

# Ethical Hacking and Countermeasures

Version 6



### Module I

Introduction to Ethical Hacking



### Scenario

Jeffery came across some books that were related to hacking. He was curious to know about hacking public and private networks. He bought a book related to it from the nearby bookstore.

Amazed to learn new techniques about hacking, Jeffrey wanted to get hands on them. He visited a local library and plugged his laptop to its network to search the database of books. Jeffrey wanted to find the vulnerability present in the library's network and then show the report to the concerned authorities.

Jeffrey launched the tools from a CD that was offered with the book and discovered lot of loopholes in the network!

What is wrong with Jeffrey's act?

Is his action justified?





### News

### **PCWorld**

#### 'Hacker Safe' Seal: Web Site Shield, or Target?

More than 80,000 Web sites worldwide display a small green logo that proclaims them to be "Hacker Safe." Is it a promise or a target? Jaikumar Vijayan, Computerworld

Tuesday, January 22, 2008 02:00 PM PST

More than 80,000 Web sites worldwide display a small green logo that proclaims them to be "Hacker Safe." The logo is provided to them by ScanAlert Inc., a vendor that scans the sites of its clients daily in search of security vulnerabilities.

ScanAlert's logo is the most widely used security seal of its kind on the Web, and it can be found on dozens of marquee-brand sites, including those of Johnson & Johnson, Sony Corp. and Warner Bros. Entertainment Inc. Such widespread use attracted the attention of security vendor McAfee Inc., which in late October agreed to acquire ScanAlert.

But Napa, Calif.-based ScanAlert was put on the defensive this month after online technology retailer Geeks.com warned an undisclosed number of customers that their personal and credit card data may have been compromised in a hacking incident. Geeks.com, whose formal name is Genica Corp., displays the Hacker Safe logo at the bottom of its home page.

A ScanAlert spokesman said "preliminary evidence" suggests that the breach likely occurred during one of several periods last year when ScanAlert had withdrawn its certification from Geeks.com after finding vulnerabilities on the Web site.

#### Debate Rekindled

Even so, the incident at Geeks.com has rekindled a debate about the value of security seals such as the Hacker Safe logo.

ScanAlert users say that the scanning service can sniff out at least some security problems and that the logo is a valuable marketing tool for them.

On the other hand, ScanAlert's detractors say the service can give companies and their online customers a false sense of security. Indeed, hacker groups have claimed that they have targeted and broken into numerous Web sites displaying the Hacker Safe logo.

Source: http://www.pcworld.com/





### News

#### Stolen: Google employees' personal data

By Brendon Chase

http://news.cnet.com/Stolen-Google-employees-personal-data/2100-1029 3-6243093.html

Story last modified Thu Jul 03 10:09:42 PDT 2008

Google has confirmed that personal data of U.S. employees hired prior to 2006 have been stolen in a recent burglary.

Records kept at Colt Express Outsourcing Services, an external company Google and other companies use to handle human resources functions, were stolen in a burglary on May 26. An undisclosed number of employees' details and those of dependents such as names, addresses, and Social Security numbers were on the stolen computers. It is understood that Colt did not employ encryption to protect the information.

It's still unclear how many more of Colt Express' clients were affected by the breach. CBS' CNET Networks, publisher of News.com, was also affected by the burglary, with about 6,500 employees' details stolen.

Although there is no evidence of misuse of the data to date, the information obtained could be used by identity thieves to create fake accounts and identities.

It's only come to light now that Google was one of the companies affected. Google itself was not burglarized, nor were any of its internal systems compromised.

Source: http://news.cnet.com/







# Module Objective

#### This module will familiarize you with:

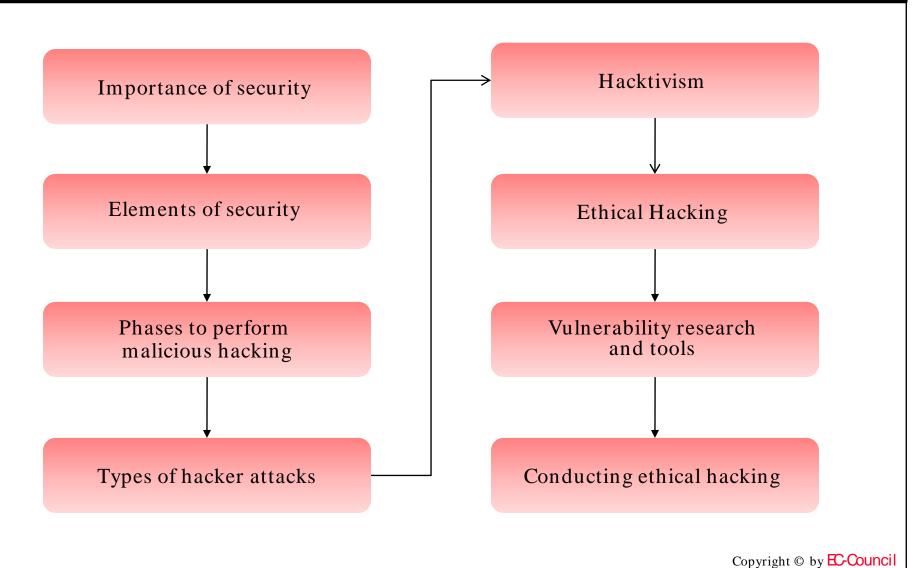
- Importance of information security in today's world
- Elements of security
- Various phases of the Hacking Cycle
- Types of hacker attacks
- Hacktivism
- Ethical Hacking
- Vulnerability research and tools
- Steps for conducting ethical hacking
- Computer crimes and implications
- Cyber Laws prevailing in various parts around theworld





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## Module Flow



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# Problem Definition – Why Security?

