

Welcome to

Penetration testing IV cryptography og cracking

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<http://www.solidonetworks.com>



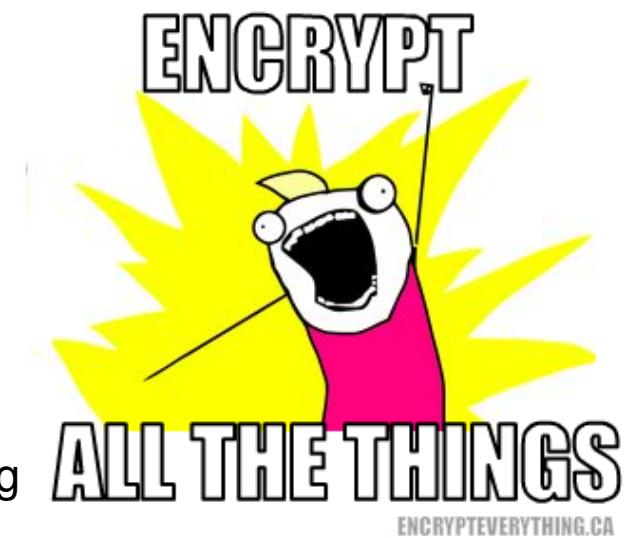
Introducere nogle almindelige protokoller og deres krav

Introducere basale penetrationstest værktøjer indenfor kryptografi

Skabe en grundig forståelse for praktisk anvendelig kryptografi

Recommendations

- Lock your devices, phones, tables and computers
- Update software and apps
- Do NOT use the same password everywhere
- Watch out when using open wifi-networks
- Multiple browsers: one for Facebook, and separate for home banking apps?
- Multiple laptops? One for private data, one for work?
- Think of the data you produce, why do people take naked pictures and SnapChat them?
- Use pseudonyms and aliases, do not use your real name everywhere
- Enable encryption: **IMAPS POP3S HTTPS TOR OpenPGP VPN SSL/TLS**



Stop watching us!

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STOP WATCHING US



THANK YOU

the rally's over, but we're just getting started.

StopWatchingUs: We're Just Getting Started.

Thank you. You and more than 3,500 other people turned out yesterday to protest the NSA's mass surveillance program. The rally's over now, but we're just getting started.

[Stay Connected »](#)

par·a·noi·a

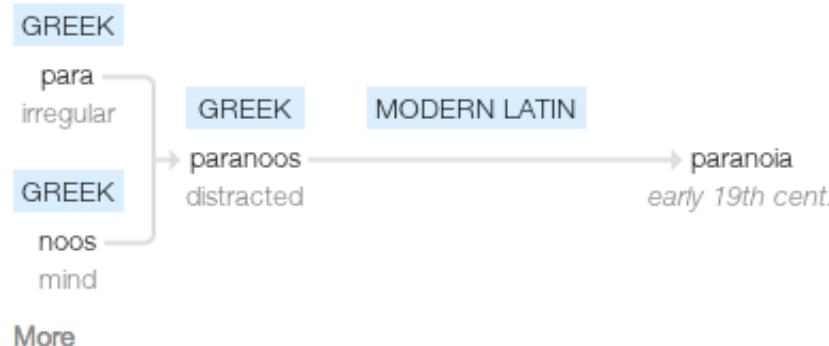
/parə'noiə/ ⓘ

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 and identity theft statistics

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/>



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.

Why think of security?



Privacy is necessary for an open society in the electronic age. Privacy is not secrecy. A private matter is something one doesn't want the whole world to know, but a secret matter is something one doesn't want anybody to know. Privacy is the power to selectively reveal oneself to the world. A Cypherpunk's Manifesto by Eric Hughes, 1993

Copied from <https://cryptoparty.org/wiki/CryptoParty>

Et demokrati fordrer borgere med frihed som har evnen til at tage beslutninger, som ikke skal være bange for overvågning.

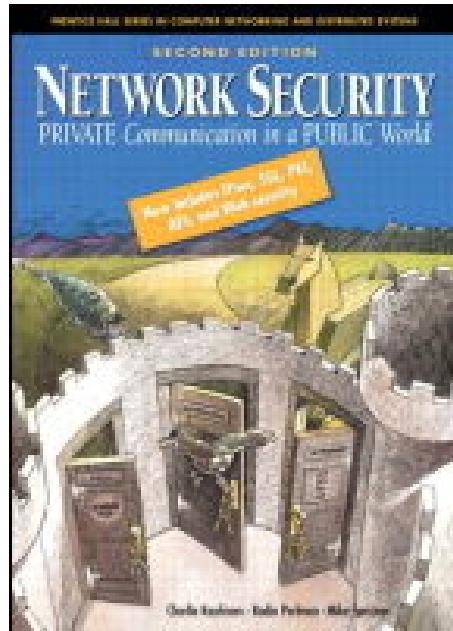
Et demokrati fordrer borgere som aktivt vælger hvornår de afgiver personlige data om deres liv og færdens.

Kryptografi er en fredelig protest mod indsamling af data som misbruges enten til kriminelle formål, kommercielle formål eller under dække af beskyttelse mod terror, ekstremisme, nazisme, misbrug af børn, ... Le mal du jour / dagens onde.

Du bestemmer - det er demokrati

Derudover stalking, ekskærester, arbejdsgivere, forældre, ...

Hvor skal vi nu starte denne rejse?



Private Communications in an Public World

Anbefalelsesværdig bog som gennemgår grundlaget for kryptering, teknikker og protokollerne der bruges på internet idag, herunder: IPsec, SSL/TLS, PGP, PKI, AES m.fl.

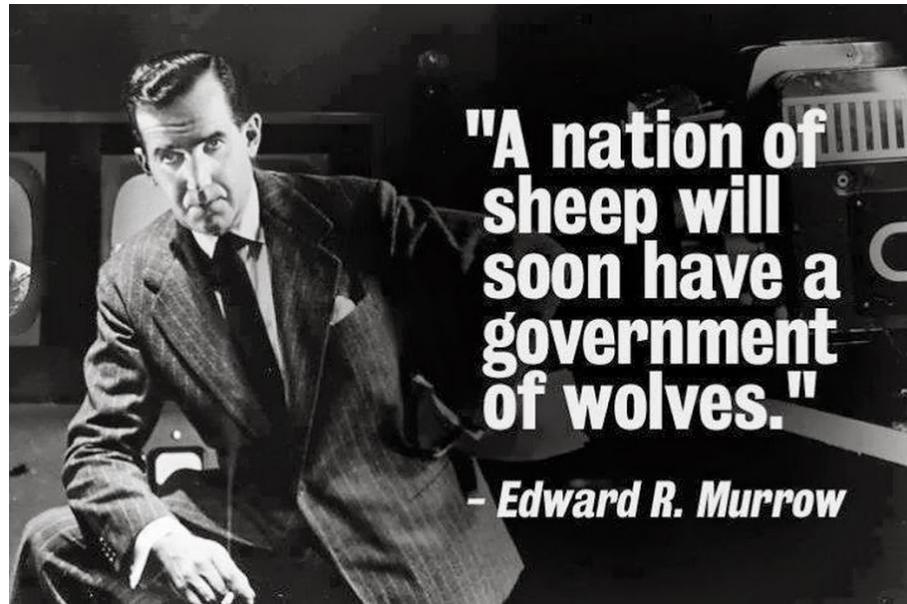
Use technology

Learn the technology - read the freaking manual

Think about the data you have, upload, facebook license?! WTF!

Think about the data you create - nude pictures taken, where will they show up?

- Turn off features you don't use
- Turn off network connections when not in use
- Update software and applications
- Turn on encryption: **IMAPS**, **POP3S**, **HTTPS** also for data at rest, full disk encryption, tablet encryption
- Lock devices automatically when not used for 10 minutes
- Dont trust fancy logins like fingerprint scanner or face recognition on cheap devices



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>

Chaosreader

Chaosreader Report

Created at: Sun Nov 16 21:04:18 2003, Type: snoop

[Image Report](#) - Click here for a report on captured images.

[GET/POST Report](#) (Empty) - Click here for a report on HTTP GETs and POSTs.

[HTTP Proxy Log](#) - Click here for a generated proxy style HTTP log.

TCP/UDP/... Sessions

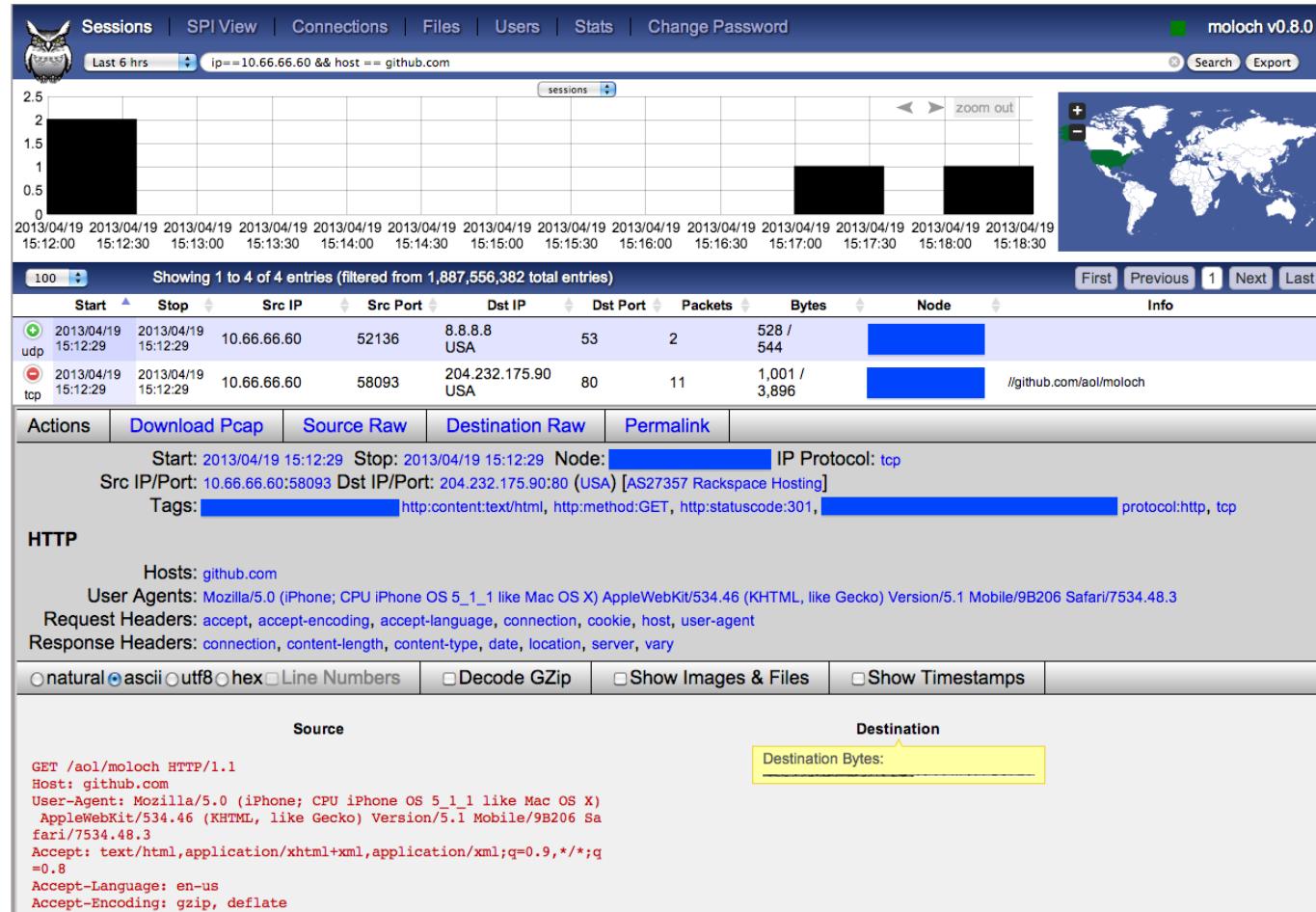
1.	Sun Nov 16 20:38:22 2003	30 s	192.168.1.3:1368 <-> 192.77.84.99:80	web	383 bytes	• as html
2.	Sun Nov 16 20:38:22 2003	29 s	192.168.1.3:1366 <-> 192.77.84.99:80	web	381 bytes	• as html

Med adgang til et netværksdump kan man læse det med chaosreader

Output er HTML med oversigter over sessioner, billeder fra datastrømmen osv.

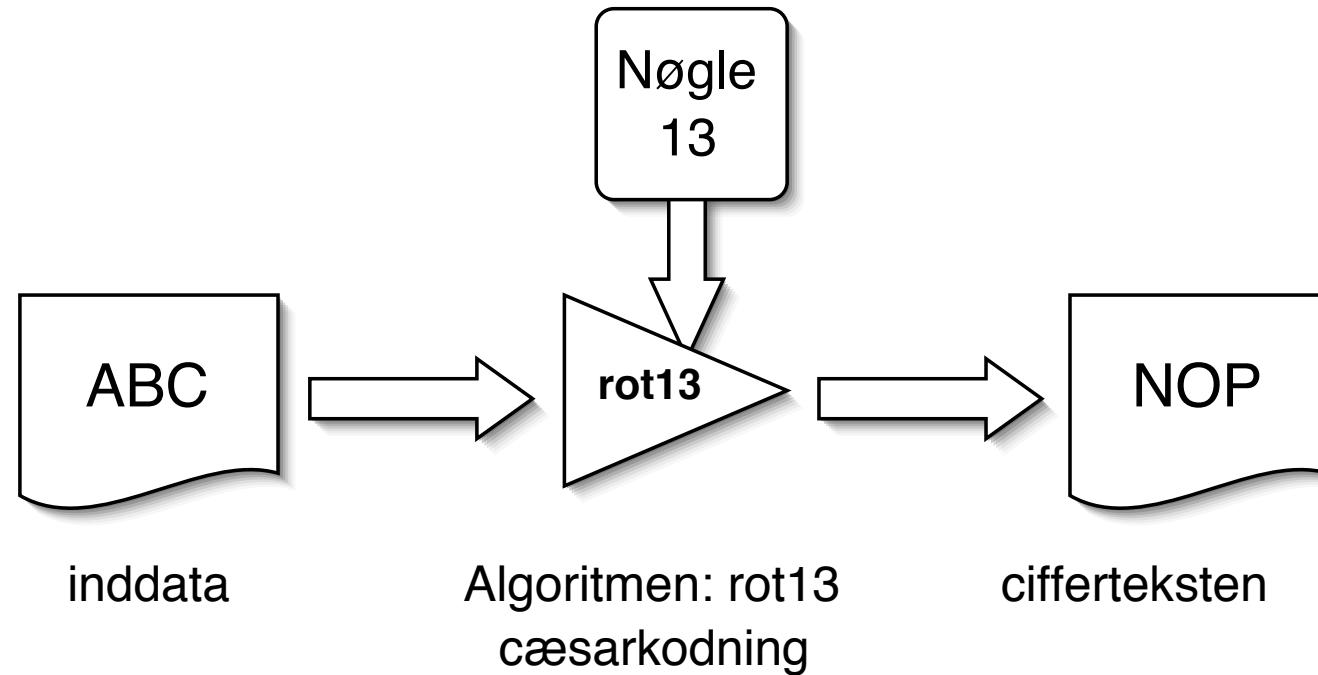
<http://chaosreader.sourceforge.net/>

Big data example Moloch



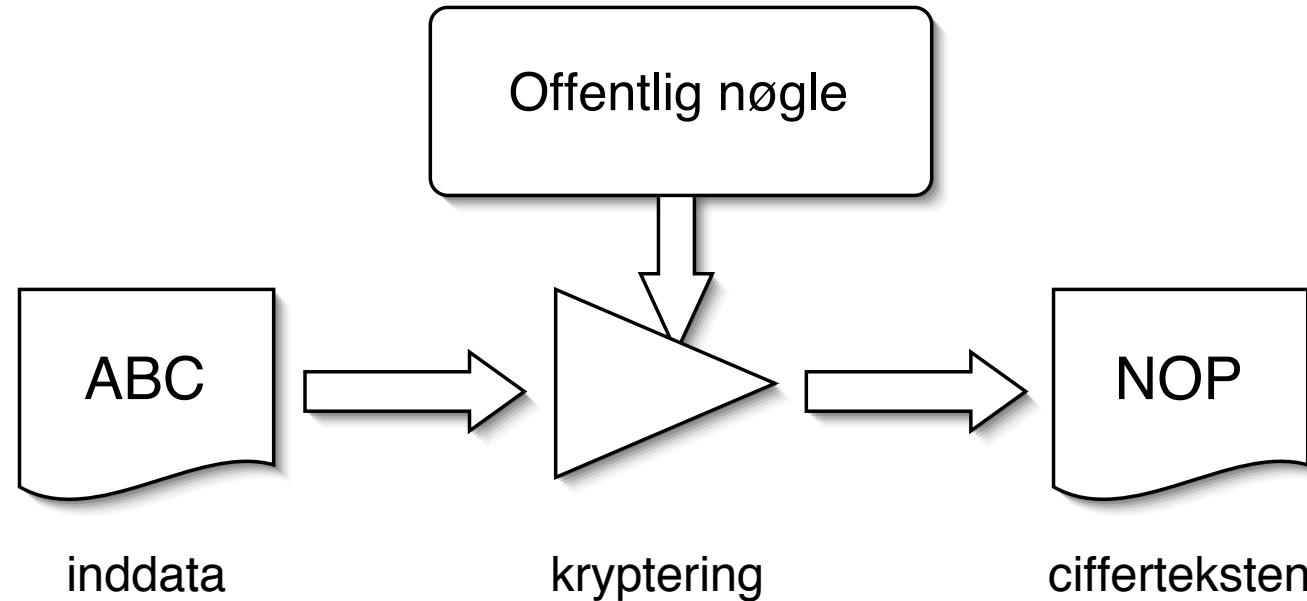
Picture from <https://github.com/aol/moloch>

