

# Installing Postfix Mail Server on a Raspberry Pi

## Objective

This document provides instructions on how to flash Asterisk onto an SD card and install Webmin and Postfix Mail Server. The goal is to install Postfix Mail Server onto a Raspberry Pi for testing purposes.

The Raspberry Pi is not a Cisco supported product. This document is for support purposes only and is not a solution document.

## What is Webmin?

Webmin is a Graphical User Interface (GUI) for system administration for Unix-like system. Unix is an operating system that supports and allows for multitasking and multiuser functionality. You can easily install modules on Webmin such as Postfix Mail Server, Lightweight Directory Access Protocol (LDAP) server, Procmail Mail filter, Point-to-Point Tunneling Protocol (PPTP) VPN Server, and many more. You can also set up user accounts, DNS, file sharing, and other configurations that you need instead of having to manually edit each Unix configuration file. This is a good solution if you don't like working with command lines and would rather use the GUI to help you configure and add new functionality.

To learn more about Webmin, click [here](#).

## What is Postfix Mail Server?

Postfix Mail Server is an open-source mail transfer agent. It is an application that is used to send and receive mail. Postfix Mail Server can be used with other modules such as Dovecot. Dovecot is an open-source Internet Message Access Protocol (IMAP) and Post Office Protocol 3 (POP3) server that is used as a mail storage server.

To learn more about postfix, click [here](#).

## Why do I want to Install Postfix Mail Server?

Everyone uses email. Users can host their own mail server, or they can go with a third-party provider. One of the biggest questions that people have when using a third-party provider is, "Am I comfortable with that?" Most users would probably want to use a third-party provider because their security is better than what they have at their home or at their small business; but some users would rather host it internally. When hosting your own mail server, you have complete control over your own data.

Additionally, hosting your own mail server means you get to control your own email address with your domain name (i.e. [Bob@esupport.com](mailto:Bob@esupport.com)). Which for business presentation looks better than reaching out with a third-party domain name (i.e. [Bob@hotmail.com](mailto:Bob@hotmail.com)). There are a lot of choices that the users have when hosting their own mail server. There is Exchange, Sendmail, Groupwise, Postfix, and many more. Some servers are free, but some are not. In this case, Postfix is a free and open-source mail server that users can install on their Raspberry Pi.

# Requirements

- Raspberry Pi (Pi 3 B+, Pi 3, Pi 2, B+, B, and A model – for more information, check out: [raspberrypi.org](http://raspberrypi.org))
- [Asterisk Image](#)
- [Etcher](#)
- SD card (32 GB minimum)
- SD card adapter (**optional** – if your device has an SD card port)
- Domain Name (**optional** – depending on your use case)

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## Installing Asterisk on the Raspberry Pi

### Step 1

In the [raspberrypi-asterisk downloads](#) page, scroll down till you see the latest image available for download. In this example, we selected the **raspbx-04-04-2018.zip** next to the *HTTP* field. The zip file should start installing.

Make sure you have enough storage on your SD card. We will be using a 32GB SD card for this tutorial.

The latest image available for download includes:

- Asterisk 13.20.0
- FreePBX 14.0.2.10

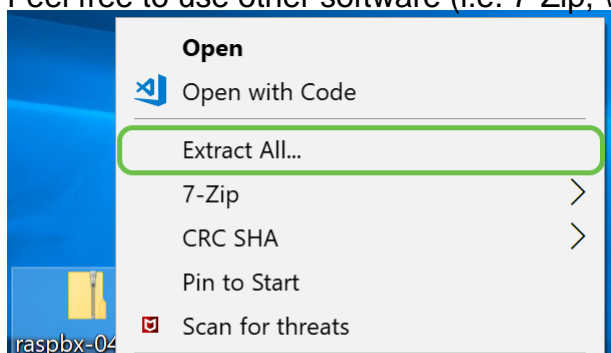
Torrent	<a href="#">raspbx-04-04-2018.zip.torrent</a>
HTTP	<a href="#">raspbx-04-04-2018.zip</a>
SHA-1	8f473d01935da0347fbafb7f71c649914934c5b6

A 4GB card is required.

### Step 2

Once you have downloaded the zip file, navigate to the location of the zip file. **Right-click** the zip file and select **Extract All....**

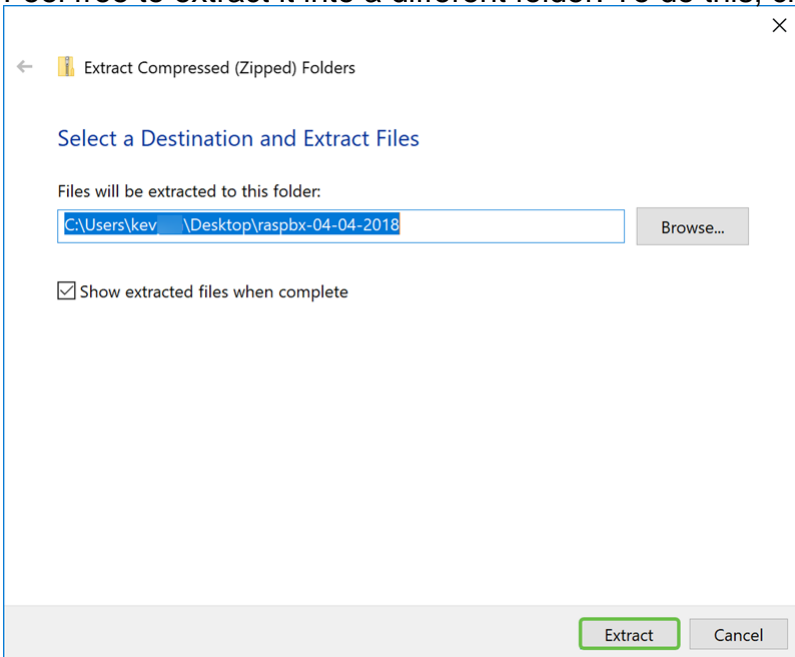
Feel free to use other software (i.e. 7-Zip, WinRAR, WinZip, etc.) to extract the zip file.



