Armaxis

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Difficulty: Very Easy

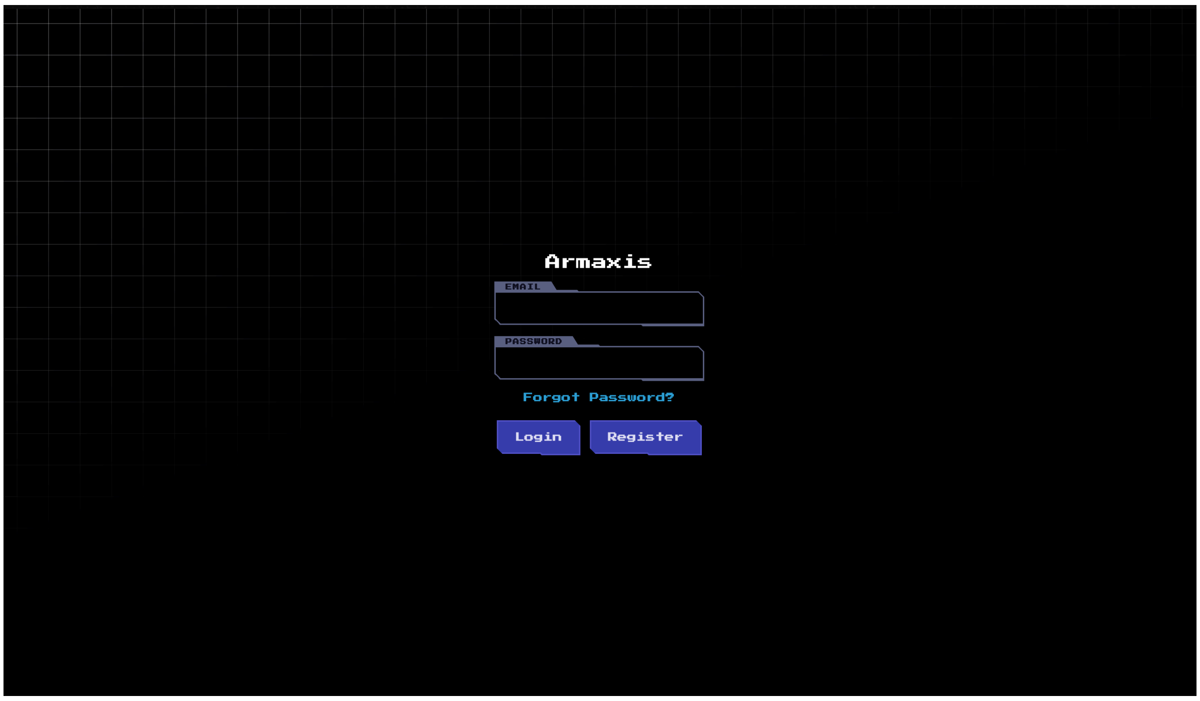
Classification: Official

Synopsis

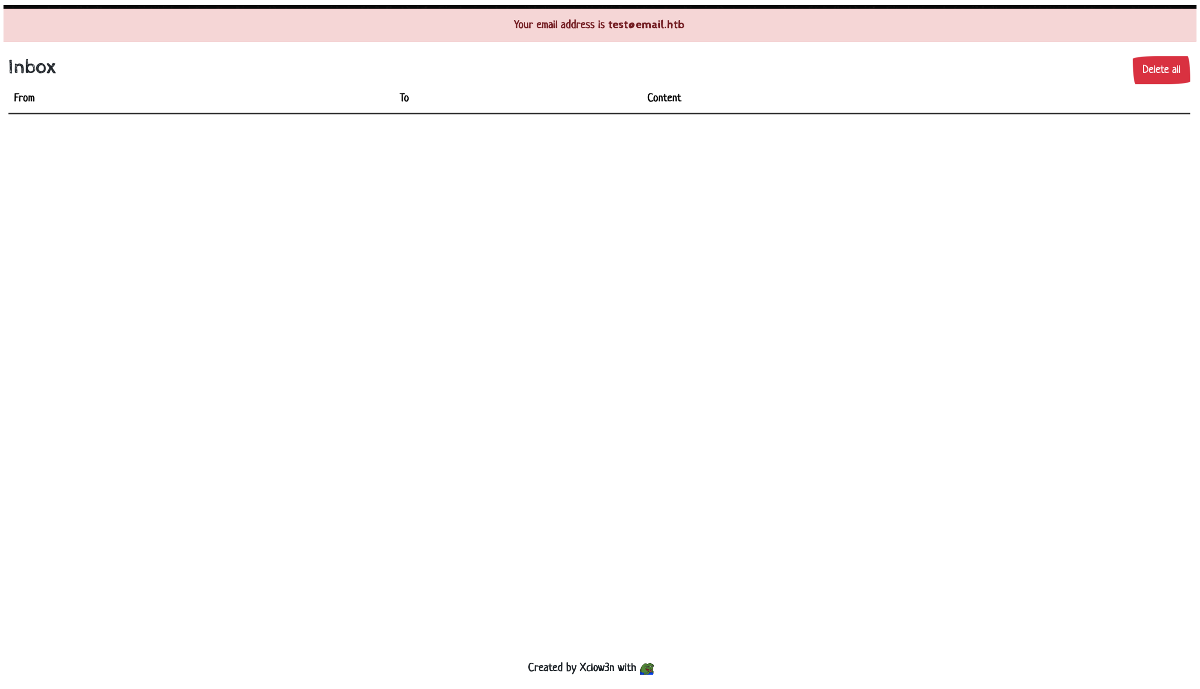
The challenge involves exploiting an Insecure Direct Object Reference (IDOR) vulnerability in the password reset functionality and then leveraging a Local File Inclusion (LFI) vulnerability in the markdown parser.

Solution