Vi vil nu snakke overordnet om kryptering - uden matematik ☺



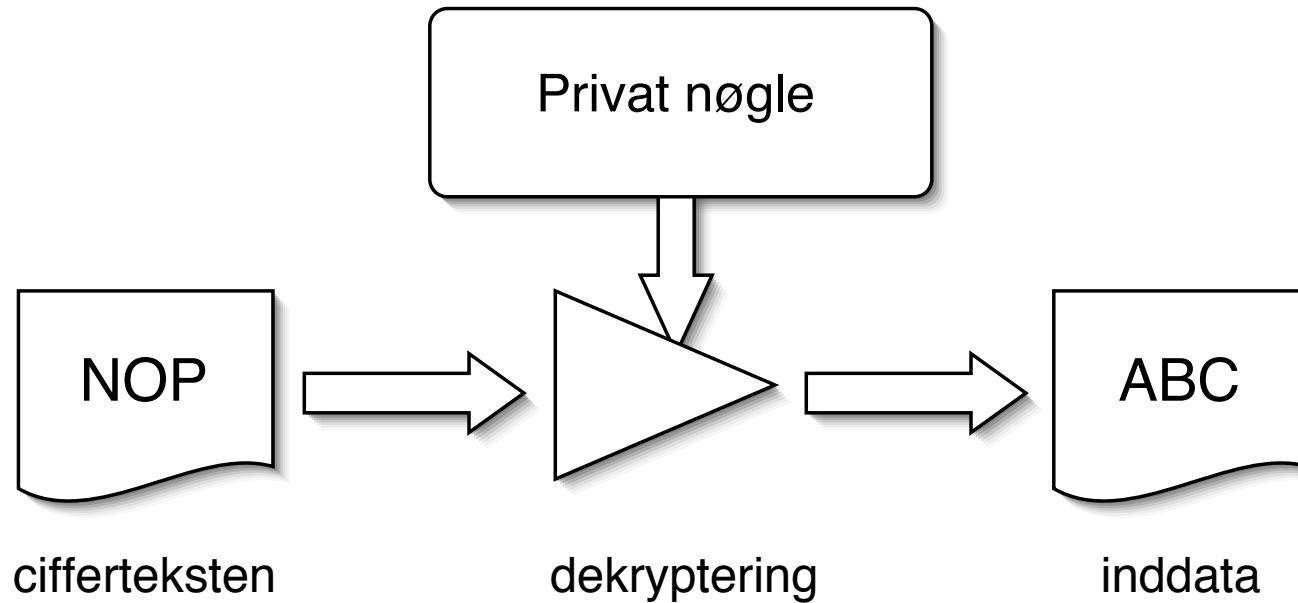
Kryptografi er læren om, hvordan man kan kryptere data

Kryptografi benytter algoritmer som sammen med nøgler giver en ciffertekst - der kun kan læses ved hjælp af den tilhørende nøgle



privat-nøgle kryptografi (eksempelvis AES) benyttes den samme nøgle til kryptering og dekryptering

offentlig-nøgle kryptografi (eksempelvis RSA) benytter to separate nøgler til kryptering og dekryptering



offentlig-nøgle kryptografi (eksempelvis RSA) bruger den private nøgle til at dekryptere man kan ligeledes bruge offentlig-nøgle kryptografi til at signere dokumenter - som så verificeres med den offentlige nøgle

Algoritmerne er kendte

Nøglerne er hemmelige

Nøgler har en vis levetid - de skal skiftes ofte

Et successfult angreb på en krypto-algoritme er enhver genvej som kræver mindre arbejde end en gennemgang af alle nøglerne

Nye algoritmer, programmer, protokoller m.v. skal gennemgås nøje!

Se evt. Snake Oil Warning Signs: Encryption Software to Avoid

<http://www.interhack.net/people/cmcurtin/snake-oil-faq.html>

Formålet med kryptering

kryptering er den eneste måde at sikre:

fortrolighed

autenticitet / integritet

AES

Advanced Encryption Standard

DES kryptering baseret på den IBM udviklede Lucifer algoritme har været benyttet gennem mange år.

Der er vedtaget en ny standard algoritme Advanced Encryption Standard (AES) som afløser Data Encryption Standard (DES)

Algoritmen hedder Rijndael og er udviklet af Joan Daemen og Vincent Rijmen.

http://en.wikipedia.org/wiki/Advanced_Encryption_Standard
<http://csrc.nist.gov/encryption/aes/>

Securing e-mail

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

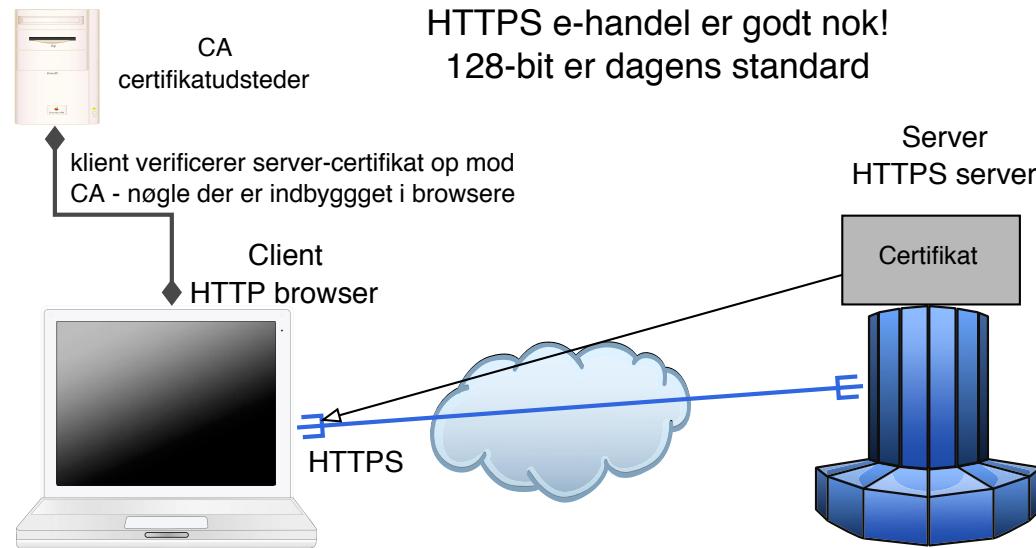
Network sessions use SSL/TLS

- 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!



Oprindeligt udviklet af Netscape Communications Inc.

Secure Sockets Layer SSL er idag blevet adopteret af IETF og kaldes derfor også for Transport Layer Security TLS. TLS er baseret på SSL Version 3.0.

RFC-2246 The TLS Protocol Version 1.0 fra Januar 1999

Når vi skal hente post sker det typisk med POP3 eller IMAP

- POP3 Post Office Protocol version 3 RFC-1939
- Internet Message Access Protocol (typisk IMAPv4) RFC-3501

Forskellen mellem de to er at man typisk med POP3 henter posten, hvor man med IMAP lader den ligge på serveren

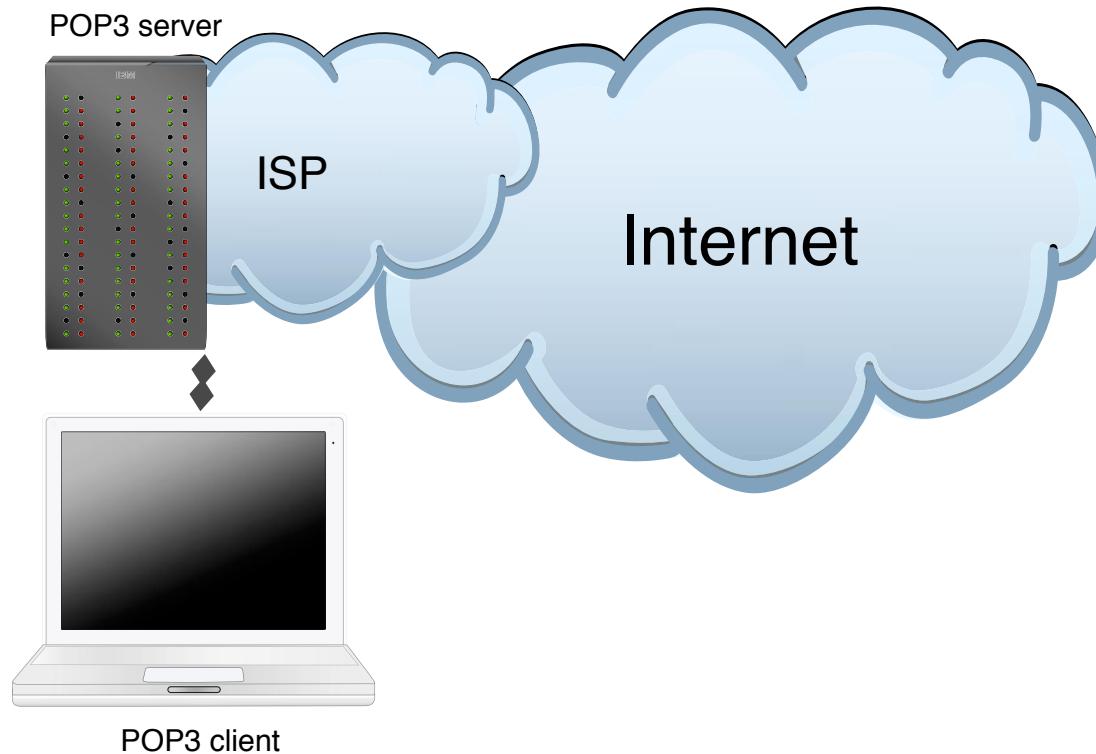
POP3 er bedst hvis kun en klient skal hente

IMAP er bedst hvis du vil tilgå din post fra flere systemer

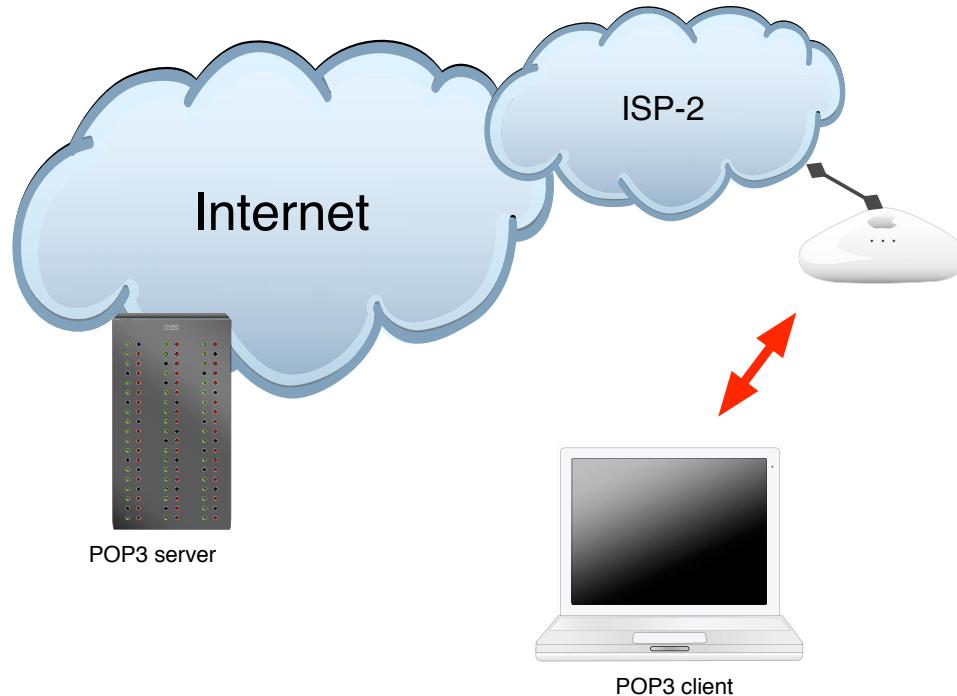
Jeg bruger selv IMAPS, IMAP over SSL kryptering - idet kodeord ellers sendes i klartekst

SMTP bruges til at sende mail mellem servere

POP3 sender brugernavn og kodeord i klartekst - ligesom FTP
bruges dagligt af næsten alle privatkunder
alle internetudbydere og postudbydere tilbyder POP3
der findes en variant, POP3 over SSL/TLS



Man har tillid til sin ISP - der administrerer såvel net som server

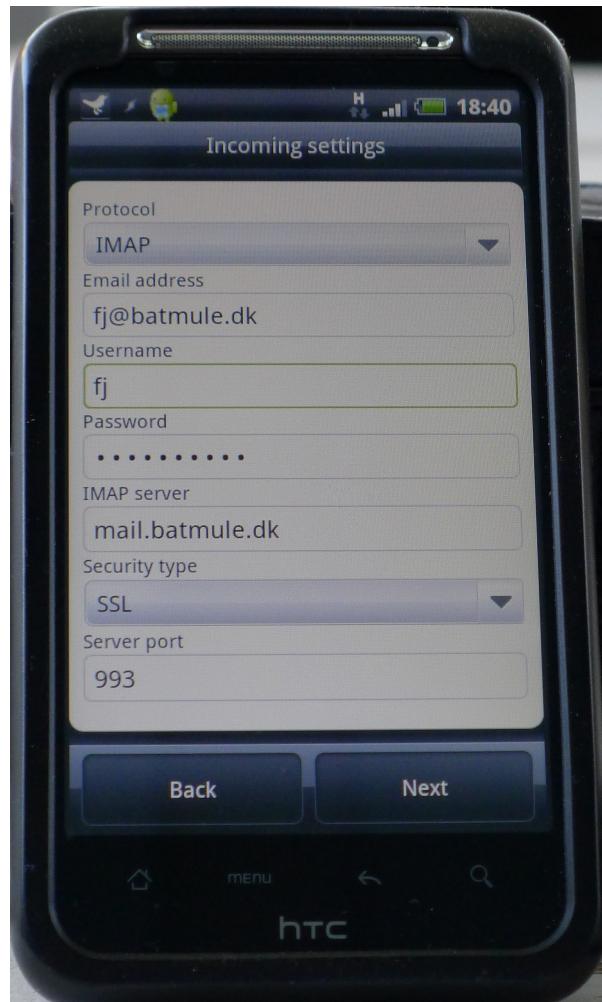


Har man tillid til andre ISP'er? Alle ISP'er?

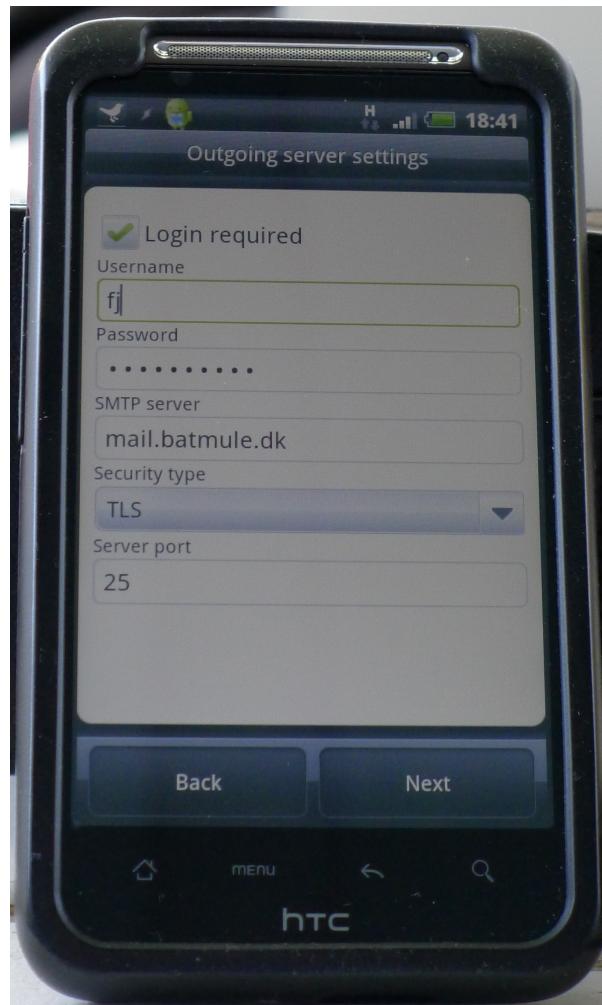
Deler man et netværksmedium med andre?

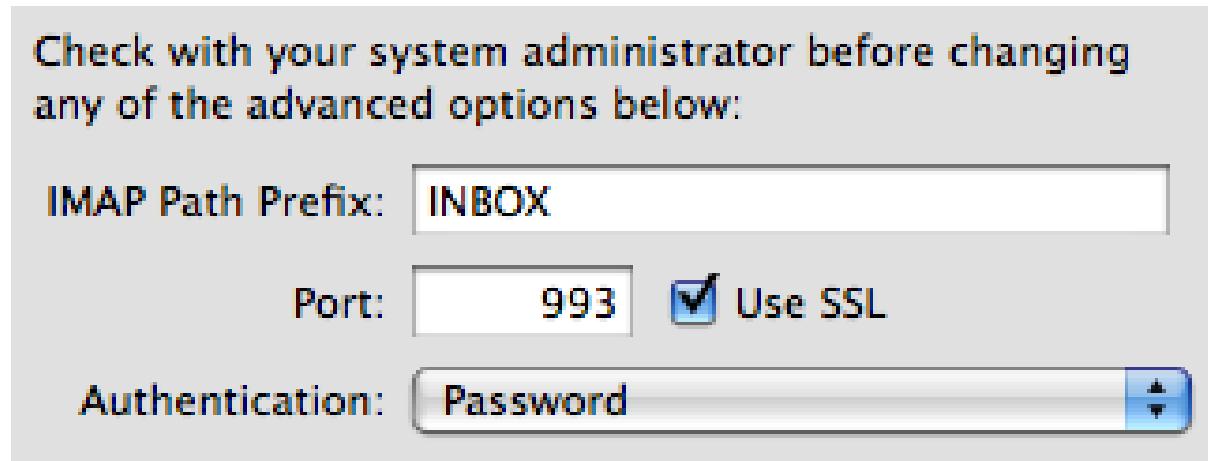
Brug de rigtige protokoller!

