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# Raspberry Pi : How to access the Internet using GSM / GPRS Modem (SIM900/SIM800)

Mahesh

June 10, 2016

GSM/GPRS, Raspberry Pi

Here we are with yet another post on our favorite Pi. We had many different posts on Raspberry Pi as well as on GSM-GPRS connectivity. So what do we have here new? What we discussed so far focused either on GSM connectivity or TCP/IP connection over GPRS, here we intend to tether our Raspberry Pi to the internet through a GPRS cellular data connection. Lets see how its done..

## Hardware Requirements

- Raspberry Pi 3
- rhydolabz GSM/GPRS Modem
- Connecting Wires
- 5v 1A power source (For GSM modem)

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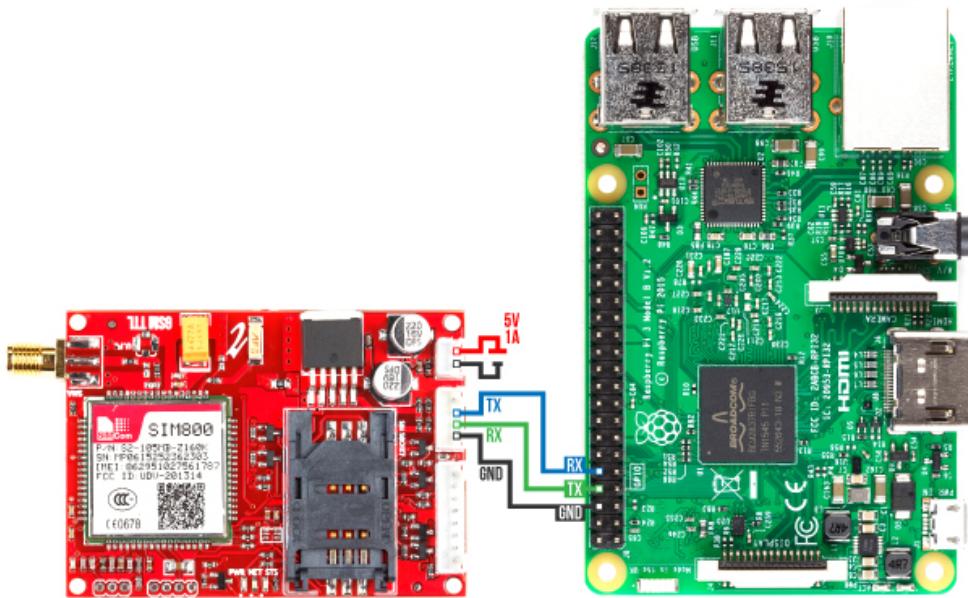
**Robotics**

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Make the connections as shown in the figure above. Provide separate power source (5V 1A) to the GSM modem for proper functioning as it drives much current. Insert a 2G activated SIM card, with working data connection, and power up the modules. It will take a few seconds for the SIM to get registered to the network. Now we need to check the communication between the RPi and the modem. For which, we make use of a python code that transmits an **AT** command and verifies whether an **OK** is received as acknowledgement. Open a python shell using **sudo idle** command and create a new file. Copy the code shown below, save and run the code.

**If you are new to Raspberry Pi, we suggest reading [this post](#) before you proceed.**

```

1 import serial
2 import os, time
3
4 # Enable Serial Communication
5 port = serial.Serial("/dev/ttyS0", baudrate=9600, timeout=1)
6
7 # Transmitting AT Commands to the Modem
8 # '\r\n' indicates the Enter key
9
10 port.write('AT+'\r\n')
11 rcv = port.read(10)
12 print rcv

```

Run the code and if the connections are all working good, then we will receive an **OK** acknowledgement in the python shell.

The screenshot shows a Python Shell window with the title "Python Shell". The menu bar includes File, Edit, Shell, Debug, Options, Windows, and Help. The main window displays the following text:

```
Python 2.7.3 (default, Mar 18 2014, 05:13:23)
[GCC 4.6.3] on linux2
Type "copyright", "credits" or "license()" for more information.
>>> ===== RESTART =====
>>>
AT

OK
>>>
```

In the bottom right corner of the window, there is a status bar with "Ln: 20 Col: 0".

## PPP Configuration

PPP or Point to Point Protocol establishes a Node to Node communication using serial interface. We make use of this, while accessing serial data connection on a PC. Here, using the serial connection, proper commands and PPP, we are about to access the internet on Pi.

## APN

An Access Point Name (APN) is the name of a gateway between a GSM/GPRS network and the internet. The APN of the cellular network that we are using, must be known to us. You can either ask it out on google or contact the service provider. In this example, we have used [IDEA connection](#) and for the APN we asked it on Google.

