# EPICODE-CS0124
# S3/L2 - Pratica

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## Pratica

**Traccia:**

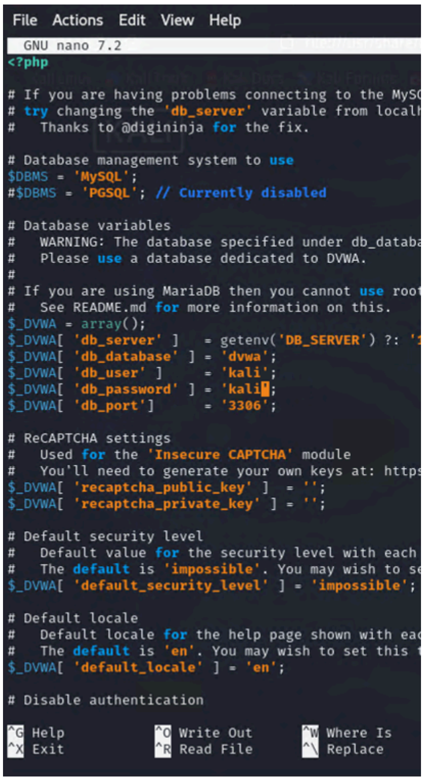
Nella lezione pratica di oggi vedremo come configurare una DVWA – ovvero damn vulnerable web application in Kali Linux. La DVWA ci sarà molto utile per i nostri test.

## 1. Installazione DVWA

### 1.1. Connessione della VM ad internet

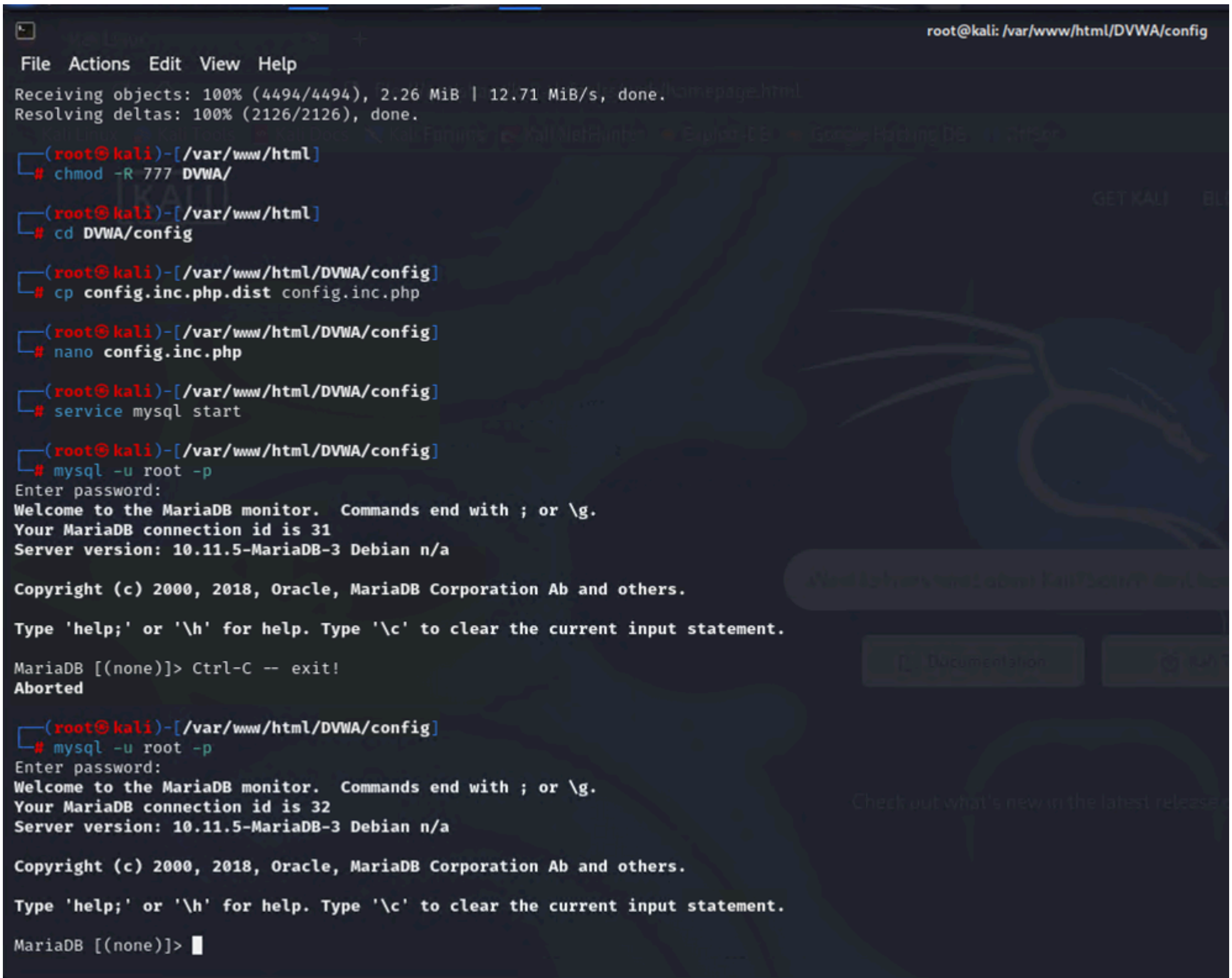
La connessione è stata effettuata modificando la connessione di rete della macchina virtuale in modalità Rete con NAT, impostando la NAT su 192.168.50.0/24.

