



Security Seminar

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Twitter: @epepepep

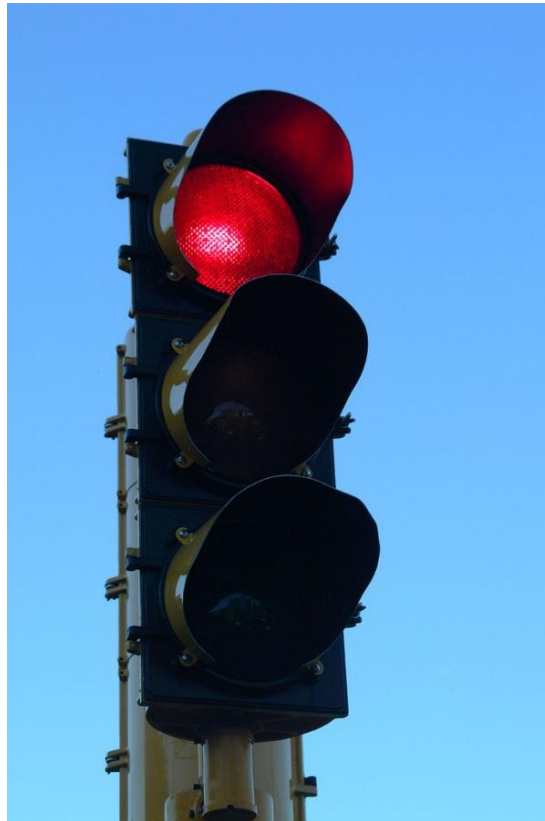


- Three principles of Information Security
 - Availability
 - Integrity
 - Confidentiality





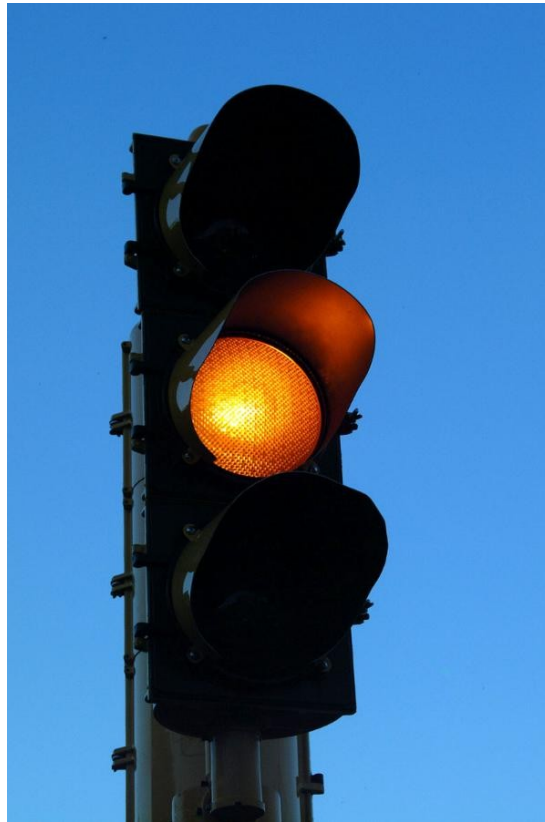
- What is the office of Network Security?



???



- What is the office of Network Security?



:-)



