HOW TO IMPLEMENT RAINLOOP WEBMAIL ON UBUNTU
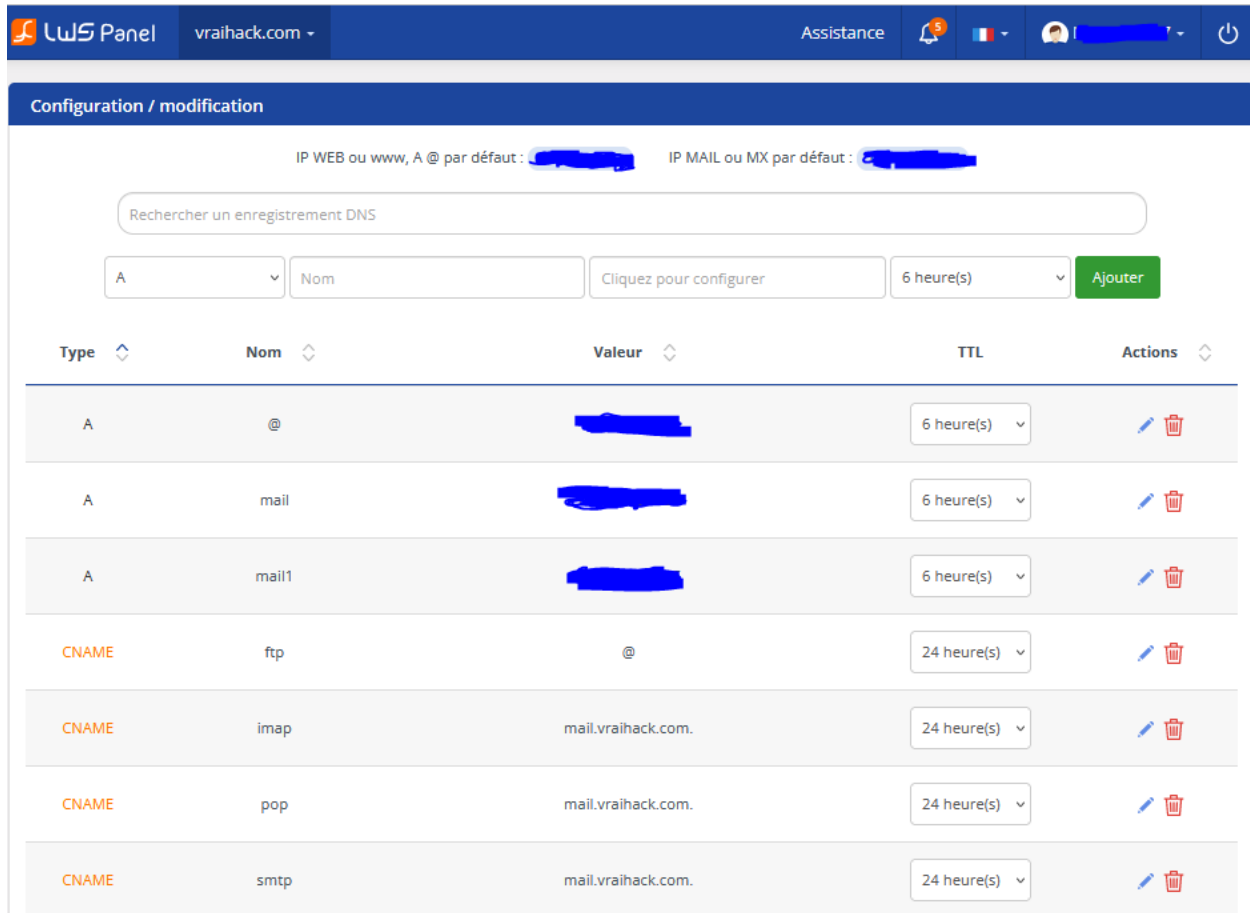
STEP 1: BUY A DOMAIN NAME

⇨ **In my case I buy it a domain with the name "vraihack.com" from LWS Panel**

⇨ **Please note that LWS Panel they already support webmail (rainloop) but in our case we need to build our own rainloop webmail server for our internal network on Ubuntu localhost as a server**
⇨ **Also note I am using an Ubuntu normal user machine not an Ubuntu server OS because the way to implement have a little of change in case of Ubuntu server!**

