

Mail Server on CentOS 8

- OS : CentOS 8 server
- IP Address : 192.168.1.13
- Hostname: server1.crazytechgeek.info (Ensure the domain name is pointed to the server's IP)

Step 1) Update the system

The first step is to ensure that the system packages are up to date. To do so, update the system as follows:

```
# dnf update
```

Before proceeding further, also ensure that no other MTAs such as Sendmail are existing as this will cause conflict with Postfix configuration. To remove Sendmail, for example, run the command:

```
# dnf remove sendmail
```

Step 2) Set Hostname and update /etc/hosts file

Use below hostnamectl command to set the hostname on your system,

```
# hostnamectl set-hostname server1.crazytechgeek.info
```

```
# exec bash
```

Additionally, you need to add the system's hostname and IP entries in the /etc/hosts file

```
# vim /etc/hosts
```

```
192.168.1.13    server1.crazytechgeek.info
```

Save and exit the file.

Step 3) Install Postfix Mail Server

After verifying that no other MTA is running on the system install Postfix by executing the command:

```
# dnf install postfix
```

```
[root@server1 ~]# dnf install postfix
Last metadata expiration check: 0:13:55 ago on Tue 12 Nov 2019 04:06:23 PM GMT.
Dependencies resolved.
=====
Package                        Arch      Version      Repository      Size
=====
Installing:
postfix                        x86_64    2:3.3.1-8.el8    BaseOS          1.5 M
=====
Transaction Summary
=====
Install 1 Package

Total download size: 1.5 M
Installed size: 4.4 M
Is this ok [y/N]:
```

www.linuxtechi.com

Step 4) Start and enable Postfix Service

Upon successful installation of Postfix, start and enable Postfix service by running:

```
# systemctl start postfix
```

```
# systemctl enable postfix
```

To check Postfix status, run the following systemctl command

```
# systemctl status postfix
```

```
[root@server1 ~]# systemctl status postfix
● postfix.service - Postfix Mail Transport Agent
   Loaded: loaded (/usr/lib/systemd/system/postfix.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2019-11-12 16:24:18 GMT; 1min 41s ago
 Main PID: 11335 (master)
    Tasks: 3 (limit: 11523)
   Memory: 6.0M
    CGroup: /system.slice/postfix.service
            └─11335 /usr/libexec/postfix/master -w
               └─11336 pickup -l -t unix -u
                  └─11337 qmgr -l -t unix -u

Nov 12 16:24:17 server1.crazytechgeek.info systemd[1]: Starting Postfix Mail Transport Agent...
Nov 12 16:24:18 server1.crazytechgeek.info postfix/master[11335]: daemon started -- version 3.3.1, configuration /etc/postfix
Nov 12 16:24:18 server1.crazytechgeek.info systemd[1]: Started Postfix Mail Transport Agent.
[root@server1 ~]#
```

Great, we have verified that Postfix is up and running. Next, we are going to configure Postfix to send emails locally to our server.

Step 5) Install mailx email client

Before configuring the Postfix server, we need to install mailx feature, To install mailx, run the command:

```
# dnf install mailx
```

```
[root@server1 ~]# dnf install mailx
Last metadata expiration check: 0:22:36 ago on Tue 12 Nov 2019 04:06:23 PM GMT.
Dependencies resolved.
=====
Package                Arch          Version           Repository        Size
=====
Installing:
mailx                  x86_64        12.5-29.el8       BaseOS            257 k
Transaction Summary
=====
Install 1 Package

Total download size: 257 k
Installed size: 491 k
Is this ok [y/N]: y
```

Step 6) Configure Postfix Mail Server

Postfix's configuration file is located in /etc/postfix/main.cf. We need to make a few changes in the configuration file, so open it using your favorite text editor.

```
# vi /etc/postfix/main.cf
```

Make changes to the following lines:

```
myhostname = server1.crazytechgeek.info
mydomain = crazytechgeek.info
myorigin = $mydomain
## Uncomment and Set inet_interfaces to all ##
inet_interfaces = all
## Change to all ##
inet_protocols = all
## Comment ##
#mydestination = $myhostname, localhost.$mydomain, localhost
##- Uncomment ##
mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain
## Uncomment and add IP range ##
mynetworks = 192.168.1.0/24, 127.0.0.0/8
## Uncomment ##

home_mailbox = Maildir/
```

