

This guide is compatible with Ubuntu 14.04

Getting Started

This guide is intended to be a reference for setting up a server quickly. For that reason, I have intentionally omitted information which explains each step.

There are several configuration variables that you will need to replace in certain configuration files. These occurrences are clearly marked during the guide.

However, for your reference, here are the variables used:

- `mail.example.com`

The hostname for your mail server. This can be anything you like, however, it should match the public hostname as specified by your DNS records if you want to expose the server over the Internet.

- `rootpassword`

The password for the MySQL `root` user. You should pick something unique and secure; but something you can remember.

- `mailpassword`

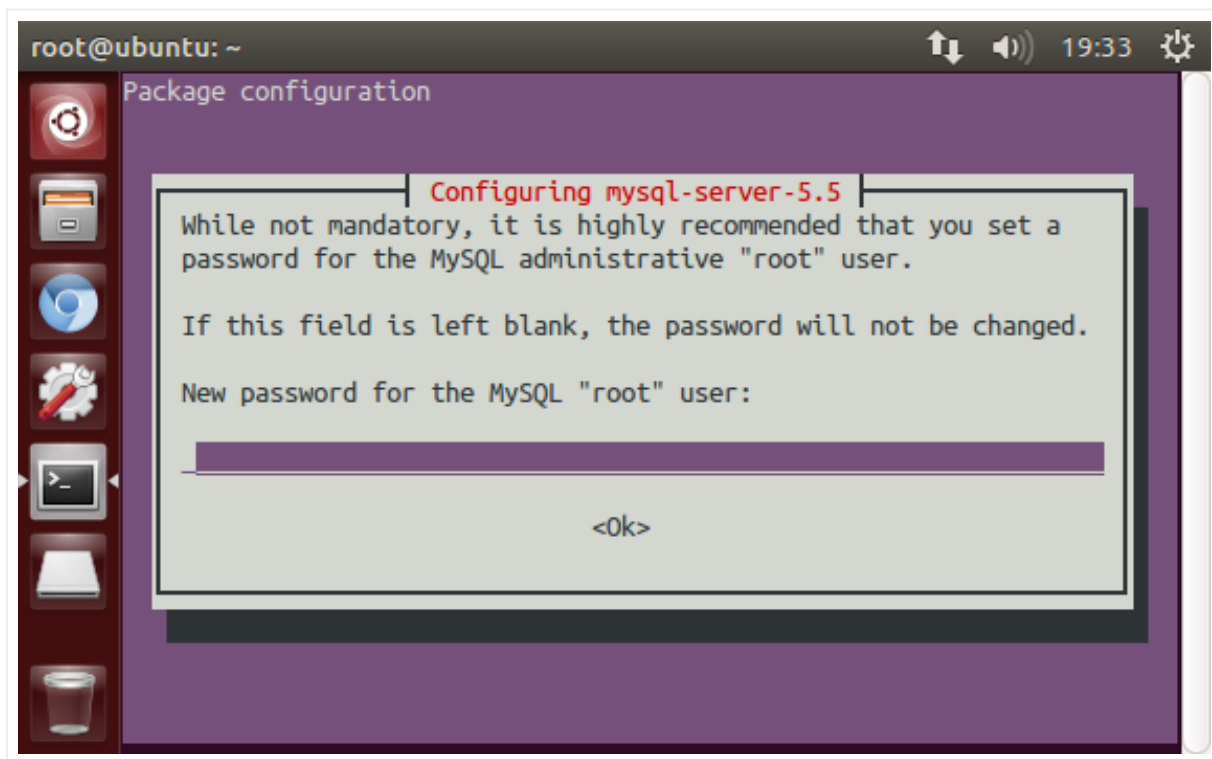
The password for the MySQL `mail` user. You should pick something unique and secure; you don't even have to remember it beyond this tutorial.

- `adminpassword`

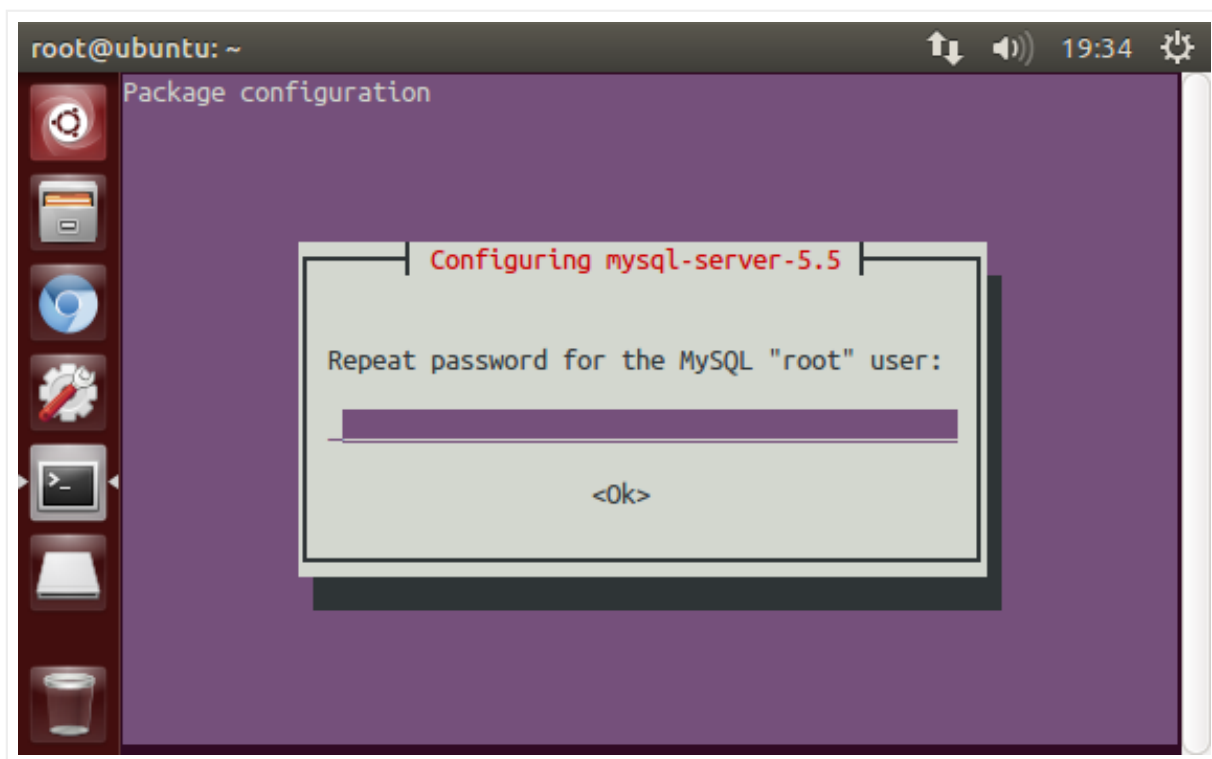
The password for the administrator e-mail account that you'll create later in the guide.

Installation

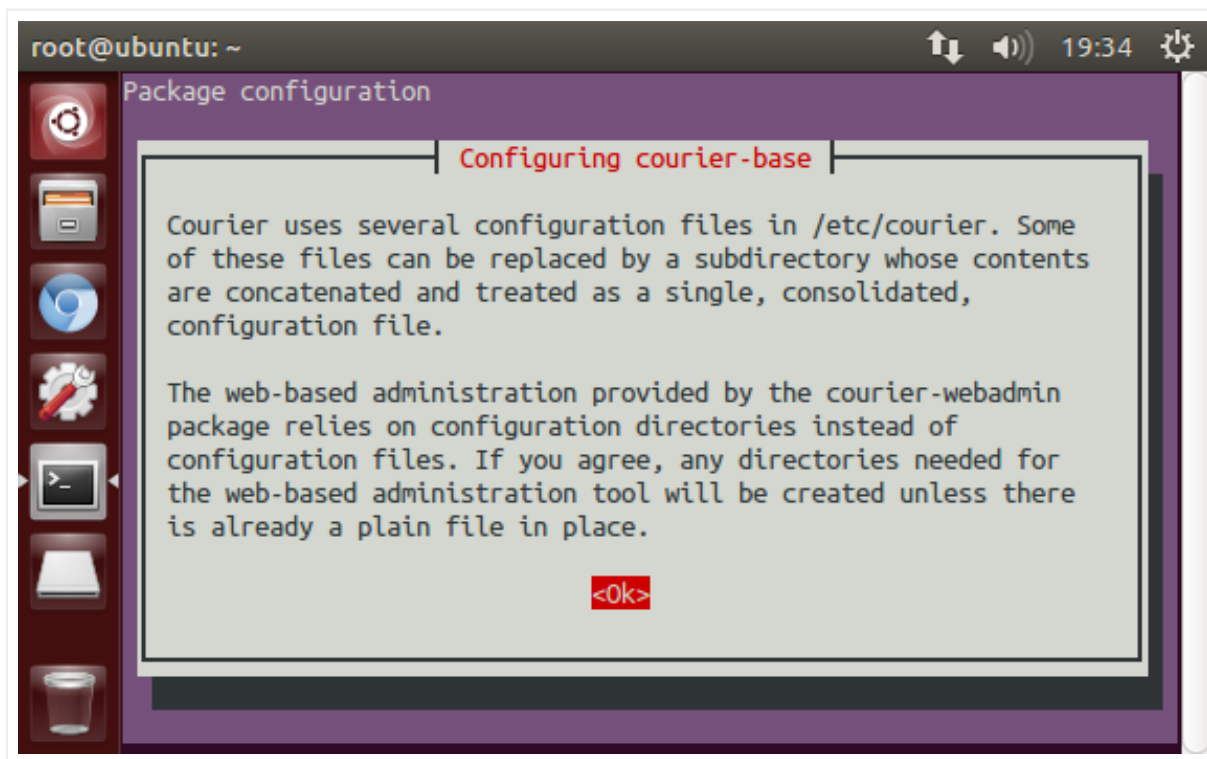
```
Shell
1 sudo su -
2 apt-get update
3 apt-get install -y mysql-server postfix postfix-mysql libsasl2-mod
```