### 1.2. Installazione e modifica db_user e db_password

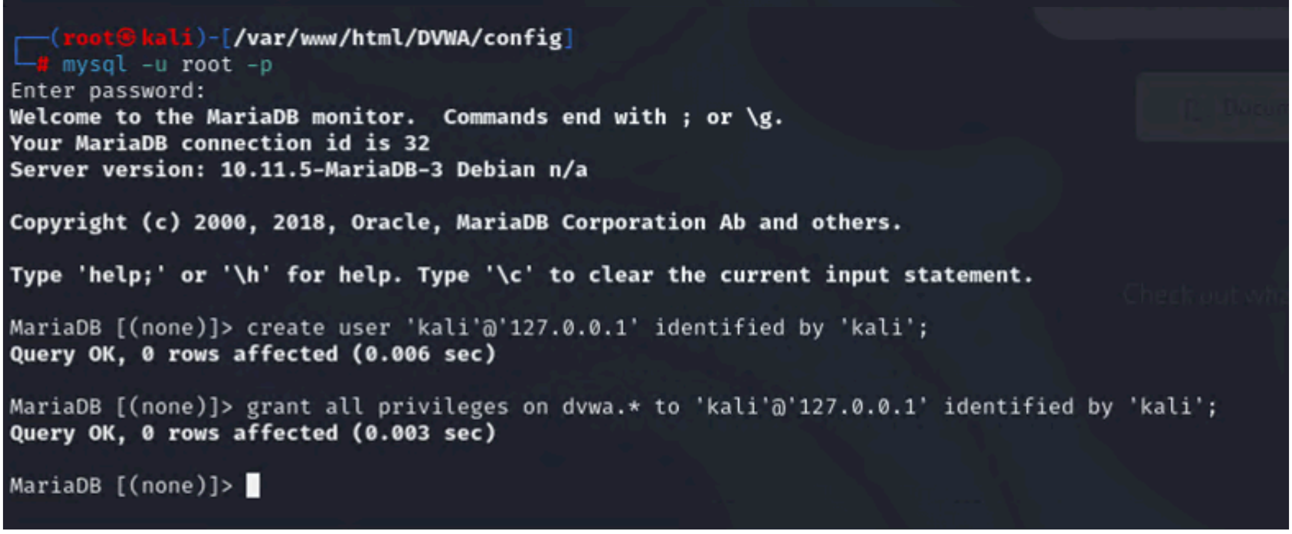


```
  GNU nano 7.2
<?php

# If you are having problems connecting to the MySC
# try changing the 'db_server' variable from localh
#   Thanks to @digininja for the fix.

# Database management system to use
$DBMS = 'MySQL';
#$DBMS = 'PGSQL'; // Currently disabled

# Database variables
#   WARNING: The database specified under db_databa
#   Please use a database dedicated to DVWA.
#
# If you are using MariaDB then you cannot use root
#   See README.md for more information on this.
$_DVWA = array();
$_DVWA[ 'db_server' ]   = getenv('DB_SERVER') ?: '1
$_DVWA[ 'db_database' ] = 'dvwa';
$_DVWA[ 'db_user' ]     = 'kali';
$_DVWA[ 'db_password' ] = 'kali';
$_DVWA[ 'db_port']      = '3306';

# ReCAPTCHA settings
#   Used for the 'Insecure CAPTCHA' module
#   You'll need to generate your own keys at: https
$_DVWA[ 'recaptcha_public_key' ]  = '';
$_DVWA[ 'recaptcha_private_key' ] = '';

# Default security level
#   Default value for the security level with each
#   The default is 'impossible'. You may wish to se
$_DVWA[ 'default_security_level' ] = 'impossible';

# Default locale
#   Default locale for the help page shown with eac
#   The default is 'en'. You may wish to set this t
$_DVWA[ 'default_locale' ] = 'en';

# Disable authentication

^G Help          ^O Write Out     ^W Where Is
^X Exit          ^R Read File     ^\ Replace
```

