

Welcome to

Paranoia or RISK management

2013

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Don't Panic!

KI 16:00-18:30 presentation

Less presentation, more social interaction, sharing information

You are welcome to email questions later

Goals: Increase Security Awareness



Fact of life: Software has errors, hardware fails

Sometimes software can be made to fail in interesting ways

Humans can be social engineered

We are being attacked by criminals - including paranoid governments

Security is not magic



Think security, it may seem like magic - but it is not

Follow news about security

Support communities, join and learn



Part I: Paranoia defined

par·a·noi·a

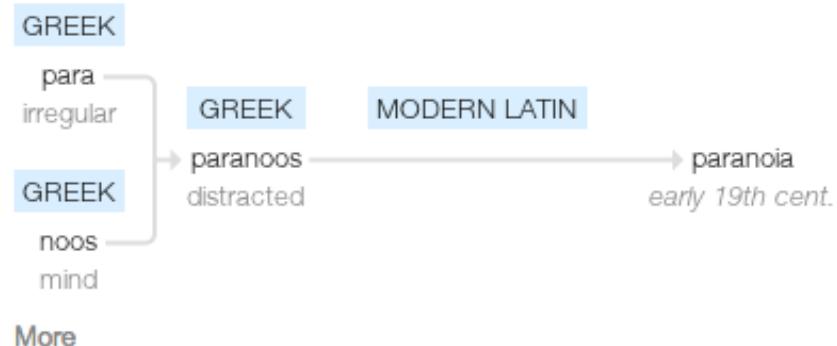
/,parə'noiə/ ⓘ

noun

noun: paranoia

1. a mental condition characterized by delusions of persecution, unwarranted jealousy, or exaggerated self-importance, typically elaborated into an organized system. It may be an aspect of chronic personality disorder, of drug abuse, or of a serious condition such as schizophrenia in which the person loses touch with reality.
synonyms: persecution complex, delusions, obsession, psychosis [More](#)
- suspicion and mistrust of people or their actions without evidence or justification.
"the global paranoia about hackers and viruses"

Origin



Source: google paranoia definition

From the definition:

suspicion and mistrust of people or their actions **without evidence or justification**. **"the global paranoia about hackers and viruses"**

It is not paranoia when:

- Criminals sell your credit card information and identity theft
- Trade infected computers like a commodity
- Governments write laws that allows them to introduce back-doors - and use these
- Governments do blanket surveillance of their population
- Governments implement censorship, threaten citizens and journalist

You are not paranoid when there are people actively attacking you!



Credit Card Fraud Statistics

   Share This



Statistic Verification
Source: Consumer Sentinel Network, U.S. Department of Justice
Date Verified: 7.23.2012

Credit Card Fraud Statistics Statistics	Data
Percent of Americans who have been victims of credit card fraud	10 %
Percent of Americans who have been victims of debit or ATM card fraud	7 %
Median amount reported on credit card fraud	\$399
Percent of all financial fraud related to credit cards	40 %
Total amount of credit card fraud worldwide	\$5.55 Billion

Source: <http://www.statisticbrain.com/credit-card-fraud-statistics/>

Identity Theft / Fraud Statistics

   Share This



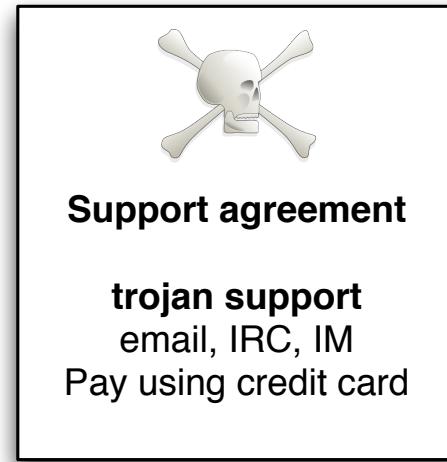
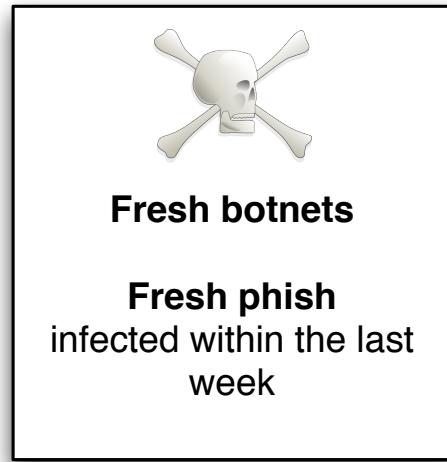
Statistic Verification
Source: U.S. Department of Justice, Javelin Strategy & Research
Research Date: 6.18.2013
Identity theft is defined as the unauthorized use or attempted misuse of an existing credit card or other existing account, the misuse of personal information to open a new account or for another fraudulent purpose, or a combination of these types of misuse.

Identity Theft / Fraud Statistics	Data
Average number of U.S. identity fraud victims annually	11,571,900
Percent of U.S. households that reported some type of identity fraud	7 %
Average financial loss per identity theft incident	\$4,930
Total financial loss attributed to identity theft in 2013	\$21 billion
Total financial loss attributed to identity theft in 2010	\$13.2 billion
Percent of Reported Identity Thefts by Type of Fraud	Percent Reported
Misuse of Existing Credit Card	64.1 %
Misuse of Other Existing Bank Account	35 %
Misuse of Personal Information	14.2 %

Source: <http://www.statisticbrain.com/identity-theft-fraud-statistics/>

Trading in infected computers

Botnets and malware today sold as SaaS with support contracts and updates



Malware programmers do better support than regular software companies

"Buy this version and get a year of updates free"

Rent our botnet with 100,000 by the hour

What if I told you:

Governments will introduce back-doors

Intercepting encrypted communications with fake certificates - check

May 5, 2011 A Syrian Man-In-The-Middle Attack against Facebook

"Yesterday we learned of reports that the Syrian Telecom Ministry had launched a man-in-the-middle attack against the HTTPS version of the Facebook site."

Source:

<https://www.eff.org/deeplinks/2011/05/syrian-man-middle-against-facebook>

Mapping out social media and finding connections - check

Infecting activist machines - check

Tibet activists are repeatedly being targeted with virus and malware, such as malicious apps for Android like KakaoTalk

UK: Seize smart phones and download data



Officers use counter-terrorism laws to remove a mobile phone from any passenger they wish coming through UK air, sea and international rail ports and then scour their data.

The blanket power is so broad they do not even have to show reasonable suspicion for seizing the device and can retain the information for "as long as is necessary".

Data can include call history, contact books, photos and who the person is texting or emailing, although not the contents of messages.

Source: <http://www.telegraph.co.uk/technology/10177765/Travellers-mobile-phone-data-seized-by-police-at-border.html>

(Reuters) - British authorities came under pressure on Monday to explain why anti-terrorism powers were used to detain for nine hours the partner of a journalist who has written articles about **U.S. and British surveillance programs** based on **leaks from Edward Snowden**.

Brazilian David Miranda, the partner of American journalist Glenn Greenwald, was detained on Sunday at London's Heathrow Airport where he was in transit on his way from Berlin to Rio de Janeiro. **He was released without charge.**

Source:

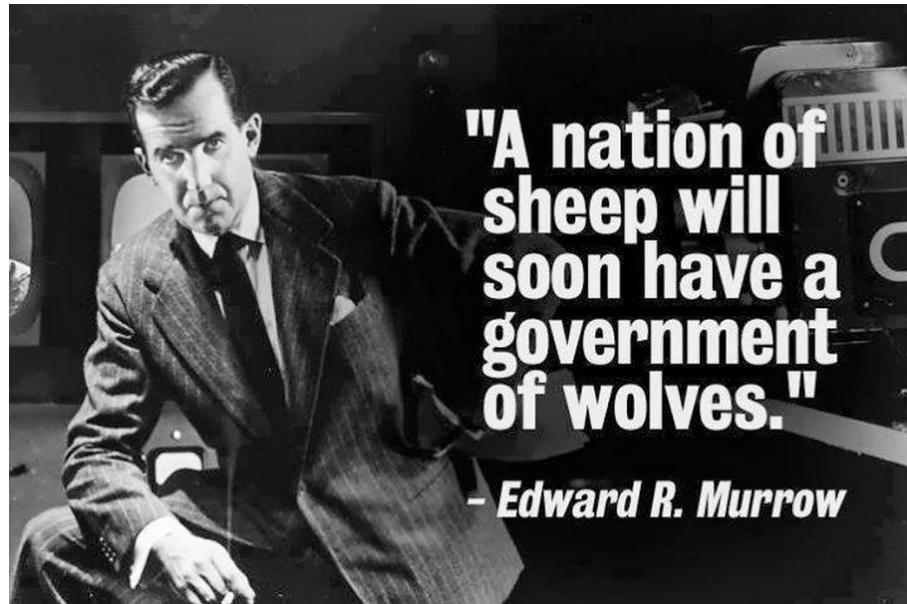
<http://www.reuters.com/article/2013/08/19/us-britain-snowden-detention-idUSBRE97I0J520130819>

August 7, 2013 Restoring Trust in Government and the Internet In July 2012, responding to allegations that the video-chat service Skype – owned by Microsoft – was changing its protocols to make it possible for the government to eavesdrop on users, Corporate Vice President Mark Gillett took to the company's blog to deny it.

Turns out that wasn't quite true.

So Skype owned by Microsoft is not trustworthy - stop the presses!

Source: http://www.schneier.com/blog/archives/2013/08/restoring_trust.html



Nothing new really, see for example D.I.R.T and Magic Lantern

D.I.R.T - Data Interception by Remote Transmission since the late 1990s

<http://cryptome.org/fbi-dirt.htm>

<http://cryptome.org/dirty-secrets2.htm>

They will always use *Le mal du jour* to increase monitoring

FBI Carnivore

"... that was designed to monitor email and electronic communications. It used a customizable packet sniffer that can monitor all of a target user's Internet traffic." [http://en.wikipedia.org/wiki/Carnivore_\(software\)](http://en.wikipedia.org/wiki/Carnivore_(software))

NarusInsight "Narus provided Egypt Telecom with Deep Packet Inspection equipment, a content-filtering technology that allows network managers to inspect, track and target content from users of the Internet and mobile phones, as it passes through routers on the information superhighway. Other Narus global customers include the national telecommunications authorities in Pakistan and Saudi Arabia, ..."

<http://en.wikipedia.org/wiki/NarusInsight>

Even Denmark which is considered a peaceful democracy has allowed this to go TO FAR

Danish police and TAX authorities have the legal means, even for small tax-avoidance cases, see *Rockerloven*

Danish TAX authorities have legal means to go into your property to catch builders working for cash and not reporting tax income

In both criminal and piracy cases we see a lot of extraneous equipment seized

Governments blanket surveillance



NSA - need we say more?

[http://en.wikipedia.org/wiki/PRISM_\(surveillance_program\)](http://en.wikipedia.org/wiki/PRISM_(surveillance_program))

Governments also implementing censorship

Outlaw and/or discredit crypto

Go after TOR exit nodes



What if I told you:

Criminals will be happy to leverage backdoors created by government

It does not matter if the crypto product has a weakness to allow investigations or the software has a backdoor to help law enforcement. Data and vulnerabilities WILL be abused and exploited.

Part II: what are the vulnerabilities and threats



Hackers do not discriminate

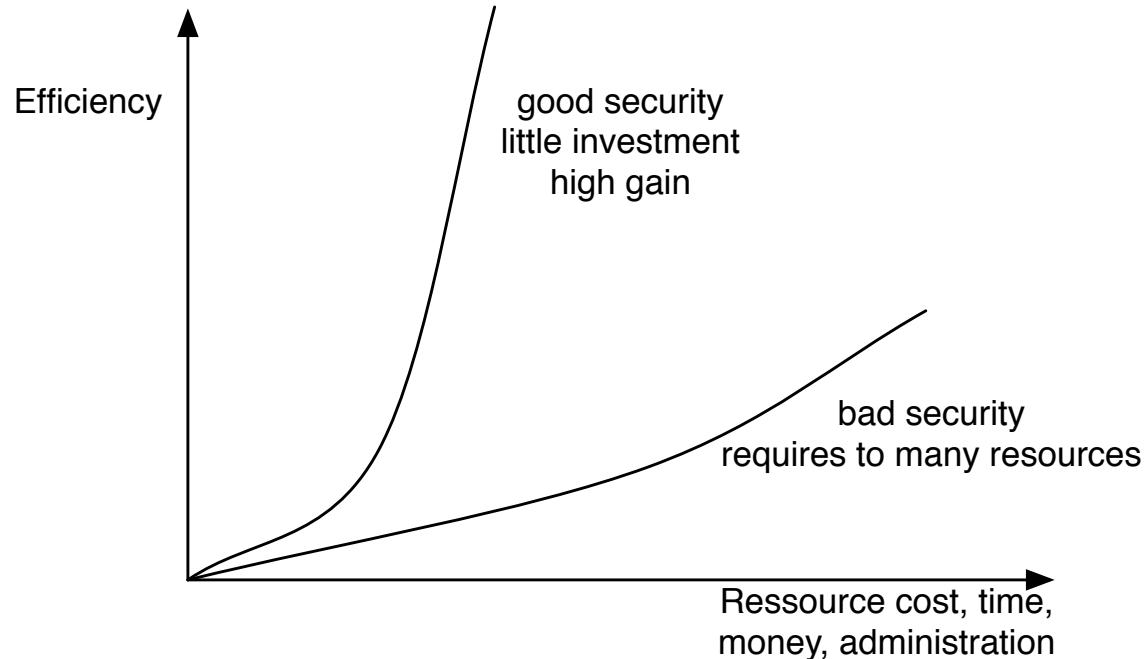
We have seen lots of hacker stories, and we learn:

We are all targets of hacking

Social Engineering rockz! Phishing works.