STEP 2: INSTALL SQL DATABASE (mariadb server)

root@mail:~# apt install mariadb-server

STEP 3: CHANGE DEFAULT PASSOWRD OF MARIADB

root@mail:~# mysql -u root
MariaDB [(none)]> show databases;
MariaDB [(none)]> use mysql;
MariaDB [mysql]> select Host, User, Password from user;
MariaDB [mysql]> UPDATE mysql.user SET password=PASSWORD("password") where User="root" AND Host="localhost";
MariaDB [mysql]> select Host, User, Password, plugin from user;
MariaDB [mysql]> update user set plugin='' where User='root'

- **Note: if the first method not working so to change the password of mariadb we can do that to:**

  ```
  ALTER USER 'root'@'localhost' IDENTIFIED BY 'NewPassword';
  flush privileges;
  exit;
  ```

STEP 4: CREATE DATABASE SQL (messagerie)

```
root@mail:~# mysql -u root –p
MariaDB [(none)]> create database messagerie;
MariaDB [(none)]> GRANT ALL PRIVILEGES ON messagerie.* to 'messagerieAdmin'@'localhost' identified by 'osboxes';
MariaDB [(none)]> flush privileges;
```

STEP 5: CREATE USERS DATABASE SQL (virtual_domains + virtual_users)

```
root@mail : ~# mysql -u messagerieAdmin -p
root@mail:/etc/postfix# mysql -u messagerieAdmin -p < database_messagerie.sql
root@mail:/etc/postfix# mysql -u messagerieAdmin -p < users_messagerie.sql
```

=> database_messagerie.sql

```
use messagerie;
CREATE TABLE `virtual_domains` (
`domain_id` INT NOT NULL AUTO_INCREMENT,
`name` VARCHAR(50) NOT NULL,
PRIMARY KEY (`domain_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

CREATE TABLE `virtual_users` (
`id` INT NOT NULL AUTO_INCREMENT,
`domain_id` INT NOT NULL,
`password` VARCHAR(106) NOT NULL,
`email` VARCHAR(120) NOT NULL,
`maildir` VARCHAR(120) NOT NULL,
PRIMARY KEY (`id`),
UNIQUE KEY `email` (`email`),
FOREIGN KEY (domain_id) REFERENCES virtual_domains(domain_id) ON DELETE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

=> users_messagerie.sql

```
INSERT INTO `messagerie`.`virtual_domains`
(`domain_id`,`name`)
VALUES
('5', 'vraihack.com');
INSERT INTO `messagerie`.`virtual_users`
(`id`,`domain_id`,`password`,`email`,`maildir`)
VALUES
('5', '5', ENCRYPT('admin', CONCAT('$6$', SUBSTRING(SHA(RAND()), -16))), 'admin@vraihack.com', 'vraihack.com/admin/');
```

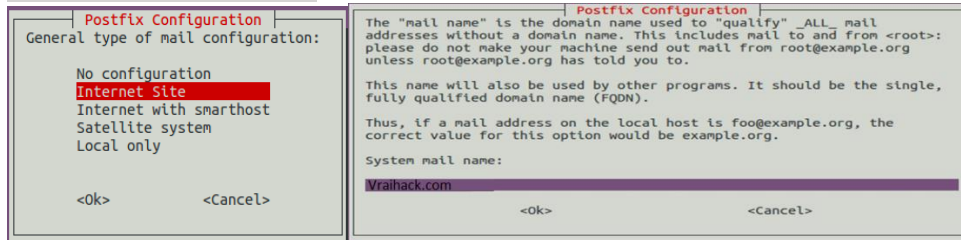## STEP 6: CREAT VIRTUAL HOST REPOSITRY FOR MAIL USERS (vhosts)