Network Security
Institute for Advanced Study

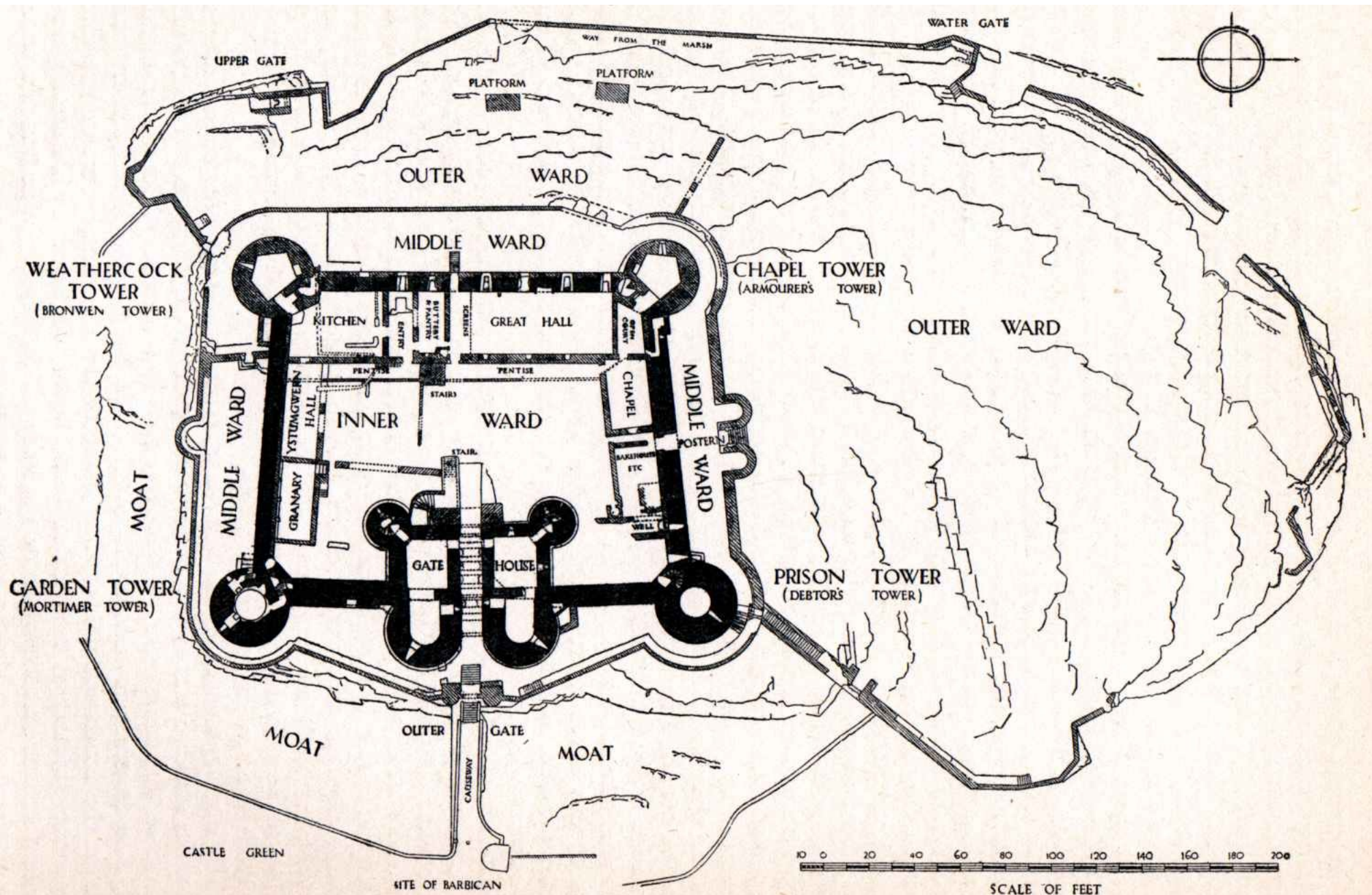
IAS Security Structure



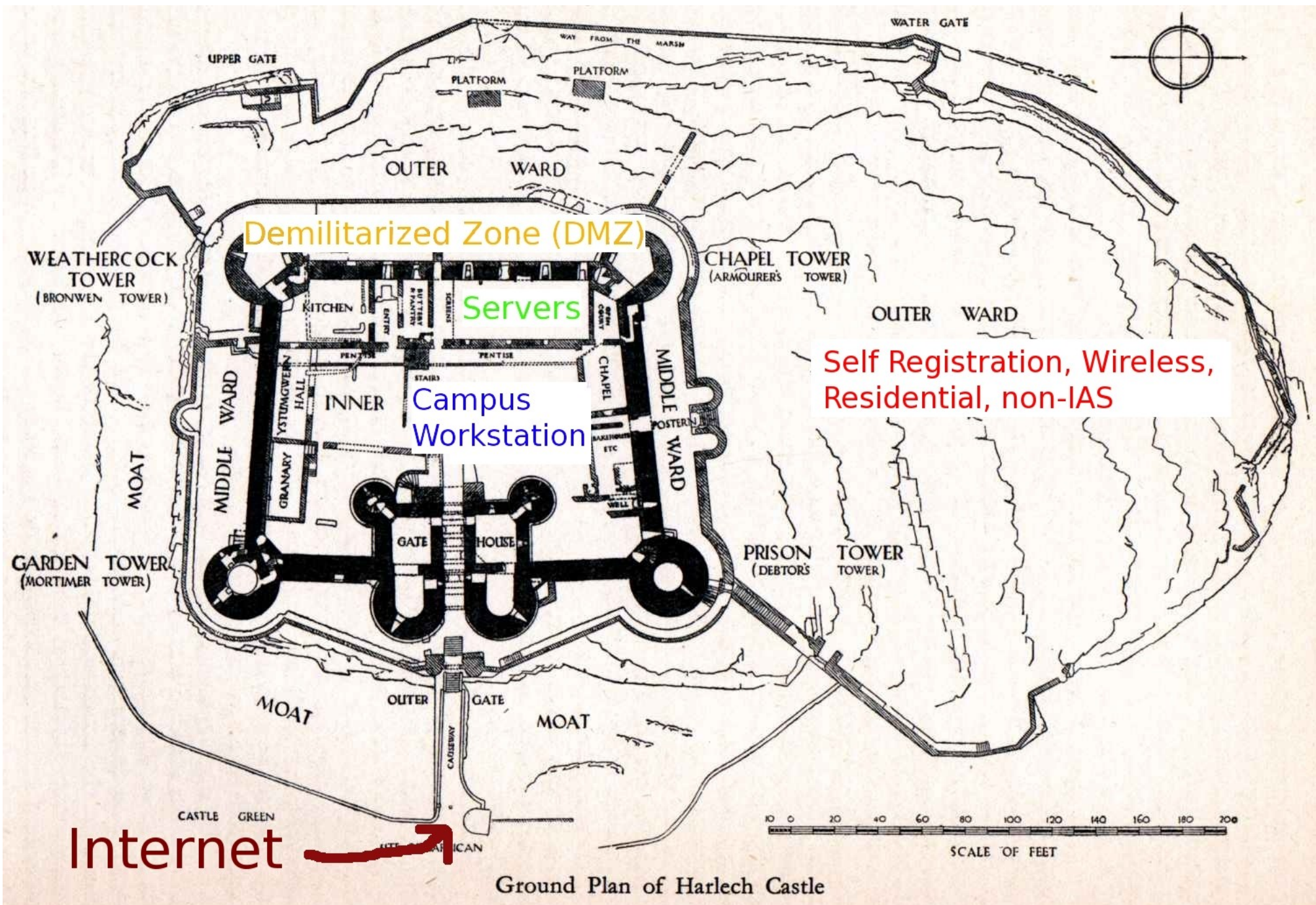
- Defense in Depth (IAS Security Structure)
- How do we protect you?
 - Moat
 - Outer ward
 - Middle ward
 - Inner ward



-- Harlech Castle, Gwynedd, North Wales



Ground Plan of Harlech Castle





- How do we protect you?
 - Intrusion Detection (watchtower)
 - Firewall (guard)
 - Intrusion Prevention (customs agent)
 - Spam filter
 - Email virus filter and attachment blocker
 - Anomaly protection



Network Security
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Security Awareness



- October: CyberSecurity Awareness Month
- Seminars
- Website - <https://security.ias.edu>
- Bulletins
- Posters
- One on one



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Strategies to Safer Computing



- Keep your devices up to date
- Choose good passwords, use two factor
- Anti-Malware (virii, trojans, spyware, bots)
- Stop. Think. Connect.
 - email
 - instant message
 - Facebook, Twitter, Instagram, SnapChat
- Privacy/Phishing/Scam Awareness



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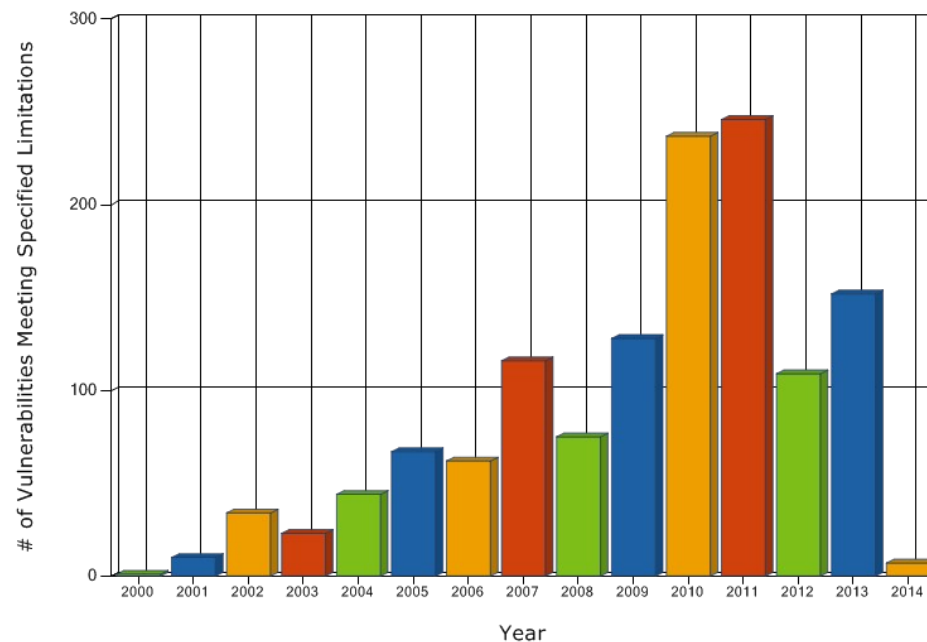
2014 Tech Obituaries



Windows XP and Office 2003



Total Matches By Year



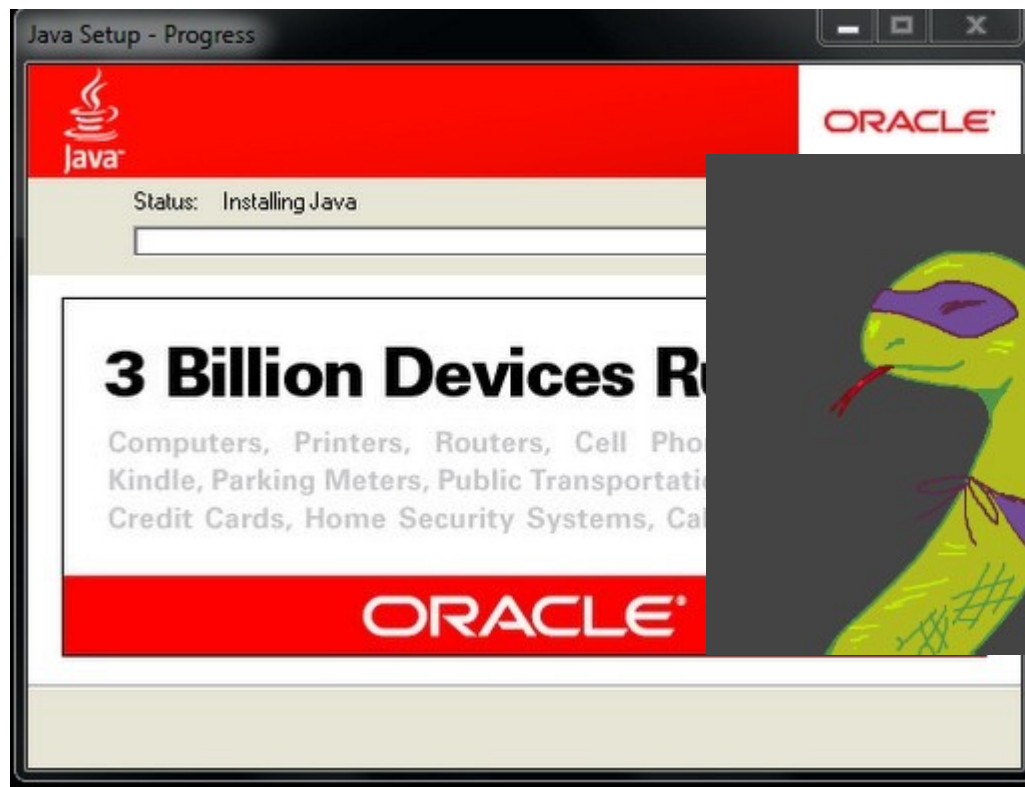


Actions for Windows XP and Office 2003

- Upgrade to Windows 8.1
- Install Linux (free)
- Buy a new computer
- Upgrade to Office 2010 or 2013
- Install LibreOffice (free)



