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Overview

Penetration testing, commonly known as black-box testing or ethical hacking, is testing a running application to find security vulnerabilities, without knowing the inner workings of the application itself. Typically, the penetration test team is able to access an application as if they were users. The tester acts like an attacker and attempts to find and exploit vulnerabilities.

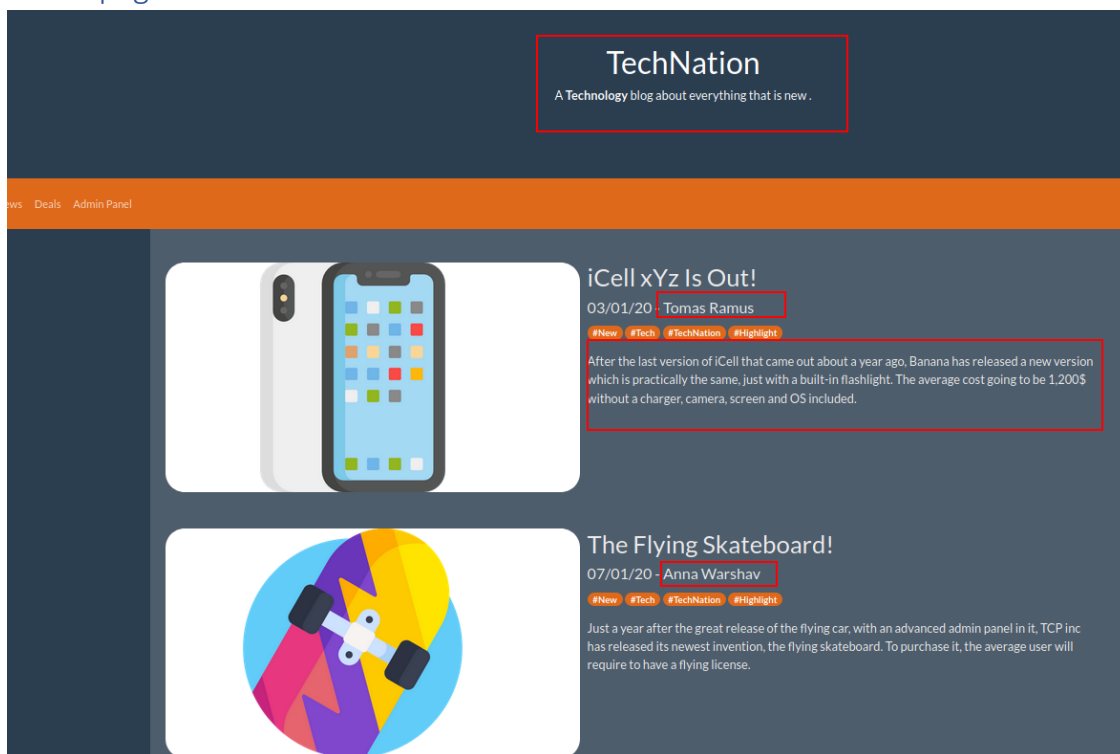
Scope:

Find the Vulnerabilities of the Web application running on the given VM, and assess the severity and probability of exploitation

Functionality:

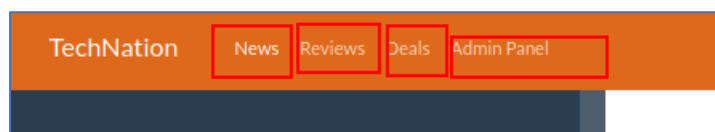
The web application running on <http://10.0.2.39> loads a blog of TechNation. The home page loaded has posts from users on new technological products.

Home page:

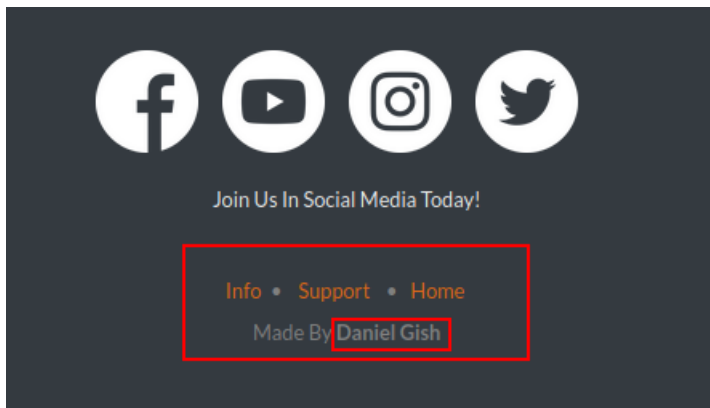


We can see the full name of users who have posted on the website, as shown above

The menu on the header of the page : "News", "Reviews", "Deals", "Admin Panel"

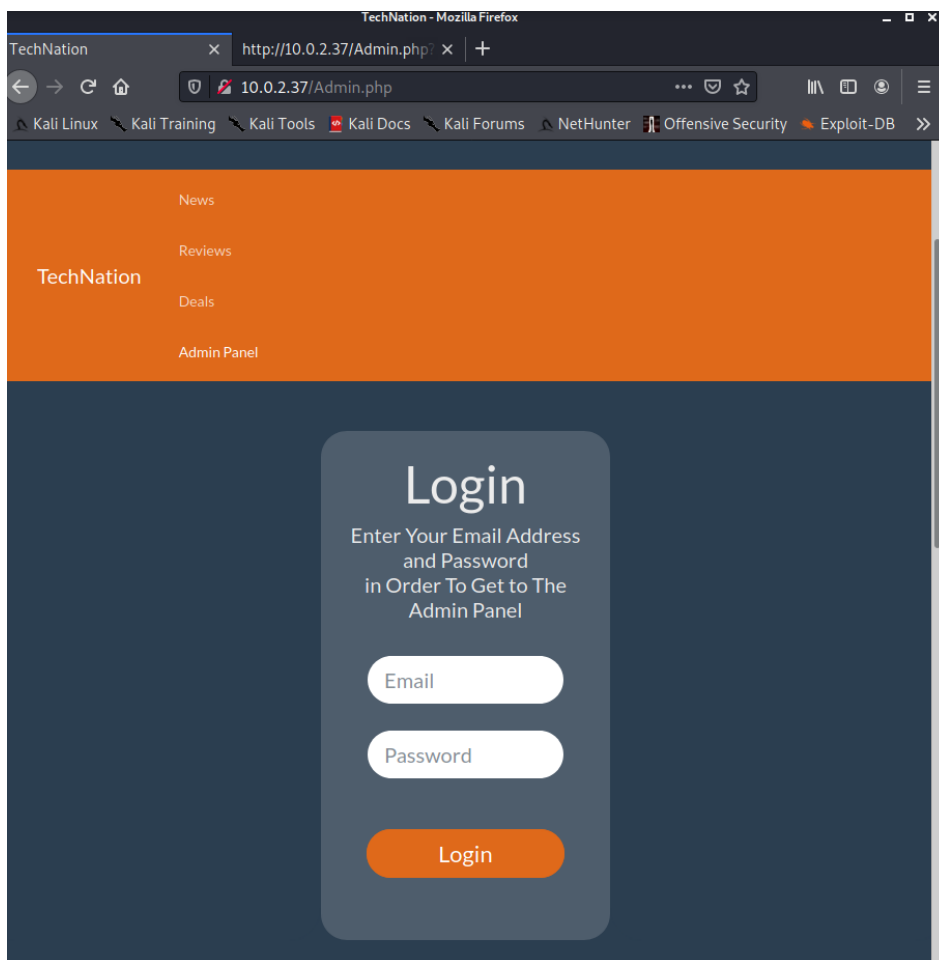


The footer menu has the links to pages "Info", "Support", "Home"



