

ITIM

PRACTICAL - 10

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Tasks :

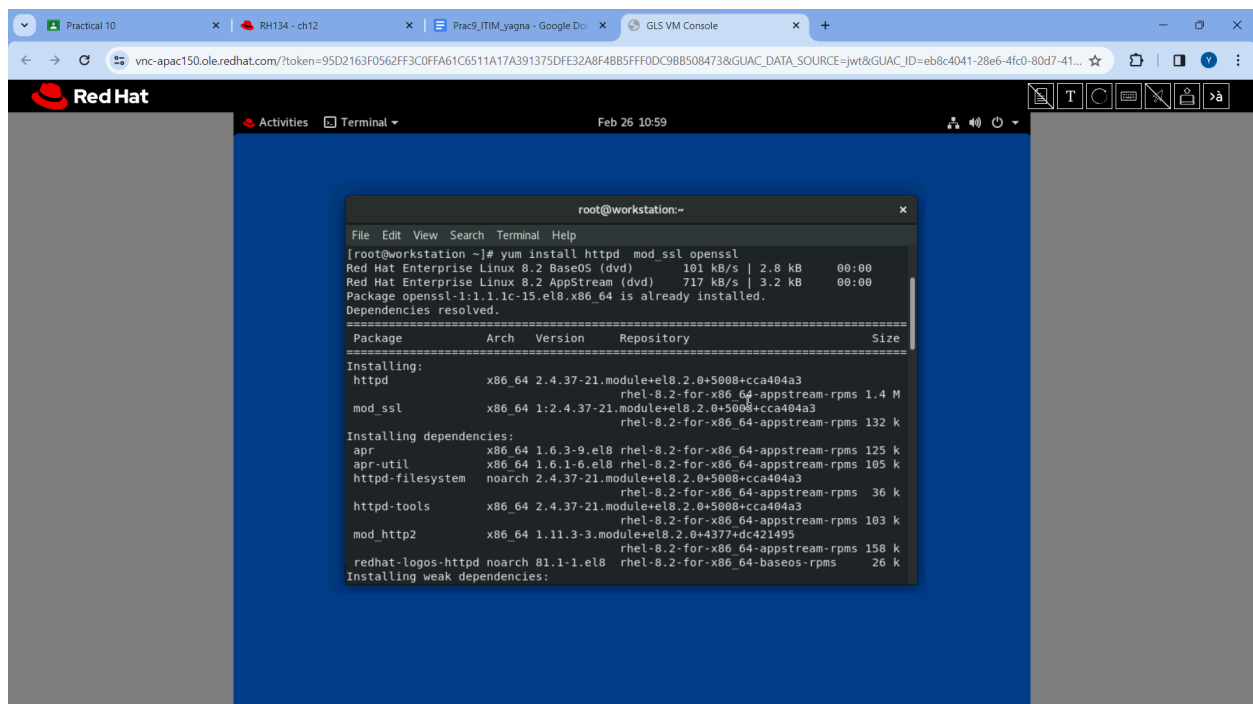
Suppose you have a hosted a site as -yourname.com, initially it was accessible on http only, but you want it to be accessible on 443 and

for that you don't want to use any additional CA to be involved as the site will be accessed only by your company users. So how you are going to implement the same? Explain the same using proper screenshot.

Steps :

Firstly, we will make a directory and make website page using httpd service . Install httpd,mod_ssl and openssl using