Evolution of technology focused on ease of use

#### Microsoft Internet Explorer Drag and Drop Vulnerability

 Secunia Advisory:
 SA12321

 Release Date:
 2004-08-19

 Last Update:
 2004-10-12

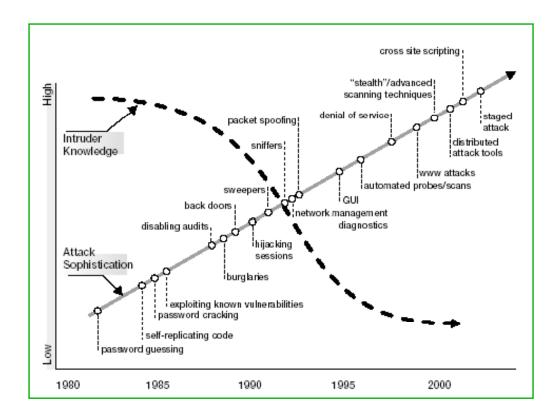
Critical:

Highly critical
System access
Where: From remote

Increased network environment and network based applications



#### Decreasing skill level needed for exploits





# Problem Definition – Why Security? (cont'd)

Direct impact of security breach on corporate asset base and goodwill

Bookie reveals \$100,000 cost of denial-of-service extortion attacks

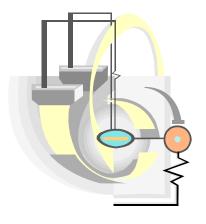
June 11 2004

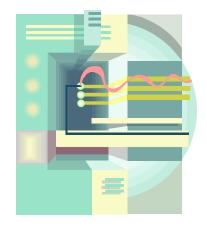
by Andy McCue

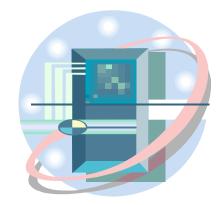
And that's just for starters – an online betting site tells all to silicon.com...

"Our first attack was in November last year. We got a demand for \$50,000 from an unidentified source." These are the words of a UK-based online bookmaker who has agreed to speak to silicon.com, on condition of anonymity, to reveal the full scale of the denial of service extortion threats that betting sites have been battling against for nine months.

Increasing complexity of computer infrastructure administration and management







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# Essential Terminologies



#### Threat:

• An action or event that might compromise security. A threat is a potential violation of security



#### Vulnerability:

• Existence of a weakness, design, or implementation error that can lead to an unexpected and undesirable event compromising the security of the system



#### Target of Evaluation:

• An IT system, product, or component that is identified/subjected to require security evaluation





# Essential Terminologies (cont'd)



#### Attack:

• An assault on the system security that is derived from an intelligent threat. An attack is any action that violates security



#### Exploit:

• A defined way to breach the security of an IT sysem through vulnerability

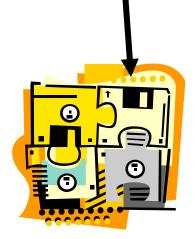


## Elements of Security



### Security

 A state of well-being of information and infrastructure in which the possibility of successful yet undetected theft, tampering, and disruption of information and services is kept low or tolerable Any hacking event will affect any one or more of the essential security elements







## Elements of Security (cont'd)

Security rests on confidentiality, authenticity, integrity, and availability

#### Confidentiality

• The concealment of information or resources

#### Authenticity

• The identification and assurance of the origin of information

#### Integrity

• The trustworthiness of data or resources in terms of preventing improper and unauthorized changes

#### Availability

• The ability to use the desired information or resource



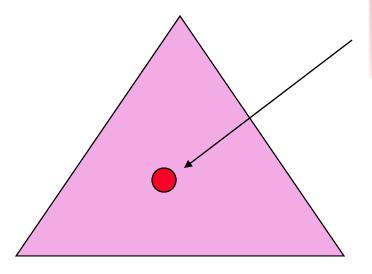


# The Security, Functionality, and Ease of Use Triangle

The number of exploits is minimized when the number of weaknesses is reduced => greater security

Takes more effort to conduct the same task => reduced functionality

#### **Functionality**



Moving the ball towards security means moving away from the functionality and ease of use

Security

Ease of Use



## Case Study

#### **WORM'S EFFECTS**

Customers of the Canadian Imperial Bank of Commerce in Toronto were unable to withdraw money using ATMs during part of Saturday.

Korea Telecom Freetel and SK Telecom service failed, stranding millions of South Korean Internet users

Internet congestion prevented consumers from contacting Microsoft over the Internet to unlock the anti-piracy features of its latest products, including the Windows XP and Office XP software packages.

The U.S. departments of State, Agriculture, Commerce and some units of the Defense Department appeared hardest hit among federal agencies. Alan was stranded at Newark airport. He was to attend his friend's wedding and Continental airlines just announced the cancellation of his hop-over flight

He decided to purchase a seat on another airline, but the Bank of America Corp ATM just did not work

All seemed wrong with the world as the airline staff were using pen and paper to take down new reservations. They could not even confirm the availability



Source: http://www.cnn.com/





## What Does a Malicious Hacker Do

#### Reconnaissance

• Active/passive

#### Scanning

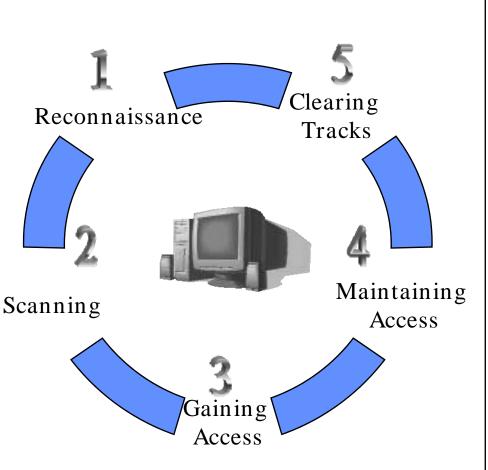
#### Gaining access

- Operating system level/application level
- Network level
- Denial of service

#### Maintaining access

• Uploading/altering/ downloading programs or data

#### Clearing tracks







## Effect on Business

"They (hackers) don't care what kind of business you are, they just want to use your computer," says Assistant U.S. Attorney Floyd Short in Seattle, head of the Western Washington Cyber Task Force, a coalition of federal, state, and local criminal justice agencies

If the data is altered or stolen, a company may risk losing credibility and the trust of their customers



Hacker

There is a continued increase in malware that installs open proxies on systems, especially targeting broadband user's zombies

Businesses most at risk, experts say, are those handling online financial transactions



Office User





## Phase 1 - Reconnaissance

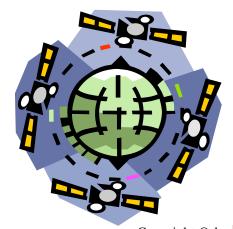
Reconnaissance refers to the preparatory phase where an attacker seeks to gather as much information as possible about a target of evaluation prior to launching an attack