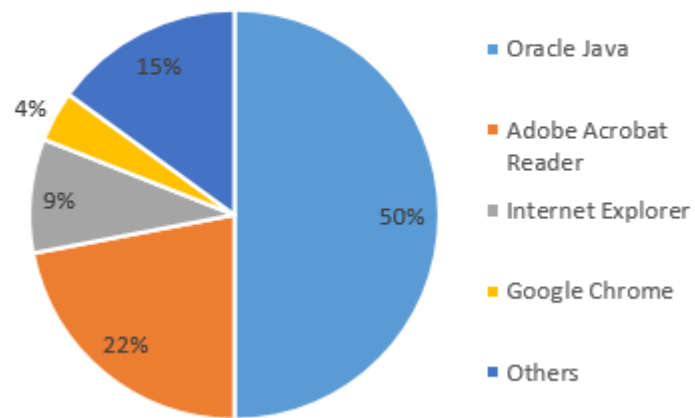
Java in the browser





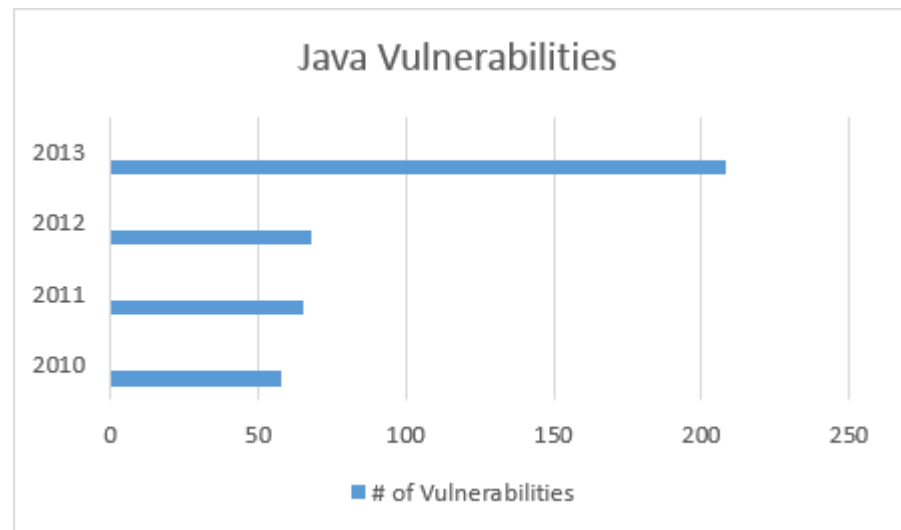
Java in the browser

Exploitation of Application Vulnerabilities
December 2013



source: IBM Security Trusteer research team

Java Vulnerabilities





Actions for Java in the browser

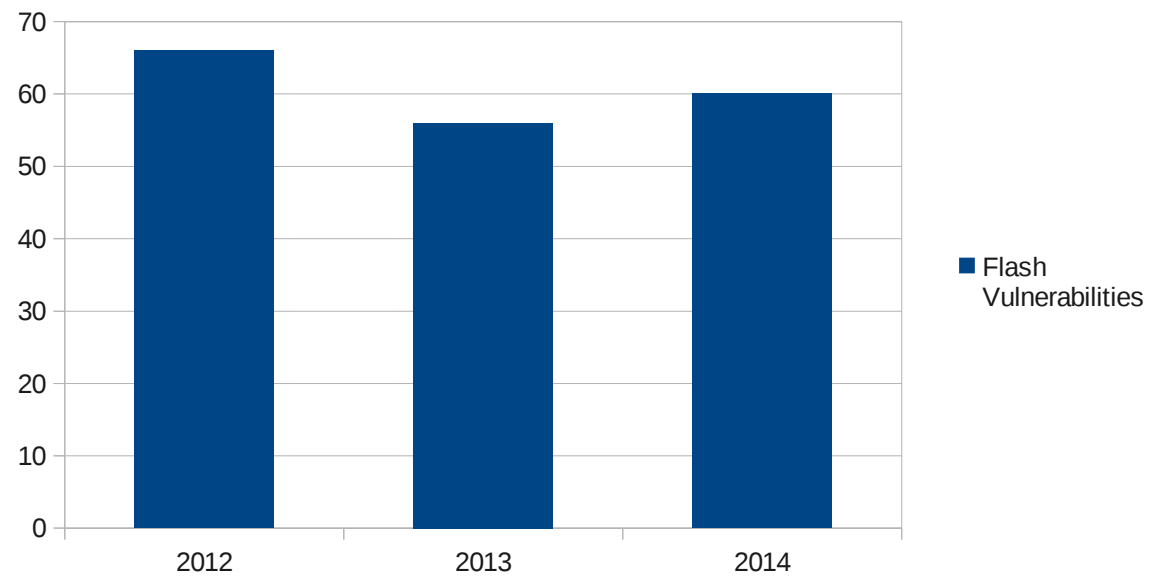
- If you don't need it uninstall it (all versions).
- If you don't know, uninstall it. You can always re-install if you find out you were wrong.
- If you do need it, limit it to only the sites that are necessary by using the security settings in the Java Control Panel.
- Notify your site that you'd like them to move to HTML5.

Flash





Flash





Actions for Flash

- If you don't need it uninstall it.
- If you don't know, uninstall it. You can always re-install if you find out you were wrong.
- If you do need it, consider using a browser plugin like FlashBlock (available for Firefox and Chrome).
- Notify your site that you'd like to see them move to HTML5.



Internet Explorer



Internet Explorer release to patch timeline

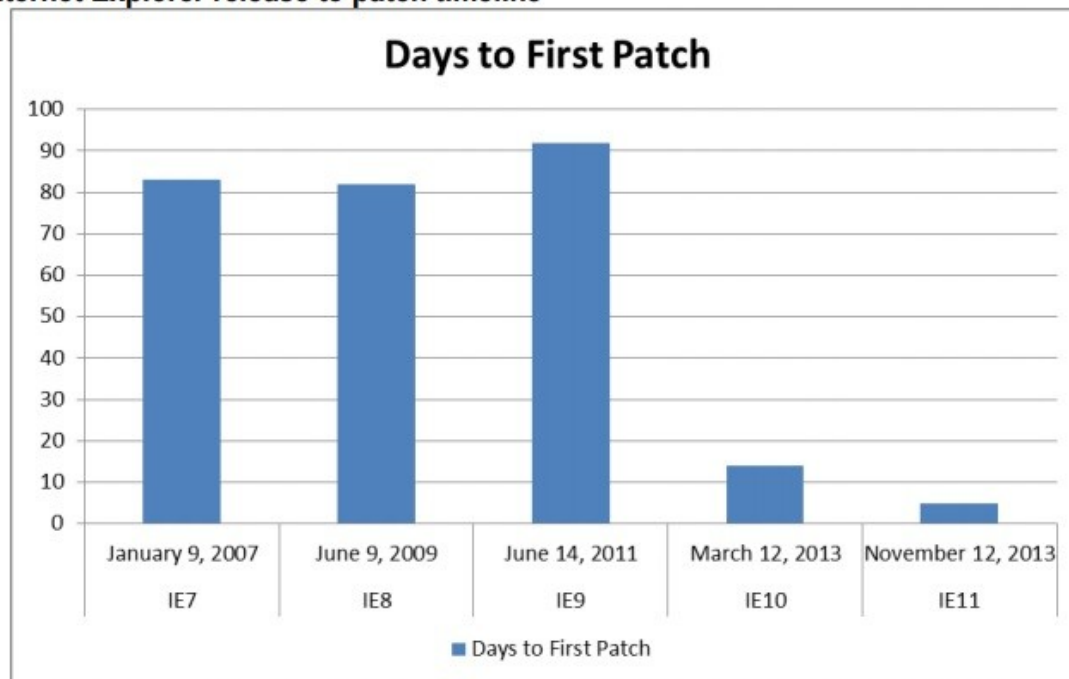


Fig: How long from the GA release of Internet Explorer until the first patch is released?



Actions for Internet Explorer (IE)

- Move to a new browser. The most popular choices are Firefox or Google Chrome.
- When you migrate, take your bookmarks with you, but leave all the rest behind.
- If your site requires IE, considering using IE only for that site.
- Ask your vendor to support other browsers, like Firefox and Google Chrome.