### Step 3

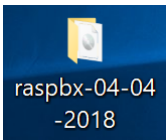
An *Extract Compressed (Zipped) Folders* window should appear. Click **Extract** to extract the zip file in the folder that it is currently in.

Feel free to extract it into a different folder. To do this, click **Browse...** and select a different folder.



### Step 4

Once the file has been extracted. You should see the unzipped folder.



### Step 5

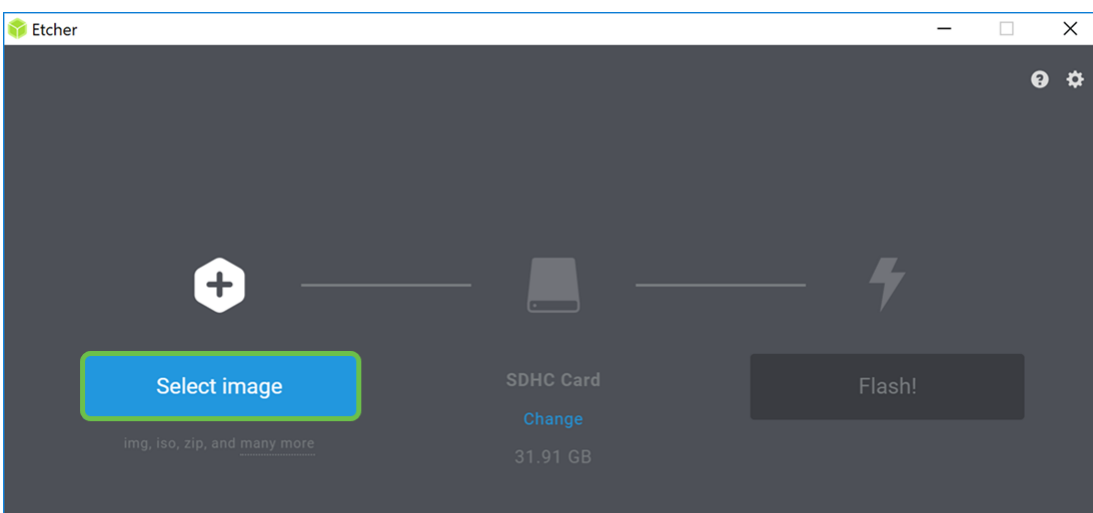
Run **balenaEtcher**.

If you haven't installed Etcher yet, check out their website by clicking [here](#).



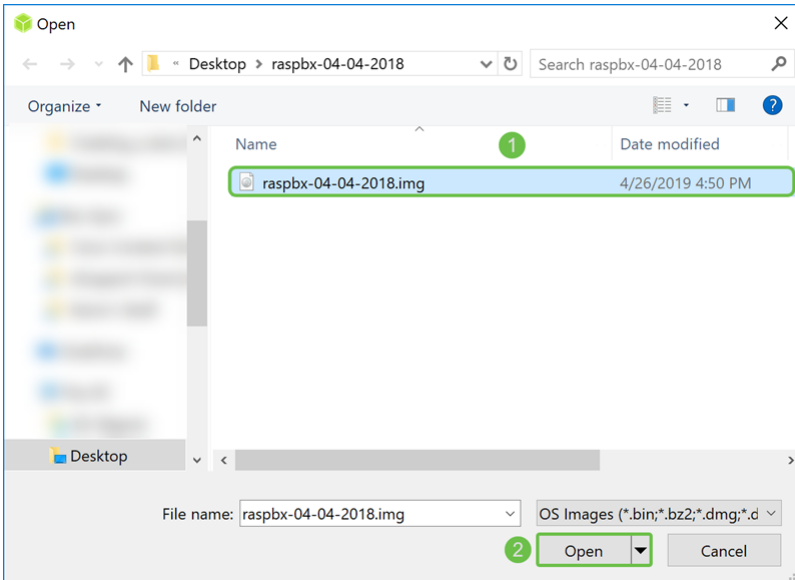
### Step 6

The *Etcher* window should appear. Click **Select image**.