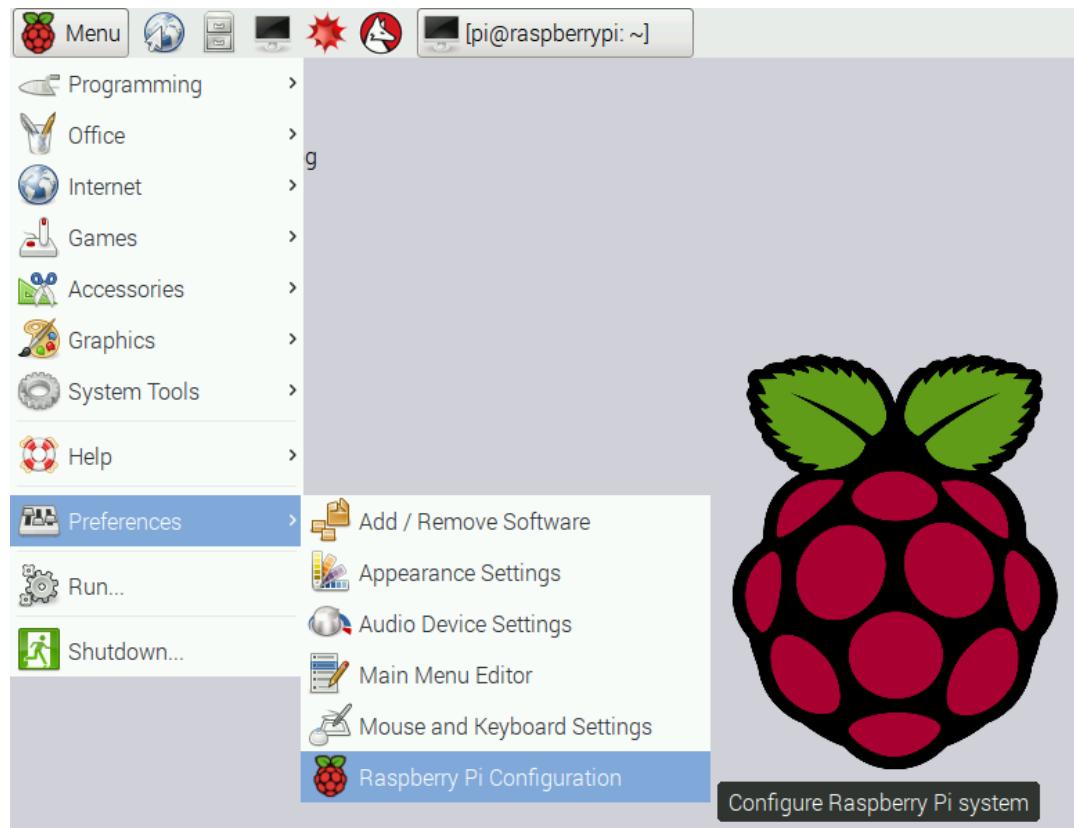
The screenshot shows a Google search results page. The search query "apn of idea" is entered in the search bar. Below the search bar, there are navigation links for All, News, Images, Videos, Maps, More, and Search tools. The search results section indicates "About 6,06,000 results (0.43 seconds)". The first result is titled "Idea APN for 2G/3G/GPRS" and contains a table with the following data:

Setting Name	Value
Operator	IDEA
APN	imis/internet
Access Number	*99# or *99***#
Username	[blank]