yum install httpd mod_ssl openssl



```
root@workstation:~# yum install httpd mod_ssl openssl
Red Hat Enterprise Linux 8.2 BaseOS (dvd) 101 kB/s | 2.8 kB 00:00
Red Hat Enterprise Linux 8.2 AppStream (dvd) 717 kB/s | 3.2 kB 00:00
Package openssl-1:1.1.1c-15.el8.x86_64 is already installed.
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
httpd x86_64 2.4.37-21.module+el8.2.0+5008+cca404a3 rhel-8.2-for-x86_64-appstream-rpms 1.4 M
mod_ssl x86_64 1:2.4.37-21.module+el8.2.0+5008+cca404a3 rhel-8.2-for-x86_64-appstream-rpms 132 k
Installing dependencies:
apr x86_64 1.6.3-9.el8 rhel-8.2-for-x86_64-appstream-rpms 125 k
apr-util x86_64 1.6.1-6.el8 rhel-8.2-for-x86_64-appstream-rpms 105 k
httpdfilesystem noarch 2.4.37-21.module+el8.2.0+5008+cca404a3 rhel-8.2-for-x86_64-appstream-rpms 36 k
httpd-tools x86_64 2.4.37-21.module+el8.2.0+5008+cca404a3 rhel-8.2-for-x86_64-appstream-rpms 103 k
mod_http2 x86_64 1.11.3-3.module+el8.2.0+4377+dc421495 rhel-8.2-for-x86_64-appstream-rpms 158 k
redhat-logos-httpd noarch 81.1-1.el8 rhel-8.2-for-x86_64-baseos-rpms 26 k
Installing weak dependencies:
```

Make a dir in html folder of httpd. And a index.html inside it with some text

```
Complete!
[root@workstation ~]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@workstation ~]# mkdir /var/www/html/prac10_yagna
[root@workstation ~]# ls /var/www
cgi-bin  html
[root@workstation ~]# echo "prac10 yagna" > /var/www/html/prac10_yagna/index.htm
l
[root@workstation ~]# cat /var/www/html/prac10_yagna/index.html
prac10 yagna
[root@workstation ~]#
```

Open httpd configuration file using `vim /etc/httpd/conf/httpd.conf` and write `NameVirtualHost 172.25.250.9` //ip can be taken from using ifconfig in terminal

Add the `<VirtualHost ip>` tag and add `DocumentRoot root_dir`, `Servername yagna.com` //domain on which you want to access the root_dir

```
root@workstation:~
File Edit View Search Terminal Help
# broken on your system.
# Defaults if commented: EnableMMAP On, EnableSendfile Off
#
#EnableMMAP off
EnableSendfile on

# Supplemental configuration
#
# Load config files in the "/etc/httpd/conf.d" directory, if any.
IncludeOptional conf.d/*.conf

NameVirtualHost 172.25.250.9
<VirtualHost 172.25.250.9>
    DocumentRoot /var/www/html/prac10_yagna
    ServerName yagna.com
</VirtualHost>
~
~
~
~
~
-- INSERT -- 361,22-29 Bot
```