## Step 7

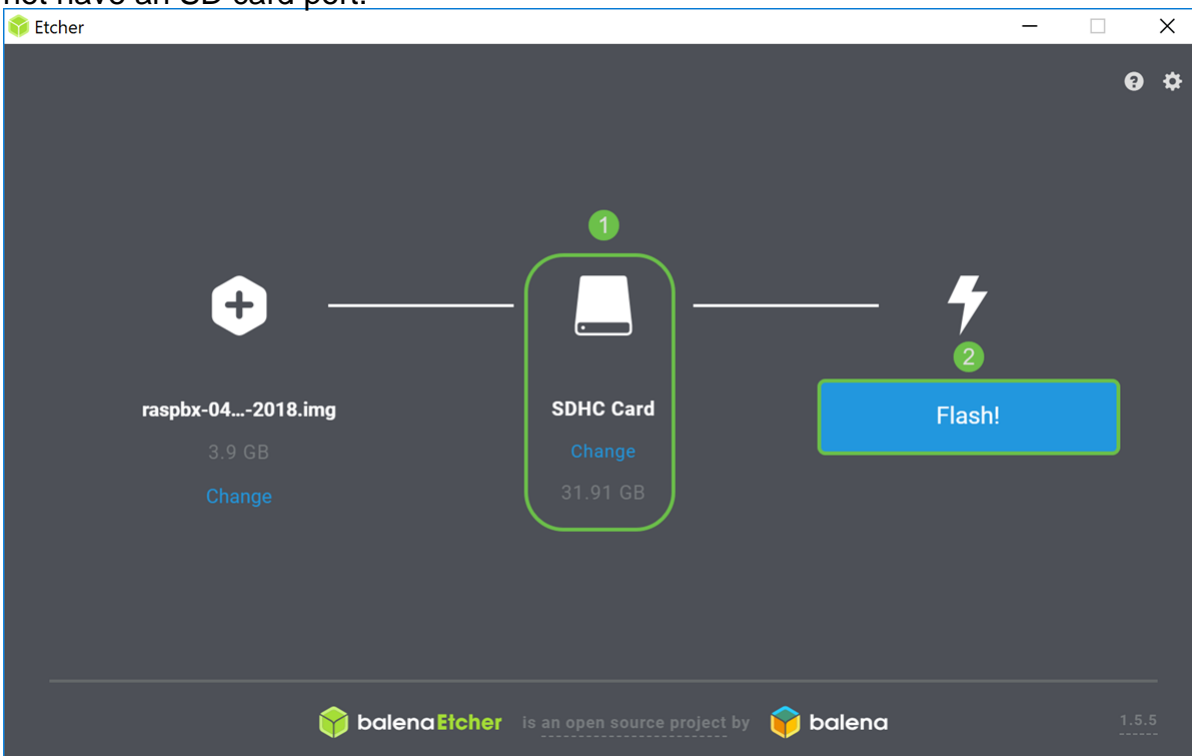
The *Open* window appears. Navigate to the location of the raspbx image. Select the **raspbx-04-04-2018.img** and click **Open**.



## Step 8

Make sure your SD card is selected. Click **Change** to select a different SD card. Click **Flash!** when you are ready to flash the raspbx image to your SD card. It will take some time to flash the image onto your SD card. Please do not interrupt it. It should prompt you when it is finished flashing the image onto your SD card.

Make sure your SD card is plugged into your device. You may need an adapter if your device does not have an SD card port.



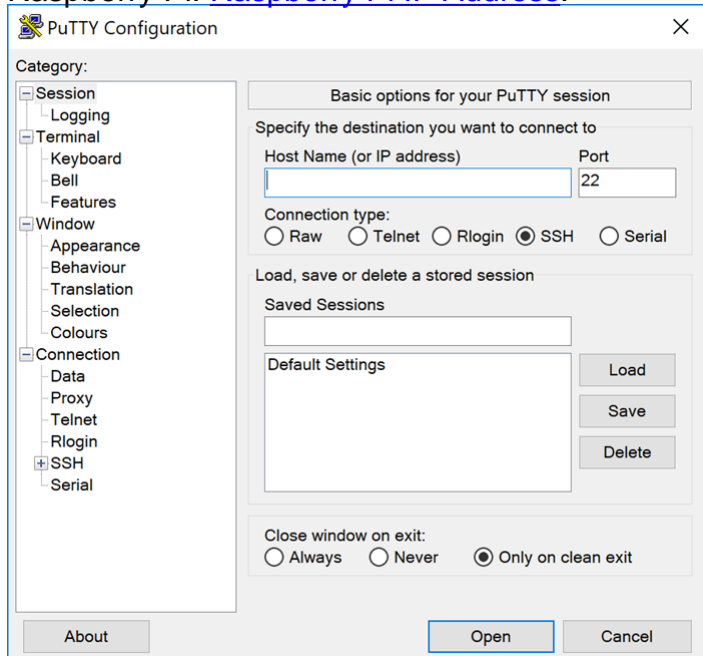
You should now have successfully imaged your SD card with the raspbx image.

## Connecting to the Raspberry Pi using SSH

## Step 1

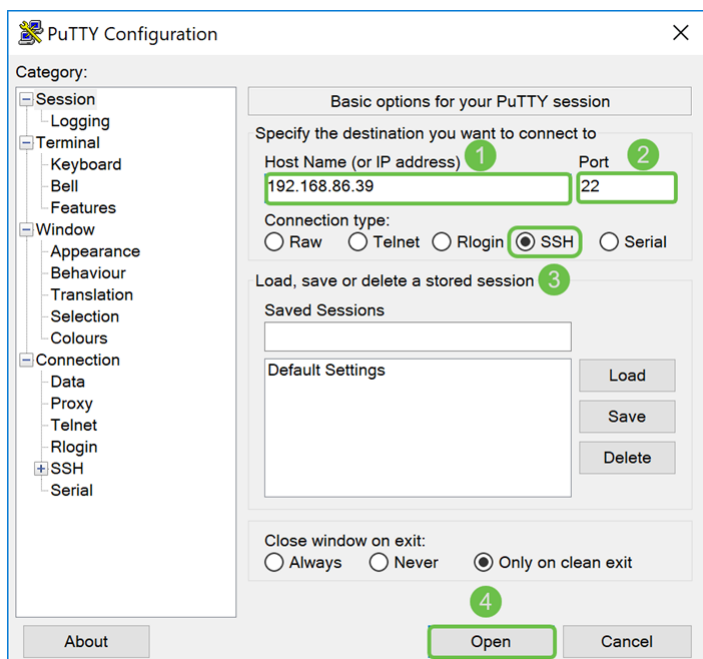
Connect to your Raspberry Pi by Secure Shell (SSH) or connect your Raspberry Pi to a computer monitor via HDMI. Before you can access your Raspberry Pi using SSH, you would need to know the IP address of the Raspberry Pi. In this example, PuTTY was used to SSH into the Raspberry Pi.