Business Risk: **Notable** - Generally noted as "rattling the door knobs" to see if someone is watching and responding

Could be the future point of return, noted for ease of entry for an attack when more about the target is known on a broad scale









## Reconnaissance Types

Passive reconnaissance involves acquiring information without directly interacting with the target

• For example, searching public records or news releases





Active reconnaissance involves interacting with the target directly by any means

• For example, telephone calls to the help desk or technical department



## Phase 2 - Scanning

Scanning refers to the pre-attack phase when the hacker scans the network for specific information on the basis of information gathered during reconnaissance



Business Risk: **High** – Hackers have to get a single point of entry to launch an attack





Scanning can include use of dialers, port scanners, network mapping, sweeping, vulnerability scanners, and so on





# Phase 2 – Scanning (cont'd)

	Nmap Front End v3.75	X
<u>F</u> ile <u>V</u> iew		<u>H</u> elp
Scan Discover	Timing   Files   Options	Scan Exit
Connect Scar		Default
Relay Host:		Range:
Scan Extensions		
RPC Scan Identd Info OS Detection Version Probe		
Starting nmap 3.75 ( http://www.insecure.org/nmap/ ) at 2004-10-21 14:02 CEST WARNING: We could not determine for sure which interface to use, so we are guessing 192.168.0.98 . If this is wrong, use -S <my_ip_address>. Interesting ports on localhost (127.0.0.1): (The 1655 ports scanned but not shown below are in state: closed)  PORT STATE SERVICE  22/tcp open ssh 111/tcp open rpcbind 113/tcp open auth 631/tcp open ipp 3128/tcp open ipp 3128/tcp open distocd 6000/tcp open K11 7100/tcp open font-service  Nmap run completed 1 IP address (1 host up) scanned in 0.151 seconds</my_ip_address>		
Command: nmap	-sT -PT 127.0.0.1	

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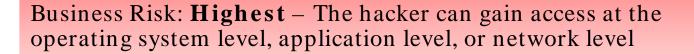
# Phase 3 - Gaining Access

Gaining access refers to the penetration phase. The hacker exploits the vulnerability in the system

The exploit can occur over a LAN, the Internet, or as a deception, or theft. Examples include buffer overflows, denial of service, session hijacking, and password cracking



Influencing factors include architecture and configuration of the target system, the skill level of the perpetrator, and the initial level of access obtained









## Phase 4 - Maintaining Access

Maintaining access refers to the phase when the hacker tries to retain his/her ownership of the system

The hacker has compromised the system

Hackers may harden the system from other hackers as well (to own the system) by securing their exclusive access with Backdoors, RootKits, or Trojans

Hackers can upload, download, or manipulate data, applications, and configurations on the owned system









# Phase 5 - Covering Tracks

Covering Tracks refer to the activities that the hacker does to hide his misdeeds

Reasons include the need for prolonged stay, continued use of resources, removing evidence of hacking, or avoiding legal action

Examples include Steganography, tunneling, and altering log files









## Types of Hacker Attacks

There are several ways an attacker can gain access to a system

The attacker must be able to exploit a weakness or vulnerability in a system

#### Attack Types:

Operating System attacks

Application-level attacks

Shrink Wrap code attacks

Misconfiguration attacks







## 1. Operating System Attacks

#### Microsoft probes secret code leak

Microsoft is investigating how part of its Windows operating system source code found its way onto the net.

Microsoft spokesman Tom Pilla said it was not known how the chunks of Windows 2000 and NT code had leaked out.



It is the second security worry for Bill Gates' company this week

"We are currently investigating these postings and are working with the appropriate law enforcement authorities," he said.

More than 90% of PCs use Microsoft software, so this leak of intellectual property is a concern for the company.

"It's illegal for third parties to post Microsoft source code, and we take such activity very seriously," added Mr Pilla.



# 1. Operating System Attacks (cont'd)

Today's operating systems are complex in nature

Operating systems run many services, ports, and modes of access and require extensive tweaking to lock them down

The default installation of most operating systems has large numbers of services running and ports open

Applying patches and hotfixes are not easy in today's complex network

Attackers look for OS vulnerabilities and exploit them to gain access to a network system





# Security News: Default Installation

#### ATM passwords found online

Up to 70,000 US cash machines vulnerable

Andrew Charlesworth, vnunet.com 22 Sep 2006

The manufacturers' passwords for cash machines used widely across the US are available online in an installation manual.

New York-based security researcher Dave Goldsmith, founder and president of penetration testing outfit Matasano Security, pieced together clues from a CNN broadcast and the website of Tranax Technologies, the ATM's manufacturer.

Then he searched for the ATM's installation and maintenance manual online which he said gave him enough information to hijack a Tranax Mini-bank 1500 series ATM if the manufacturer's default passwords had been left unchanged.

"My guess is that most of these mini-bank terminals are sitting around with default passwords untouched." Goldsmith told eWeek.

According to the Tranax website, around 70,000 1500 series ATMs are installed in the US.

Source: http://www.vnunet.com/





# 2. Application Level Attacks

Software developers are under tight schedules to deliver products on time

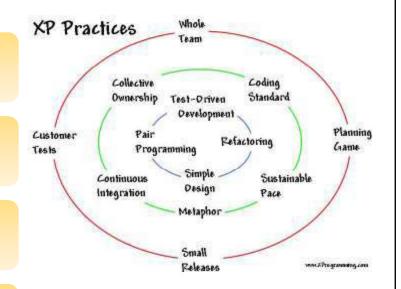
Extreme Programming is on the rise in software engineering methodology

Software applications come with tons of functionalities and features

Sufficient time is not there to perform complete testing before releasing products

Security is often an afterthought and usually delivered as "add-on" component

Poor or non-existent error checking in applications which leads to "Buffer Overflow Attacks"





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## 3. Shrink Wrap Code Attacks

Why reinvent the wheel when you can buy off-the-shelf "libraries" and code?

