



Cyber Security Update

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Overview

These slides cover a selection of security highlights during the past few months for:

- **Web Security**
- **Windows Security**
- **Linux Security**
- **Mac security**
- **Controls Security**
- **Miscellaneous**

This presentation complements information in 'Operational security for a Grid environment' by Romain Wartel



Web Security Update

Web (in)security update

■ IFRAME injection attacks continue

- Inserts IFRAME HTML tags into web pages
- Loads malware from another site into this IFRAME
- Relies on finding **vulnerable web servers**
 - Unfortunately they are not difficult to find!
- Targets **vulnerabilities in Web browsers and plug-ins**
 - E.g. vulnerabilities in media players are common

■ Insufficient file protections are targets

- Including AFS file space – check if your ACLs are too open!
- Used for hosting inappropriate content (malware, SPAM, ...)
- Automated tools post to open forums, blogs, wikis, guestbooks, etc...
 - <http://pandalabs.pandasecurity.com/archive/XRumer.aspx>

Any insecure web site is likely to be attacked

100 PREMIER IT LEADERS 2009 Nominate an IT leader today! Deadline is May 30.

COMPUTERWORLD Security

IDG

JUMP TO More Resources

SEARCH Google Custom Search GO

KASPERSKY Lab Endpoint Security to learn how Kaspersky can make the Internet safe for you.

ROS = "SECURITY"

- Home
- News
- E-mail Newsletters
- + Blogs
- Tech Dispenser
- + Shark Bait
- Knowledge Centers
 - + Business Intelligence
 - + Careers
 - + Development
 - + Hardware
 - + Government
 - + Management
 - + Mobile & Wireless
 - + Networking & Internet
 - Security
 - Cybercrime & Hacking
 - Disaster Recovery
 - Privacy
 - Spam, Malware &

Hackers jack thousands of sites, including U.N. domains

It's a repeat of earlier attacks that relies on an SQL injection, says Websense

By Gregg Keizer Comments 4 Recommended 48 Share

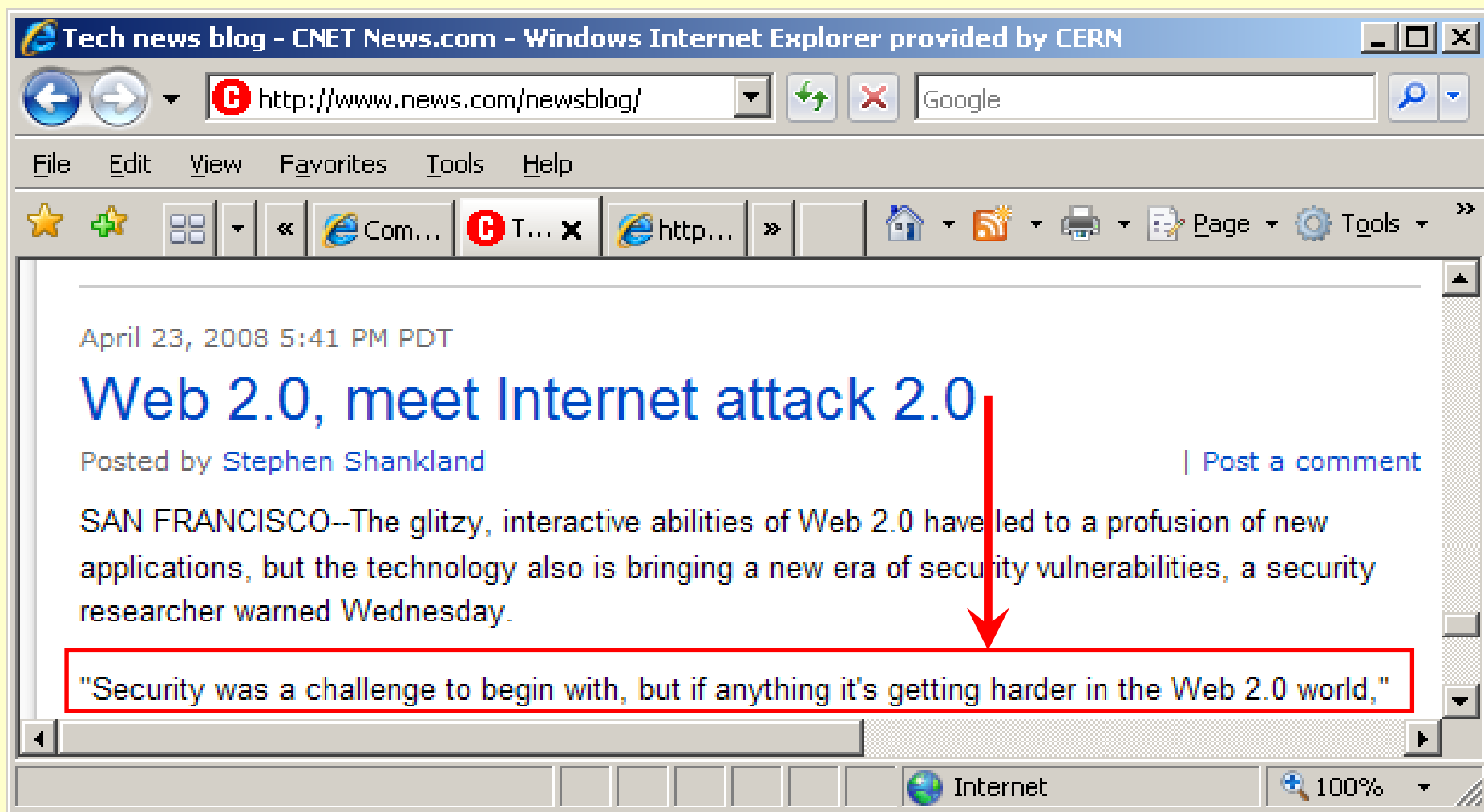
April 23, 2008 (Computerworld) Large numbers of legitimate Web sites, including government sites in the U.K. and some operated by the [United Nations](#), have been hacked and are serving up malware, a security researcher said today as massive JavaScript attacks last detected in March resume.