Privacy





- Oct 2013 - PF Chang's
- Nov 2013 - CorporateCarOnline (850k PII)
- Dec 2013 - Target (40m CC, 70m PII)
- Jan 2014 - Michaels (2.6m) & Nieman Marcus (1.1m)
- Feb 2014 - Sears
- Mar 2014 - Experian (200m) & Sally Beauty (280k) & CA DMV
- Apr 2014 - Community Health Systems (millions)
- May 2014 - eBay (145m passwords)
- Jun 2014 - Acme (and other supermarkets)
- Jul 2014 - UPS
- Aug 2014 - JP Morgan Chase (76 million)
- Sep 2014 - Home Depot & Dairy Queen
- Oct 2014 - Kmart



Actions for Privacy

- Monitor your credit score
- Look at your credit report (free in some states)
- Cancel unused credit accounts
- Account for all credit card charges
- Use separate passwords for every account
- Use Two Factor Authentication when possible (more on this later)



Passwords





~~Passwords~~ **Two factor authentication**





Two Factor Auth List - Google Chrome

Two Factor Auth List x

https://twofactorauth.org

Apps Google

Home Categories Providers Contribute

Banking	Docs	SMS	Phone Call	Email	Hardware Token	Software Implementation
Ally Bank		✓		✓		
Altra Federal Credit Union						TELL THEM TO SUPPORT 2FA
America First Credit Union						TELL THEM TO SUPPORT 2FA
American Express						TELL THEM TO SUPPORT 2FA
Bank of America		✓			✓	
Barclays					✓	✓
Barclays US						TELL THEM TO SUPPORT 2FA
BMO Harris Bank						TELL THEM TO SUPPORT 2FA
Boeing Employee Credit Union						TELL THEM TO SUPPORT 2FA
Capital One						TELL THEM TO SUPPORT 2FA
Capital One 360						TELL THEM TO SUPPORT 2FA
Chase		✓	✓	✓		
CIBC						THANK THEM FOR WORKING ON 2FA

★ IN PROGRESS!

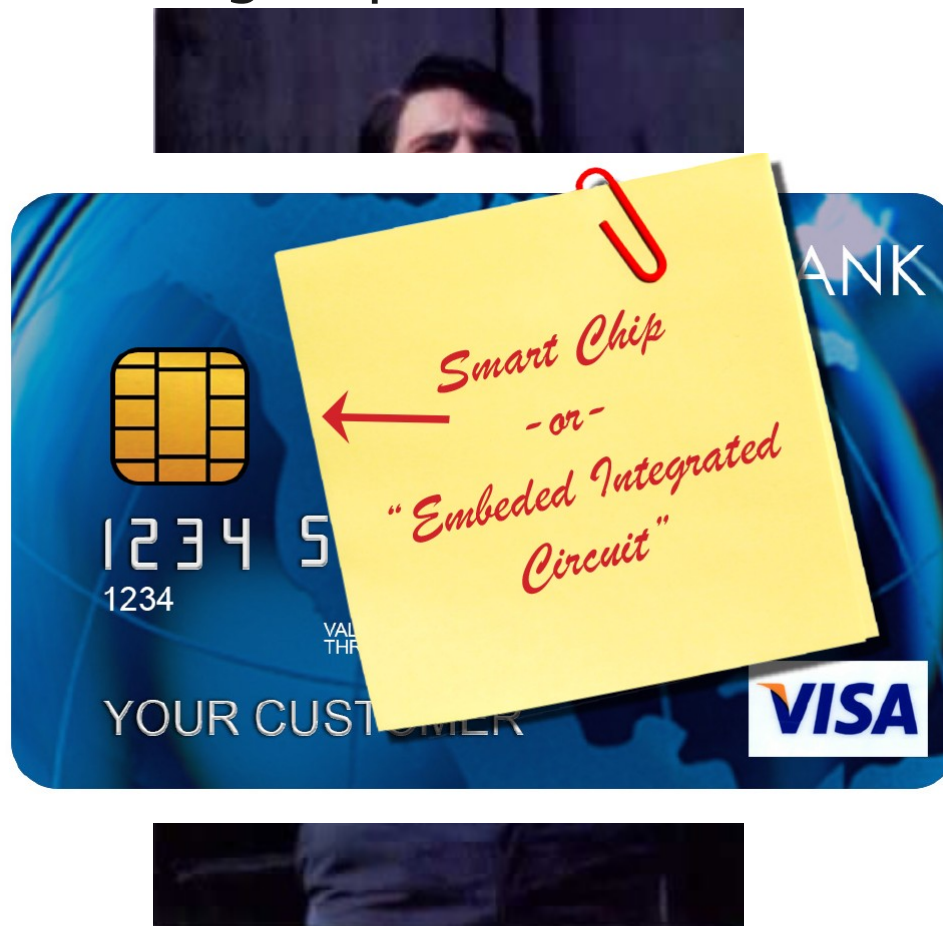


Actions for Passwords

- Use two factor authentication everywhere you can
- Ask your bank/healthcare provider/social media site/etc to support two factor authentication.
- Use a password safe (there is a list on <https://security.ias.edu>)
- Use long passwords or passphrases. Remember, 12 characters is the absolute minimum.
- Classify how strong your password needs to be. Your bank, super strong. Your Twitter account, maybe not.



Magstripe Credit Cards





Actions for Magstripe Credit Cards

- Request a chip and pin credit card from your credit card company
- Learn how to use this technology, it's not hard.
- Recognize where it is available, and use it.
- Request your local grocery/pharmacy/retail store to install new readers (and turn them on).



Don't Panic, know your meme





What is “the cloud”?

Somebody else's computer



How do I delete from “the cloud”?

You don't.

It's somebody else's computer.



Heartbleed, Shellshock, POODLE



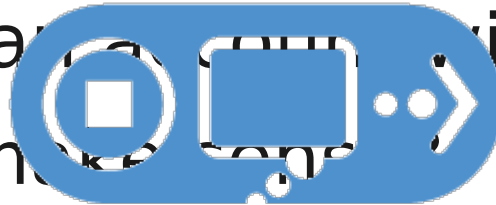


Actions for Heartbleed, #shellshock and POODLE

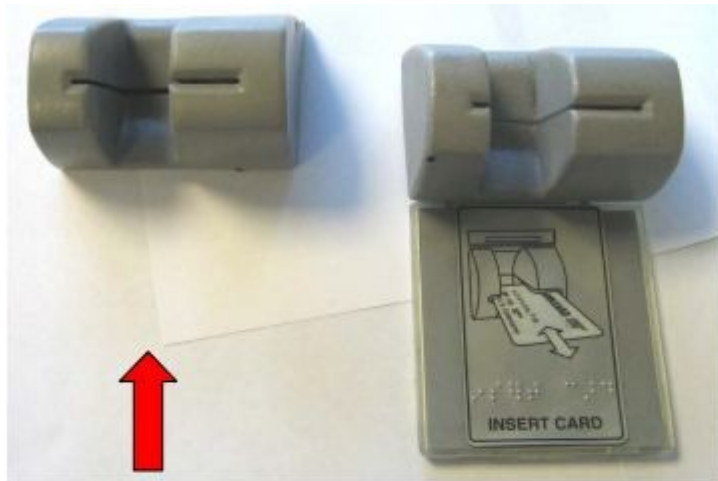
- Heartbleed – not much unless you are a WebAdmin
 - If you are <https://filippo.io/Heartbleed/>
- #shellshock – not much unless you are a SysAdmin
 - If you are <https://shellshocker.net/>
- POODLE – ah, something to do!
 - Upgrade your browser
 - Test your browser <http://poodletest.com>
 - Disable outdated encryption



- How to spot a scam
 - Check the sender
 - Do you have a connection with them?
 - Do the links make sense?
 - Check on-line urban legend databases.
 - Does it sound too good to be true?
 - Does it sound too bad to be true?



STOP | THINK
CONNECT™



The real card reader slot.

The capture device




The side cut out is not visible when on the ATM.



File Edit View Go Message OpenPGP Tools Help

Get Mail Write Address Book Decrypt Reply Reply All Forward Delete Junk Print Stop

 **Thunderbird thinks this message might be an email scam.** Not a Scam

Subject: [SPAM] Restore Your Account Access
From: service@paypal.com <service@paypal.com>
Reply-To: service@paypal.com
Date: 10/14/2008 10:17 PM
To: [undisclosed-recipients::](#)
Message-Id: <[20081015020234.01C7C1F6AA56@mx.spoink.com](#)>
X-Mailer: Microsoft Outlook Express 6.00.2600.0000



As part of our security measures, we regularly screen activity in the PayPal system. During a recent screening, we noticed an issue regarding your account.

Case ID Number: PP-394-509-731

PayPal is constantly working to ensure security by regularly screening the accounts in our system. We recently reviewed your account, and we need more information to help us provide you with secure service. Until we can collect this information, your access to sensitive account features will be limited. We would like to restore your access as soon as possible, and we apologize for the inconvenience

Log In into your account to resolve the problem.

[Click here to Log In](#)


Case ID Number: PP-394-509-731

Copyright) 1999-2008 PayPal. All rights reserved.