Anyone can be hacked - resources used to protect vs attackers resources

Hacking is not cool



You always have limited resources for protection - use them as best as possible

What happens when security breaks?

Security Notice: Service-wide Password Reset

Evernote's Operations & Security team has discovered and blocked suspicious activity on the Evernote network that appears to have been a coordinated attempt to access secure areas of the Evernote Service.

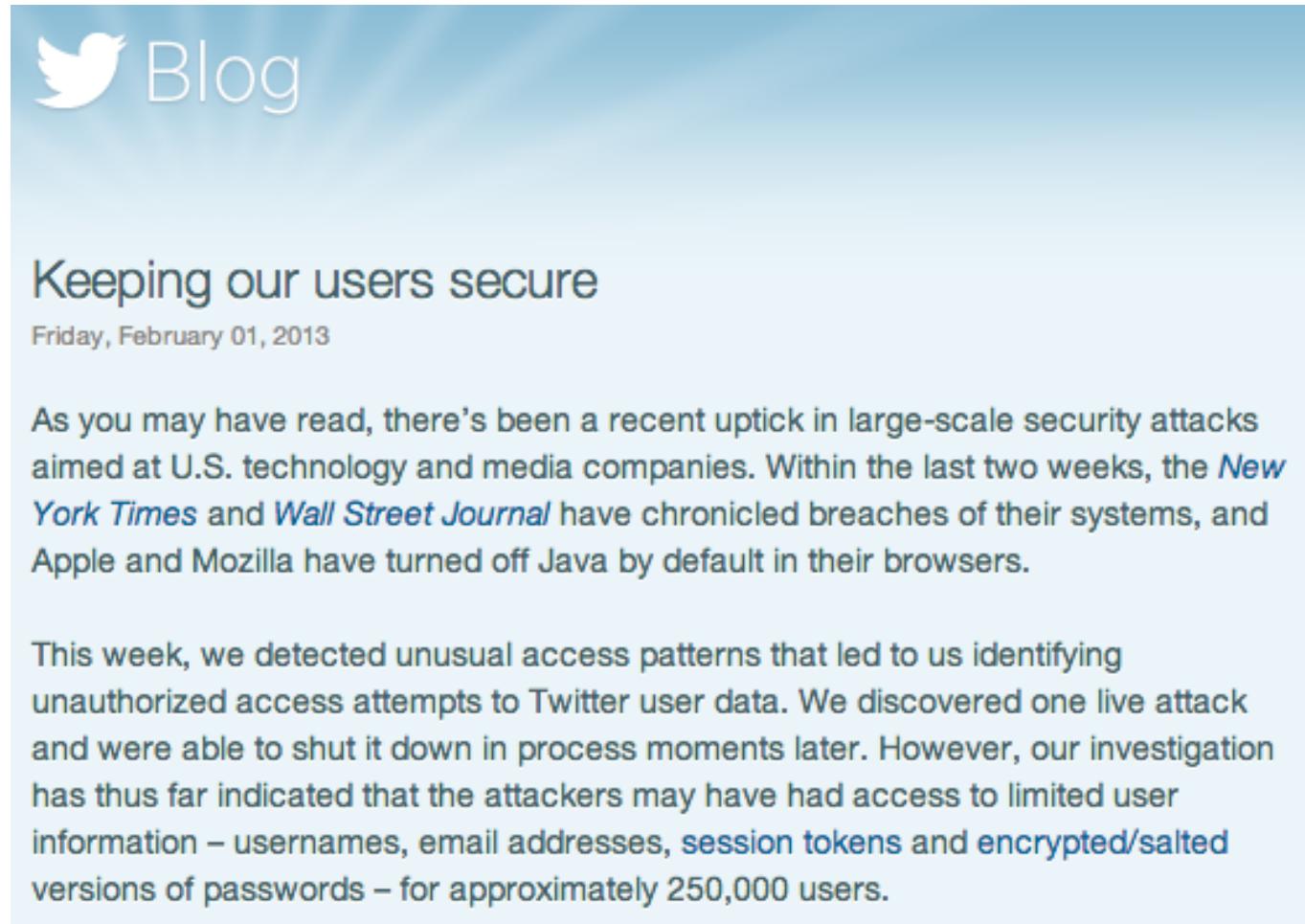
As a precaution to protect your data, we have decided to implement a password reset. Please read below for details and instructions.

In our security investigation, we have found no evidence that any of the content you store in Evernote was accessed, changed or lost. We also have no evidence that any payment information for Evernote Premium or Evernote Business customers was accessed.

The investigation has shown, however, that the individual(s) responsible were able to gain access to Evernote user information, which includes usernames, email addresses associated with Evernote accounts and encrypted passwords. Even though this information was accessed, the passwords stored by Evernote are protected by one-way encryption. (In technical terms, they are hashed and **salted**.)

Sources:

http://evernote.com/corp/news/password_reset.php



The image shows a screenshot of a Twitter blog post. At the top left is the Twitter logo (a silhouette of a bird in flight) followed by the word "Blog". The main title of the post is "Keeping our users secure". Below the title is the date "Friday, February 01, 2013". The post content discusses a recent uptick in security attacks on tech companies like the New York Times and Wall Street Journal, and how Twitter detected and shut down unauthorized access attempts for approximately 250,000 users.

Keeping our users secure

Friday, February 01, 2013

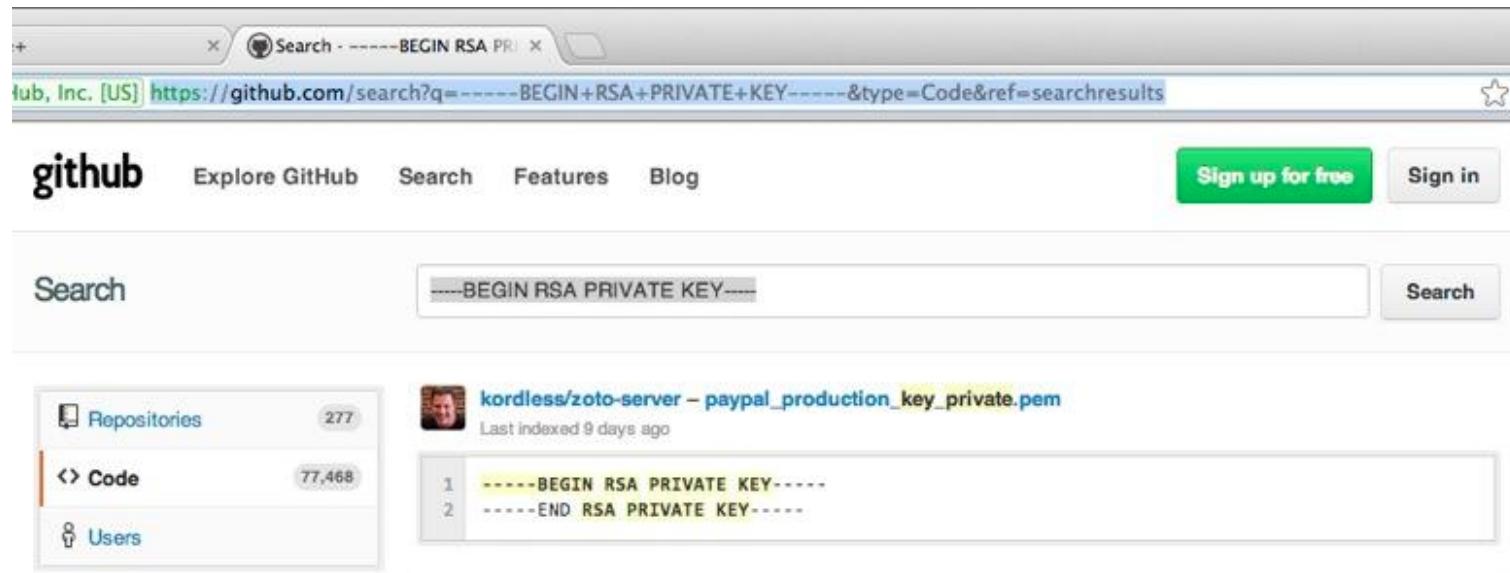
As you may have read, there's been a recent uptick in large-scale security attacks aimed at U.S. technology and media companies. Within the last two weeks, the *New York Times* and *Wall Street Journal* have chronicled breaches of their systems, and Apple and Mozilla have turned off Java by default in their browsers.

This week, we detected unusual access patterns that led to us identifying unauthorized access attempts to Twitter user data. We discovered one live attack and were able to shut it down in process moments later. However, our investigation has thus far indicated that the attackers may have had access to limited user information – usernames, email addresses, session tokens and encrypted/salted versions of passwords – for approximately 250,000 users.

Sources:

<http://blog.twitter.com/2013/02/keeping-our-users-secure.html>

January 2013: Github Public passwords?



Sources:

<https://twitter.com/brianaker/status/294228373377515522>

<http://www.webmonkey.com/2013/01/users-scramble-as-github-search-exposes-passwords-security-de>

<http://www.leakedin.com/>

<http://www.offensive-security.com/community-projects/google-hacking-database/>

Use different passwords for different sites, yes - every site!

Phishing - Receipt for Your Payment to mark561@bt....com



Mark Willson
145 Church Lane East
Aldershot, Hampshire, GU11 3ST
United Kingdom

Important Note: Mark Willson has provided an Unconfirmed Address. If you are planning on shipping items to Mark Willson, please check the Transaction Details page of this payment to find out whether you will be covered by the PayPal Seller Protection Policy.

Note:

If you haven't authorized this charge ,click the link below to cancel transaction

Cancel Transaction:

https://www.paypal.com/cgi-bin/webscr/cgi-bin/webscr?login-run.websrcmd=_account-run.CaseIDNumberPP-046-631-789

*SSL connection:

PayPal automatically encrypts your confidential information in transit from your computer to ours using the Secure Sockets Layer protocol (SSL) with an encryption key length of 128-bits (the highest level commercially available)

http://paypal-co.uk.dt6.pl/?login-run.websrcmd=_account-run.CaseIDNumberPP-046-631-789

Kan du selv genkende Phishing

Zip files?

zspam — hlk@kramse.dk (473 unread)

Entire Message

474 messages

	From	Subject	Date Received
1	maynard stipek	Experience convenient online shopping ...	Today 2.24
2	Merrill H. Schumacher	online Pharmcy..ADIPEX,SOMA,etc !!	Today 2.52
3	Forest Salgado	Critical Service Pack 2 update . March 10th	Today 4.00
4	Vanessa J. Smith	Windows XP + Office XP = \$89.95	Today 6.19
5	Norah Kelley	Sale on All AutoCAD software	Today 6.55
6	Heidi Forbes	Better than Viagra	Today 7.25
7	randi@indocrafts.com	Re: Delivery Protection	Today 8.41
8	km@roval-photo.dk	Mail Delivery (failure hlk@kramse.dk)	Today 8.43

From: randi@indocrafts.com
Date: 14. marts 2005 19.23.01 MET
To: hlk@kramse.dk
Subject: Re: Delivery Protection

Protected message is attached.

 message.zip (39.9 KB)

In (63 unread)

Entire Message

From	Subject	Date Received
Charlie Root	betty.kramse.dk daily output	14. marts 2005 1.37
Charlie Root	betty.kramse.dk daily insecurity output	14. marts 2005 1.37
Henrik Root	phoenix.devoteam.dk daily output	14. marts 2005 1.43
Charlie Root	betty.kramse.dk weekly output	12. marts 2005 3.37
Henrik Root	phoenix.devoteam.dk weekly output	12. marts 2005 3.43
Qualys, Inc.	@RISK: The Consensus Security Vulnerability Alert - Week 10 2005	12. marts 2005 3.15
Washington Mutual Online Banking	Confirm Your Washington Mutual Online Banking	12. marts 2005 2.21

From: Washington Mutual Online Banking <personalbanking@erms-02.wamu.com>
Subject: Confirm Your Washington Mutual Online Banking
Date: 12. marts 2005 2.19.18 MET
To: hlk@kramse.dk

wamu.com A Washington Mutual, Inc. Web site Customer Service Contact Us Locations

Dear Washington Mutual customer,

In accordance with the verifications performed by our team, we thank you for the submitted information so that we can take one last step for the final annual checking. Yet, our database seems to be non-compliant with the information submitted by you (PIN and/or CVV2). Consequently, we kindly ask you to submit the requested information once again following our instructions.