Once done, save and exit the configuration file. Restart postfix service for the changes to take effect

```
# systemctl restart postfix
```

Step 7) Testing Postfix Mail Server

Test whether our configuration is working, first, create a test user

```
# useradd postfixuser
# passwd postfixuser
```

Next, run the command below to send email from pkumar local user to another user 'postfixuser'

```
# telnet localhost smtp
or
# telnet localhost 25
```

If telnet service is not installed, you can install it using the command:

```
# dnf install telnet -y
```

When you run the command as earlier indicated, you should get the output as shown

```
[root@server1 ~]# telnet localhost 25
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.

220 server1.crazytechgeek.info ESMTP Postfix
```

Above confirm that connectivity to postfix mail server is working fine. Next, type the command:

```
# ehlo localhost
```

Output will be something like this

```
250-server1.crazytechgeek.info
250-PIPELINING
250-SIZE 10240000
250-VERFY
250-ETRN
250-STARTTLS
250-ENHANCEDSTATUSCODES
250-8BITMIME
250-DSN

250 SMTPUTF8
```

Next, run the commands highlighted in orange, like “mail from”, “rcpt to”, data and then finally type quit,

```
mail from:<pkumar>
```

```
250 2.1.0 Ok
rcpt to:<postfixuser>
250 2.1.5 Ok
data
354 End data with <CR><LF>.<CR><LF>
Hello, Welcome to my mailserver (Postfix)
.
250 2.0.0 Ok: queued as B56BF1189BEC
quit
221 2.0.0 Bye

Connection closed by foreign host
```

Complete telnet command to send email from local user “pkumar” to another local user “postfixuser” would be something like below

```
[root@server1 ~]# telnet localhost 25
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
220 server1.crazytechgeek.info ESMTP Postfix
ehlo localhost
250-server1.crazytechgeek.info
250-PIPELINING
250-SIZE 10240000
250-VERFY
250-ETRN
250-STARTTLS
250-ENHANCEDSTATUSCODES
250-8BITMIME
250-DSN
250 SMTPUTF8
mail from:<pkumar>
250 2.1.0 Ok
rcpt to:<postfixuser>
250 2.1.5 Ok
data
354 End data with <CR><LF>.<CR><LF>
Hello, Welcome to my mailserver (Postfix)
.
250 2.0.0 Ok: queued as B56BF1189BEC
quit
221 2.0.0 Bye
Connection closed by foreign host.
[root@server1 ~]#
```

www.linuxtechi.com

If everything went according to plan, you should be able to view the email sent at the new user's home directory.

```
# ls /home/postfixuser/Maildir/new
1573580091.Vfd02I20050b8M635437.server1.crazytechgeek.info
```

```
#
```

To read the email, simply use the cat command as follows:

```
# cat /home/postfixuser/Maildir/new/1573580091.Vfd02I20050b8M635437.server1.crazytechgeek.info
```

```
[root@server1 ~]# cat /home/postfixuser/Maildir/new/1573580091.Vfd02I20050b8M635437.server1.crazytechgeek.info
Return-Path: <pkumar@crazytechgeek.info>
X-Original-To: postfixuser
Delivered-To: postfixuser@crazytechgeek.info
Received: from localhost (localhost [127.0.0.1])
    by server1.crazytechgeek.info (Postfix) with ESMTP id B56BF1189BEC
    for <postfixuser>; Tue, 12 Nov 2019 17:34:15 +0000 (GMT)
Message-Id: <20191112173427.B56BF1189BEC@server1.crazytechgeek.info>
Date: Tue, 12 Nov 2019 17:34:15 +0000 (GMT)
From: pkumar@crazytechgeek.info

Hello, Welcome to my mailserver (Postfix)
[root@server1 ~]#
```