PayPal Email ID PP572

File Edit View Go Message OpenPGP Tools Help

Get Mail Write Address Book Decrypt Reply Reply All Forward Delete Junk Print Stop

 **Thunderbird thinks this message might be an email scam.** [Not a Scam](#)

Subject: [SPAM] Restore Your Account Access
From: service@paypal.com <service@paypal.com>
Reply-To: service@paypal.com
Date: 10/14/2008 10:17 PM
To: [undisclosed-recipients::](#)
Message-Id: <[20081015020234.01C7C1F6AA56@mx.spoink.com](#)>
X-Mailer: Microsoft Outlook Express 6.00.2600.0000



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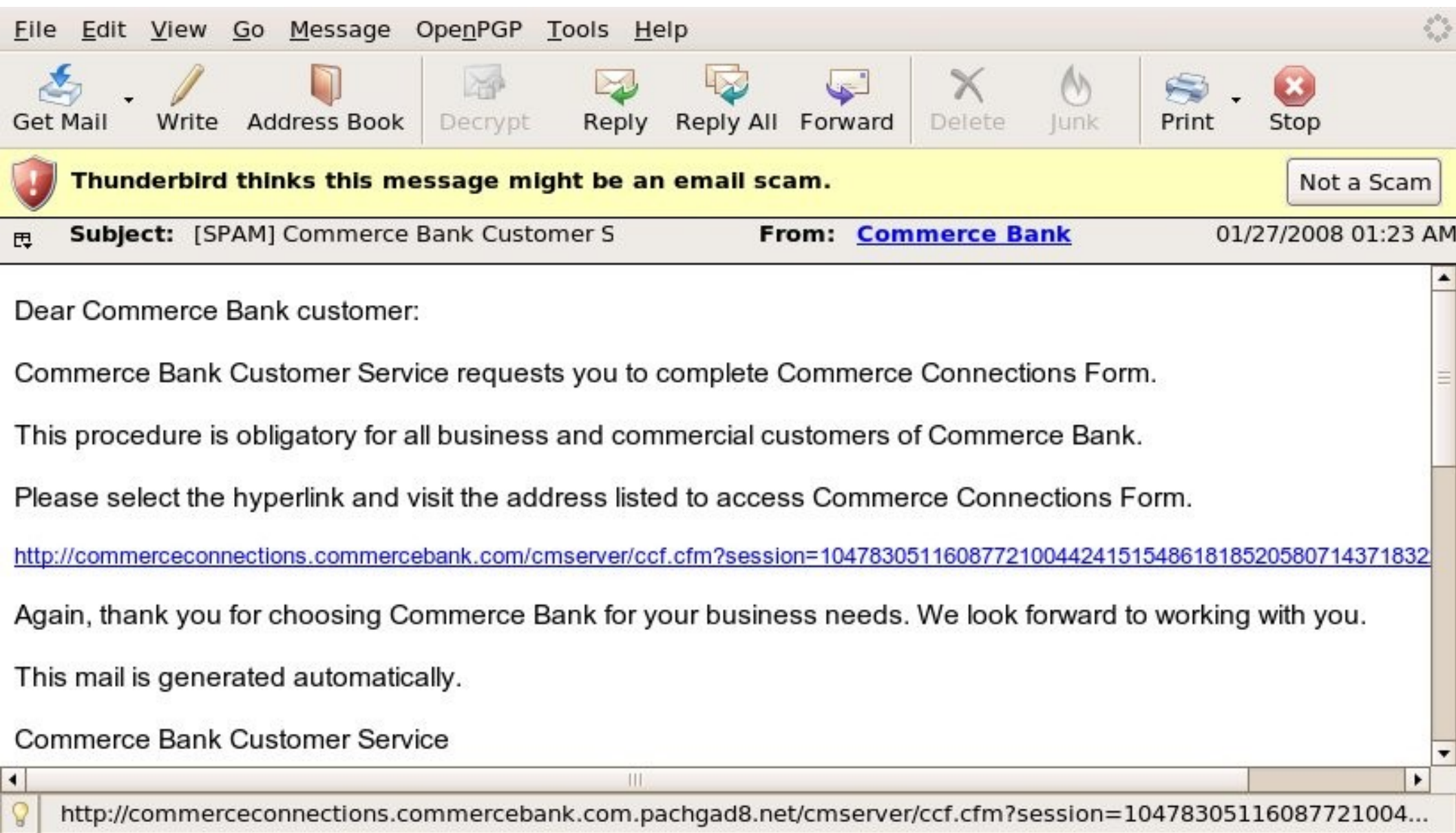
Log In into your account to resolve the problem.

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Copyright) 1999-2008 PayPal. All rights reserved.

PayPal Email ID PP572





- Strategies for families
 - Supervise children
 - Create a different, unprivileged account for each family member
 - Don't share passwords
 - Don't give access to critical computers
 - Scan now, scan often and install updates
 - Teach your family to protect their information
 - Contact your helpdesk!



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Policies to Protect You



- Wireless access points (a.k.a. rogues)
- Illegal file sharing
- Infected computers
- Network access is a privilege
- We are here to help



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Resources for you



- Free anti-virus for Windows
- Free tools to secure your computer
- Free password safes
- Free advice on protecting yourself

all this and more . . .

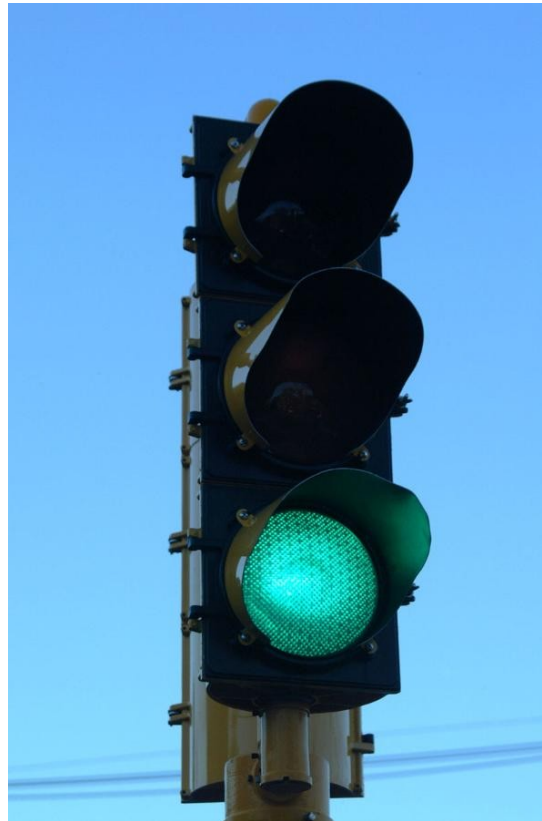
<https://security.ias.edu>



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Questions?

security@ias.edu





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Hawlfraint y Goron: Comisiwn Brenhinol Henebion Cymru

<http://www.rcahmw.gov.uk/LO/ENG/About+Us/Terms+and+Conditions/Copyright/>

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Aloha! Postcard - © 2008 Institute for Advanced Study



Security Seminar

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My role at the IAS is to ensure availability and security of our network to enable our Faculty, Members, Visitors and Staff to access the resources they need.



- Three principles of Information Security
 - Availability
 - Integrity
 - Confidentiality



These principles are shown here in the IAS Security Logo.

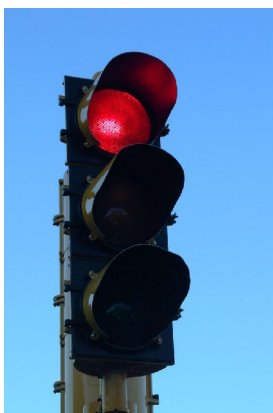
Each of these principles is important, although we do prioritize them in an order appropriate for the IAS.

Available of resources is first. We are not a bank or a corporate office, so we need to ensure our scholars have access to the resources they need.

Integrity ensures that the information we receive is correct and confidentiality ensures it is shared only with intended audiences.



- What is the office of Network Security?



???

In my experience, a network and security officer is often regarded as a roadblock to productivity as represented by this red light.

I would like to change this misconception by redefining the position as a ...



- What is the office of Network Security?



: -)

. . . yellow light.

Proceed, but with caution



IAS Security Structure

How do we structure our network to protect you?