Feel free to try some of the methods in Raspberry Pi documentation to find the IP address of your Raspberry Pi: [Raspberry Pi IP Address](#).



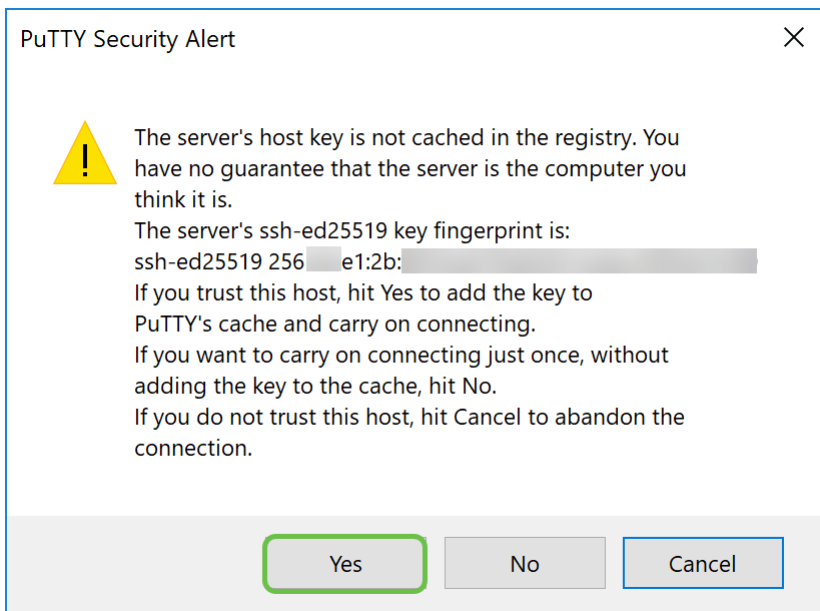
## Step 2

Enter the **IP address** of your Raspberry Pi in the *Host Name (or IP address)* field. Ensure that the port is **22** and **SSH** is selected as the *Connection Type*. Click **Open** to start the session.



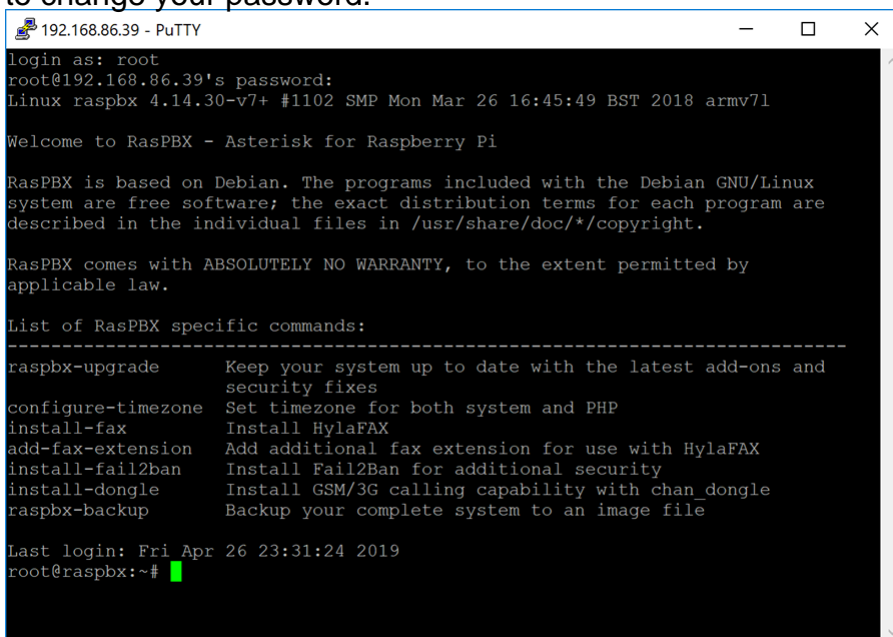
## Step 3

A *PuTTY Security Alert* will appear. Click **Yes** to continue with the connection.



Step 4. You will be prompted with a login. Enter the username **root** and **raspberry** as the default password.

It is recommended to change your password when you are logged in. Use the **passwd** command to change your password.

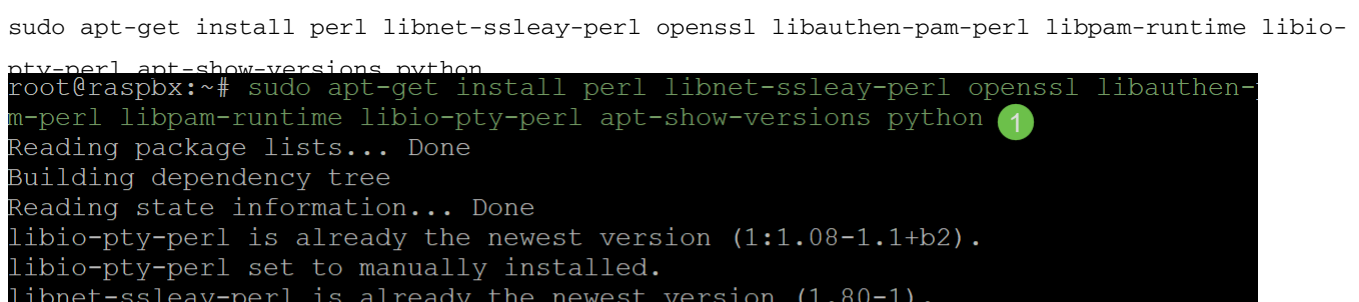


## Installing Webmin on the Raspberry Pi

Some commands we will be using can be found on this [page](#). For the most updated commands, refer to the link provided.