www.linuxtechi.com

Postfix mail server logs

Postfix mail server mail logs are stored in the file “/var/log/maillog“, use below command to view the live logs,

```
# tail -f /var/log/maillog
```

```
[root@server1 ~]# tail -f /var/log/maillog
Nov 12 17:33:19 linuxtechi postfix/smtpd[12756]: connect from localhost[127.0.0.1]
Nov 12 17:33:52 linuxtechi postfix/smtpd[12756]: lost connection after EHLO from localhost[127.0.0.1]
Nov 12 17:33:52 linuxtechi postfix/smtpd[12756]: disconnect from localhost[127.0.0.1] ehlo=1 commands=1
Nov 12 17:33:55 linuxtechi postfix/smtpd[12756]: connect from localhost[127.0.0.1]
Nov 12 17:34:27 linuxtechi postfix/smtpd[12756]: B56BF1189BEC: client=localhost[127.0.0.1]
Nov 12 17:34:51 linuxtechi postfix/cleanup[12789]: B56BF1189BEC: message-id=<20191112173427.B56BF1189BEC@server1.crazytechgeek.info>
Nov 12 17:34:51 linuxtechi postfix/qmgr[12616]: B56BF1189BEC: from=<pkumar@crazytechgeek.info>, size=371, nrcpt=1 (queue active)
Nov 12 17:34:51 linuxtechi postfix/local[12790]: B56BF1189BEC: to=<postfixuser@crazytechgeek.info>, orig_to=<postfixuser>, relay=local, delay=36, delays=36/0.02/0/0, dsn=2.0.0, status=sent (delivered to maildir)
Nov 12 17:34:51 linuxtechi postfix/qmgr[12616]: B56BF1189BEC: removed
Nov 12 17:34:54 linuxtechi postfix/smtpd[12756]: disconnect from localhost[127.0.0.1] ehlo=1 mail=1 rcpt=1 data=1 quit=1 commands=5
```

Securing Postfix Mail Server

It is always recommended secure the communication of between clients and postfix server, this can be achieved using SSL certificates, these certificates can be either from trusted authority or Self Signed Certificates. In this tutorial we will generate Self Signed certificated for postfix using openssl command,

I am assuming openssl is already installed on your system, in case it is not installed then use following dnf command,

