Figure 1: img

AuthorsOnly

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Difficulty: Easy

Synopsis (!)

- This challenge requires participants to exploit GraphQL and LFI vulnerabilities to obtain the flag.

Description (!)

- This challenge requires understanding the authentication happening and trying to understand the graphql language and and simple understanding of the Lfi.

Skills Required (!)

- Python
- Researching Skills
- graphql
- LFI

Skills Learned (!)

- Learn how Graphql works.
- Learn how to do basic mutation and get queries in graphql.
- Learn how to do a Lfi.

Enumeration (!)

-on visting the site you are greeted with a login page and no sign for a register which means you have to be a valid user only to access the service.

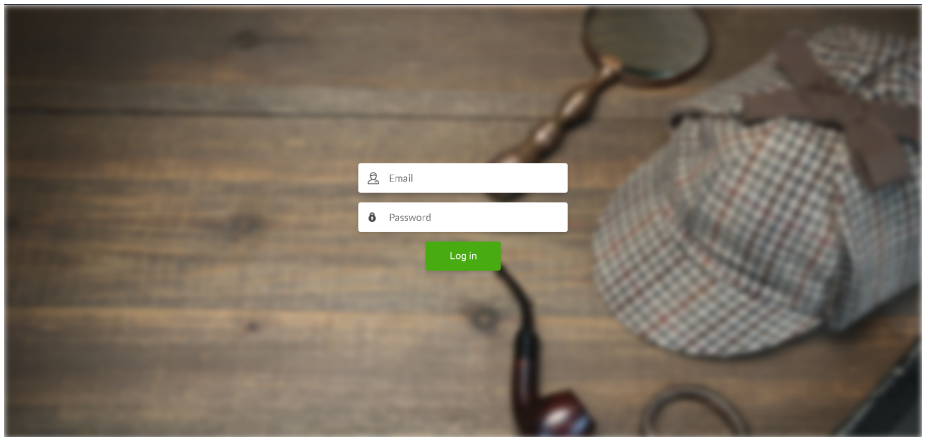


Figure 2: img

-Checking the Devtool through network tab a request is made to a Graphql endpoint..

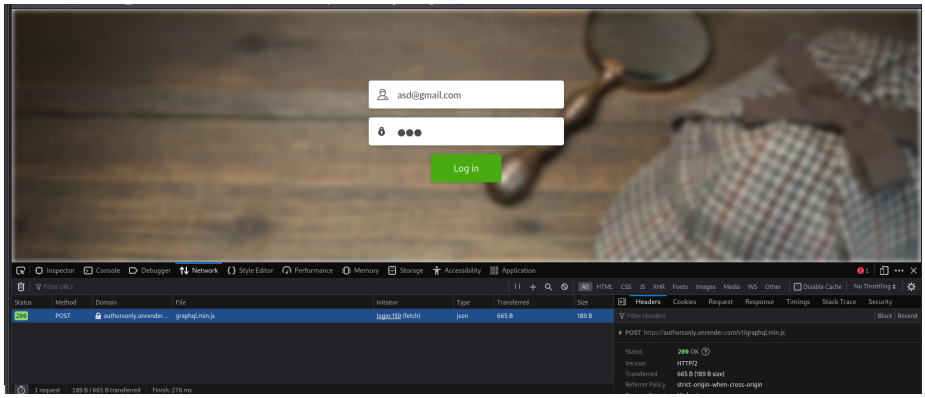


Figure 3: img

- So GraphQL is a query language for APIs and a runtime for fulfilling those queries with your existing data...

  So among the queries you can make two are very important: 1-introspection query which can be used to know the schema and the objects in the database 2-mutation query which is similar to an insert query where you can add for instance new users

So in order to run an introspection query i used curl...

