Regarding the JWT Zap Scanner

9 messages

yaakov beckerman <beckermanyaakov@gmail.com> Tue, 4 Jan, 2022 at 10:03 pm
To: preetkaran20@gmail.com <preetkaran20@gmail.com>

Hi there

I'm trying to create a vulnerable API which includes JWT vulnerabilities. Unfortunately I haven't been able to trigger a JWT alert no matter what I try. Do you know what sort of request would trigger one?

Karan Preet <preetkaran20@gmail.com> Tue, 4 Jan, 2022 at 10:32 pm
To: yaakov beckerman <beckermanyaakov@gmail.com>

Hi Yaakov,

It is tough to help without much context however here are a few things:
1. Have you installed JWT addon from Marketplace?
2. Is your JWT signed by RSA? if so you need to configure RSA Key, Please look at https://github.com/SasanLabs/owasp-zap-jwt-addon#scanner-configuration for more details.
3. Are you using an Active scanner or fuzzer?
4. Can you please send me the JWT token so that I can look more into it?

One simple way to generate the vulnerable JWT token is using HMac based token with a key from https://github.com/SasanLabs/owasp-zap-jwt-addon/blob/master/src/main/resources/weakKeys/wallarm_jwt_hmac_secrets_list location.

Please let me know if you still have any questions, I will try to help you.

thanks,
Karan
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yaakov beckerman <beckermanyaakov@gmail.com> Tue, 4 Jan, 2022 at 10:50 pm
To: Karan Preet <preetkaran20@gmail.com>

Hi, thanks for your quick response.

1) I've installed the JWT addon
2) I only want to test the server side aspect of the JWT scanner (I'm creating a vulnerable NodeJS server)
3) I'm using the Active Scanner
4) The JWT is - eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwibm
FtZSI6IkpvaG4gRG9lIiwiaWF0IjoxNTE2MjM5MDIyfQ.SflKxwRJSMeKKF2QT4fwpMeJf36POk6yJV_adQssw5c
It's the default token that's created with jwt.io and uses HS256.

I've already tried changing the attack strength/alert threshold but I can't get any alerts to be triggered. Do you know what response the server should return in order for the JWT scanner to alert that there's a vulnerability. I don't care if it's the most contrived example.

Thanks
Yaakov
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Karan Preet <preetkaran20@gmail.com> Tue, 4 Jan, 2022 at 11:46 pm
To: yaakov beckerman <beckermanyaakov@gmail.com>

Hi Yaakov,

thanks for sharing the JWT token. Actually, for validating the JWT token, the addon sends the same request with manipulated tokens and it expects that the target application returns the same status code and response body, then only it considers that the application is vulnerable.

Does your application send the same response for the same request with just manipulated headers?
Have a look at code: https://github.com/SasanLabs/owasp-zap-jwt-addon/blob/cb0b85efa9c291e3a5eeb35b755e7fbc35c4f2bc/src/main/java/org/zaproxy/zap/extension/jwt/JWTActiveScanRule.java#L192-L196

Also if you are writing vulnerable code then have a look at https://github.com/SasanLabs/VulnerableApp/tree/master/src/main/java/org/sasanlabs/service/vulnerability/jwt code which i created to test JWT scanner.

thanks,
Karan

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yaakov beckerman <beckermanyaakov@gmail.com> Tue, 4 Jan, 2022 at 11:49 pm
To: Karan Preet <preetkaran20@gmail.com>

Hi,

The issue that I'm encountering is that the JWT scanner isn't actually sending requests. When I look at the active scanner progress, it shows that the JWT scanner made 0 requests. Is there some sort of pre-condition for the JWT scanner to attempt some requests? For example, does the header with the token have to be in a specific format?
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Karan Preet <preetkaran20@gmail.com> Wed, 5 Jan, 2022 at 12:02 am
To: yaakov beckerman <beckermanyaakov@gmail.com>