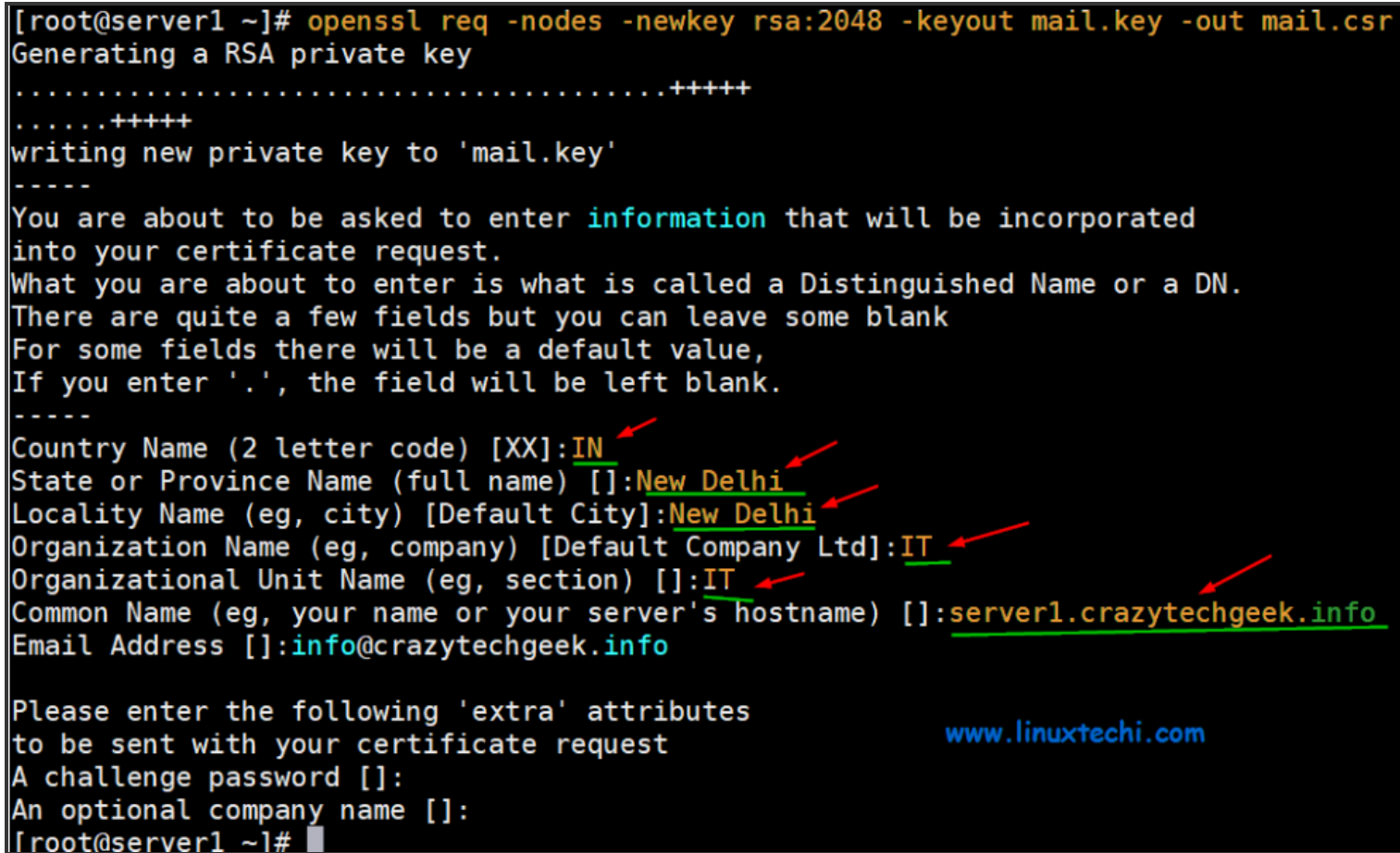
```
# dnf install openssl -y
```

Generate Private key and CSR (Certificate Signing Request) using beneath openssl command,

```
# openssl req -nodes -newkey rsa:2048 -keyout mail.key -out mail.csr
```

```
[root@server1 ~]# openssl req -nodes -newkey rsa:2048 -keyout mail.key -out mail.csr
Generating a RSA private key
.....+++++
.....+++++
writing new private key to 'mail.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) []:New Delhi
Locality Name (eg, city) [Default City]:New Delhi
Organization Name (eg, company) [Default Company Ltd]:IT
Organizational Unit Name (eg, section) []:IT
Common Name (eg, your name or your server's hostname) []:server1.crazytechgeek.info
Email Address []:info@crazytechgeek.info

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:
An optional company name []:
[root@server1 ~]#
```



Now Generate Self signed certificate using following openssl command,

```
# openssl x509 -req -days 365 -in mail.csr -signkey mail.key -out mail.crt
Signature ok
subject=C = IN, ST = New Delhi, L = New Delhi, O = IT, OU = IT, CN = server1.crazytechgeek.info, emailAddress = info@crazytechgeek.info
Getting Private key

#
```

Now copy private key and certificate file to /etc/postfix directory

```
# cp mail.key mail.crt /etc/postfix
```

Update Private key and Certificate file's path in postfix configuration file,

```
# vi /etc/postfix/main.cf
.....
smtpd_use_tls = yes
smtpd_tls_cert_file = /etc/postfix/mail.crt
smtpd_tls_key_file = /etc/postfix/mail.key
smtpd_tls_security_level = may
.....
```

Restart postfix service to make above changes into the effect.

```
# systemctl restart postfix
```

Let's try to send email to internal local domain and external domain using mailx client.