Istedet for POP3 brug POP3s, Istedet for IMAP brug IMAPs



SMTP kan erstattes med SMTP+TLS





Mange protokoller findes i udgaver hvor der benyttes SSL

HTTPS vs HTTP

IMAPS, POP3S, osv.

Bemærk: nogle protokoller benytter to porte IMAP 143/tcp vs IMAPS 993/tcp

Andre benytter den samme port men en kommando som starter:

SMTP STARTTLS RFC-3207

The 'S' in HTTPS stands for 'secure' and the security is provided by SSL/TLS. SSL/TLS is a standard network protocol which is implemented in every browser and web server to provide confidentiality and integrity for HTTPS traffic.

Nu vi snakker om kryptering - SSL overalt?

Kan vi klare det på vores servere? ■

Google kan:

<http://www.imperialviolet.org/2010/06/25/overclocking-ssl.html>

Men alt for få gør det

■ Næste spørgsmål er så hvilke rod-certifikater man stoler på ...

The Heartbleed Bug

The Heartbleed Bug is a serious vulnerability in the popular OpenSSL cryptographic software library. This weakness allows stealing the information protected, under normal conditions, by the SSL/TLS encryption used to secure the Internet. SSL/TLS provides communication security and privacy over the Internet for applications such as web, email, instant messaging (IM) and some virtual private networks (VPNs).

The Heartbleed bug allows anyone on the Internet to read the memory of the systems protected by the vulnerable versions of the OpenSSL software. This compromises the secret keys used to identify the service providers and to encrypt the traffic, the names and passwords of the users and the actual content. This allows attackers to eavesdrop on communications, steal data directly from the services and users and to impersonate services and users.



Source: <http://heartbleed.com/>

Heartbleed is yet another bug in SSL products



What versions of the OpenSSL are affected?

Status of different versions:

- * OpenSSL 1.0.1 through 1.0.1f (inclusive) are vulnerable
- * OpenSSL 1.0.1g is NOT vulnerable
- * OpenSSL 1.0.0 branch is NOT vulnerable
- * OpenSSL 0.9.8 branch is NOT vulnerable

Bug was introduced to OpenSSL in December 2011 and has been out in the wild since OpenSSL release 1.0.1 on 14th of March 2012. OpenSSL 1.0.1g released on 7th of April 2014 fixes the bug.

It's just a bug - but a serious one

Why is heartbleed different?



Great PR, name, web site, logo

OpenSSL is very widespread

OpenSSL has been criticized before

The spotlight is now on a lot of products, infrastructure

BOTH Open Source products and Proprietary products hurt by this

TL;DR

OpenSSL is everywhere and an example of our dependency on weak components

Key points after heartbleed



Source: picture source

<https://www.duosecurity.com/blog/heartbleed-defense-in-depth-part-2>

- Writing SSL software and other secure crypto software is hard
- Configuring SSL is hard
check your own site <https://www.ssllabs.com/ssltest/>
- SSL is hard, finding bugs "all the time" <http://armoredbarista.blogspot.dk/2013/01/a-brief-chronology-of-ssltls-attacks.html>
- Rekeying is hard - slow, error prone, manual process - Automate!
- Proof of concept programs exist - good or bad?

Some of the tools released shortly after Heartbleed announcement

- <https://github.com/FiloSottile/Heartbleed> tool i Go
site <http://filippo.io/Heartbleed/>
- <https://github.com/titanous/heartbleeder> tool i Go
- <http://s3.jspenguin.org/ssltest.py> PoC
- <https://gist.github.com/takeshixx/10107280> test tool med STARTTLS support
- <http://possible.lv/tools/hb/> **test site**
- <https://twitter.com/richinseattle/status/453717235379355649> Practical Heartbleed attack against session keys links til, <https://www.mattslifebytes.com/?p=533> og "Fully automated here"
<https://www.michael-p-davis.com/using-heartbleed-for-hijacking-user-session>
- Metasploit er også opdateret på master repo
<https://twitter.com/firefart/status/453758091658792960>
https://github.com/rapid7/metasploit-framework/blob/master/modules/auxiliary/scanner/ssl/openssl_heartbleed.rb

Heartbleed hacking

```
06b0: 2D 63 61 63 68 65 0D 0A 43 61 63 68 65 2D 43 6F -cache..Cache-Co
06c0: 6E 74 72 6F 6C 3A 20 6E 6F 2D 63 61 63 68 65 0D ntrol: no-cache.
06d0: 0A 0D 0A 61 63 74 69 6F 6E 3D 67 63 5F 69 6E 73 ...action=gc_ins
06e0: 65 72 74 5F 6F 72 64 65 72 26 62 69 6C 6C 6E 6F ert_order&billno
06f0: 3D 50 5A 4B 31 31 30 31 26 70 61 79 6D 65 6E 74 =PZK1101&payment
0700: 5F 69 64 3D 31 26 63 61 72 64 5F 6E 75 6D 62 65 _id=1&card_numbe
0710: XX r=4060xxxx413xxx
0720: 39 36 26 63 61 72 64 5F 65 78 70 5F 6D 6F 6E 74 96&card_exp_mont
0730: 68 3D 30 32 26 63 61 72 64 5F 65 78 70 5F 79 65 h=02&card_exp_ye
0740: 61 72 3D 31 37 26 63 61 72 64 5F 63 76 6E 3D 31 ar=17&card_cvn=1
0750: 30 39 F8 6C 1B E5 72 CA 61 4D 06 4E B3 54 BC DA 09.1...r.aM.N.T..
```

- Obtained using Heartbleed proof of concepts - Gave full credit card details
- "can XXX be exploited" - yes, clearly! PoCs ARE needed without PoCs even Akamai wouldn't have repaired completely!
- The internet was ALMOST fooled into thinking getting private keys from Heartbleed was not possible - scary indeed.

Analysis of the heartbleed bug

- analyse af problemet i koden

<http://blog.existentialize.com/diagnosis-of-the-openssl-heartbleed-bug.html>

- IDS regler Detecting OpenSSL Heartbleed with Suricata

<http://blog.inliniac.net/2014/04/08/detecting-openssl-heartbleed-with-suricata/>

- god beskrivelse af hvordan man kan fixe hurtigere hvis man har automatiseret infrastruktur

<https://www.getpantheon.com/heartbleed-fix>

- Mange blogindlæg om emnet - eksempelvis

<http://blog.fox-it.com/2014/04/08/openssl-heartbleed-bug-live-blog/>

- "nse script ssl-heartbleed.nse committed to nmap as rev 32798. "

- You can now use Masscan to scan the whole internet for the Heartbleed vulnerability in under 6 minutes <https://twitter.com/jedisct1/status/453679529710460928>

og <https://github.com/robertdavidgraham/masscan/commit/23497c448b0a1c7058e84>

Heartbleed Conclusions



Nothing new, but more focus on problems?

Really is there something new in this?

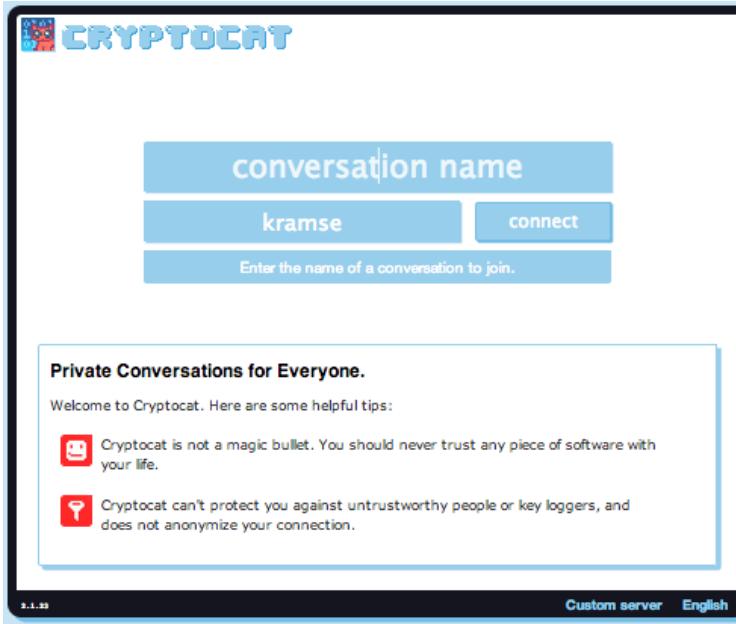
Software has bugs - stay vigilant, implement defense in depth

Software need funding - especially software used in our critical systems

Security needs proof of concepts and open communication

Akamai fix that wasn't good enough!

TL;DR Fund more security audits, stop using untested/unaudited software



Truecrypt audit

<https://isecpartners.github.io/news/2014/04/14/iSEC-Completes-Truecrypt-Audit.html>

Cryptocat audit

<https://blog.crypto.cat/2013/02/cryptocat-passes-security-audit-with-flying-colors/>

```
/* Read type and payload length first */
if (1 + 2 + 16 > s->s3->rrec.length)
    return 0; /* silently discard */
hbtype = *p++;
n2s(p, payload);
if (1 + 2 + payload + 16 > s->s3->rrec.length)
    return 0; /* silently discard per RFC 6520 sec. 4 */
pl = p;
```

Ditch OpenSSL - write our own?

SSL implementations compared - above code from OpenSSL copied from this:

<http://tstarling.com/blog/2014/04/ssl-implementations-compared/>

LibreSSL announced, OpenBSD people

<http://www.libressl.org/> and <http://opensslrampage.org/>



LibreSSL

LibreSSL is a **FREE** version of the SSL/TLS protocol forked from [OpenSSL](#)

At the moment we are too busy deleting and rewriting code to make a decent web page. No we don't want help making web pages, thank you.

Check back here soon for updates.



Bob Beck
@bob_beck

goo.gl/Q0qG5Q If your system provides security sensitive functions, we will assume they are correct #LibreSSL
#MustBeThisTallToRide

22/07/14 16.35

LibreSSL was first created for OpenBSD, and planned for next release 5.6

LibreSSL has released portable versions, but makes drastic changes:

- Requires PRNG "Linux introduces getrandom(2) syscall (helpful for LibreSSL)" OpenSSL tried workaround which was not that great.
- LibreSSL does not support DOS, VMS anymore - booo fucking hooo
- LibreSSL does not support FIPS mode "It's gone and it's not coming back."

<http://opensslrampage.org/post/83555615721/the-future-or-lack-thereof-of-1>

Debian OpenSSL [edit]

In May 2008, security researcher [Luciano Bello](#) revealed his discovery that changes made in 2006 to the random number generator in the version of the [OpenSSL](#) package distributed with [Debian GNU/Linux](#) and other Debian-based distributions, such as [Ubuntu](#), dramatically reduced the entropy of generated values and made a variety of security keys vulnerable to attack.^{[10][11]} The security weakness was caused by changes made to the openssl code by a Debian developer in response to compiler warnings of apparently redundant code.^[12] This caused a massive worldwide regeneration of keys, and despite all attention the issue got, it could be assumed many of these old keys are still in use. Key types affected include SSH keys, OpenVPN keys, DNSSEC keys, key material for use in X.509 certificates and session keys used in SSL/TLS connections. Keys generated with GnuPG or GNUTLS are not affected as these programs used different methods to generate random numbers. Non-Debian-based Linux distributions are also unaffected. This security vulnerability was promptly patched after it was reported.

https://en.wikipedia.org/wiki/Random_number_generator_attack#Debian_OpenSSL

The random number generator is VITAL for crypto security



Hvad er Secure Shell SSH?

Oprindeligt udviklet af Tuomo Ylonen i Finland,
se <http://www.ssh.com>

SSH afløser en række protokoller som er usikre:

- Telnet til terminal adgang
- r* programmerne, rsh, rcp, rlogin, ...
- FTP med brugerid/password

File Transfer Protocol - filoverførsler

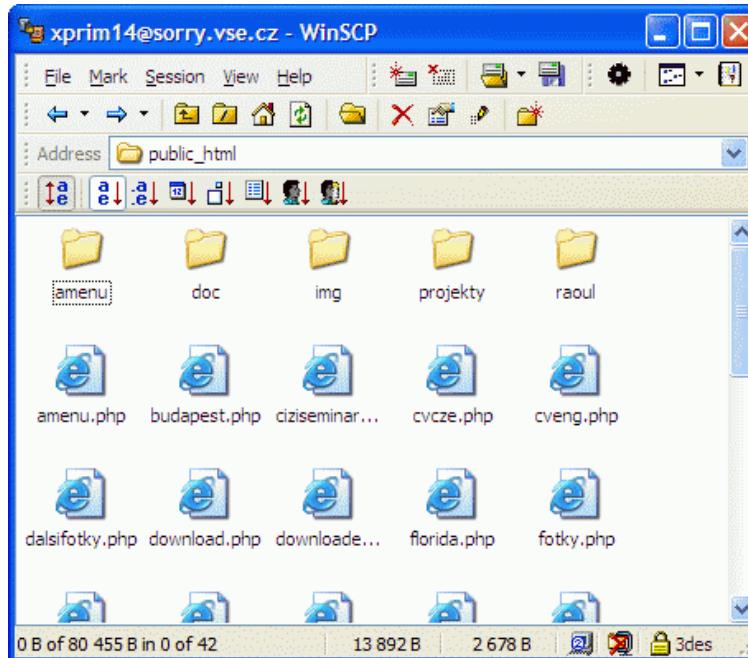
FTP bruges især til:

- 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



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

Stop using FTP! Dammit!

Lots of programs support SFTP and SCP for secure copying of data

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

SNMP er en protokol der supporteres af de fleste professionelle netværksenheder, såsom switcher, routere

hosts - skal slås til men følger som regel med

SNMP bruges til:

- *network management*
- statistik
- rapportering af fejl - SNMP traps

sikkerheden baseres på community strings der sendes som klartekst ...

det er nemmere at brute-force en community string end en brugerid/kodeord kombination

hvad betyder bruteforcing? afprøvning af alle mulighederne

Hydra v2.5 (c) 2003 by van Hauser / THC <vh@thc.org>

Syntax: hydra [[[[-l LOGIN|-L FILE] [-p PASS|-P FILE]] | [-C FILE]]
[-o FILE] [-t TASKS] [-g TASKS] [-T SERVERS] [-M FILE] [-w TIME]
[-f] [-e ns] [-s PORT] [-S] [-vV] server service [OPT]

Options:

- S connect via SSL
- s PORT if the service is on a different default port, define it here
- l LOGIN or -L FILE login with LOGIN name, or load several logins from FILE
- p PASS or -P FILE try password PASS, or load several passwords from FILE
- e ns additional checks, "n" for null password, "s" try login as pass
- C FILE colon separated "login:pass" format, instead of -L/-P option
- M FILE file containing server list (parallelizes attacks, see -T)
- o FILE write found login/password pairs to FILE instead of stdout

...

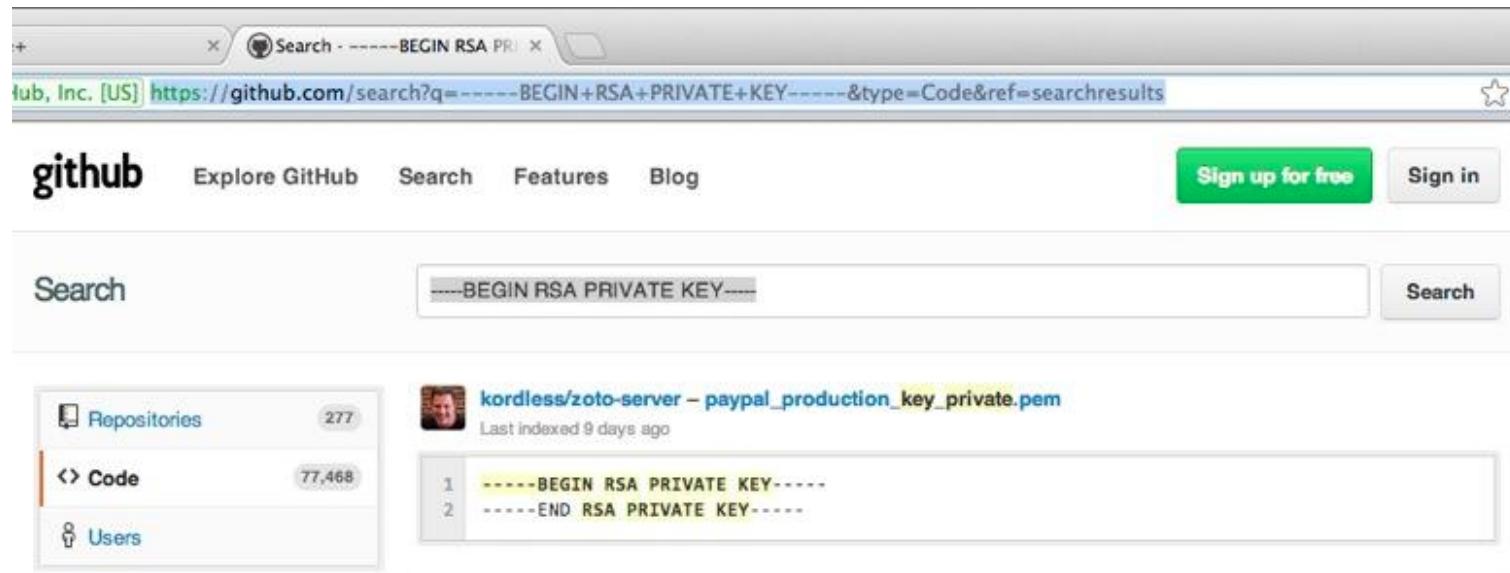
The 5th Wave By Rich Tennant



"Don't be silly – of course my passwords are safe. I keep them written on my window, but then I pull the shade if anyone walks in the room."

