Configuring Postfix Webmail Server with Dovecot,Squirrel Mail and Integrated with OpenLdap Server on RHEL 7

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Web Mail Server

A **mail server** is a computer that sends, receives and stores e-**mail** for users. Almost every Internet Service Provider (ISP) includes at least one mailbox on their **mail server** as part of their basic service.

Webmail (or **web-based email**) is any **email** client implemented as a **web** application running on a **web** server. Examples of webmail software are Roundcube and SquirrelMail. Examples of webmail providers are AOL Mail, Gmail, Outlook.com and Yahoo!

Postfix Mail Server

Postfix is extremely flexible. Its architecture is based on a loose composition of services that receive emails and pass them on to other services (with services like "smtp" on the receiving outer edge, and "local" and "virtual" on the delivering outer edge, if you're looking at receiving mail). Postfix itself implements the core requirements to receive, route, and deliver mail, and relies on third-party extensions to do the rest.

Postfix has several hundred configuration parameters. If you want to administer a mail server that reliably delivers business requirements to a sizable organization, you should make yourself intimate with all of them (man 5 postconf). This tutorial will *not* be enough, on its own, to make you a competent professional email admin. However, if you want to become familiar with postfix or set up a mail server for yourself and a few friends, this tutorial, and the ones to follow, will be your friend.

Dovecot

Dovecot is an open source IMAP and POP3 email server for Linux/UNIX-like systems, written with security primarily in mind. Dovecot is an excellent choice for both small and large installations. It's fast, simple to set up, requires no special administration and it uses very little memory.

Dovecot is among the highest performing IMAP servers while still supporting the standard mbox and Maildir formats. The mailboxes are transparently indexed, which gives Dovecot its good performance while still providing full compatibility with existing mailbox handling tools.

Dovecot's indexes are self-optimizing. They contain exactly what the user's client commonly needs, no more and no less.

Dovecot is self-healing. It tries to fix most of the problems it notices by itself, such as broken index files. The problems are however logged so the administrator can later try to figure out what caused them.

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Dovecot tries to be admin-friendly. Common error messages are made as easily understandable as possible. Any crash, no matter how it happened, is considered a bug that will be fixed.

Squirrelmail Server

SquirrelMail is a project that provides both a web-based email client and a proxy server for the IMAP protocol.

SquirrelMail webmail is available for any platform supporting PHP. Most commonly used platforms include Linux, FreeBSD, OS X and the server variants of Microsoft Windows. SquirrelMail IMAP Proxy compiles on most flavors of Unix, and can generally be used on the same platforms as the webmail product can be with the exception of Microsoft Windows.

The SquirrelMail webmail client itself is a complete webmail system, but extra features are available in the form of plugins.

OpenLdap

LDAP, or Lightweight Directory Access Protocol, is a protocol for managing related information from a centralized location through the use of a file and directory hierarchy. It functions in a similar way to a relational database in certain ways, and can be used to organize and store any kind of information. LDAP is commonly used for centralized authentication.

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To setup a local mail server Step by Step using **Postfix**, **Dovecot ,Squirrelmail** in RHEL 7.

OS: Rhel 7 64bit server

IP Address: 172.25.9.11/24

Hostname: server4.example.com

Remove default MTA sendmail first if it's already installed. Sendmail will not be installed by default in minimal installation, so you can skip this step.

yum remove sendmail

Add hostname entries in **/etc/hosts** file as shown below:

vi /etc/hosts

Add your FQDN:

127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4

::1 localhost localhost.localdomain localhost6 localhost6.localdomain6

172.25.4.11 server4.example.com

I **disabled SELinux** to reduce the complexity in postfix configuration.

To do that, edit:

vi /etc/sysconfig/selinux

Change **SELINUX=enforcing** to **SELINUX=disabled**.