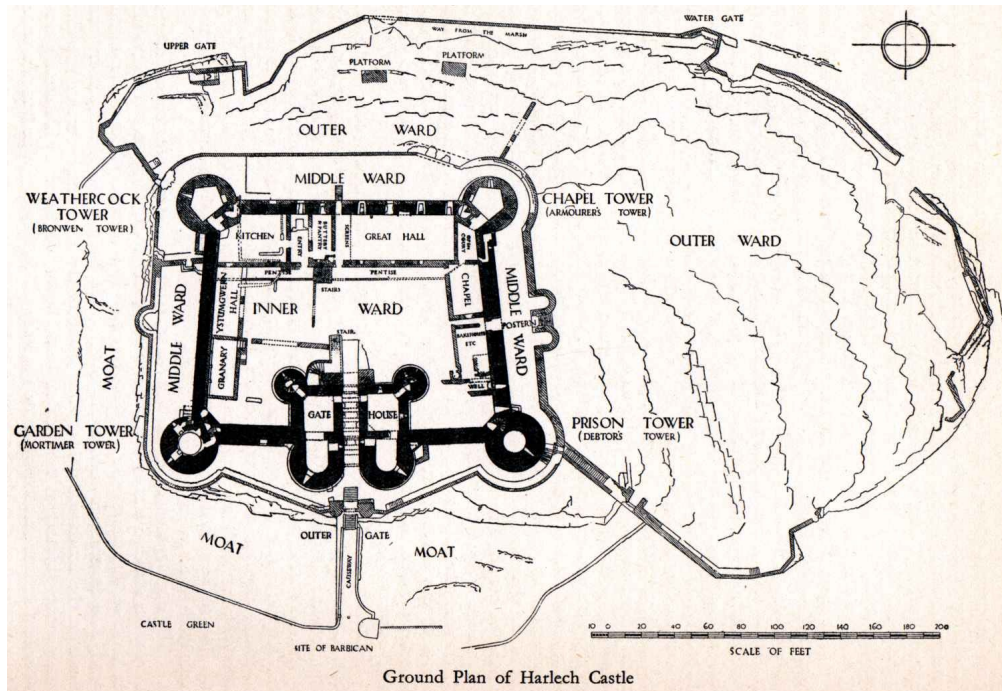
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-- Harlech Castle, Gwynedd, North Wales

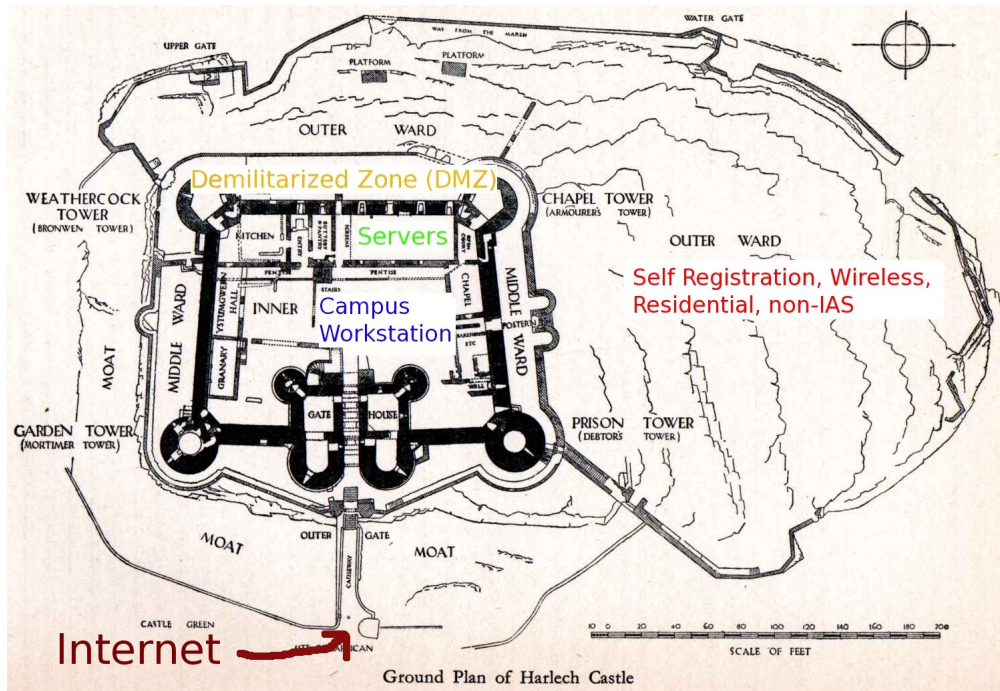
Defense in depth is not a new concept, it has been around for many centuries or longer.

Our perimeter defenses are similar to that of a castle.



Ground Plan of Harlech Castle

Security Seminar





- How do we protect you?
 - Intrusion Detection (watchtower)
 - Firewall (guard)
 - Intrusion Prevention (customs agent)
 - Spam filter
 - Email virus filter and attachment blocker
 - Anomaly protection



Security Awareness



- October: CyberSecurity Awareness Month
- Seminars
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Ways to give you information about protecting yourself.



Strategies to Safer Computing



- Keep your devices up to date
- Choose good passwords, use two factor
- Anti-Malware (virii, trojans, spyware, bots)
- Stop. Think. Connect.
 - email
 - instant message
 - Facebook, Twitter, Instagram, SnapChat
- Privacy/Phishing/Scam Awareness

See security website on strategies to pick good passwords which are easy to remember.

Use a password safe for infrequently used passwords.

Apple Macintosh users no longer have an excuse not to use anti-virus software. Free solutions for personal use are available.

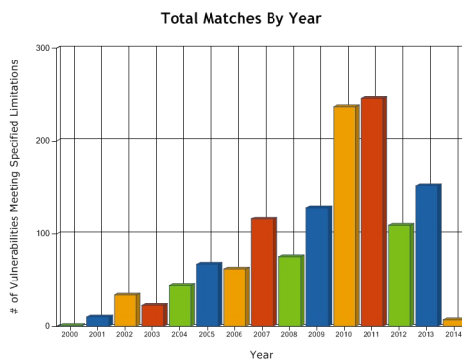


2014 Tech Obituaries

We've seen a lot of technology come and go in 2014. Here is a round up of things that left us, or should have left us in 2014.



Windows XP and Office 2003



Patch Tuesday started in 2003 to reduce costs of deploying patches.



Actions for Windows XP and Office 2003

- Upgrade to Windows 8.1
- Install Linux (free)
- Buy a new computer
- Upgrade to Office 2010 or 2013
- Install LibreOffice (free)

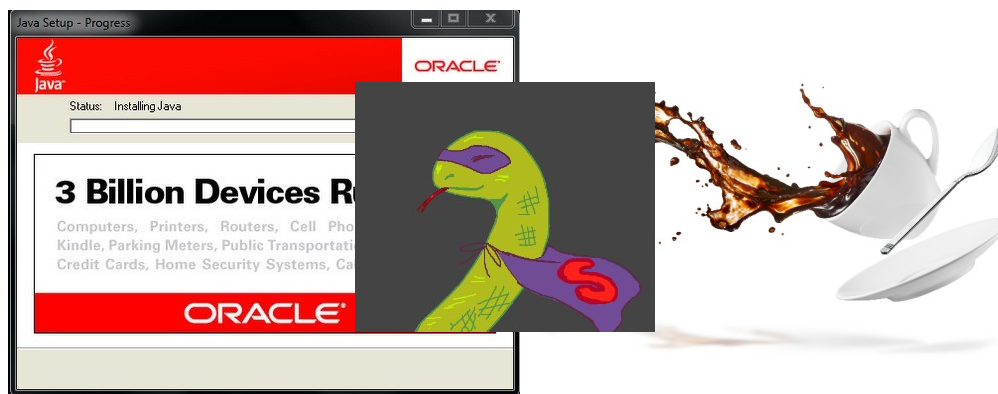
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Java in the browser

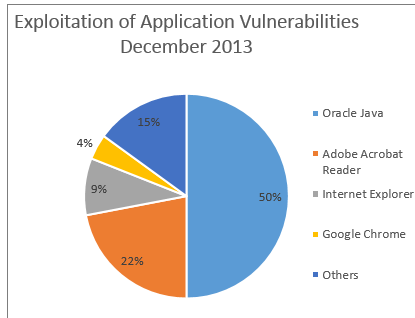


Python surpassed Java as the number one programming language taught, and it is about time!

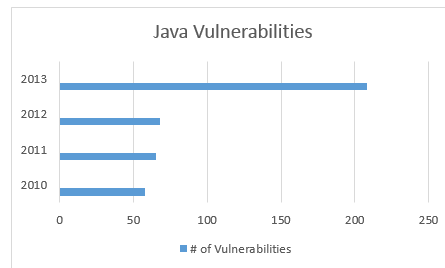
<http://www.pcworld.com/article/2451880/python-bumps-off-java-as-top-learning-language.html>



Java in the browser



source: IBM Security Trusteer research team



The number of Java vulnerabilities over the last year has been outright exhausting.



Actions for Java in the browser

- If you don't need it uninstall it (all versions).
- If you don't know, uninstall it. You can always re-install if you find out you were wrong.
- If you do need it, limit it to only the sites that are necessary by using the security settings in the Java Control Panel.
- Notify your site that you'd like them to move to HTML5.