When you install an OS/Application, it comes with tons of sample scripts to make the life of an administrator easy

The problem is "not fine tuning" or customizing these scripts



This will lead to default code or shrink wrap code attack



# 3. Shrink Wrap Code Attacks (cont'd)

```
01522 Private Function CleanUp Line (ByVal sLine As String) As String
01523
          Dim 1QuoteCount As Long
01524
          Dim lcount
                         As Long
          Dim sChar
01525
                          As String
          Dim sPrevChar As String
01526
01527
01528
          ' Starts with Rem it is a comment
          sLine = Trim(sLine)
01529
         -If Left (sLine, 3) = "Rem" Then
01530
01531
             CleanUpLine = ""
01532
             Exit Function
01533
         -End If
01534
01535
          ' Starts with ' it is a comment
         -If Left (sLine, 1) = "'" Then
01536
             CleanUpLine = ""
01537
01538
             Exit Function
         -End If
01539
01540
01541
           ' Contains ' may end in a comment, so test if it is a comment or in the
01542
          body of a string
         -If InStr(sline, " '") > 0 Then
01543
             sPrevChar = " "
01544
01545
             1QuoteCount = 0
01546
            -For lcount = 1 To Len(sLine)
01547
01548
                sChar = Mid(sLine, lcount, 1)
01549
01550
                 ' If we found " ' " then an even number of " characters in front
01551
                 ' means it is the start of a comment, and odd number means it is
01552
                 part of a string
01553
               -If sChar = "'" And sPrevChar = " " Then
01554
                  -If 1QuoteCount Mod 2 = 0 Then
01555
                       sline = Trim(Left(sline, lcount - 1))
01556
                       Exit For
01557
                  -End If
                -ElseIf sChar = """ Then
01558
01559
                   10uoteCount = 10uoteCount + 1
01560
01561
                sPrevChar = sChar
            Next lcount
01562
01563
         -End If
01564
01565
          CleanUpLine = sLine
01566 End Function
```



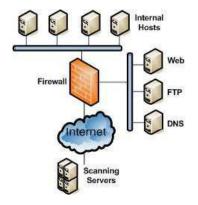
# 4. Misconfiguration Attacks

Systems that should be fairly secure are hacked because they were not configured correctly

Systems are complex and the administrator does not have the necessary skills or resources to fix the problem

Administrator will create a simple configuration that works

In order to maximize your chances of configuring a machine correctly, remove any unneeded services or software









## Remember This Rule!



If a hacker wants to get inside your system, <u>he/she will</u> and there is nothing you can do about it

The only thing you can do is **make it harder** for him to get in





### Hacktivism

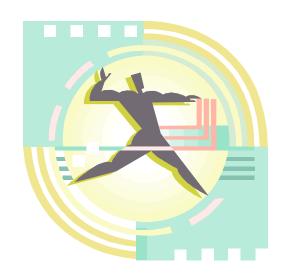
Refers to the idea of hacking with or for a cause

Comprises of hackers with a social or political agenda

Aims at sending a message through their hacking activity and gaining visibility for their cause and themselves

Common targets include government agencies, MNCs, or any other entity perceived as bad or wrong by these groups or individuals

It remains a fact, however, that gaining unauthorized access is a crime, no matter whatever the intention is









## Hacker Classes

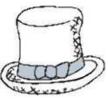
#### Black Hats

• Individuals with extraordinary computing skills, esorting to malicious or destructive activities. Also known as crackers



#### White Hats

• Individuals professing hacker skills and using them for defensive purposes. Also known as security analysts



#### Gray Hats

• Individuals who work both offensively and defensively at various times



#### Suicide Hackers

• Individuals who aim to bring down critical infrastructure for a "cause" and do not worry about facing 30 years in jail for their actions



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# Security News: Suicide Hacker

#### Army expects 'suicide hacker' attacks

Munir Kotadia, ZDNet Australia September 28, 2006

Australia is preparing for cyber-terrorism attacks from "suicide hackers", who will aim to bring down critical infrastructure for a "cause" and not worry about facing 30 years in jail for their actions.

So far there have been no major acts of cyber-terrorism -- where hackers take down parts of the critical infrastructure by breaking into power, water, transport or even air traffic control systems -- but the subject has been discussed a great deal.

On Tuesday, Colonel Paul Straughair, the director of network centric warfare at the Australian Army and part of the Australian Department of Defence, said he saw "no logical reason" why suicide hackers would not strike in the future

"We see suicide bombers that are prepared to die for their cause. I don't think it is too far before we start to see people who are quite prepared to conduct cyber-terrorism.

"While the risk will be high that they will be caught, they will accept that as a fact of life for 'the cause' and be prepared to go to prison for 30 years because they stopped a banking system working or a power grid taken down or took down the air traffic control system of a country for a period of time," Straughair told ZDNet Australia.

The suicide hacker scenario was possible but unlikely, according to Jo Stewart-Rattray, director of information security at Vectra, who said she found it hard to believe that someone would be willing to spend 30 years in prison for "a cause".

"We know hackers are getting bolder and bolder and it is possible that someone would do that ... but it sounds like an unlikely scenario," she said.

According to Stewart-Rattray, there was now a heightened awareness of cyber-terrorism, which would make it harder to cause chaos than it would have done a few years ago.

"When I was working in critical infrastructure -- even after 9/11 -- I would hear engineers say 'but it is only engineering data, who would care'. I think that attitude has greatly changed," Stewart-Rattray told ZDNet Australia.

However, she admitted that if a hacker was determined and patient enough and really didn't care about getting caught, it would be possible to "create havoc".

"It would have to be a really planned attack and it may well be about infiltrating the system where somebody would actually be in there as a 'trusted' member of staff.