### 1.3. Creazione utente kali e funzionamento MariaDB

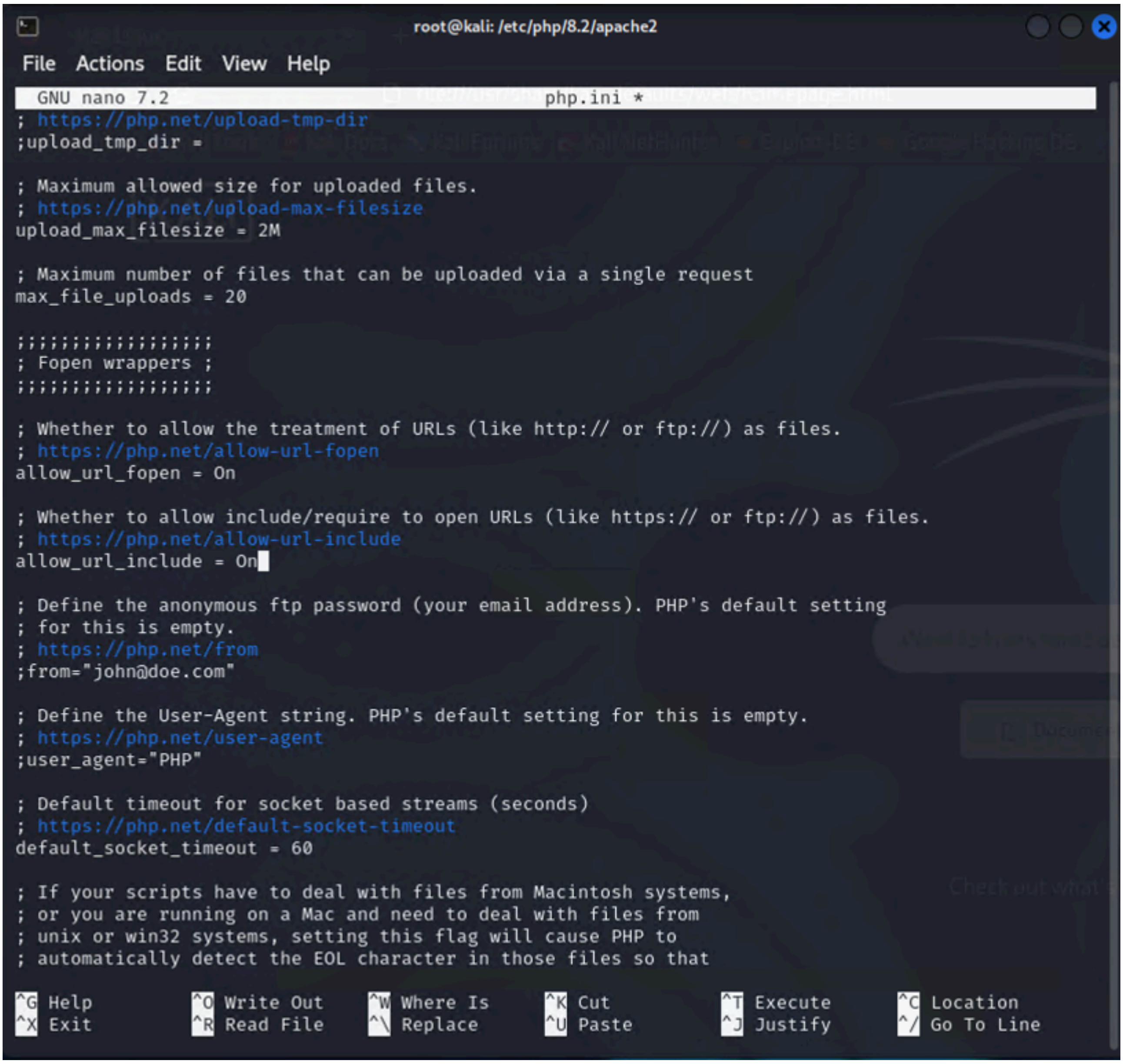

root@kali: /var/www/html/DVWA/config
File Actions Edit View Help

```
Receiving objects: 100% (4494/4494), 2.26 MiB | 12.71 MiB/s, done.
Resolving deltas: 100% (2126/2126), done.

┌──(root㉿kali)-[/var/www/html]
└─# chmod -R 777 DVWA/

┌──(root㉿kali)-[/var/www/html]
└─# cd DVWA/config

┌──(root㉿kali)-[/var/www/html/DVWA/config]
└─# cp config.inc.php.dist config.inc.php

┌──(root㉿kali)-[/var/www/html/DVWA/config]
└─# nano config.inc.php

┌──(root㉿kali)-[/var/www/html/DVWA/config]
└─# service mysql start

┌──(root㉿kali)-[/var/www/html/DVWA/config]
└─# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 31
Server version: 10.11.5-MariaDB-3 Debian n/a