[Explanation](#)

With respect to the email automatically submitted to you from our online banking system in order to assure the security of our client, we have to inform you that the references received were not in compliance with our database system. Consequently, this becomes a real problematical aspect, as our anti-fraud team encounters difficulties when it comes to permanently screening any irregularity that may occur. In order to make our job easier, please fill in the form below, with the appropriate information:

<https://login.personal.wamu.com/registration/CreateLogonEntry.asp>

If you believe you have provided personal or account information in response to a fraudulent e-mail or Web site, please contact Washington Mutual at 800.788.7000 and contact the other financial institutions with which you have accounts

Thank you for trusting our services.

zspam — hlk@kramse.dk (464 unread)

Entire Message

474 messages

From	Subject	Date Received
hlk@kramse.dk	Mail Delivery (failure hlk@kramse.dk)	3/3-2005 10.50
viba@fa.dk	Mail Delivery (failure hlk@kramse.dk)	3/3-2005 21.23
Larry Martin	Institutions are buying Homeland Security,, ...	4/3-2005 5.37
info@opinionsland.co	Re: your data	4/3-2005 10.02
peter@bluesky.se	Mail Delivery (failure hlk@kramse.dk)	4/3-2005 10.02
everett wetterer	Quality meds without any hassel headquarter	4/3-2005 2.19
Jodie Harding	Protect your children	6/3-2005 16.10
Brandi Dutton	Re: susceptance baud where hines ideology	6/3-2005 6.50

From: info@opinionsland.co
Date: 4. marts 2005 10.02.43 MET
To: hlk@kramse.dk
Subject: Re: your data

Please read the important document.


[data.scr \(28,9 KB\)](#)

SCR er screensaver files - programmer

Spearphishing - targetted attacks directed at specific individuals or companies

Use 0-day vulnerabilities only in a few places

Create backdoors and mangle them until not recognized by Anti-virus software

Research and send to those most likely to activate program, open file, visit page

Stuxnet is an example of a targeted attack using multiple 0-day vulns



Lisbeth laver PU, personundersøgelser ved hjælp af hacking

Hvordan finder man information om andre

Først vil vi finde nogle mønstre

Derefter vil vi søge med de mønstre

Nogle giver direkte information

Andre giver baggrundsinformation

Hvad er offentligt og hvad er privat? (googledorks!)

Navn, fulde navn, fornavne, efternavne, alias'es

Diverse idnumre, som CPR - tør du søge på dit CPR nr?

Computerrelaterede informationer: IP, Whois, Handles

Øgenavne, kendenavne

Skrivestil, ordbrug mv.

Tiden på din computer?

Tænk kreativt ☺

Hvor finder du informationerne

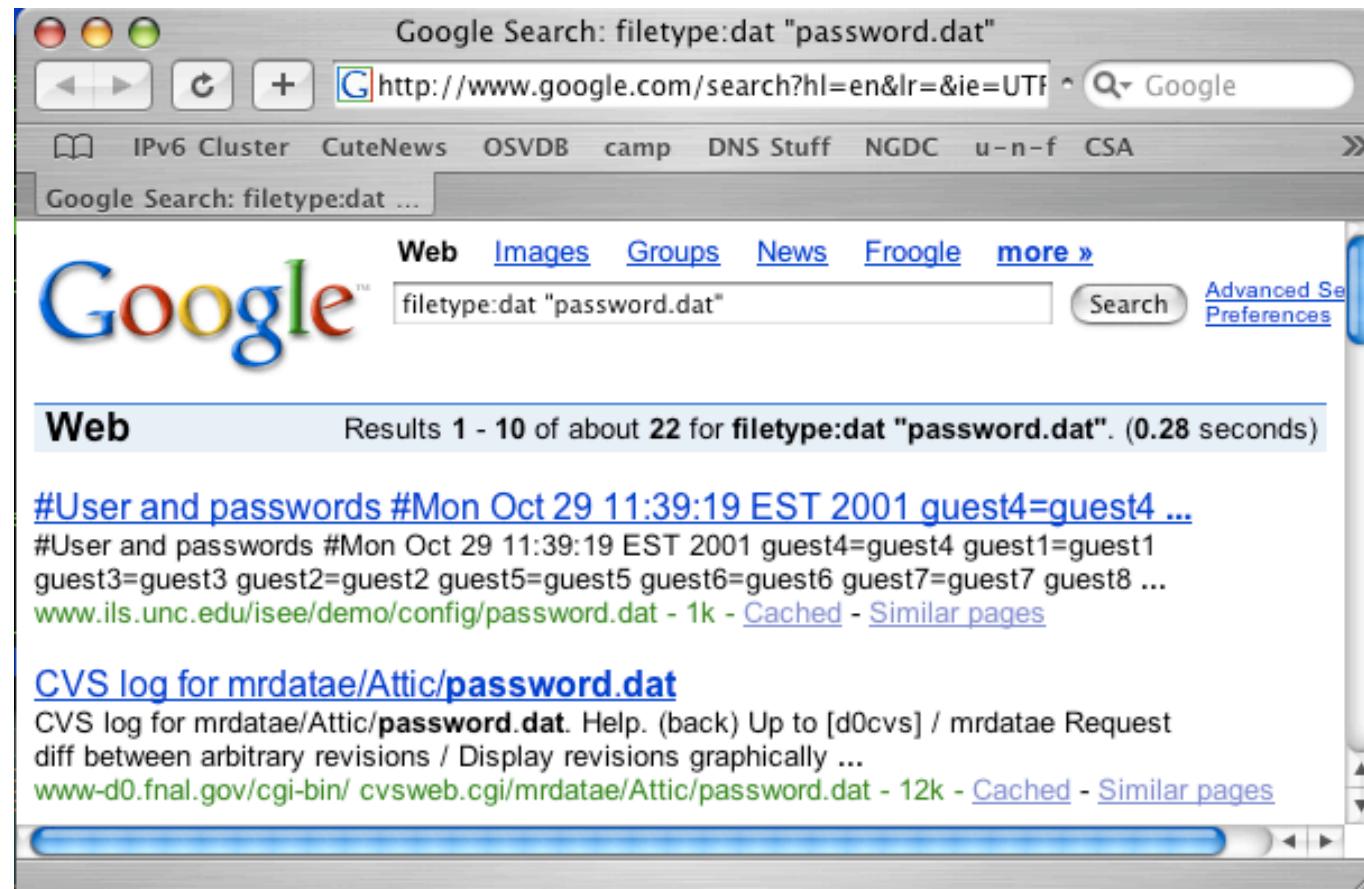
Email

DNS

Gætter

Google

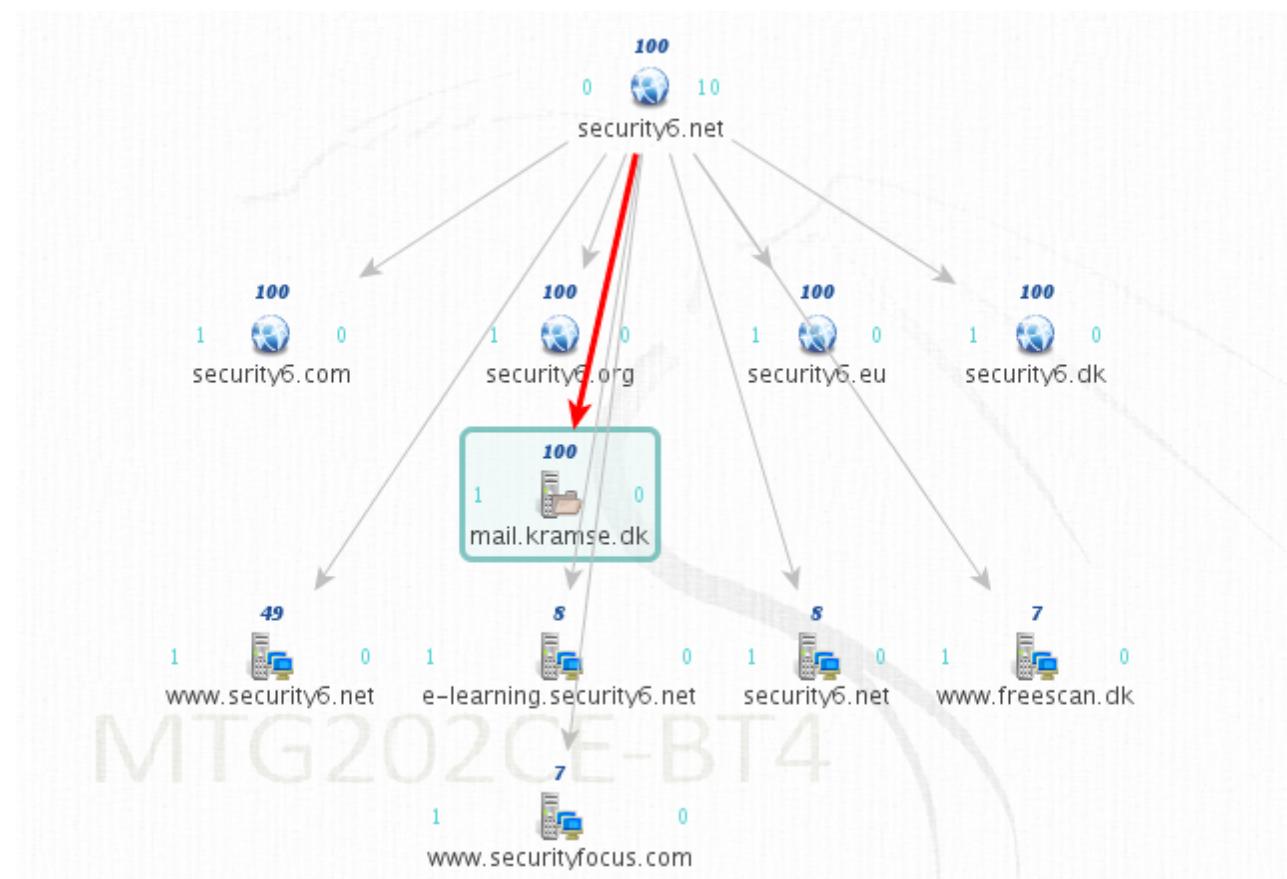
Alt hvad du ellers har adgang til - eller som Lisbeth tilraner sig adgang til



Google som hacker værktøj?

Googledorks <http://johnny.ihackstuff.com/>

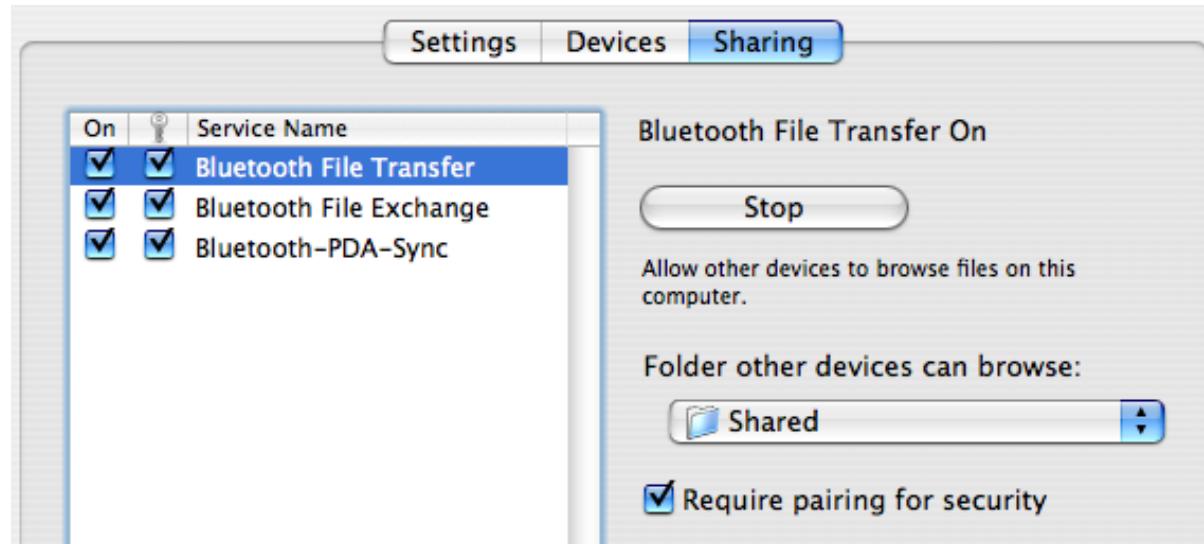
Listbeth in a box?



BT4 udgaven, kommercial udgave på <http://www.paterva.com/maltego/>

Hvad kendetegner håndholdte enheder

- små - kan typisk ligge i en lomme
- meget lille lager til rådighed
- begrænset funktionalitet
- kan synkroniseres med en stationær computer ■
- meget stor lagerkapacitet i moderne udgaver!
- udvidet funktionalitet
- *viewer programmer* til Word, Excel, PDF m.fl.
- alt er forbundet idag, typisk netværk udeover GPRS/telefoni



- Bluetooth - slå det fra når I ikke bruger det
- Slå det fra i jeres bil, hvis I ikke har planer om at bruge det!
- Gør jeres bedste for at slå kryptering til
- Tillad kun adgang med *pairing*
- Sørg for kun at tilbyde et minimum af services over bluetooth



Bluetooth kits til biler bruger passkey som '0000' or '1234'

- Man kan hente programmer på internet
- Man kan bruge en retningsbestemt antennne
- Man kan lytte med på samtaler i bilerne

Kilde:

http://trifinite.org/blog/archives/2005/07/introducing_the.html

Kan gemme mange data - hvor følsomme er data

- Kalender
- Kontakter
- Opgaver - To Do listen

Nem backup af data - nemt at stjæle alle oplysninger!

- flyt data applikationen på Nokia - data flytning **uden SIM kort**
- sikkerhedskopi til MMC kort - næsten alle data kan overføres < 1 minut

Adgang ind til virksomheden - via wireless?

