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By: Justin Ellingwood   ⊕ Subscribe   ⬆ Share   ≡ Contents ⌄

How To Install and Configure Postfix on Ubuntu 16.04

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Updated March 16, 2017   ⊚ 351.8k   EMAIL   UBUNTU   UBUNTU 16.04

Introduction

Postfix is a popular open-source Mail Transfer Agent (MTA) that can be used to route and deliver email on a Linux system. It is estimated that around 25% of public mail servers on the internet run Postfix.

In this guide, we'll teach you how to get up and running quickly with Postfix on an Ubuntu 16.04 server.

Prerequisites

In order to follow this guide, you should have access to a non-root user with `sudo` privileges. You can

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In order to properly configure Postfix, you will need a Fully Qualified Domain Name pointed at your Ubuntu 16.04 server. You can find help on setting up your domain name with DigitalOcean by following this guide. If you plan on accepting mail, you will need to make sure you have an MX record pointing to your mail server as well.

For the purposes of this tutorial, we will assume that you are configuring a host that has the FQDN of `mail.example.com`.

Step 1: Install Postfix

Postfix is included in Ubuntu's default repositories, so installation is incredibly simple.

To begin, update your local `apt` package cache and then install the software. We will be passing in the `DEBIAN_PRIORITY=low` environmental variable into our installation command in order to answer some additional prompts:

```
$ sudo apt-get update
$ sudo DEBIAN_PRIORITY=low apt-get install postfix
```

Use the following information to fill in your prompts correctly for your environment:

- **General type of mail configuration?**: For this, we will choose **Internet Site** since this matches our infrastructure needs.

- **System mail name**: This is the base domain used to construct a valid email address when only the account portion of the address is given. For instance, the hostname of our server is `mail.example.com`, but we probably want to set the system mail name to `example.com` so that given the username `user1`, Postfix will use the address `user1@example.com`.

- **Root and postmaster mail recipient**: This is the Linux account that will be forwarded mail addressed to `root@` and `postmaster@`. Use your primary account for this. In our case, **sammy**.

- **Other destinations to accept mail for**: This defines the mail destinations that this Postfix instance will accept. If you need to add any other domains that this server will be responsible for receiving, add those here, otherwise, the default should work fine.

- **Force synchronous updates on mail queue?**: Since you are likely using a journaled filesystem, accept **No** here.

- **Local networks**: This is a list of the networks that your mail server is configured to relay messages for. The default should work for most scenarios. If you choose to modify it, make sure to be very

restriction.

- **Local address extension character**: This is the character that can be used to separate the regular portion of the address from an extension (used to create dynamic aliases).

- **Internet protocols to use**: Choose whether to restrict the IP version that Postfix supports. We'll pick "all" for our purposes.

To be explicit, these are the settings we'll use for this guide:

- **General type of mail configuration?**: Internet Site

- **System mail name**: example.com (not mail.example.com)

- **Root and postmaster mail recipient**: sammy

- **Other destinations to accept mail for**: $myhostname, example.com, mail.example.com, localhost.example.com, localhost

- **Force synchronous updates on mail queue?**: No

- **Local networks**: 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128

- **Mailbox size limit**: 0

- **Local address extension character**: +

- **Internet protocols to use**: all

If you need to ever return to re-adjust these settings, you can do so by typing:

```
$ sudo dpkg-reconfigure postfix
```

The prompts will be pre-populated with your previous responses.

When you are finished, we can now do a bit more configuration to set up our system how we'd like it.

Step 2: Tweak the Postfix Configuration

Next, we can adjust some settings that the package did not prompt us for.

To begin, we can set the mailbox. We will use the **Maildir** format, which separates messages into individual files that are then moved between directories based on user action. The other option is the **mbox** format

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We will set the `home_mailbox` variable to `Maildir/` which will create a directory structure under that name within the user's home directory. The `postconf` command can be used to query or set configuration settings. Configure `home_mailbox` by typing:

```
$ sudo postconf -e 'home_mailbox= Maildir/'
```

Next, we can set the location of the `virtual_alias_maps` table. This table maps arbitrary email accounts to Linux system accounts. We will create this table at `/etc/postfix/virtual`. Again, we can use the `postconf` command:

```
$ sudo postconf -e 'virtual_alias_maps= hash:/etc/postfix/virtual'
```

Step 3: Map Mail Addresses to Linux Accounts

Next, we can set up the virtual maps file. Open the file in your text editor:

```
$ sudo nano /etc/postfix/virtual
```

The virtual alias map table uses a very simple format. On the left, you can list any addresses that you wish to accept email for. Afterwards, separated by whitespace, enter the Linux user you'd like that mail delivered to.