There is a text – made by Daniel Gish, so probably he is the admin user

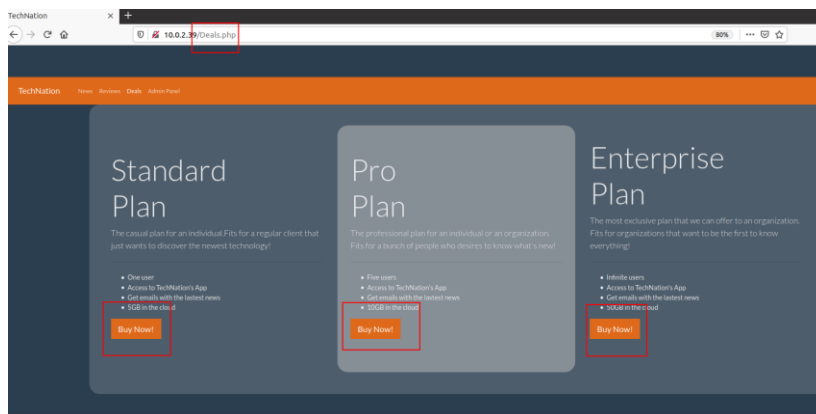
Admin Panel Menu



Potential attack Vector of login input is identified

Deals Page:

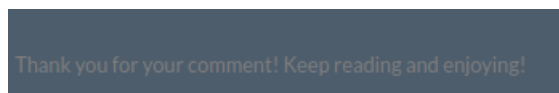
Clicking on the Deals link in the header loads the deals page. This Page gives information on various payment deals available to customers



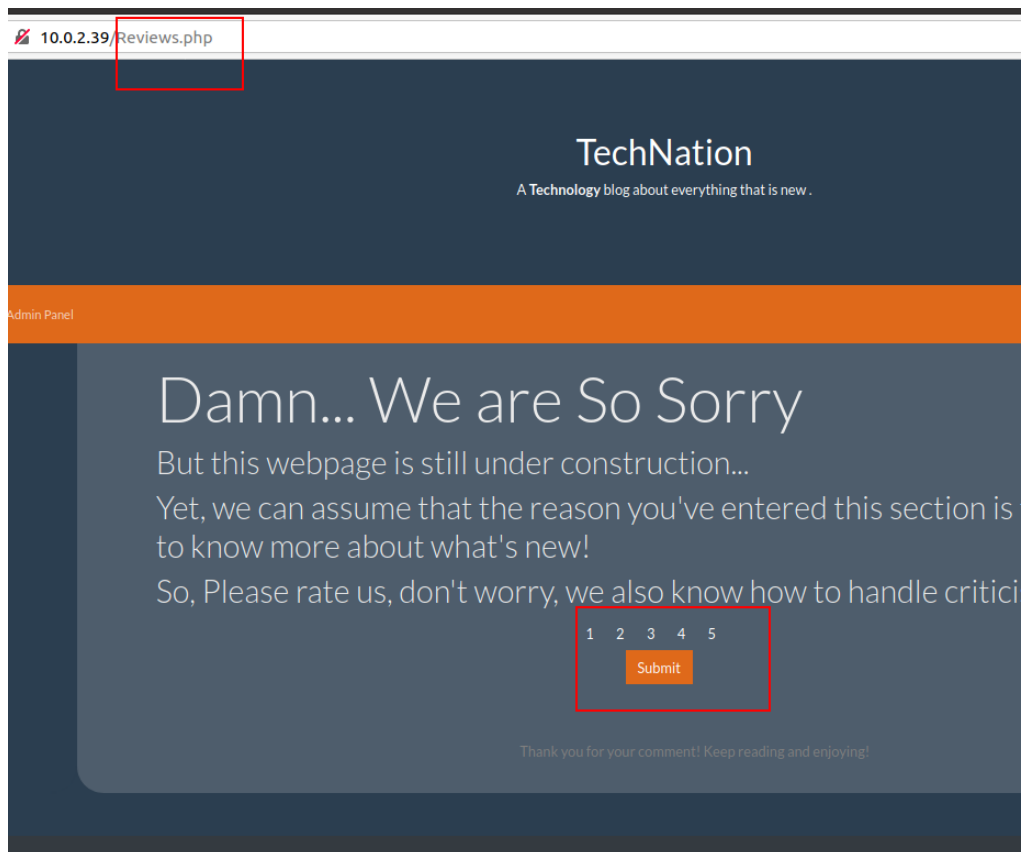
Potential attack vector since the user input is captured via the options of deal

User Reviews Page:

Clicking on the "Reviews" link in the header of the page. The user reviews on the service provided is captured via this page. The user can click on any one rating and the text below is



Posted for all the ratings, since the implementation is not yet completed



Support Page:

Providing support to customer issues

The screenshot shows a web browser window with the URL `http://10.0.2.37/Admin.php`. The page has an orange header with the TechNation logo and navigation links: News, Reviews, Deals, and Admin Panel. The main content area is a dark blue sidebar with a form. The form has the following fields:

- Email Address:** A text input field with the placeholder "Enter email".
- For us to contact you back!** A small text label.
- What Kind Of Problem You Have?:** A dropdown menu with "Payment Failure" selected.
- You Don't Know? Press "Other"** A small text label.
- Write Your Problem:** A large text area for describing the issue.
- Add Screenshot:** A section with a "Browse..." button and the text "No file selected."
- Submit:** An orange button at the bottom of the form.

File upload option also available:- through which the customers upload their screenshots

This screenshot is similar to the one above, but with a red box highlighting the "Add Screenshot" section. The form fields are the same as in the previous image. The "Add Screenshot" section includes a "Browse..." button and the text "No file selected." Below this section, there is a "Thank you! our Team will contact you as soon as they can!" message and a "Submit" button.