SELINUX=disabled

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yum install -y postfix

Add a new service to the firewall:

firewall-cmd --permanent --add-service=smtp

success

Reload the firewall configuration:

firewall-cmd --reload

success

Activate the **postfix** service at boot:

systemctl enable postfix

Start the **postfix** service:

systemctl restart posfix

Let's assume that your server is called **server4.example.com** on the **172.24.4.0/24** network. Edit the **/etc/postfix/main.cf** file and change the following directives:

Vim /etc/postfix/main.cf

myhostname = server4.example.com

mydomain = example.com

myorigin = $mydomain

inet_interfaces = all

mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain

mynetworks = 172.25.4.0/24, 127.0.0.0/8

home_mailbox = Maildir/

Check the syntax:

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postfix check

Check the non-default configuration:

postconf -n

Set the **SELinux allow_postfix_local_write_mail_spool** boolean to '**on**':

setsebool -P allow_postfix_local_write_mail_spool on

Restart the **postfix** configuration:

systemctl restart postfix

Test from a client with the **telnet** command:

yum install -y telnet

telnet mail.example.com 25

Trying 172.25.9.11...

Connected to mail.example.com.

Escape character is '^]'.

220 mail.example.com ESMTP Postfix

HELO client

250 mail.example.com

quit

221 2.0.0 Bye

Connection closed by foreign host.

On the central mail server, create a user called **me**:

useradd me

Then, send a mail to **me**:

echo "This is a test." | mail -s "Test" me@example.com

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Note: The **echo** command introduces the content of the mail. The **-s** option specifies the mail subject followed by the recipient.

Install Dovecot

Dovecot is an open source IMAP and POP3 mail server for Unix/Linux systems.

To install it, run:

yum install dovecot

Configuring Dovecot

Edit file **/etc/dovecot/dovecot.conf** file,

vi /etc/dovecot/dovecot.conf

Uncomment the following line:

Line 24 - umcomment ## and change to imap

protocols = imap

Note :- Here uncomment because This specifies the protocols that are available for users to access their email.

Edit file **/etc/dovecot/conf.d/10-mail.conf** file

vi /etc/dovecot/conf.d/10-mail.conf

Make the changes as shown below:

Line 24 - uncomment

mail_location = maildir:~/Maildir

Note :- Here Uncomment because mail_location - This specifies the format and the location of each user's mailbox.

Edit **/etc/dovecot/conf.d/10-auth.conf**

vi /etc/dovecot/conf.d/10-auth.conf

And make the changes as shown below:

line 10 - uncomment##

disable_plaintext_auth = yes

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Line 100 - Add the word: "login"

auth_mechanisms = plain login

Note:- Here Uncomment because auth_mechanisms specifies the way in which the email client authenticates with Dovecot.

Edit file **/etc/dovecot/conf.d/10-master.conf**,

vi /etc/dovecot/conf.d/10-master.conf

Make changes as shown below:

Line 91, 92 - Uncomment and add "postfix"

```
  # Postfix smtp-auth (was commented)
unix_listener /var/spool/postfix/private/auth {
 #mode = 0600

 user = postfix

 group = postfix
```

[...]

Here Uncomment Because This will create the private/auth path that we set up in the SASL configuration of Postfix. (Postfix runs chrooted in /var/spool/postfix, which is why we put a relative path.)

Start Dovecot service:

systemctl enable dovecot

systemctl start dovecot

Install Squirrelmail

Sending and receiving mails form command line is not easy all the time. It is better if we do it from a graphical console. No worries. We can easily send/receive mails using webmail client called **Squirrelmail** via a web browser.

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Then, Install Squirrelmail using the following command:

yum install squirrelmail

Configuring Squirrelmail

Navigate to **/usr/share/squirrelmail/config/** directory:

cd /usr/share/squirrelmail/config/

..and run the following command to configure Squirrelmail.

./conf.pl

The following wizard will open. Enter choice **"1"** to set your organization details:

SquirrelMail Configuration : Read: config.php (1.4.0)

Main Menu --

1. Organization Preferences

2. Server Settings

3. Folder Defaults

4. General Options

5. Themes

6. Address Books

7. Message of the Day (MOTD)

8. Plugins

9. Database

10. Languages

D. Set pre-defined settings for specific IMAP servers

C Turn color off

S Save data

Q Quit

Command >> 1

The following wizard will open. Enter **"1"** again to modify your organization details:

SquirrelMail Configuration : Read: config.php (1.4.0)

Organization Preferences

1. Organization Name : SquirrelMail

2. Organization Logo : ../images/sm_logo.png

3. Org. Logo Width/Height : (308/111)

4. Organization Title : SquirrelMail $version

5. Signout Page :

6. Top Frame : _top

7. Provider link : http://squirrelmail.org/

8. Provider name : SquirrelMail

R Return to Main Menu

C Turn color off

S Save data

Q Quit

Command >> 1

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Set your Organization name and press Enter:

We have tried to make the name SquirrelMail as transparent as

possible. If you set up an organization name, most places where

SquirrelMail would take credit will be credited to your organization.