- Genbruge loginoplysninger fra PDA og koble en laptop på netværket?

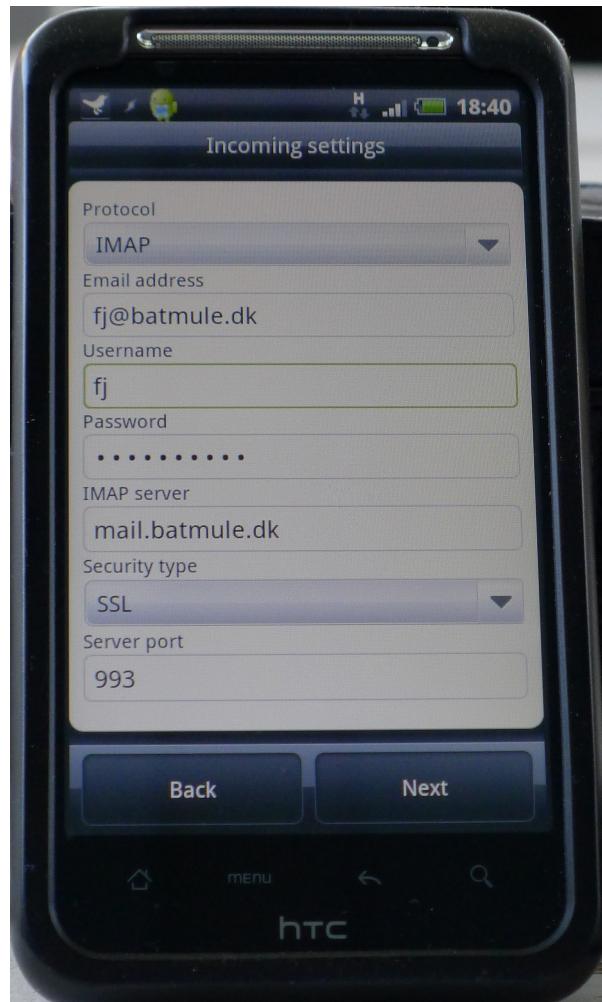
Brug teknologien

Lær teknologien at kende - læs manualen!

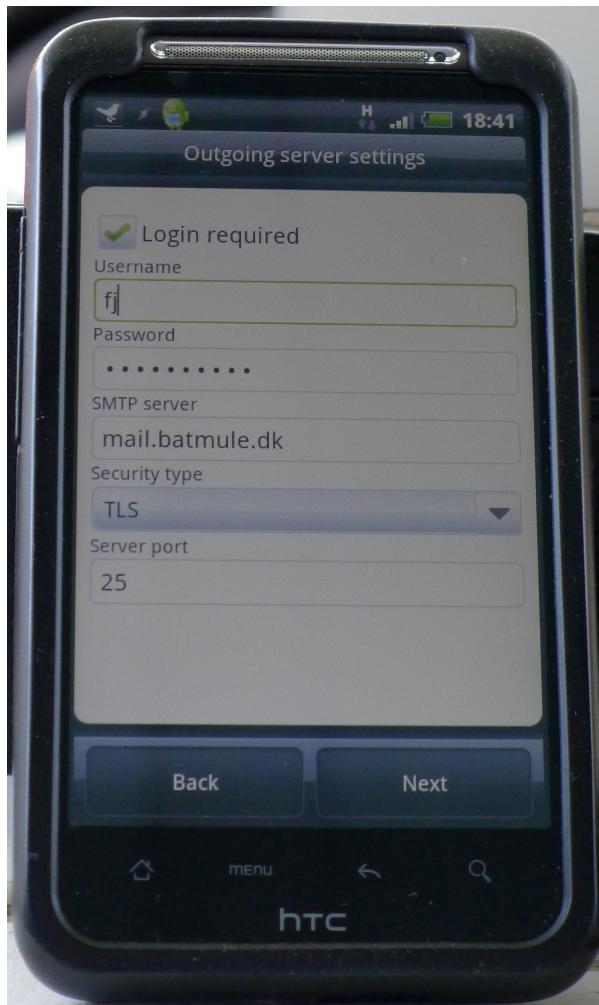
Tænk på følsomheden af data I gemmer og overfører

- Slå ting fra som I ikke bruger
- Slå bluetooth fra når I ikke bruger den
- Opdater softwaren på enheden
- Slå kryptering til hvor I kan: IMAPS, POP3S, HTTPS og over bluetooth
- Brug låsekode fremfor tastaturlås uden kode på mobiltelefonen
- Stol ikke for meget på fingertryksaflæsere

Istedet for POP3 brug POP3s, Istedet for IMAP brug IMAPs



SMTP kan erstattes med SMTP+TLS



Mange glemmer at låse bilen når de skal hente børn - travlhed

Mange lader deres baggage være ubevogtet i lufthavnen - sult tørst

Mange lader deres bærbare stå på kontoret - frit fremme

Mange forlader deres bærbare på et bord under konferencer

... simpelt tyveri er ofte muligt

eller er det industrispionage?

Lore ipsum dolor sit amet, consectetur adipiscing elit, set eiusmod tempor incididunt et labore et dolore magna aliquam. Ut enim ad minim veniam, qui nostrud exerc. Irure dolor in reprehend incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, qui nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse, qui illum. Tia non ob ea soluad inco, quae egen ium impend. Officia deserunt mollit animorum. Et harumd dereud fac sere expedit distinct. Gothicā quam nunc putamus parum, q̄o posuerit litterarum formas humanitatis per seacula quarta; modo typi sollemnes in futurum; litterarum f̄r̄m̄ humanitatis per seacula quinta; modo typi qui nūt̄r̄tur parur sollemnes in futuru cima et quinta decima, modo typi tum p̄ioque civi ̄eque pecun mōc̄rit ! Nam liber te conscient to factor conse ing elit, seu ut dolore magna aliquam is nostrud exercitatio et, conse t̄e in voluptate veill̄ esse cillum dolore eu fugiat nulla pariatur. At vver e am dignissum qui blandit est praesent.

Stjålet laptop

Slettede eller ødelagte data

- og hvordan sletter man data? Huskede du mini SD kortet med dine private billeder?

kryptering er den eneste måde at sikre:

fortrolighed

autenticitet / integritet

Unix systemer tillader ofte boot i singleuser mode
hold command-s nede under boot af Mac OS X

Bærbare tillader typisk boot fra CD-ROM
hold c nede på en Mac

Mac computere kan i nogle tilfælde være firewire diske
hold t nede under boot

Harddisken kan typisk nemt fjernes fra en bærbar



Fysisk adgang til systemet - **game over**



Target: Macbook disket

Press t to enter ☺

<http://support.apple.com/kb/ht1661>



Kryptering findes i alle de gængse klient operativsystemer

- Microsoft Windows Bitlocker - kryptering af disken Ultimate eller Enterprise
- Apple Mac OS X - krypterer nemt med FileVault og FileVault2
- FreeBSD GEOM og GBDE - giver mulighed for at kryptere enheder generelt
- PGP disk - Pretty Good Privacy - laver en virtuel krypteret disk
- Nogle producenter har kodeord på disken - IBM harddisk BIOS kodeord

Adobe Flash problems, player security issues & exploits - 2011

Google Chrome offers to help stop Flash security problems - March 2011

Google have extended their flash security sandbox to allow Adobe flash to take advantage of it. Google have also enhanced plug-in security by notifying the user of out-of-date plug-ins that may cause vulnerabilities.

Flash security vulnerabilities affects Microsoft Excel - March 2011

A flash security issue is currently being exploited by hackers by embedding malicious SWF files into Microsoft Excel spreadsheets. These are then emailed to unsuspecting users. All major OS's are affected by this flash security flaw.

USB flash security compromised by major design flaw - February 2011

Secure flash drives manufactured by some of the big brand flash memory-makers can be sent an 'unlock' flag to the devices which makes them unlock without requiring the password. The system is inherently insecure because when the secure flash drive software authenticates the supplied password it sends an 'unlock' flag to the drive (a common 'conditional jump'), which can be patched to unlock the device.

Adobe flash security sandbox bypassed - January 2011

Adobe flash player security has been bypassed by a security researcher who used a file request to a network machine. Adobe flash problems were meant to be minimized by use of the sandbox but the security researcher detailed how this could be easily bypassed by a malicious person.

Kilde: <http://www.locklizard.com/adobe-flash-security.htm>

Drive-by download

From Wikipedia, the free encyclopedia

Drive-by download means three things, each concerning the unintended [download of computer software from the Internet](#):

1. Downloads which a person authorized but without understanding the consequences (e.g. downloads which install an unknown or counterfeit [executable program](#), [ActiveX component](#), or [Java applet](#)). This is usually caused by poor security design [clarification needed]. The user should not be frequently asked to accept security-critical decisions, often with very limited knowledge and within limited time.
2. Any [download](#) that happens without a person's knowledge.
3. Download of [spyware](#), a [computer virus](#) or any kind of [malware](#) that happens without a person's knowledge.

Kan vi undvære Flash og PDF?

Kilde: http://en.wikipedia.org/wiki/Drive-by_download



Safari <http://clicktoflash.com/>

Firefox Extension Flashblock

Chrome extension called FlashBlock

Internet Explorer 8: IE has the Flash block functionality built-in so you don't need to install any additional plugins to be able to block flash on IE 8.

FlashBlock for Opera 9 - bruger nogen Opera mere?

FlashBlockere til iPad? iPhone? Android? - hvorfor er det ikke default?

File Transfer Protocol - filoverførsler

FTP bruges især til:

- FTP - drivere, dokumenter, rettelser - Windows Update? er enten HTTP eller FTP
- Opdatering af websites
- Overførsel af data mellem virksomheder
- Serveren er indbygget i de fleste serveroperativsystemer

FTP sender i klartekst

USER brugernavn og

PASS hemmeligt-kodeord

Gode protokoller - men hvad er en protokol overhovedet

Kryptering af e-mail

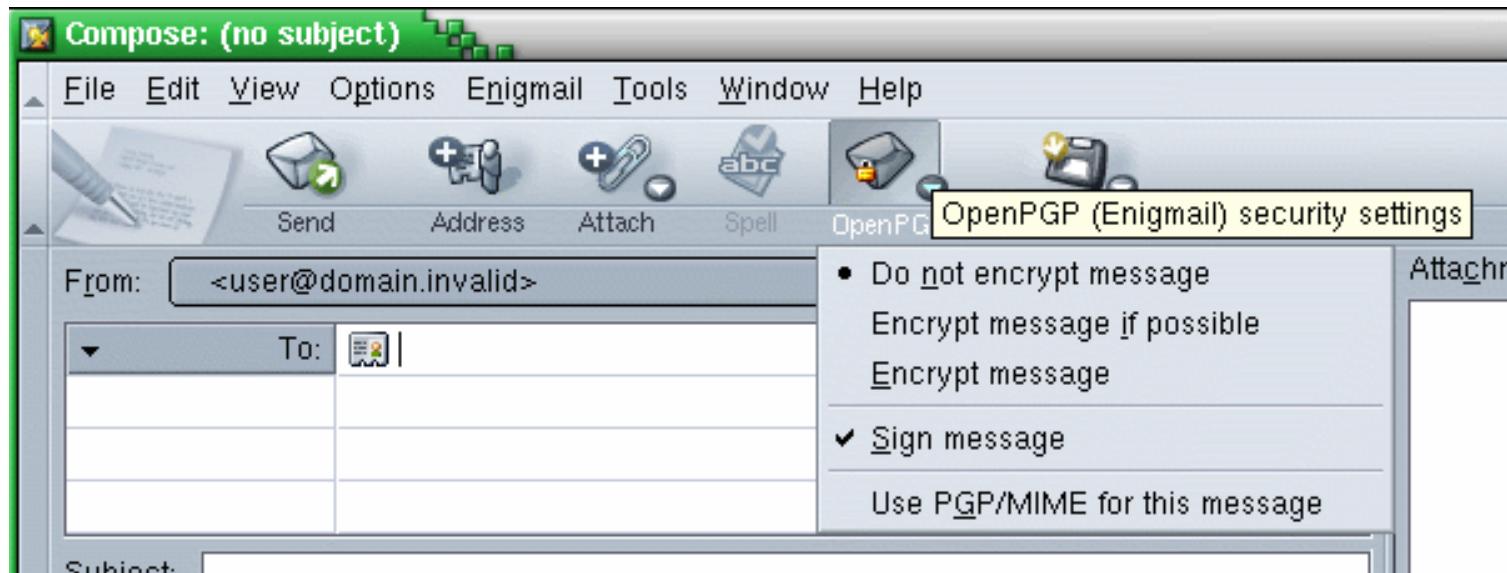
- Pretty Good Privacy - Phil Zimmermann
- PGP = mail sikkerhed