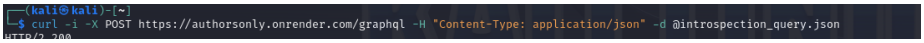
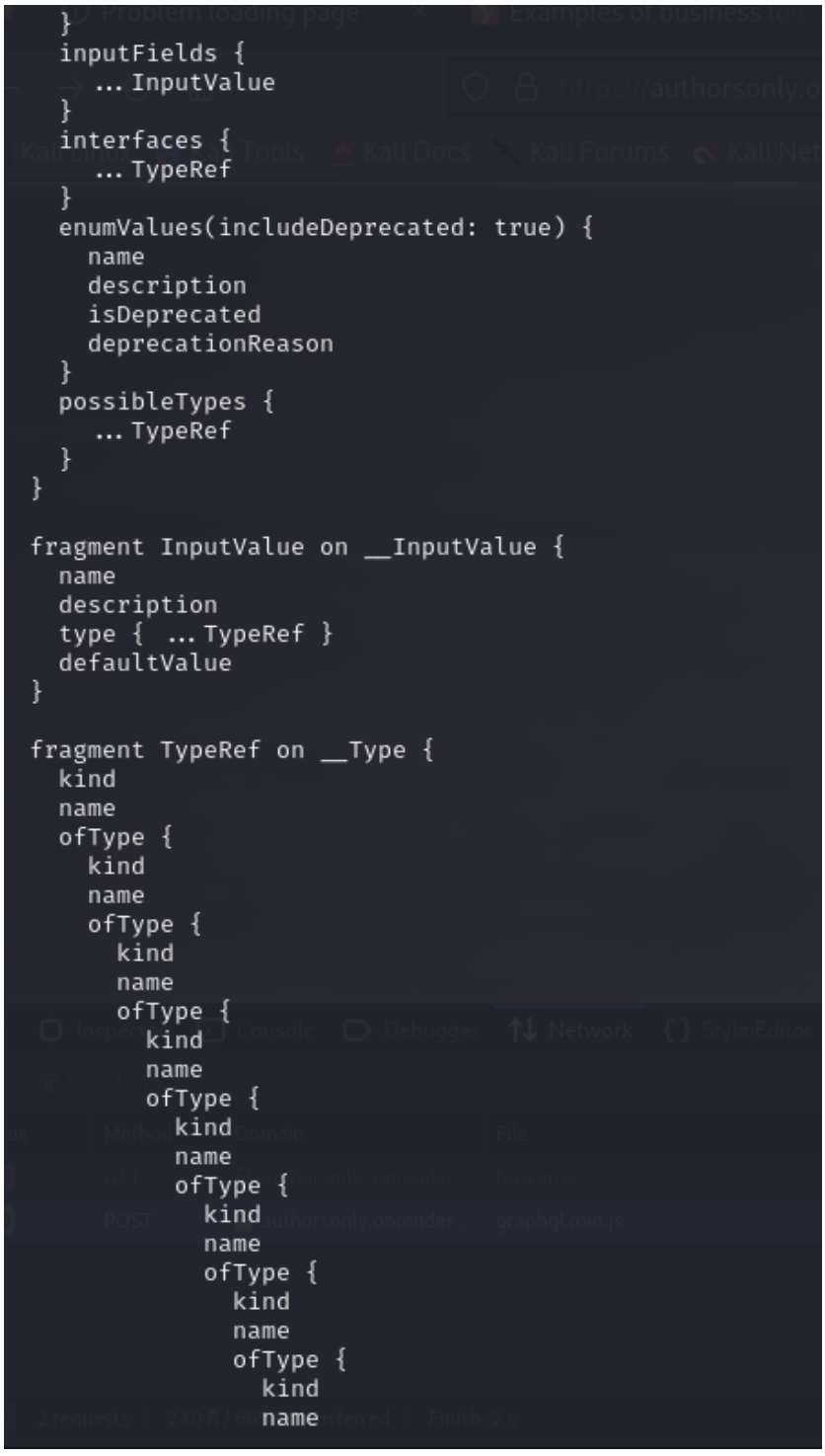


Figure 4: img

and here is the content for introspection_query json file

```
└─$ cat introspection_query.json
{
  "query": "query IntrospectionQuery {
      __schema {
        queryType { name }
        mutationType { name }
        subscriptionType { name }
        types {
          ...FullType
        }
        directives {
          name
          description
          locations
          args {
            ...InputValue
          }
        }
      }
    }

    fragment FullType on __Type {
      kind
      name
      description
      fields(includeDeprecated: true) {
        name
        description
        args {
          ...InputValue
        }
        type {
          ...TypeRef
        }
        isDeprecated
        deprecationReason
      }
      inputFields {
        ...InputValue
      }
      interfaces {
        ...TypeRef
      }
      enumValues(includeDeprecated: true) {
        name
        description
        isDeprecated
        deprecationReason
      }
```



```
  }
  inputFields {
    ...InputValue
  }
  interfaces {
    ...TypeRef
  }
  enumValues(includeDeprecated: true) {
    name
    description
    isDeprecated
    deprecationReason
  }
  possibleTypes {
    ...TypeRef
  }
}

fragment InputValue on __InputValue {
  name
  description
  type { ...TypeRef }
  defaultValue
}

fragment TypeRef on __Type {
  kind
  name
  ofType {
    kind
    name
    ofType {
      kind
      name
      ofType {
        kind
        name
        ofType {
          kind
          name
          ofType {
            kind
            name
            ofType {
              kind
              name
              ofType {
                kind
                name
```

- i get the following response from the curl command.