Opbevaring af passwords

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/>

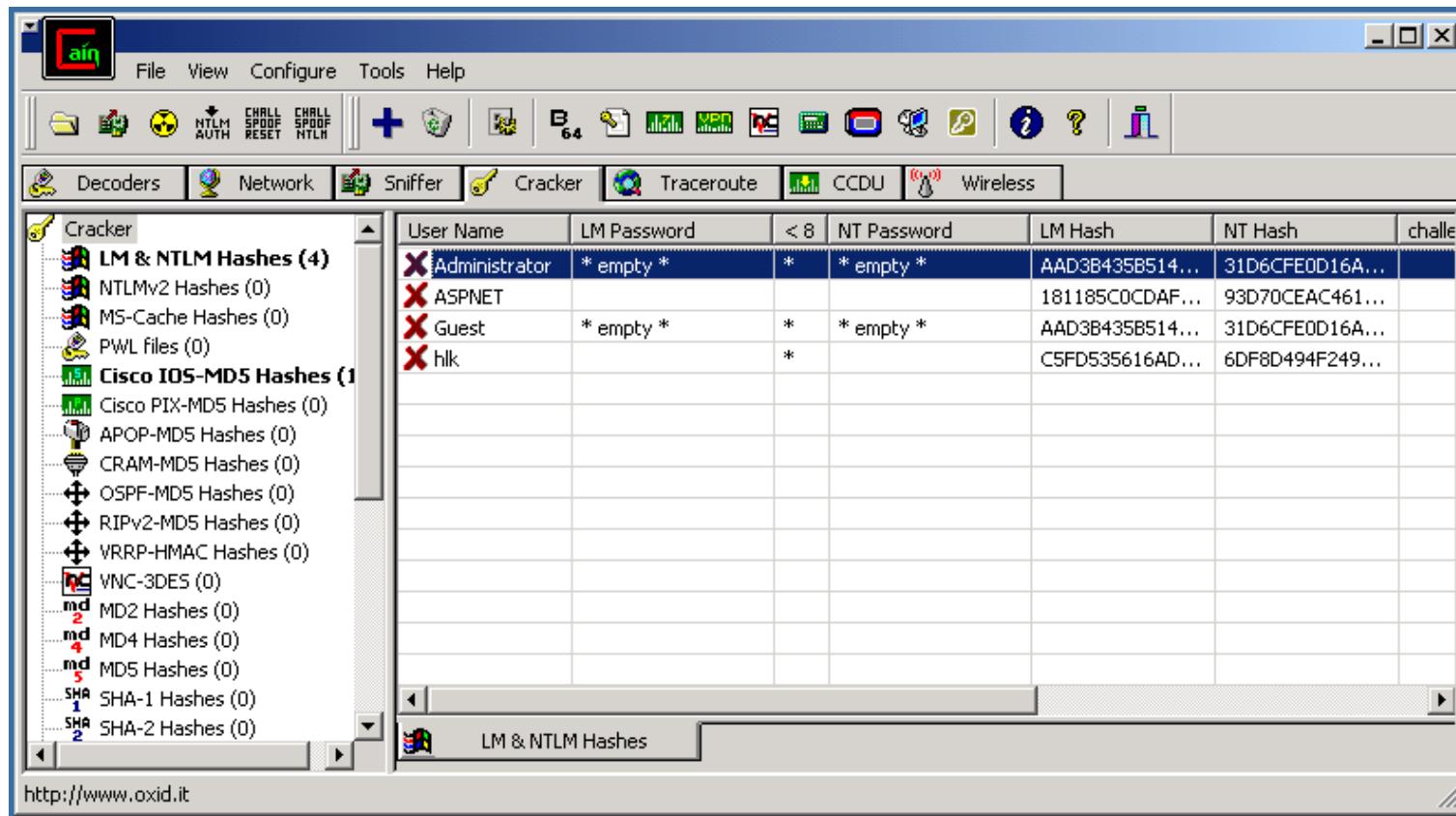
Use different passwords for different sites, yes - every site!

NT LAN manager hash værdier er noget man typisk kan samle op i netværk
det er en hash værdi af et password som man ikke burde kunne bruge til noget - hash
algoritmer er envejs
opbygningen gør at man kan forsøge brute-force på 7 tegn ad gangen!
en moderne pc med l0phcrack kan nemt knække de fleste password på få dage!
og sikkert 25-30% indenfor den første dag - hvis der ingen politik er omkring kodeord!
ved at generere store tabeller, eksempelvis 100GB kan man dække mange
hashværdier af passwords med almindelige bogstaver, tal og tegn - og derved knække
passwordshashes på sekunder. Søg efter rainbowcrack med google



Consider that at one of the largest technology companies, where policy required that passwords exceed 8 characters, mix cases, and include numbers or symbols...

L0phtCrack obtained 18% of the passwords in 10 minutes
90% of the passwords were recovered within 48 hours on a Pentium II/300
The Administrator and most Domain Admin passwords were cracked
<http://www.atstake.com/research/lc/>

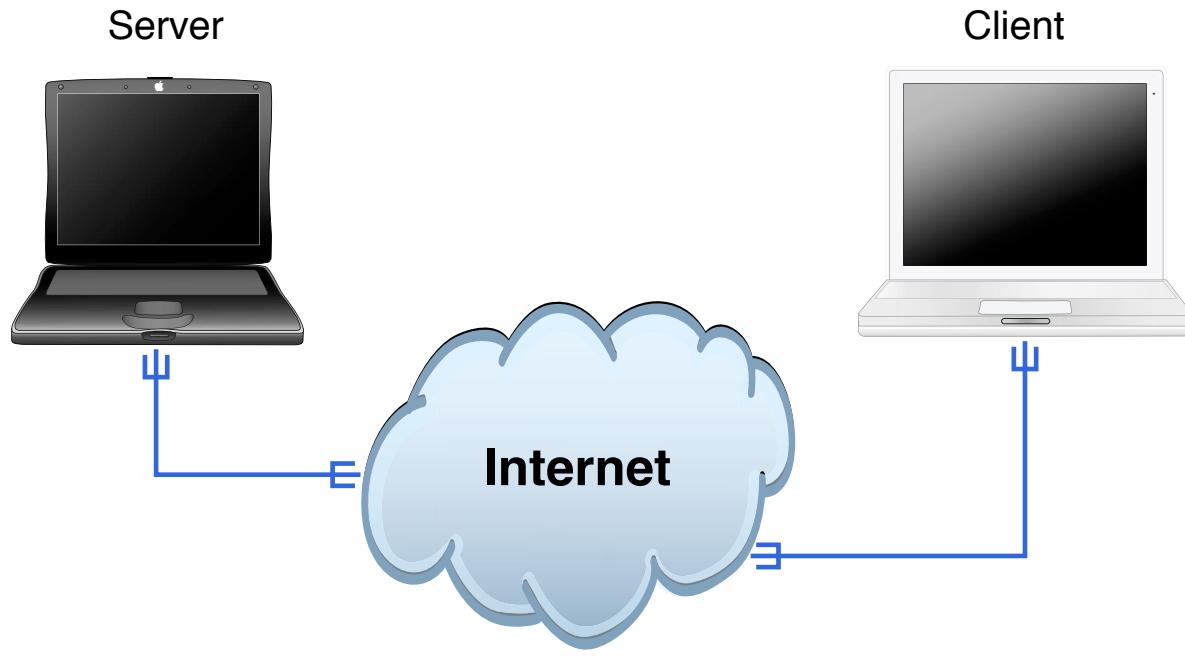


Cain og Abel anbefales <http://www.oxid.it>

John the Ripper is a fast password cracker, currently available for many flavors of Unix (11 are officially supported, not counting different architectures), Windows, DOS, BeOS, and OpenVMS. Its primary purpose is to detect weak Unix passwords. Besides several crypt(3) password hash types most commonly found on various Unix flavors, supported out of the box are Kerberos AFS and Windows NT/2000/XP/2003 LM hashes, plus several more with contributed patches.

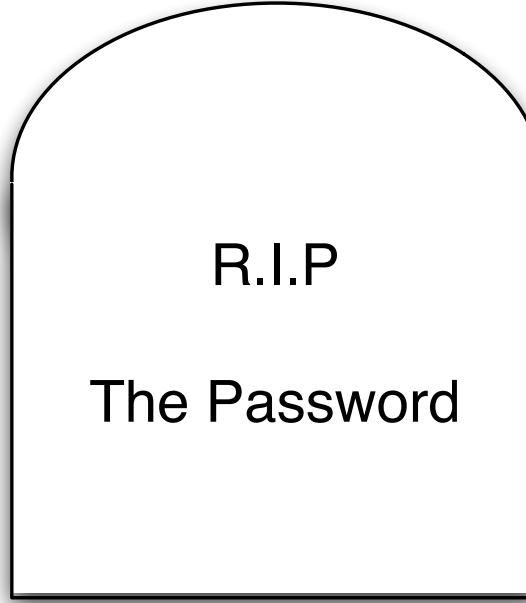
UNIX passwords kan knækkes med alec Muffets kendte Crack program eller eksempelvis John The Ripper <http://www.openwall.com/john/>

Demo: Cain og Abel



Cain og Abel

Are passwords dead?



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>

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>



AirSnort Homepage



AirSnort is a wireless LAN (WLAN) tool which recovers encryption keys. AirSnort operates by passively monitoring transmissions, computing the encryption key when enough packets have been gathered.

802.11b, using the Wired Equivalent Protocol (WEP), is crippled with numerous security flaws. Most damning of these is the weakness described in "Weaknesses in the Key Scheduling Algorithm of RC4" by Scott Fluhrer, Itsik Mantin and Adi Shamir. Adam Stubblefield was the first to implement this attack, but he has not made his software public. AirSnort, along with WEPCrack, which was released about the same time as AirSnort, are the first publicly available implementations of this attack. <http://airsnort.shmoo.com/>

weak keying - 24 bit er allerede kendt - 128-bit = 104 bit i praksis

small IV - med kun 24 bit vil hver IV blive genbrugt oftere

CRC-32 som intergritetscheck er ikke *stærkt* nok kryptografisk set

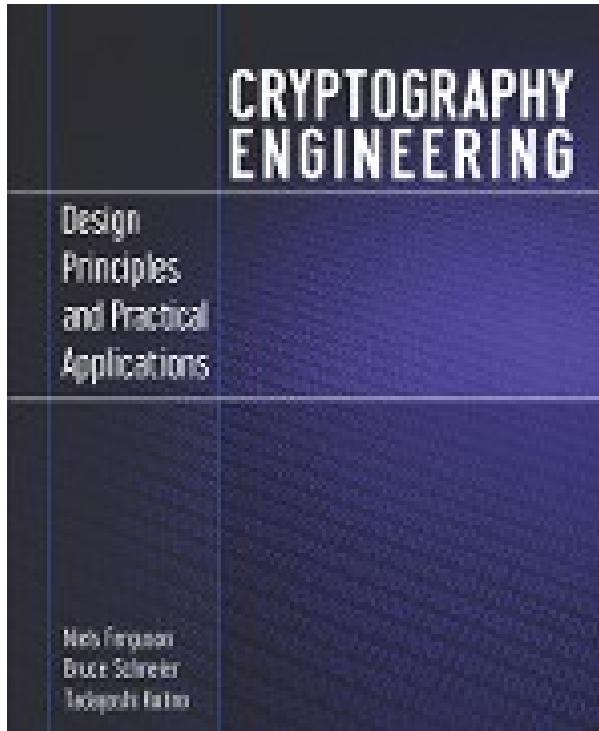
Authentication gives pad - giver fuld adgang - hvis der bare opdages *encryption pad* for en bestemt IV. Denne IV kan så bruges til al fremtidig kommunikation

Source: *Secure Coding: Principles and Practices*, Mark G. Graff og Kenneth R. van Wyk, O'Reilly, 2003



The image shows a promotional graphic for a Stanford University cryptography course on Coursera. It features the Stanford University logo at the top left, followed by the course title "Cryptography". On the right, it lists "Professor Dan Boneh" from the Computer Science Department at Stanford University. A large, metallic combination padlock is centered in the middle. At the bottom left, there is a blue button with the text "Enroll / Login Now" and the subtext "Enroll in this online class for free with a Coursera account".

Åbent kursus på Stanford
<http://crypto-class.org/>



Cryptography Engineering by Niels Ferguson, Bruce Schneier, and Tadayoshi Kohno
<https://www.schneier.com/book-ce.html>

Kryptering sikrer fortrolighed og integritet af beskederne

Encryption key length

Encryption key lengths & hacking feasibility

Type of Attacker	Budget	Tool	Time & Cost/Key 40 bit	Time & Cost/Key 56 bit
Regular User	Minimal \$400	Scavenged computer time FPGA	1 week 5 hours (\$.08)	Not feasible 38 years (\$5,000)
Small Business	\$10,000	FPGA ¹	12 min. (\$.08)	556 days (\$5,000)
Corporate Department	\$300,000	FPGA ASIC ²	24 sec. (\$.08) 0.18 sec. (\$.001)	19 days (\$5,000) 3 hours (\$38)
Large Corporation	\$10M	ASIC	0.005 sec. (\$.001)	6 min. (\$38)
Intelligence Agency	\$300M	ASIC	0.0002 sec. (\$.001)	12 sec. (\$38)

Source: http://www.mycrypto.net/encryption/encryption_crack.html

Pyrit takes a step ahead in attacking WPA-PSK and WPA2-PSK, the protocol that today de-facto protects public WIFI-airspace. The project's goal is to estimate the real-world security provided by these protocols. Pyrit does not provide binary files or wordlists and does not encourage anyone to participate or engage in any harmful activity. **This is a research project, not a cracking tool.**

Pyrit's implementation allows to create massive databases, pre-computing part of the WPA/WPA2-PSK authentication phase in a space-time-tradeoff. The performance gain for real-world-attacks is in the range of three orders of magnitude which urges for re-consideration of the protocol's security. Exploiting the computational power of GPUs, *Pyrit* is currently by far the most powerful attack against one of the world's most used security-protocols.

<http://pyrit.wordpress.com/about/>

Also check out the Reaver brute force WPS

<https://code.google.com/p/reaver-wps/>

How Reaver Works Now that you've seen how to use Reaver, let's take a quick overview of how Reaver works. The tool takes advantage of a vulnerability in something called Wi-Fi Protected Setup, or WPS. It's a feature that exists on many routers, intended to provide an easy setup process, and it's tied to a PIN that's hard-coded into the device. Reaver exploits a flaw in these PINs; the result is that, with enough time, it can reveal your WPA or WPA2 password.

Hvad betyder ease of use?

Source:

<https://code.google.com/p/reaver-wps/>

<http://lifehacker.com/5873407/how-to-crack-a-wi-fi-networks-wpa-password-with-reaver>

Design Flaw #1

Option / Authentication	Physical Access	Web Interface	PIN
Push-button-connect	X		
PIN – Internal Registrar		X	
PIN – External Registrar			X

WPS Options and which kind of authentication they actually use.

As the External Registrar option does not require any kind of authentication apart from providing the PIN, it is potentially vulnerable to brute force attacks.