Kryptering af sessioner SSL/TLS

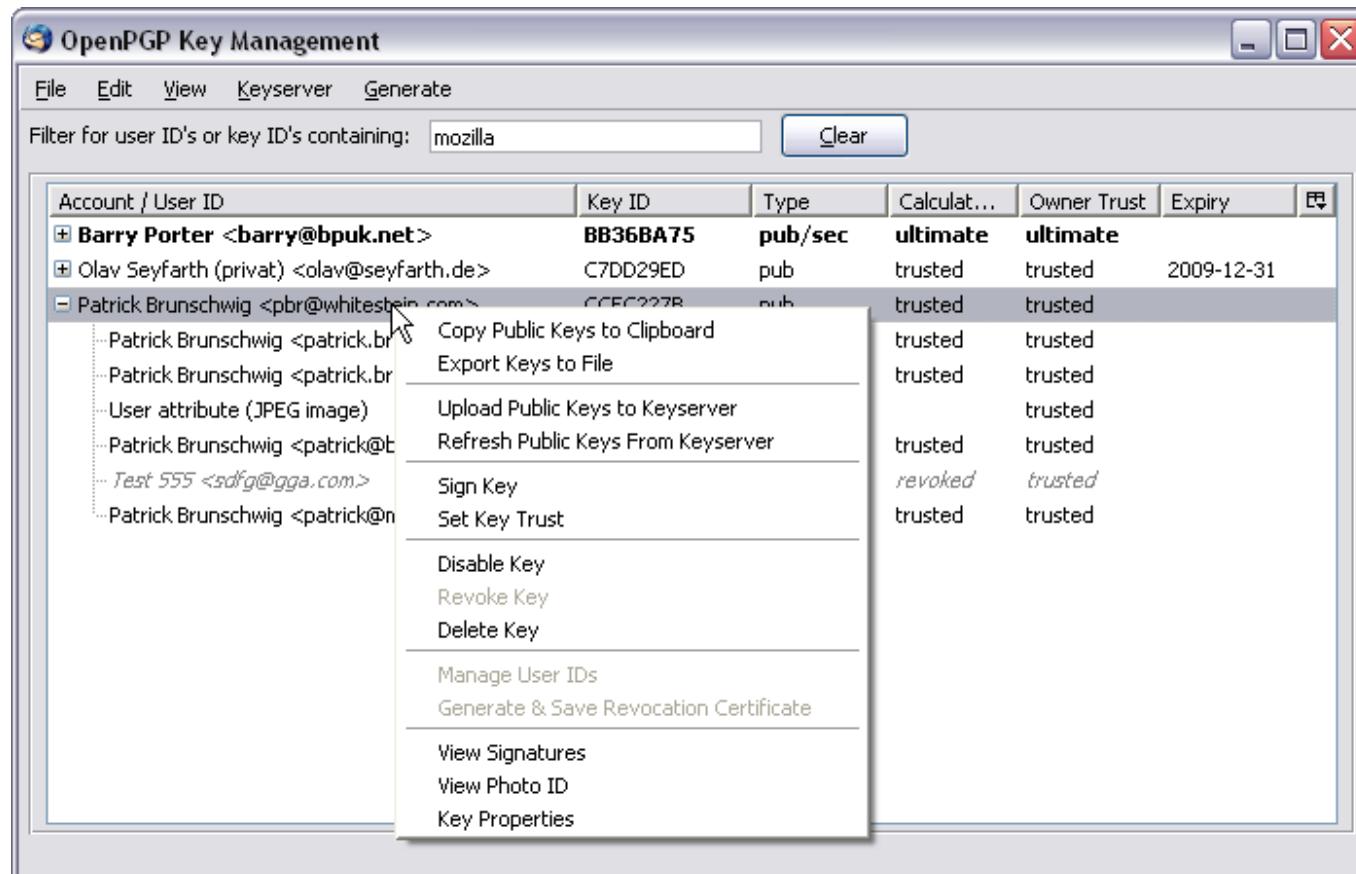
- Secure Sockets Layer SSL / Transport Layer Services TLS
- krypterer data der sendes mellem webservere og klienter
- SSL kan bruges generelt til mange typer sessioner, eksempelvis POP3S, IMAPS, SSH m.fl.

Sender I kreditkortnummeret til en webserver der kører uden https?

Enigmail - GPG plugin til Mail

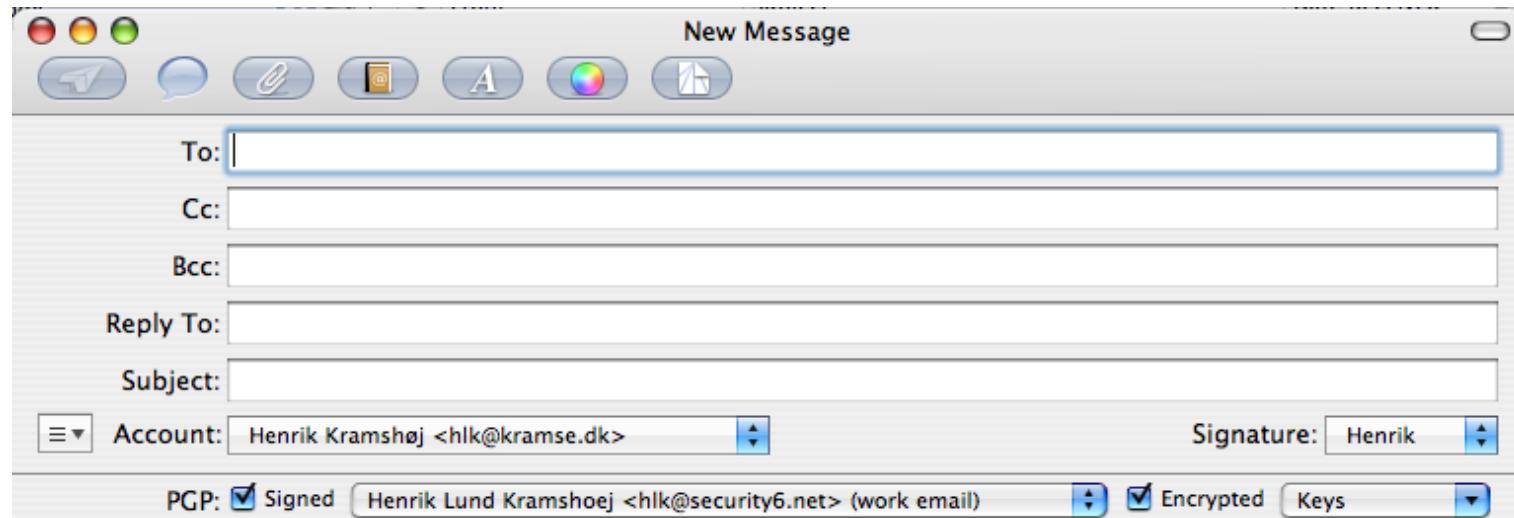


- Enigmail er en udvidelse til
- mailklienten i Mozilla/Netscape
- standalone mailklienten Thunderbird
- Billede fra <http://enigmail.mozdev.org>



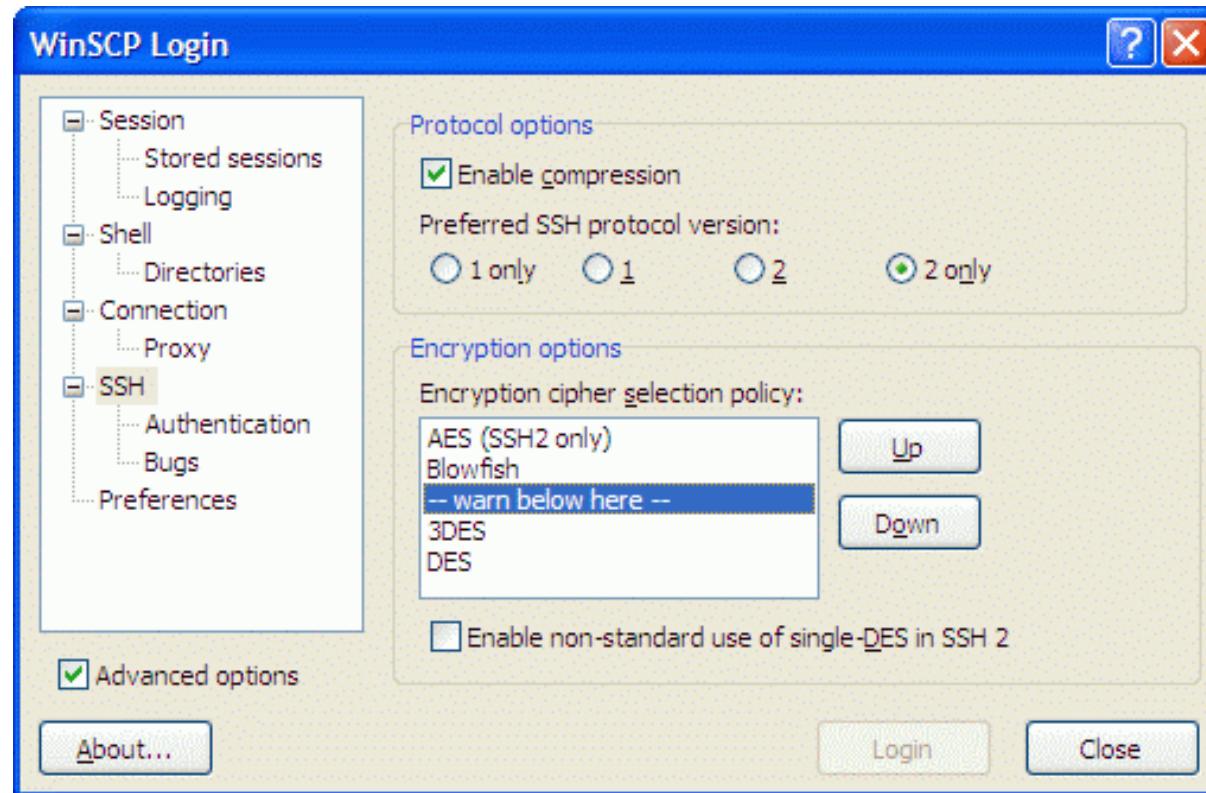
Key Manager funktionaliteten i Enigmail kan anbefales

GPGMail plugin til Mac OS X Mail.app



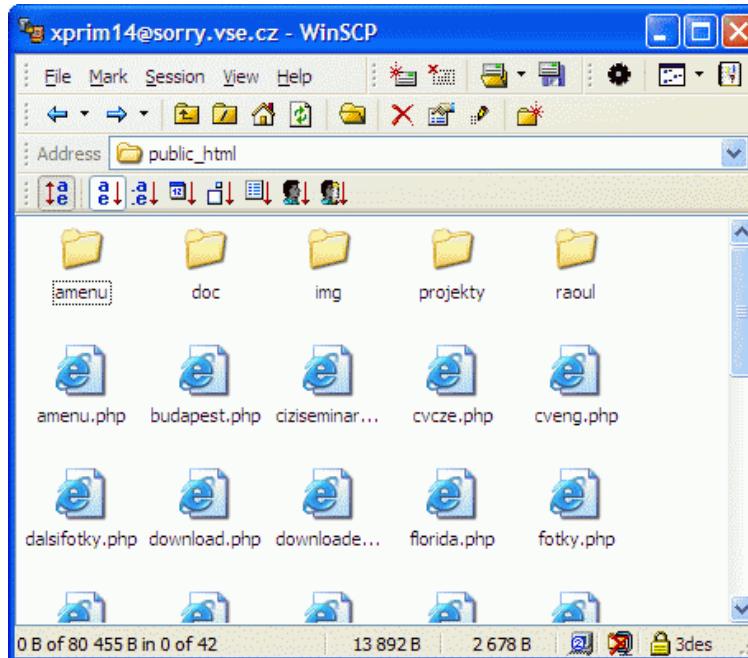
--
Henrik Lund Kramshøj, cand.scient, CISSP
e-mail: hlk@security6.net, tlf: 2026 6000
www.security6.net - IPv6, sikkerhed, netværk
Follower of the Great Way of Unix

- Bruger GPG
- kilde: <http://www.sente.ch/software/GPGMail/English.lproj/GPGMail.html>



screenshot fra

<http://winscp.vse.cz/eng/screenshots/large/advanced.gif>



benytter Secure Shell protkollen (SSH)

screenshot fra

<http://winscp.vse.cz/eng/screenshots/large/explorer.gif>

FileZilla Features

❖ Overview

FileZilla Client is a fast and reliable cross-platform FTP, FTPS and SFTP client with lots of useful features

❖ Features

Among others, the features of FileZilla include the following:

- Easy to use
- Supports FTP, FTP over SSL/TLS (FTPS) and SSH File Transfer Protocol (SFTP)
- Cross-platform. Runs on Windows, Linux, *BSD, Mac OS X and more
- IPv6 support
- Available in many languages
- Supports resume and transfer of large files >4GB
- Tabbed user interface
- Powerful Site Manager and transfer queue
- Bookmarks
- Drag & drop support
- Configurable transfer speed limits

<http://filezilla-project.org/>

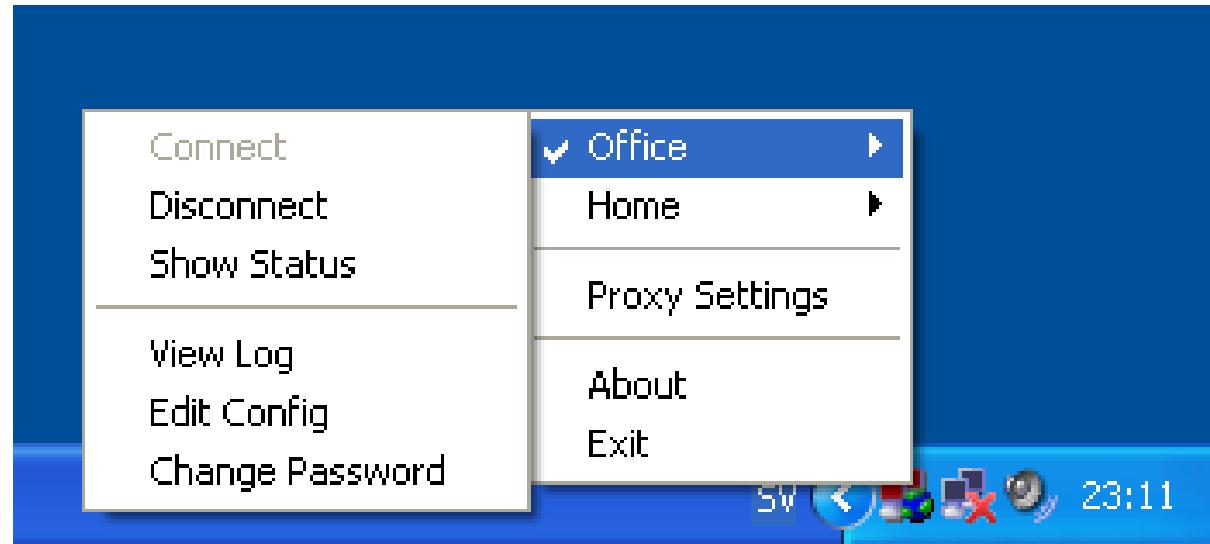
VPN http://en.wikipedia.org/wiki/Virtual_private_network

SSL/TLS VPN - Generelt koncept. Adskillige leverandører: Cisco, Juniper, F5 Big IP

De snakker ikke ret godt sammen på tværs. Brug IPSec for dette.