"They're using the same techniques as last month, of an SQL injection of some sort," said Dan Hubbard, vice president of security research at [Websense Inc.](#), referring to large-scale attacks that have plagued the Internet since January.



Web developers need to check their code !

Javascript with Ajax is an easy target for attack:



Malware Distribution Networks

- **Report by Google on drive-by-download attacks:**
 - <http://research.google.com/archive/provos-2008a.pdf>
 - avoiding the dark corners of the Internet does not limit exposure to malware
 - state-of-the-art anti-virus engines are lacking in their ability to protect against drive-by downloads
 - users may be lured into the malware distribution networks by content served through online Ads
 - e.g. http://www.theregister.co.uk/2008/04/28/yahoo_serves_rogue_ads/
 - 1.3% of the incoming search queries to Google's search engine return at least one link to a malicious site

Web security advice

- **Require secure coding practices**
 - Especially (but not only) for custom built web applications
 - <http://cern.ch/security/webapps/>
- **Educate users that web surfing has risks**
 - Advertising, photos and videos *can* and *do* regularly contain malware
 - Be cautious of links in IM, Blogs and Online forums (e.g. social networking). Attackers have matured beyond using SPAM
 - *Rich* content and plug-ins increase chances of attacks
 - Even reputable sites can serve 3rd party content, e.g. advertising
- **Consider blockers for JavaScript and advertising**
 - e.g. NoScript and AdBlock for Firefox
 - Disadvantages are that frequent updates are required and users need to understand what is being blocked and why



Windows Security Update

Windows Security Update

- **Windows computers remain a key target for attackers**
 - Trojan Web links in SPAM Email, Instant Messaging and Online Forums
 - Trojans targeting vulnerable applications:
e.g. Adobe PDF, Word, Quicktime, VLC, Mplayer, Winamp
 - Applications are often an easier target than the OS – keep them secure
 - Users are the weakest link and vulnerabilities are a fact of life
- **Srizbi Trojan: SPAM relay using rootkit technology**
 - A more advanced form of the Storm botnet
 - Difficult to detect until it becomes a SPAMbot
 - http://www.news.com/8301-10789_3-9933683-57.html?tag=bl

Advice on securing Windows computers

Centrally managing computers can help:

- Ensure patching for applications as well as the operating system
- Ensure anti-virus runs correctly and pattern files kept updated
- Configure secure defaults, especially for web browsers
- Only use privileges for actions that require them
- 90% of compromised Windows computers at CERN in 2007 were privately managed
 - e.g. laptops owned privately or by outside institutes
 - => Centrally managed computers were more secure



Linux Security Update

Slides contributed by
Jan Iven, CERN

Linux Security (1)

- **Linux x86_64 *insta-root* (CVE-2007-4573)**
 - (at least) 1 machine compromised at CERN
 - via a compromised user account
 - Delay between (public) announce and public exploit: 2 days (and 2 more for updates to appear)
 - Vendor assessments:
 - SECUNIA: "less critical"
 - Red Hat: "important"...