```
root@mail:/etc/postfix# groupadd -g 5000 vhosts
root@mail:/etc/postfix# useradd -g vhosts -u 5000 vhosts -d /var/mail/vhosts -s /bin/false –
```

STEP 7: INSTALL SMTP POSTFIX

root@mail:~# apt-get update
root@mail:~# apt-get install postfix

STEP 8: CONFIGURE POSTFIX (main.cf + mysql-virtual-mailbox-)

If these two files don't exist then creat them manualy whith this content:


```
GNU nano 5.4                                     mysql-virtual-mailbox-domains.cf
user = messagerieAdmin
password =
hosts = 127.0.0.1
dbname = messagerie
query = SELECT 1 FROM virtual_domains WHERE name='%s'
```

```
GNU nano 5.4                                       mysql-virtual-mailbox-maps.cf
user = messagerieAdmin
password =
hosts = 127.0.0.1
dbname = messagerie
query = SELECT maildir FROM virtual_users WHERE email='%s'
```

Main.cf: **root@mail**:/etc/postfix# cat main.cf

```
smtpd_banner = $myhostname ESMTP $mail_name (Ubuntu)
biff = no
append_dot_mydomain = no
readme_directory = no
compatibility_level = 2

# TLS parameters
smtpd_tls_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
smtpd_tls_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
smtpd_tls_security_level = may

smtp_tls_CApath=/etc/ssl/certs
smtp_tls_security_level = may
smtp_tls_session_cache_database = btree:${data_directory}/smtp_scache

smtpd_relay_restrictions = permit_mynetworks permit_sasl_authenticated defer_unauth_destination
myhostname = mail.vraihack.com
alias_maps = hash:/etc/aliases
alias_database = hash:/etc/aliases
myorigin = /etc/mailname
mydestination = $myhostname, localhost.localdomain, localhost
relayhost =
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
mailbox_size_limit = 0
```

```
recipient_delimiter = +
inet_interfaces = all
inet_protocols = all
message_size_limit = 52428800

virtual_mailbox_domains = mysql:/etc/postfix/mysql-virtual-mailbox-domains.cf
virtual_mailbox_base = /var/mail/vhosts
virtual_mailbox_maps = mysql:/etc/postfix/mysql-virtual-mailbox-maps.cf
virtual_minimum_uid = 100
virtual_uid_maps = static:5000
virtual_gid_maps = static:5000
virtual_mailbox_limit = 102400000

#Setting up SMTP authentication
smtpd_sasl_type = dovecot
smtpd_sasl_path = private/auth
smtpd_sasl_local_domain =
smtpd_sasl_security_options = noanonymous
broken_sasl_auth_clients = yes
smtpd_sasl_auth_enable = yes
smtpd_recipient_restrictions =
permit_sasl_authenticated,permit_mynetworks,reject_unauth_destination,reject_invalid_hostname,reject_non_fqdn_hostname,reject_no
n_fqdn_sender,reject_non_fqdn_recipient,reject_unknown_sender_domain,reject_rbl_client sbl.spamhaus.org,reject_rbl_client
cbl.abuseat.org,check_policy_service unix:private/policyd-spf
smtp_tls_note_starttls_offer = yes
smtpd_tls_loglevel = 1
smtpd_tls_received_header = yes
smtpd_helo_required = yes

smtpd_helo_restrictions = reject_non_fqdn_helo_hostname,reject_invalid_helo_hostname,reject_unknown_helo_hostname
disable_vrfy_command = yes