Figure 5: img

- Which means i have to do it manually,

  when trying to write an object name the language gives you an indicator which is a potential to find most objects and map the scema yourself and its called Blind introspection.

  here is an example where i sent an incorrect query with the auth object but it got corrected to author

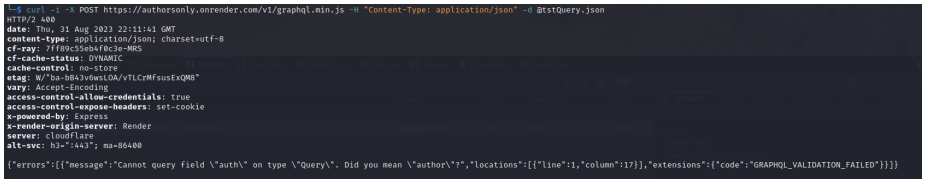
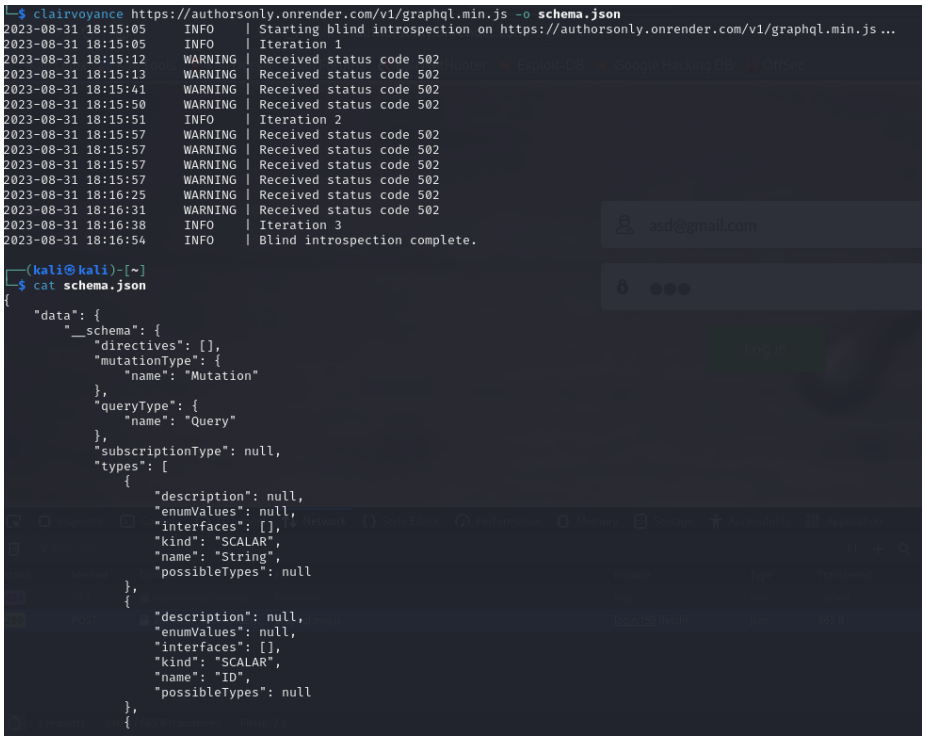
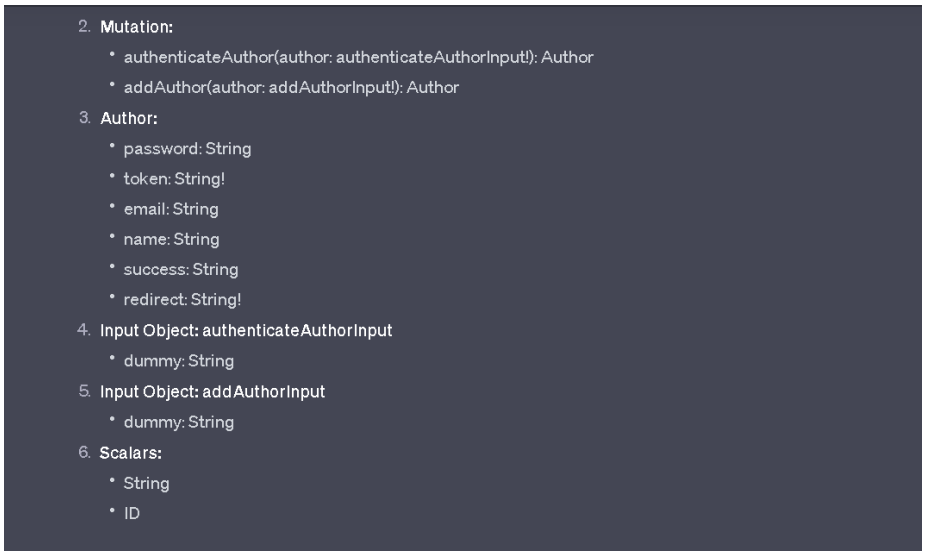


Figure 6: img

- So you can either fuzz for schema or use a tool that does that for you (Tool used clairvoyance).
- i used the tool and ran it and saved the output in schema.json and got the following .