Linux Security (2)

■ Vendor assessments (ex: RHEL4)

- Marc Cox, Red Hat did some analysis:
<http://www.redhatmagazine.com/2008/02/26/risk-report-three-years-of-red-hat-enterprise-linux-4/>
- CERN analysis since Oct 2007 (ad-hoc):
 - 93 security errata for RHEL4+extras
 - 25 "critical": 12 Mozilla&friends, 4 Java, 2 flash-plugin, acroread, ...
 - 27 "Important": kernel, PDF, ...
- But nobody (seems?) to be exploiting Firefox et.al. on Linux?
- **Lessons:**
 - User-assisted (browser|mail) things get overrated by industry
 - Who would use a browser as root? Oh, wait...
 - Traditional "local root exploits" get underrated by industry

Linux Security (3)

■ Linux security tools – stagnation?

- Red Hat has added lots of nifty things in 2005/6 – 1 minor addition in 2007...
 - Are they used/useful? (SELinux → “off” is standing recommendation by Google... 90k hits)
 - Red Hat: could downgrade 1 advisory in 2004 (double-free caught by glibc) only
- chkrootkit/rkhunter – no update = no new Linux rootkits?
- StJude/Zepoo: RIP.



Mac Security Update

Safari zero-day exploit nets \$10,000 prize

- Apple fell first in CanSecWest "pwn-2-own" contest
- Vista fell next
- with a few hours of tweaking exploit will also work on OS X and Linux
 - *according to the contest winner*

[The Register](#) » [Security](#) »

Safari zero-day exploit nets \$10,000 prize



Pwn'd in 12 hours

By [Dan Goodin in Vancouver](#) → [More by this author](#)

Published Friday 20th April 2007 23:38 GMT

[Nail down your security priorities. Ask the experts and your peers at The Register Security Debate, April 17, 2008](#)

A New York-based security researcher spent less than 12 hours to identify and exploit a zero-day vulnerability in Apple's Safari browser that allowed him to remotely gain full user rights to the hacked machine. The feat came during the second and final day of the CanSecWest "pwn-2-own" contest in which participants are able to walk away with a fully-patched MacBook Pro if they are first able to hack it.



First Rogue Cleaning Tool for Mac

Macsweeper:

- always finds something to fix (a trick to make you buy it)
- similar to *Cleanator* for Windows

First Rogue Cleaning Tool for Mac - F-Secure Weblog : News from the Lab - Windows Internet Explorer provided by CERN

http://www.f-secure.com/weblog/archives/00001362.html

F-Secure.COM

Weblog : News from the Lab

BE SURE.

First Rogue Cleaning Tool for Mac

Posted by Patrik @ 04:56 GMT | Comments (20)

We've just found the first Mac **rogue application** and it's called MacSweeper.

It claims to clean your Mac from compromising files and it will **always** find something to fix/clean but the only way to do so is to buy the program.

MACSWEEPER

Scan for Compromising Objects

Start Scan

Current Progress

MacSweeper Found

Location	Item Type
✓ Cookies	
✓ Caches	227 items
✓ com.apple.preferencepanes.cache	Trash
✓ com.apple.preferencepanes.searchindexcache	Trash
✓ Desktop	Trash
✓ Metadata	Trash
✓ Quicksilver	Trash
✓ System Caches	35 items

You need to buy our software to be able to clean your mac

Purchase Later Enter Serial

QuickTime Security Update

Technical Cyber Security Alert TA08-094A

- Original release date: April 3, 2008 - Source: US-CERT
- **Apple Mac OS X** running versions of QuickTime prior to 7.4.5
- **Microsoft Windows** running versions of QuickTime prior to 7.4.5

■ Overview

- Apple QuickTime contains multiple vulnerabilities as described in the Apple Knowledgebase article HT1241. Exploitation of these vulnerabilities could allow a remote attacker to **execute arbitrary code or cause a denial-of-service condition**

■ Special alert for **Windows: non-US language versions**

- SWITCH-CERT have reported that auto-updates of Quicktime fail on non-US language versions of Windows - s/w re-installation required



Controls Security Update

Slides contributed by
Stefan Lueders, CERN

Heart Device is vulnerable to attack

Potentially fatal!