When visiting the home page, the following interface is displayed:



We can register an account, log in, and reset the password. An email inbox is provided, and our email is `test@email.htb` to receive an OTP for resetting the password.



Your email address is test@email.htb

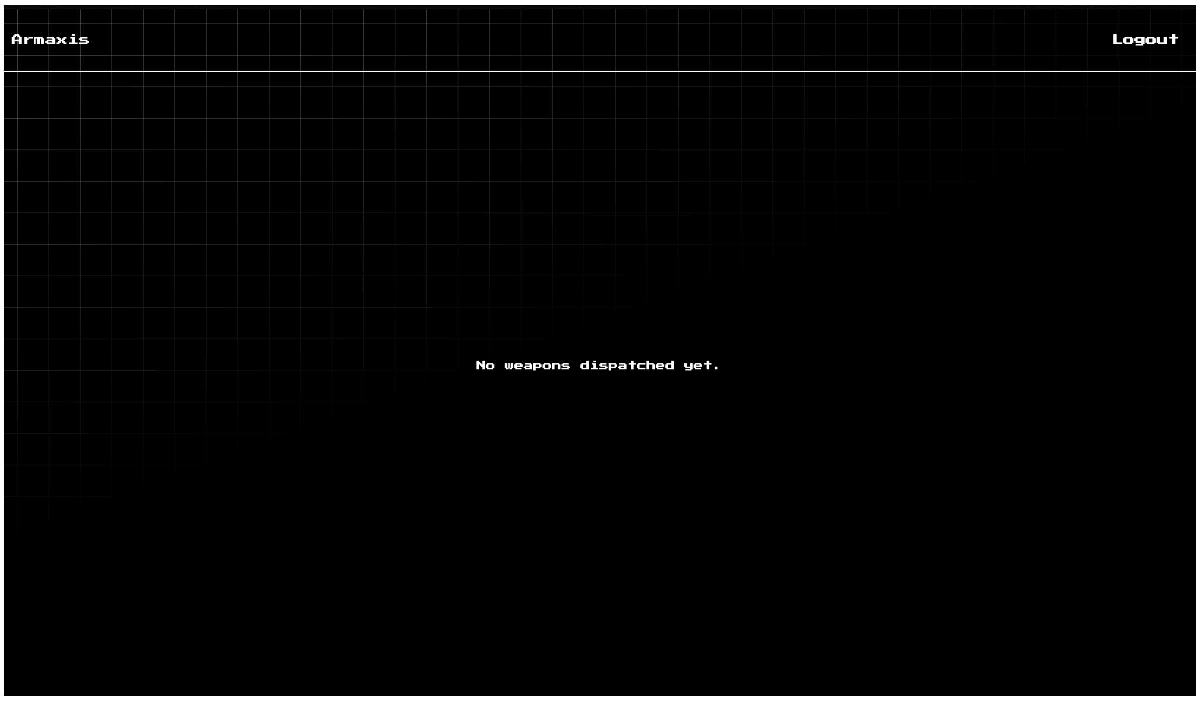
Inbox

Delete all

From	To	Content

Created by Xclow3n with

After logging in, the dashboard appears as shown below:



No weapons dispatched yet.