Source: http://www.zdnet.com.au/

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## Ethical Hacker Classes

#### Former Black Hats

- Reformed crackers
- First-hand experience
- Lesser credibility perceived

#### White Hats

- Independent security consultants (may be groups as well)
- Claim to be knowledgeable about black hat activities



#### Consulting Firms

- Part of ICT firms
- Good credentials





## What Do Ethical Hackers Do

"If you know the enemy and know yourself, you need not fear the result of a hundred battles"

- Sun Tzu, Art of War

Ethical hackers try to answer the following questions:

- What can the intruder see on the target system? (Reconnaissance and Scanning phases)
- What can an intruder do with that information? (Gaining Access and Maintaining Access phases)
- Does anyone at the target notice the intruders' attempts or successes? (Reconnaissance and Covering Tracks phases)





If hired by any organization, an ethical hacker asks the organization what it is trying to protect, against whom, and what resources it is willing to expend in order to gain protection





# Can Hacking be Ethical

### Hacker:

• Refers to a person who enjoys learning the detailsof computer systems and to stretch his/her capabilities

### Cracker:

 Refers to a person who uses his hacking skills foroffensive purposes



### Hacking:

• Describes the rapid development of new programs orthe reverse engineering of the already existing software to make the code better and more efficient

### Ethical hacker:

• Refers to security professionals who apply their hacking skills for defensive purposes



# How to Become an Ethical Hacker

To become an ethical hacker, you must meet the following requirements:



Should be proficient with programming and computer networking skills

Should be familiar with vulnerability research



Should have mastery in different hacking techniques

Should be prepared to follow a strict code of conduct





## Skill Profile of an Ethical Hacker

A computer expert adept at technical domains

Has in-depth knowledge of target platforms, such as Windows, Unix, and Linux

Has exemplary knowledge of networking and related hardware and software

Knowledgeable about security areas and related issues

In other words, you must be "highly technical" to launch sophisticated attacks









# What is Vulnerability Research

Discovering vulnerabilities and designing weaknesses that will open an operating system and its applications to attack or misuse

Includes both dynamic study of products and technologies and ongoing assessment of the hacking underground



Relevant innovations are released in the form of alerts and are delivered within product improvements for security systems



Can be classified based on:

- Severity level (low, medium, or high)
- Exploit range (local or remote)





# Why Hackers Need Vulnerability Research

To identify and correct network vulnerabilities

To protect the network from being attacked by intruders

To get information that helps to prevent security problems

To gather information about viruses

To find weaknesses in the network and to alert the network administrator before a network attack

To know how to recover from a network attack







# Vulnerability Research Tools

US-CERT publishes information regarding a variety of vulnerabilities in "US-CERT Vulnerabilities Notes"



- Similar to alerts but contains less information
- Does not contain solutions for all the vulnerabilities
- Contains vulnerabilities that meet certain critera
- Contains information that is useful for the adminstrator
- Vulnerability notes can be searched by several key fields: name, vulnerability ID number, and CVE-name

Can be cross checked with the Common Vulnerabilitės and Exposures (CVE) catalog





# Vulnerability Research Websites

www.securitytracker.com

www.microsoft.com/security

www.securiteam.com

www.packetstormsecurity.com

www.hackerstorm.com

www.hackerwatch.org

www.securityfocus.com

www.securitymagazine.com

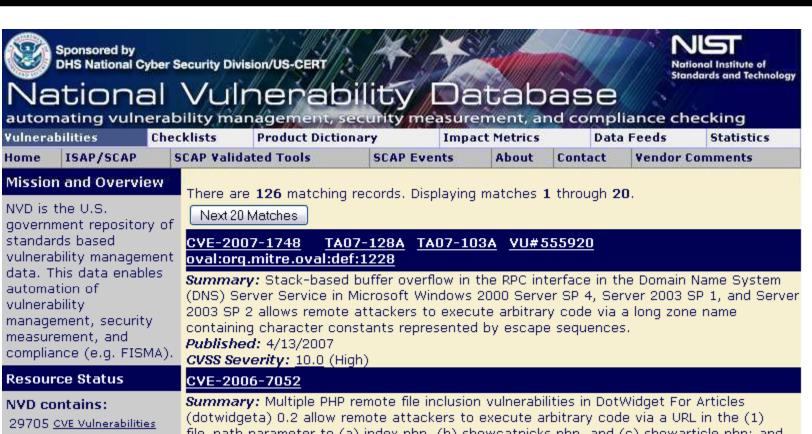








# National Vulnerability Database (nvd.nist.gov)



132 <u>US-CERT Alerts</u> 2152 <u>US-CERT Vuln Notes</u>

13723 <u>Vulnerable Products</u>

3171 OVAL Queries

150 Checklists

Last updated: 02/25/08

Summary: Multiple PHP remote file inclusion vulnerabilities in DotWidget For Articles (dotwidgeta) 0.2 allow remote attackers to execute arbitrary code via a URL in the (1) file\_path parameter to (a) index.php, (b) showcatpicks.php, and (c) showarticle.php; and the (2) admin\_header\_file and (3) admin\_footer\_file parameters to (d) admin/authors.php, (e) admin/index.php, (f) admin/categories.php, (g) admin/editconfig.php, and (h) admin/articles.php.

Published: 2/23/2007 CVSS Severity: 10.0 (High)

CVE-2006-6199



# Securitytracker (www.securitytracker.com)



Keep Track of the *Latest* Vulnerabilities with SecurityTracker!

Home | View Topics | Search | Contact Us | Help

### View Topics > Summary > All Primary Archived Entries

Showing Results - Page: 1 of 164

Previous Page | Next Page | First Page (1) | Last Page (164)

Feb 8 2008	Symantec Ghost Solution Suite Authentication Bug Lets Remote Users Execute Arbitrary Code
Feb 8 2008	Adobe Reader Stack Overflows, Insecure Methods, Unsafe Library Path, and Other Bugs Let Remote Users Execute
	Arbitrary Code
Feb 8 2008	Mozilla Firefox Lets Remote Users Obscure Web Forgery Dialog Warnings.
Feb 8 2008	Mozilla Firefox Stylesheet Processing Bug May Let Remote Users Obtain URL Parameters
Feb 8 2008	Mozilla Firefox Lets Remote Users Prevent the Browser From Opening Local Plain Text Files in Certain Cases
Feb 8 2008	Mozilla Firefox Lets Remote Users Tamper with Security Dialogs
Feb 8 2008	Mozilla Firefox Lets Remote Web Sites Corrupt the Password Store in Certain Cases
Feb 8 2008	Mozilla Firefox Lets Remote Users Steal the Focus to Obtain Keystrokes
Feb 8 2008	Mozilla Firefox chrome: URI Directory Traversal Bug Lets Remote Users Load Local Files
Feb 8 2008	Mozilla Firefox designMode Frames May Let Remote Users Obtain Information and Potentially Execute Arbitrary Code
Feb 8 2008	Mozilla Firefox JavaScript Bugs Let Remote Users Conduct Cross-Site Scripting Attacks and Execute Arbitrary Code
Feb 8 2008	HP Select Identity Lets Remote Authenticated Users Gain Access
Feb 8 2008	Mozilla Firefox Bugs in JavaScript Engine Let Remote Users Execute Arbitrary Code
Feb 8 2008	Mozilla Firefox Bugs in Browser Engine Let Remote Users Execute Arbitrary Code
Feb 8 2008	IBM DB2 Alternate Path Bug Lets Local Users Gain Root Privileges
Feb 8 2008	IBM DB2 Universal Database Administration Server Memory Corruption Error Lets Remote Users Execute Arbitrary Code
Feb 7 2008	Check Point VPN-1 SecuRemote/SecureClient Auto Local Logon Feature Lets Local Users Authenticate as Other Users
Feb 7 2008	WordPress XML-RPC Bug Lets Remote Users Edit Arbitrary Posts
Feb 7 2008	IBM WebSphere Edge Server Input Validation Hole in CGI Mapping Error Page Permits Cross-Site Scripting Attacks