# Milter configuration
milter_default_action = accept
milter_protocol = 6
smtpd_milters = local:opendkim/opendkim.sock
non_smtpd_milters = $smtpd_milters
```

STEP 9: ALLOW POSTFIX TO SPEAK THE SQL LANGUAGE (postfix-mysql package)

root@mail:/etc/postfix# apt-get install postfix-mysql
root@mail:/etc/postfix# systemctl restart postfix

root@ mail:/etc/postfix# postmap -q vraihack.com mysql:/etc/postfix/mysql-virtual-mailbox-domains.cf
1

root@ mail:/etc/postfix# postmap -q admin@vraihack.com mysql:/etc/postfix/mysql-virtual-mailbox-maps.cf
Vraihack.com/admin/

STEP 10: FIRST MAIL TEST (email to internal user)

root@mail:/etc/postfix# telnet localhost 25
mail from: toto@toto.com
rcpt to: user4@vraihack.com
data
Subject: Hello user4
I am trying to send an email to internal user like you, I hope you received my msg
Quit

STEP 11: SECOND MAIL TEST (email to external user)

root@mail:/etc/postfix# telnet localhost 25
mail from: user4@vraihack.com
rcpt to: toto@gmail.com
data
Subject: Hello toto
I am trying to send an email to external user like you, I hope you received my msg
Quit

Note : for security reason maybe your domain mail will be blocked by (spamhaus)
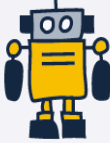Check the log : tail –f /var/log/mail.log where we can found in log a URL link spamhaus to unblock our domain from sending/receive external email
Solution:
▪ Visit this page : https://check.spamhaus.org/?__cf_chl_tk=FGyTPiCS4eE9D6MHEk3RX3B2UE8TzncFmz_qPFJC8Xs-1643159933-0-gaNycGzNCX0
- Or directly the link will be present in the your log file tail –f /var/log/mail.log
- Then follow the instruction in that page (please use a valid email add related to your domain)

Note: The Email should be a valid email related to your domain name

- For that reason we need to create a valid email address from your DNS provider like this in my case:

- Connect with the new user

- Check if you received an email confirmation

STEP 12: CHECK LOGS & RECEIVED EMAIL

root@ mail:~# cat /var/mail/vhosts/Vraihack/user4

root@ mail:/etc/postfix# tail /var/log/mail.info

Note : if the /var/log/mail.log and /var/mail/mail.info not exist, please create them:
touch /var/log/mail.log /var/log/mail.err
chown syslog:adm /var/log/mail.log /var/log/mail.err
service postfix reload

STEP 13: INSTALL && CONFIGURE IMAP (DOVECOT)

root@ mail:~# apt-cache search dovecot
root@ mail:~# apt-get install dovecot-core dovecot-imapd dovecot-mysql

```
root@mail:/etc/dovecot# ll
total 48
d--x--x---    4 vhosts dovecot   4096 Jan 26 03:02 ./
drwxr-xr-x 148 root    root     12288 Jan  3 04:04 ../
drwxr-x---    2 vhosts dovecot   4096 Jan 26 03:08 conf.d/
-rw-r——      1 vhosts dovecot   4401 Jun 16  2021 dovecot.conf
-rw-r——      1 vhosts dovecot   1507 Dec 22  2020 dovecot-dict-auth.conf.ext
-rw-r——      1 vhosts dovecot    852 Dec 22  2020 dovecot-dict-sql.conf.ext
-rw-r——      1 vhosts dovecot   5974 Dec 15 02:22 dovecot-sql.conf.ext
drwx———      2 vhosts dovecot   4096 Dec 14 19:36 private/
```

root@ mail:~# nano /etc/dovecot/conf.d/10-mail.conf

```
root@mail:/home/osboxes/Desktop# cat /etc/dovecot/conf.d/10-mail.conf
mail_location = maildir:/var/mail/vhosts/%d/%n
namespace inbox {
  inbox = yes
}

mail_privileged_group = mail
protocol !indexer-worker {}
}
```

root@ mail:~# nano /etc/dovecot/conf.d/10-auth.conf