For example, if you would like to accept email at `contact@example.com` and `admin@example.com` and would like to have those emails delivered to the `sammy` Linux user, you could set up your file like this:

/etc/postfix/virtual

```
contact@example.com sammy
admin@example.com sammy
```

After you've mapped all of the addresses to the appropriate server accounts, save and close the file.

We can apply the mapping by typing:

```
$ sudo postmap /etc/postfix/virtual
```

Restart the Postfix process to ensure that all of our changes have been applied.

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```
$ sudo systemctl restart postfix
```

Step 4: Adjust the Firewall

If you are running the UFW firewall, as configured in the initial server setup guide, we'll have to allow an exception for Postfix.

You can allow connections to the service by typing:

```
$ sudo ufw allow Postfix
```

The Postfix server component is installed and ready. Next, we will set up a client that can handle the mail that Postfix will process.

Step 5: Setting up the Environment to Match the Mail Location

Before we install a client, we should make sure our `MAIL` environmental variable is set correctly. The client will inspect this variable to figure out where to look for user's mail.

In order for the variable to be set regardless of how you access your account (through `ssh`, `su`, `su -`, `sudo`, etc.) we need to set the variable in a few different locations. We'll add it to `/etc/bash.bashrc` and a file within `/etc/profile.d` to make sure each user has this configured.

To add the variable to these files, type:

```
$ echo 'export MAIL=~/Maildir' | sudo tee -a /etc/bash.bashrc | sudo tee -a /etc/profile
```

To read the variable into your current session, you can source the `/etc/profile.d/mail.sh` file:

```
$ source /etc/profile.d/mail.sh
```

Step 6: Install and Configure the Mail Client

In order to interact with the mail being delivered, we will install the `s-nail` package. This is a variant of the BSD `xmail` client, which is feature-rich, can handle the Maildir format correctly, and is mostly backwards compatible. The GNU version of `mail` has some frustrating limitations, such as always saving

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To install the `s-nail` package, type:

```
$ sudo apt-get install s-nail
```

We should adjust a few settings. Open the `/etc/s-nail.rc` file in your editor:

```
$ sudo nano /etc/s-nail.rc
```

Towards the bottom of the file, add the following options:

/etc/s-nail.rc

```
. . .
set emptystart
set folder=Maildir
set record=+sent
```

This will allow the client to open even with an empty inbox. It will also set the `Maildir` directory to the internal `folder` variable and then use this to create a `sent` mbox file within that, for storing sent mail.

Save and close the file when you are finished.

Step 7: Initialize the Maildir and Test the Client

Now, we can test the client out.

Initializing the Directory Structure

The easiest way to create the Maildir structure within our home directory is to send ourselves an email. We can do this with the `mail` command. Because the `sent` file will only be available once the Maildir is created, we should disable writing to that for our initial email. We can do this by passing the `-Snorecord` option.

Send the email by piping a string to the `mail` command. Adjust the command to mark your Linux user as the recipient:

```
$ echo 'init' | mail -s 'init' -Snorecord sammy
```

```
Output
Can't canonicalize "/home/sammy/Maildir"
```

This is normal and will only show during this first message. We can check to make sure the directory was created by looking for our `~/Maildir` directory:

```
$ ls -R ~/Maildir
```

You should see the directory structure has been created and that a new message file is in the `~/Maildir/new` directory:

```
Output
/home/sammy/Maildir/:
cur   new   tmp

/home/sammy/Maildir/cur:

/home/sammy/Maildir/new:
1463177269.Vfd01I40e4dM691221.mail.example.com

/home/sammy/Maildir/tmp:
```

It looks like our mail has been delivered.

Managing Mail with the Client

Use the client to check your mail:

```
$ mail
```

You should see your new message waiting:

```
Output
s-nail version v14.8.6.  Type ? for help.
"/home/sammy/Maildir": 1 message 1 new
>N  1 sammy@example.com      Wed Dec 31 19:00   14/369   init
```

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```
Output
[-- Message  1 -- 14 lines, 369 bytes --]:
From sammy@example.com Wed Dec 31 19:00:00 1969
Date: Fri, 13 May 2016 18:07:49 -0400
To: sammy@example.com
Subject: init
Message-Id: <20160513220749.A278F228D9@mail.example.com>
From: sammy@example.com

init
```

You can get back to your message list by typing **h**:

```
? h
```

```
Output
s-nail version v14.8.6.  Type ? for help.
"/home/sammy/Maildir": 1 message 1 new
>R  1 sammy@example.com      Wed Dec 31 19:00   14/369   init
```