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#### Windows Message Queuing Service RPC (MS07-065, Exploit)

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A vulnerability in Message Queuing Service (MSMQ) that allows remote code execution in implementations on Microsoft

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am™ ,

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A vulnerability in ClamAV allows attackers to supply the program with a malformed MEW PE file which in turn will cause the program to overflow an internal buffer and execute arbitrary code, the following exploit code can be used to test the problem More >>>

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Microsoft Windows Message Queuing Service Stack Overflow Vulnerability (MS07-065, Exploit)

A vulnerability allows remote attackers to execute arbitrary code on vulnerable installations of Microsoft Windows with the Message Queuing Service enabled. Authentication is not required to exploit this vulnerability. The following exploit code can be used to test your system for the mentioned vulnerability More >>>

Clamay-milter and Sendmail Allow Arbitrary Command Execution (Exploit)

A vulnerability in clamav-milter when associated with Sendmail allows remote attackers to cause the product to execute arbitrary code More >>>

Apple Mac OS X SMB Vulnerabilities (mount\_smbfs and smbutil)

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A stack buffer overflow issue exists in the code used by the mount\_smbfs and smbutil applications to parse command line arguments, which may allow a local user to cause arbitrary code execution with system privileges More >>>

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## Secunia (secunia.com/product/)

Secunia monitors vulnerabilities in more than 9,500 products



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Below you will find a complete index of software and operating systems currently in the Secunia database. Our database currently includes 16,976 pieces of software and operating systems.

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### Operating Systems and Hardboxes (1,119)

0-9 (24) A (107)	N (135) O (26)
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C (136)	Q (2)
D (44)	<u>R (35)</u>
E (31)	<u>S (136)</u>
F (43)	<u>T (28)</u>
G (11)	<u>U (17)</u>
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(34)	Z (9)
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Superior Vulnerability Assessments What is your scanner missing?

# State of the state

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Have your organisation taken any extraordinary steps to remediate the Microsoft Windows URI vulnerability?

- O Yes
- No, we're not

See Results



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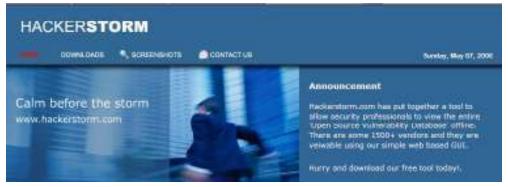


# Hackerstorm Vulnerability Database Tool (www.hackerstorm.com)

You can search CVS Vulnerability database using this tool



- Updates provided daily and are free
- You can view vulnerability database offline (without Internet access)
- Easy to use Web-based GUI; requires a browser withflash
- Data includes description, solution, attack type, external references, and credit
- Source is available for those who wishto contribute and enhance the tool
- Data is provided by www.osvdb.org and its contribuors

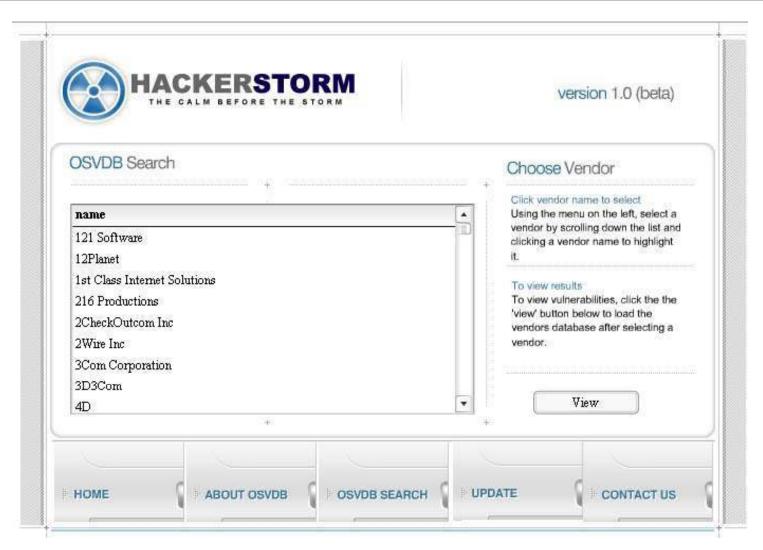








# Hackerstorm Vulnerability Database: Screenshot 1







# Hackerstorm Vulnerability Database: Screenshot 2

Title			Date		A 2
Microsoft IE Animated Cu Microsoft Windows XP U Microsoft Windows Vista	PnP Remote Me	emory Corruption	2007-03-29 1 2007-04-10 1 2007-04-10 1	4:03:47	
Microsoft Content Manag	ement Server (	CMS) Crafted HTTP	Re 2007-04-10 1	5:18:48	
Microsoft Windows Kerne	Mapped Mem	ory Local Privilege E	sca 2007-04-10 1	5:48:58	
Description	Solution	Details	Refe	rences C	redits
Description  Attack Type	Solution	Details	Refe	rences C	





## HackerWatch

(www.hackerwatch.org)

HackerWatch lets you report and share information that helps to identify, combat, and prevent the spread of Internet threats and unwanted network traffic

HackerWatch provides reports and graphical up-to-date snapshots of unwanted Internet traffic and threats