```
disable_plaintext_auth = yes
auth_mechanisms = plain login
!include auth-sql.conf.ext
```

root@ mail:~# nano /etc/dovecot/conf.d/auth-sql.conf.ext

```
passdb {
  driver = sql
  args = /etc/dovecot/dovecot-sql.conf.ext
}
userdb {
  driver = static
  args = uid=vhosts gid=vhosts home=/var/mail/vhosts/%d/%n
}
```

root@ mail:~# nano /etc/dovecot/dovecot-sql.conf.ext

```
driver = mysql
connect = host=127.0.0.1 dbname=messagerie user=messagerieAdmin password=tryhackme
default_pass_scheme = SHA512-CRYPT
password_query = SELECT email as user, password FROM virtual_users WHERE email='%u';
```

STEP 14: TEST DOVECOT FUNTIONALITY

root@ mail:~# systemctl restart dovecot
root@ mail:~# telnet localhost 143
                    . login admin@vraihack.com Password
                    . LIST "" *

STEP 14: INSTALL WEBSERVER (NGINX)

root@ mail:~# apt-get install nginx
root@mail:~# apt-get -y install php7.4-fpm

```
root@mail:/etc/nginx# ll
total 88
d--x--x--x  10 root root  4096 Jan  3 03:44 ./
drwxr-xr-x 148 root root 12288 Jan  3 04:04 ../
drwxr-xr-x   2 root root  4096 Dec 25 17:59 certificate/
drwxr-xr-x   2 root root  4096 Dec 25 00:31 conf.d/
-rw-r--r--   1 root root  1125 Aug 25  2020 fastcgi.conf
-rw-r--r--   1 root root  1055 Aug 25  2020 fastcgi_params
-rw-r--r--   1 root root  2837 Nov  6  2018 koi-utf
-rw-r--r--   1 root root  2223 Nov  6  2018 koi-win
-rw-r--r--   1 root root  3957 Nov  6  2018 mime.types
drwxr-xr-x   2 root root  4096 Dec 25 17:41 modsec/
drwxr-xr-x   2 root root  4096 May 25  2021 modules-available/
drwxr-xr-x   2 root root  4096 Dec 16 21:59 modules-enabled/
-rw-r--r--   1 root root  1497 Dec 25 17:26 nginx.conf
-rw-r--r--   1 root root   180 Nov  6  2018 proxy_params
-rw-r--r--   1 root root   636 Nov  6  2018 scgi_params
drwxr-xr-x   2 root root  4096 Jan  3 03:45 sites-available/
drwxr-xr-x   2 root root  4096 Dec 25 02:10 sites-enabled/
drwxr-xr-x   2 root root  4096 Dec 17 00:35 snippets/
-rw-r--r--   1 root root   664 Nov  6  2018 uwsgi_params
-rw-r--r--   1 root root  3071 Nov  6  2018 win-utf
```

We still have to check that it correctly interprets PHP, because the webmail that we want to install is coded in PHP. For this, we will already have to tell our server that it can take into account the index pages in PHP.
We'll just add index.php as the default page, and that's done in the default virtualhost /etc/nginx/sites-available/default on the line that starts with index:

```
root@mail:/etc/nginx/sites-available# ll
total 16
drwxr-xr-x  2 root root 4096 Jan  3 03:45 ./
d--x--x--x 10 root root 4096 Jan  3 03:44 ../
-rw-r--r--  1 root root 2721 Dec 25 18:12 default
-rw-r--r--  1 root root 1040 Dec 25 18:13 rainloop
```

root@ mail:~# ln -s /etc/nginx/sites-available/ /etc/nginx/sites-enabled/

root@ mail:~# nano /etc/nginx/sites-available/default

