Setting up a simple mail server

The basics

There are many options for email server software. Historically, an organization would typically choose one software for the incoming mail server and a separate software for the outgoing mail server. Postfix has become a very popular email solution in the enterprise and we will use it for both the incoming and outgoing mail server.

Service Name:
> postfix

Package:
> postfix

Config:
> /etc/postfix/main.cf

Access Control:
> iptables
> SELinux
> Built in access control

Log Files:
> /var/log/maillog

The default outgoing mail server is sendmail in many linux distributions. Postfix will perform all email server functions, so sendmail is unnecessary. Our task will be to configure an email server to communicate electronic mail between systems. A simple program for reading email is called "mutt."

Disable sendmail and install postfix and mutt:

```
# chkconfig sendmail off
# service sendmail stop
# yum -y install postfix mutt
```

The default configuration of all outgoing mail servers is to only deliver mail locally. Therefore, we must tell postfix to use an interface other than lo (loopback). Two ways to accomplish this are to edit the /etc/postfix/main.cf file and change the line that begins with "inet_interfaces = localhost" to "inet_interfaces = all", or run the following command:

```
# postconf -e "inet_interfaces = all"
```

We must also configure postfix to know who can relay mail through this server. This is controlled with the "mynetworks" setting. Again, the /etc/postfix/main.cf can be changed so that the line that reads "mynetworks = localhost.localdomain" can append, in a space separated list, any network or host that can relay through this server. For example:

```
mynetworks = localhost.localdomain 192.168.0.0/24

or run:

# postconf -e "mynetworks = localhost.localdomain 192.168.0.0/24"
```

Postfix now needs to be told which domains it will receive email for. If your domain isn't defined then postfix will reject email for that domain. In the main configuration file (/etc/postfix/main.cf", find the line "mydestination = $myhostname, localhost.$mydomain, localhost" and change it to:

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

or run:

postconf -e "mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain"
```

At this stage, all emails sent via this server will appear to be from @your.server.hostname so if you want your domain name reflected after the @ sign then you need to set a value for the myorigin parameter in /etc/postfix/main/cf

```
myorigin = $mydomain

or  run:

postconf -e "myorigin = $mydomain"
```

Now start postfix and set it to start persistently:

```
# service postfix start
# chkconfig postfix on
```

Now postfix should use Mail Exchange (MX) records to deliver email sent through this mail server.

A little bit more advanced

Create firewall rules to allow connectivity over the network to your Mail server:

```
# iptables -I INPUT -p tcp --dport 25 -j ACCEPT
# service iptables save
```

Important parameters:

inet_interfaces
myorigin
mydestination
mynetworks
relayhost

inet_interfaces defines the interfaces which provide you with access to your SMTP service. By default Postfix only binds itself to localhost so it won't service requests from the network.

myorigin defines the part after the @ sign when users send email through your SMTP server. By default this is the hostname of your server and in most cases, is not what you want.

mydestination defines the part after the @ sign which your SMTP server receives email for. Anything unmatched will be rejected. By default 3 values are configured which are $myhostname, localhost.$mydomain, localhost so your SMTP server won't accept email for your company's domain name by default.

mynetworks defines the IP addresses and/or IP networks which are allowed to relay(send) mail via this SMTP server. By default any IP address on the same subnet as your SMTP server will be allowed to relay email. You probably want to leave this alone but in some cases you may want to define additional IP addresses/IP networks outside of your subnet.

relayhost defines the upstream SMTP server that will do delivery of mail. This is completely optional and in most cases is not used. Should mail be sent upstream for further processing it could be routed to a relayhost.

!!! NOTE !!!

- Postfix can use Postfix-specific variables or fixed values for parameters

- Lines which begin with a # are considered comments
- Don't forget to run **service postfix restart** after editing /etc/postfix/main.cf and newaliases after editing /etc/aliases

Examples:

!!! NOTE !!!
This is just a snippet of /etc/postfix/main.cf