### Step 1

Enter the following command to install dependencies. When prompted to continue, press **y** on your keyboard to continue.



## Step 2

Enter the command below to download the DEB version of Webmin into the Raspberry Pi. A DEB file extension is a Debian Software Package file. This is mainly used in Unix-based operating system which contains archives for executable files, documentation, and libraries.

```
wget http://prdownloads.sourceforge.net/webadmin/webmin_1.900_all.deb
root@raspbx:~# wget http://prdownloads.sourceforge.net/webadmin/webmin_1.900_all
.deb
--2019-04-26 22:36:27-- http://prdownloads.sourceforge.net/webadmin/webmin_1.90
0_all.deb
Resolving prdownloads.sourceforge.net (prdownloads.sourceforge.net)... 216.105.3
8.13
Connecting to prdownloads.sourceforge.net (prdownloads.sourceforge.net)|216.105.
38.13|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://downloads.sourceforge.net/project/webadmin/webmin/1.900/webmin_
1.900_all.deb [following]
--2019-04-26 22:36:28-- http://downloads.sourceforge.net/project/webadmin/webmi
n/1.900/webmin_1.900_all.deb
Resolving downloads.sourceforge.net (downloads.sourceforge.net)... 216.105.38.13
Reusing existing connection to prdownloads.sourceforge.net:80.
HTTP request sent, awaiting response... 302 Found
Location: https://newcontinuum.dl.sourceforge.net/project/webadmin/webmin/1.900/
webmin_1.900_all.deb [following]
--2019-04-26 22:36:28-- https://newcontinuum.dl.sourceforge.net/project/webadmi
n/webmin/1.900/webmin_1.900_all.deb
Resolving newcontinuum.dl.sourceforge.net (newcontinuum.dl.sourceforge.net)... 6
4.79.96.4, 2607:ff50:0:11::32
Connecting to newcontinuum.dl.sourceforge.net (newcontinuum.dl.sourceforge.net)|
64.79.96.4|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 15846232 (15M) [application/octet-stream]
Saving to: 'webmin_1.900_all.deb'

webmin_1.900_all.de 100%[=====>] 15.11M 4.25MB/s in 3.6s

2019-04-26 22:36:33 (4.25 MB/s) - 'webmin_1.900_all.deb' saved [15846232/1584623
2]
```

## Step 3

Enter the command below to install Webmin.

The administration username is set to **root** and the password is your **current root password**. `dpkg`

```
--install webin 1.900 all.deb
root@raspbx:~# dpkg --install webmin_1.900_all.deb
Selecting previously unselected package webmin.
(Reading database ... 50832 files and directories currently installed.)
Preparing to unpack webmin_1.900_all.deb ...
Unpacking webmin (1.900) ...
Setting up webmin (1.900) ...
Webmin install complete. You can now login to https://raspbx:10000/
as root with your root password, or as any user who can use sudo
to run commands as root.
Processing triggers for systemd (232-25+deb9u2) ...
```

You should have successfully installed Webmin on your Raspberry Pi.

## Accessing Webmin and Installing Postfix Mail Server

### Step 1

Enter **https://IP\_address\_of\_your\_raspberry\_pi:10000** in the URL of your web browser to access the web page of Webmin. In this example, **https://192.168.86.39:10000** was entered.

⚠ Not secure | https://192.168.86.39:10000

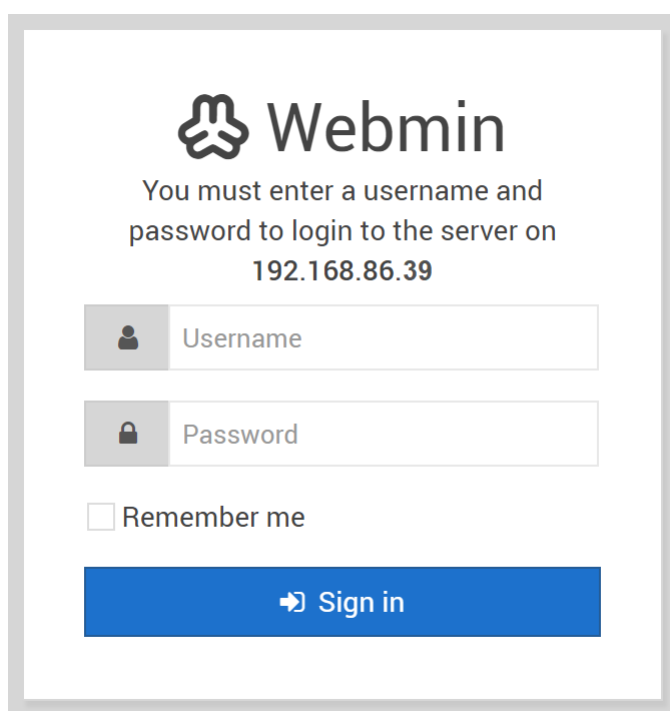
If you don't remember the IP address of your Raspberry Pi, then you can try and access it using **https://raspbx:10000**.

⚠ Not secure | https://raspbx:10000

## Step 2

Log in to the web configuration page of Webmin.