Pin only, no other means necessary

Source:

http://sviehb.files.wordpress.com/2011/12/viehboeck_wps.pdf

WPS Design Flaws used by Reaver

IEEE 802.11/EAP Expanded Type, Vendor ID: WFA (0x372A), Vendor Type: SimpleConfig (0x01)			
M1	Enrollee → Registrar	N1 Description PK _E	
M2	Enrollee ← Registrar	N1 N2 Description PK _R Authenticator	Diffie-Hellman Key Exchange
M3	Enrollee → Registrar	N2 E-Hash1 E-Hash2 Authenticator	
M4	Enrollee ← Registrar	N1 R-Hash1 R-Hash2 E _{KeyWrapKey} (R-S1) Authenticator	prove posession of 1 st half of PIN
M5	Enrollee → Registrar	N2 E _{KeyWrapKey} (E-S1) Authenticator	prove posession of 1 st half of PIN
M6	Enrollee ← Registrar	N1 E _{KeyWrapKey} (R-S2) Authenticator	prove posession of 2 nd half of PIN
M7	Enrollee → Registrar	N2 E _{KeyWrapKey} (E-S2 ConfigData) Authenticator	prove posession of 2 nd half of PIN, send AP configuration
M8	Enrollee ← Registrar	N1 E _{KeyWrapKey} (ConfigData) Authenticator	set AP configuration

Enrollee = AP Registrar = Supplicant = Client/Attacker PK _E = Diffie-Hellman Public Key Enrollee PK _R = Diffie-Hellman Public Key Registrar Authkey and KeyWrapKey are derived from the Diffie-Hellman shared key. Authenticator = HMAC _{Authkey} (last message current message) E _{KeyWrapKey} = Stuff encrypted with KeyWrapKey (AES-CBC)	PSK1 = first 128 bits of HMAC _{AuthKey} (1 st half of PIN) PSK2 = first 128 bits of HMAC _{AuthKey} (2 nd half of PIN) E-S1 = 128 random bits E-S2 = 128 random bits E-Hash1 = HMAC _{Authkey} (E-S1 PSK1 PK _E PK _R) E-Hash2 = HMAC _{Authkey} (E-S2 PSK2 PK _E PK _R) R-S1 = 128 random bits R-S2 = 128 random bits R-Hash1 = HMAC _{Authkey} (R-S1 PSK1 PK _E PK _R) R-Hash2 = HMAC _{Authkey} (R-S2 PSK2 PK _E PK _R)
--	--

1	2	3	4	5	6	7	0
1 st half of PIN		checksum					

Reminds me of NTLM cracking, crack parts independently

Source:

http://sviehb.files.wordpress.com/2011/12/viehboeck_wps.pdf

- Hashcat is the world's fastest CPU-based password recovery tool.
- oclHashcat-plus is a GPGPU-based multi-hash cracker using a brute-force attack (implemented as mask attack), combinator attack, dictionary attack, hybrid attack, mask attack, and rule-based attack.
- oclHashcat-lite is a GPGPU cracker that is optimized for cracking performance. Therefore, it is limited to only doing single-hash cracking using Markov attack, Brute-Force attack and Mask attack.
- John the Ripper password cracker old skool men stadig nyttig

Source:

<http://hashcat.net/wiki/>

<http://www.openwall.com/john/>

 [Henrik Kramshoej](#) retweeted

 **Solar Designer** @solardiz    

Similarly expensive Xeon E5-2670 is 2.4x to 3.3x slower than Zynq 7045 #FPGA on this test, yet consumes ~20x more power; GPUs are way behind

 [Henrik Kramshoej](#) retweeted

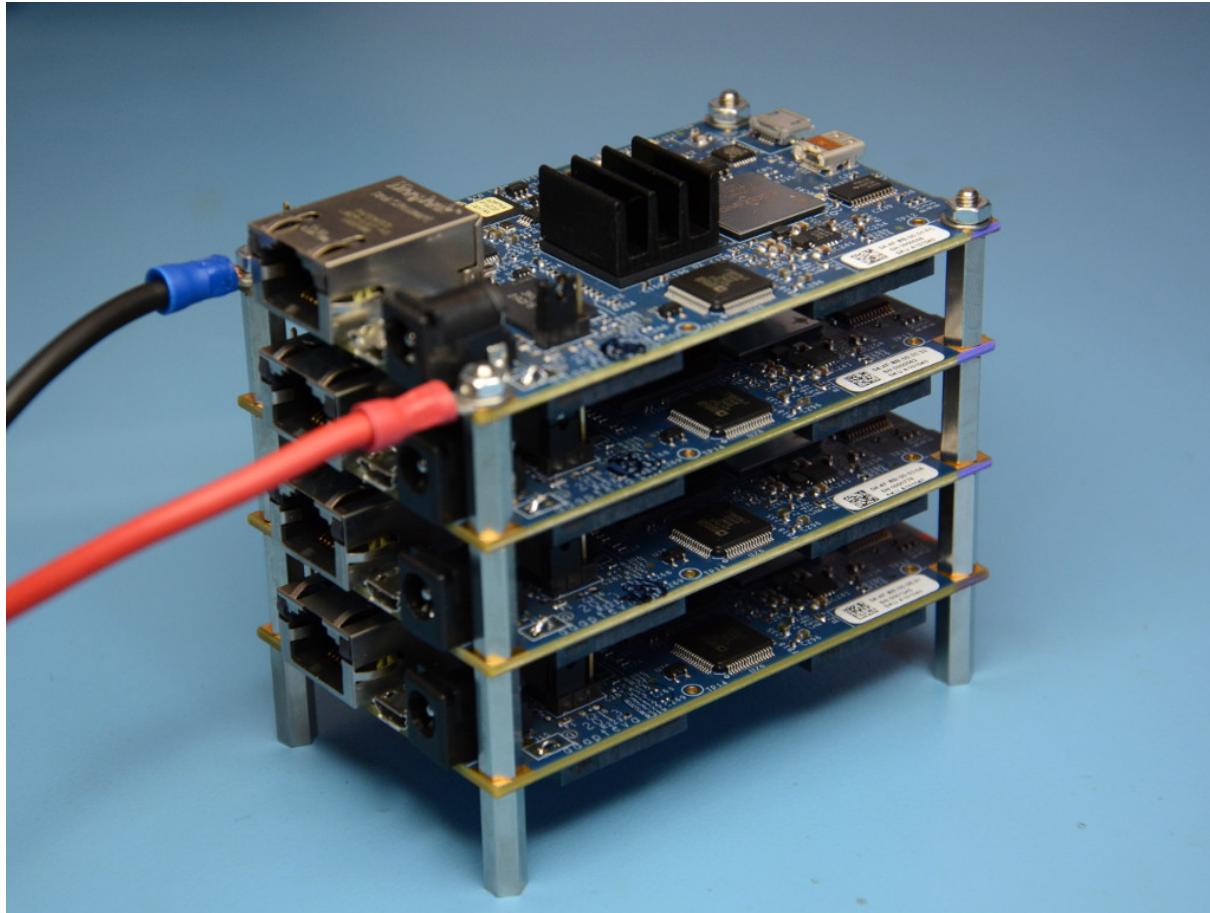
 **Solar Designer** @solardiz   

On last night to submit WOOT final paper, @kmalvoni got bcrypt \$2a\$05 to 20538 c/s, \$2a\$12 to 226 c/s on Zynq 7045 #FPGA. Not the limit yet.

<https://twitter.com/solardiz/status/492037995080712192>

Warning: FPGA hacking - not finished part of presentation

Stacking Parallella boards



<http://www.parallella.org/power-supply/>

```
ssl_prefer_server_ciphers on;
ssl_protocols TLSv1 TLSv1.1 TLSv1.2; # not possible to do exclusive
ssl_ciphers 'EDH+CAMELLIA:EDH+aRSA:EECDH+aRSA+AESGCM:EECDH+aRSA+SHA384:EECDH+\n
  \aRSA+SHA256:EECDH:+CAMELLIA256:+AES256:+CAMELLIA128:+AES128:+SSLv3:!aNULL:!\\
  \eNULL:!LOW:!3DES:!MD5:!EXP:!PSK:!DSS:!RC4:!SEED:!ECDSA:CAMELLIA256-SHA:AES256\\
  \-SHA:CAMELLIA128-SHA:AES128-SHA';
add_header Strict-Transport-Security max-age=15768000; # six months
# use this only if all subdomains support HTTPS!
# add_header Strict-Transport-Security "max-age=15768000; includeSubDomains";
```

*Listing 2.6: SSL settings for nginx
[configuration/Webservers/nginx/default]*

Overview

This whitepaper arose out of the need for system administrators to have an updated, solid, well researched and thought-through guide for configuring SSL, PGP, SSH and other cryptographic tools in the post-Snowden age. ... This guide is specifically written for these system administrators.

<https://bettercrypto.org/>

Are your data secure - data at rest

Stolen laptop, tablet, phone - can anybody read your data?

Do you trust "remote wipe"

How do you in fact wipe data securely off devices, and SSDs?

Encrypt disk and storage devices before using them in the first place!

Circumvent security - single user mode boot



Unix systems often allows boot into singleuser mode
press command-s when booting Mac OS X

Laptops can often be booted using PXE network or CD boot

Mac computers can become a Firewire disk
hold t when booting - firewire target mode

Unrestricted access to un-encrypted data

Moving hard drive to another computer is also easy

|

Physical access is often - **game over**

Encrypting hard disk



Becoming available in the most popular client operating systems

- Microsoft Windows Bitlocker - requires Ultimate or Enterprise
- Apple Mac OS X - FileVault og FileVault2
- FreeBSD GEOM og GBDE - encryption framework
- Linux distributions like Ubuntu ask to encrypt home dir during installation
- PGP disk - Pretty Good Privacy - makes a virtuel krypteret disk
- TrueCrypt - similar to PGP disk, a virtual drive with data, cross platform
- Some vendors have BIOS passwords, or disk passwords

Firewire, DMA & Windows, Winlockpwn via FireWire
Hit by a Bus: Physical Access Attacks with Firewire Ruxcon 2006

Removing memory from live system - data is not immediately lost, and can be read under some circumstances

Lest We Remember: Cold Boot Attacks on Encryption Keys

<http://citp.princeton.edu/memory/>

This is very CSI or Hollywoord like - but a real threat

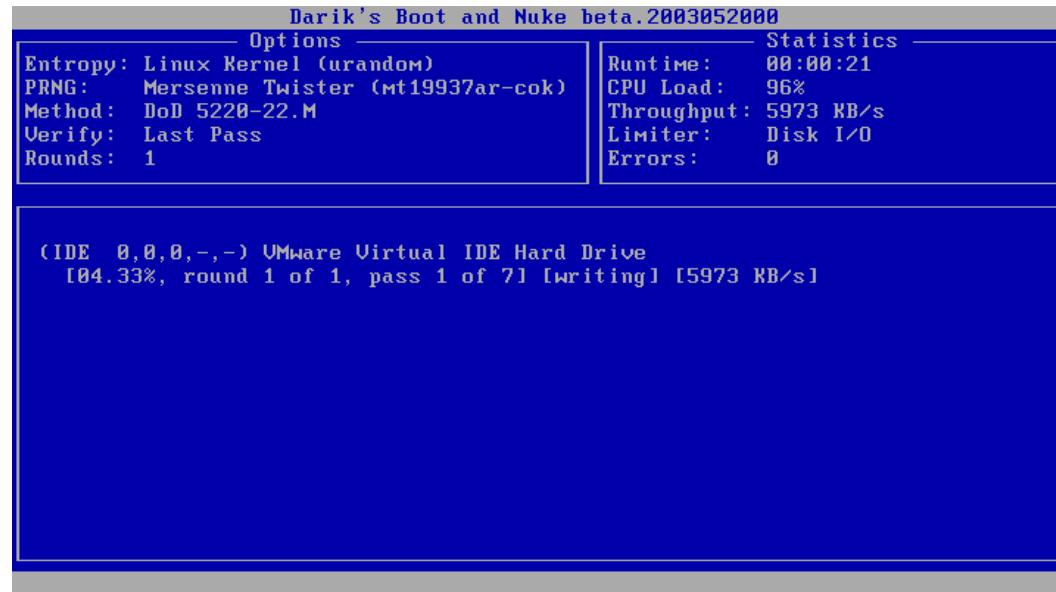
VileFault decrypts encrypted Mac OS X disk image files

<https://code.google.com/p/vilefault/>

FileVault Drive Encryption (FVDE) (or FileVault2) encrypted volumes

<https://code.google.com/p/libfvde/>

So perhaps use both hard drive encryption AND turn off computer after use?



Getting rid of data from old devices is a pain

Some tools will not overwrite data, leaving it vulnerable to recovery

Even secure erase programs might not work on SSD - due to reallocation of blocks

I have used Darik's Boot and Nuke ("DBAN") <http://www.dban.org/>

Kom igang!

- Skriv på DVD - DVD brændere i mange laptops idag
- Gem på netværket - Dropbox, husk en yderligere backup!
- Brug Duplicity på egen server, eller tilsvarende services

Mat Honan epic hacking :-(

<http://www.wired.com/gadgetlab/2012/08/apple-amazon-mat-honan-hacking/all/>

What is it?

Duplicity backs directories by producing encrypted tar-format volumes and uploading them to a remote or local file server. Because duplicity uses librsync, the incremental archives are space efficient and only record the parts of files that have changed since the last backup. Because duplicity uses **GnuPG** to encrypt and/or sign these archives, they will be safe from spying and/or modification by the server.

<http://duplicity.nongnu.org/> duplicity home page

<http://www.gnupg.org/> The GNU Privacy Guard

Brug alt hvad I kan overkomme:

- Firewalls: IPfilter, IPtables, OpenBSD PF
- Kryptografi
- Secure Shell - SSH
- betragt Telnet, Rlogin, Rsh, Rexec som døde!
- FTP bør kun bruges til anonym FTP
- Intrusion Detection - Snort
- Sudo
- Tripwire,mtree, MD5

Sikkerhedspolitikken er din "plan" for sikkerheden - og er med til at sikre niveauet er ens

Firewalls hjælper ikke mod alle trusler



- Pretty Good Privacy - PGP
- Originally developed by Phil Zimmermann
- Now a commercial entity <http://www.pgp.com>
- Source exported from USA on paper and scanned outside - which was legal
- <http://www.pgpi.org>



Gnu Privacy Guard, GnuPG or GPG

Web site: <http://www.gnupg.org/>

Open Source - GPL license

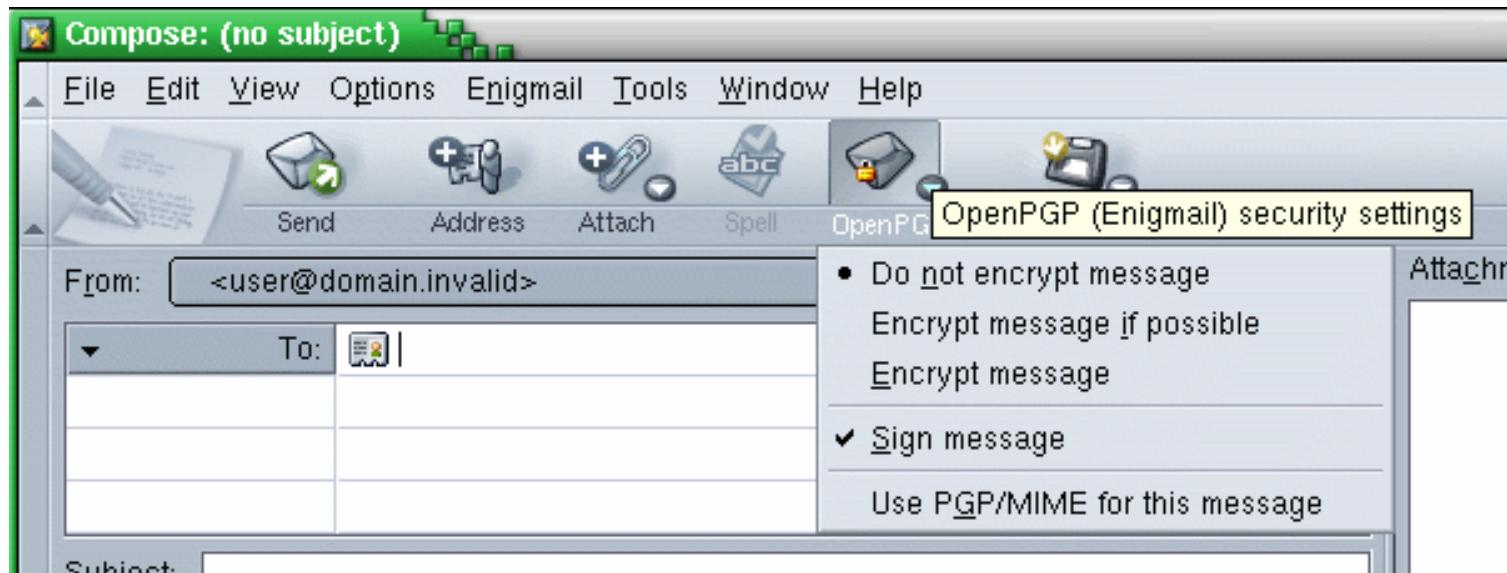
Available for most popular operating systems

Highly recommended

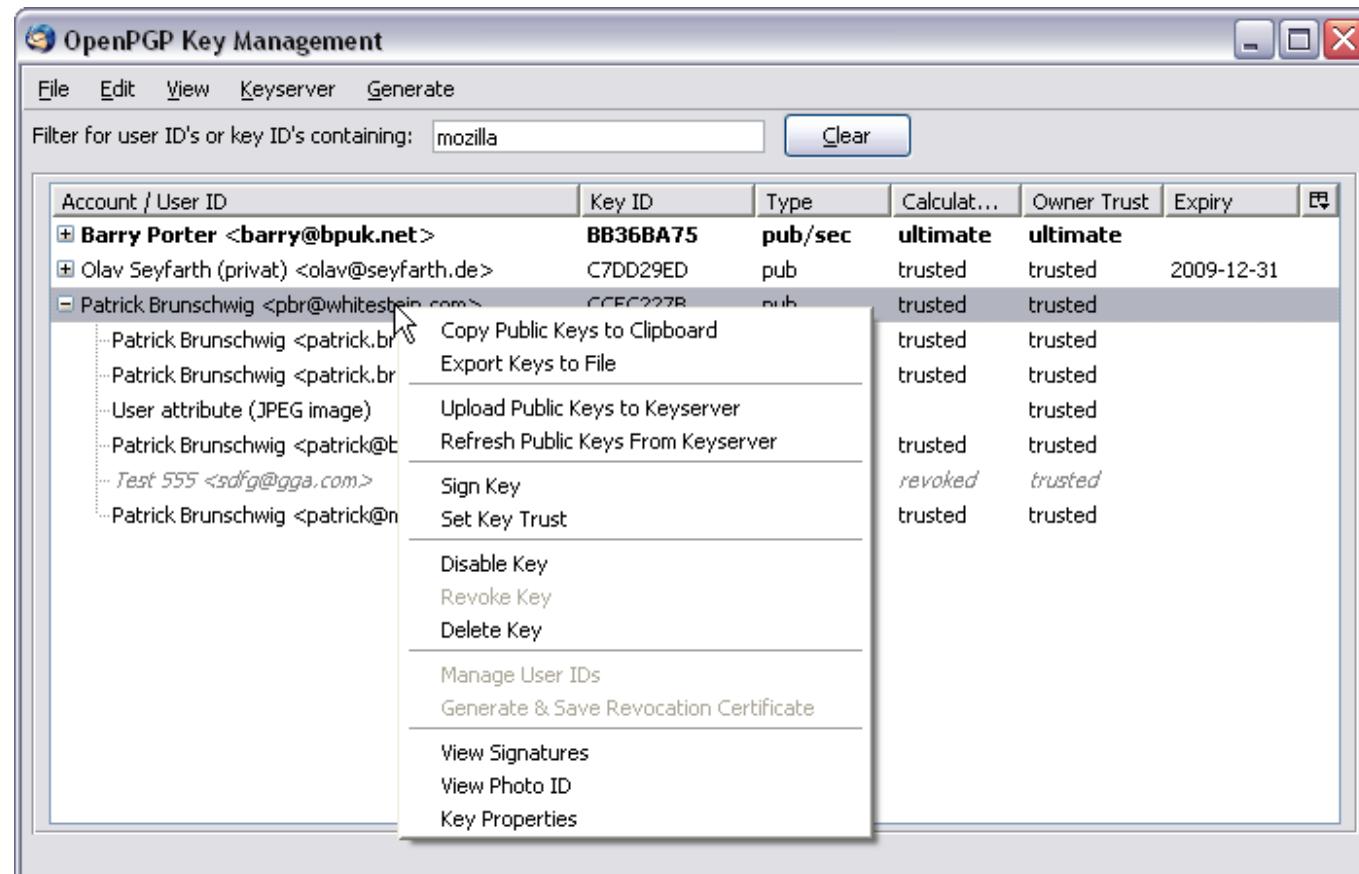
```
$ cd /userdata/download/src/postfix/  
$ ls -l *.sig  
-rw-r--r-- 1 hlk admin 152 13 Sep 2003 postfix-2.0.16.tar.gz.sig  
-rw-r--r-- 1 hlk admin 152 3 May 13:34 postfix-2.1.1.tar.gz.sig  
$ gpg --verify postfix-2.1.1.tar.gz.sig  
gpg: Signature made Mon May 3 19:34:08 2004 CEST using RSA key ID D5327CB9  
gpg: Good signature from "wietse venema <wietse@porcupine.org>"  
gpg:                               aka "wietse venema <wietse@wzv.win.tue.nl>"  
$
```

Det er nødvendigt at verificere arkiver med kildekode!