Added the ip and domain in `/etc/hosts` and restart the httpd service

```
[root@workstation ~]# cat /var/www/html/prac10_yagna/index.html
prac10 yagna
[root@workstation ~]# vim /etc/httpd/conf/httpd.conf
[root@workstation ~]# vim /etc/hosts
[root@workstation ~]# vim /etc/hosts
[root@workstation ~]# cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1        localhost localhost.localdomain localhost6 localhost6.localdomain6

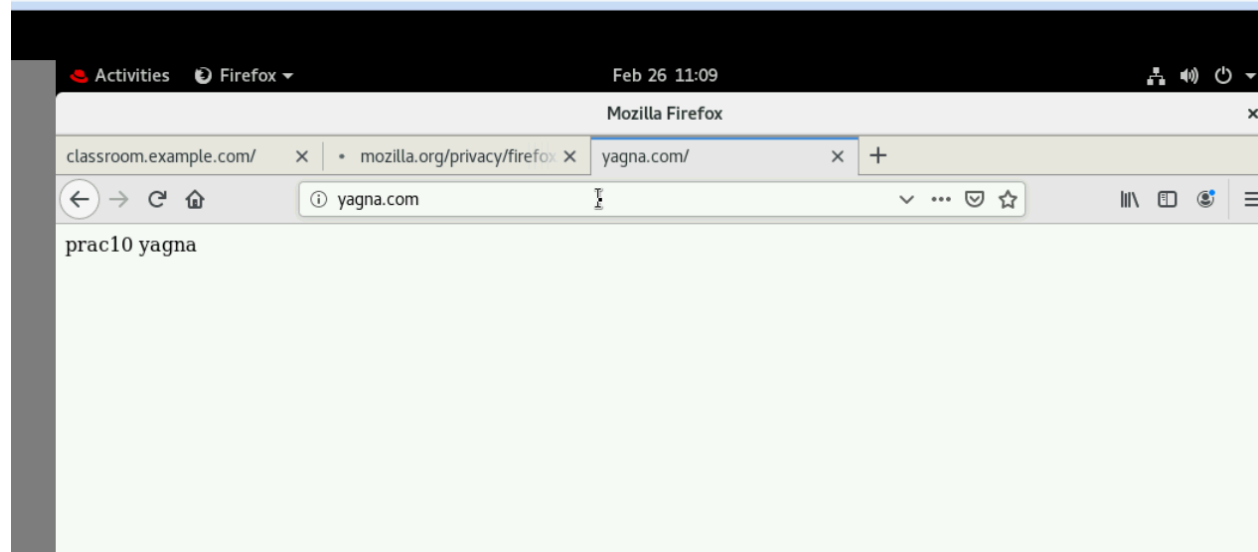
172.25.254.254 classroom.example.com classroom
172.25.254.254 content.example.com content
172.25.254.254 materials.example.com materials
### rht-vm-hosts file listing the entries to be appended to /etc/hosts
172.25.250.9  yagna.com
172.25.250.9  workstation.lab.example.com workstation
172.25.250.10 servera.lab.example.com servera
172.25.250.11 serverb.lab.example.com serverb
172.25.250.254 bastion.lab.example.com bastion
172.25.250.220 utility.lab.example.com utility
172.25.250.220 registry.lab.example.com registry

[root@workstation ~]# service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[root@workstation ~]#
```

root@workstation:~

Now we can access the url

ple.redhat.com/?token=95D2163F0562FF3C0FFA61C6511A17A391375DFE32A8F4BB5FFF0DC9BB508473&GUAC_DATA_SOURCE=jwt&GUAC_ID=eb8c4041-28e6-4fc



For certificate and key generation, we need to install two services: mod_ssl and openssl (already did before).

For ssl certificate and key here is the command for that :

```
Openssl req -x509 -nodes -newkey rsa:2048 -keyout  
/var/www/html/prac10_yagna/yagna.key -out  
/var/www/html/prac10_yagna/yagna.crt
```

Here in this command

-x509 is is a digital certificate that uses the widely accepted international X.

-newkey for generate newkey

Rsa:2048 here rsa is an type of cryptosystem an 2048 is key size


-keyout path is for generate key in given path

-out path is for generate certificate in given path

```
root@workstation:~
File Edit View Search Terminal Help
[root@workstation ~]# openssl req -x509 -nodes -newkey rsa:2048 -keyout /var/www/html/prac10_yagna/yagna.key -out /var/www/html/prac10_yagna/yagna.crt
Generating a RSA private key
.....+++++
.....+++++
writing new private key to '/var/www/html/prac10_yagna/yagna.key'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [XX]:IN
State or Province Name (full name) []:Guj
Locality Name (eg, city) [Default City]:AHM
Organization Name (eg, company) [Default Company Ltd]:YGN
Organizational Unit Name (eg, section) []:YGN
Common Name (eg, your name or your server's hostname) []:yagna
Email Address []:yagnahpatel21@gnu.ac.in
[root@workstation ~]#
```