Hi Yaakov,

Oh ok, I don't think there is any except that the token is valid. code: https://github.com/SasanLabs/owasp-zap-jwt-addon/blob/cb0b85efa9c291e3a5eeb35b755e7fbc35c4f2bc/src/main/java/org/zaproxy/zap/extension/jwt/JWTActiveScanRule.java#L79-L81

One question, does your original request contains valid JWT token?
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yaakov beckerman <beckermanyaakov@gmail.com> Wed, 5 Jan, 2022 at 12:10 am
To: Karan Preet <preetkaran20@gmail.com>

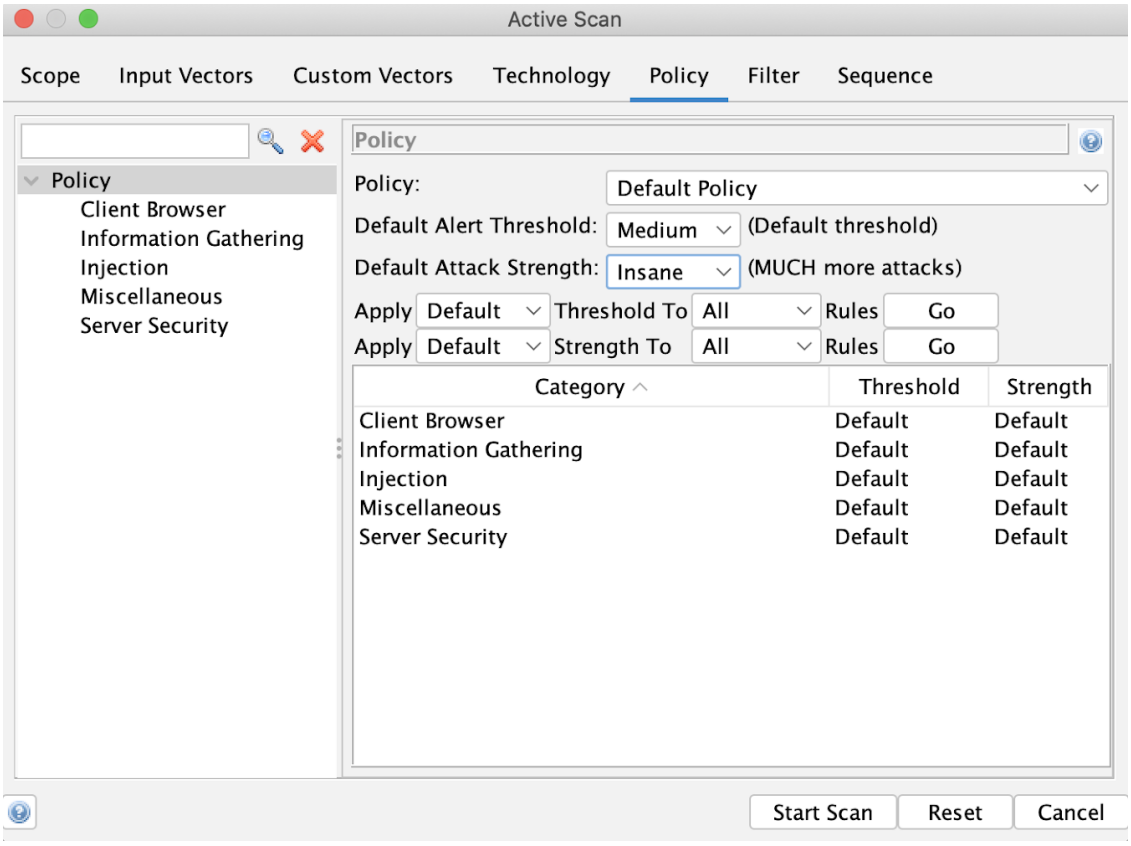
Here is my exact flow.
1) Create a request manually in the requester tool which contains the JWT token I sent you