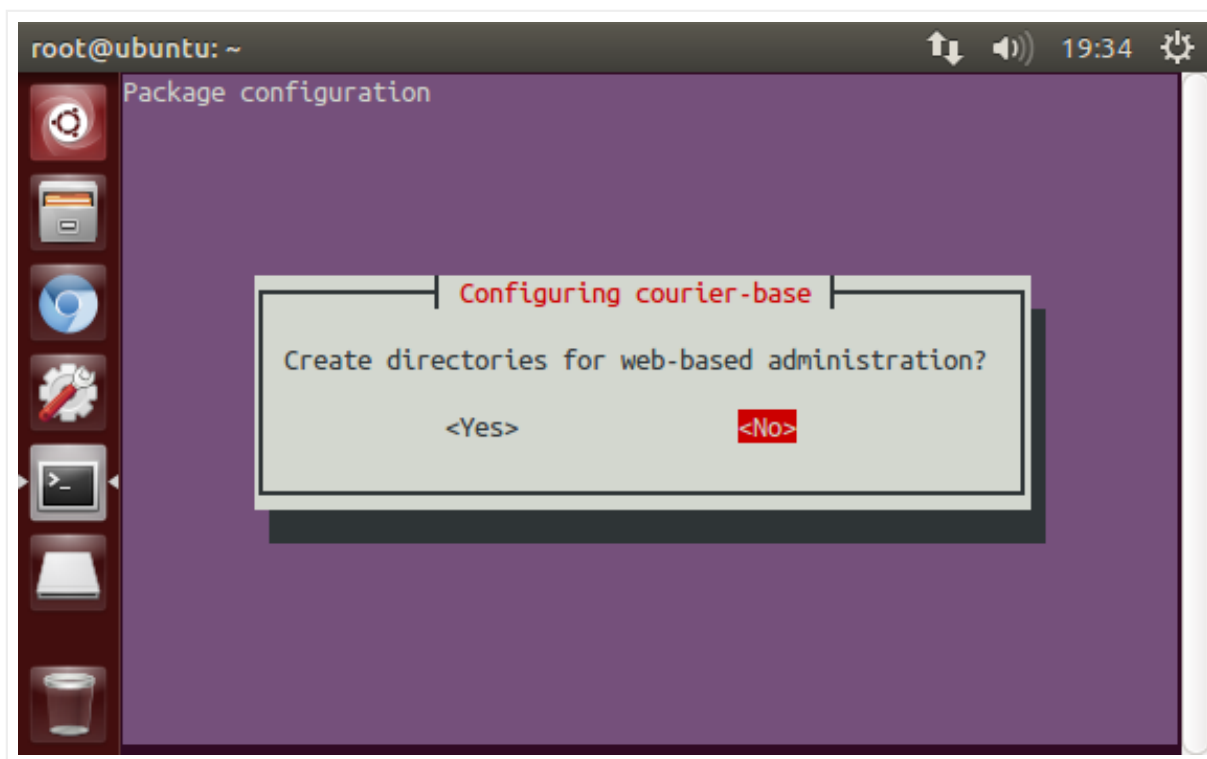
```
Enter rootpassword .
```



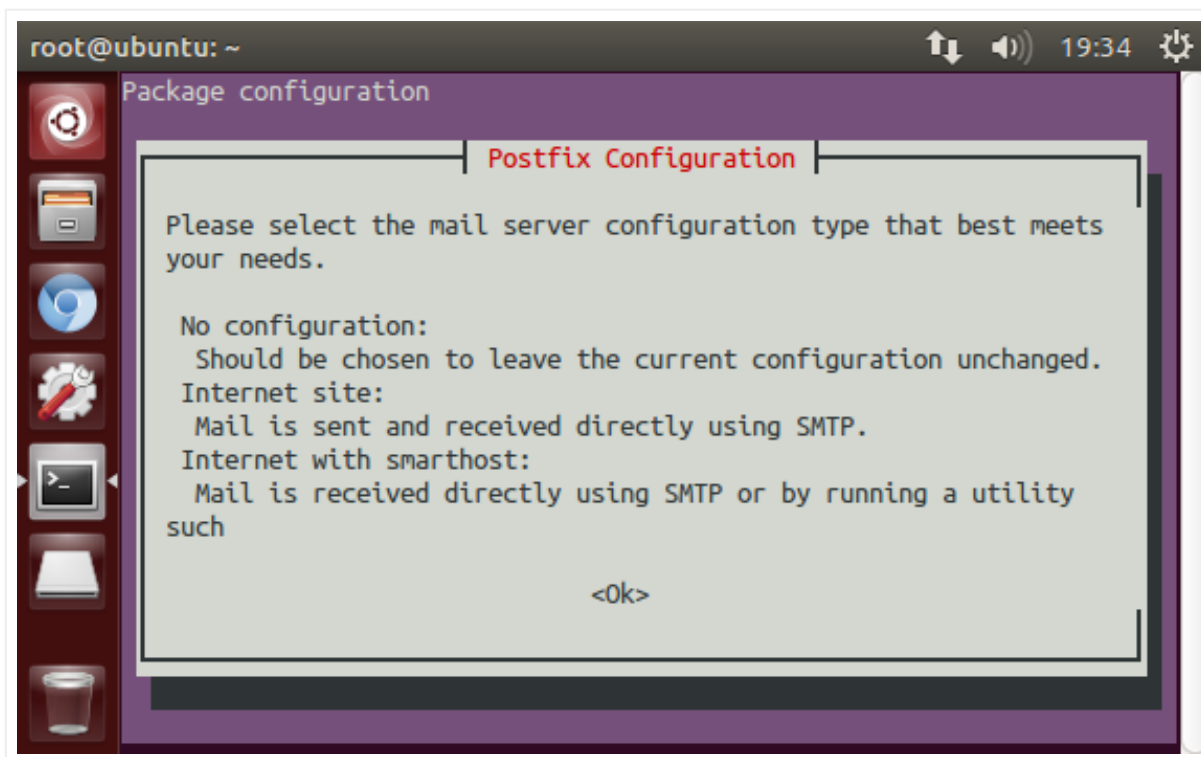
```
Enter rootpassword .
```



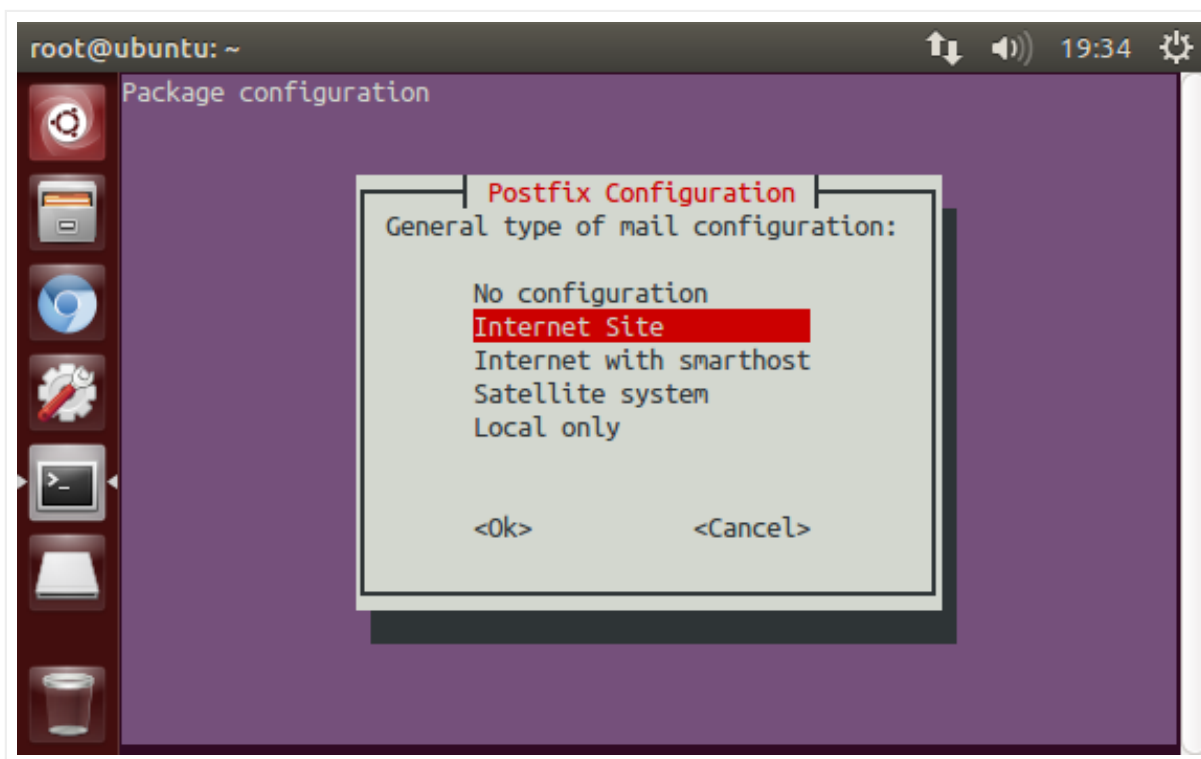
Choose ok .