We can see generated certificate and key via command : `cat yagna.crt`

```
[root@workstation ~]# cat /var/www/html/prac10_yagna/yagna.crt
-----BEGIN CERTIFICATE-----
MIID2zCCAs0gAwIBAgIUQHvN1G9u5A5YgZHeluHtZmVZ1sEwDQYJKoZIhvcNAQEL
BQAwfTElMAkGA1UEBhMCSU4xDDAKBgNVBAsMA0dlajEMMAoGA1UEBwwDQUhNMQww
CgYDVQQKDANZR04xDDAKBgNVBAsMA1lHTjE0MAAwGA1UEAwwFeWFnbmExJjAkBgkq
hkiG9w0BCQEF3lhZ25haHBhdGVsMjFAZ251LmFjLmLuMB4XDTI0MDIyNjE2MTQ1
NVVoXDTI0MDMyNzE2MTQ1NVowfTElMAkGA1UEBhMCSU4xDDAKBgNVBAsMA1lHTjE0
MAoGA1UEBwwDQUhNMQwwCgYDVQQKDANZR04xDDAKBgNVBAsMA1lHTjE0MAAwGA1UE
AwwFeWFnbmExJjAkBgkqhkiG9w0BAQEFAA0CAQ8AMIIBCgKCAQEAYSmdyp7d3VLHnYwx0RBw
+J1JkPMwvsTdYw0Ui8TK8EIKrWbz5ukQNzWuZSNe82ji49Qf4n/D3LUDuhUzsUfZ
Mx+i3KtgtHhII0vsa2Su2l6km88PSdpkH4NW2ipX+3FMP6VFHqAtfQcaksfRaYaY
cwy0ux0HbaDT3MxiBXmUwM3P5m5FcyTe6JfGqX0+yItXyW7JyN4aZKTAAYuf/Fe
J3/BzDh/7NnDAv0DEuCCnNBnN9W3yH0GcTWI+eapVIliBFkT0I66UHVU9FUB9A6q
PswNQgtV9ZZR3VYRzIvdgV2unD+NF7nqj3twLhzYwjTZJJugqq5cM59MRrtm0Gpf
PQIDAQABo1MwUTAdBgNVHQ4EFgQU7zarRxU/tLwAjDEZ/Z3lynHVkEAwHwYDVR0j
BBgwFoAU7zarRxU/tLwAjDEZ/Z3lynHVkEAwDwYDVR0TAQH/BAUwAwEB/zANBgkq
hkiG9w0BAQsFAA0CAQEAYCvimgzghJ7Bj89wmlIybP4JQE2lejGRdfzakL7ay6y2
sC3NQnFq5bQK5iMzo3czN3r0iJ08GuFGF+m9xEdi78vBHde6UKBAsE10M3y3vxBM
4j2nMhd9bBpUU9UQDVZDQ6Tfw0IlwfrA1UF0Pc3W5FGI5Mhof6BweUyP/MIOjq99
0GZKU0b+lb7h5CdSs1d6IfXNA7zuKe+XhHQqeS07F20Hl9kKkMhZpcpbHji+2yPw
oFUKbpeNy6fTJ0/X8LUe4wJixHdeWmaYdBQmtADa7WMRc2gr+rDNJ3/VnxZD3VI7
Vh0DooJ0AyBR4fri9efgaTuMgMZ88roc38LP5IjsrA==
-----END CERTIFICATE-----
[root@workstation ~]#
```



Now we have to add some additional configuration in our https's configuration file like we have to add SSL certificateFile path , key path and

additionally we have to add override the line so our key and certificate in the

folder will override.

Added port 443 with ip

SSLEngine on //set to on

SSLCertificateFile /path/certificate //adding certificate

SSLCertificateKeyFile /path/key //adding key


```
# Load config files in the "/etc/httpd/conf.d" directory, if any.
IncludeOptional conf.d/*.conf

NameVirtualHost 172.25.250.9:443
<VirtualHost 172.25.250.9>
    DocumentRoot /var/www/html/prac10_yagna
    ServerName yagna.com

    SSLEngine on
    SSLCertificateFile /var/www/html/prac10_yagna/yagna.crt
    SSLCertificateKeyFile /var/www/html/prac10_yagna/yagna.key
    <Directory /var/www/html/yagna>
        AllowOverride All
    </Directory>
</VirtualHost>

"/etc/httpd/conf/httpd.conf" 369L, 12237C 365,44-51
```

NOTE : restart the service before trying to access the page

Now we can access yagna.com using <https://yagna.com>