Enigmail - GPG plugin til Mail



- Enigmail is a plugin for the Thunderbird mail client
- Screenshot from <http://enigmail.mozdev.org>



Key Manager built-int Enigmail is recommended

Generering af key

```
$ gpg --gen-key
```

- Vælg "DSA and Elgamal"
- Vælg passende keysize - 4096 skader næppe
- Vælg passende udløbsdato - "no expire" vil virke for de fleste
- Brug din officielle mailadresse i forbindelse med dit navn, så Email klienter kan finde din key automatisk
- Brug en god passphrase.
En lang sætning som du kan huske, og som ikke kan gættes udfra kendskab til dig.
- Når nøglen genereres, så hjælp med at generere "randomness" i systemet. Det får genereringen til at gå hurtigere, og det giver en bedre key.

samme spørgsmål i GUI programmerne, **og husk at lave et revoke certifikat!**

Du har nu en GnuPG key klar til at blive signeret

Er du **sikker** på at du kan huske din passphrase?

Når nøglen er genereret bliver der vist et kort sammendrag af indholdet
Dette *fingerprint* kan også fås frem med:

```
$ gpg --fingerprint addr@domain.dk
pub 1024D/D1EFBA6 2003-01-20
      Key fingerprint = OFAE F19D DB46 DF2E D93D  9B05 21A6 469B D1EF BAA6
uid                         Henrik Lund Kramshoej (work email) <hlk@security6.net>
uid                         Henrik Lund Kramshoej (Kramse) <hlk@kramse.dk>
uid                         [jpeg image of size 14412]
sub 2048g/6D08E6E6 2003-01-20
```

Keys signeres med:

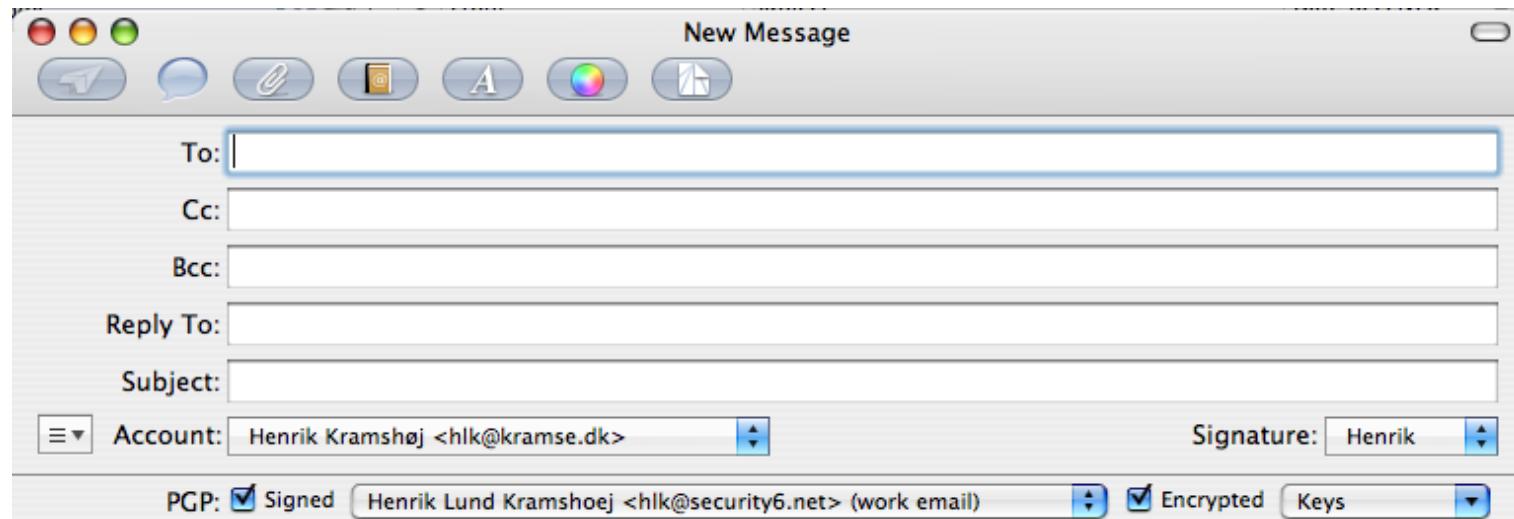
```
gpg --sign-key addr@domain.dk # Eller keyid
```

Husk at sikre at det nu også er den korrekte key i signerer

Kontroller med:

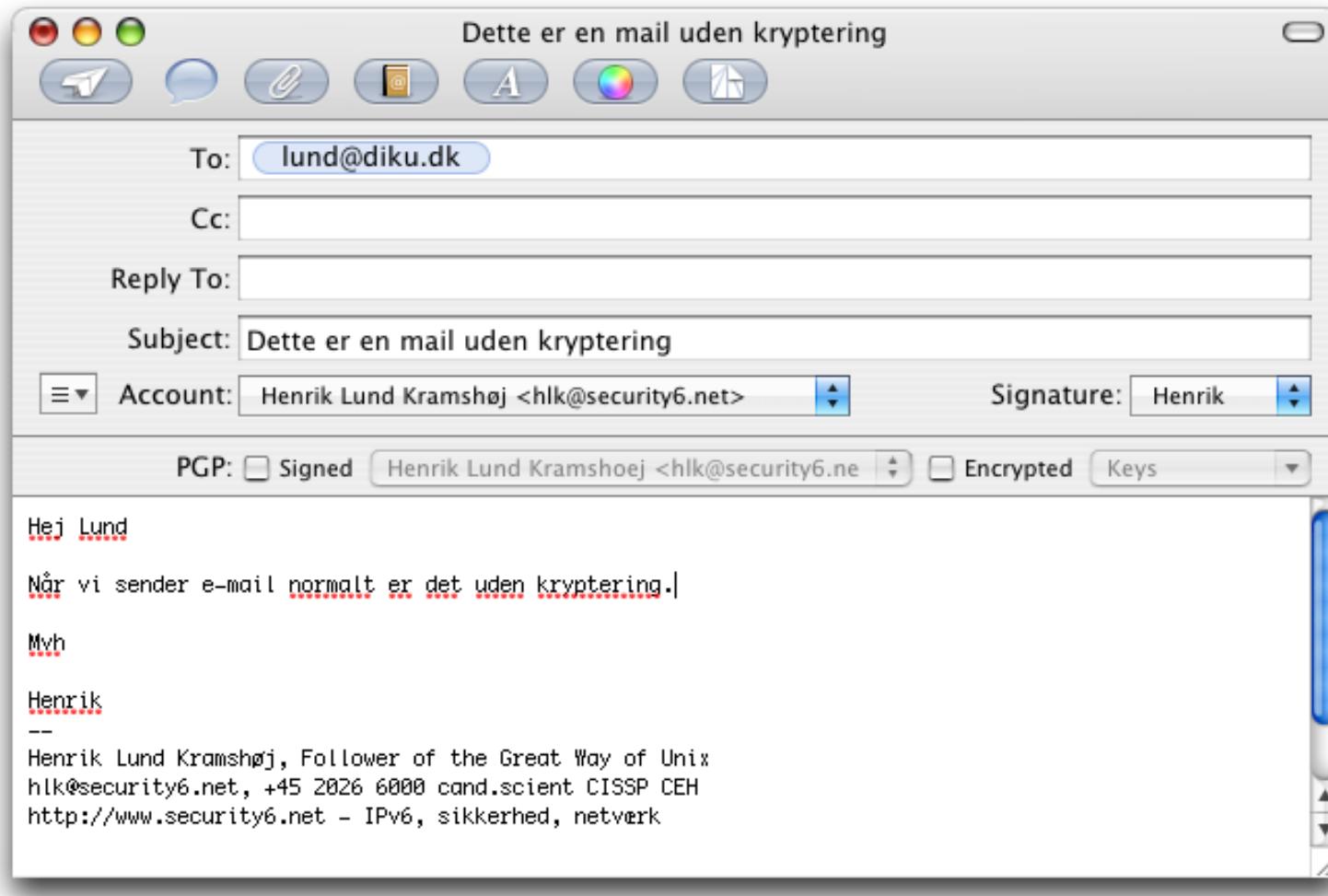
```
gpg --fingerprint addr@domain.dk
```

GPGMail plugin for Mac OS X Mail.app



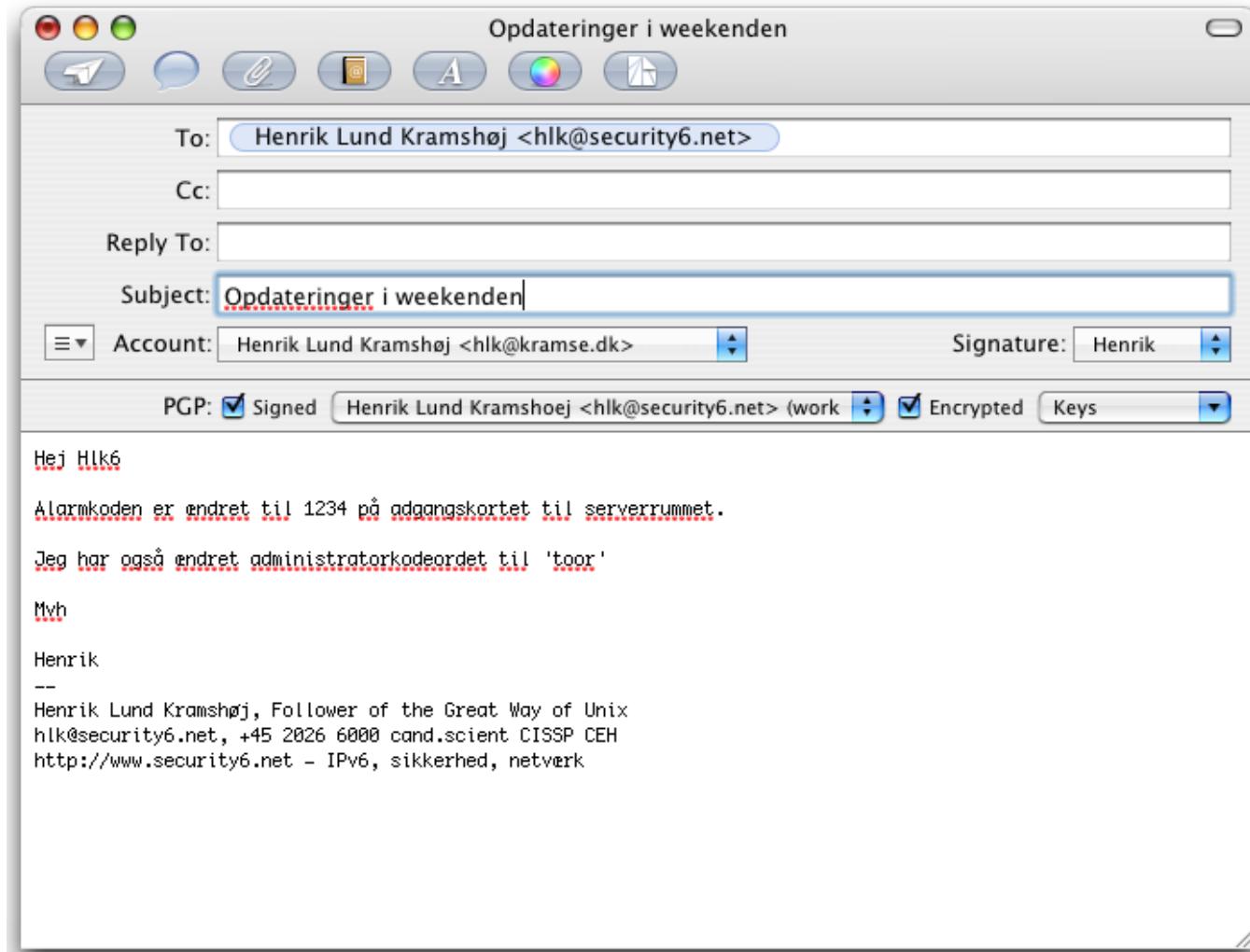
--
Henrik Lund Kramshøj, cand.scient, CISSP
e-mail: hlk@security6.net, tlf: 2026 6000
www.security6.net - IPv6, sikkerhed, netværk
Follower of the Great Way of Unix

- Uses GPG and is part of the GPGTools
- <https://gpgtools.org/>



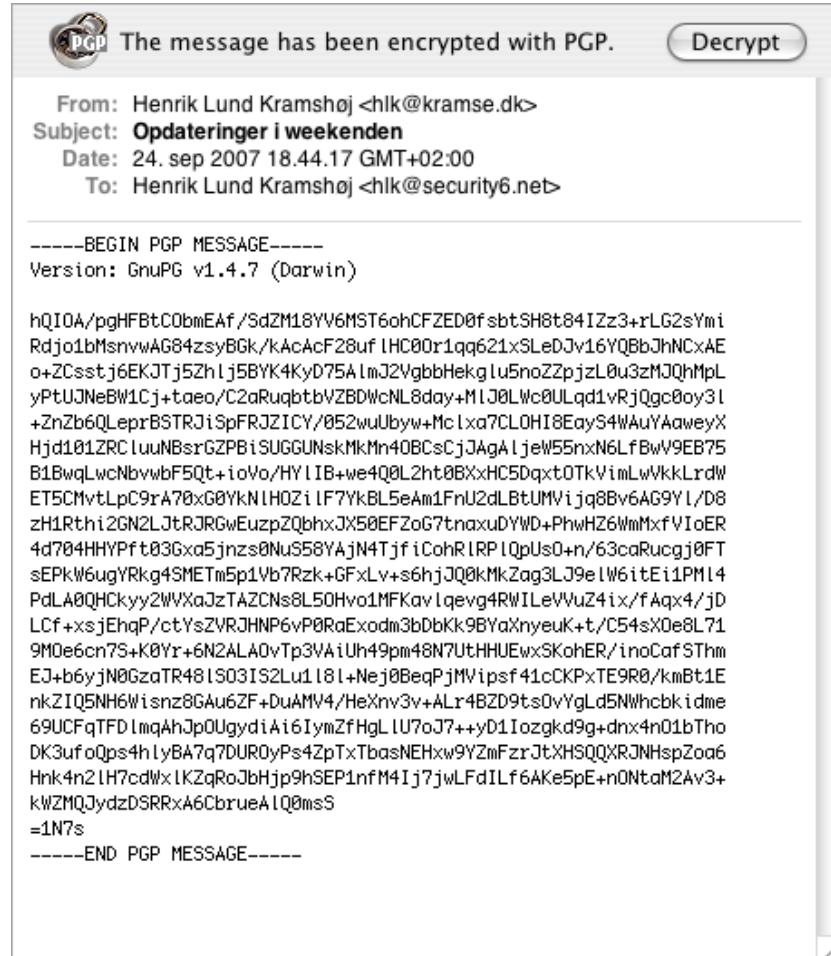
Email uden kryptering - er som et postkort

Email med kryptering - afsendelse



En sikker krypteret email er ikke sværere at sende

Krypteret Email under transporten



En sikker krypteret email er beskyttet undervejs

Crypto Projects that Might not Suck



Steve Weis
PrivateCore
! <http://bit.ly/CryptoMightNotSuck>



Virtual Private Networks are useful - or even required when travelling

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

SSL/TLS VPN - Multiple incompatible vendors: OpenVPN, Cisco, Juniper, F5 Big IP

IETF IPsec does work cross-vendors - sometimes, and is also increasingly becoming blocked or unusable due to NAT :-(

Recommended starting point OpenVPN - free and open, clients for "anything"

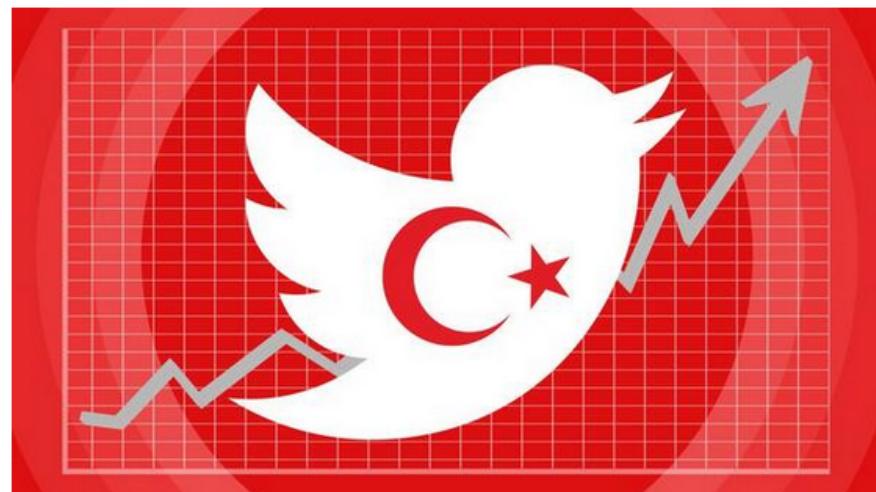
Turkey: Erdogan bans Twitter

 **Mashable** 
@mashable

Whoa: 1.2 million tweets sent in Turkey,
despite ban on.mash.to/1kQ7ijw
#OccupyTwitter #direntwitter
pic.twitter.com/opvuEeEh7f

 View translation

 Reply  Retweet  Favorite  More



RETWEETS 1,311 FAVORITES 379



The Net interprets censorship as damage and routes around it.