Sending local internal email from pkumar user to postfixuser

```
# echo "test email" | mailx -s "Test email from Postfix MailServer" -r pkumar@crazytechgeek.info postfixuser@crazytechgeek.info
```

Check and read the email using the following,

```
# cd /home/postfixuser/Maildir/new/
# ll
total 8
-rw-----. 1 postfixuser postfixuser 476 Nov 12 17:34 1573580091.Vfd02I20050b8M635437.server1.crazytechgeek.info
-rw-----. 1 postfixuser postfixuser 612 Nov 13 02:40 1573612845.Vfd02I20050bbM466643.server1.crazytechgeek.info

# cat 1573612845.Vfd02I20050bbM466643.server1.crazytechgeek.info
```

```

[root@server1 ~]# cd /home/postfixuser/Maildir/new/
[root@server1 new]# ll
total 8
-rw----- 1 postfixuser postfixuser 476 Nov 12 17:34 1573580091.Vfd02I20050b8M635437.server1.crazytechgeek.info
-rw----- 1 postfixuser postfixuser 612 Nov 13 02:40 1573612845.Vfd02I20050bbM466643.server1.crazytechgeek.info
[root@server1 new]# cat 1573612845.Vfd02I20050bbM466643.server1.crazytechgeek.info
Return-Path: <pkumar@crazytechgeek.info>
X-Original-To: postfixuser@crazytechgeek.info
Delivered-To: postfixuser@crazytechgeek.info
Received: by server1.crazytechgeek.info (Postfix, from userid 0)
        id 664CA1189BED; Wed, 13 Nov 2019 02:40:45 +0000 (GMT)
Date: Wed, 13 Nov 2019 02:40:45 +0000
From: pkumar@crazytechgeek.info
To: postfixuser@crazytechgeek.info
Subject: Test email from Postfix MailServer
Message-ID: <5dcb6d2d.dnjNC4IqTQ0nRNAG%pkumar@crazytechgeek.info>
User-Agent: Heirloom mailx 12.5 7/5/10
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

test email
[root@server1 new]#

```

www.linuxtechi.com

Sending email from postfixuser to external domain (info@linuxtechi.com)

```
# echo "External Test email" | mailx -s "Postfix MailServer" -r pkumar@crazytechgeek.info info@linuxtechi.com
```

Note: If Your IP is not blacklisted anywhere then your email to external domain will be delivered otherwise it will be bounced saying that IP is blacklisted in so and so spamhaus database.

Check Postfix mail queue

Use mailq command to list mails which are in queue.

```
# mailq
Mail queue is empty

#
```

And that's it! Our Postfix configuration is working! That's all for now. We hope you found this tutorial insightful and that you can comfortably set up your local Postfix server.

-----SPAM-----

Spam With Spamassassin on Centos 8 & Postfix

Spam is very disturbing if mail server is not equipped with anti spam, especially if you have your own mail server, you need to protect your mail from spam. If you use email from famous email service like gmail, hotmail, aol, protonmail, etc. It has anti spam built in and you should not worry about that.

If you maintain your own server like you want to your company using email with company domain name or you have application that notifying user with email we need to setup our email server certainly with antispam like spamassassin.

In this article i will show you how to install spamassassin and configure it on Linux Centos 8 & postfix.

Here is my OS and application information on my mail server :

- Operating System: CentOS Linux 8 (Core)
- Kernel: Linux 4.18.0-147.5.1.el8_1.x86_64
- Architecture: x86-64
- Postfix 3.31

You can check your server info with this command bellow.