If your Organization Name includes a '$', please precede it with a \.

Other '$' will be considered the beginning of a variable that

must be defined before the $org_name is printed.

$version, for example, is included by default, and will print the

string representing the current SquirrelMail version.

[SquirrelMail]: Unixmen

Similarly, set all the details such as organization title, logo, provider name in the above wizard. Once you done, press **"S"** to save the changes, and press **"R"** to return back to your main menu:

SquirrelMail Configuration : Read: config.php (1.4.0)

Organization Preferences

1. Organization Name : Unixmen
2. Organization Logo : ../images/sm_logo.png
3. Org. Logo Width/Height : (308/111)
4. Organization Title : SquirrelMail $version
5. Signout Page :
6. Top Frame : _top

7. Provider link : http://squirrelmail.org/

8. Provider name : Unixmen Mail

R Return to Main Menu

C Turn color off

S Save data

Q Quit

Command >> S

Now, enter **"2"** to setup mail **Server settings** such as domain name and mail agent etc.:

SquirrelMail Configuration : Read: config.php (1.4.0)

Main Menu --

1. Organization Preferences
2. Server Settings
3. Folder Defaults
4. General Options
5. Themes
6. Address Books
7. Message of the Day (MOTD)
8. Plugins
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C Turn color off

S Save data

Q Quit

Command >> 2

Enter **“1”**, Enter your mail domain (ex. **unixmen. local**) and press Enter key.

SquirrelMail Configuration : Read: config.php (1.4.0)

Server Settings

General

---

1. Domain : localhost

2. Invert Time : false

3. Sendmail or SMTP : Sendmail

A. Update IMAP Settings : localhost:143 (uw)

B. Change Sendmail Config : /usr/sbin/sendmail

R Return to Main Menu

C Turn color off

S Save data

Q Quit

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Command >> 1

The domain name is the suffix at the end of all email addresses. If

for example, your email address is jdoe@example.com, then your domain

would be example.com.

[localhost]: example.com

Enter **"3"** and change from sendmail to Postfix MTA (i.e. SMTP):

SquirrelMail Configuration : Read: config.php (1.4.0)

Server Settings

General

---

1. Domain : example.com
2. Invert Time : false
3. Sendmail or SMTP : Sendmail

A. Update IMAP Settings : localhost:143 (uw)

B. Change Sendmail Config : /usr/sbin/sendmail

R Return to Main Menu

C Turn color off

S Save data

Q Quit

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Command >> 3

Enter **"2"** to switch from sendmail MTA to postfix.

You now need to choose the method that you will use for sending

messages in SquirrelMail. You can either connect to an SMTP server

or use sendmail directly.

1. Sendmail
2. SMTP

Your choice [1/2] [1]: 2

Now enter **"S"** followed by **"Q"** to save and exit Squirrelmail configuration.

Create a squirrelmail vhost in apache config file:

vi /etc/httpd/conf/httpd.conf

Add the following lines at the end:

Alias /webmail /usr/share/squirrelmail

<Directory /usr/share/squirrelmail>

Options Indexes FollowSymLinks

RewriteEngine On

AllowOverride All

DirectoryIndex index.php

Order allow,deny

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Allow from all

</Directory>

Restart the Apache service:

systemctl restart httpd

Create mail users

Create some users for testing. In my case I create two users namely **“senthil“** and **“kumar“**.

useradd senthil

passwd senthil

useradd kumar

passwd kumar

Access Webmail

Now navigate to **http://ip-address/webmail** or **http://domain-name/**webmail from your browser.