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A Heart Device Is Found Vulnerable to Hacker Attacks

By BARNABY J. FEDER
Published: March 12, 2008

To the long list of objects vulnerable to attack by computer hackers, add the human heart.

The threat seems largely theoretical. But a team of computer security researchers plans to report Wednesday that it had been able to gain wireless access to a combination heart defibrillator and pacemaker.

They were able to reprogram it to shut down and to deliver jolts of electricity that would potentially be fatal — if the device had been in a person. In this case, the researcher were hacking into a device in a laboratory.

The researchers said they had also been able to glean personal patient data by eavesdropping on signals from the tiny wireless radio that [Medtronic](#), the device's maker, had embedded in the implant as a way to let doctors monitor and adjust it without surgery.

The report, to published at www.secure-medicine.org, makes clear that the hundreds of

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ROCK 'N ROLL WILL NEVER DIE

Boeing's new 787: vulnerable?

Boeing's new 787:

The network providing Internet access for passengers is connected to the plane's control, navigation and communication systems



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POLITICS : SECURITY

FAA: Boeing's New 787 May Be Vulnerable to Hacker Attack

By Kim Zetter | 01.04.08 | 7:30 PM



The Boeing 787 Dreamliner aircraft makes its public debut July 8, 2007, amidst employees and special guests outside the Boeing assembly plant in Everett, Washington.

Photo: Robert Sorbo / Corbis

Boeing's new 787 Dreamliner passenger jet may have a serious security vulnerability in its onboard computer networks that could allow passengers to access the plane's control systems, according to the U.S. Federal Aviation Administration.

The computer network in the Dreamliner's passenger compartment, designed to give passengers in-flight internet access, is connected to the plane's control, navigation and communication systems, an FAA report reveals.

Stronger regulations to secure the Electric Grid

The U.S. DHS and the U.S. FERC are now regulating the cyber-security for control systems in the electricity sector. The standards CIP-002 to CIP-009 are mandatory.

“The Federal Energy Regulatory Commission (FERC) today approved eight new mandatory critical infrastructure protection (CIP) reliability standards to protect the US’s bulk power system against potential disruptions from cyber security breaches (2008/02/01)”



The screenshot shows the website for the United States House of Representatives Committee on Homeland Security. The page is titled "Hearings & Markups" and features a navigation menu with links for "About the Committee", "Press Center", "Issues Area", "Legislation", and "Hearings". The main content area is for a hearing titled "The Cyber Threat to Control Systems: Stronger Regulations are Necessary to Secure the Electric Grid." held on Wednesday, October 17, 2007, at 2:00 p.m. in the 311 Cannon House Office Building. The hearing is organized by the Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology. The hearing title is repeated: "The Cyber Threat to Control Systems: Stronger Regulations are Necessary to Secure the Electric Grid." The witnesses listed are:

- PANEL I**
 - Mr. Greg Wilshusen, Director, Information Security Issues, Government Accountability Office
 - Mr. Greg Garcia, Assistant Secretary, Office of Cyber Security and Telecommunication, Department of Homeland Security
 - Mr. Tim Roxey, Technical Assistant to the President CGG/Security, Deputy to the Chair, NSCC & PCIS, Constellation Generation Group
- PANEL II**
 - Mr. Joe Weiss, Managing Director, Applied Control Solutions

On the right side of the page, there is a section for the Chairman, Rep. Bennie G. Thompson (D-MS), with a photo. Below that is a search bar with the text "Search our Site" and a "go" button. At the bottom right, there is an "Email Sign Up" section with a text input field for "email" and a "sign up" button.