Operating System :

```
hostnamectl
```

Postfix :

```
postconf -d | grep mail_version
```

Spamassassin (if already installed) :

```
spamassassin -V
```

Install and Configure Spamassassin

```
sudo dnf update
```

```
sudo dnf install spamassassin
```

```
adit@mail:~
[adit@mail ~]$ sudo dnf install spamassassin
Last metadata expiration check: 0:01:28 ago on Sun 01 Mar 2020 06:05:57 AM UTC.
Dependencies resolved.

=====
Package                                Architecture      Version            Repository          Size
=====
Installing:
spamassassin                          x86_64             3.4.2-6.el8        AppStream            1.2 M
Installing dependencies:
perl-Algorithm-Diff                    noarch             1.1903-9.el8        AppStream            52 k
perl-Archive-Tar                       noarch             2.30-1.el8          AppStream            79 k
perl-Compress-Raw-Bzip2                 x86_64             2.081-1.el8         AppStream            40 k
perl-Compress-Raw-Zlib                  x86_64             2.081-1.el8         AppStream            68 k
perl-Crypt-OpenSSL-Bignum               x86_64             0.09-5.el8          AppStream            46 k
perl-Crypt-OpenSSL-RSA                  x86_64             0.31-1.el8          AppStream            47 k
perl-Crypt-OpenSSL-Random                x86_64             0.15-3.el8          AppStream            31 k
perl-DB_File                            x86_64             1.842-1.el8         AppStream            83 k
perl-Data-Dump                          noarch             1.23-7.el8          AppStream            36 k
perl-Digest-HMAC                        noarch             1.03-17.el8         AppStream            20 k
perl-Digest-SHA                         x86_64             1:6.02-1.el8        AppStream            66 k
perl-Encode-Detect                      x86_64             1.01-28.el8         AppStream            90 k
perl-Encode-Locale                     noarch             1.05-9.el8          AppStream            21 k
perl-File-Listing                       noarch             6.04-17.el8         AppStream            18 k
perl-HTML-Parser                        x86_64             3.72-14.el8         AppStream            119 k
perl-HTML-Tagset                        noarch             3.20-33.el8         AppStream            24 k
perl-HTTP-Cookies                       noarch             6.04-2.el8          AppStream            39 k
perl-HTTP-Date                          noarch             6.02-18.el8         AppStream            19 k
perl-HTTP-Message                       noarch             6.18-1.el8          AppStream            100 k
perl-HTTP-Negotiate                     noarch             6.01-19.el8         AppStream            22 k
perl-IO-Compress                        noarch             2.081-1.el8         AppStream            258 k
perl-IO-HTML                            noarch             1.001-10.el8        AppStream            28 k
perl-IO-Socket-INET6                   noarch             2.72-12.el8         AppStream            33 k
perl-IO-Zlib                            noarch             1:1.10-416.el8      AppStream            80 k
perl-LWP-MediaTypes                     noarch             6.02-14.el8         AppStream            29 k
perl-Mail-DKIM                          noarch             0.54-1.el8          AppStream            162 k
perl-Mail-SPF                           noarch             2.9.0-15.el8        AppStream            153 k
perl-MailTools                          noarch             2.20-2.el8          AppStream            113 k
perl-NTLM                               noarch             1.09-17.el8         AppStream            24 k
perl-Net-DNS                            noarch             1.15-1.el8          AppStream            369 k
perl-Net-HTTP                           noarch             6.17-2.el8          AppStream            43 k
perl-Net-SMTP-SSL                       noarch             1.04-5.el8          AppStream            15 k
perl-NetAddr-IP                         x86_64             4.079-7.el8         AppStream            132 k
perl-Socket6                             x86_64             0.28-6.el8          AppStream            36 k
perl-Sys-Syslog                         x86_64             0.35-397.el8        AppStream            50 k
perl-Text-Diff                          noarch             1.45-2.el8          AppStream            45 k
perl-Time-HiRes                         x86_64             1.9758-1.el8        AppStream            61 k
perl-TimeDate                           noarch             1:2.30-13.el8       AppStream            53 k
perl-Try-Tiny                           noarch             0.30-2.el8          AppStream            44 k
perl-WWW-RobotRules                     noarch             6.02-18.el8         AppStream            22 k
perl-libwww-perl                        noarch             6.34-1.el8          AppStream            212 k
perl-version                            x86_64             6:0.99.24-1.el8     AppStream            67 k
perl-Math-BigInt                        noarch             1:1.9998.11-7.el8   BaseOS              196 k
perl-Math-Complex                       noarch             1.59-416.el8        BaseOS              108 k

Transaction Summary
=====
Install 45 Packages

Total download size: 4.5 M
Installed size: 11 M
Is this ok [y/N]:
```

Let's configure spamassassin, create or edit this file

```
sudo nano /etc/mail/spamassassin/local.cf
```