```
server {
    listen 80 default_server;
    listen [::]:80 default_server;
    server_name _;
    return 301 https://$host$request_uri;
}

server {
    modsecurity on;
    modsecurity_rules_file /etc/nginx/modsec/main.conf;
    listen 443 ssl default_server;
    listen [::]:443 ssl default_server;
    ssl_certificate /etc/nginx/certificate/nginx-certificate.crt;
    ssl_certificate_key /etc/nginx/certificate/nginx.key;
    root /var/www/html;
    index index.php  index.html index.htm index.nginx-debian.html;

    server_name _;
    location / {
        try_files $uri $uri/ =404;
    }

    location ~ \.php$ {
    include snippets/fastcgi-php.conf;
    fastcgi_pass unix:/run/php/php7.4-fpm.sock;
    }
```

```
}
```
root@mail:/etc/nginx/sites-available# cat rainloop

```
server {
listen 82;
listen [::]:82;
server_name rainloop.vraihack.com;
return 301 https://$host$request_uri;
}

server {
listen 443 ssl;
listen [::]:443 ssl;
server_name rainloop.vraihack.com;
ssl_certificate /etc/nginx/certificate/nginx-certificate.crt;
ssl_certificate_key /etc/nginx/certificate/nginx.key;

root /var/www/rainloop/public_html;
access_log /var/www/rainloop/logs/access.log;
error_log /var/www/rainloop/logs/error.log;
index index.php;
modsecurity on;
modsecurity_rules_file /etc/nginx/modsec/main.conf;

location / {
try_files $uri $uri/ /index.php?$query_string;
}

location ~ \.php$ {
include snippets/fastcgi-php.conf;
fastcgi_pass unix:/var/run/php/php7.4-fpm.sock;
}

location ~ /\.ht {
deny all;
}

location ^~ /data {
deny all;
}

}
```
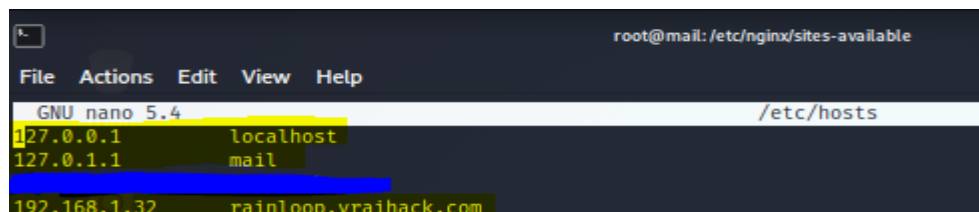
root@mail:~# systemctl restart ngnix

STEP 15: INSTALL WEBMAIL (RAINLOOP)

root@mail:~# apt-get install php-curl php-xml curl
root@mail:~# mkdir -p /var/www/rainloop
root@mail:~# wget -qO- https://repository.rainloop.net/installer.php | php
root@mail:~# cd /var/www/rainloop
root@mail:~# find . -type d -exec chmod 755 {} \;
root@mail:~# find . -type f -exec chmod 644 {} \;
root@mail:~# chown -R www-data:www-data /var/www/rainloop

STEP 16: CONFIGURE RAINLOOP

Go to admin page and add our Domains: default username and password (admin, 12345)

STEP 17: Set Up SPF & DKIM with Postfix on Debian Server

▪ **Please follow the instruction in this page:**
https://www.linuxbabe.com/mail-server/spf-dkim-postfix-debian-server

STEP 18: enable-https-nginx

▪ **Please follow the instruction in this page:**
https://techexpert.tips/nginx/enable-https-nginx/

STEP 19: nginx-redirect-http-to-https

▪ **Please follow the instruction in this page:**
https://techexpert.tips/nginx/nginx-redirect-http-to-https/

STEP 20: INSTALL WAF (NGINX ModeSecurity)

▪ **Please follow the instruction in this page:**
https://techexpert.tips/nginx/nginx-modsecurity-installation/