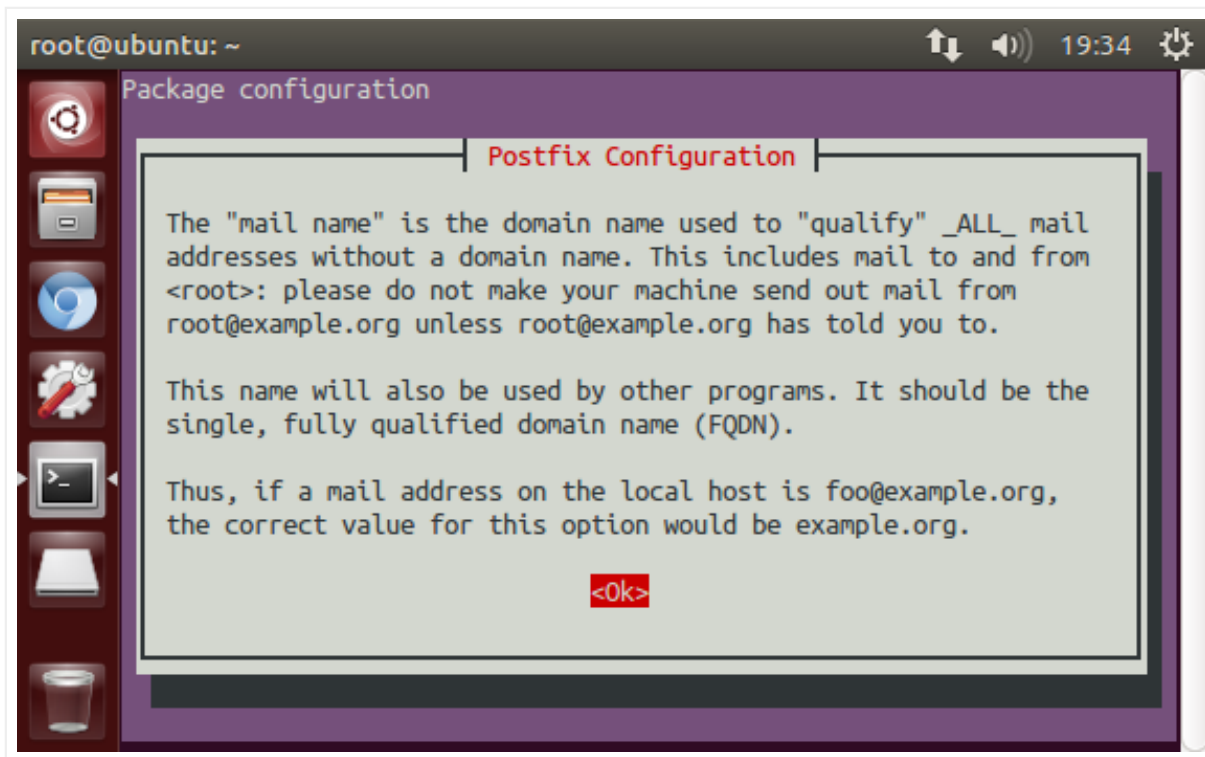
Choose No .



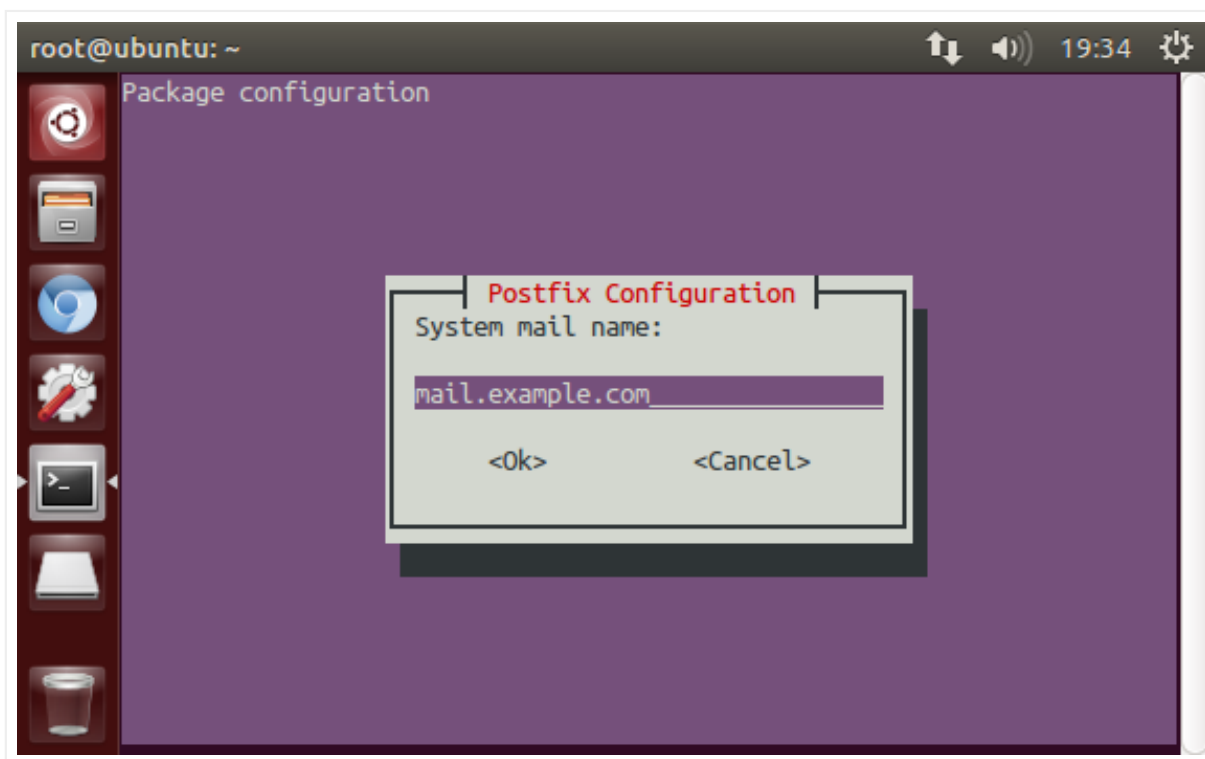
Choose ok .