This dashboard represents the extent of the functionality available to us.

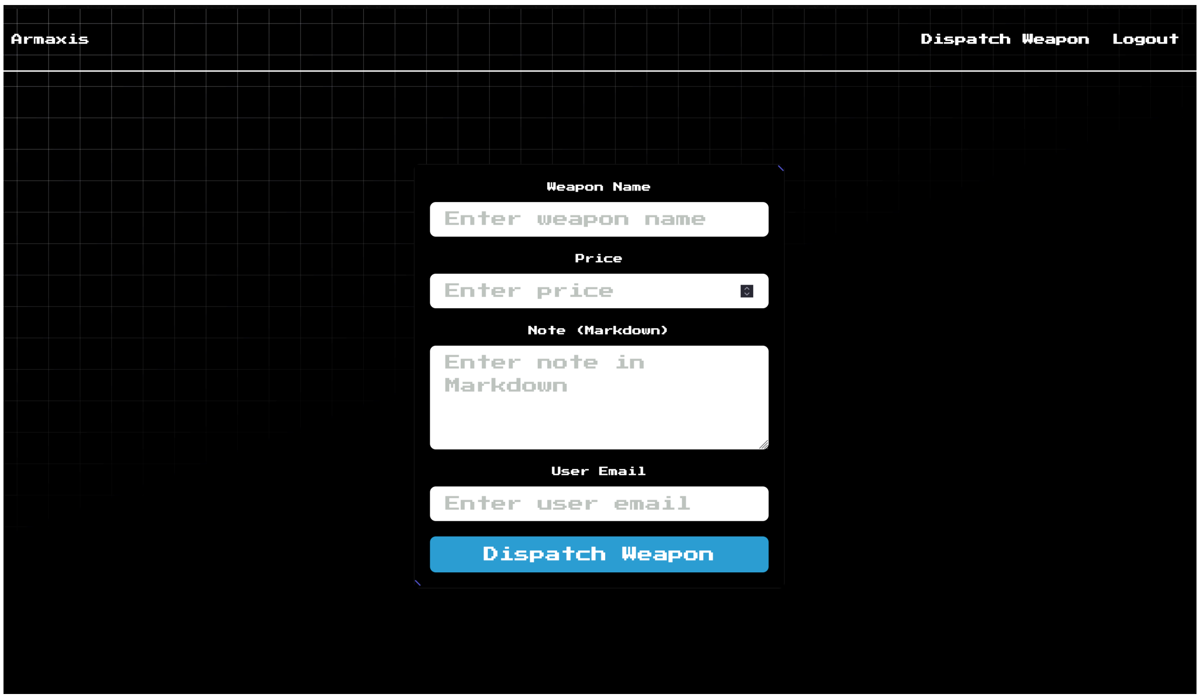
IDOR on Password Reset

Let's examine the password reset functionality:

```
router.post("/reset-password", async (req, res) => {
  const { token, newPassword, email } = req.body;
  if (!token || !newPassword || !email)
    return res.status(400).send("Token, email, and new password are required.");

  try {
    const reset = await getPasswordReset(token);
    if (!reset) return res.status(400).send("Invalid or expired token.");

    const user = await getUserByEmail(email);
    if (!user) return res.status(404).send("User not found.");

    await updateUserPassword(user.id, newPassword);
    await deletePasswordReset(token);

    res.send("Password reset successful.");
  } catch (err) {
    console.error("Error resetting password:", err);
    res.status(500).send("Error resetting password.");
  }
});

async function getPasswordReset(token) {
  const query = `SELECT * FROM password_resets WHERE token = ? AND expires_at > ?
`;
  try {
    const reset = await get(query, [token, Date.now()]);
    return reset;
  } catch (error) {
    throw error;
  }
}
```

This functionality is vulnerable to IDOR because it verifies the validity of the token but does not check which user the token belongs to. This allows anyone with a valid token to reset another user's password.