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Flash



Security Seminar

20

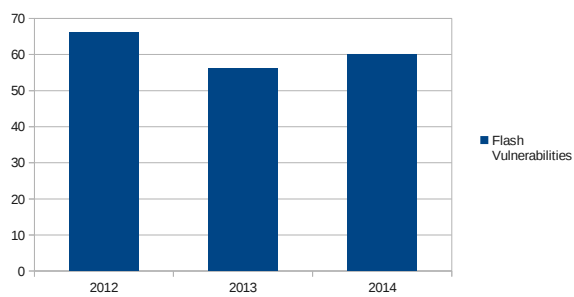
Steve Jobs announces that HTML5 will win over Adobe Flash in 2010

Adobe announces that it is focusing on HTML5 in 2011

It's now 2014, time to put flash player to rest.



Flash





Actions for Flash

- If you don't need it uninstall it.
- If you don't know, uninstall it. You can always re-install if you find out you were wrong.
- If you do need it, consider using a browser plugin like FlashBlock (available for Firefox and Chrome).
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Internet Explorer



Internet Explorer release to patch timeline

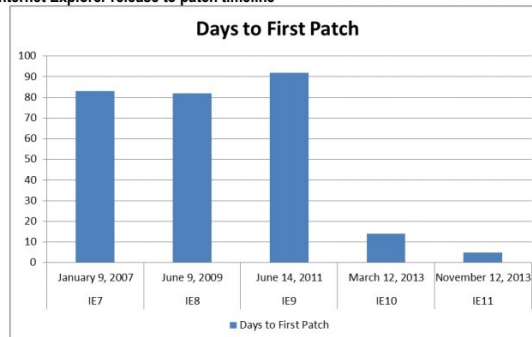


Fig: How long from the GA release of Internet Explorer until the first patch is released?

Firefox and Chrome are emerging on top in this battle for the browser.



Actions for Internet Explorer (IE)

- Move to a new browser. The most popular choices are Firefox or Google Chrome.
- When you migrate, take your bookmarks with you, but leave all the rest behind.
- If your site requires IE, considering using IE only for that site.
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Use a password safe for infrequently used passwords.

Apple Macintosh users no longer have an excuse not to use anti-virus software. Free solutions for personal use are available.



Actions for Privacy

- Monitor your credit score
- Look at your credit report (free in some states)
- Cancel unused credit accounts
- Account for all credit card charges
- Use separate passwords for every account
- Use Two Factor Authentication when possible (more on this later)

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Passwords



For those of you that still think Apple
Macintosh does not need anti-virus
protection...



Passwords **Two factor authentication**



For those of you that still think Apple Macintosh does not need anti-virus protection...



Two Factor Auth List - Google Chrome

https://twofactorauth.org

Home Categories Providers Contribute

Banking	Docs	SMS	Phone Call	Email	Hardware Token	Software Implementation
Ally Bank		✓		✓		
Altra Federal Credit Union					TELL THEM TO SUPPORT 2FA	
America First Credit Union					TELL THEM TO SUPPORT 2FA	
American Express					TELL THEM TO SUPPORT 2FA	
Bank of America		✓			✓	
Barclays					✓	✓
Barclays US					TELL THEM TO SUPPORT 2FA	
BMO Harris Bank					TELL THEM TO SUPPORT 2FA	
Boeing Employee Credit Union					TELL THEM TO SUPPORT 2FA	
Capital One					TELL THEM TO SUPPORT 2FA	
Capital One 360					TELL THEM TO SUPPORT 2FA	
Chase		✓	✓	✓		
CIBC					THANK THEM FOR WORKING ON 2FA	

Security Seminar

30

My new favorite website



Actions for Passwords

- Use two factor authentication everywhere you can
- Ask your bank/healthcare provider/social media site/etc to support two factor authentication.
- Use a password safe (there is a list on <https://security.ias.edu>)
- Use long passwords or passphrases. Remember, 12 characters is the absolute minimum.
- Classify how strong your password needs to be. Your bank, super strong. Your Twitter account, maybe not.

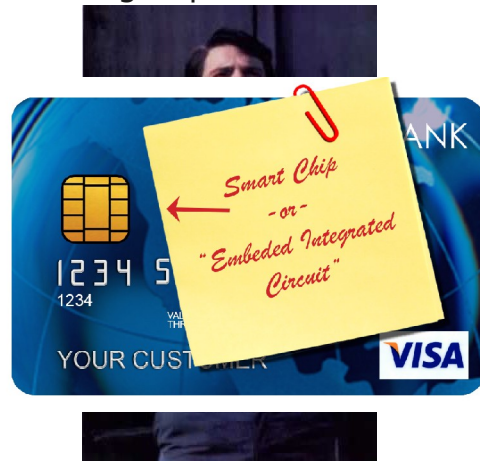
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Magstripe Credit Cards



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Actions for Magstripe Credit Cards

- Request a chip and pin credit card from your credit card company
- Learn how to use this technology, it's not hard.
- Recognize where it is available, and use it.
- Request your local grocery/pharmacy/retail store to install new readers (and turn them on).

See security website on strategies to pick good passwords which are easy to remember.

Use a password safe for infrequently used passwords.

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Don't Panic, know your meme



All is not lost. We are all in the same boat.
The Internet is an invaluable communication
tool that has brought the world together.



What is “the cloud”?

Somebody else's computer

Keep yourself aware.



How do I delete from “the cloud”?

You don't.
It's somebody else's computer.

Understand the risks of where you store your data.



Heartbleed, Shellshock, POODLE





Actions for Heartbleed, #shellshock and POODLE

- Heartbleed – not much unless you are a WebAdmin
 - If you are <https://filippo.io/Heartbleed/>
- #shellshock – not much unless you are a SysAdmin
 - If you are <https://shellshocker.net/>
- POODLE – ah, something to do!
 - Upgrade your browser
 - Test your browser <http://poodletest.com>
 - Disable outdated encryption

See security website on strategies to pick good passwords which are easy to remember.

Use a password safe for infrequently used passwords.

Apple Macintosh users no longer have an excuse not to use anti-virus software. Free solutions for personal use are available.



- How to spot a scam
 - Check the sender
 - Do you have an account with them?
 - Do the links make sense?
 - Check on-line urban legend databases.
 - Does it sound too good to be true?
 - Does it sound too bad to be true?

Check the sender

Do you have account?

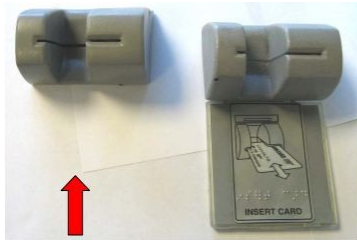
Links make sense?

Snopes

Nigerian scam

Ransomware

Data doctor 2010 . . .



The real card reader slot.

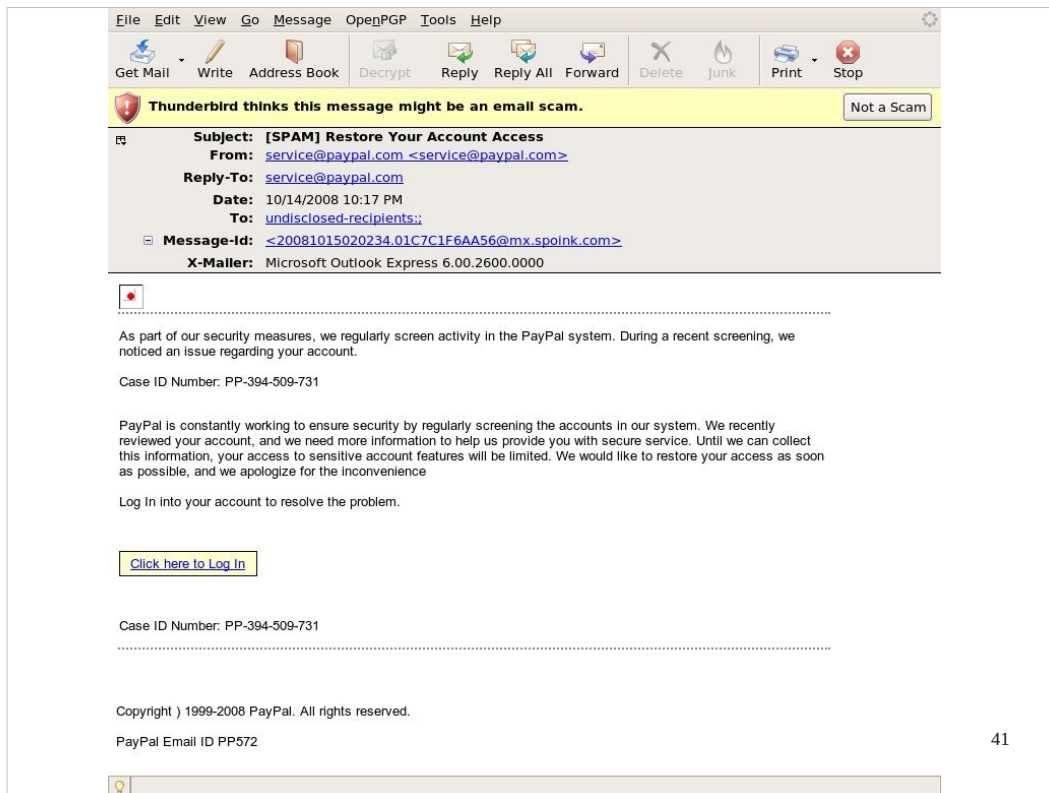
The capture device



The side cut out is not visible when on the ATM.