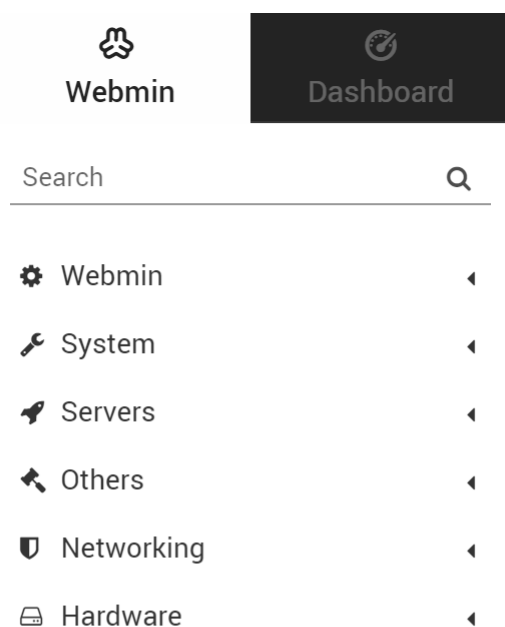
**Note:** The username is set to **root** and the password is your current password for root. If you have changed your password in [step 4](#) of Connecting to the Raspberry Pi using SSH section, then enter the password that you have changed.



The image shows the Webmin login page. At the top, there is the Webmin logo and the text "Webmin". Below this, it says "You must enter a username and password to login to the server on 192.168.86.39". There are two input fields: "Username" and "Password". Below the "Password" field is a checkbox labeled "Remember me". At the bottom, there is a blue button with a right-pointing arrow and the text "Sign in".

## Step 3

In the *Webmin* tab, click **Un-used Modules** drop-down list.



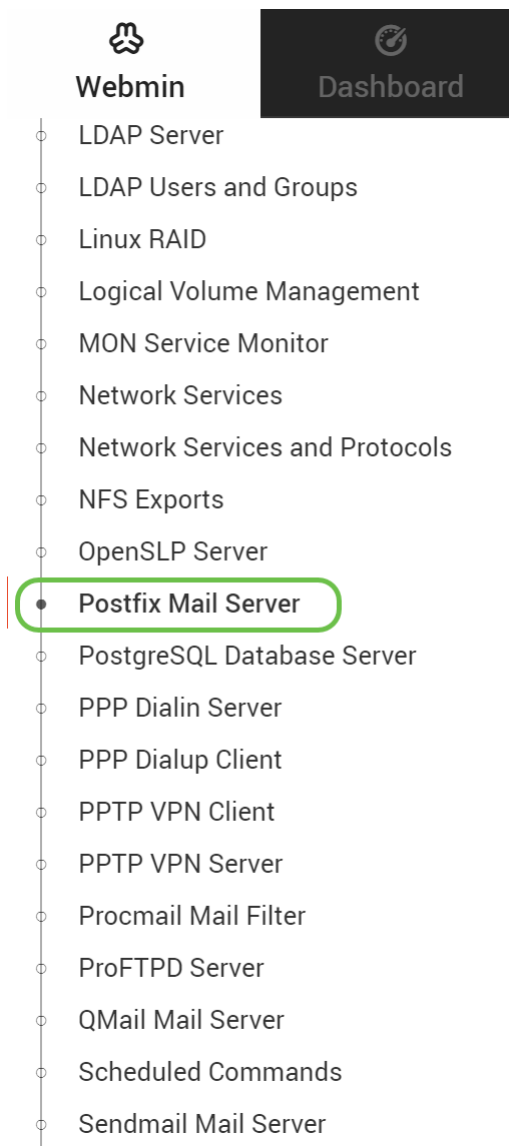
The image shows the Webmin navigation menu. At the top, there are two tabs: "Webmin" and "Dashboard". Below the tabs is a search bar with the text "Search" and a magnifying glass icon. Below the search bar is a list of modules, each with an icon and a right-pointing arrow:

- ⚙ Webmin
- 🔧 System
- 🚀 Servers
- 👤 Others
- 🛡 Networking
- 📦 Hardware



## Step 4

In the *Un-used Modules* drop-down list, find **Postfix Mail Server** and click on it.

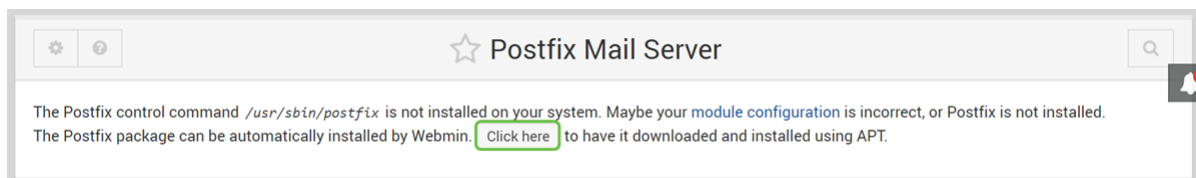


The screenshot shows the Webmin interface with the 'Un-used Modules' list. The 'Postfix Mail Server' option is highlighted with a green circle. The list includes:

- LDAP Server
- LDAP Users and Groups
- Linux RAID
- Logical Volume Management
- MON Service Monitor
- Network Services
- Network Services and Protocols
- NFS Exports
- OpenSLP Server
- Postfix Mail Server**
- PostgreSQL Database Server
- PPP Dialin Server
- PPP Dialup Client
- PPTP VPN Client
- PPTP VPN Server
- Procmail Mail Filter
- ProFTPD Server
- QMail Mail Server
- Scheduled Commands
- Sendmail Mail Server

## Step 5

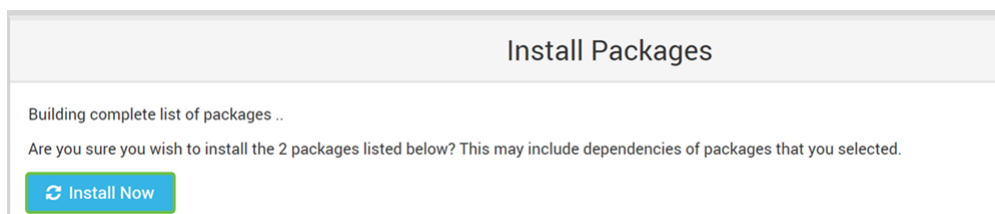
In the *Postfix Mail Server*, click the **Click here** button to download and install Postfix. It will look for packages that you haven't installed yet.