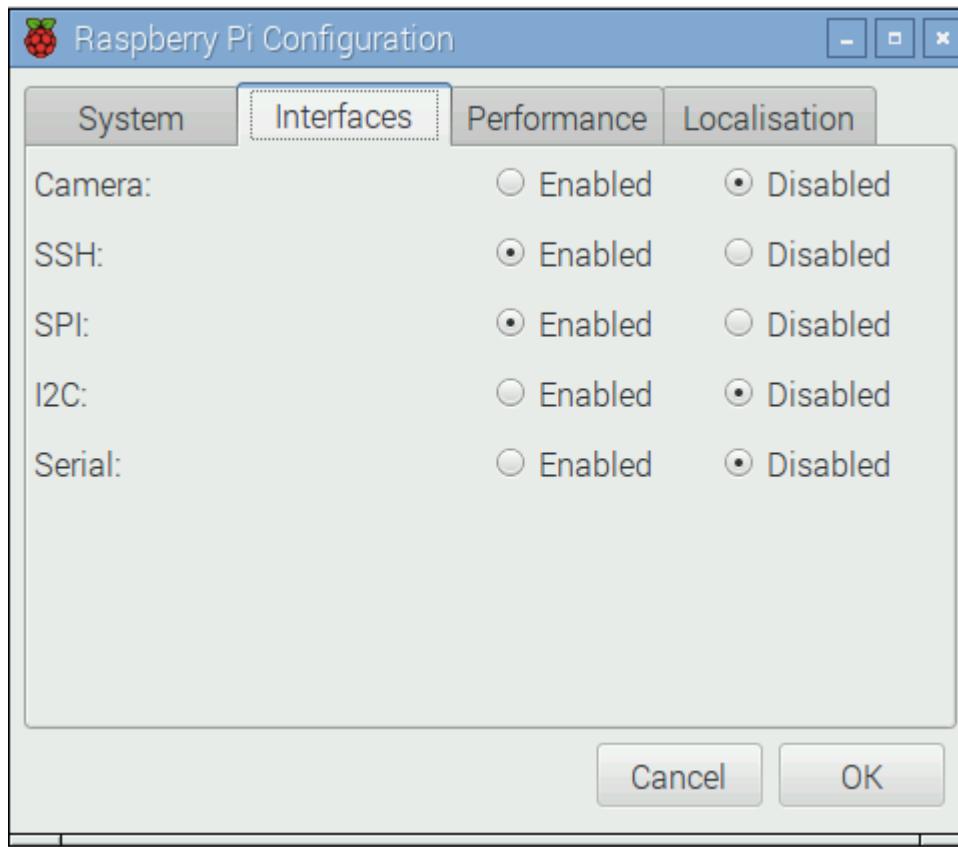
## Installation

The first step is to disable the kernel's use of the hardware serial connection. By default, when the Raspberry Pi boots, it will use the serial connection to produce messages from the kernel and it will confuse the GSM modem. Follow the steps below

From Menu Select Preferences –> Raspberry Pi Configuration.



In this window, Select the interfaces tab and disable the serial option.



The next process is to install PPP Software. Make a suitable internet connection on the RPi by means of an Ethernet cable or WiFi. Open the LX Terminal and type:

```
1 sudo apt-get update
```

```
1 sudo apt-get install ppp screen elinks
```

After the installation we have to create a new PPP peer configuration. For this operation, we should login as root by entering **sudo -i** in the terminal and navigate to the peers directory,

```
1 cd /etc/ppp/peers/
```

Now open a new file **rnet** in a text editor by executing:

**nano rnet**

Copy the code shown below to the new file.

```
1 #imis/internet is the apn for idea connection
2 connect "/usr/sbin/chat -v -f /etc/chatscripts/gprs -T imis/internet"
3
4 # For Raspberry Pi3 use /dev/ttys0 as the communication port:
5 /dev/ttys0
6
7 # Baudrate
```

```

8 115200
9
10 # Assumes that your IP address is allocated dynamically by the ISP.
11 noipdefault
12
13 # Try to get the name server addresses from the ISP.
14 usepeerdns
15
16 # Use this connection as the default route to the internet.
17 defaultroute
18
19 # Makes PPPD "dial again" when the connection is lost.
20 persist
21
22 # Do not ask the remote to authenticate.
23 noauth
24
25 # No hardware flow control on the serial link with GSM Modem
26 nocrtscts
27
28 # No modem control lines with GSM Modem
29 local

```

From the above file, two parameters must be changed which depends on the modules used. In the beginning command, **connect**, after the section **-T**, the APN of the service provider should be given. Here we have used the APN of **Idea (imis/internet)**.

Then comes the communication port, as we have used Pi 3 in our example , the port name is **/dev/ttyS0**. Save the configuration file by pressing **ctrl+x**. This configuration file controls the options that will be set by PPPD, when the GSM Modem PPP connection is created. You can find a description of all the options in the **PPPD main page**.

In the above file, with in the line connect, a chat script is mentioned. To see this file, enter:

```
1 <strong>nano /etc/chatscripts/gprs</strong>
```