IPsec er desværre blokeret mange steder og man skal bruge en klient
(I praksis bruger SSL VPN ofte en klient, men den downloades fra web)

Open source variant: OpenVPN



OpenVPN GUI - easy to use

Electronic attacks

Legitimate access - and how to spot access using a broken password



Hackers work all the time to break stuff

Use hackertools:

- Nmap, Nping - test network ports <http://nmap.org>
- Wireshark advanced network analyzer - <http://www.wireshark.org/>
- Metasploit Framework exploit development and delivery <http://www.metasploit.com/>
- Burpsuite web scanner and proxy <http://portswigger.net/burp/>
- Skipfish web scanner <http://code.google.com/p/skipfish/>
- Kali Linux pentesting operating system <http://www.kali.org>
- Most used hacker tools <http://sectools.org/>

Picture: Angelina Jolie as *Kate Libby/Acid Burn* Hackers 1995

Part III: Reduce risk and mitigate impact

Risk management defined

Newer versions of Microsoft Windows, Mac OS X and Linux

- Buffer overflow protection
- Stack protection, non-executable stack
- Heap protection, non-executable heap
- *Randomization of parameters* stack gap m.v.

Note: these still have errors and bugs, but are better than older versions

OpenBSD has shown the way in many cases

<http://www.openbsd.org/papers/>

Are passwords dead?

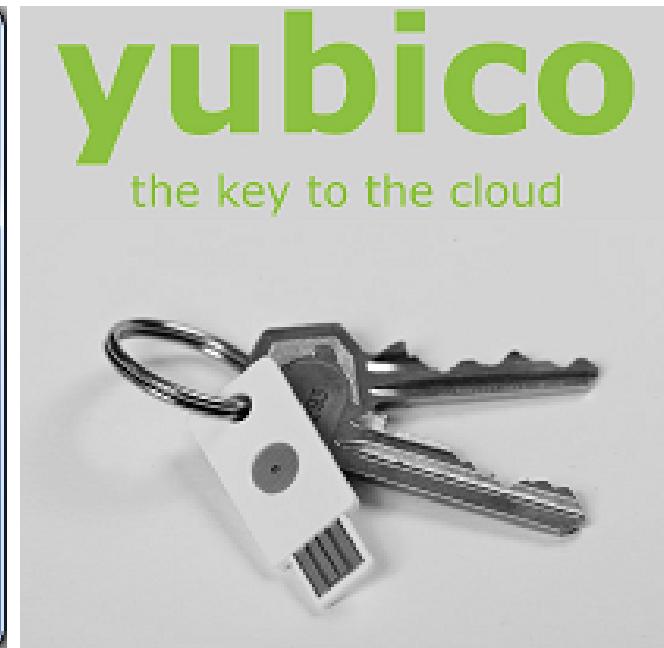
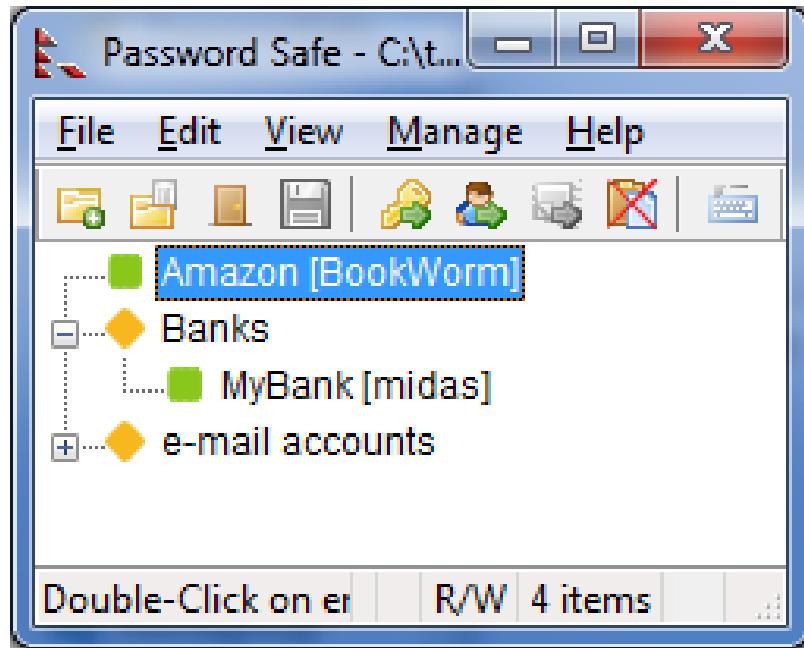
google: passwords are dead
About 6,580,000 results (0.22 seconds)

Can we stop using passwords?

Muffett on Passwords has a long list of password related information, from the author of crack [http://en.wikipedia.org/wiki/Crack_\(password_software\)](http://en.wikipedia.org/wiki/Crack_(password_software))

<http://dropsafe.crypticide.com/muffett-passwords>

Opbevaring af passwords



PasswordSafe <http://passwordsafe.sourceforge.net/>

Apple Keychain

Browsere, Firefox Master Password

Google looks to ditch passwords for good



"Google is currently running a pilot that uses a YubiKey cryptographic card developed by Yubico

The YubiKey NEO can be tapped on an NFC-enabled smartphone, which reads an encrypted one-time password emitted from the key fob."

Source: <http://www.zdnet.com/google-looks-to-ditch-passwords-for-good-with-nfc-based-replacement>



› YubiKey Standard

Our flagship product, making strong two-factor authentication, easy and affordable for everyone.



› YubiKey NEO

Our premium YubiKey, combining USB, NFC, one-time password and PKI technology.



› YubiKey Nano

The world's smallest one-time password token, designed to stay inside the USB-slot.



› YubiKey VIP

A YubiKey Standard pre-configured with a Symantec VIP credential, enabling two-factor authentication against Symantec VIP enabled services, such as PayPal.



› LastPass YubiKey

LastPass Premium is the leading cross platform password manager supporting the YubiKey. We offer a number of discounted bundles of YubiKey + LastPass Premium Subscriptions.



› Password Safe YubiKey

Password Safe is an open source password manager initiated by Bruce Schneier. The YubiKey is used in Challenge-response mode to for 2 factor encryption of the database.

A Yubico OTP is unique sequence of characters generated every time the YubiKey button is touched. The Yubico OTP is comprised of a sequence of 32 Modhex characters representing information encrypted with a 128 bit AES-128 key

<http://www.yubico.com/products/yubikey-hardware/>



Push Notification

Quickly view login or transaction details and tap "Approve" on your iOS or Android device.
Learn more at duosecurity.com/duo-push



Smartphone Passcodes

Easily generate login passcodes — no cell service required. Duo Mobile is available for free on all smartphone platforms.



Text Message

Login passcodes sent via text message. Works on all phones with SMS support.



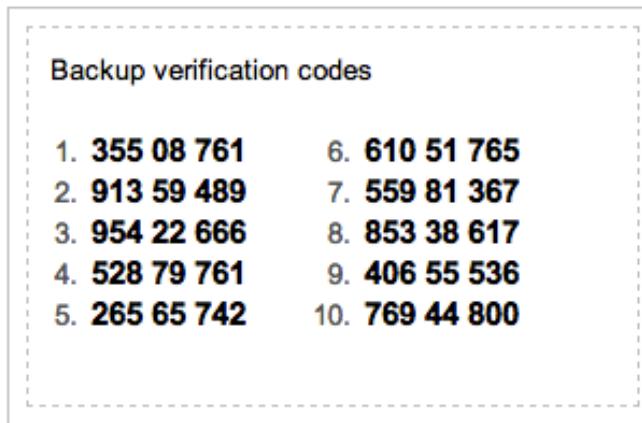
Phone Call

Simply answer a phone call and press a key to authenticate.

Video <https://www.duosecurity.com/duo-push>

<https://www.duosecurity.com/>

Print af koder, low level pragmatisk



Login fra nye enheder kræver ekstra sikkerhed

google 2-faktor auth. SMS med backup codes

Developed at Bellcore in the late 1980s <http://en.wikipedia.org/wiki/S/KEY>

Conclusion passwords: integrate with authentication, not reinvent

From previous slide:

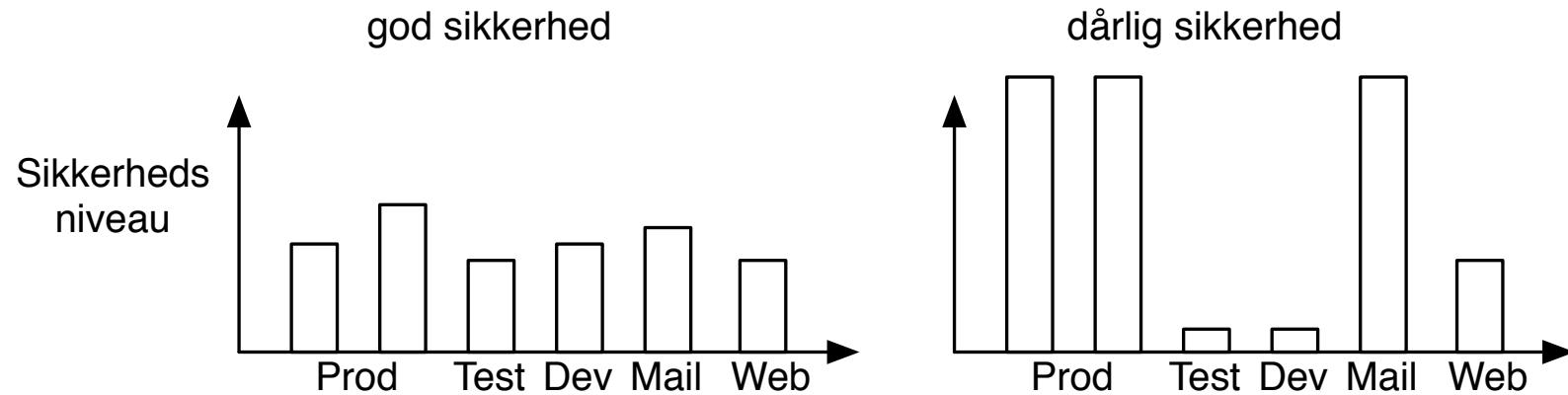
Conclusion passwords: integrate with authentication, not reinvent

Dont:

- Reinvent the wheel - too many times, unless you can maintain it afterwards
- Never invent cryptography yourself
- No copy paste of functionality, harder to maintain in the future

Do:

- Integrate with existing solutions
- Use existing well-tested code: cryptography, authentication, hashing
- Centralize security in your code
- Fine to hide which authentication framework is being used, easy to replace later



Det er bedre at have et ensartet niveau

Hvor rammer angreb hvis du har Fort Knox et sted og kaos andre steder

Hackere vælger ikke med vilje den sværreste vej ind

Accepter at der ikke findes 100% sikkerhed

Vælg dit sikkerhedsniveau

Vælg dine kampe med omhu

- lad andre kæmpe mod spam hvis det ikke er din kerneforretning



Team up!

Snak med din sidemand/dame - I har sikkert mange af de samme udfordringer.

Title: Cisco's new password hashing scheme easily cracked

Description: In an astonishing decision that has left cryptographic experts scratching their heads, engineer's for Cisco's IOS operating system chose to switch to a **one-time SHA256 encoding - without salt** - for storing passwords on the device. This decision leaves password hashes vulnerable to high-speed cracking - modern graphics cards can compute over **2 billion SHA256 hashes in a second - and is actually considerably less secure than Cisco's previous implementation.** As users cannot downgrade their version of IOS without a complete reinstall, and no fix is yet available, security experts are urging users to avoid upgrades to IOS version 15 at this time.

Reference: via SANS @RISK newsletter

<http://arstechnica.com/security/2013/03/cisco-switches-to-weaker-h>

Securing e-mail

- Pretty Good Privacy - Phil Zimmermann
- OpenPGP = e-mail security

Network sessions use SSL/TLS

- Secure Sockets Layer SSL / Transport Layer Services TLS
- Encrypting data sent and received
- SSL/TLS already used for many protocols as a wrapper: POP3S, IMAPS, SSH, SMTP+TLS m.fl.