The screenshot shows the Postfix Mail Server configuration page. A message indicates that the Postfix control command `/usr/sbin/postfix` is not installed on your system. The message suggests that the module configuration might be incorrect or Postfix is not installed. A button labeled 'Click here' is provided to automatically install the Postfix package using APT.

## Step 6

Click the **Install Now** button.



The screenshot shows the 'Install Packages' dialog box. It displays a progress bar and a message asking if the user is sure they want to install the 2 packages listed below. An 'Install Now' button is visible.

## Step 7

A list of packages will appear showing the packages that you will be installing. If the install has not started, click **Install Now** button again to start the installation.

← Install Packages

Building complete list of packages ..

Are you sure you wish to install the 2 packages listed below? This may include dependencies of packages that you selected.

[Install Now](#)

Package	Current version	New version	Description
postfix	None	3.1.9-0+deb9u2	
postfix-sqlite	None	3.1.9-0+deb9u2	

## Step 8

Postfix should be installing. You should see something like the image below.

Install Packages

Now installing postfix ..

Installing package(s) with command `apt-get -y install postfix ..`

```
Reading package lists...
Building dependency tree...
Reading state information...
The following additional packages will be installed:
 postfix-sqlite
Suggested packages:
 procmail postfix-mysql postfix-pgsql postfix-ldap postfix-pcre postfix-lmdb
 sasl2-bin dovecot-common postfix-cdb ufw postfix-doc
The following packages will be REMOVED:
 exim4 exim4-base exim4-config exim4-daemon-light
The following NEW packages will be installed:
 postfix postfix-sqlite
0 upgraded, 2 newly installed, 4 to remove and 149 not upgraded.
Need to get 1673 kB of archives.
After this operation, 305 kB of additional disk space will be used.
Get:1 http://mirrors.ocf.berkeley.edu/raspbian/raspbian stretch/main armhf postfix armhf 3.1.9-0+deb9u2 [1354 kB]
Get:2 http://mirrors.ocf.berkeley.edu/raspbian/raspbian stretch/main armhf postfix-sqlite armhf 3.1.9-0+deb9u2 [319 kB]
```

## Step 9

Once Postfix has been installed, you should get a notification at the bottom stating that “install complete” or “Successfully installed 2 packages.”

```
Adding group postdrop (GID 118) ...
Done.
setting myhostname: raspbx.lan
setting alias maps
setting alias database
setting myorigin
setting destinations: $myhostname, noreply.raspbx.org, raspbx, localhost.localdomain, localhost
setting relayhost:
setting mynetworks: 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
setting mailbox_size_limit: 0
setting recipient_delimiter: +
setting inet_interfaces: all
setting inet_protocols: all
WARNING: /etc/aliases exists, but does not have a root alias.

Postfix (main.cf) is now set up with a default configuration. If you need to
make changes, edit /etc/postfix/main.cf (and others) as needed. To view
Postfix configuration values, see postconf(1).

After modifying main.cf, be sure to run 'service postfix reload'.

Running newaliases
Processing triggers for systemd (232-25+deb9u2) ...
Processing triggers for rsyslog (8.24.0-1) ...

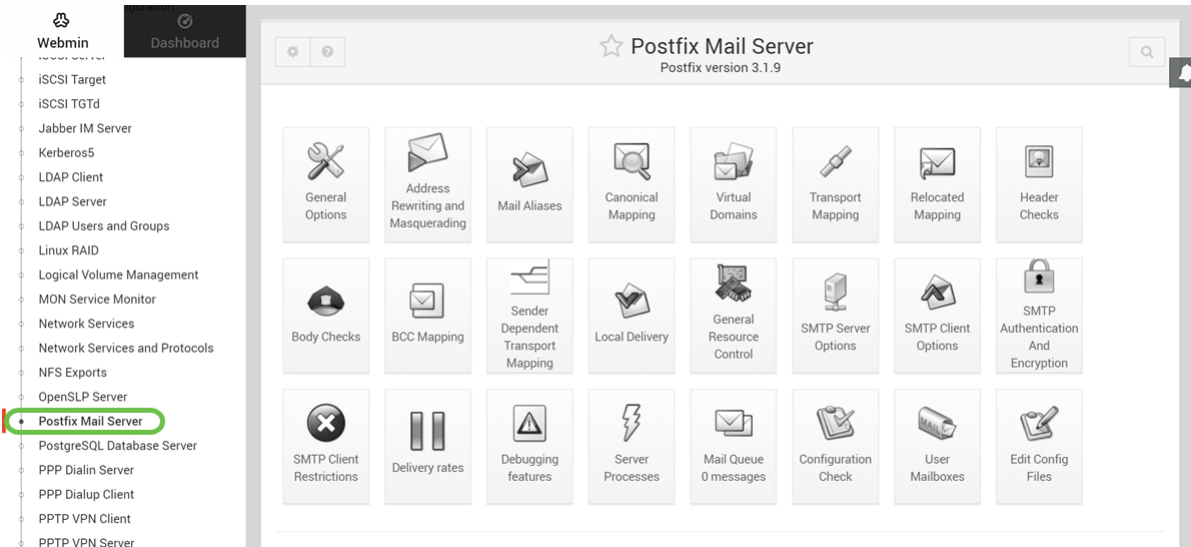
.. install complete.
```

Successfully installed 2 packages.