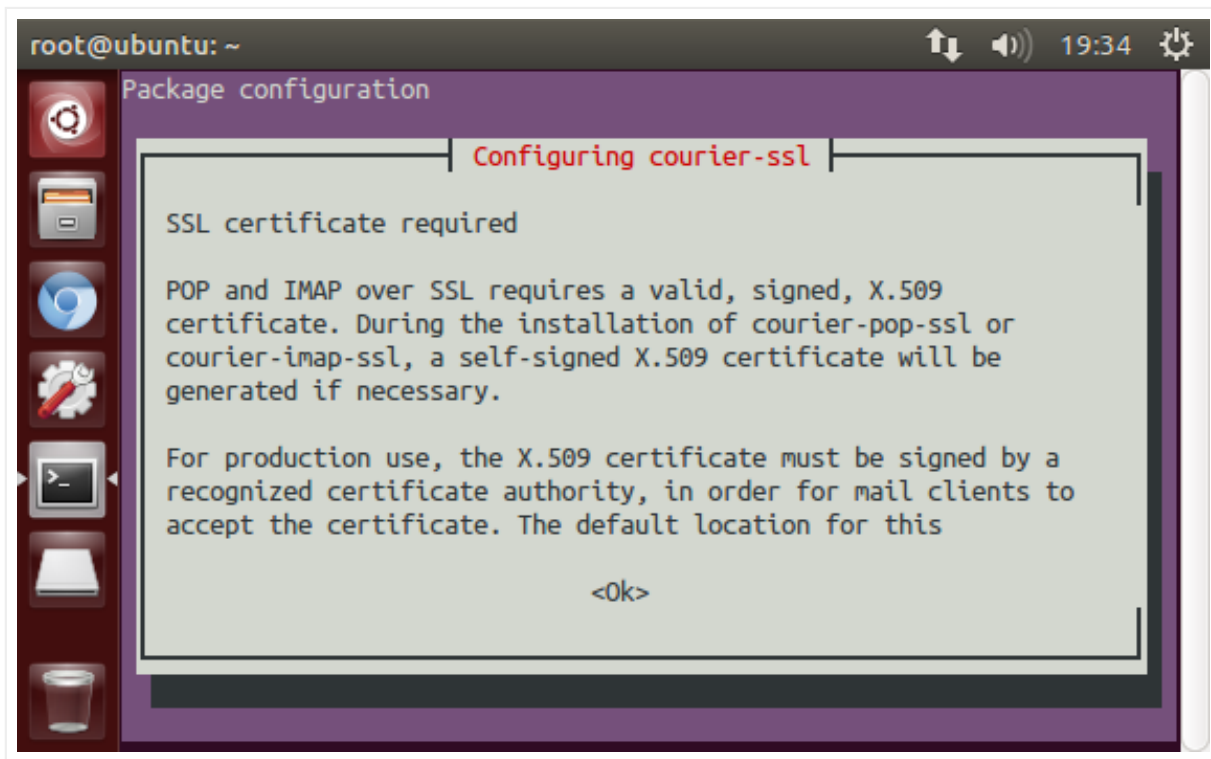
Choose Internet Site .



Choose ok .



Enter mail.example.com .



Choose `ok` .

Virtual User

Note: All e-mail messages will be received by a single ‘virtual’ user. That is, only one system account needs to be created and we’ll manage mailboxes using the virtual user features of Postfix.

```
Shell
1 groupadd virtual -g 5000
2 useradd -r -g "virtual" -G "users" -c "Virtual User" -u 5000 virtual
3 mkdir /var/spool/mail/virtual
4 chown virtual:virtual /var/spool/mail/virtual
```

Note that we are forcing the user ID to `5000` as this value is referenced by configuration files later. If you need to use a different UID make sure you update the affected configuration files, too.

Postfix

```
1 mv /etc/postfix/main.cf{,.dist}
2 vi /etc/postfix/main.cf
```

Copy/paste:

Replace mail.example.com

```
1 myorigin = /etc/mailname
2 smtpd_banner = $myhostname ESMTP $mail_name
3 biff = no
4 append_dot_mydomain = no
5 readme_directory = no
6 mydestination =
7 relayhost =
8 mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
9 mynetworks_style = host
10 mailbox_size_limit = 0
11 virtual_mailbox_limit = 0
12 recipient_delimiter = +
13 inet_interfaces = all
14 message_size_limit = 0
15
16 # SMTP Authentication (SASL)
17
18 smtpd_sasl_auth_enable = yes
19 broken_sasl_auth_clients = yes
20 smtpd_sasl_security_options = noanonymous
21 smtpd_sasl_local_domain =
22
23 # Encrypted transfer (SSL/TLS)
24
25 smtp_use_tls = yes
26 smtpd_use_tls = yes
27 smtpd_tls_cert_file = /etc/ssl/private/mail.example.com.crt
28 smtpd_tls_key_file = /etc/ssl/private/mail.example.com.key
29 smtpd_tls_session_cache_database = btree:${data_directory}/smtpd_
30 smtpd_tls_session_cache_database = btree:${data_directory}/smtp_sc
31
32 # Basic SPAM prevention
33
34 smtpd_helo_required = yes
35 smtpd_delay_reject = yes
36 disable_vrfy_command = yes
```

```

37 smtpd_sender_restrictions = permit_sasl_authenticated, permit_myn
38 smtpd_recipient_restrictions = permit_sasl_authenticated, permit_
39
40 # Force incoming mail to go through Amavis
41
42 content_filter = amavis:[127.0.0.1]:10024
43 receive_override_options = no_address_mappings
44
45 # Virtual user mappings
46
47 alias_maps = hash:/etc/aliases
48 alias_database = hash:/etc/aliases
49 virtual_mailbox_base = /var/spool/mail/virtual
50 virtual_mailbox_maps = mysql:/etc/postfix/maps/user.cf
51 virtual_uid_maps = static:5000
52 virtual_gid_maps = static:5000
53 virtual_alias_maps = mysql:/etc/postfix/maps/alias.cf
54 virtual_mailbox_domains = mysql:/etc/postfix/maps/domain.cf

```

Shell

```

1 mv /etc/postfix/master.cf{,.dist}
2 vi /etc/postfix/master.cf

```

Copy/paste:

```

1 # Postfix master process configuration file.  For details on the
2 # of the file, see the master(5) manual page (command: "man 5 mas
3 #
4 # Do not forget to execute "postfix reload" after editing this fi
5 #
6 # =====
7 # service type  private unpriv  chroot  wakeup  maxproc command +
8 #                (yes)   (yes)   (yes)   (never) (100)
9 # =====
10 smtp          inet  n        -       -       -       -       smtpd
11 smtps         inet  n        -       -       -       -       smtpd
12   -o smtpd_tls_wrappermode=yes
13 submission    inet  n        -       -       -       -       smtpd
14 pickup        fifo  n        -       -       60      1       pickup
15   -o content_filter=
16   -o receive_override_options=no_header_body_checks
17 cleanup        unix  n        -       -       -       0       cleanup

```



```

18 qmgr      fifo  n      -      n      300      1      qmgr
19 tlsmgr    unix  -      -      -      1000?    1      tlsmgr
20 rewrite   unix  -      -      -      -        -      trivial-r
21 bounce    unix  -      -      -      -        0      bounce
22 defer     unix  -      -      -      -        0      bounce
23 trace     unix  -      -      -      -        0      bounce
24 verify    unix  -      -      -      -        1      verify
25 flush     unix  n      -      -      1000?    0      flush
26 proxymap  unix  -      -      n      -        -      proxymap
27 proxywrite unix  -      -      n      -        1      proxymap
28 smtp      unix  -      -      -      -        -      smtp
29 # When relaying mail as backup MX, disable fallback_relay to avoid
30 relay      unix  -      -      -      -        -      smtp
31     -o smtp_fallback_relay=
32 showq     unix  n      -      -      -        -      showq
33 error     unix  -      -      -      -        -      error
34 retry     unix  -      -      -      -        -      error
35 discard   unix  -      -      -      -        -      discard
36 local     unix  -      n      n      -        -      local
37 virtual   unix  -      n      n      -        -      virtual
38 lmtp      unix  -      -      -      -        -      lmtp
39 anvil     unix  -      -      -      -        1      anvil
40 scache    unix  -      -      -      -        1      scache
41 #
42 # =====
43 # Interfaces to non-Postfix software. Be sure to examine the manu
44 # pages of the non-Postfix software to find out what options it w
45 #
46 # Many of the following services use the Postfix pipe(8) delivery
47 # agent. See the pipe(8) man page for information about ${recipi
48 # and other message envelope options.
49 # =====
50 #
51 # maildrop. See the Postfix MAILDROP_README file for details.
52 # Also specify in main.cf: maildrop_destination_recipient_limit=1
53 #
54 maildrop   unix  -      n      n      -        -      pipe
55     flags=DRhu user=vmail argv=/usr/bin/maildrop -d ${recipient}
56 #
57 # See the Postfix UUCP_README file for configuration details.
58 #
59 uucp       unix  -      n      n      -        -      pipe
60     flags=Fqhu user=uucp argv=uux -r -n -z -a$sender - $nexthop!rma
61 #
62 # Other external delivery methods.