John Gilmore

John Gilmore is an American computer science innovator, Libertarian, Internet activist, and one of the founders of [Electronic Frontier Foundation](#). He created the alt.* hierarchy in [Usenet](#) and is a major contributor to the [GNU](#) project.



This [scientist](#) article is a [stub](#). You can help Wikiquote by [expanding it](#).

Sourced [\[edit\]](#)

- **The Net interprets censorship as damage and routes around it.**
 - As quoted in [TIME magazine \(6 December 1993\)](#)
 - Unsourced variant:
The Net treats censorship as a defect and routes around it.
 - How many of you have broken no laws this month?
 - As quoted in a [speech](#) to the First Conference on Computers, Freedom, and Privacy in 1991
 - If you're watching everybody, you're watching nobody.
 - As quoted in [Subject: \[IP\] John Gilmore on government trustworthiness and spy gear](#)
- **When the X500 revolution comes, your name will be lined against the wall and shot.**
 - As quoted in Peter Gutmann's [X509 style guide](#)



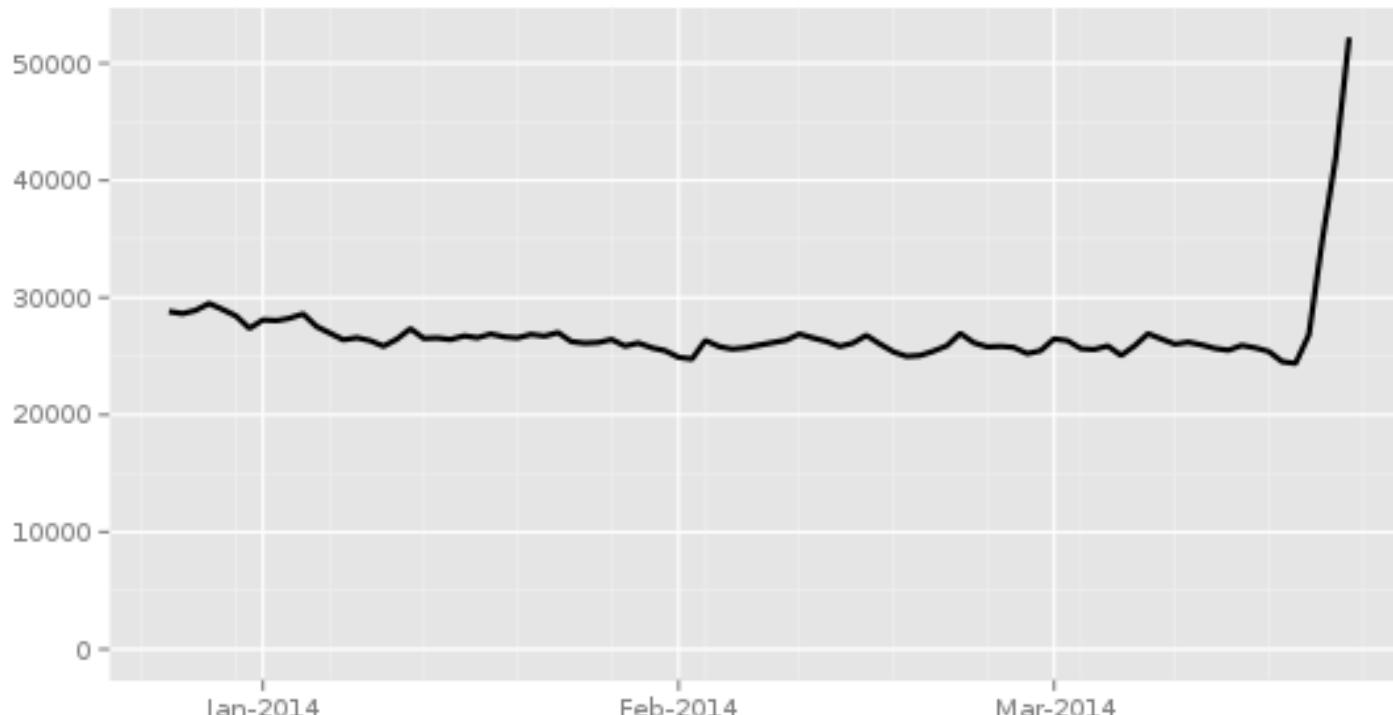
The Net interprets censorship as
damage and routes around it. 

http://en.wikiquote.org/wiki/John_Gilmore

[http://en.wikipedia.org/wiki/John_Gilmore_\(activist\)](http://en.wikipedia.org/wiki/John_Gilmore_(activist))

Directly connection Tor Users from Turkey

Directly connecting users from Turkey

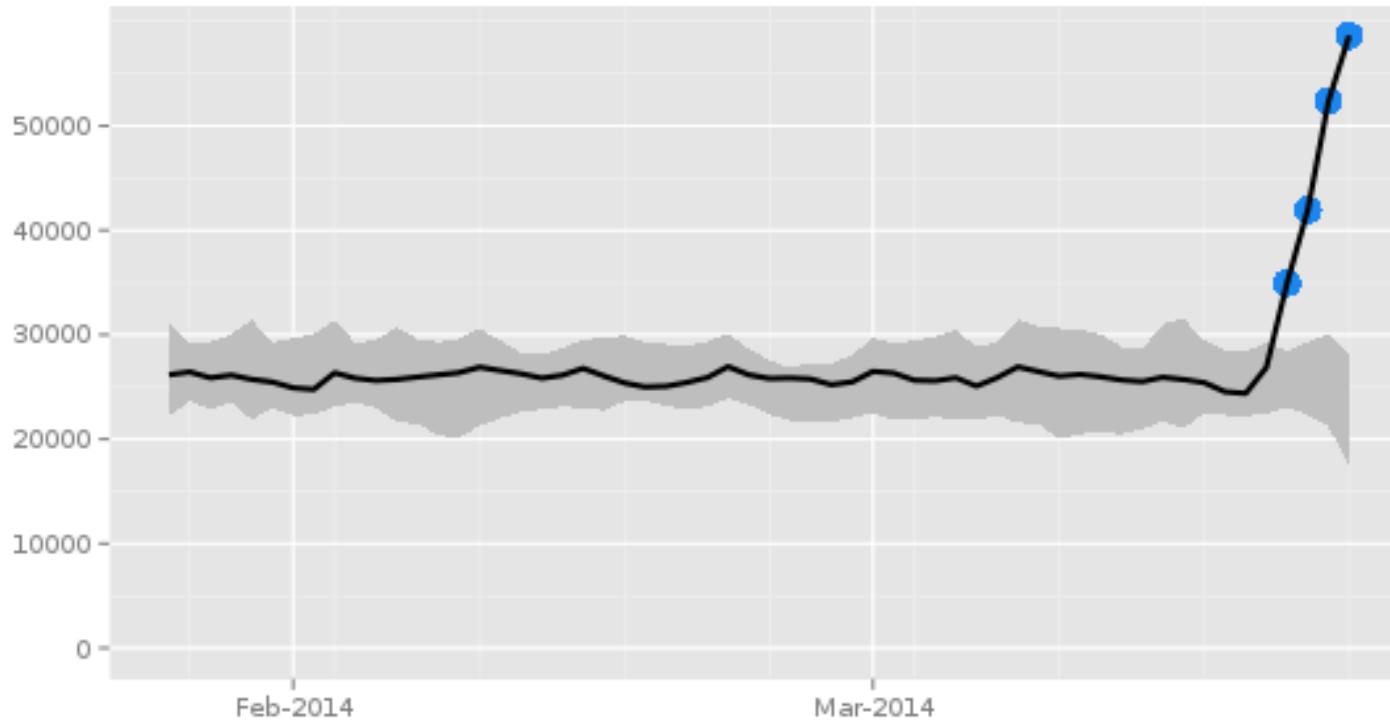


The Tor Project - <https://metrics.torproject.org/>

Image from https://metrics.torproject.org
via <https://twitter.com/runasand>

Directly connection Tor Users from Turkey +10.000

Directly connecting users from Turkey



The Tor Project - <https://metrics.torproject.org/>

Image from <https://metrics.torproject.org> via <https://twitter.com/ioc32/status/448791582423408640>

Anonymity Online

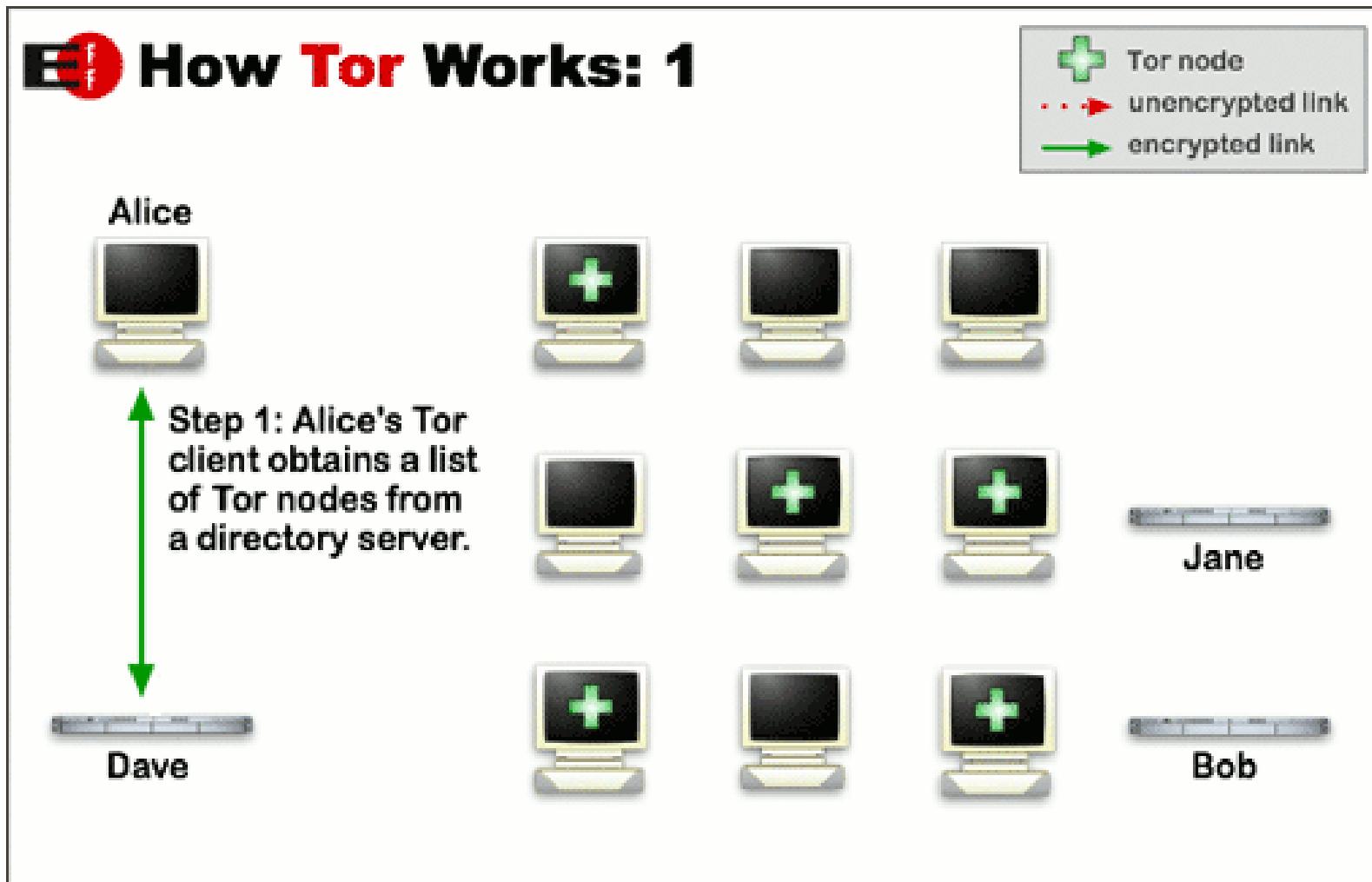
Protect your privacy. Defend yourself against network surveillance and traffic analysis.



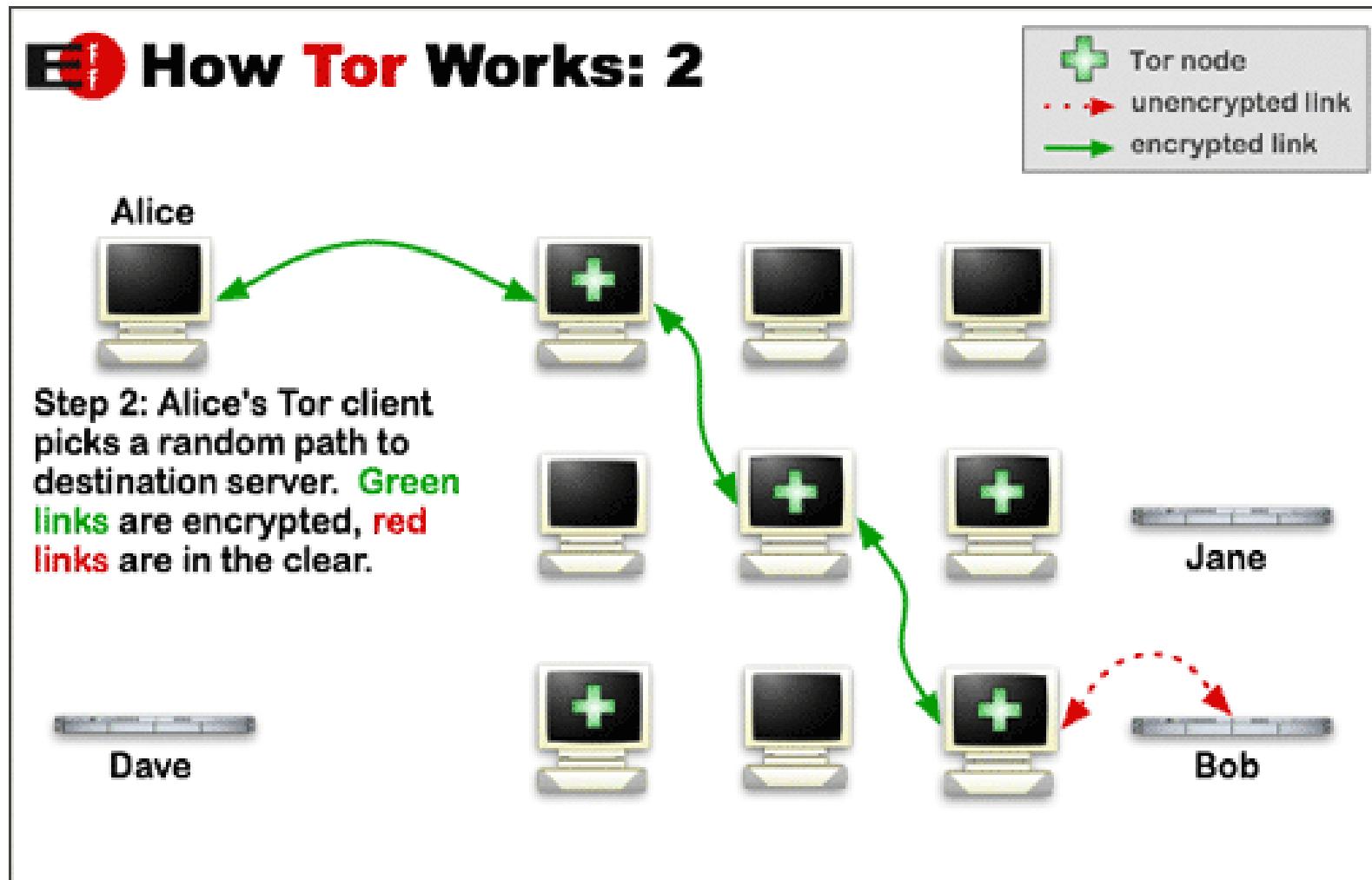
Download Tor 

- ➔ Tor prevents anyone from learning your location or browsing habits.
- ➔ Tor is for web browsers, instant messaging clients, remote logins, and more.
- ➔ Tor is free and open source for Windows, Mac, Linux/Unix, and Android