[Return to Software Packages](#)

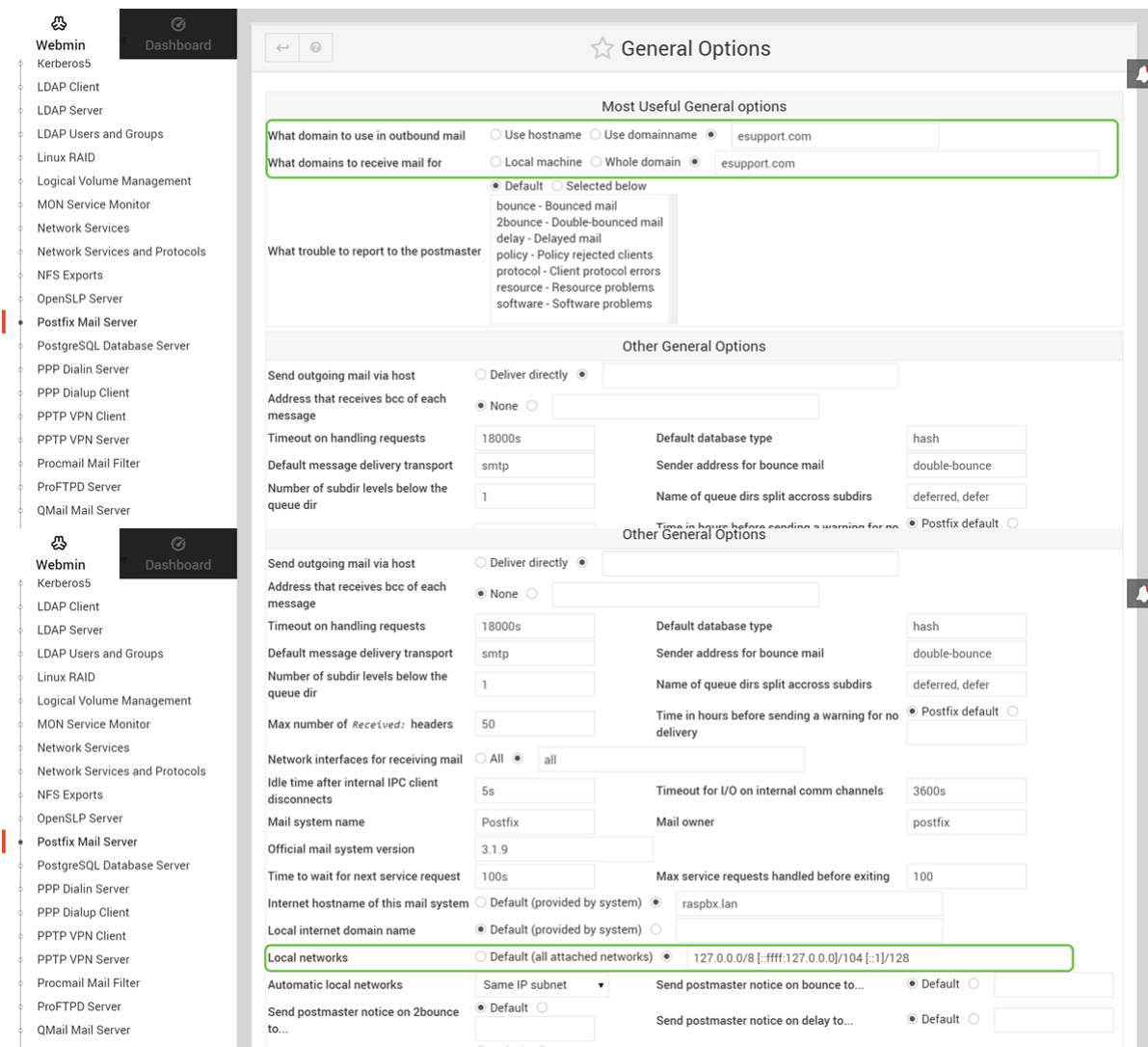
## Step 10

Navigate to **Postfix Mail Server** on the left side menu. Postfix Mail Server may be in the *Servers* or *Un-used Modules* drop-down list. In this example, Postfix Mail Server was in *Un-used Modules* drop-down list.



You should have successfully installed Postfix Mail Server on the Raspberry Pi. To start providing mail service with Postfix, there are three configurations that need to be configured in most cases. Click **General Options**, then configure *What domain to use in outbound mail*, *What domains to receive mail for*, and *local networks*. Click the **Save and Apply** button to save your change.

To learn more about it, please see Webmin's documentation on [Postfix Basic Configuration](#).



## Conclusion

You should have successfully installed Postfix Mail Server on your Raspberry Pi.

## Additional Information

If you're interested in different approaches but still using Raspberry Pi, check out these tutorials:

These tutorials will use the command line interface to setup the mail server. Please contact them for any issues or questions.

Simplified tutorial – [Make a Mail Server Out of Your Raspberry Pi 3](#)

In-depth tutorial with other features: [Sam Hobbs - Raspberry Pi Email Server Part 1: Postfix tutorial](#)

We will not be using the two tutorials that is provided above. These are additional resources that may be useful to you.

To learn about creating a basic voice network using a Raspberry Pi, click [here](#).