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> Ctrl-C -- exit!
Aborted

┌──(root㉿kali)-[/var/www/html/DVWA/config]
└─# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 32
Server version: 10.11.5-MariaDB-3 Debian n/a

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> █
```



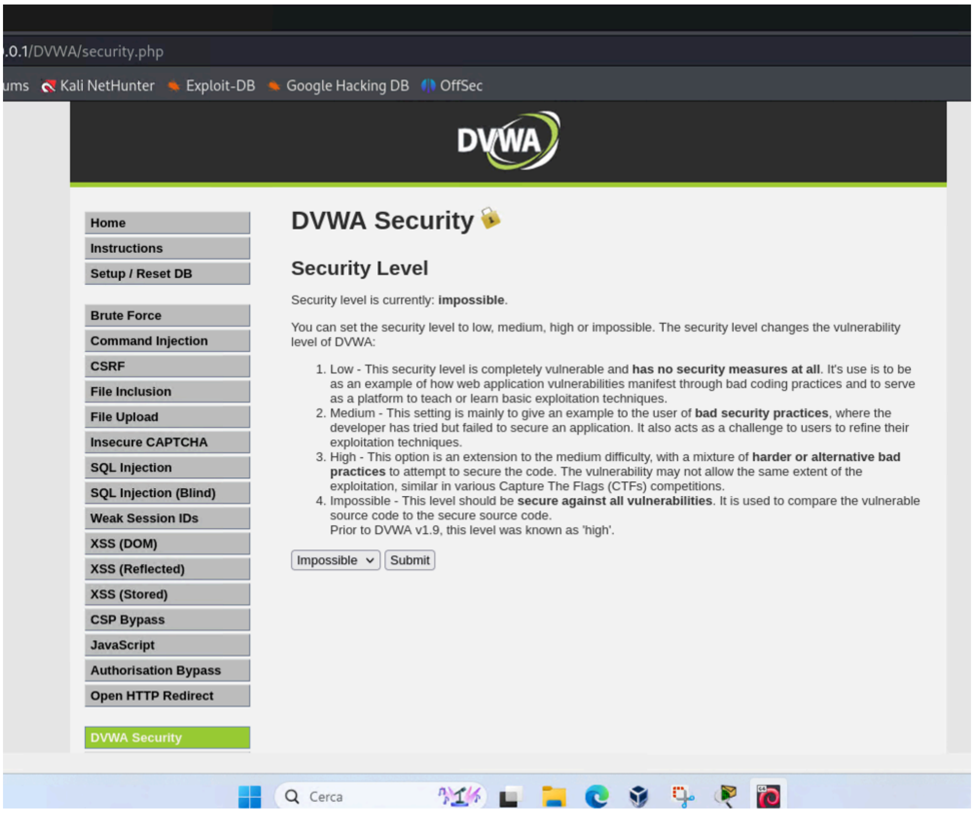
```
┌──(root㉿kali)-[/var/www/html/DVWA/config]
└─# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 32
Server version: 10.11.5-MariaDB-3 Debian n/a

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> create user 'kali'@'127.0.0.1' identified by 'kali';
Query OK, 0 rows affected (0.006 sec)

MariaDB [(none)]> grant all privileges on dvwa.* to 'kali'@'127.0.0.1' identified by 'kali';
Query OK, 0 rows affected (0.003 sec)

MariaDB [(none)]> █
```