```

```

63 #
64 ifmail    unix  -      n      n      -      -      pipe
65   flags=F user=ftn argv=/usr/lib/ifmail/ifmail -r $nexthop ($recipient)
66 bsmtp     unix  -      n      n      -      -      pipe
67   flags=Fq. user=bsmtp argv=/usr/lib/bsmtp/bsmtp -t$nexthop -f$sender
68 scalemail-backend unix  -      n      n      -      2      pipe
69   flags=R user=scalemail argv=/usr/lib/scalemail/bin/scalemail-stamp
70 mailman    unix  -      n      n      -      -      pipe
71   flags=FR user=list argv=/usr/lib/mailman/bin/postfix-to-mailman.py
72   ${nexthop} ${user}
73 amavis     unix  -      -      -      -      2      smtp
74   -o smtp_data_done_timeout=1200
75   -o smtp_send_xforward_command=yes
76   -o disable_dns_lookups=yes
77   -o max_use=20
78 127.0.0.1:10025 inet n      -      -      -      -      smtpd
79   -o content_filter=
80   -o local_recipient_maps=
81   -o relay_recipient_maps=
82   -o smtpd_restriction_classes=
83   -o smtpd_delay_reject=no
84   -o smtpd_client_restrictions=permit_mynetworks,reject
85   -o smtpd_helo_restrictions=
86   -o smtpd_sender_restrictions=
87   -o smtpd_recipient_restrictions=permit_mynetworks,reject
88   -o smtpd_data_restrictions=reject_unauth_pipelining
89   -o smtpd_end_of_data_restrictions=
90   -o mynetworks=127.0.0.0/8
91   -o smtpd_error_sleep_time=0
92   -o smtpd_soft_error_limit=1001
93   -o smtpd_hard_error_limit=1000
94   -o smtpd_client_connection_count_limit=0
95   -o smtpd_client_connection_rate_limit=0
96   -o receive_override_options=no_header_body_checks,no_unknown_recipient_addresses

```

Virtual Maps

Shell

```

1 mkdir /etc/postfix/maps
2 vi /etc/postfix/maps/alias.cf

```

Copy/paste:

Replace mailpassword

```
1 user = mail
2 password = mailpassword
3 dbname = mail
4 table = alias
5 select_field = destination
6 where_field = source
7 hosts = 127.0.0.1
8 additional_conditions = AND `enabled` = 1
```

Shell

```
1 vi /etc/postfix/maps/domain.cf
```

Copy/paste:

Replace mailpassword

```
1 user = mail
2 password = mailpassword
3 dbname = mail
4 table = domain
5 select_field = domain
6 where_field = domain
7 hosts = 127.0.0.1
8 additional_conditions = AND `enabled` = 1
```

Shell

```
1 vi /etc/postfix/maps/user.cf
```

Copy/paste:

Replace mailpassword

```
1 user = mail
2 password = mailpassword
3 dbname = mail
4 table = user
5 select_field = CONCAT(SUBSTRING_INDEX(`email`, "@", -1), "/", SUBS
```

```
6 where_field = email
7 hosts = 127.0.0.1
8 additional_conditions = AND `enabled` = 1
```

Shell

```
1 chmod 700 /etc/postfix/maps/*
2 chown postfix:postfix /etc/postfix/maps/*
```

SASL Authentication (SSL/TLS)

Shell

```
1 usermod -aG sasl postfix
2 mkdir -p /etc/postfix/sasl
3 vi /etc/postfix/sasl/smtpd.conf
```

Copy/paste:

Replace mailpassword

```
1 pwcheck_method: saslauthd
2 auxprop_plugin: sql
3 mech_list: plain login
4 sql_engine: mysql
5 sql_hostnames: 127.0.0.1
6 sql_user: mail
7 sql_passwd: mailpassword
8 sql_database: mail
9 sql_select: SELECT `password` FROM `user` WHERE `email` = "%u@%r"
```

Shell

```
1 mkdir -p /var/spool/postfix/var/run/saslauthd
2 mv /etc/default/saslauthd{,.dist}
3 vi /etc/default/saslauthd
```

Copy/paste:

```
1 START=yes
```

```

2 DESC="SASL Authentication Daemon"
3 NAME="saslauthd"
4 MECHANISMS="pam"
5 MECH_OPTIONS=""
6 THREADS=5
7 OPTIONS="-r -c -m /var/spool/postfix/var/run/saslauthd"

```

Shell

```
1 vi /etc/pam.d/smtp
```

Copy/paste:

Replace mailpassword

```

1 auth      required      pam_mysql.so user=mail passwd=mailpassword host:
2 account sufficient pam_mysql.so user=mail passwd=mailpassword host:

```

Shell

```

1 chmod 700 /etc/postfix/sasl/smtpd.conf
2 chmod 700 /etc/pam.d/smtp

```

Courier

Shell

```

1 mv /etc/courier/authdaemonrc{,.dist}
2 vi /etc/courier/authdaemonrc

```

Copy/paste:

```

1 authmodulelist="authmysql"
2 authmodulelistorig="authuserdb authpam authpgsql authldap authmysql"
3 daemons=5
4 authdaemonvar=/var/run/courier/authdaemon
5 DEBUG_LOGIN=0
6 DEFAULTOPTIONS=""
7 LOGGEROPTS=""

```

Shell

```
1 mv /etc/courier/authmysqlrc{,.dist}
2 vi /etc/courier/authmysqlrc
```

Copy/paste:

Replace mailpassword

```
1 MYSQL_SERVER localhost
2 MYSQL_USERNAME mail
3 MYSQL_PASSWORD mailpassword
4 MYSQL_PORT 0
5 MYSQL_DATABASE mail
6 MYSQL_USER_TABLE user
7 MYSQL_CRYPT_PWFIELD password
8 MYSQL_UID_FIELD 5000
9 MYSQL_GID_FIELD 5000
10 MYSQL_LOGIN_FIELD email
11 MYSQL_HOME_FIELD "/var/spool/mail/virtual"
12 MYSQL_MAILDIR_FIELD CONCAT(SUBSTRING_INDEX(`email`, "@", -1), "/"
13 MYSQL_NAME_FIELD name
14 MYSQL_QUOTA_FIELD quota
```

Shell

```
1 mv /etc/courier/imapd{,.dist}
2 vi /etc/courier/imapd
```

Copy/paste:

```
1 ADDRESS=0
2 PORT=143
3 MAXDAEMONS=40
4 MAXPERIP=20
5 PIDFILE=/var/run/courier/imapd.pid
6 TCPDOPTS="-nodnslookup -noidentlookup"
7 LOGGEROPTS="-name=imapd"
8 IMAP_CAPABILITY="IMAP4rev1 UIDPLUS CHILDREN NAMESPACE THREAD=ORDERED"
9 IMAP_KEYWORDS=1
10 IMAP_ACL=1
11 IMAP_CAPABILITY_ORIG="IMAP4rev1 UIDPLUS CHILDREN NAMESPACE THREAD=ORDERED"
12 IMAP_PROXY=0
```

```
13 IMAP_PROXY_FOREIGN=0
14 IMAP_IDLE_TIMEOUT=60
15 IMAP_MAILBOX_SANITY_CHECK=1
16 IMAP_CAPABILITY_TLS="$IMAP_CAPABILITY AUTH=PLAIN"
17 IMAP_CAPABILITY_TLS_ORIG="$IMAP_CAPABILITY_ORIG AUTH=PLAIN"
18 IMAP_DISABLETHREADSORT=0
19 IMAP_CHECK_ALL_FOLDERS=0
20 IMAP_OBSOLETE_CLIENT=0
21 IMAP_UMASK=022
22 IMAP_ULIMITD=65536
23 IMAP_USELOCKS=1
24 IMAP_SHAREDINDEXFILE=/etc/courier/shared/index
25 IMAP_ENHANCEDIDLE=0
26 IMAP_TRASHFOLDERNAME=Trash
27 IMAP_EMPTYTRASH=Trash:7
28 IMAP_MOVE_EXPUNGE_TO_TRASH=0
29 SENDMAIL=/usr/sbin/sendmail
30 HEADERFROM=X-IMAP-Sender
31 IMAPDSTART=YES
32 MAILDIRPATH=Maildir
```

Shell

```
1 mv /etc/courier/imapd-ssl{,.dist}
2 vi /etc/courier/imapd-ssl
```

Copy/paste:

Replace mail.example.com

```
1 SSLPORT=993
2 SSLADDRESS=0
3 SSLPIDFILE=/var/run/courier/imapd-ssl.pid
4 SSLLOGGEROPTS="-name=imapd-ssl"
5 IMAPDSSLSTART=YES
6 IMAPDSTARTTLS=YES
7 IMAP_TLS_REQUIRED=0
8 COURIERTLS=/usr/bin/couriertls
9 TLS_KX_LIST=ALL
10 TLS_COMPRESSION=ALL
11 TLS_CERTS=X509
12 TLS_CERTFILE=/etc/ssl/private/mail.example.com.pem
13 TLS_TRUSTCERTS=/etc/ssl/certs
14 TLS_VERIFYPEER=NONE
```

```
15 TLS_CACHEFILE=/var/lib/courier/couriersslcache
16 TLS_CACHESIZE=524288
17 MAILDIRPATH=Maildir
```

Shell

```
1 mv /etc/courier/pop3d{,.dist}
2 vi /etc/courier/pop3d
```

Copy/paste:

```
1 PIDFILE=/var/run/courier/pop3d.pid
2 MAXDAEMONS=40
3 MAXPERIP=4
4 POP3AUTH="LOGIN"
5 POP3AUTH_ORIG="PLAIN LOGIN CRAM-MD5 CRAM-SHA1 CRAM-SHA256"
6 POP3AUTH_TLS="LOGIN PLAIN"
7 POP3AUTH_TLS_ORIG="LOGIN PLAIN"
8 POP3_PROXY=0
9 PORT=110
10 ADDRESS=0
11 TCPDOPTS="-nodnslookup -noidentlookup"
12 LOGGEROPTS="-name=pop3d"
13 POP3DSTART=YES
14 MAILDIRPATH=Maildir
```

Shell

```
1 mv /etc/courier/pop3d-ssl{,.dist}
2 vi /etc/courier/pop3d-ssl
```

Copy/paste:

Replace mail.example.com

```
1 SSLPORT=995
2 SSLADDRESS=0
3 SSLPIDFILE=/var/run/courier/pop3d-ssl.pid
4 SSLLOGGEROPTS="-name=pop3d-ssl"
5 POP3DSSLSTART=YES
6 POP3_STARTTLS=YES
7 POP3_TLS_REQUIRED=0
```



```
8 COURIERTLS=/usr/bin/couriertls
9 TLS_STARTTLS_PROTOCOL=TLS1
10 TLS_KX_LIST=ALL
11 TLS_COMPRESSION=ALL
12 TLS_CERTS=X509
13 TLS_CERTFILE=/etc/ssl/private/mail.example.com.pem
14 TLS_TRUSTCERTS=/etc/ssl/certs
15 TLS_VERIFYPEER=NONE
16 TLS_CACHEFILE=/var/lib/courier/couriersslcache
17 TLS_CACHESIZE=524288
18 MAILDIRPATH=Maildir
```

Note: In the next step you will be prompted to input some information about the certificate you create. You can enter any information you want here except Common Name (CN) which must match `mail.example.com`.

```
Shell
1 openssl req -x509 -newkey rsa:1024 -keyout "/etc/ssl/private/mail.
2 openssl req -new -outform PEM -out "/etc/ssl/private/mail.example.
3 chmod 640 /etc/ssl/private/mail.example.com.*
4 chgrp ssl-cert /etc/ssl/private/mail.example.com.*
```

Amavis

```
Shell
1 rm -f /etc/amavis/conf.d/50-user
2 vi /etc/amavis/conf.d/50-user
```

Copy/paste:

```
1 use strict;
2
3 $log_level = 1;
4 $syslog_priority = 'info';
5 $sa_kill_level_deflt = 6.5;
6 $final_spam_destiny = D_DISCARD;
7 $pax = 'pax';
8
9 @bypass_virus_checks_maps = (\%bypass_virus_checks, \@bypass_viru
```

```
10 @bypass_spam_checks_maps = (%bypass_spam_checks, \@bypass_spam_c  
11 @local_domains_acl = qw(.);  
12  
13 1;
```

SpamAssassin

Shell

```
1 mv /etc/default/spamassassin{,.dist}  
2 vi /etc/default/spamassassin
```

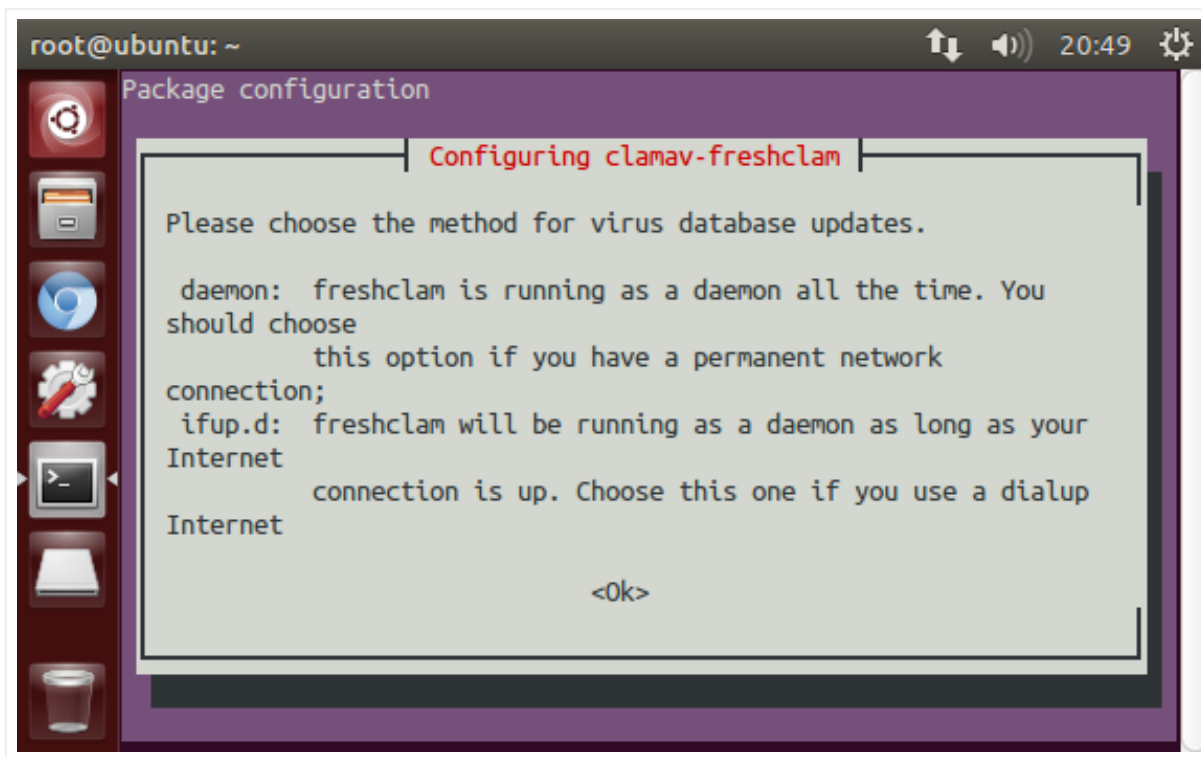
Copy/paste:

```
1 ENABLED=1  
2 OPTIONS="--create-prefs --max-children 5 --helper-home-dir"  
3 PIDFILE="/var/run/spamd.pid"  
4 CRON=0
```