Since this message isn't very useful, we can delete it with **d**:

```
? d
```

Quit to get back to the terminal by typing **q**:

```
? q
```

Sending Mail with the Client

You can test sending mail by typing a message in a text editor:

```
$ nano ~/test_message
```

Inside, enter some text you'd like to email:

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```
Hello,

This is a test.  Please confirm receipt!
```

Using the `cat` command, we can pipe the message to the `mail` process. This will send the message as your Linux user by default. You can adjust the "From" field with the `-r` flag if you want to modify that value to something else:

```
$ cat ~/test_message | mail -s 'Test email subject line' -r from_field_account user@ema
```

The options above are:

- `-s` : The subject line of the email

- `-r` : An optional change to the "From:" field of the email. By default, the Linux user you are logged in as will be used to populate this field. The `-r` option allows you to override this.

- `user@email.com` : The account to send the email to. Change this to be a valid account you have access to.

You can view your sent messages within your `mail` client. Start the interactive client again by typing:

```
$ mail
```

Afterwards, view your sent messages by typing:

```
? file +sent
```

You can manage sent mail using the same commands you use for incoming mail.

Conclusion

You should now have Postfix configured on your Ubuntu 16.04 server. Managing email servers can be a tough task for beginning administrators, but with this configuration, you should have basic MTA email functionality to get you started.

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ojkastl *May 17, 2016*

0   Two small typos:

```
**Internet protocols to use: all
```

I think the first part should be formatted as bold (I guess that is where the ** are coming from...)

```
We will create this table at /etc/postfix/virutal
```

I think this should be /etc/postfix/virtual

---

jellingwood **MOD** *May 17, 2016*

0   @ojkastl: Yep! Thanks for pointing that out. I've updated the guide.

CanKer *May 28, 2016*

1   Very useful (The best explanation I've read here) and the only one who worked for me, maybe because the Ubuntu version, all tutorials are quite same but they are Ubuntu's 14 or minus.

Can you add Courier/Dovecot setup please? Same, for Ubuntu 16.04

Thank you

JensMikkelsen *December 14, 2016*

0   I was reading another tutorial, but it is much more complex, and for a completely different postfix configuration. I think it is older: https://www.digitalocean.com/community/tutorials/how-to-set-up-a-postfix-e-mail-server-with-dovecot

I find this 16.04 tutorial much simpler, and I would like to be able to install dovecot in order to be able to use smtp and pop3 or imap. It would be really good if someone extended this tutorial.

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How To Set Up a Postfix E-Mail Server with Dovecot
by Lukas Erlacher

This tutorial will tell you how to setup a basic mail server and attempts to teach you a bit about the Postfix MTA (Mail Transfer Agent) in the process.

[VilleFTW](#) *May 28, 2016*

4 Thanks for the guide Justin, however I've messed up somewhere at this step

```
ls -R ~/Maildir
```

It tells me there's not such file or directory and I've tried to restart the console and now I cannot enter any commands just a blank line. Whatever I type in and press enter, it comes out 2 times.

```
login as: user
user@#######'s password:
Welcome to Ubuntu 16.04 LTS (GNU/Linux 4.4.0-22-generic i686)

 * Documentation:  https://help.ubuntu.com/

18 packages can be updated.
0 updates are security updates.


Last login: Sat May 28 07:41:49 2016 from ########
[sudo] password for user:
Test
Test
I can't execute any commands
I can't execute any commands
Need help
Need help
```

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i have the same problem of yours,

1

```
ls -R ~/Maildir
```

returns (no such file or directory) , is there any solution of this ??

i also tried to change (root) folder permission from 0700 to 0755, but no luck ??

---

aryehbeitz *August 8, 2016*

o The writer assumes you're using the non-root account.
"In order to follow this guide, you should have access to a non-root user with sudo privileges."

---

bradatefi *December 9, 2016*

1 I am using a non-root account with sudo privileges on Ubuntu 16.04. I followed the tutorial exactly and have the same issue when I type the command $ ls -R ~/Maildir. It says no such file or directory. I tried manually creating 'Maildir' but it is still not working. Not sure what to do at this point. Any help would be greatly appreciated.

---

justlinas *June 11, 2016*

o Did You even check how the command prompts work?

to restart postfix You give this command line:

```
sudo systemctl restart postfix
```

But it's incorrect, an error is given:

```
sudo: systemctl: command not found
```

To get the postfix restarted, You have to give this command line instead:

```
sudo /etc/init.d/postfix restart
```

jellingwood MOD *June 13, 2016*

1

@justlinas: Hey, it looks like you're probably trying to complete this guide either on the wrong version of Ubuntu. Ubuntu switched to their init system to systemd starting at Ubuntu 15.04, so any release following that will have the `systemctl` command that this guide uses by default. Hope that helps.

sdanz *June 14, 2016*

0 Same problem HERE! you find a solution?

sdanz *June 14, 2016*

0 Now works, I was configuring theses steps in my root account, when I switch to my "sammy" account and run the following commands:

echo 'init' | mail -s 'init' -Snorecord sammy
ls -R ~/Maildir

I can´t receive the error message but I can see now my emails!

bineeshoc *July 14, 2016*

0 I got Relay access denied error.. pls help...

luismuzquiz *July 15, 2016*

0 Quick question: Is this what it needs to be done if one would like to operate simple contact forms from a droplet? The contact forms will be able to send e-mails. Or is there a simpler way around?

brianjes *August 1, 2016*

0 Quick question:

If my FQDN is not mail.example.com as in your above tutorial, but instead, my FQDN is just example.com what additional steps would be involved to continue following your tutorial above, and would it not be good practice to use my example.com domain for both email and web hosting or would that be ok? Sorry if this has been asked already, but I have already tried searching for answers. :(

Based on what I already understand, mail would be a sub-domain off of example.com correct? Or is that an entirely different domain altogether?

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Please delete this message (and the one above) as I really don't see the purpose for this one anymore.

0

Thank you
Brian

[brianjes](#) *August 1, 2016*

0 Hi,

Disregard my last message, as I have followed everything in this tutorial and from top to bottom it worked exactly as expected, my only question now is that I want to now setup thunderbird email client with my contact@domain.com email address, and check the mail, but I didn't have to set a username or password throughout this tutorial, is there something I have missed or can you point me to the correct page to allow me to configure my email for 'external use' if that is the correct way to put it?

Sorry for the last message, just learning the ropes.

Thank you
Brian

[andmax](#) *August 4, 2016*

0 Thanks for this tutorial, it is very well written. It is all working on my server, sending and receiving emails, the problem I'm having is when I try to login via a email client it keeps telling me my username and password are incorrect, how can I fix this problem?

[mohitarora](#) *September 29, 2016*

0 I followed this tutorial completely, but still my emails are not going to my email address.

Although emails are being saved to local Maildir directory under home folder.

Can you please help me sending emails to any email address from my server. I am using php to send emails and want to send emails to any email address which I specify in my files.

If there is any other tutorial to follow to do what I want?

[nicolascotsis](#) *September 29, 2016*

1 Hi,
Is it necessary to install dovecot after postfix ? And is there a tutorial to install dovecot on 16.04 ?
Thank you.

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edmondyacumal *December 6, 2016*

Excellent explanation and works perfect, as I do to manage my email graphically, for example through a url, I mean you can see the content as does gmail or hotmail, thanks ..

moment *January 18, 2017*

3 Stuck on `Can't canonicalize "/home/miguel/Maildir"` Can't see to get any farther. When I run `ls -R ~/Maildir` I get `ls: cannot access '/home/miguel/Maildir': No such file or directory`

gaitesswanson *January 26, 2017*

1 I'm having exactly the same problem. any help would be appreciated.

dantearaujo *January 27, 2017*

0 ls -R ~/Maildir
ls: cannot access '/home/dantearaujo/Maildir': No such file or directory

Same here, please help!

mariernico *January 28, 2017*

0 Me too, for some reason!
Followed the guide from the top and I can't seem to make this step work.

waqaspro *February 2, 2017*

0 Try: ls -R /home/username/Maildir

Note: Change username with your username

dantearaujo *February 3, 2017*

0 No success:

ls -R /home/dantearaujo/Maildir
ls: cannot access '/home/dantearaujo/Maildir': No such file or directory

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[deleted]

0   0

shnako *February 7, 2017*

3 I had it too and managed to fix it. I tried a few things so not 100% sure which one did it but try this:

1. `sudo service postfix restart` and then `echo 'init' | mail -s 'init' -Snorecord <youruser>`

2. `mkdir ~/Maildir` and then `echo 'init' | mail -s 'init' -Snorecord <youruser>` (maybe restart as well).

Let me know if and which one works for you so I can update this to be clearer.

philury *February 19, 2017*

1 The second one worked for me, cheers

quickresponse *May 8, 2017*

0 The second option worked for me, thank you.

rameysteven *June 17, 2017*

0 It seems like the author has a working email address to send to, which in that case I think that the "Maildir" directory will automatically be created.

I was able to solve this by creating the Maildir directory using: `mkdir ~/Maildir`

And then I was able to move on to this step and send mail to my personal email (although it went to my spam folder): `cat ~/test_message | mail -s 'Test email subject line' -r from_field_account user@email.com`

aven *March 14, 2017*

0 I was stuck on this error too. In my case, I configured the mailbox size limit and it caused an error.

So I ran:
sudo dpkg-reconfigure postfix
and set

sudo /etc/init.d/postfix reload

And the problem is solved.

In case it doesn't solve, run
tail -f /var/log/mail.err
to see what is the cause of errors.

Hope this helps.

---

wuijin1004 *October 4, 2017*

1   In Ubuntu 16.04, one of the options I had was "use procmail to deliver local mail". When I had that set to "yes" it didn't work. When I set it to "no" then the "echo 'init' | mail -s 'init' -Snorecord <user>" worked. The "procmail" setting is not in the tutorial steps above.

---

it4schools *October 19, 2017*

0   The setting 'procmail - NO' works fine for me too.

It would be good to add this setting to the tutorial.

---

andrewhosford *February 12, 2018*

0   I had this problem too. I did a fresh 'LAMP on 16.04' install which comes with postfix. For whatever reason, when I run `sudo dpkg-reconfigure postfix` and change my "system mail name" to <example.com> (my actual domain name for my website) it did not update the main.cf file for postfix. So I had to manually change it: `sudo nano /etc/postfix/main.cf` After I put the correct 'example.com' in the 'myhostname' variable everything worked fine and the `echo 'init' | mail -s 'init' -Snorecord <user>` works to initialize the folders. Then I was successfully able to send msyelf an email `cat ~/test_message | mail -s 'Test email subject line' -r from_field_account <email@email.com>` Hope this helps.

---

ahmedehab95n *March 5, 2017*

0   I'm pretty grateful for your efforts.
I have a problem .. It all went well regarding your tutorial but I can't receive emails myself .. When I try to send a mail from my Gmail to the mail@mydomian it keeps saying that this email address is not valid

---

mlefevre1988 *November 16, 2017*

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ramanKC *March 24, 2017*

0 Great tutorial. Working like a charm in first go.

---

rishichauhan2004 *March 24, 2017*

0 i didnt create user and but i m getting buy root@domain.com how can i change root

---

bolbona *May 25, 2017*

1 I'm still unable to figure out what's wrong... I've tried all the steps many time but stuck at
`Can't canonicalize "/home/sammy/Maildir"`

After running `echo 'init' | mail -s 'init' -Snorecord sammy`
I get `Can't canonicalize "/home/sammy/Maildir`
And `ls -R ~/Maildir` returns `ls: cannot access '/home/sammy/Maildir': No such file or directory`

And `mail` returns