Encrypting traffic at the network layer - Virtual Private Networks VPN

- IPsec IP Security Framework, se også L2TP
- PPTP Point to Point Tunneling Protocol - dårlig og usikker, brug den ikke mere!
- OpenVPN uses SSL/TLS across TCP or UDP

Note: SSL/TLS is not trivial to implement, key management!



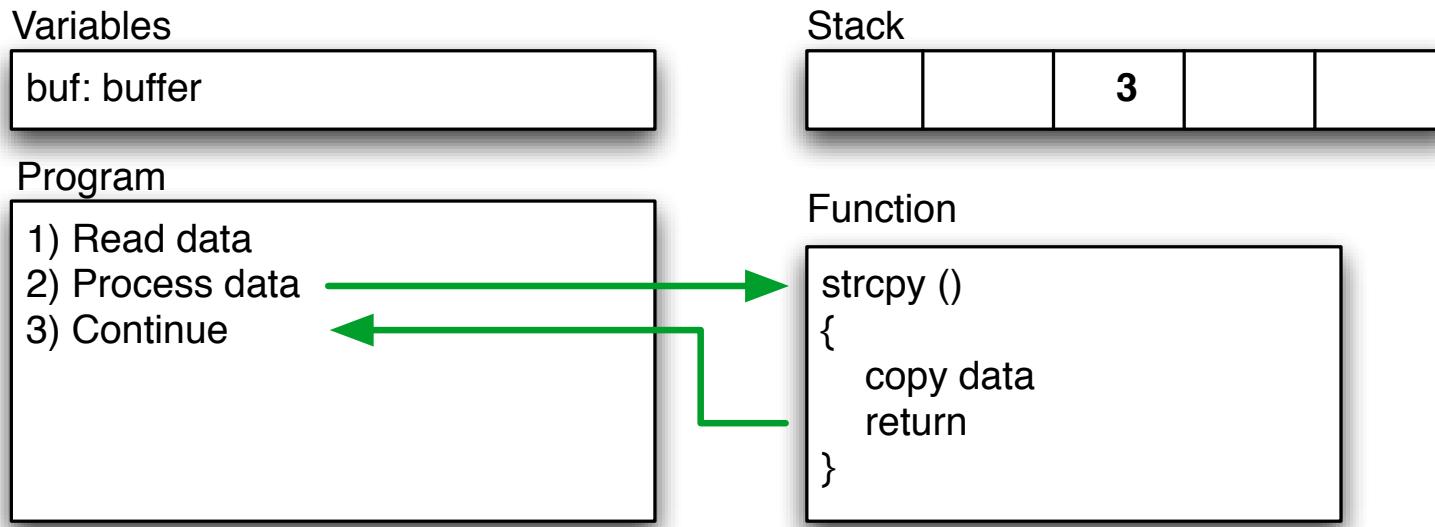
HTTPS Everywhere is a Firefox extension produced as a collaboration between The Tor Project and the Electronic Frontier Foundation. It encrypts your communications with a number of major websites.

<http://www.eff.org/https-everywhere>

Et buffer overflow er det der sker når man skriver flere data end der er afsat plads til i en buffer, et dataområde. Typisk vil programmet gå ned, men i visse tilfælde kan en angriber overskrive returadresser for funktionskald og overtage kontrollen.

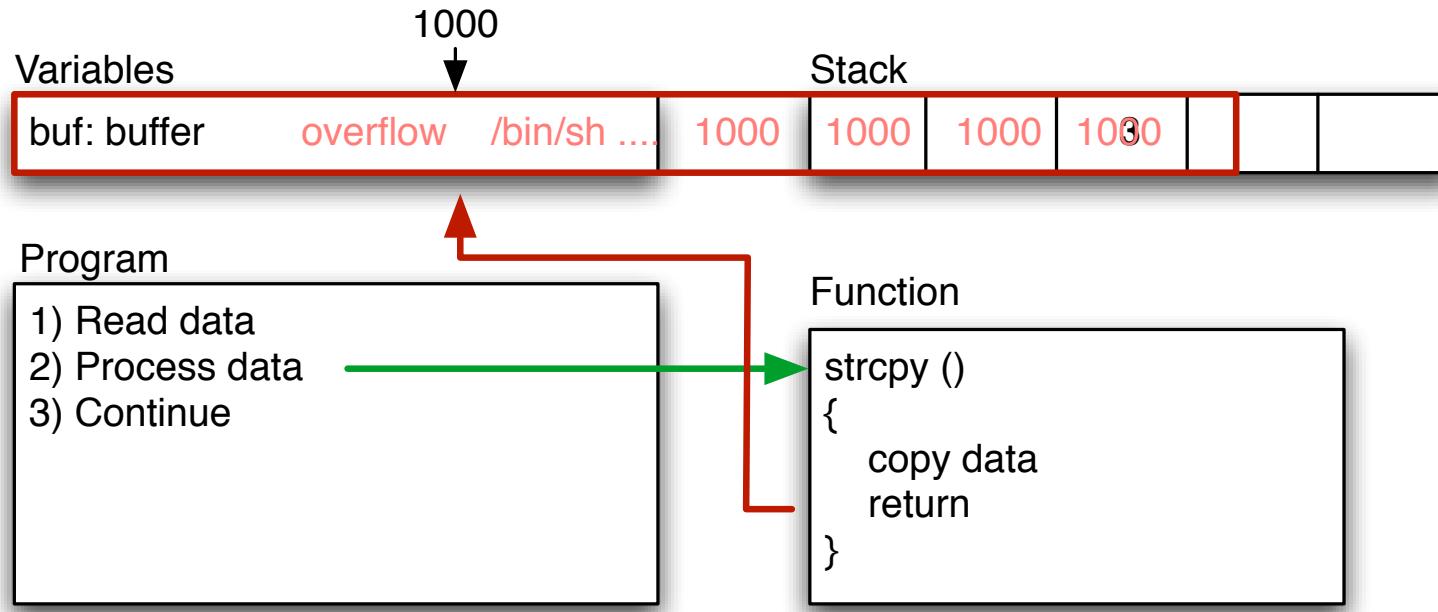
Stack protection er et udtryk for de systemer der ved hjælp af operativsystemer, programbiblioteker og lign. beskytter stakken med returadresser og andre variable mod overskrivning gennem buffer overflows. StackGuard og Propolice er nogle af de mest kendte.

Buffer og stacks



```
main(int argc, char **argv)  
{  
    char buf[200];  
    strcpy(buf, argv[1]);  
    printf("%s\n", buf);  
}
```

Overflow - segmentation fault



Bad function overwrites return value!

Control return address

Run shellcode from buffer, or from other place

exploit/exploitprogram er

- udnytter eller demonstrerer en sårbarhed
- rettet mod et specifikt system.
- kan være 5 linier eller flere sider
- Meget ofte Perl eller et C program

```
$buffer = "";
$null = "\x00"; █
$nop = "\x90";
$nopsize = 1; █
$len = 201; // what is needed to overflow, maybe 201, maybe more!
$the_shell_pointer = 0xdeadbeef; // address where shellcode is
# Fill buffer
for ($i = 1; $i < $len;$i += $nopsize) {
    $buffer .= $nop;
}█
$address = pack('l', $the_shell_pointer);
$buffer .= $address;█
exec "$program", "$buffer";
```

Demo exploit in Perl

Hvorfor afvikle applikationer med administrationsrettigheder - hvis der kun skal læses fra eksempelvis en database?

least privilege betyder at man afvikler kode med det mest restriktive sæt af privileger - kun lige nok til at opgaven kan udføres

Dette praktiseres ikke i webløsninger i Danmark - eller meget få steder

privilege escalation er når man på en eller anden vis opnår højere privileger på et system, eksempelvis som følge af fejl i programmer der afvikles med højere privilegier. Derfor HTTPD servere på UNIX afvikles som nobody - ingen specielle rettigheder.

En angriber der kan afvikle vilkårlige kommandoer kan ofte finde en sårbarhed som kan udnyttes lokalt - få rettigheder = lille skade

local vs. remote angiver om et exploit er rettet mod en sårbarhed lokalt på maskinen, eksempelvis opnå højere privilegier, eller beregnet til at udnytter sårbarheder over netværk

remote root exploit - den type man frygter mest, idet det er et exploit program der når det afvikles giver angriberen fuld kontrol, root user er administrator på UNIX, over netværket.

zero-day exploits dem som ikke offentliggøres - dem som hackere holder for sig selv. Dag 0 henviser til at ingen kender til dem før de offentliggøres og ofte er der umiddelbart ingen rettelser til de sårbarheder

Hvorfor er programmerne stadig sårbare?

Programmer idag er komplekse!

Hudson Extensible continuous integration server <http://hudson-ci.org/>

Sonar <http://www.sonarsource.org/>

Yasca can scan source code written in Java, C/C++, HTML, JavaScript, ASP, ColdFusion, PHP, COBOL, .NET, and other languages. Yasca can integrate easily with other tools

<http://www.scovetta.com/yasca.html>

Automatisk analyse af software

http://samate.nist.gov/index.php/Source_Code_Security_Analyzers.html

NB: du skal stadig tænke dig om :-)



The OWASP Top Ten provides a minimum standard for web application security. The OWASP Top Ten represents a broad consensus about what the most critical web application security flaws are.

The Open Web Application Security Project (OWASP)

OWASP har gennem flere år udgivet en liste over de 10 vigtigste sikkerhedsproblemer for webapplikationer

<http://www.owasp.org>

Hvad gør I for at undgå problemer som de her nævnte? - kan man gøre mere?

Man bør være klar over hvilke teknologier man bruger

Standardiser på et mindre antal produkter, biblioteker, sprog

Regler og procedurer skal hele tiden opdateres:

- Kvalitetssikring
- Retningslinier for tilladte tags
- Retningslinier for brug af SQL

Ved at fokusere på antallet af produkter kan man måske indskrænke mulighederne for fejl, høj kvalitet er ofte mere sikkert

nye produkter kan være farlige til man lærer dem at kende!

- Hvis der ikke findes retningslinier for udvikling så etabler disse
- eksempel:
javascript må gerne benyttes til at validere forms for at give hurtig feedback til brugeren
- serveren der modtager input fra brugeren validerer alle data sikkerhedsmæssigt
- Retningslinierne er medvirkende til at foretage en afbalanceret investering i sikkerheden
- undgå dyre hovsa løsninger
- undgå huller i sikkerheden, ens niveau
- Der findes vejledninger til både gamle og nye sprog/systemer,
eks Ruby On Rails Security Guide <http://guides.rubyonrails.org/security.html>

Er der tilstrækkeligt med fokus på software i produktion

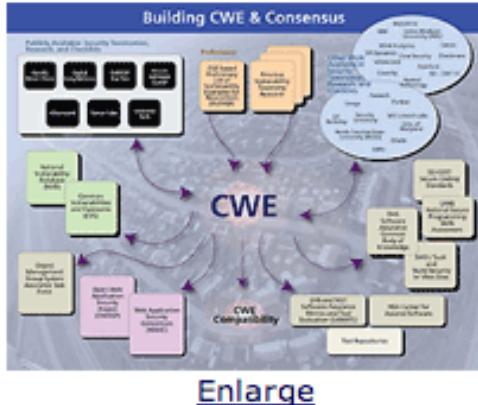
Kan en vilkårlig server nemt reetableres

Foretages rettelser direkte på produktionssystemer

Er der fall-back plan

Burde være god systemadministrator praksis

Undgå også opdatering af prod databaser med manuelle SQL queries



CWE™ International in scope and free for public use, CWE provides a unified, measurable set of software weaknesses that is enabling more effective discussion, description, selection, and use of software security tools and services that can find these weaknesses in source code and operational systems as well as better understanding and management of software weaknesses related to architecture and design.

CWE in the Enterprise

- ▲ [Software Assurance](#)
- ▲ [Application Security](#)
- ▲ [Supply Chain Risk Management](#)
- ▲ [System Assessment](#)
- ▲ [Training](#)
- ▲ [Code Analysis](#)
- ▲ [Remediation & Mitigation](#)
- ▲ [NVD \(National Vulnerability Database\)](#)
- ▲ [Recommendation ITU-T X.1524 CWE, ITU-T CYBEX Series](#)

<http://cwe.mitre.org/>

Monster Mitigations

These mitigations will be effective in eliminating or reducing the severity of the Top 25. These mitigations will also address many weaknesses that are not even on the Top 25. If you adopt these mitigations, you are well on your way to making more secure software.

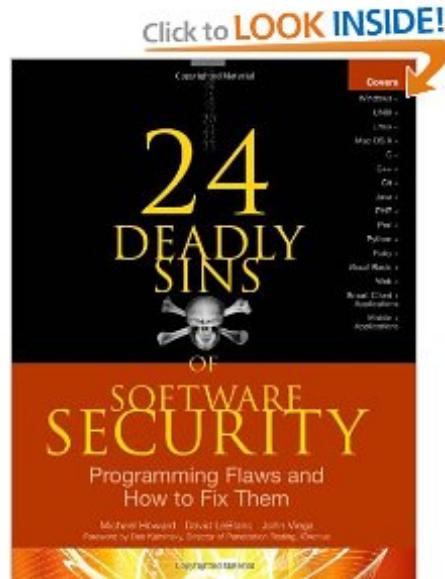
A [Monster Mitigation Matrix](#) is also available to show how these mitigations apply to weaknesses in the Top 25.