Potential attack vector of File upload and User input comment

The Link “Info” at the footer of the page gives information on the wordpress and installation

The screenshot shows a web application interface. At the top, a browser address bar displays '10.0.2.39/Info.php'. Below this is an orange navigation bar with 'Deals' and 'Admin Panel' links. The main content area features a 'Changelog' section with a table of updates. The footer includes social media icons for Facebook, YouTube, Instagram, and Twitter, along with the text 'Join Us In Social Media Today!'. A navigation menu at the bottom contains 'Info', 'Support', and 'Home' links, with 'Info' highlighted by a red box. The footer also mentions 'Made By Daniel Gish'.

Change Log	Security	Bugfix	Design
Version 0.7	SQL Fixed	AdminPanel	JS functions
Version 0.6		PHP Query	StandAlone Theme
Version 0.5		Button Fixed	Orange Theme
Version 0.4	Security Plugin	Plugin Fixed	Wordpress Update
Version 0.3	CSRF Fixed	Popup Fixed	WordPress Theme
Version 0.2	XSS Fixed	Sending Forms	
Version 0.1			WordPress 4.9

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prate to provide
ation on what's

Join Us In Social Media Today!

[Info](#) • [Support](#) • [Home](#)

Made By Daniel Gish

Web directories Enumeration:

The directory enumeration can be done with a tool like dirsearch or gobuster

```
(meena@kali) ~$ gobuster dir -u http://10.0.2.39 -w /home/meena/seclists/common.txt -x .txt,.html,.php

Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)

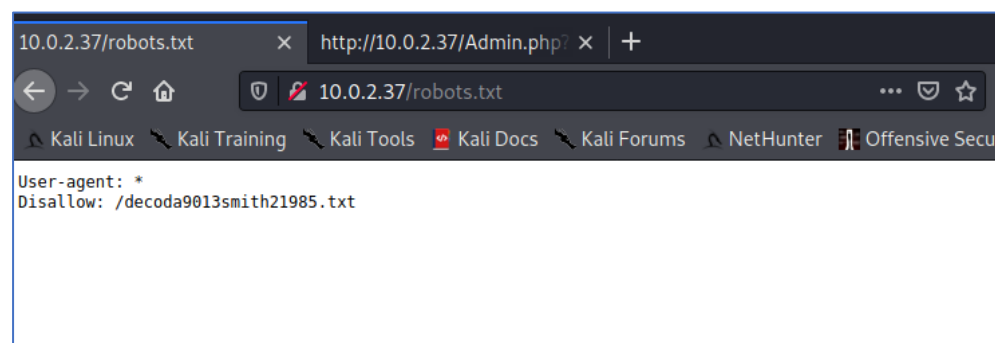
[+] Url:             http://10.0.2.39
[+] Method:          GET
[+] Threads:         10
[+] Wordlist:         /home/meena/seclists/common.txt
[+] Negative Status codes: 404
[+] User Agent:      gobuster/3.1.0
[+] Extensions:     php,txt,html
[+] Timeout:         10s

2022/05/29 00:07:59 Starting gobuster in directory enumeration mode

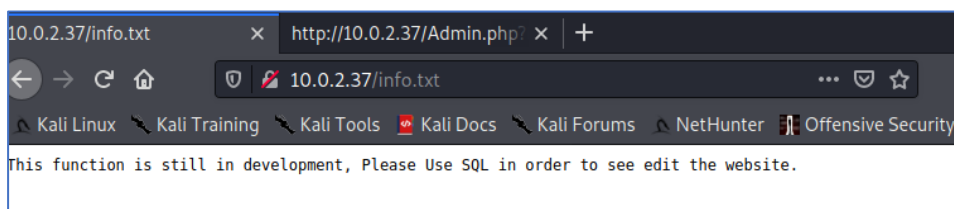
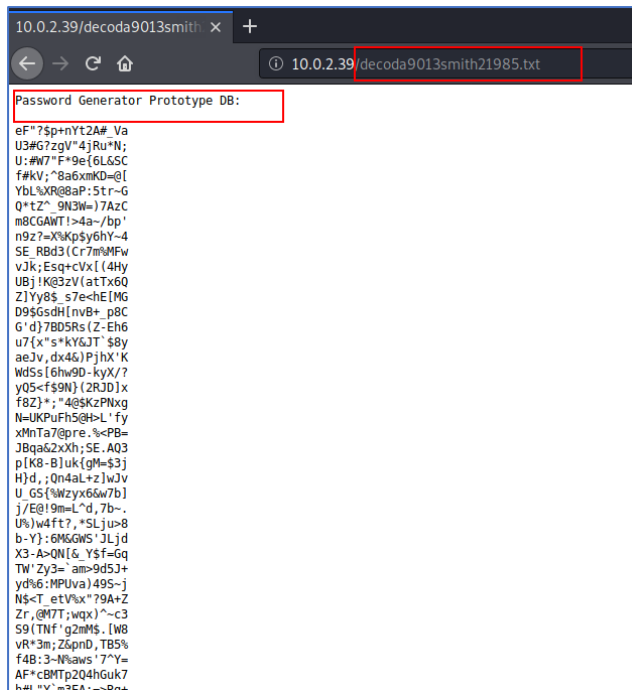
/.hta                (Status: 403) [Size: 274]
/.htpasswd            (Status: 403) [Size: 274]
/.hta.txt            (Status: 403) [Size: 274]
/.htaccess.php       (Status: 403) [Size: 274]
/.htpasswd.txt       (Status: 403) [Size: 274]
/.hta.html           (Status: 403) [Size: 274]
/.htaccess           (Status: 403) [Size: 274]
/.htaccess.txt       (Status: 403) [Size: 274]
/.hta.php            (Status: 403) [Size: 274]
/.htpasswd.html      (Status: 403) [Size: 274]
/.htaccess.html      (Status: 403) [Size: 274]
/.htpasswd.php       (Status: 403) [Size: 274]
/Admin.php           (Status: 200) [Size: 9162]
/css                 (Status: 301) [Size: 304] [→ http://10.0.2.39/css/]
/icon                (Status: 301) [Size: 305] [→ http://10.0.2.39/icon/]
/info.txt            (Status: 200) [Size: 88]
/index.php           (Status: 200) [Size: 11764]
/index.php           (Status: 200) [Size: 11764]
/javascript           (Status: 301) [Size: 311] [→ http://10.0.2.39/javascript/]
/login.php           (Status: 500) [Size: 0]
/robots.txt          (Status: 200) [Size: 52]
/robots.txt          (Status: 200) [Size: 52]
/server-status       (Status: 403) [Size: 274]
/support.php         (Status: 200) [Size: 4561]

2022/05/29 00:08:01 Finished
```

Exploring the directories:



Seems to be like long list of passwords



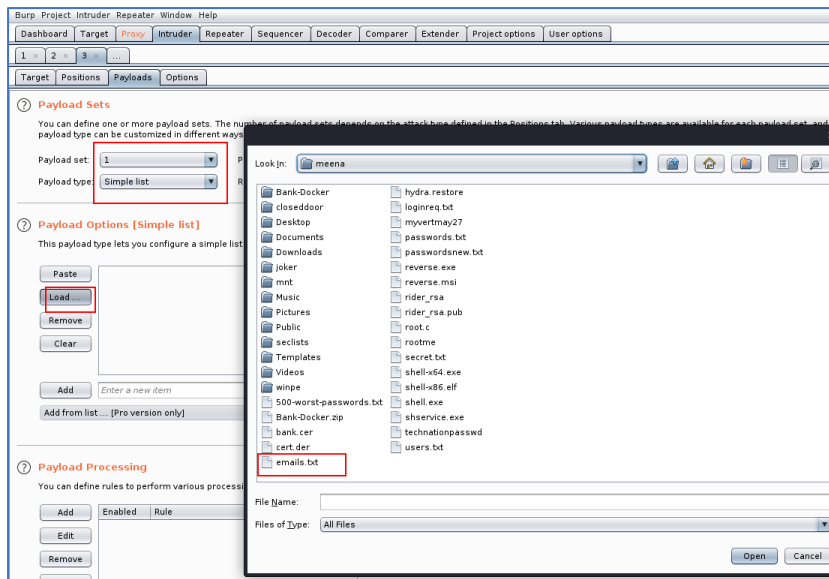
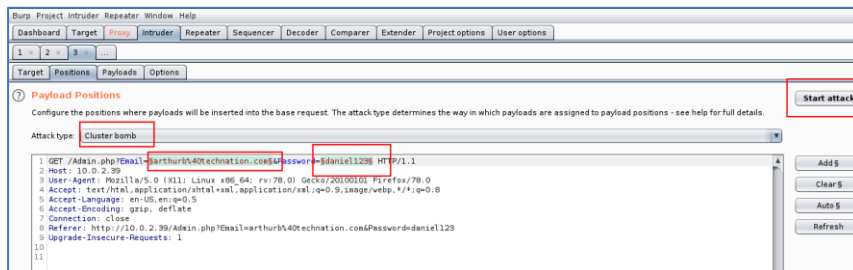
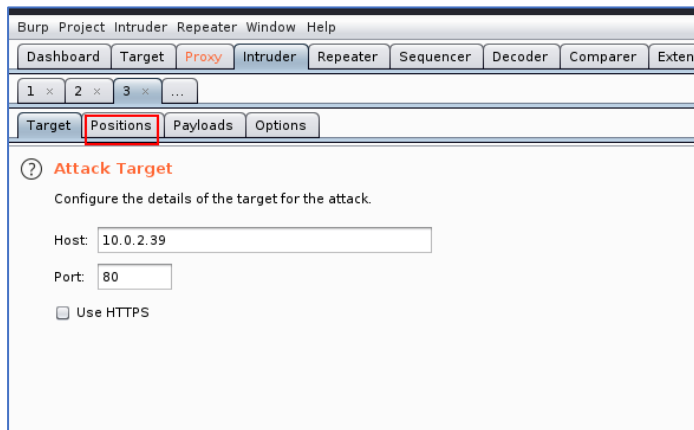
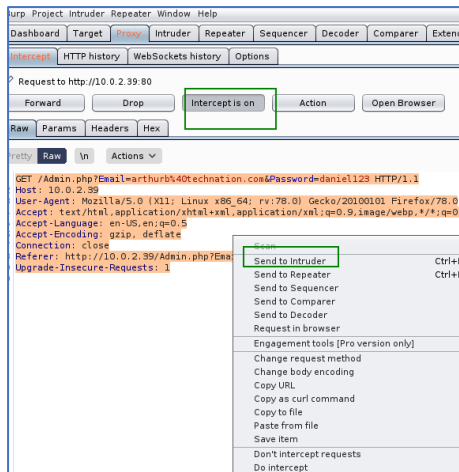
List of Vulnerabilities:

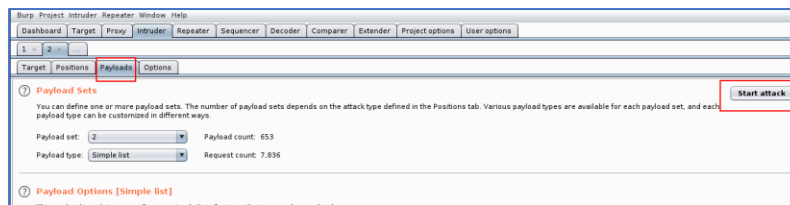
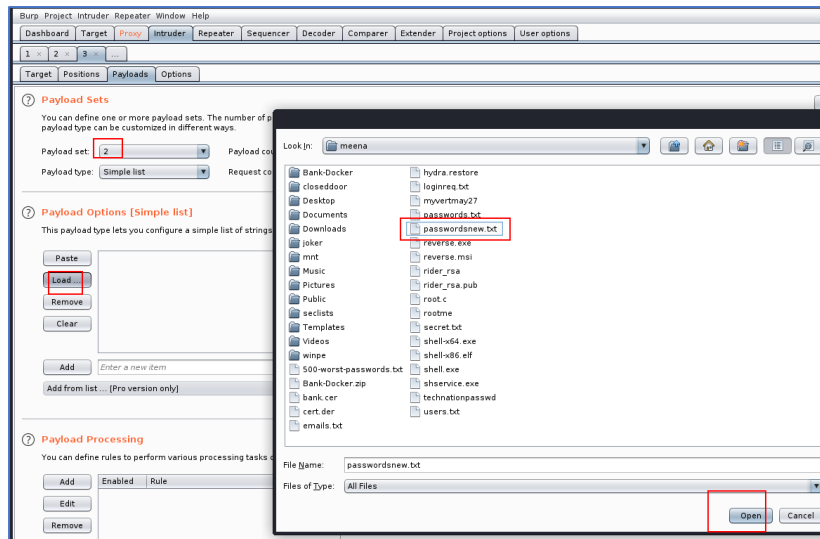
Login Brute force using Information Disclosure:

