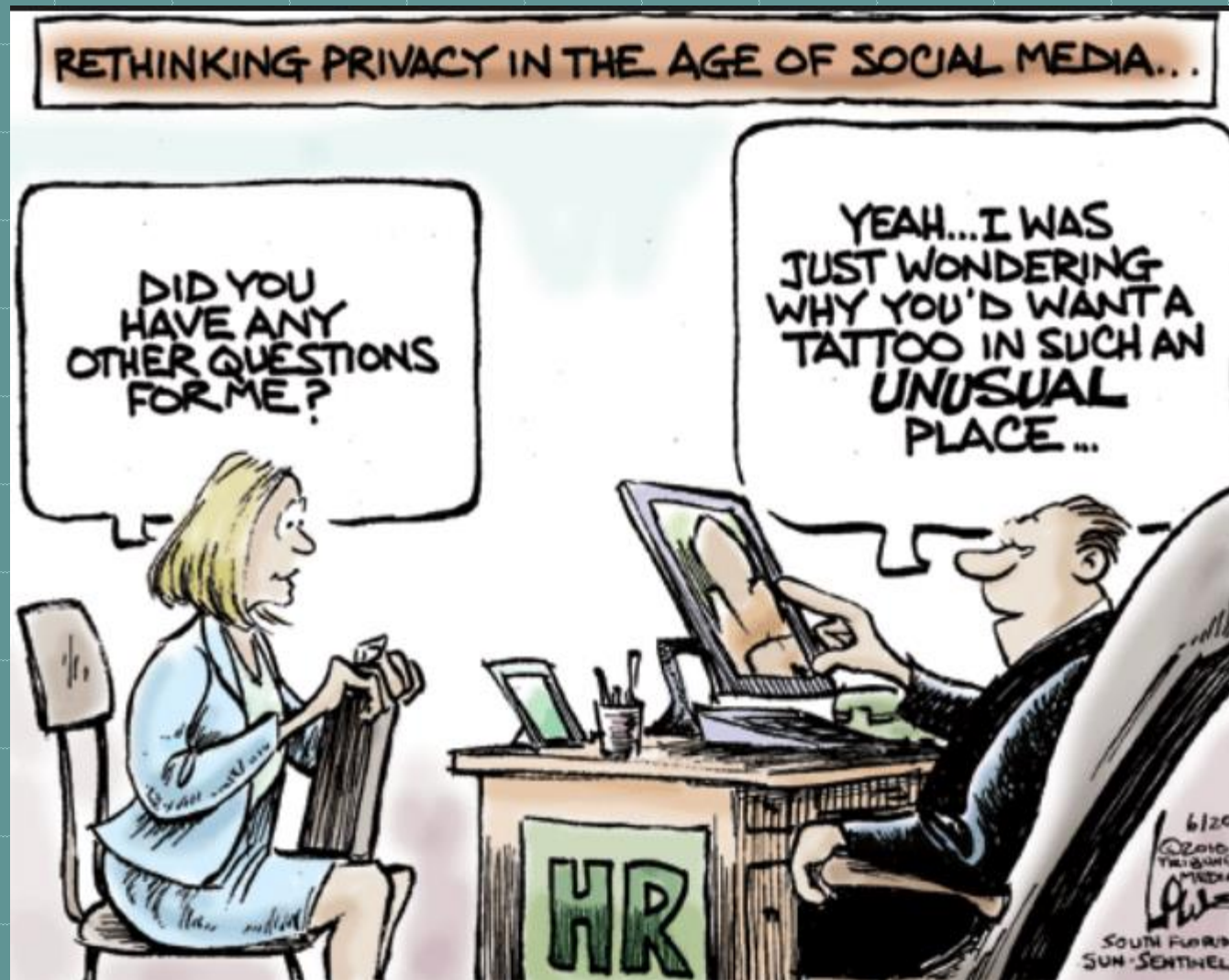


From <https://www.pixton.com/schools/teacher-resources/lesson-plans/privacy-online>

Read Privacy Policies



From <https://www.pixton.com/schools/teacher-resources/lesson-plans/privacy-online>



From http://internetprivacymyth.weebly.com/uploads/1/5/1/3/15136022/3226216_orig.gif?0



Avoid apps that leak
your information



Beware
untrusted apps



Clear out
unused apps



Use anti-virus
software



Erase all apps before
you recycle



Protect
your device

PROTECT YOUR PRIVACY ON YOUR MOBILE DEVICE



Resources

- Adams, S. (n.d.). *Dilbert* [Cartoon].
- Berkman Klein Center. (n.d.). *Privacy series*. Retrieved from <https://cyber.harvard.edu/series/privacy>
- Chrome add-on: Collusion at <https://github.com/toolness/collusion>
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**ALMOST
DONE!**

<http://www.rayciardini.com/were-almost-done-m-r/>

Review



- Cybersecurity
- Passwords
- Spam
- Phishing
- Privacy





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<http://www.mastiduniya.com/wp-content/uploads/2016/03/thanks-to-all-of-you-pics.jpg>