By resetting the admin's password and logging in as the admin, we gain access to new functionality:

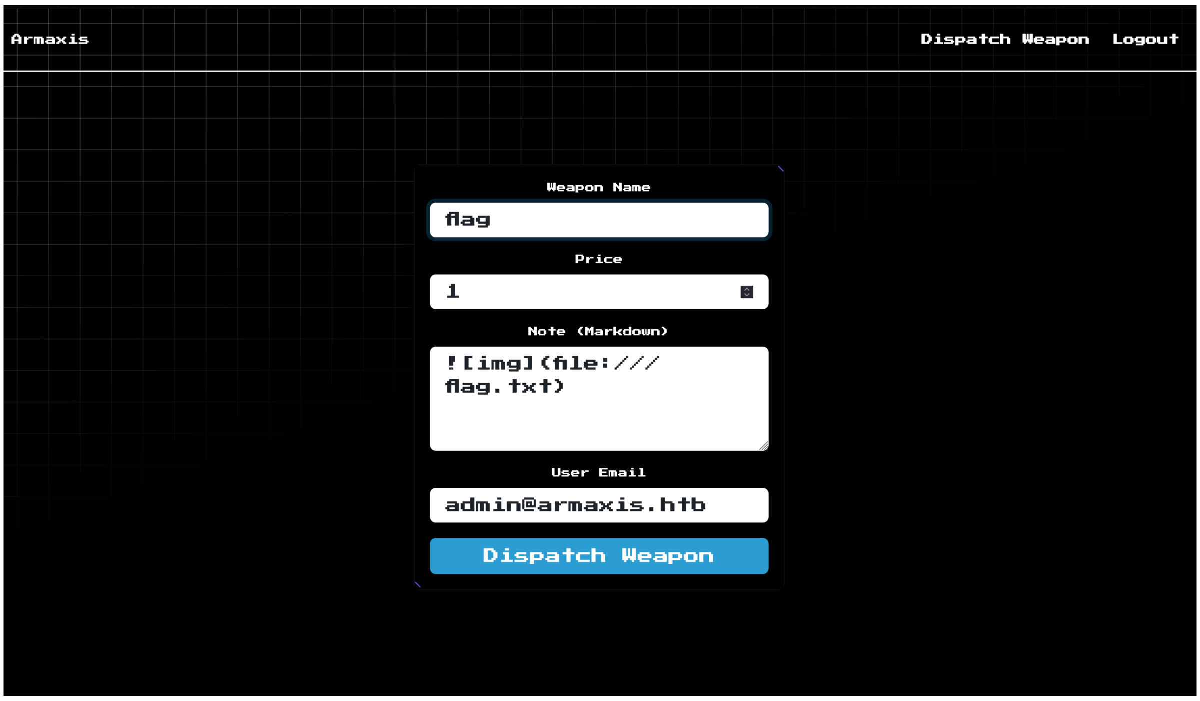


We can dispatch weapons to users via email, and in the note section, we can add markdown content.

```
router.post("/weapons/dispatch", authenticate, async (req, res) => {
  const { role } = req.user;
  if (role !== "admin") return res.status(403).send("Access denied.");
  const { name, price, note, dispatched_to } = req.body;
  if (!name || !price || !note || !dispatched_to) {
    return res.status(400).send("All fields are required.");
  }

  try {
    const parsedNote = parseMarkdown(note);

    await dispatchWeapon(name, price, parsedNote, dispatched_to);

    res.send("Weapon dispatched successfully.");
  } catch (err) {
    console.error("Error dispatching weapon:", err);
    res.status(500).send("Error dispatching weapon.");
  }
});

// markdown.js
const MarkdownIt = require("markdown-it");
const { execSync } = require("child_process");

const md = new MarkdownIt({
  html: true,
});

function parseMarkdown(content) {
  if (!content) return "";
  return md.render(
    content.replace(/\!\[.*?\]\((.*?)\)/g, (match, url) => {
      try {
        const fileContent = execSync(`curl -s ${url}`);
        const base64Content = Buffer.from(fileContent).toString("base64");
        return `<img src="data:image/*;base64,${base64Content}" alt="Embedded
Image">`;
      } catch (err) {
        console.error(`Error fetching image from URL ${url}:`, err.message);
        return `<p>Error loading image: ${url}</p>`;
      }
    }),
  );
}

module.exports = { parseMarkdown };
```