Risk Score | 8 Severity | **High** Proability | **High** Fix Effort | Low

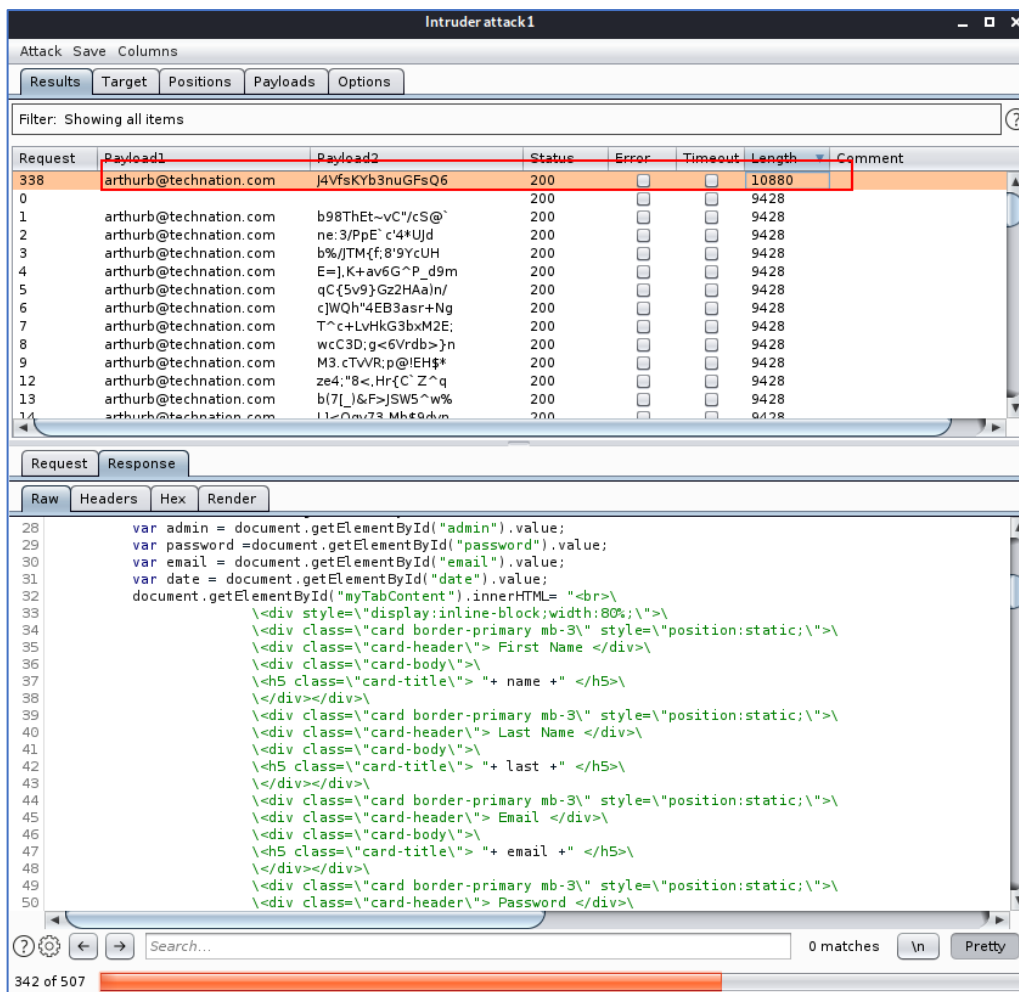
Creating a username list from the posts in the homepage and password list from the <http://<ip>/robots.txt>

Capture the login request in the burp and forward to intruder. Set "Positions" and "Payload". Start attack

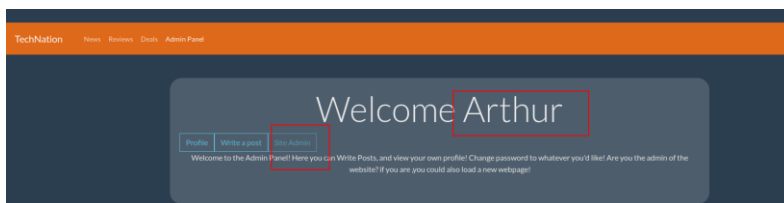




Since the request count for this huge password list is more, the burp community version is very slow and cannot handle. So switched going user by user. First chose arthurb@technation.com as one payload and the second payload to be the password list



There was a hit for arthurb@technation.com. Tried in the admin Panel. Was able to login



Directory Traversal

Risk Score:6 Severity|High Probability|High Fix Effort|Medium

What is Directroy Traversal?

It is the vulnerability of the web app using which the attacker can move up and down the directory structure and view sensitive files present in directories outside the web root.

The files may be credentials for the back-end systems, OS files or application code itself

Steps to find Directory Traversal Vuln:

Input vectors Enumeration:

We evaluate the components of the web application where some of user input is accepted: Post, Get , Forms and file uploads.

Insert the relative path like ../../../../etc/passwd on linux systems, at the suspected end point

Exploiting Directory Traversal:

The application has no defence against directory traversal attack. The input is not sanitized. So when the attacker requests for ../../../../etc/passwd , he is able to retrieve it.

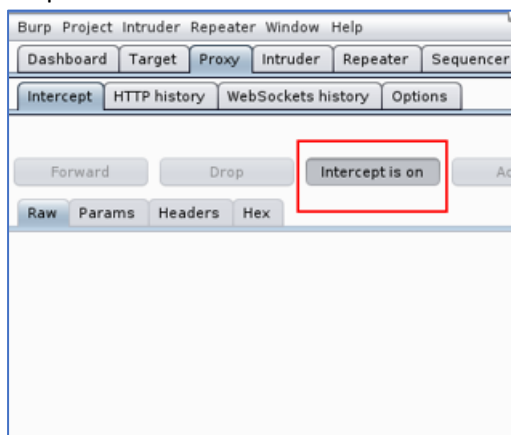
This causes the application to read from the following file path:

/var/www/html/<some dir>/../../../../etc/passwd

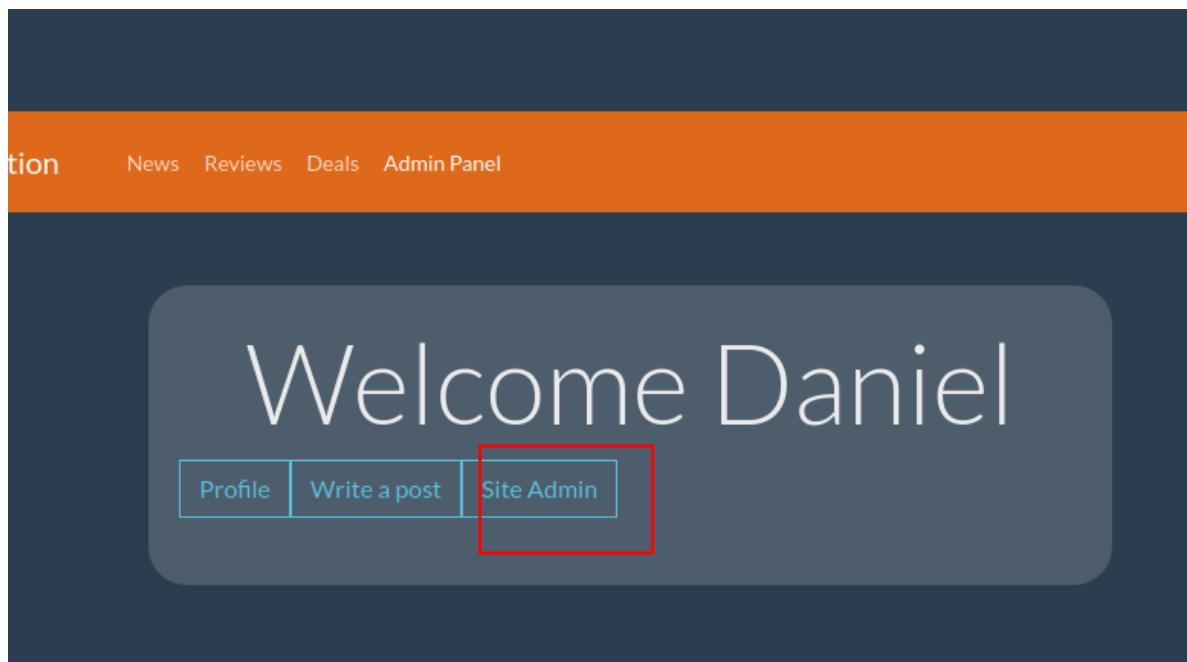
The sequence ../ is valid within a file path, and means to step up one level in the directory structure. The four consecutive ../ sequences step up from current directory to the filesystem root, and so the file that is actually read is:

/etc/passwd

Login to the Admin Panel with user Daniel and Password. Start “Intercept On” in the burpsuite intruder.