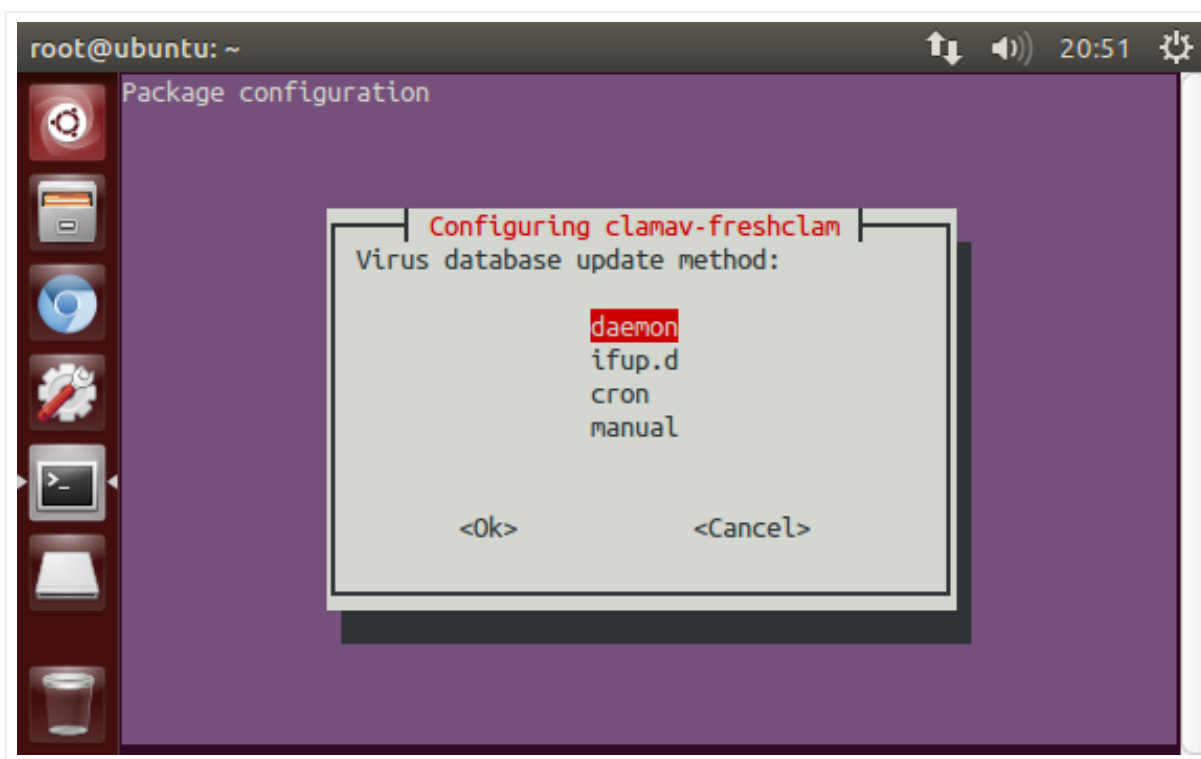
ClamAV

Shell

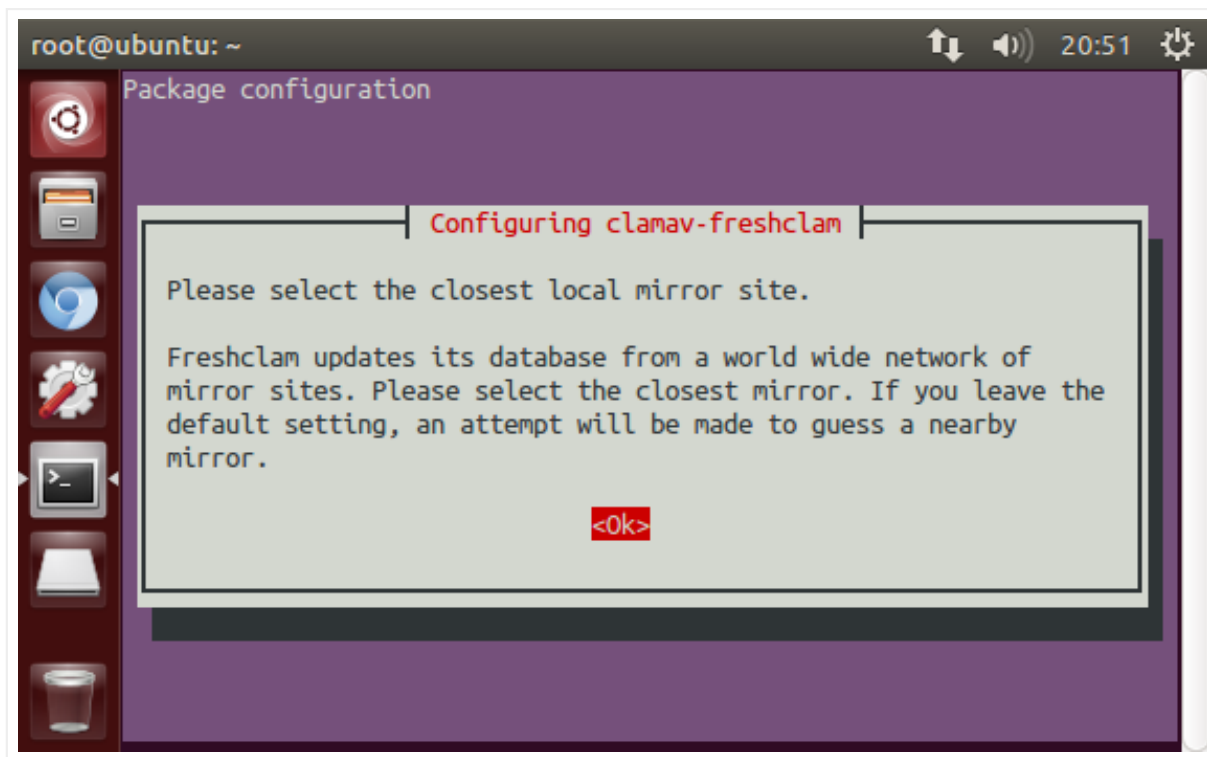
```
1 dpkg-reconfigure clamav-freshclam
```



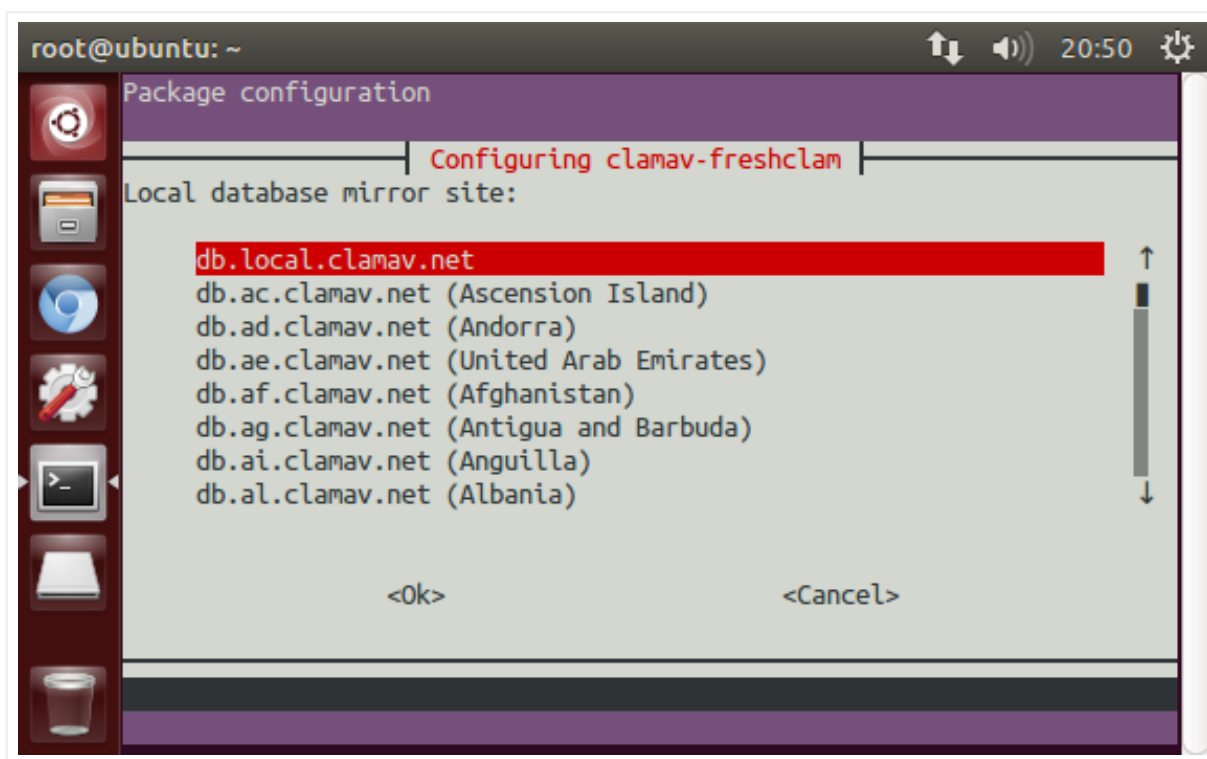
Choose ok .



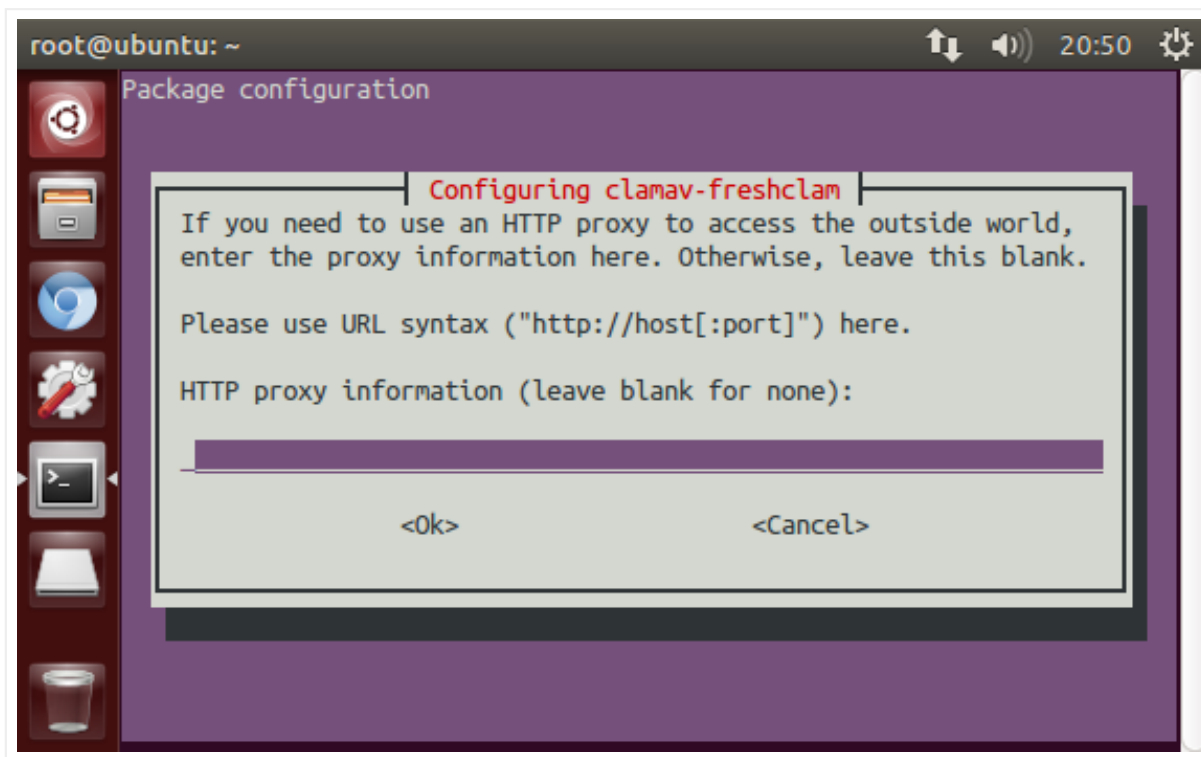
Choose daemon .