Security Standards for Automation

Industrial Control Systems

The ISA has started the ISA Security Compliance Institute

- to be a driving force to enhance control system cybersecurity

- to establish a set of well engineered specifications and processes for the testing and certification of critical control system products



Setting the Standard for Automation™

ISA is a nonprofit organization that helps its 30,000 worldwide members and other automation professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities.

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ISA Security Compliance Institute

Providing Industrial Control Systems Security Standards Compliance

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Program Overview

Industry leaders from a number of major control system users and manufacturers have investigated the feasibility of creating an organization to establish a set of well-engineered specifications and processes for the testing and certification of critical control systems products. The mission of the proposed organization is:

"The organization's mission is to decrease the time, cost, and risk of developing, acquiring, and deploying control systems by establishing a collaborative industry-based program among asset owners, suppliers, and other stakeholders to:

- *"Facilitate the independent testing and certification of control system products to a defined set of control system security standards;*
- *Use existing control system security industry standards, where available, develop or facilitate development of interim standards where they don't already exist, and adopt new standards when they become available;*
- *Accelerate the development of industry standards that can be used to certify that control systems products meet a common set of security requirements.*

The standards, tests, and conformance processes for control systems products will allow the products to be securely integrated. An ultimate goal is to push the conformance testing into the product development life cycle so that the products are intrinsically secure."

For more details on the history of the ISA Security Compliance Institute initiative, including the feasibility study describing the market needs, visit www.isa.org/isasecure/history.

EuroSCSIE

EuroSCSIE

- ***“European Information Exchange on SCADA and Control System Security”***
 - *“...of members from European based government, industry and research institutions depending upon and/or whose responsibility it is to improve the security of SCADA and Control Systems...”*
- **Users and governments from 10 European countries**
- **Chaired in 2007 by CERN (S. Lueders)**
 - 4 meetings were held

Control System Cyber Security in HEP

- **First workshop held during ICALEPCS2007**
 - Located in Knoxville, Tennessee, on 15 Oct 2007
- **Participants from several sites**
 - KEK, FNAL, SLAC, STFC, ...
- **Useful discussion and information exchange**
- **Defence in depth is a common approach**
- **Summary paper and talk linked from**
 - <http://indico.cern.ch/conferenceDisplay.py?confId=13367>

(CS)²
HEP

Control System Cyber-Security Workshop (CS)2/HEP

14 October 2007 Crowne Plaza Hotel

[Home](#)

The enormous growth of the worldwide "Internet" during the last decade offers computer users new means to share and distribute information and data. The High Energy Physics (HEP) community has even partially driven the success of the Internet.

Today, modern Information Technologies (IT) are commonly used in accelerator and experiment control systems. Accelerator and experiment control

- ▶ Overview
- ▶ Itinerary
- ▶ Book of abstracts [PDF]
- ▶ Registration & Accommodation



Miscellaneous

Miscellaneous Updates

- Top security risks and trends compiled by SANS:
 - <http://www.sans.org/top20>
 - http://www.sans.org/resources/10_security_trends.pdf
- ecsirt incident classification scheme:
 - <http://www.ecsirt.net/cec/service/documents/wp4-clearinghouse-policy-v12.html#HEAD6>
- Federated Model for Cyber Security (Argonne)
 - www.anl.gov/it/federated

ISSeG Project Web Site – Final Release

- **ISSeG: Integrated Site Security for Grids**
 - Site Security tools and advice targeted for Grid sites
- **Final version of web site includes:**
 - Risk Analysis Tool
 - Security Recommendations
 - Security Training Material
- **For full information, visit:**

<http://www.isseg.eu>

Some conclusions...

- **The Internet world is **not** becoming a safer place**
- **Attacks are becoming more targeted**
 - Driven by money and criminal activity
 - e.g. compromised computers, accounts and data can be sold
 - Phishing targets passwords, personal data, credit card details, ...
- **Secure coding practices are essential**
 - Custom built software, especially web apps, are a growing target
- **Privately managed computers/applications can increase risks**
 - Applications, plug-ins etc need to be patched (not just the OS)
 - Centralised management makes it easier to keep computers secure
- **Users need to be alert for malware**
 - Via links in IM, Blogs, Online forums (e.g. social networking), ...
 - In photos, videos, advertising, documents, ...
 - Relying solely on anti-virus software is not sufficient

Discussion