```
Can't canonicalize "/home/sammy/Maildir"
s-nail version v14.8.6.  Type ? for help.
There are new messages in the error message ring (denoted by "#ERR#")
  The `errors' command manages this message ring
#ERR#?
```

Happening this again and again...

How to fix this?

---

badbox *May 29, 2017*

0 I've exactly the same problem. I'm not using `sammy` but my users name. Anyone who can help with this?
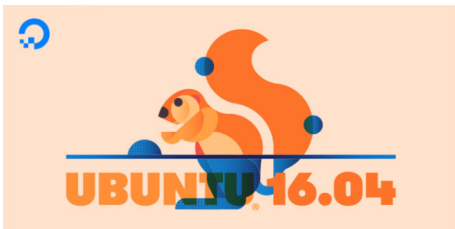
---

accounts7297d78c1c08fb747b *June 16, 2017*

0 It works! (I did it right after the initial setup tutorial: https://www.digitalocean.com/community/tutorials/initial-server-setup-with-ubuntu-16-04.) Thank you for this useful guide!

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Initial Server Setup with Ubuntu 16.04

When you start a new server, there are a few steps that you should take every time to add some basic security and give you a solid foundation. In this guide, we'll walk you through the basic steps

---

heyhujiao *June 24, 2017*

0 Somehow I got the following message,

postdrop: warning: unable to look up public/pickup: No such file or directory

I tried creating a new directory already using *mkdir ~/Maildir*

---

jaropis *November 3, 2017*

0 I also got this. I tried on two separate servers (one on digitalocea, one on tilaa in Eurpe/Holland). Have been trying to find a solution, but no luck so far.

---

jaropis *November 3, 2017*

0 OK - solved by someone on the net - have a look here
https://tinyurl.com/y9kmzr7w

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