### 1.4. Modifica php.ini



```
  GNU nano 7.2                              php.ini *
; https://php.net/upload-tmp-dir
;upload_tmp_dir =

; Maximum allowed size for uploaded files.
; https://php.net/upload-max-filesize
upload_max_filesize = 2M

; Maximum number of files that can be uploaded via a single request
max_file_uploads = 20

;;;;;;;;;;;;;;;;;;
; Fopen wrappers ;
;;;;;;;;;;;;;;;;;;

; Whether to allow the treatment of URLs (like http:// or ftp://) as files.
; https://php.net/allow-url-fopen
allow_url_fopen = On

; Whether to allow include/require to open URLs (like https:// or ftp://) as files.
; https://php.net/allow-url-include
allow_url_include = On

; Define the anonymous ftp password (your email address). PHP's default setting
; for this is empty.
; https://php.net/from
;from="john@doe.com"

; Define the User-Agent string. PHP's default setting for this is empty.
; https://php.net/user-agent
;user_agent="PHP"

; Default timeout for socket based streams (seconds)
; https://php.net/default-socket-timeout
default_socket_timeout = 60

; If your scripts have to deal with files from Macintosh systems,
; or you are running on a Mac and need to deal with files from
; unix or win32 systems, setting this flag will cause PHP to
; automatically detect the EOL character in those files so that
^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line
```

## 1.5. Creazione database e verifica funzionamento DVWA



### DVWA Security

#### Security Level

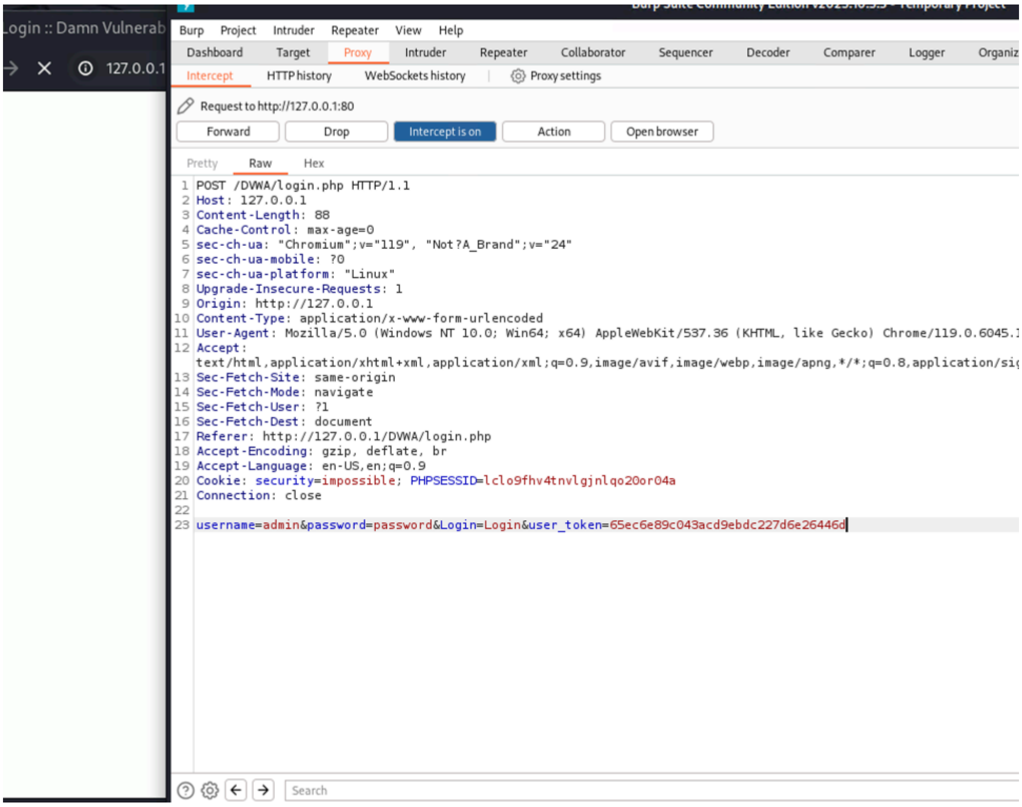
Security level is currently: **impossible**.

You can set the security level to low, medium, high or impossible. The security level changes the vulnerability level of DVWA:

1. Low - This security level is completely vulnerable and **has no security measures at all**. It's use is to be as an example of how web application vulnerabilities manifest through bad coding practices and to serve as a platform to teach or learn basic exploitation techniques.
2. Medium - This setting is mainly to give an example to the user of **bad security practices**, where the developer has tried but failed to secure an application. It also acts as a challenge to users to refine their exploitation techniques.
3. High - This option is an extension to the medium difficulty, with a mixture of **harder or alternative bad practices** to attempt to secure the code. The vulnerability may not allow the same extent of the exploitation, similar in various Capture The Flags (CTFs) competitions.
4. Impossible - This level should be **secure against all vulnerabilities**. It is used to compare the vulnerable source code to the secure source code.
   Prior to DVWA v1.9, this level was known as 'high'.