Snapshots include critical port incidents graphs, worldwide port activity statistics, and target and source maps showing unwanted traffic and potential threats to Internet security



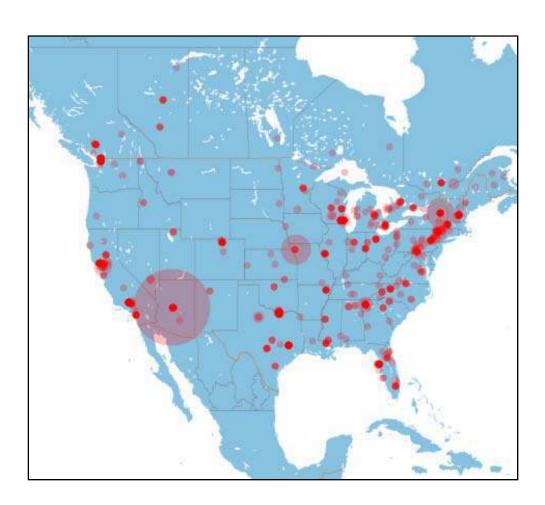


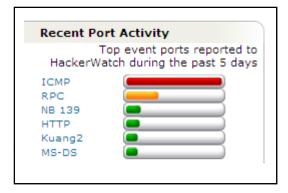


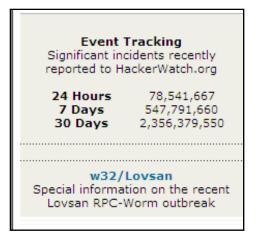


## HackerWatch









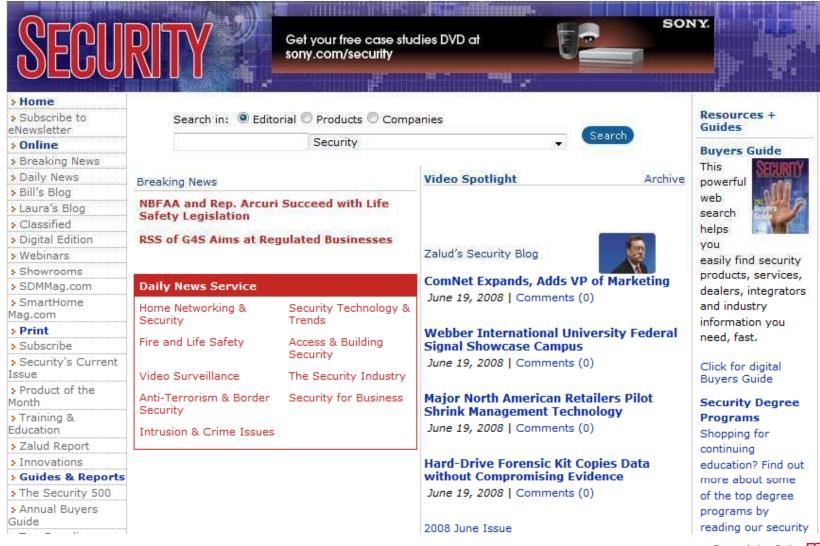


## SecurityFocus www.securityfocus.com





# SecurityMagazine www.securitymagazine.com



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# SC Magazine www.scmagazine.com

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#### CERT/CC

US-CERT Cyber Security Alerts provide timely information about current security issues, vulnerabilities, and exploits. Cyber Security Alerts are released in conjunction with Technical Cyber Security Alerts when there is an issue that affects the general public. Cyber Security Alerts outline the steps and actions that non-technical home and corporate computer users can take to protect themselves from attack.

#### More threats from CERT/CC

VULNERABILITY ALERTS

- SA07-226A: Microsoft Updates for Multiple Vulnerabilities
  - Microsoft Updates for Multiple Vulnerabilities.
- SA07-199A: Mozilla Updates for Multiple Vulnerabilities
  - Mozilla Updates for Multiple Vulnerabilities.
- SA07-193A: Apple Releases Security Updates for QuickTime
  - Apple Releases Security Updates for QuickTime.





## MILWORM

[home][contents][platforms][shellcode][search][cracker][links][rss][archive]						
	( remote )					
-::DATE	-::DESCRIPTION	- HHITS			-::AUTHOR	
2008-02-10	ImageStation (SonyISUpload.cab 1.0.0.38) ActiveX BOF Exploit	350	B		Elazar	
	Microsoft DirectSpeechSynthesis Module Remate Buffer Overflow Exploit	1792	R	_	rgod De de Deserv	
	SapLPD 6.28 Remote Buffer Overflow Exploit (win32)	1967	R	D	BackBone 	
	Backup Exec System Recovery Manager <= 7.0.1 File Upload Exploit	1362	R	D	titon	
	dBpowerAMP Audio Player Release 2 M3U File Buffer Overflow Exploit Yahoo! JukeBox MediaGrid ActiveX mediagrid.dll AddBitmap() BOF Exploit	1544	R	D	securfrog Elazar	
	[local]					
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	Linux Kernel 2.6.23 - 2.6.24 vmsplice Local Root Exploit	9131	R	D	qaaz	
	Linux Kernel 2.6.17 - 2.6.24.1 vmsplice Local Root Exploit	42952	R	D	qaaz	
2008-02-07	Total Video Player 1.20 M3U File Local Stack Buffer Overflow Exploit	821	R	D	fl0 fl0w	
	Total Video Player 1.03 M3U File Local Buffer Overflow Exploit	1573	R	D	fl0 fl0w	
	Safenet IPSecDrv.sys <= 10.4.0.12 Local kernel ring0 SYSTEM Exploit	1872	R	D	mu-b	
2008-01-28	IrtanYiew 4.10 .FPX File Memory Corruption Exploit	2010	R	D	Marsu	
[ web apps ]						
-::DATE	-::DESCRIPTION	-::HITS			-::AUTHOR	
2008-02-10	Mix Systems CMS (parent/id) Remote SQL Injection Exploit	752	R	D	halkfild	
2008-02-10	PacerCMS 0.6 (last_module) Remote Code Execution Vulnerability	586	R	D	GoLd_M	
	SAPID CMF Build 87 (last_module) Remote Code Execution Vulnerability	535	R	D	GoLd_M	
	ITechBids 6.0 (detail.php item_id) SQL Injection Yulnerability	542	R	D	SoSo H H	
	PKs Movie Database 3.0.3 XSS / SQL Injection Vulnerabilities	603	R	D	H-T Team	
2008-02-09	Mambo Component Comments <= 0.5.8.5g SQL Injection Vulnerability	1174	R	D	CheebaHawk215	