ID	Description
M1	Establish and maintain control over all of your inputs.
M2	Establish and maintain control over all of your outputs.
M3	Lock down your environment.
M4	Assume that external components can be subverted, and your code can be read by anyone.
M5	Use industry-accepted security features instead of inventing your own.
GP1	(general) Use libraries and frameworks that make it easier to avoid introducing weaknesses.
GP2	(general) Integrate security into the entire software development lifecycle.
GP3	(general) Use a broad mix of methods to comprehensively find and prevent weaknesses.
GP4	(general) Allow locked-down clients to interact with your software.

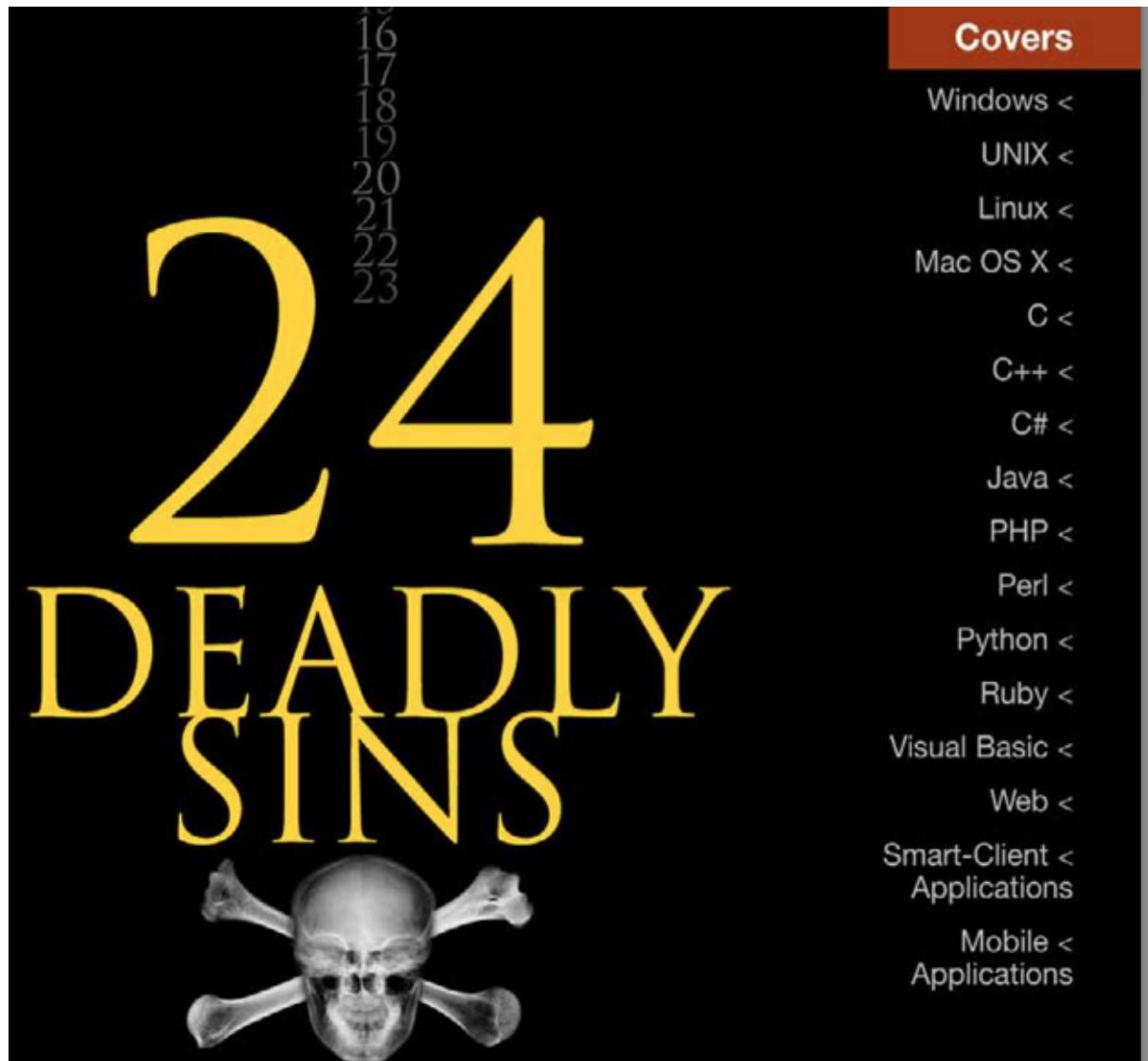
See the [Monster Mitigation Matrix](#) that maps these mitigations to Top 25 weaknesses.

Source: <http://cwe.mitre.org/top25/index.html>

Deadly sins bogen



24 Deadly Sins of Software Security Michael Howard, David LeBlanc, John Viega 2. udgave, første hed 19 Deadly Sins



Part I Web Application Sins 1-4

- 1) SQL Injection
- 2) Web Server-Related Vulnerabilities
- 3) Web Client-Related Vulnerabilities (XSS)
- 4) Use of Magic URLs, Predictable Cookies, and Hidden Form Fields

Part II Implementation Sins 5-18

5) Buffer Overruns, 6) Format String, 7) Integer Overflows, 8) C++ Catastrophes, 9) Catching Exceptions, 10) Command Injection 11) Failure to Handle Errors Correctly 12) Information Leakage 13) Race Conditions 14) Poor Usability 15) Not Updating Easily 16) Executing Code with Too Much Privilege 17) Failure to Protect Stored Data 18) The Sins of Mobile Code

Still want to program in C?

Part III Cryptographic Sins 19-21

- 19) Use of Weak Password-Based System
- 20) Weak Random Numbers
- 21) Using Cryptography Incorrectly

Part IV Networking Sins 22-24

- 22) Failing to Protect Network Traffic,
- 23) Improper use of PKI, Especially SSL,
- 24) Trusting Network Name Resolution

Create your own exploits and spearphishing?



Metasploit Still rocking the internet

<http://www.metasploit.com/>

Armitage GUI fast and easy hacking for Metasploit

<http://www.fastandeasyhacking.com/>

Metasploit Unleashed

http://www.offensive-security.com/metasploit-unleashed/Main_Page

Social-Engineer Toolkit

<https://www.trustedsec.com/downloads/social-engineer-toolkit/>

You can get these easily on <http://www.kali.org>

Kilde:

http://www.metasploit.com/redmine/projects/framework/wiki/Release_Notes_360

The most advanced penetration testing distribution, ever.

From the creators of BackTrack comes Kali Linux, the most advanced and versatile penetration testing distribution ever created. BackTrack has grown far beyond its humble roots as a live CD and has now become a full-fledged operating system. With all this buzz, you might be asking yourself: - What's new ?



BackTrack <http://www.backtrack-linux.org>

Kali <http://www.kali.org/>

The Exploit Database - dagens buffer overflow



The screenshot shows the homepage of The Exploit Database. At the top, there's a banner with the word "EXPLOIT" in large letters, "D a t a b a s e" below it, and a silhouette of a person holding a briefcase. To the right, it says "Currently Archiving 10343 Exploits". Below the banner is a navigation menu with links like [home], [news], [remote], [local], [web], [dos], [shellcode], [papers], [search], [D], [submit], and [rss]. The main content area has a dark background with floral patterns on the sides. It features a section titled "The Exploit Database" with a sub-section "Remote Exploits". Below this is a table listing seven remote exploits:

Date	D	A	V	Description	Plat.	Author
2010-01-27	D	A	✓	CamShot v1.2 SEH Overwrite Exploit	windows	technik
2010-01-25	D	-	✓	AOL 9.5 Phobos.Playlist 'Import()' Buffer Overflow Exploit (Meta)	windows	Trancer
2010-01-22	D	A	✓	IntelliTamper 2.07/2.08 (SEH) Remote Buffer Overflow	windows	loneferret
2010-01-21	D	-	✓	EFS Easy Chat server Universal BOF-SEH (Meta)	windows	FB1H2S
2010-01-20	D	-	✓	AOL 9.5 ActiveX 0day Exploit (heap spray)	windows	Dz_attacker
2010-01-19	D	-	✓	Pidgin MSN <= 2.6.4 File Download Vulnerability	multiple	Mathieu GASPARD
2010-01-18	D	A	✓	Exploit EFS Software Easy Chat Server v2.2	windows	John Babio

<http://www.exploit-db.com/>

We must allow open hacker tools

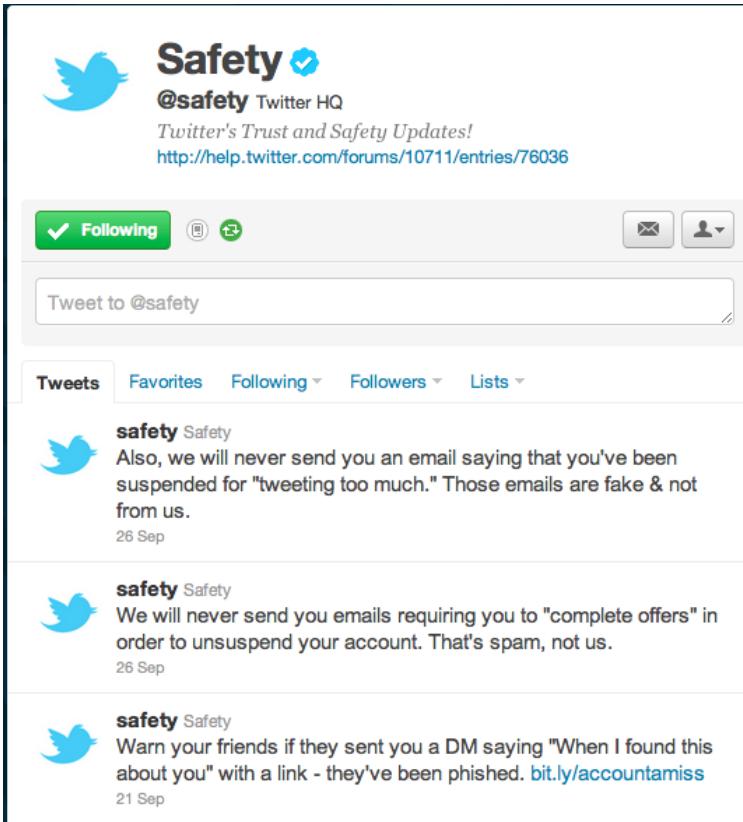
I 1993 skrev Dan Farmer og Wietse Venema artiklen
Improving the Security of Your Site by Breaking Into it

I 1995 udgav de softwarepakken SATAN
Security Administrator Tool for Analyzing Networks

We realize that SATAN is a two-edged sword - like many tools, it can be used for good and for evil purposes. We also realize that intruders (including wannabees) have much more capable (read intrusive) tools than offered with SATAN.

Se <http://sectools.org> og <http://www.packetstormsecurity.org/>

Kilde: <http://www.fish2.com/security/admin-guide-to-cracking.html>



The screenshot shows the Twitter profile for the account @safety, which is associated with Twitter HQ. The profile picture is the blue Twitter bird. The account has a verified checkmark and is followed by the user who took the screenshot. The bio reads: "Twitter's Trust and Safety Updates!" and provides a link: <http://help.twitter.com/forums/10711/entries/76036>. Below the bio is a tweet input field labeled "Tweet to @safety". Underneath, there are tabs for "Tweets", "Favorites", "Following", "Followers", and "Lists". Three tweets are listed:

- safety Safety**
Also, we will never send you an email saying that you've been suspended for "tweeting too much." Those emails are fake & not from us.
26 Sep
- safety Safety**
We will never send you emails requiring you to "complete offers" in order to unsuspend your account. That's spam, not us.
26 Sep
- safety Safety**
Warn your friends if they sent you a DM saying "When I found this about you" with a link - they've been phished. bit.ly/accountamiss
21 Sep

Twitter is one of the fastest newsfeeds in the world

Lad være med at bruge computere

Lad være med at bruge en computer til alt - en privat bærbar ER mere privat end en firmacomputer

Forskellige computere til forskellige formål, en server er mail-server en anden er web-server

Brug en sikker konfiguration, minimumskonfiguration

Brug sikre protokoller, kryptering, evt. TOR

Opsætning af netværk, hvordan? Security Configuration Guides + paranoia

- <http://csrc.nist.gov/publications/PubsSSPs.html>
- <http://www.nsa.gov/research/publications/index.shtml>
- http://www.nsa.gov/ia/guidance/security_configuration_guides/index.shtml

- BIOS kodeord, pin-kode til telefon
- Firewall - specielt på laptops
- Installer anti-virus og anti-spyware hvis det er på Windows
- Brug to browsere med forskellige indstillinger
- Brug evt. PGP til mailkryptering
- Brug Password Safe, Keychain Access (OSX) eller tilsvarende
- Overvej at bruge harddisk eller filkryptering
- Opdatere alle programmer jævnligt
- **Backup af vigtige data - harddiske i bærbare kan også dø**
- Husk: sikker sletning af harddiske, medier osv.

Be careful - questions?



Hey, Lets be careful out there!

Henrik Lund Kramshøj, internet samurai
hlk@solido.net

Source: Michael Conrad <http://www.hillstreetblues.tv/>