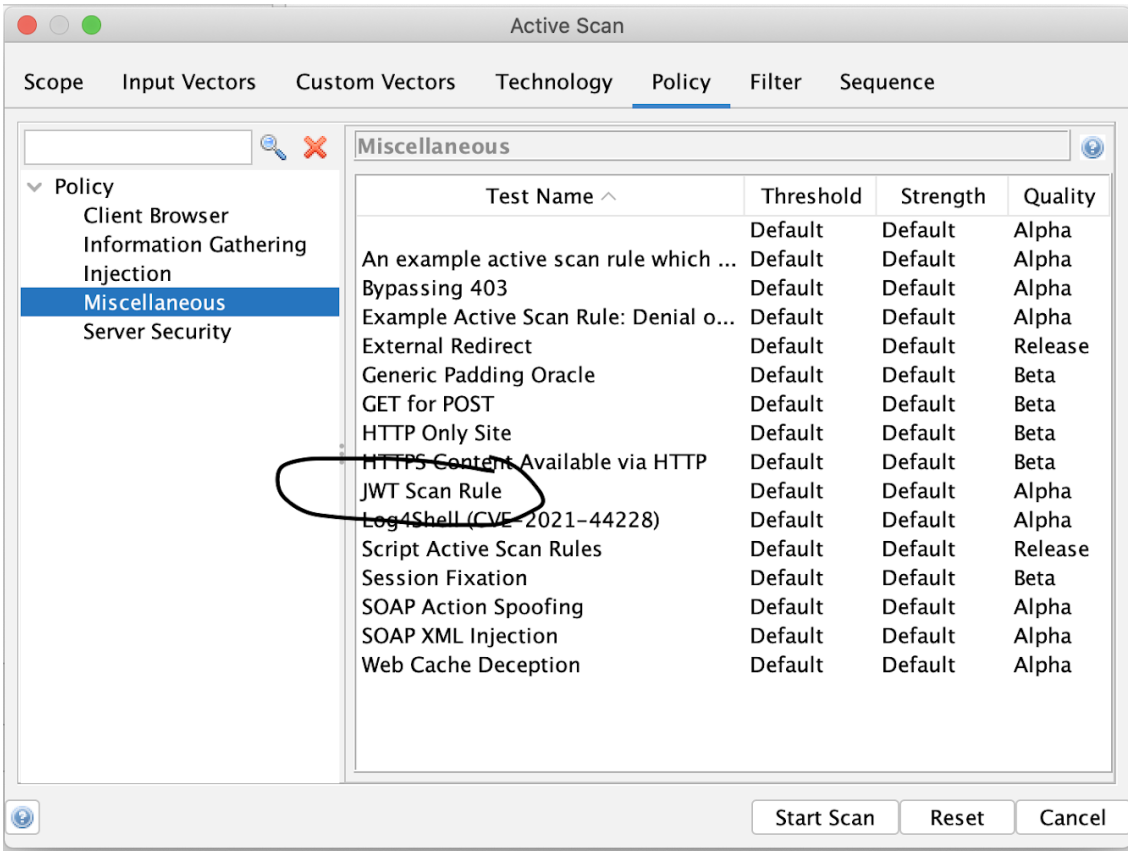
```
GET http://localhost:3003/api/v1/stats/logs HTTP/1.1
Host: localhost:3003
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:92.0) Gecko/20100101 Firefox/92.0
Pragma: no-cache
Cache-Control: no-cache
Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4gRG9lIiwiaWF0IjoxNTE2MjM5MDIyfQ.
SflKxwRJSMeKKF2QT4fwpMeJf36POk6yJV_adQssw5c
Content-Length: 0
```

```
HTTP/1.1 200 OK
X-Powered-By: Express
Access-Control-Allow-Origin: *
Content-Type: application/json; charset=
utf-8
Content-Length: 20
ETag: W/"14-VX693CeUFaY21xsj0SkbqUc4auo"
Date: Tue, 04 Jan 2022 18:23:19 GMT
Connection: keep-alive
Keep-Alive: timeout=5
```