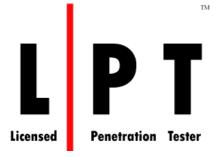


# How to Conduct Ethical Hacking

**Step 1:** Talk to your client on the needs of testing



Step 2: Prepare NDA documents and ask the client to sign them



1

**Step 3:** Prepare an ethical hacking team and draw up schedule for testing



**Step 4:** Conduct the test



**Step 5:** Analyze the results and prepare a report



Step 6: Deliver the report to the client

Note: In-depth Penetration Testing methodology is covered in EC-Council's LPT program





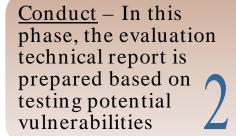
## How Do They Go About It

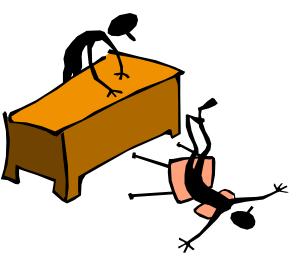
### Any security evaluation involves three components:



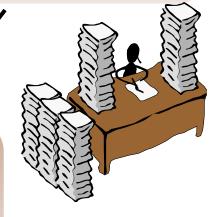
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Preparation – In this phase, a formal contract is signed that contains a non-disclosure clause as well as a legal clause to protect the ethical hacker against any prosecution that might otherwise attract during the conduct phase. The contract also outlines infrastructure perimeter, evaluation activities, time schedules, and resources available to him





Conclusion – In this phase, the results of the evaluation are communicated to the organization or sponsors and corrective action is taken if needed



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# Approaches to Ethical Hacking

### Remote network:

• This approach attempts to simulate an intruder launching an attack over the Internet

### Remote dial-up network:

• This approach attempts to simulate an intruder launching an attack against the client's modem pools

### Local network:

• This approach simulates an employee with legal access gaining unauthorized access over the local network









# Approaches to Ethical Hacking (cont'd)

## Stolen equipment:

 This approach simulates theft of a critical information resource, such as a laptop owned by a strategist that was taken from its owner and given to the ethical hacker



### Social engineering:

• This approach attempts to check the integrity of he organization's employees



## Physical entry:

• This approach attempts to physically compromise the organization's ICT infrastructure





# Ethical Hacking Testing

There are different forms of security testing. Examples include vulnerability scanning, ethical hacking, and penetration testing

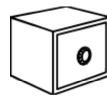
Approaches to testing are shown below:

### Black box

With no prior knowledge of the infrastructure to be tested

### White box

• With a complete knowledge of the network infrastructure



### Gray box

• Also known as Internal Testing. It examines the extent of the access by insiders within the network



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## Ethical Hacking Deliverables

## An Ethical Hacking Report:

- Details the results of the hacking activity, matching it against the work schedule decided prior to the conduct phase
- Vulnerabilities are detailed and prevention measures are suggested. It is usually delivered in hard copy format for security reasons



### Issues to consider:

• Team, sensitivity of information, Nondisclosure clause in the legal contract (availing the right information to the right person), integrity of the evaluation







# Computer Crimes and Implications



## Computer Crime & Intellectual Property Section United States Department of Justice

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### Computer Crime & Intellectual Property Section

Statement of Andrew Lourie, Acting Principal Deputy Assistant Attorney General and Chief of Staff, Criminal Division,
Concerning "Privacy and Cybercrime Enforcement Act of 2007" (December 18, 2007)

#### Latest Press Releases

- Three Indicted and Arrested in One of the Largest Counterfeit Goods Prosecutions in U.S. History: Infringed Goods Valued at More Than \$100 Million (January 17, 2008)
- Former St. Cloud Hospital Employee Pleads Guilty to Planting "Logic Bomb" on Hospital Computer (January 10, 2008)
- Foreign National Pleads Guilty in Complex Computer Fraud Scheme Victimizing Hundreds of Individuals (January 9, 2008)
- Four Minnesota Residents Charged in California with Scheme to Defraud Cisco of Computer Networking Equipment: Defendant Fraudulently Conspired to Obtain over \$400,000 in Equipment From Cisco under the SMARTnet Service Contract Program (January 9, 2008)
- Former Systems Administrator Gets 30 Months in Prison for Planting
   Former Systems Administrator Gets 30 Months in Prison for Planting

#### **Hot Documents**

- How to Report Cyber and IP Crime
  - How to Report Computer- and Internet-Related Crime
  - How to Report Intellectual Property Crime
- NPR Interview with CCIPS and FBI: Cyber Sleuths Zero In as Web Fraud Takes Toll (January 20, 2008)
- Digital Forensic Analysis Methodology Flowchart (PDF) (August 22, 2007)
- New Manual, "Prosecuting Computer Crimes" Now Available (March 2007)
- New Edition of "Prosecuting Intellectual Property Crimes" Manual Available (October 2006)





# Computer Crimes and Implications (cont'd)

The Cyber Security Enhancement Act of 2002 mandates life sentences for hackers who recklessly endanger the lives of others

The CSI/FBI 2002 Computer Crime and Security Survey noted that 90 percent of respondents acknowledged security breaches, but only 34 percent reported the crimes to law enforcement agencies

The FBI computer crimes squad estimates that between 85 and 97 percent of computer intrusions are not even detected







## What Happened Next

Even though Jeffrey's intention was honest, his action is considered illegitimate.

Hacking into networks without prior permission of concerned authorities and a legal clearance from the court of law, is considered a criminal offence





## Summary

Security is critical across sectors and industries

Ethical Hacking is a methodology to simulate a malicious attack without causing damage

Hacking involves five distinct phases

Security evaluation includes preparation, conduct, and evaluation phases

Cyber crime can be differentiated into two categories

U.S. Statutes  $\xi$  1029 and 1030 primarily address cyber crime





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"First I searched for Larry in Yahoo, then Lycos, Excite and Infoseek. Eventually, I found him in the bathroom."



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"I think he's ready to start using the computer. He just said 'Google'!"