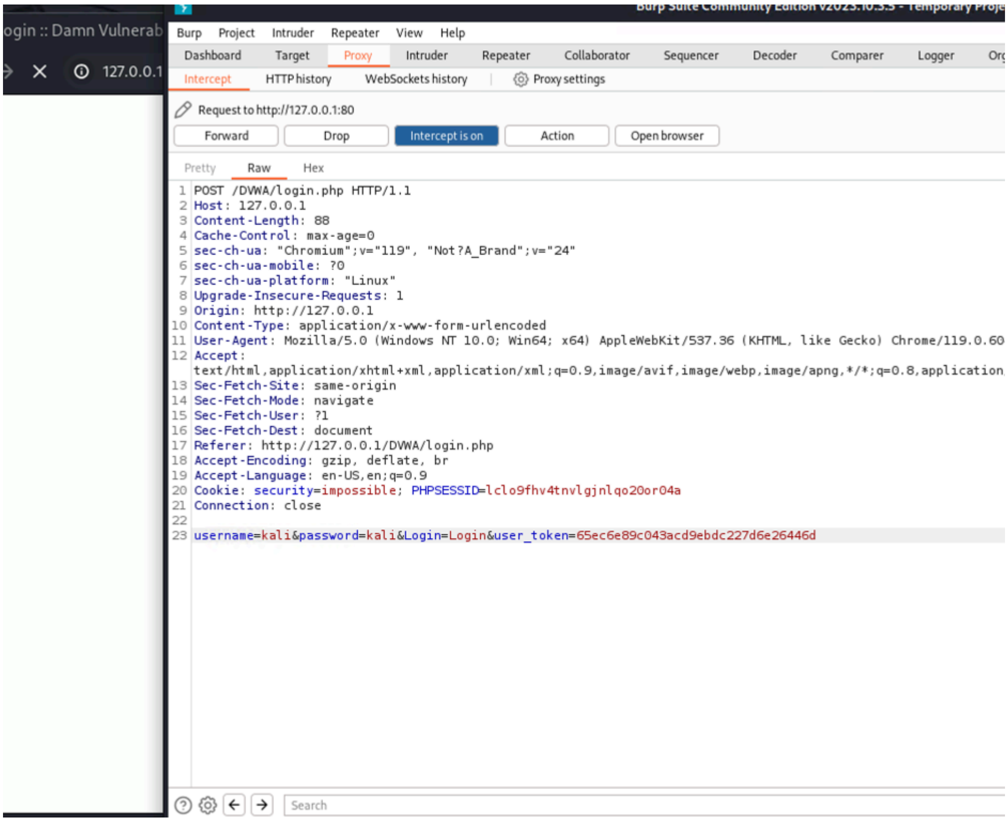
Impossible ⌄ Submit

## 1.6. Apertura Burpsuite e intercettazione comunicazioni



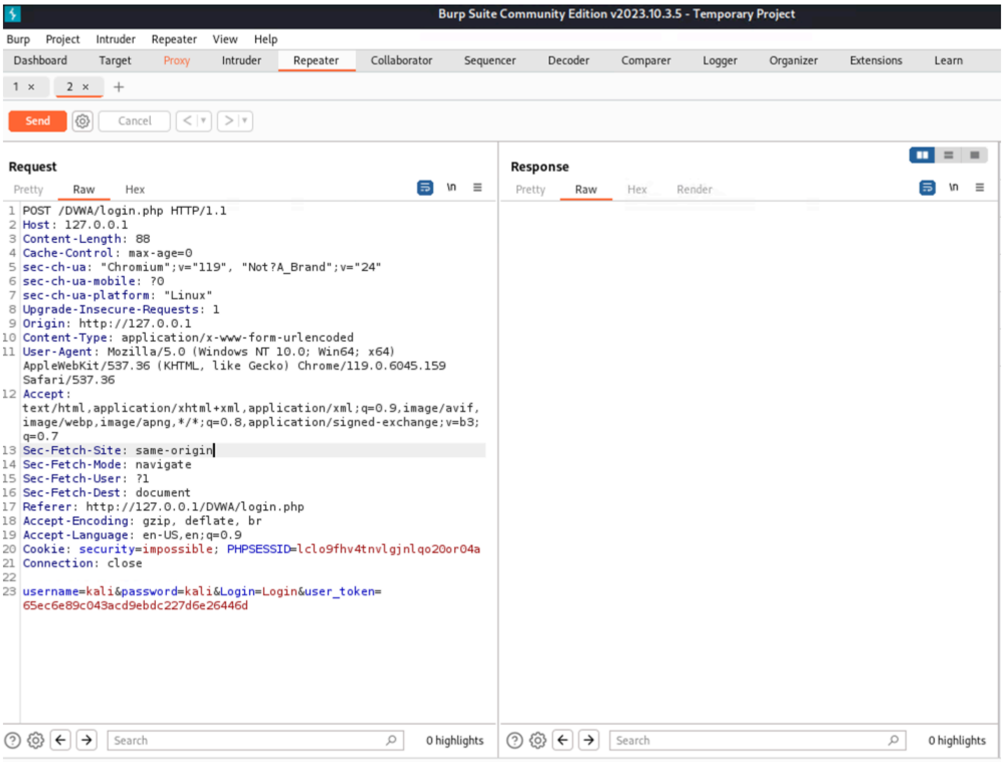
Request to http://127.0.0.1:80

```
POST /DVWA/login.php HTTP/1.1
Host: 127.0.0.1
Content-Length: 88
Cache-Control: max-age=0
sec-ch-ua: "Chromium";v="119", "Not?A_Brand";v="24"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Linux"
Upgrade-Insecure-Requests: 1
Origin: http://127.0.0.1
Content-Type: application/x-www-form-urlencoded
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/119.0.6045.1
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/sig
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Referer: http://127.0.0.1/DVWA/login.php
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: security=impossible; PHPSESSID=lclo9fhv4tnvlgjnlqo20or04a
Connection: close

username=admin&password=password&Login=Login&user_token=65ec6e89c043acd9ebdc227d6e26446d
```

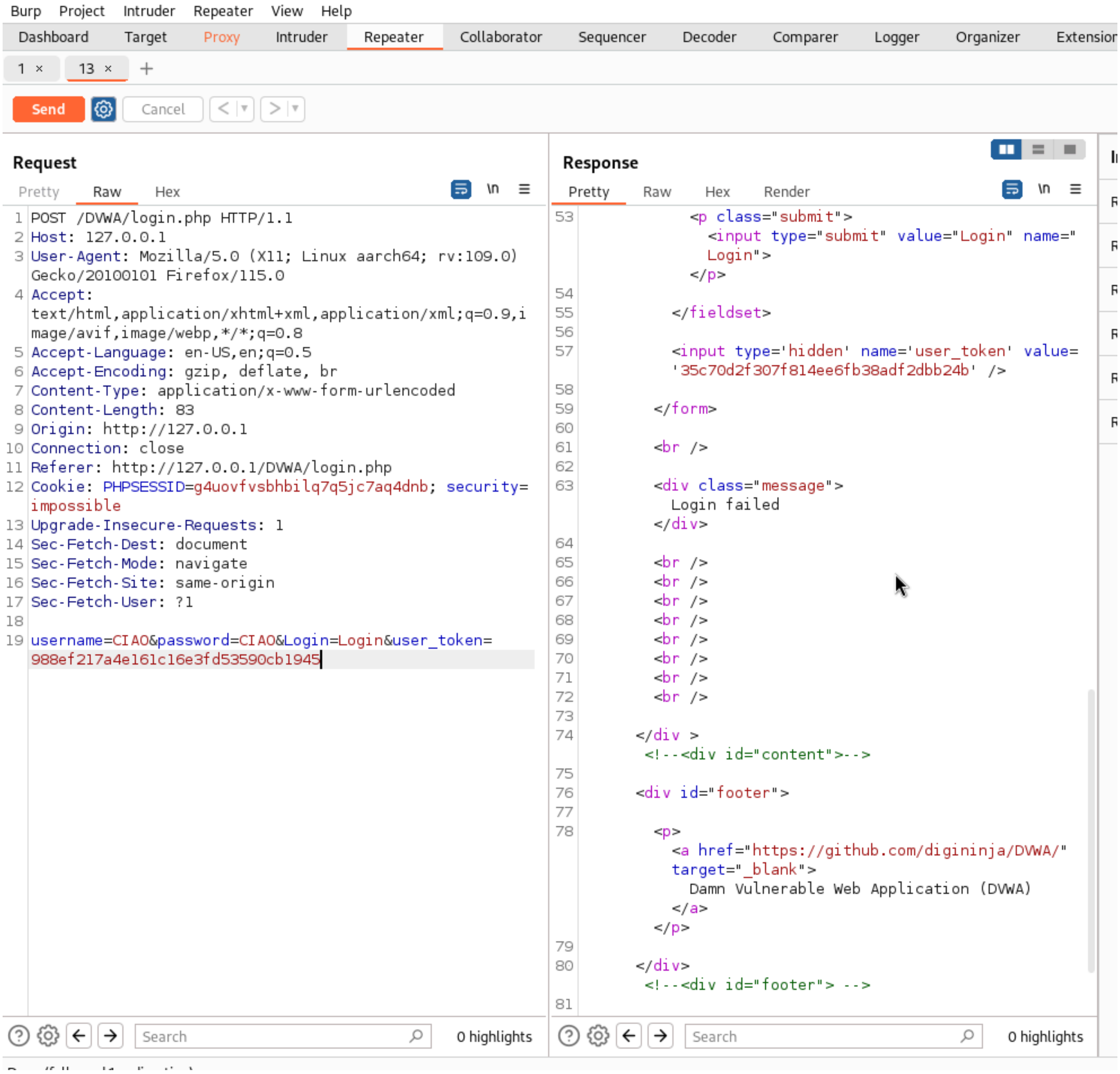

ogin :: Damn Vulnerab
127.0.0.1
Burp Suite Community Edition v2023.10.3.5 - Temporary Proje
Burp Project Intruder Repeater View Help
Dashboard Target Proxy Intruder Repeater Collaborator Sequencer Decoder Comparer Logger Org
Intercept HTTP history WebSockets history Proxy settings
Forward Drop Intercept is on Action Open browser
Pretty Raw Hex
Search

Request to http://127.0.0.1:80

```
POST /DVWA/login.php HTTP/1.1
Host: 127.0.0.1
Content-Length: 88
Cache-Control: max-age=0
sec-ch-ua: "Chromium";v="119", "Not?A_Brand";v="24"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Linux"
Upgrade-Insecure-Requests: 1
Origin: http://127.0.0.1
Content-Type: application/x-www-form-urlencoded
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/119.0.60
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Referer: http://127.0.0.1/DVWA/login.php
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: security=impossible; PHPSESSID=lclo9fhv4tnvlgjnlqo20or04a
Connection: close

username=kali&password=kali&Login=Login&user_token=65ec6e89c043acd9ebdc227d6e26446d
```


Burp Suite Community Edition v2023.10.3.5 - Temporary Project
Burp Project Intruder Repeater View Help
Dashboard Target Proxy Intruder Repeater Collaborator Sequencer Decoder Comparer Logger Organizer Extensions Learn
1 × 2 × +
Send Cancel
Request
Pretty Raw Hex
Response
Pretty Raw Hex Render
Search
0 highlights
Search
0 highlights

```
POST /DVWA/login.php HTTP/1.1
Host: 127.0.0.1
Content-Length: 88
Cache-Control: max-age=0
sec-ch-ua: "Chromium";v="119", "Not?A_Brand";v="24"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Linux"
Upgrade-Insecure-Requests: 1
Origin: http://127.0.0.1
Content-Type: application/x-www-form-urlencoded
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/119.0.6045.159
Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,
image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;
q=0.7
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Referer: http://127.0.0.1/DVWA/login.php
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: security=impossible; PHPSESSID=lclo9fhv4tnvlgjnlqo20or04a
Connection: close

username=kali&password=kali&Login=Login&user_token=
65ec6e89c043acd9ebdc227d6e26446d
```



Request

```
POST /DVWA/login.php HTTP/1.1
Host: 127.0.0.1
User-Agent: Mozilla/5.0 (X11; Linux aarch64; rv:109.0)
Gecko/20100101 Firefox/115.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,i
mage/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Content-Type: application/x-www-form-urlencoded
Content-Length: 83
Origin: http://127.0.0.1
Connection: close
Referer: http://127.0.0.1/DVWA/login.php
Cookie: PHPSESSID=g4uovfvsbhbilq7q5jc7aq4dnb; security=
impossible
Upgrade-Insecure-Requests: 1
Sec-Fetch-Dest: document
Sec-Fetch-Mode: navigate
Sec-Fetch-Site: same-origin
Sec-Fetch-User: ?1

username=CIAO&password=CIAO&Login=Login&user_token=
988ef217a4e161c16e3fd53590cb1945
```

Response

```
          <p class="submit">
            <input type="submit" value="Login" name="
            Login">
          </p>

        </fieldset>

        <input type='hidden' name='user_token' value=
        '35c70d2f307f814ee6fb38adf2dbb24b' />

      </form>

      <br />

      <div class="message">
        Login failed
      </div>

      <br />
      <br />
      <br />
      <br />
      <br />
      <br />
      <br />
      <br />

    </div >
     <!--<div id="content">-->

    <div id="footer">

      <p>
        <a href="https://github.com/digininja/DVWA/"
        target="_blank">
          Damn Vulnerable Web Application (DVWA)
        </a>
      </p>

    </div>
     <!--<div id="footer"> -->

```