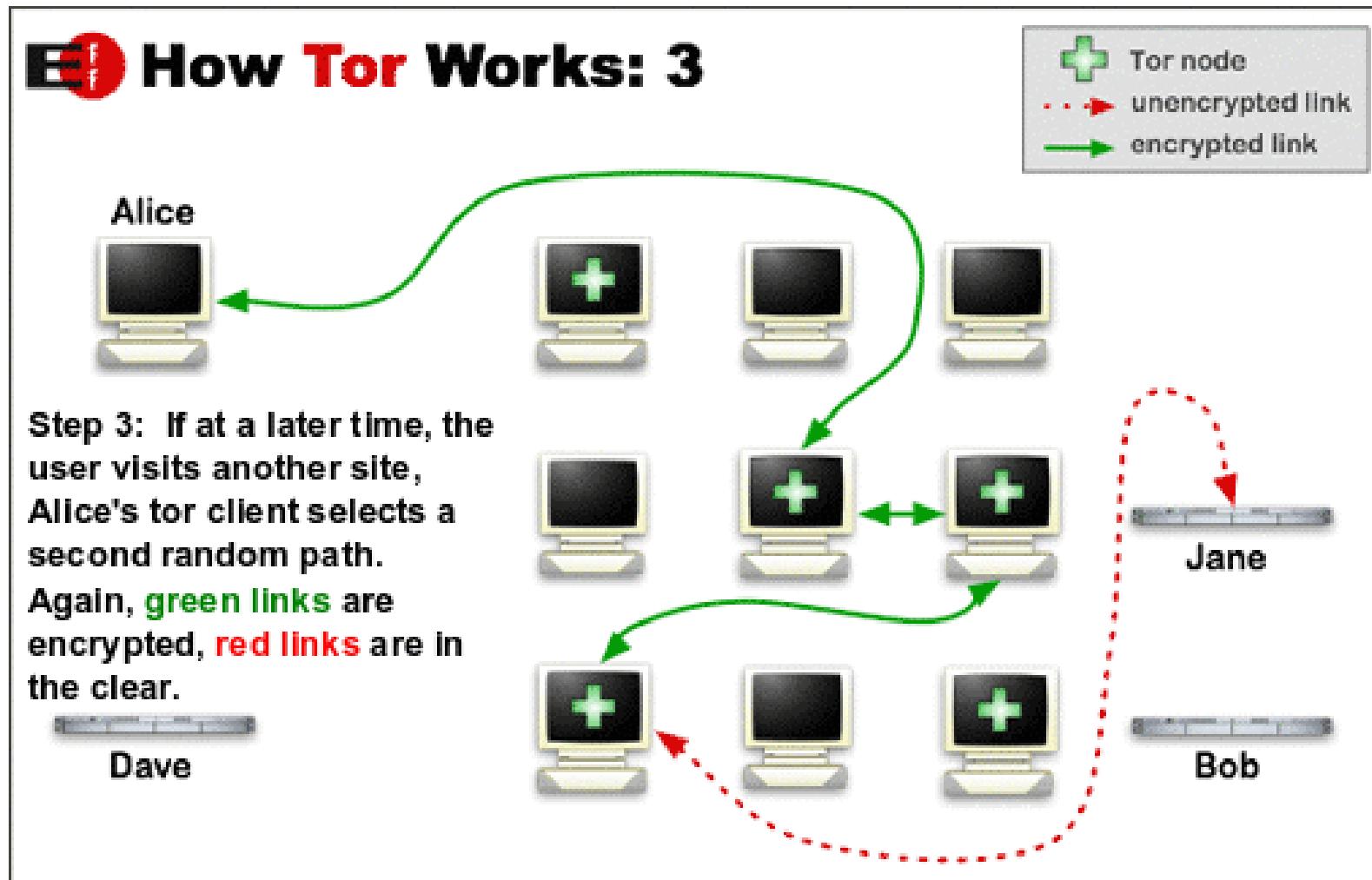
<https://www.torproject.org/>



pictures from <https://www.torproject.org/about/overview.html.en>



pictures from <https://www.torproject.org/about/overview.html.en>

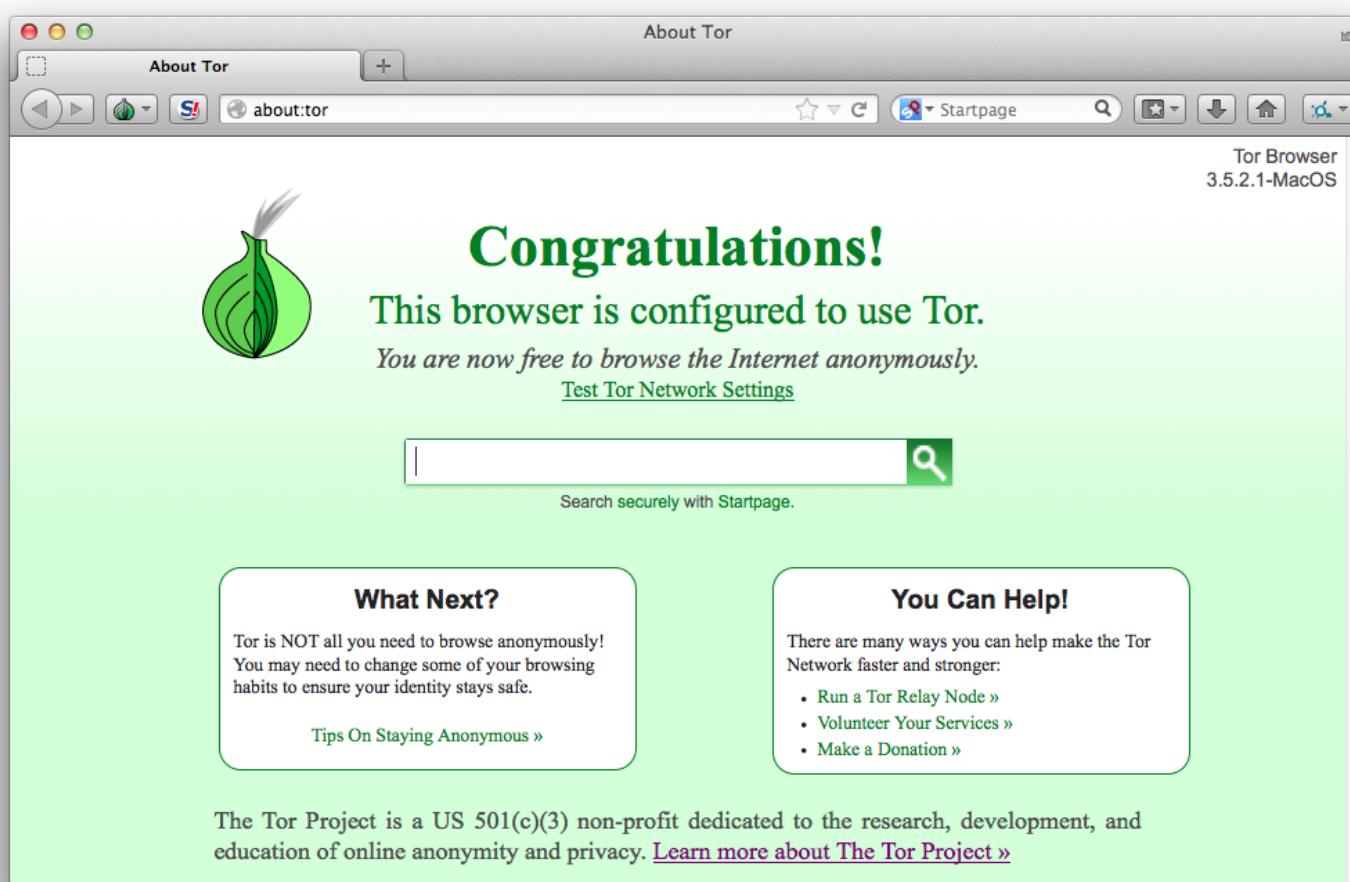


pictures from <https://www.torproject.org/about/overview.html.en>



Der findes diverse tools til Tor, Torbutton on/off knap til Firefox osv.

Det anbefales at bruge Torbrowser bundles fra <https://www.torproject.org/>



Mere anonym browser - Firefox in disguise

Whonix Anonymous Operating System



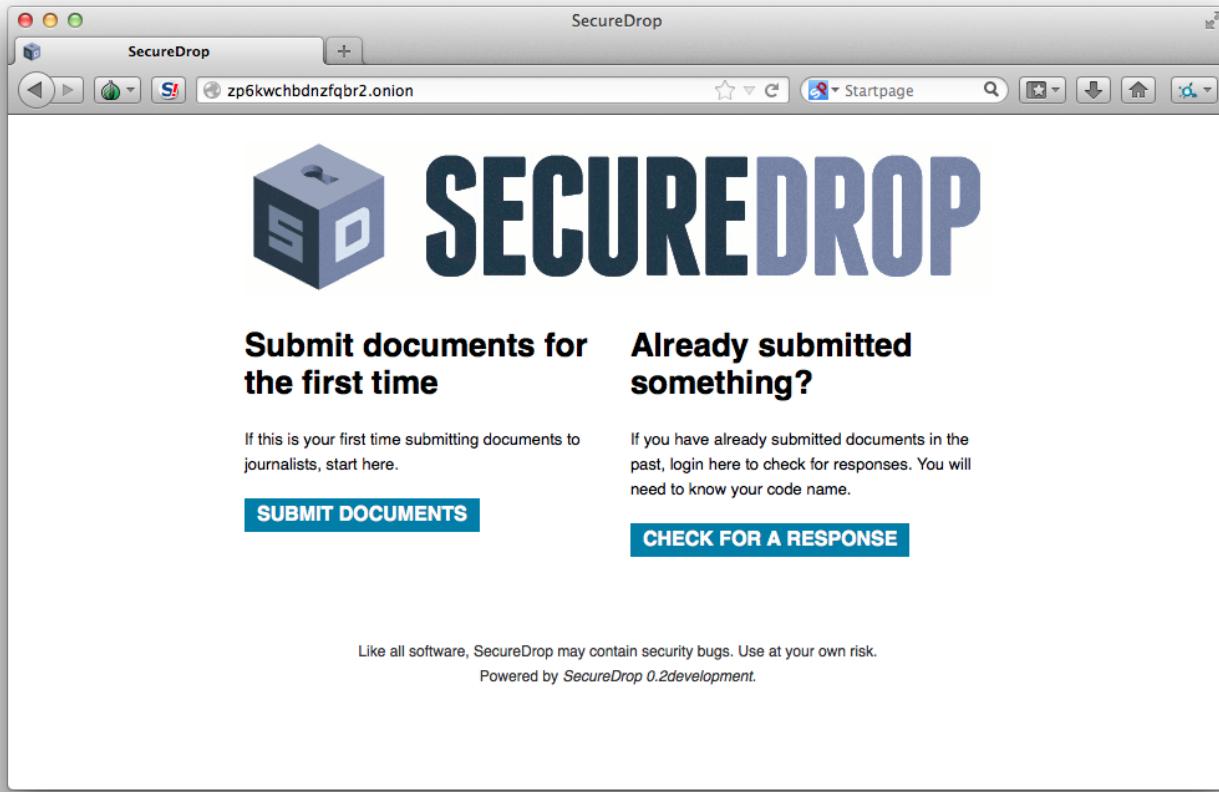
The red arrows → indicate that malicious or misbehaving applications can't break out of the Whonix-Workstation.

All network connections → are forced to go through Whonix-Gateway, where they are torified and routed to the Internet.

Whonix is an operating system focused on anonymity, privacy and security. It's based on the Tor anonymity network[5], Debian GNU/Linux[6] and security by isolation. DNS leaks are impossible, and not even malware with root privileges can find out the user's real IP. <https://www.whonix.org/>

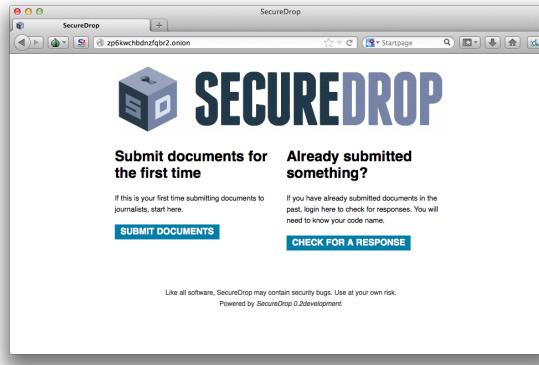
Torbrowser er godt, Whonix giver lidt ekstra sikkerhed

Torbrowser - sample site



.onion er Tor adresser - hidden sites

Den viste side er SecureDrop hos Radio24syv <http://www.radio24syv.dk/dig-og-radio24syv/securedrop/>



Even if you don't want to use SD specifically, look at the technologies used.

- Hidden services with authentication key
- Jails/chroot/compartmented data
- AppArmor
- Google Authenticator
- Host based IDS, monitoring server

Multiple browsers



Firefox



chrome



TorProject.org



Allow active content to run
only from sites you trust



ScriptBlock 1.0

A smart extension that controls javascript, iframes, and plugins



HTTPS Everywhere

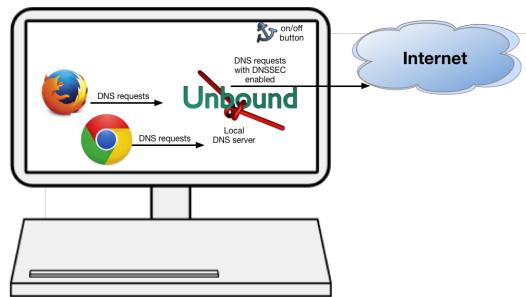


- Strict Security settings in the general browser, Firefox or Chrome?
- More lax security settings for "trusted sites" - like home banking
- Security plugins like HTTPS Everywhere and NoScripts for generic browsing



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>



Lots of DNSSEC tools, I recommend DNSSEC-trigger a local name server for your laptop

- DNSSEC Validator for firefox
<https://addons.mozilla.org/en-us/firefox/addon/dnssec-validator/>
- OARC tools <https://www.dns-oarc.net/oarc/services/odvr>
- <http://www.nlnetlabs.nl/projects/dnssec-trigger/>

Objective:

Specify mechanisms and techniques that allow Internet applications to establish cryptographically secured communications by using information distributed through DNSSEC for discovering and authenticating public keys which are associated with a service located at a domain name.

DNS-based Authentication of Named Entities (dane)

<https://datatracker.ietf.org/wg/dane/charter/>

<http://googleonlinesecurity.blogspot.dk/2011/04/improving-ssl-certificate-security.html>

DNSSEC er ved at være godt udbredt - undtagen i DK

(findes på .dk zonen, men næsten ingen resolvere)



Secure your mobile



Orbot:
Proxy With Tor



Orweb:
Private Web Browser



ChatSecure:
Private and Secure Messaging



ObscuraCam:
The Privacy Camera



Ostel:
Encrypted Phone Calls



CSipSimple:
Encrypted Voice Over IP (VOIP)



K-9 and APG:
Encrypted E-mail



KeySync:
Syncing Trusted Identities



TextSecure:
Short Messaging Service (SMS)



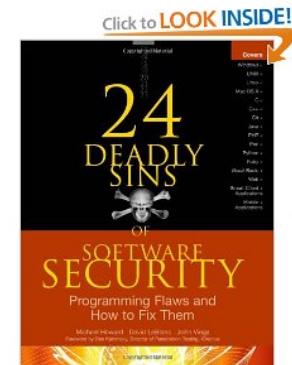
Pixelknot:
Hidden Messages

Dont forget your mobile platforms <https://guardianproject.info/>

24 Deadly Sins of Software Security af Michael Howard, David Leblanc, John Viega 2009

Obligatorisk læsning for alle udviklere

Denne bog er præcis og giver overblik på kun 432 sider



Buffer Overruns, Format String Problems, Integer Overflows, SQL Injection, Command Injection, Failing to Handle Errors, Cross-Site Scripting, Failing to Protect Network Traffic, Magic URLs Hidden Form Fields, Improper Use of SSL and TLS, Weak Password-Based Systems, Failing to Store and Protect Data Securely, Information Leakage, Improper File Access, Trusting Network Name Resolution, Race Conditions, Unauthenticated Key Exchange, Cryptographically Strong Random Numbers, Poor Usability

Hvad glemte jeg? Kom med dine favoritter ☺

evalg, DNS censur, NemID bashing, malware sucks, Android malware, iPhone malware?

Did you notice how a lot of the links in this presentation uses HTTPS - encrypted

Henrik Lund Kramshøj, internet samurai
hlk@solido.net

<http://www.solidonetworks.com>

You are always welcome to send me questions later via email

Følgende kurser afholdes med mig som underviser

- IPv6 workshop - 1 dag
Introduktion til Internetprotokollerne og forberedelse til implementering i egne netværk.
- Wireless teknologier og sikkerhed workshop - 1-2 dage
En dag med fokus på netværksdesign og fornuftig implementation af trådløse netværk, samt integration med hjemmepc og virksomhedsnetværk.
- Hacker workshop 2 dage
Workshop med detaljeret gennemgang af hackermetoderne angreb over netværk, exploitprogrammer, portscanning, Nessus m.fl.
- Forensics workshop 2 dage
Med fokus på tilgængelige open source værktøjer gennemgås metoder og praksis af undersøgelse af diskimages og spor på computer systemer
- Moderne Firewalls og Internetsikkerhed 2 dage
Informere om trusler og aktivitet på Internet, samt give et bud på hvorledes en avanceret moderne firewall idag kunne konfigureres.