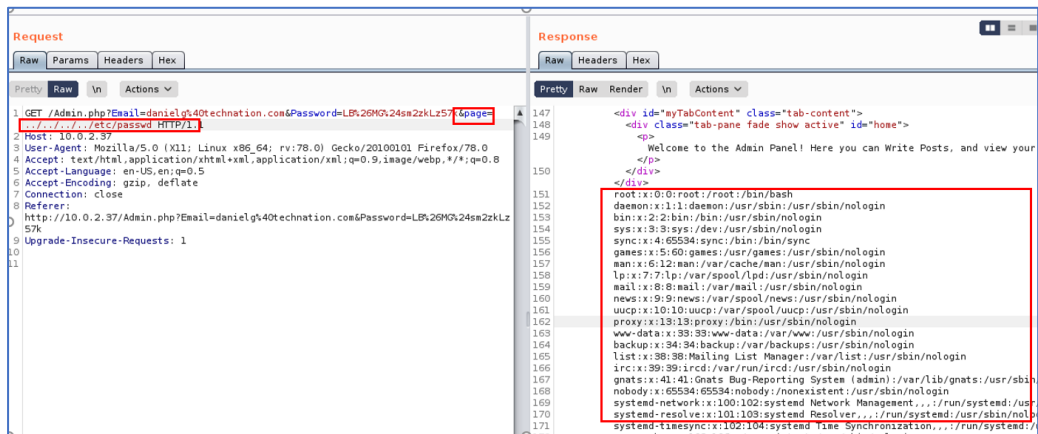
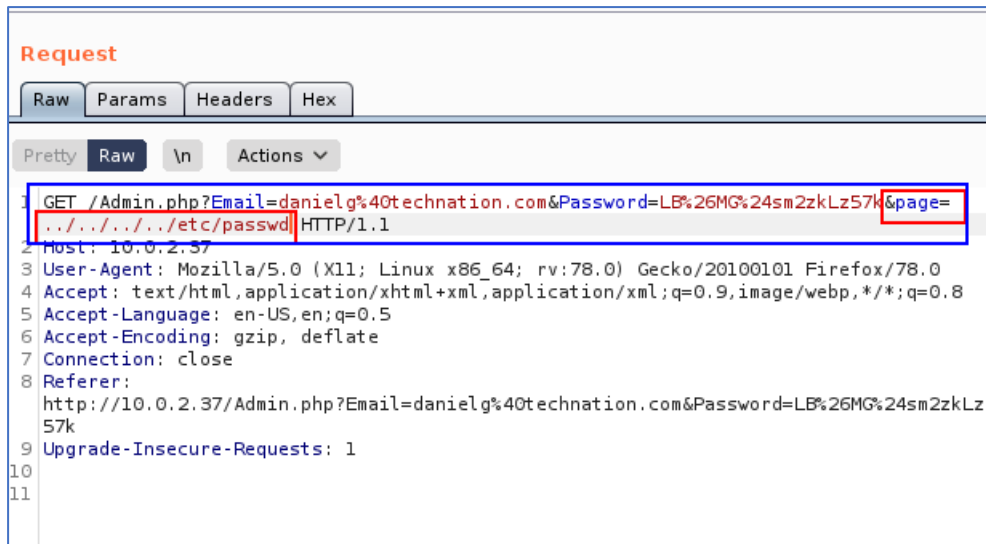
Click “Site Admin” in the Admin Panel