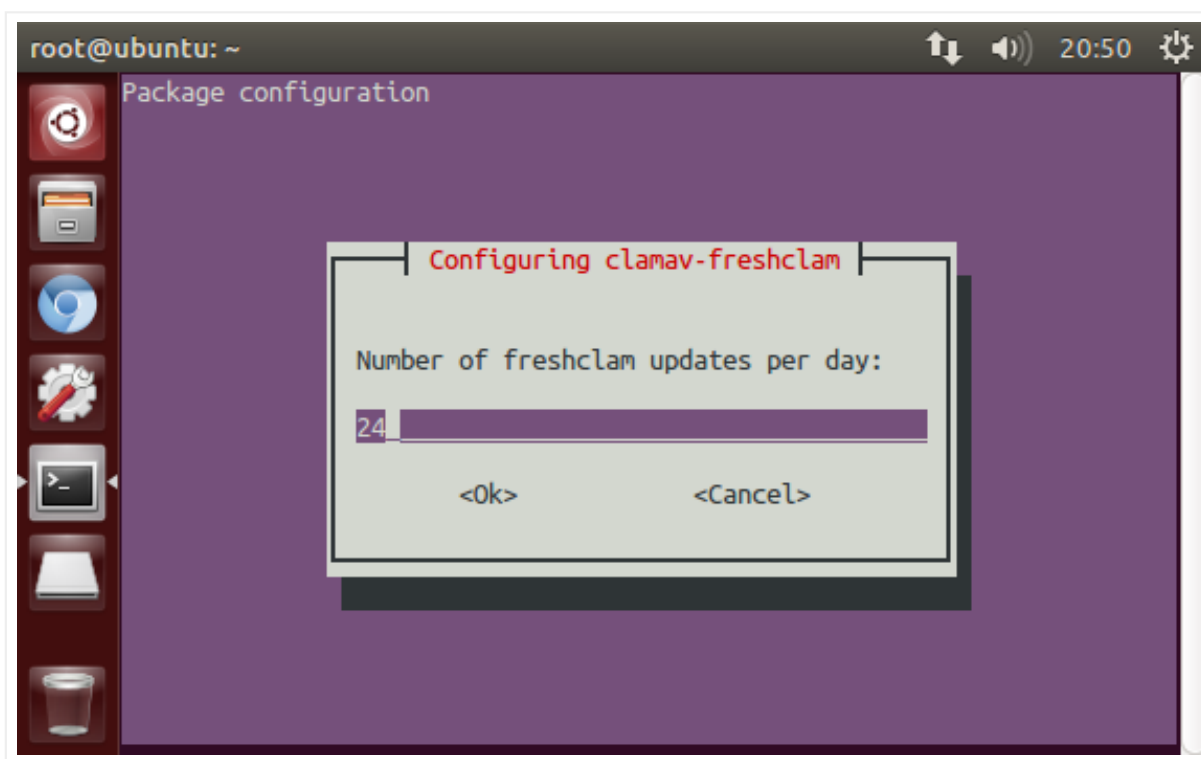
Choose ok .



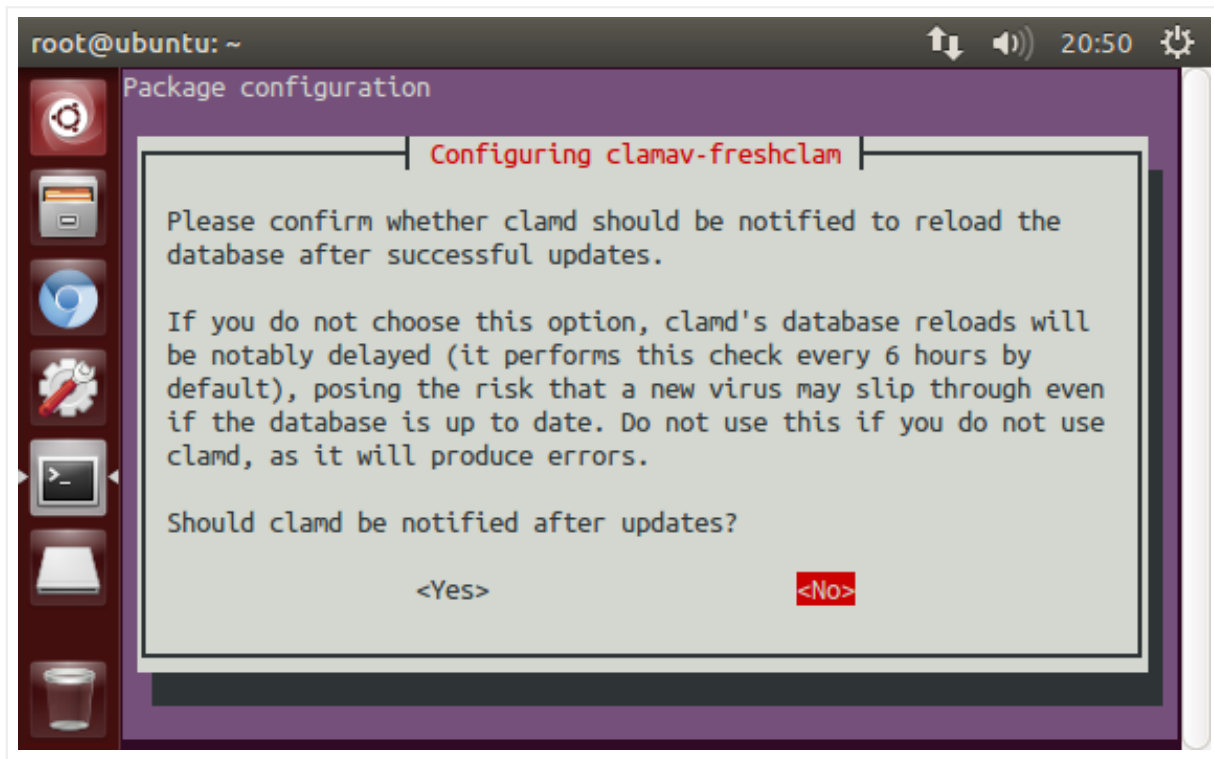
Choose a mirror closest to your server.



Specify a proxy, if required.



Enter 24 .



Choose No .

MySQL Database

```
Shell
1 | mysql -uroot -p
```

Enter rootpassword .

Copy/paste:

Replace mailpassword

```
MySQL
1 | CREATE DATABASE `mail`;
2 | GRANT ALL ON `mail`.* TO "mail"@"localhost" IDENTIFIED BY "mailpa
3 |
4 | FLUSH PRIVILEGES;
5 | USE `mail`;
6 |
7 | CREATE TABLE IF NOT EXISTS `alias` (
8 |   `source` VARCHAR(255) NOT NULL,
9 |   `destination` VARCHAR(255) NOT NULL DEFAULT "",
10 |  `enabled` TINYINT UNSIGNED NOT NULL DEFAULT 1,
```

```

11 PRIMARY KEY (`source`)
12 ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
13
14 CREATE TABLE IF NOT EXISTS `domain` (
15   `domain` VARCHAR(255) NOT NULL DEFAULT "",
16   `transport` VARCHAR(255) NOT NULL DEFAULT "virtual:",
17   `enabled` TINYINT UNSIGNED NOT NULL DEFAULT 1,
18   PRIMARY KEY (`domain`)
19 ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
20
21 CREATE TABLE IF NOT EXISTS `user` (
22   `email` VARCHAR(255) NOT NULL DEFAULT "",
23   `password` VARCHAR(255) NOT NULL DEFAULT "",
24   `name` VARCHAR(255) DEFAULT NULL,
25   `quota` INT UNSIGNED DEFAULT NULL,
26   `enabled` TINYINT UNSIGNED NOT NULL DEFAULT 1,
27   PRIMARY KEY (`email`)
28 ) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

Create default data. This will:

- Permit messages sent to the localhost domain
- Permit messages sent to the localhost.localdomain domain
- Permit messages sent to the example.com domain
- Create a mailbox for admin@example.com with the password adminpassword
- Forward messages to the localhost.localdomain domain to the localhost domain
- Forward messages to the localhost domain to admin@example.com

Copy/paste:

Replace example.com **and** adminpassword

	MySQL
1	INSERT INTO `domain` (`domain`) VALUES ("localhost"), ("localhost.
2	INSERT INTO `user` (`email`, `password`, `name`) VALUES ("admin@ex
3	INSERT INTO `alias` (`source`, `destination`) VALUES ("@localhost.

Finishing Up

Reboot Services

```
Shell
1 service saslauthd restart
2 service postfix restart
3 service courier-authdaemon restart
4 service courier-pop restart
5 service courier-pop-ssl restart
6 service courier-imap restart
7 service courier-imap-ssl restart
```

Create Your Mail Directory

You will not be able to login to your mailbox(es) until you create the required folder structure. There are two ways to do this:

1. Send an e-mail to your new e-mail address from an existing e-mail account.
Postfix will create the required directories for you.
2. Create the directories yourself:

```
Shell
1 mkdir -p /var/spool/mail/virtual/example.com/admin/{new,tmp,cu
2 chown -R virtual:virtual /var/spool/mail/virtual/example.com/ad
```

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