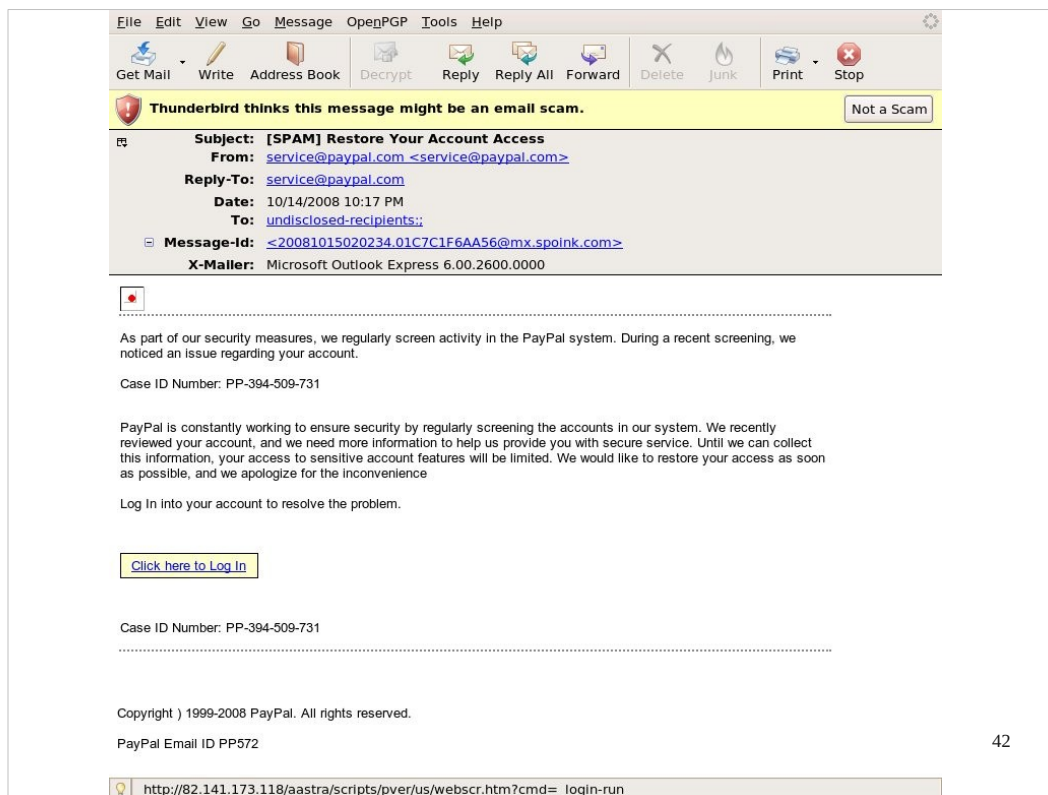


ATM Skimmers are becoming more prevalent



This looks like a legitimate email from paypal with serious information about my account.

However, when I hover over the link they provide . . .

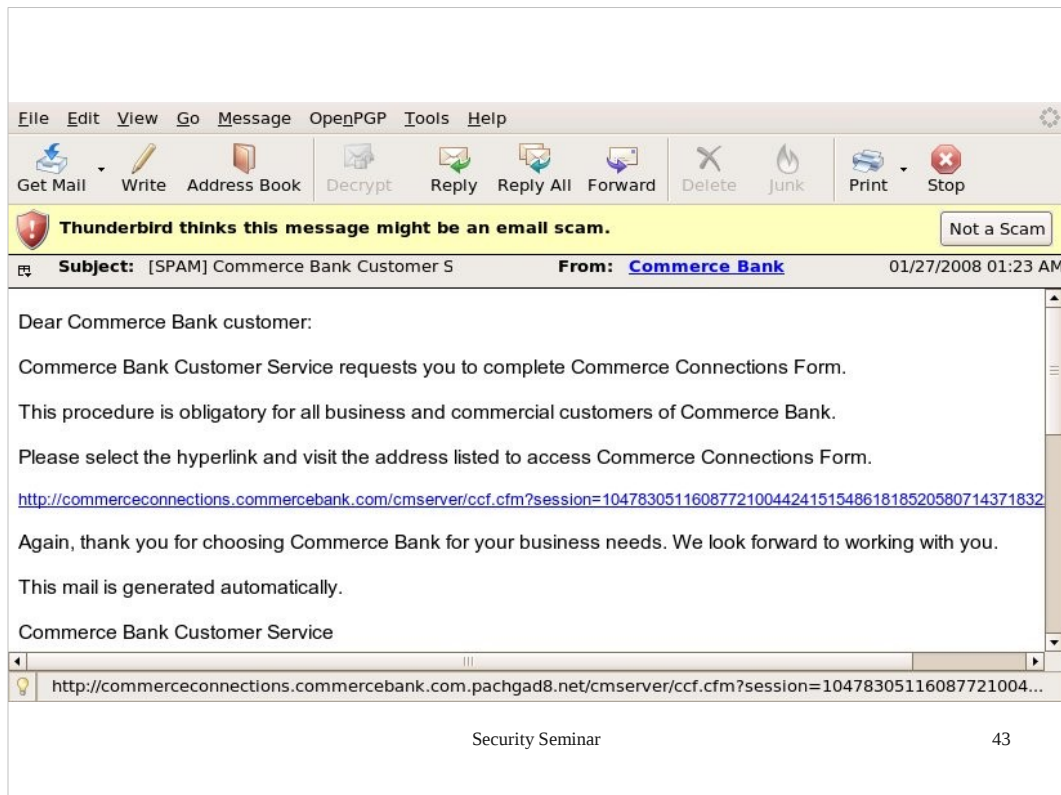


It turns out it isn't from Paypal at all!

Log directly into your account and look for messages or alerts.

Paypal one time password key fob.

Another great resource is snopes.com. If you receive an email, verify it before sending it on or acting upon it. Here is our favorite Nigerian scam . . .



Notice how Thunderbird warns us that it appears to be a scam.

Then there are the fantastic alerts and pop ups . . .



- Strategies for families
 - Supervise children
 - Create a different, unprivileged account for each family member
 - Don't share passwords
 - Don't give access to critical computers
 - Scan now, scan often and install updates
 - Teach your family to protect their information
 - Contact your helpdesk!

As parents and siblings, we often share with each other ways to protect ourselves.

Look both ways before crossing the street.

Invest your money wisely.

Don't pay sticker price for a used car.

Why not share ways to spot a scam . . .



Policies to Protect You

In order to protect the IAS as a whole, we have introduced policies.



- Wireless access points (a.k.a. rogues)
- Illegal file sharing
- Infected computers
- Network access is a privilege
- We are here to help

Unauthorized access points can cause issues with other users on the network. In general, we ask our users not to install them, and may have to take them down. It also bypasses our wireless security.

DMCA

We will shut down infections before they grow.

IPP – There is a policy, as there are at other institutions.

Cloud services are ok, just be careful.



Resources for you

In order to protect the IAS as a whole, we have introduced policies.



- Free anti-virus for Windows
- Free tools to secure your computer
- Free password safes
- Free advice on protecting yourself

all this and more . . .

<https://security.ias.edu>

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DMCA

We will shut down infections before they grow.

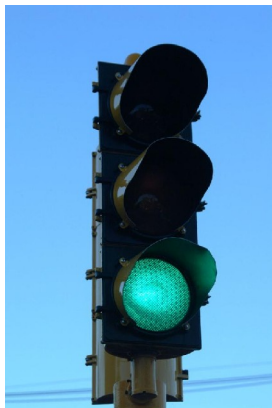
IPP – There is a policy, as there are at other institutions.

Cloud services are ok, just be careful.



Questions?

security@ias.edu



Thank you for your time and patience. Do you have any questions that we can answer?

Please take some materials with you.



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