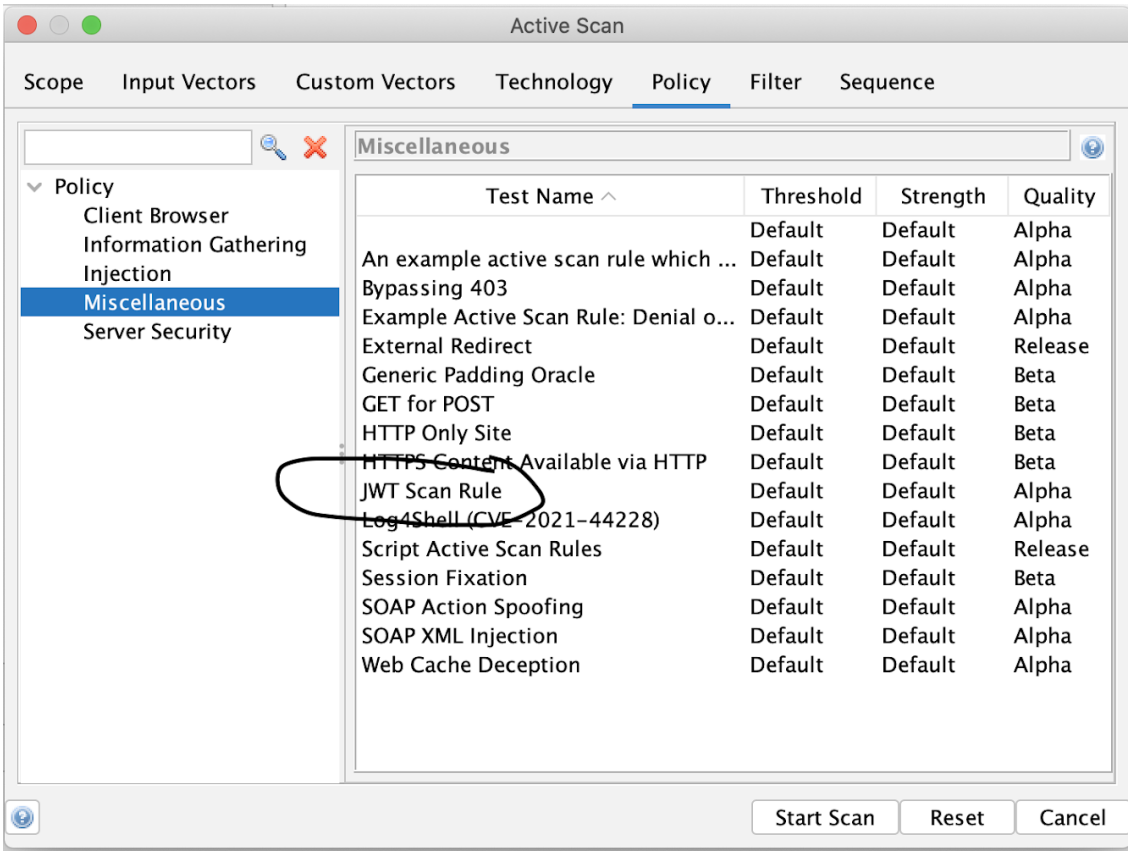
```
[{"ip": "127.0.0.1"}]
```

2) Click active scan





3) When I look at the progress report, I see that the JWT scanner didn't send out any requests.



I also manually verified that the response is exactly the same no matter what JWT is sent (as long as a JWT is actually sent)
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Karan Preet <preetkaran20@gmail.com> Wed, 5 Jan, 2022 at 12:15 am
To: yaakov beckerman <beckermanyaakov@gmail.com>

Hi Yaakov,

Can we connect over a call? https://meet.google.com/tmf-rodz-nnb

thanks,
Karan
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Karan Preet <preetkaran20@gmail.com> Wed, 5 Jan, 2022 at 12:16 am
To: yaakov beckerman <beckermanyaakov@gmail.com>

Sorry, https://meet.google.com/khz-zhdb-cam one.

thanks,
Karan
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