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Use the following instructions to install and configure the OpenLDAP Server with Postfix , Dovecot, SquirrelMail on RHEL7:-

Step 1: Install the following packages:
yum install -y openldap openldap-clients openldap-servers migrationtools

Step 2: Generate a LDAP encrypted password for Manager user (here redhat):
slappasswd
New password:
Re-enter new password:
{SSHA}bHSiwuPJEypHS6zHSE2Uy7M69sQjmkPL

Copy the encrypted the passwd from the above output "{SSHA}bHSiwuPJEypHS6zHSE2Uy7M69sQjmkPL". Replace with your password and keep it aside.

Step 3:Edit the OpenLDAP Server Configure file:

#vim /etc/openldap/slapd.d/cn\=config/olcDatabase\={2\}hdb.ldif"

#do the following changes

olcSuffix: dc=example,dc=com
olcRootDN: cn=Manager,dc=example,dc=com
olcRootPW: PASTE YOUR ENCRYPTED PASSWORD HERE from /etc/openldap/secret-passwd

olcTLSCertificateFile: /etc/pki/CA/cacert.pem
olcTLSCertificateKeyFile: /etc/pki/CA/private/cakey.pem

:wq (save abd exit)

Step 4: Configure Monitoring Database Configuration file:

#vim /etc/openldap/slapd.d/cn\=config/olcDatabase\=\{1\}monitor.ldif"

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#do the following change

olcAccess: {0}to * by dn.base="gidNumber=0+uidNumber=0,cn=peercred,cn=external,cn=auth" read by dn.base="cn=Manager,dc=example,dc=com" read by * none

:wq (save and exit)

Step 5: Generate a X509 self sign certificate which is valid for 365 days:

openssl req -new -x509 -nodes -out /etc/pki/CA/cacert.pem -keyout /etc/pki/CA/private/cakey.pem -days 365

Country Name (2 letter code) [XX]: IN

State or Province Name (full name) []: Delhi

Locality Name (eg, city) [Default City]: New Delhi

Organization Name (eg, company) [Default Company Ltd]: Example, Inc.

Organizational Unit Name (eg, section) []: Training

Common Name (eg, your name or your server's hostname) []:server4.example.com

Email Address []: root@server4.example.com

Step 6: Secure the content of the /etc/pki/CA/ directory:

cd /etc/pki/CA/

chown ldap:ldap cacert.pem

cd /etc/pki/CA/private/

chown ldap:ldap cakey.pem

chmod 600 cakey.pem

Step 7: Prepare the LDAP database:

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```
# cp -rvf /usr/share/openldap-servers/DB_CONFIG.example /var/lib/ldap/DB_CONFIG

# chown -R ldap:ldap /var/lib/ldap/
```

Step 8: Enable LDAPS:

```
#vim /etc/sysconfig/slapd

 #Do the following changes

SLAPD_URLS="ldapi:///   ldap:///   ldaps:///"

:wq (save and exit)
```

Step 9: Test the configuration:

```
# slaptest -u
```

Step 10: Start and enable the slapd service at boot:

```
# systemctl start slapd

# systemctl enable slapd
```

Step 11: Check the LDAP activity:

```
# netstat -lt | grep ldap

#netstat -tunlp | egrep "389|636"
```

Step 12: To start the configuration of the LDAP server, add the follwing LDAP schemas:

```
# cd /etc/openldap/schema

# ldapadd -Y EXTERNAL -H ldapi:/// -f /etc/openldap/schema/cosine.ldif
# ldapadd -Y EXTERNAL -H ldapi:/// -f /etc/openldap/schema/nis.ldif
# ldapadd -Y EXTERNAL -H ldapi:/// -f /etc/openldap/schema/inetorgperson.ldif
```

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Step 13: Now use Migration Tools to create LDAP DIT:

```
# cd /usr/share/migrationtools

# vim migrate_common.ph

#do the following chnages

on the Line Number 61, change "ou=Groups"
 $NAMINGCONTEXT{'group'}            = "ou=Groups";

on the Line Number 71, change your domain name
$DEFAULT_MAIL_DOMAIN = "example.com";

on the line number 74, change your base name
       $DEFAULT_BASE = "dc=example,dc=com";

on the line number 90, change schema value
$EXTENDED_SCHEMA = 1;


:wq (save and exit)
```

Step 14: Generate a base.ldif file for your Domain DIT:

```
#./migrate_base.pl > /root/base.ldif
```

Step 15: Load "base.ldif" into LDAP Database:

```
#ldapadd -x -W -D "cn=Manager,dc=example,dc=com" -f /root/base.ldif
```

Step 16: Now Create some users and Groups and migrate it from local database to LDAP database:

```
#mkdir /home/guests
#useradd -d /home/guests/ldapuser1 ldapuser1
#useradd -d /home/guests/ldapuser2 ldapuser2
#useradd -d /home/guests/ldapuser3 ldapuser3
#useradd -d /home/guests/ldapuser4 ldapuser4
```

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#useradd -d /home/guests/ldapuser5 ldapuser5

#echo 'password' | passwd --stdin ldapuser1
#echo 'password' | passwd --stdin ldapuser2
#echo 'password' | passwd --stdin ldapuser3
#echo 'password' | passwd --stdin ldapuser4
#echo 'password' | passwd --stdin ldapuser5

Step 17: Now filter out these Users and Groups and it password from /etc/shadow to different file:

#getent passwd | tail -n 5 > /root/users

#getent shadow | tail -n 5 > /root/shadow

getent group | tail -n 5 > /root/groups

Step 18: Now you can delete these users from local database:

#userdel ldapuser1
#userdel ldapuser2
#userdel ldapuser3
#userdel ldapuser4
#userdel ldapuser5

Step 19: Now you need to create ldif file for these users using migrationtools:

cd /usr/share/migrationtools/

vim migrate_passwd.pl

#search /etc/shadow and replace it into /root/shadow on Line Number 188.

:wq (save and exit)

./migrate_passwd.pl /root/users > /root/users.ldif

./migrate_group.pl /root/groups > /root/groups.ldif

Step 20: Upload these users and groups ldif file into LDAP Database:

ldapadd -x -W -D "cn=Manager,dc=example,dc=com" -f /root/users.ldif

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ldapadd -x -W -D "cn=Manager,dc=example,dc=com" -f /root/groups.ldif

Step 21: Now search LDAP DIT for all records:

ldapsearch -x -b "dc=example,dc=com" -H ldap://server6.example.com

Step 22: Now share ldapusers home directories via NFS:

#vim /etc/exports

#Add the folloiwng line:

/home/guests 172.25.4.0/255.255.255.0(rw,sync)

:wq (save and exit)

#systemctl start nfs

#systemctl enable nfs

Step 23: Share your CA Certificate to clients via FTP/HTTP:

#yum install vsftpd httpd -y

cp -rvf /etc/pki/CA/cacert.pem /var/ftp/pub/

ln -s /var/ftp/pub/ /var/www/html/

#systemctl start vsftpd

#systemctl enable vsftpd

#systemctl start httpd

#systemctl enable httpd

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Step 24: Now Go to the client machine and install the following packages:

#yum install openldap-clients sssd pam_ldap authconfig-gtk -y

Step 25: Run the "authconfig-gtk" command to configure as a LDAP Client:

authconfig-gtk

Click on "Identity & Authentication" Tab

Click on drop down menu in "User Account Database" and Select "LDAP"

in LDAP Search Base DN: dc=example,dc=com

in LDAP Server: ldap://server1.example.com

Select the check Box of "Use TLS to encrypt connections"

Click "Download CA Certificate"

In Certificate URL: type http://server4.example.com/pub/cacert.pem

Authentication Protocol: LDAP Password

Click "OK"

getent passwd ldapuser1

Step 26: Now Configure your client machine to access ldapusers home directory from "server6.example.com"

#yum install autofs -y

#vim /etc/auto.master

#add the following line

/home/guests /etc/auto.guests

:wq (save and exit)

#vim /etc/auto.guests

#add the following line

* -rw server1.example.com:/home/guests/&

:wq (save and exit)

Step 27: Now start and enable autofs service at boot:

#systemctl restart autofs

#systemctl enable autofs

Step 28: Now try to login as ldapuseer on client machine:

#ssh ldapuser1@server6.example.com

Password: password

[ldapuser1@client.exmaple.com ~]$

You may have some issue with Firewall/iptables, So add Ports/Services into firewall or disable it.