
You've Got OpenWrt Logs

Table of Contents

Installing ssmtp	1
Configuring ssmtp	2
Using ssmtp	2
Coding the Button	2
Router Log Files	3
Resources	4
About the Author	4

I've used OpenWrt (Kamikaze 7.09) installed on a Linksys WRT54GL (v 1.1) router for a few years. When I initially installed OpenWrt I made changes to the `dnsmasq.conf` file configuring bogus domains, setting up text records for machines on my LAN and other such things. OpenWrt works so well that after a while you tend to forget about it.

When I realized that I could programme the button on the face of my router I couldn't resist taking another look at OpenWrt. What to do with the button though? There's no point in making it a reboot button—you never have to reboot an OpenWrt router. Toggle the wi-fi? I don't think so.

Instead, I decided to send the logs by email. One click on the face of my router and a few moments later my phone is telling me I've got 'OpenWrt Logs'.

Note

This article is geared towards Kamikaze 7.09 on a Linksys WRT54GL router. However, the ssmtp package is available for all versions of Kamikaze and for Backfire so what's described here may well be more widely applicable.

Installing ssmtp

ssmtp is a minimalist sendmail clone ideal for use on embedded systems. You can find out more about it from the command line of your router by using `ipkg info ssmtp`. You should see something similar to the following:

```
Package: ssmtp
Version: 2.61-2
Depends: libopenssl
Provides:
Status: install user installed
Section: net
Architecture: mipsel
maintainer: OpenWrt Developers Team <openwrt-devel@openwrt.org>
MD5Sum: 8bd9deb9af9e1d5a0ab82512a87c8fef
Size: 12727
Filename: ./ssmtp_2.61-2_mipsel.ipk
Source: /data/release/packages/packages/net/ssmtp
Description: A minimal and secure mail sender
    A secure, effective and simple way of getting mail off a system to your
    mail hub. It contains no suid-binaries or other dangerous things - no
```

mail spool to poke around in, and no daemons running in the background. mail is simply forwarded to the configured mailhost. Extremely easy configuration.

The `ssmtp` package requires `libopenssl`. To find out more about this package use `ipkg info libopenssl`. Note that the file size is 472517. Check that there is space available by going to the command line and using the `df` command.

Issuing the command `ipkg install ssmtp` will install the `ssmtp` package and the `libopenssl` package.

Configuring ssmtp

After installation you can find the `ssmtp` configuration file, `ssmtp.conf`, in the `/etc/ssmtp` directory. Change or add the configuration options shown below:

```
mailhub=smtp.gmail.com:465
AuthUser=name@gmail.com
AuthPass=secret
FromLineOverride=YES
UseTLS=YES
```

In this case, the GMail mail server is being used. Add values appropriate to your circumstances. Setting `FromLineOverride` to `YES` is optional.

Using ssmtp

After changing the `ssmtp` configuration file, test that the `ssmtp` command functions properly. To do this, first add the following file to the `/etc` directory naming it `email`:

```
To: myaddress@gmail.com
Subject: OpenWrt Logs
From: other_address@gmail.com
```

Log Files

Add appropriate values for the sender and recipient. Leave an empty line after the `From:` line so that the body of the email is separated from the sender line.

Test sending an email by navigating to the `/etc` directory and issuing the command `ssmtp -vvv to@example.com < email`. Use the `-vvv` option for verbose output—you'll see every phase of the SMTP transaction.

If you are not successful then an error message is displayed and a `dead.letter` is created in the home directory. With verbose output set, the SMTP response code 250 indicates success but check your email account to make sure that the message was received.

Now that `ssmtp` is installed and working, you can begin coding the router's button.

Coding the Button

Create a directory in `/etc/hotplug.d` called `button` and then create a file in `/etc/hotplug.d/button` called `send_logs`. Paste the following code into that file:

```
#!/bin/sh
logger $BUTTON
logger $ACTION
```

Creating this file lets you determine the button name and action. Make sure that this file is executable by issuing the command `chmod +x /etc/hotplug.d/button/send_logs`. Press the button on your router and then from the command line issue the `logread` command. The final log entries should display the button name and action.

Once you've discovered the button name, replace the `send_logs` file with the following changing `ses` if required.

```
#!/bin/sh
# Mail the logs when the "ses" button is pressed
if [ "$BUTTON" = "ses" ] && [ "$ACTION" = "pressed" ] ; then
    cd /etc
    cp email email.new
    logread >> email.new
    ssmtp -t < email.new
    rm email.new
fi
```

When the button is pressed this script navigates to the `/etc` directory and copies the file containing the addressee, sender and subject line. The router logs are appended to this file which is then mailed via `ssmtp` to the recipient defined on the `To:` line in the file. The `email.new` file is then removed.

Router Log Files

Now that you can send log files at the press of a button you should know what they're telling you. `dnsmasq` uses the `syslog` facility and writes a circular log to memory. This log is read using the `logread` utility.

Find below sample log entries related to sending an email:

```
...
Dec 22 17:05:24 OpenWrt mail.info sSMTP[697]: Creating SSL connection to host
Dec 22 17:05:25 OpenWrt mail.info sSMTP[697]: SSL connection using RC4-SHA
Dec 22 17:05:29 OpenWrt mail.info sSMTP[697]: Sent mail for root@openwrt.lan
    (221 2.0.0 closing connection h9sm18368679qac.13) uid=0 username=root outbytes=1
Dec 22 17:17:39 OpenWrt syslog.info -- MARK --
```

The meaning of the fields is as follows:

- timestamp
- sender
- error level
- service
- message

Records with the message `-- MARK --` are "heartbeats" sent every twenty minutes, indicating that logging is still active.

Resources

- <http://wiki.openwrt.org/doc/howto/hardware.button> – OpenWrt documentation of hardware buttons
- <http://downloads.openwrt.org/kamikaze/> – See this page for a listing of the kamikaze packages
- <http://wiki.openwrt.org/doc/howto/log.essentials> – Documentation of OpenWrt log files
- <https://wiki.archlinux.org/index.php/SSMTP> – Documentation of ssmtp

About the Author

Peter Lavin is a technical writer who has been published in a number of print and online magazines. He is the author of Object Oriented PHP, published by No Starch Press and a contributor to PHP Hacks by O'Reilly Media.

Please do not reproduce this article in whole or part, in any form, without obtaining written permission.