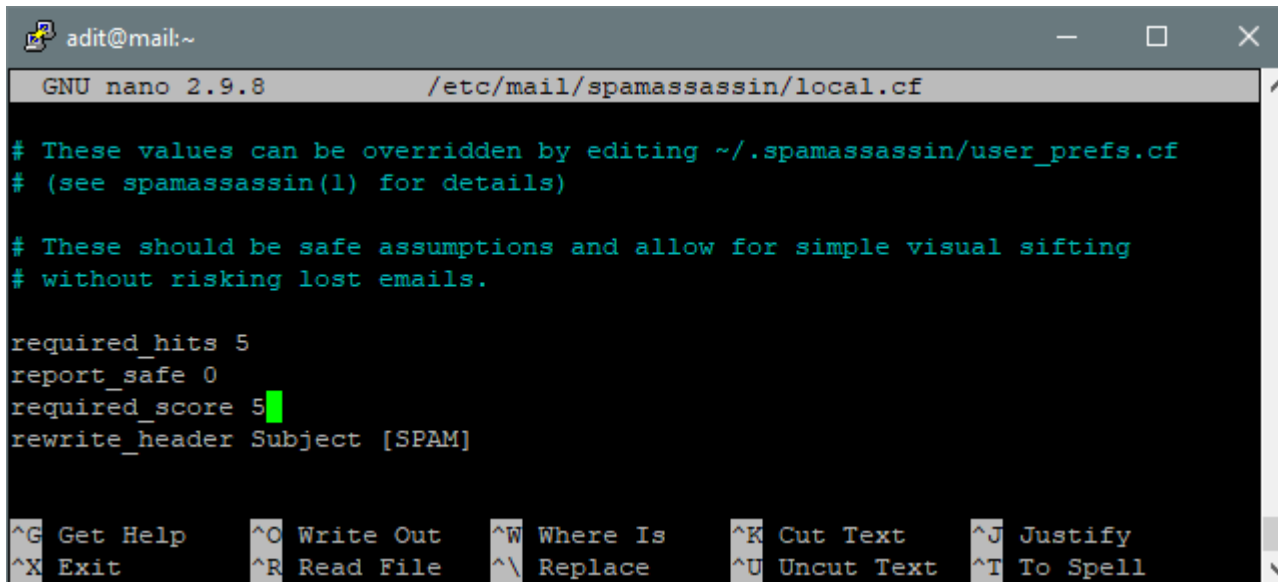
Uncomment or insert the following:

```
required_hits 5.0
```

```
report_safe 0
```

```
required_score 5
```

```
rewrite_header Subject [SPAM]
```



```
adit@mail:~
GNU nano 2.9.8 /etc/mail/spamassassin/local.cf

# These values can be overridden by editing ~/.spamassassin/user_prefs.cf
# (see spamassassin(1) for details)

# These should be safe assumptions and allow for simple visual sifting
# without risking lost emails.

required_hits 5
report_safe 0
required_score 5
rewrite_header Subject [SPAM]

^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell
```

Create new group and user to run spamassassin

```
sudo groupadd spamd
```

```
sudo useradd -g spamd -s /bin/false -d /var/log/spamassassin spamd
```

Change owner of spamassassin log file to user spamd

```
sudo chown spamd:spamd /var/log/spamassassin
```

Enable spamassassin service to run automaticly when server reboot

```
sudo systemctl enable spamassassin
```

Lets start spamassassin service

```
sudo systemctl start spamassassin
```

Then update spamassassin database with

```
sudo sa-update
```

Configure Postfix to Work with Spamassassin

Open postfix master config

```
sudo nano /etc/postfix/master.cf
```

Add filter spamassassin on smtp/smtpd on the top of config file

```
smtp      inet  n       -       n       -       -       smtpd -o content_filter=spamassassin
```

And add this line at the end of line of config file

```
spamassassin unix  - n n - - pipe flags=R user=spamd argv=/usr/bin/spamc -e /usr/sbin/sendmail -oi -f  
${sender} ${recipient}
```

Restart postfix service

```
sudo service postfix restart
```

Test Spam Detection

We will test by sending email to this mail server with this content message of body :

```
XJS*C4JDBQADN1.NSBN3*2IDNEN*GTUBE-STANDARD-ANTI-UBE-TEST-EMAIL*C.34X
```

If spamassassin work well this email will receive in yor inbox with [spam] marked on the subject email

[SPAM] test mail with bad



From [Aditya Y Pradhana](#) on 2020-03-01 22:42

 [Details](#)  [Plain text](#)

```
XJS*C4JDBQADN1.NSBN3*2IDNEN*GTUBE-STANDARD-ANTI-UBE-TEST-EMAIL*C.34X
```