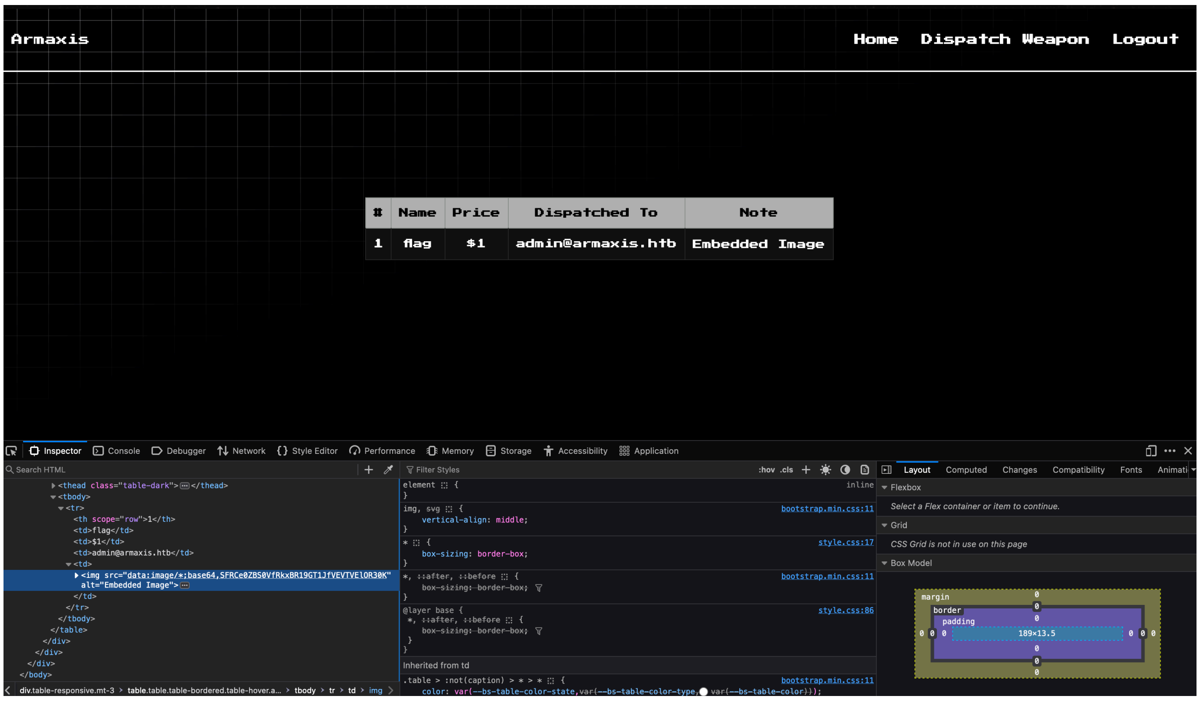
The markdown parser searches for image tags and fetches the image content, storing it in the database as base64. Since it uses `curl`, we can include files and potentially leak sensitive information.

By using a payload like the one below:



Weapon Name	flag
Price	1
Note (Markdown)	![img](file:///flag.txt)
User Email	admin@armaxis.htb

We are able to retrieve the content of `flag.txt`:



#	Name	Price	Dispatched To	Note
1	flag	$1	admin@armaxis.htb	Embedded Image

```
<thead class="table-dark">…</thead>
<tbody>
  <tr>
    <th scope="row">1</th>
    <td>flag</td>
    <td>$1</td>
    <td>admin@armaxis.htb</td>
    <td>
      <img src="data:image/*;base64,SFRCe0ZBS0VfRkxBR19GT1JfVEVTVElOR30K"
      alt="Embedded Image">…
    </td>
  </tr>
</tbody>
</table>
</div>
</div>
</div>
</body>
```

```
element {                                                  inline
}
img, svg {                                 bootstrap.min.css:11
    vertical-align: middle;
}
* {                                                style.css:17
    box-sizing: border-box;
}
*, ::after, ::before {                     bootstrap.min.css:11
    ~~box-sizing: border-box;~~
}
@layer base {                                      style.css:86
 *, ::after, ::before {
    ~~box-sizing: border-box;~~
 }
}
Inherited from td
.table > :not(caption) > * > * {           bootstrap.min.css:11
    color: var(--bs-table-color-state,var(--bs-table-color-type, var(--bs-table-color)));
```