Redirect to Repeater



Edit info.txt to ../../../../etc/passwd



We are able to view the registered users of the system

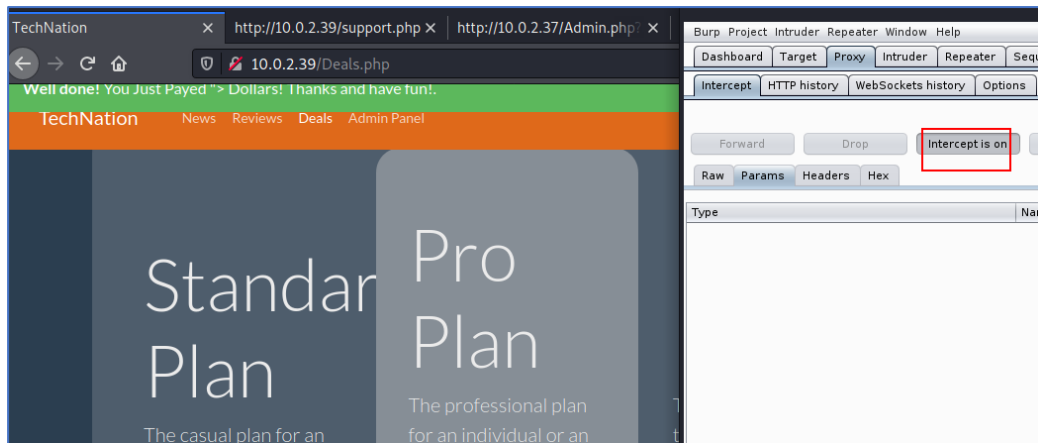
XSS Attack

Risk Score:5 Severity|medium Probability:low Fix effort| medium

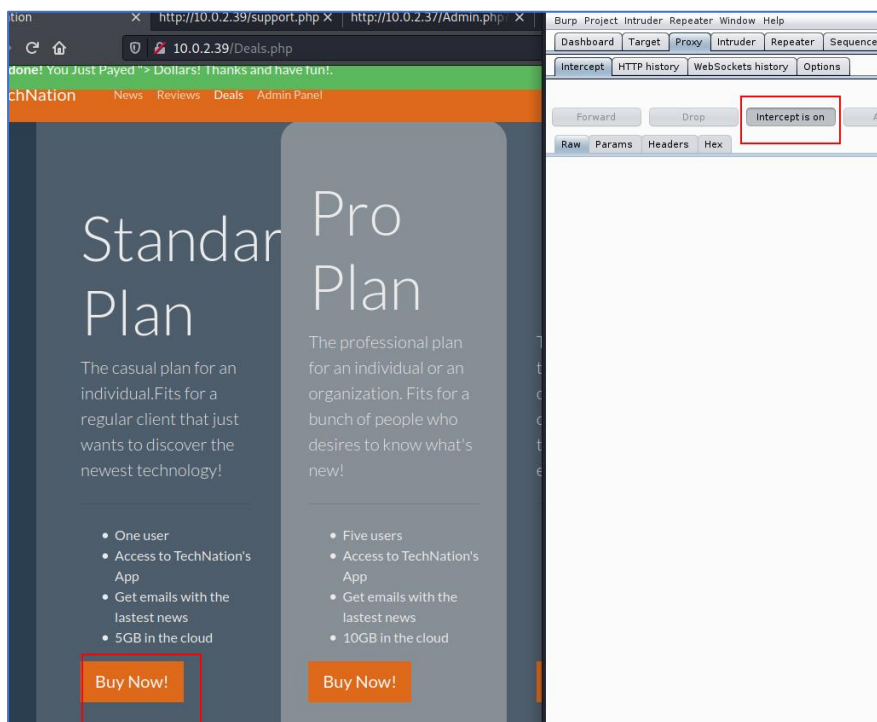
Every Data Entry point can be suspected to result in XSS attack.

We change the value of the parameter or user variable, and trigger the vulnerability.If no input sanitization is done.

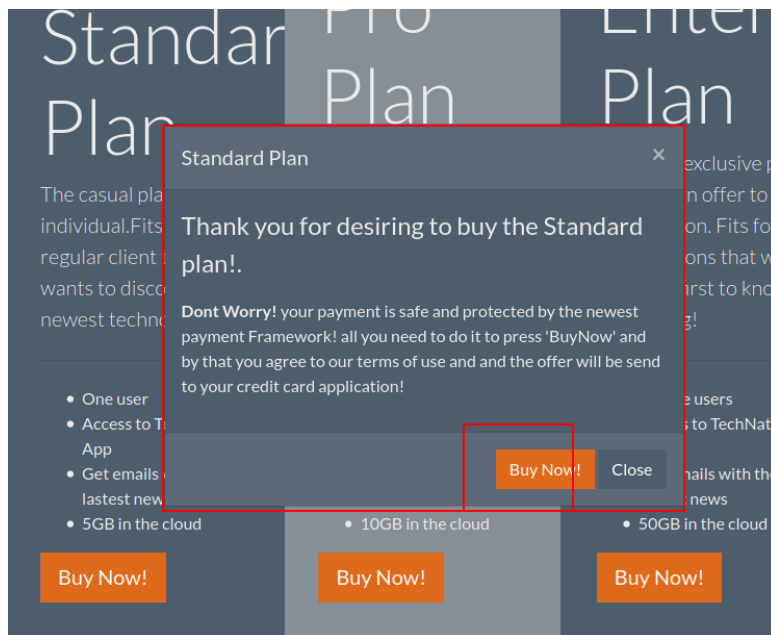
Goto <http://10.0.2.39/Deals.php>. Capture the request in burp with intercept on.



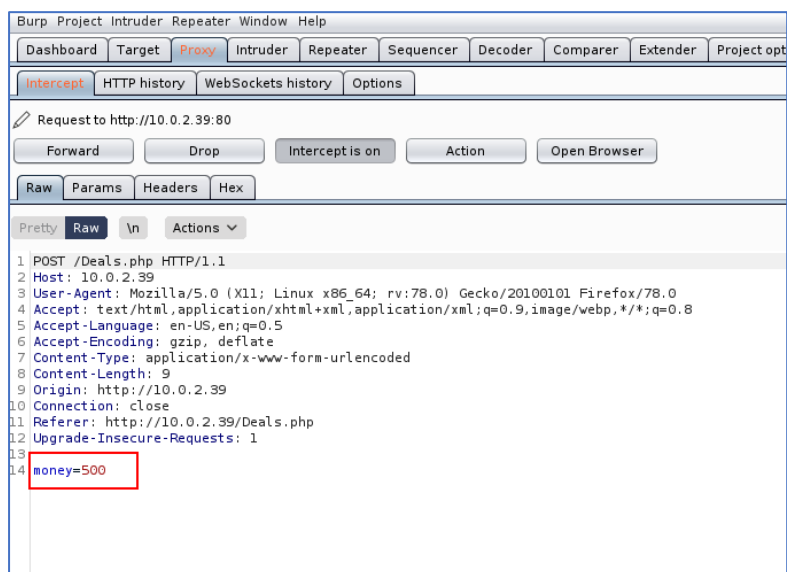
Click on one of the deals, “Buy Now!” option