Also you can check your log file

```
journalctl | grep spam
```

Automate Update Spamassassin Database

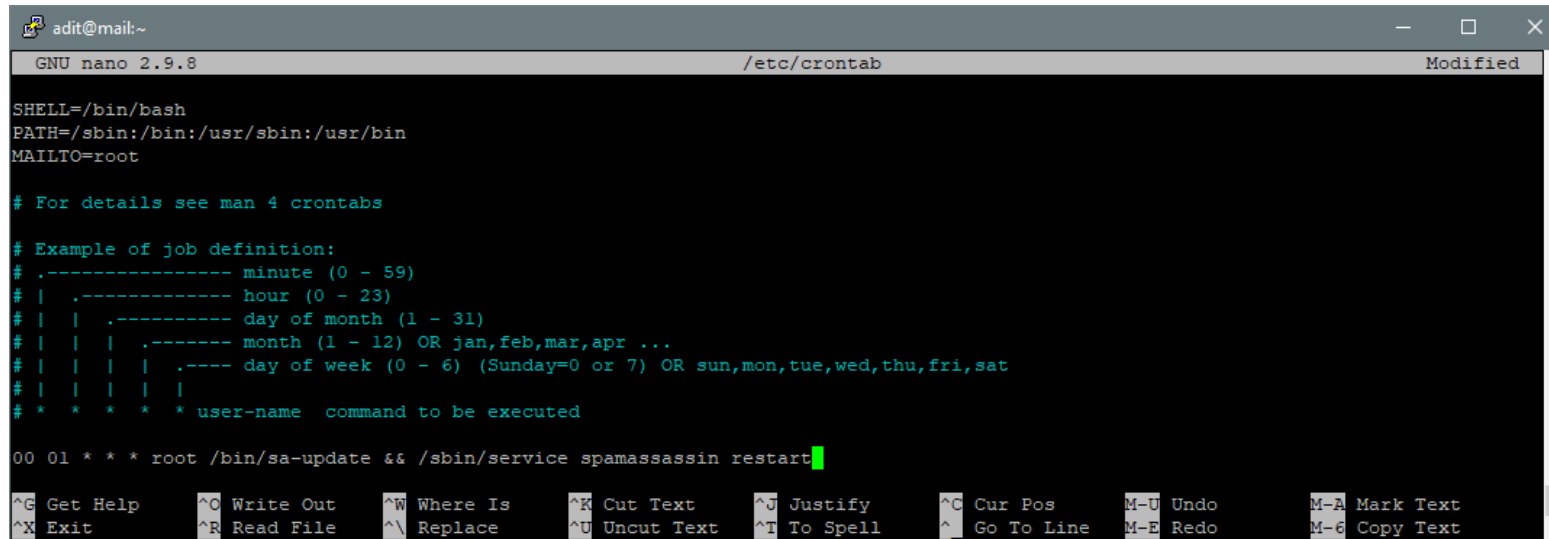
We can running spamassassin update database sa-update automaticly with crond service. We will set it to run automatic every night at 01.00

Open and edit file

```
sudo nano /etc/crontab
```

Add this cronjob

```
00 01 * * * root /bin/sa-update && /sbin/service spamassassin restart
```



```
adit@mail:~
GNU nano 2.9.8 /etc/crontab Modified
SHELL=/bin/bash
PATH=/sbin:/bin:/usr/sbin:/usr/bin
MAILTO=root

# For details see man 4 crontabs

# Example of job definition:
# .----- minute (0 - 59)
# | .----- hour (0 - 23)
# | | .----- day of month (1 - 31)
# | | | .----- month (1 - 12) OR jan,feb,mar,apr ...
# | | | | .---- day of week (0 - 6) (Sunday=0 or 7) OR sun,mon,tue,wed,thu,fri,sat
# | | | | |
# * * * * * user-name  command to be executed

00 01 * * * root /bin/sa-update && /sbin/service spamassassin restart
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos   M-U Undo     M-A Mark Text
^X Exit      ^R Read File  ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line M-E Redo     M-6 Copy Text
```

Restart crond service with

```
sudo service crond restart
```