```
inet_interfaces = all
myorigin = $mydomain
mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain
relayhost = [192.168.0.254]
#mynetworks = 168.100.189.0/28, 127.0.0.0/8
```

The Postfix SMTP service operates across all network interfaces as per the **inet_interfaces** parameter.

It is set to send all emails as if they appear to come from the domain it represents as per the **myorigin** parameter. This means that the user bob who sends email via my SMTP server will have his address re-written as bob@elsatraining.com instead of the default which would be bob@smtp.elsatraining.com (my server's hostname is smtp.elsatraining.com).

If the MX record of my domain (elsatraining.com) points to my SMTP server, it will accept emails because the **mydestination** parameter includes the domain name. Effectively this means that emails could be addressed to bob@smtp.elsatraining.com or bob@localhost.elsatraining.com or bob@elsatraining.com

The **relayhost** parameter says that all outbound emails are sent to the IP address 192.168.0.254 for further processing. It is important to note that IP addresses or hostnames appear in [ ]'s otherwise it will be interpreted as a domain. If it is a domain, then the MX record is looked up for that domain and that is where emails would be sent to for future processing.

Postfix troubleshooting

The basics:

Configuration files	/etc/postfix/main/cf	Primary configuration file for Postfix

	/etc/aliases	Email aliases
Useful tools	newaliases	Updates aliases from /etc/aliases
	postconf	Modifies directives in /etc/postfix/main.cf from the command line
	mailq	Displays emails in the queue
	postfix flush	Forces processing of emails in the queue
Log files	/var/log/maillog	Main log file for Postfix
Ports	25/tcp	

SELinux considerations:

While various contexts and booleans exist, Postfix should operate at a basic to intermediate level without making SELinux changes.

For a complete list of booleans and related contexts have a look at man postfix_selinux

Common issues:

For effective transmission and receipt of mail at least 3 values need to be configured for the directives:

1. inet_interfaces
2. mydestination
3. myorigin

By default postfix only binds itself to localhost as per the inet_interfaces directive.

Postfix will receive email only for emails address to *recipient@hostname_of_server*, *recipient@localhost.domainname_of_server* and *recipient@localhost* as this is what the mydestination directive specifies by default. All other destinations are rejected.

All email processed via Postfix appears to come from *sender@hostname* as defined by the directive myorigin.
Problem:
My server refuses to receive email from external hosts

Solution 1:

By default, Postfix only runs on localhost so check the value of inet_interfaces in /etc/postfix/main/cf or use netstat -plnt | grep :25 to see if postfix has bound itself to localhost only or other interfaces. If it is, then change the value of inet_interfaces to all

Don't forget to run service postfix restart

Solution 2:

On the sending machine use the command mailq to see if the message is in the outbound mail queue. If you have a status of "No route to host", then try pinging the remote computer to see if you have TCP/IP communications with that host. If you do then this is most likely a firewalling issue on the remote computer and you would need to create a rule to allow connectivity to the Postfix service using the command:

iptables -I INPUT -p tcp --dport 25 -j ACCEPT

Solution 3:

We need to check to see 1) how you addressing the recipient and 2) if the mail server is configured to accept email for the part after the @ sign.

By default Postfix accepts emails addressed to @hostname_of_postfix_server or @localhost.domainname_of_postfix_server or @localhost.

In order for Postfix to accept mail for anything else you need to configure the mydestination directive accordingly.

My hostname is elsa.example.com so example.com is my domain name.

If Postfix is to receive emails address to example.com, it should be added to the list for the mydestination directive as follows:

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

Problem:
Mails to come from username@postfix_server_name instead of username@domain_name.

Solution:
Postfix by default sends all email as if it comes from username@postfix_server_name. If you want to change this behaviour then adjust the myorigin directive as follows:

myorigin = $mydomain

Problem:
Even though a relayhost directive is configured, email never reaches the server.

Solution:
If the value of the relayhost does NOT appear in []'s then an MX record lookup is done against the domain specified in brackets. So in this case you should specify a domain name instead of a hostname or IP address in order for the MX record lookup to work.

Should you prefer to specify a hostname or IP address for the value of relayhost then make sure that they are enclosed in []'s.

Problem:
Mail clients get a "Relaying denied" message when trying to route email via the Postfix server.

Solution:
It is likely that the mail client is on a different IP network to the Postfix server. This default behavior protects your Postfix server from relaying spam. Should you wish to change this behavior, specify the IP_NETWORK/PREFIX for the IP networks you want to relay mail for using the directive mynetworks

Problem:
Aliases configured in /etc/aliases do not work.

Solution:
Run the newaliases command after ensuring that the /etc/aliases file contains your aliases in the format:

aliasname: user1 user2 user3

Lab activity

Configure your server to receive email for the domain thelinuxclub.com and mail sure that all outbound email is sent from the same domain.

Create the users fred, wilma, barney and betty. Make sure that emails addresses to flintstones@thelinuxclub.com is received by all those users.