Authorization bypass due to cache misconfiguration

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Content

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[[image: Rikesh Baniya]](https://rikeshbaniya.medium.com/?source=post_page---byline--fde8b2332d2d----------)

Rikesh Baniya

This writeup is about one of my favorite findings as it was a very unexpected issue.

I was testing an ecommerce site. It had 2 assets in scope. `target.com` and `admin.target.com`

`target.com` was the user facing portal where users could go and buy items. `admin.target.com` was basically the admin portal for sellers where they could list their items, track orders, customer info and so on.

I was testing for idors and access controls. I generally use Autorize for it.

If a lower privilege user is able to hit the admin endpoint Autorize will flag it as “bypassed” .

With the normal user cookie from `target.com` placed into Autorize , i was using the `admin.target.com` to check if a normal user can access the admin endpoints.

During my testing something unusual happened.

Every time i visited the endpoint:

`https://admin.target.com/orders` , following GraphQL request was being made.

```
POST /graphql
Host: admin.target.com


{"operationName":"GetOrders","variables":{"shop_id":"X"},"query":"query X"}
```

The response contained all the order information of my shop. That is an expected behavior.

What was strange however is, Autorize flagged the endpoint as “bypassed” meaning that even a normal user is able to make this request and access order info of my shop.

But when i sent that request to repeater and tried to make request with user cookies it gave an error.

Hmmm

autorize says bypassed , repeater says forbidden.

I assumed it to be a glitch within autorize and moved on.

For the entire week when i was testing the program, it kept happening.

Autorize kept showing the `GetOrders` endpoint as “bypassed” but when i used to send the request to repeater and test , it gave me the `403 forbidden` error.

At this point, I was certain that it isn’t an issue with Autorize, and I am just missing something.

Then it clicked.

Only difference between Autorize and Repeater was the time interval.

While they both had same cookies/token.

Autorize was making immediate call to the admin endpoint. Where as me making the request from repeater took some time.

To test my theory:

I made a request to `GetOrders` endpoint using admin token.

```
POST /graphql
Host: admin.target.com
Auth: Bearer admin


{"operationName":"GetOrders","variables":{"shop_id":"X"},"query":"query X"}
```

then immediately made the same request with user token.

```
POST /graphql
Host: admin.target.com
Auth: Bearer user

{"operationName":"GetOrders","variables":{"shop_id":"X"},"query":"query X"}
```

To my surprise i was able to get all the order info of that shop including customer details.

Issue

So what was happening is: The server was caching the `GetOrders` response for a very brief period of 3/4 seconds.

So if an attacker makes the request at the same time when a normal shop admin is using his admin portal, attacker is able to fetch all the order/customer info belonging to any shop just using `shop_id`.

The `shop_id` is a publicly accessible id.

Exploit

Create a simple bash script that will make continuous request to the `GetOrders` endpoint throughout the day

When ever the admin visits their portal , the order/customer info gets cached for a window of 3/4 seconds allowing attacker to fetch them and bypassing all access control restrictions.

POC

I ran my intruder making request to `GetOrders` endpoint with user token.

It gave a `403 forbidden` response initially due to access controls in place.

In the mean time i logged into `admin.target.com` as adminUser and normally visited `admin.target.com/orders`

The graphql request to `GetOrders` was made in the background on behalf of admin which was available to be cached for 3/4 seconds.

The cached response was eventually fetched by the same intruder tab that was giving 403 error just a minute earlier.

The issue was triaged as critical and immediately resolved within hours.

Hope you liked the writeup.

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