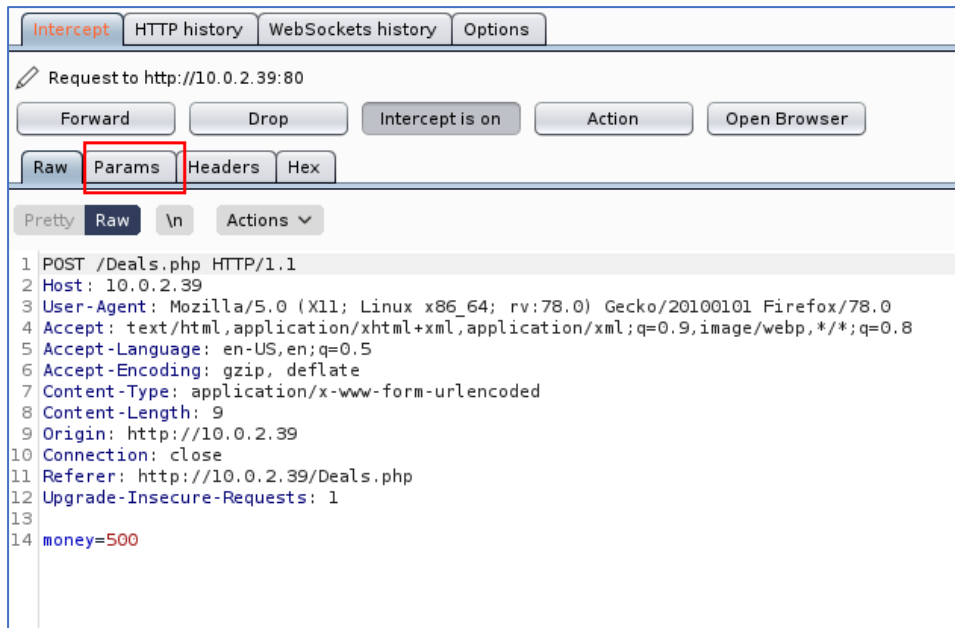
Click “Buy Now!” in the popup window



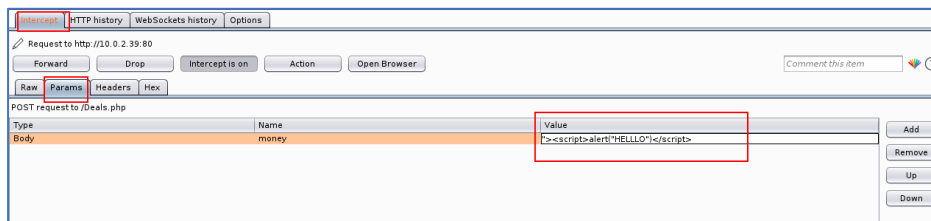
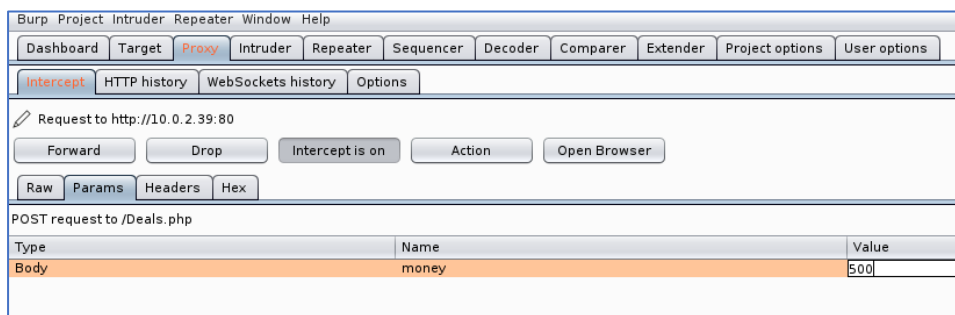
The request captures a parameter/variable that is being posted. This parameter, allows to be changed.



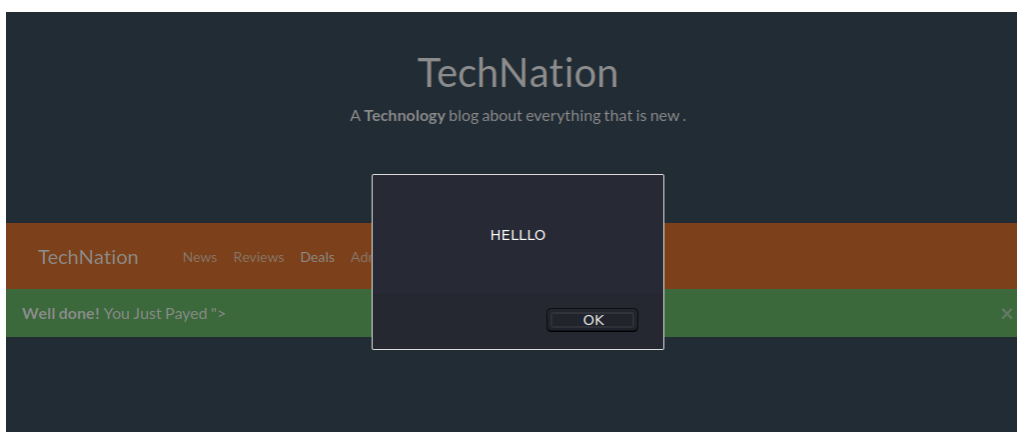
Click on “Params”



And change the value of money as shown

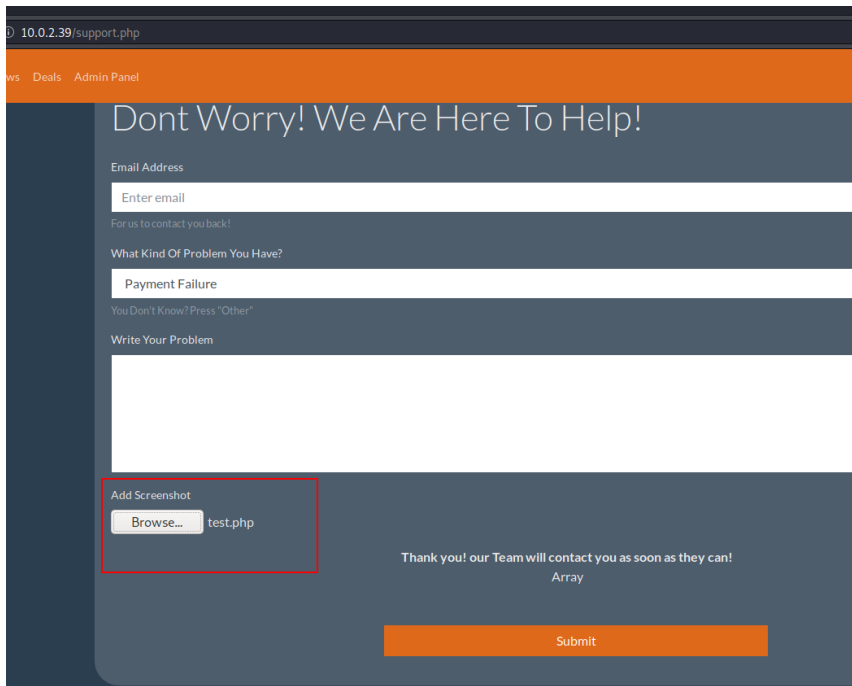


Once the value is changed, we get the script executed and displayed.



File upload :

The file upload option can be misused to upload php files which can generate a reverse shell



The screenshot shows a web browser window with the address bar displaying '10.0.2.39/support.php'. The page has a dark blue header with navigation links: 'Home', 'Deals', and 'Admin Panel'. The main content area has a dark blue background with white text. The heading is 'Dont Worry! We Are Here To Help!'. Below the heading, there are several input fields: 'Email Address' with a placeholder 'Enter email', 'What Kind Of Problem You Have?' with a placeholder 'Payment Failure', and 'Write Your Problem' with a large text area. At the bottom left, there is a section titled 'Add Screenshot' with a 'Browse...' button and a file name 'test.php'. To the right of this section, there is a message: 'Thank you! our Team will contact you as soon as they can!' followed by 'Array'. At the bottom center, there is an orange 'Submit' button.

General Remedial Measures

Prevent Login Brute Force:

Implement account lock out

Administrators should keep software up to date, including web server software and the underlying operating system, and apply all security patches. The practice of regularly patching software can significantly reduce security risks and reduce the chance of exploitation

SQLi/ XSS and Directory Traversal:

Developers should validate user input accepted from browsers. Input validation can help ensure that attackers are restricted from using command techniques, like SQL injection, which violate access privileges and may grant attackers access to a root directory.

Applications should use filters to block suspicious user input. Most web applications employ filters to block URLs that contain commands, as well as escape codes commonly employed by attackers.

Easily avoidable major vulnerabilities

1. Access to Admin Panel by all users

There is no access restriction to the Admin Panel

Any user is able to login via the Admin Panel

From the web page info, Daniel Seems to be the admin. But Arthur is also able to login to Admin Panel

2. Information disclosure in file at robots.txt
A list of possible passwords for users is displayed, which can be misused to access
3. Admin Panel user "Profile" display password to see
Citing of password in plain text:

