

Sending Email and SMS Reminders Using BeagleBone Green and Bluetooth

Team: The RNS Group

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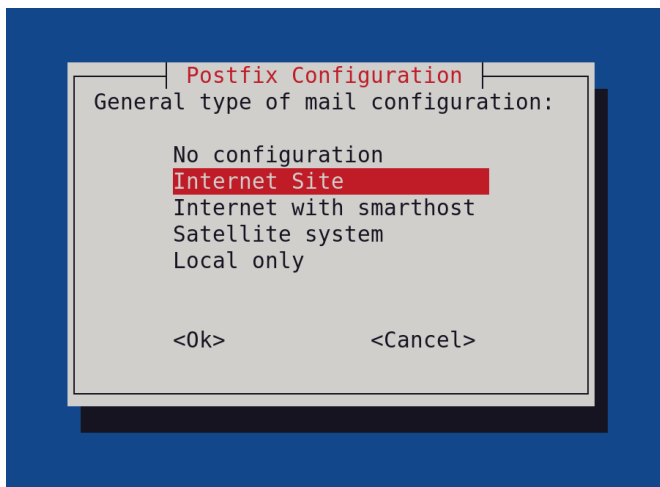
Fall 2022 ENSC 351

This guide will give step-by-step instructions on how we can send emails from linux and the BeagleBone Green. The fellow students in the class found the ability to send emails from our BeagleBone quite interesting, so we felt we would share it to the class and future students who take Dr. Brian's classes!

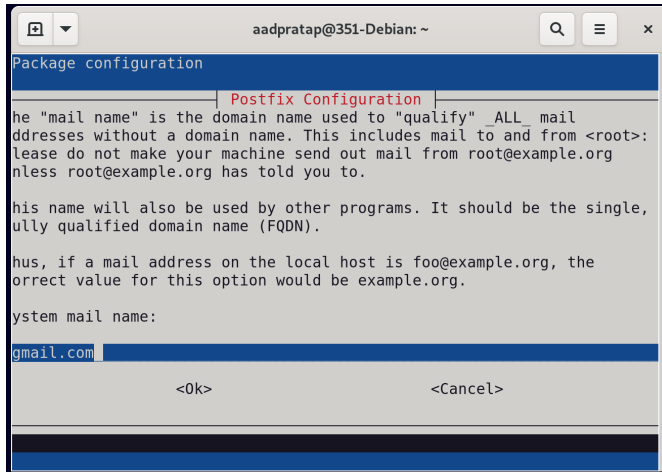
Setting-up the environment for using mailing services

Installing and configuring the POSTFIX: It is necessary to download and install postfix in order for the mail services to work on your debian.

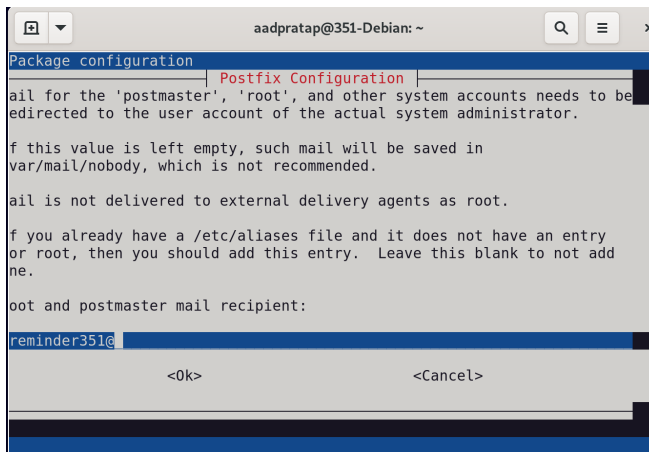
1. Use the following command to install POSTFIX on your debian. [2]
`sudo DEBIAN_PRIORITY=low apt install postfix`
2. Use the following command to configure the settings for your POSTFIX. [2]
`sudo dpkg-reconfigure postfix`
3. The following tab shows up, wherein you need to choose Intersite Site as your preferred option, as given in the following picture.



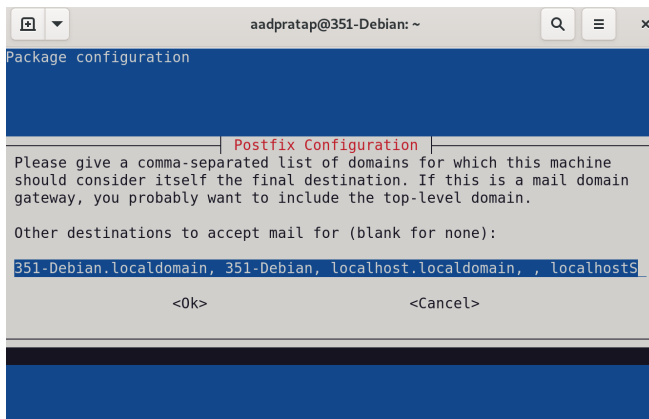
- In the subsequent window, fill in the mail address of the local host. For E.g., if you're using Gmail write down "gmail.com".



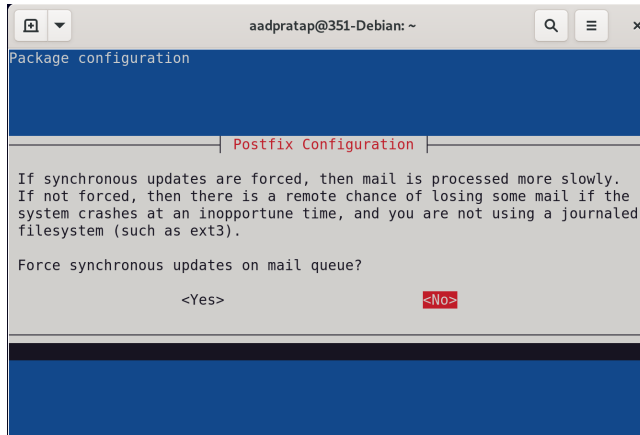
- Now, fill in the email you are using to send the mail. For E.g., if you are using xyz@gmail.com, fill in "xyz@".



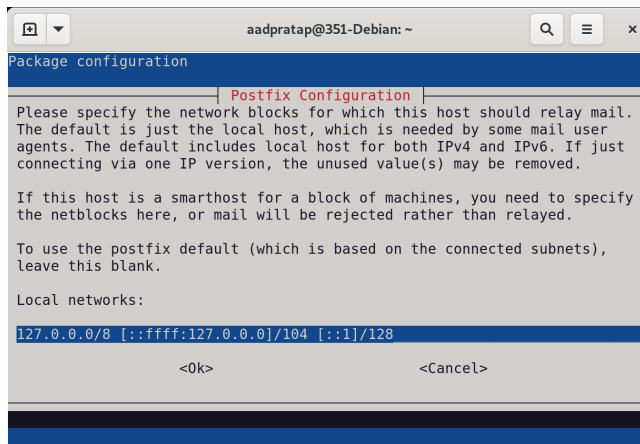
- Pass through the following window and click 'ok'.



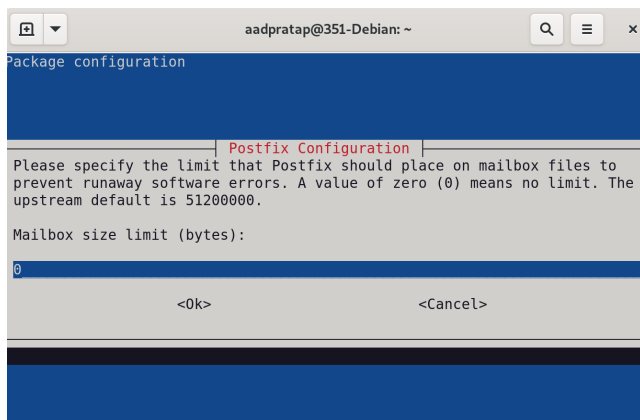
7. We did not want to force synchronous updates on the mail queue, therefore select 'No'.



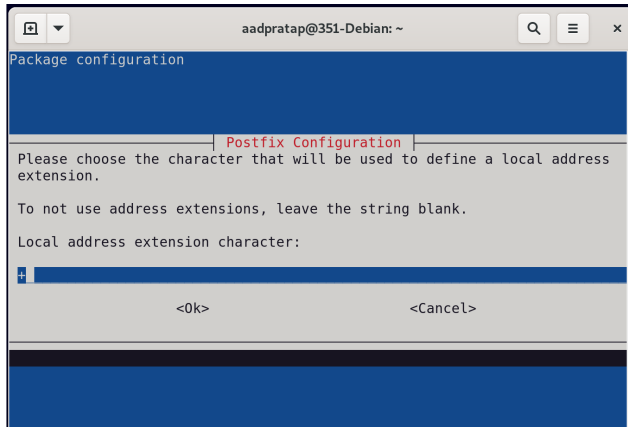
8. Click 'Ok' for the following window and pass through.



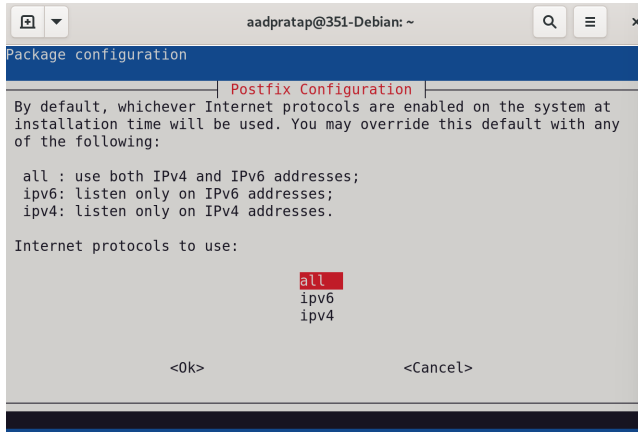
9. We do not want to have a limit on the mailbox therefore we select '0' size limit.



10. There is no need for an extension so we pass by the following window as well and select 'Ok'.



11. Use 'all' internet protocols and select 'Ok'.



1.SENDING EMAILS WITH GMAIL USING LINUX, BEAGLEBONE GREEN, AND MSMTP

1.1 Installing required packages for msmtplib:

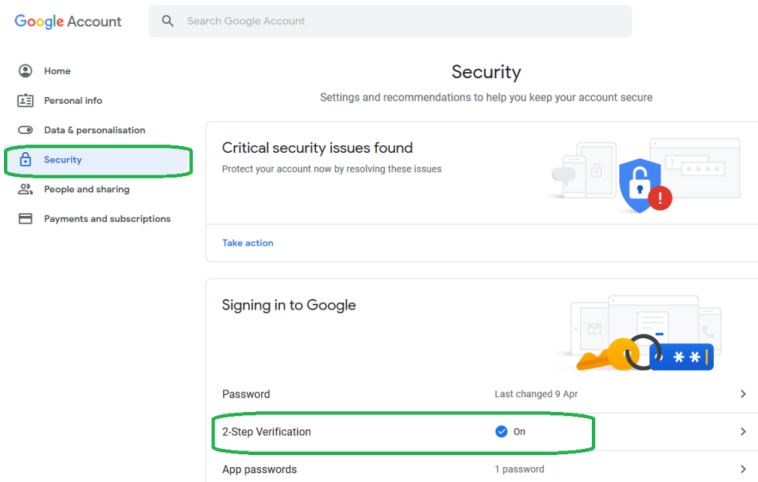
[1] On the host,

```
(host) $ sudo apt-get install msmtplib msmtplib-mta
```

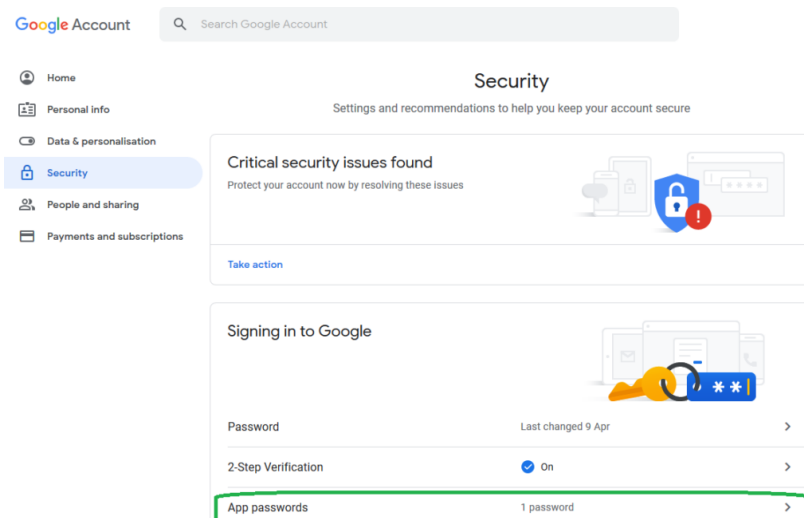
1.2 Creating an app password in Google for msmt

[1] For the email account, you want to be sending emails from, you will have to create an email password and for that:

- Go to <https://myaccount.google.com/> and login to the gmail account.
- Select **Security** from the side menu and **turn 2-Step Verification ON**.



- After that, click on **App Passwords**



- Next up, select **Other (Custom Name)**

← App passwords

App passwords let you sign in to your Google Account from apps on devices that don't support 2-Step Verification. You'll only need to enter it once so you don't need to remember it. [Learn more](#)

Your app passwords

Name	Created	Last used	
Postfix	4 Jul	4 Jul	

Select the app and device for which you want to generate the app password.

Select app: **Mail**, Calendar, Contacts, YouTube, **Other (Custom name)**

Select device:

GENERATE

- Fill in the name as msmtpl (for example)

← App passwords

App passwords let you sign in to your Google Account from apps on devices that don't support 2-Step Verification. You'll only need to enter it once so you don't need to remember it. [Learn more](#)

Your app passwords

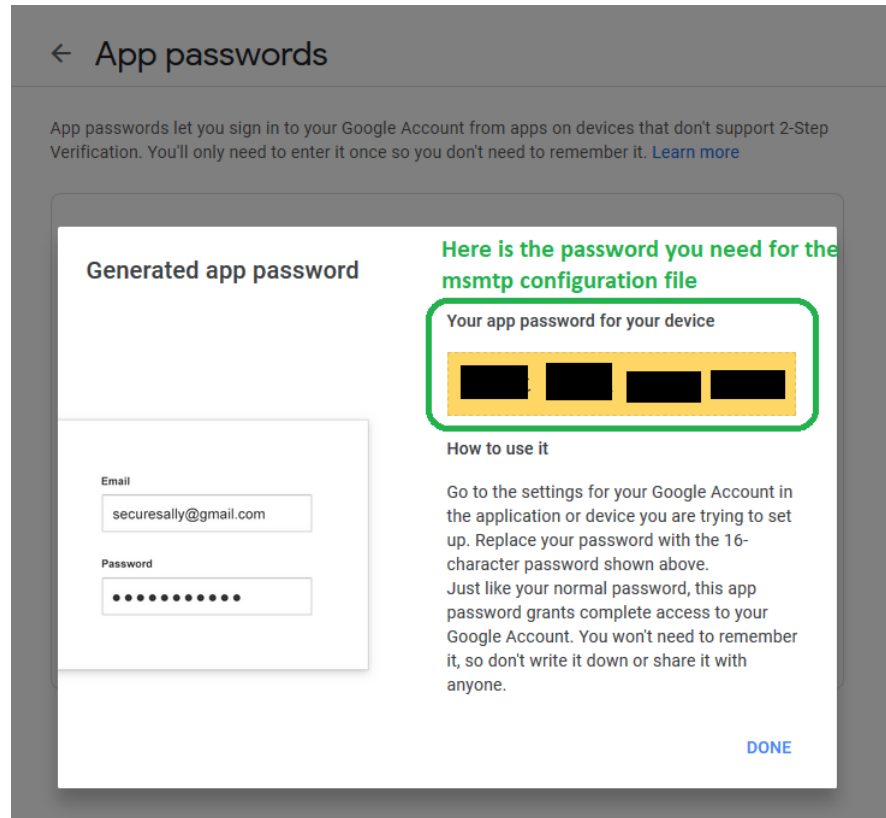
Name	Created	Last used	
Postfix	4 Jul	4 Jul	

Select the app and device for which you want to generate the app password.

msmtpl 1.

2. **GENERATE**

- Get the password for msmtplib configuration file and copy it to notepad or another temporary location as you will need it further and once you click **DONE**, you may not see the password again.



1.3 Creating a Configuration File

[1] Now, go back on your host and create a configuration file using:

```
(host) $ sudo nano /etc/msmtplib
```


1.4 Configure msmtprc file

[1] Change the **username@gmail.com** to the email you used to create an app password in Google. And the **username** has to be changed as well. For example, if you used john.doe@gmail.com, change the username to john.doe.

Also, change the password to the Google App Password you copied earlier.

```
defaults
auth      on
tls       on
tls_trust_file /etc/ssl/certs/ca-certificates.crt
logfile   ~/.msmtp.log
account   gmail
host      smtp.gmail.com
port      587
from      john.doe@gmail.com
user      john.doe
password  fkelpwkdymcswlwo
account default : gmail
```

1.5 Testing the email configuration

(host) \$ echo "Message" | mail -s "Title" youremailaddress@gmail.com

[1] After this, you should have received an email from the configured account.

1.6 Troubleshooting:

- If you tried using the same email on 2 or more devices, it is likely to not send emails and give errors. **An email just works on 1 device perfectly fine.**
- Make sure the PostFig Configuration is done before you try to send emails.

If you plan to send emails through your target (BeagleBone Green) ,follow the same steps given above except for creating the App Password as you can use the same email and password on the host and the target.

For a C program to send the emails, you can use the code provided below:

```
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
#include <time.h>
#include <string.h>
#include <math.h>
#include <stdbool.h>
#include <pthread.h>
#include <unistd.h>
#include <ctype.h>

void runCommand(char *command){
    FILE *pipe = popen(command, "r");
    char buffer[1024];
    while (!feof(pipe) && !ferror(pipe)){
        if (fgets(buffer, sizeof(buffer), pipe) == NULL)
            break;
    }
    int exitCode = WEXITSTATUS(pclose(pipe));
    if (exitCode != 0){
        perror("Unable to execute command:")
        printf(" command: %s\n", command);
        printf(" exit code: %d\n", exitCode);
    }
}
```

- **Later, to call the above function for email, use the command:**

```
runCommand("echo \"Message\" | mail -s \"Title\" youremailaddress@gmail.com");
```

REFERENCE:

1. *How to install msmtplib to Debian 10 for sending emails with gmail*
<https://caupo.ee/blog/2020/07/05/how-to-install-msmtplib-to-debian-10-for-sending-emails-with-gmail/>
2. *How To Install and Configure Postfix on Ubuntu 20.04,*
<https://www.digitalocean.com/community/tutorials/how-to-install-and-configure-postfix-on-ubuntu-20-04>