- you can either take the content of the schema and run it through a beautifier or just use chatGpt..



- we can see that there is an author object with the email / password fields.. so i ran a query to get the content... query content:

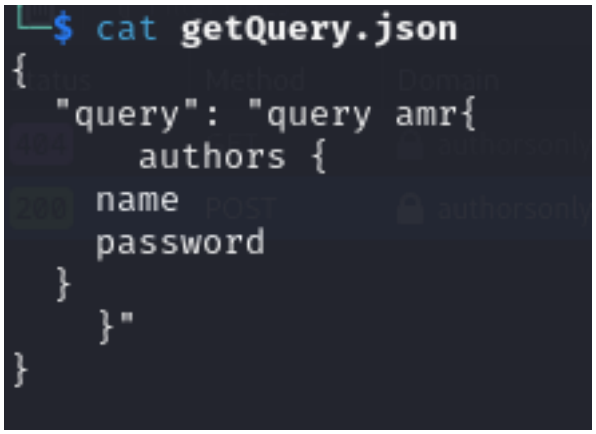


Figure 7: img

- it seems to be a hard hash to break so we can either try to break which would be impossible or we can use a mutation query to insert a user in the database.

mutation Query content:

Figure 8: img

- so a user is inserted in the database successfully now i can login with the email and password..

Solution (!)

- on login i am greeted with a home page displaying book contents and upon clicking any book the url is updated with a file parameter.

Figure 9: img

- so on first thought an LFi could arrise here so i tried to get the content of the etc/passwd file and it worked.

Figure 10: img

Getting the flag (!)

- so the flag could be in this directory or the one before so its a matter of guessing and here is the flag. . . ..

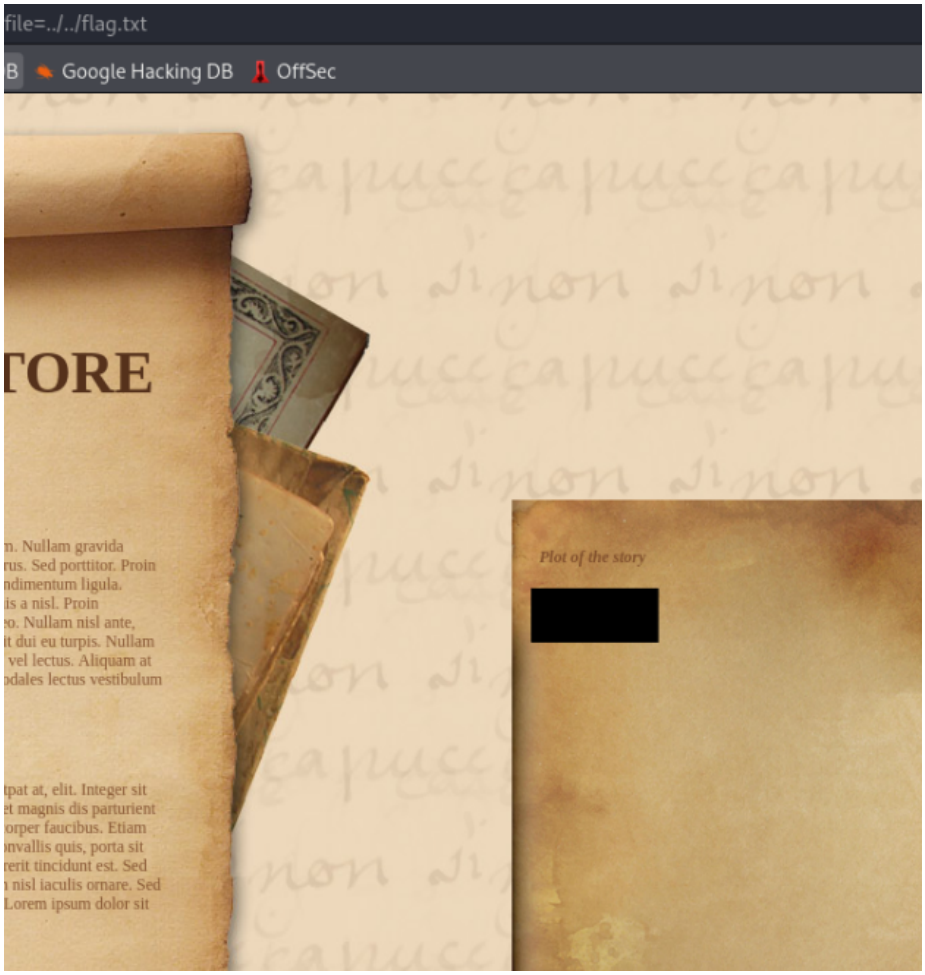


Figure 11: img