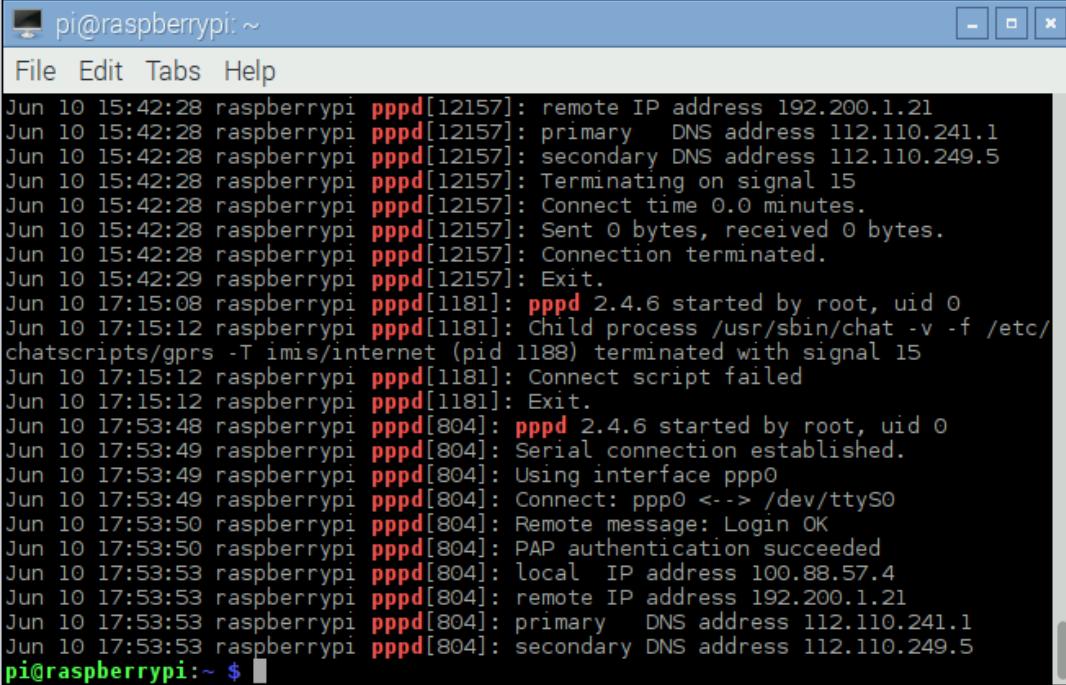
This will open a new file, which is not needed to be edited and this explains how a GPRS connection is created. If the SIM card needs a PIN to unlock, un comment the line **AT+CPIN=1234** and set the pin instead of 1234. Save the file and exit.

Next is to establish the connection. Before that make sure, all the steps described above are executed with no errors and proper wiring connections are also made.

Type, **sudo pon rnet** for creating the connection and it will exit with no response shown in the Lx terminal but the PPPD should be setting up the connection. To show the log for PPPD type,

```
1 <strong>cat /var/log/syslog | grep pppd</strong>
```

It will shows more messages and if the connection was established successfully, we can see the messages at the end as shown in the figure:

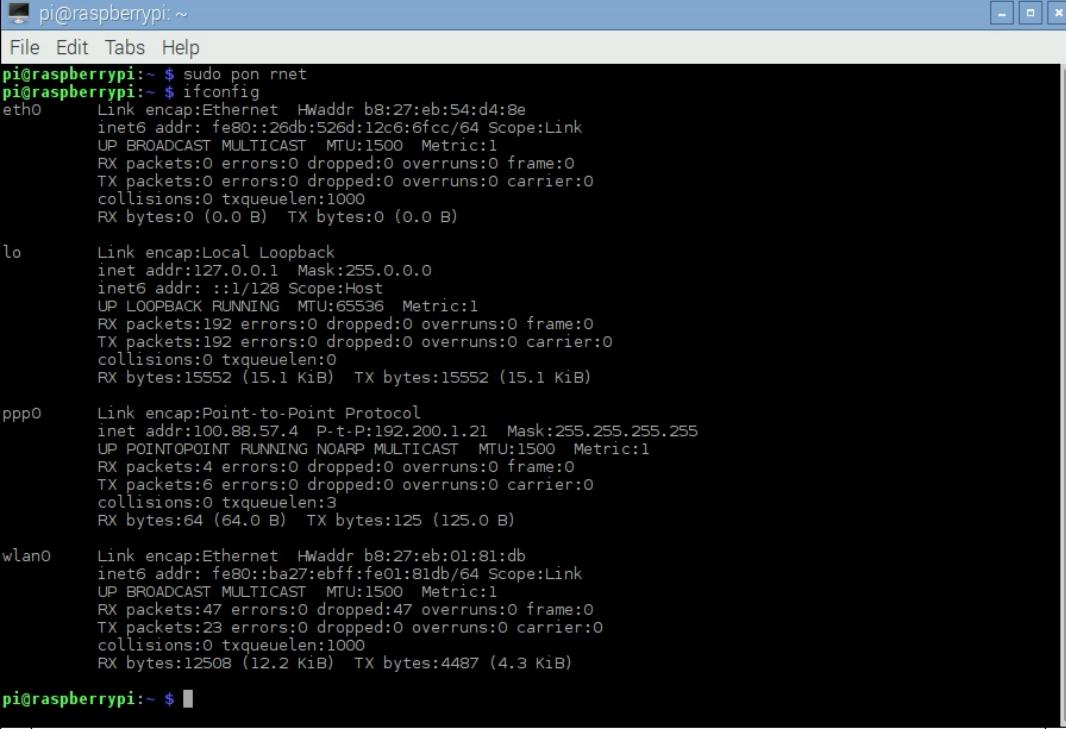


```

pi@raspberrypi:~ 
File Edit Tabs Help
Jun 10 15:42:28 raspberrypi pppd[12157]: remote IP address 192.200.1.21
Jun 10 15:42:28 raspberrypi pppd[12157]: primary DNS address 112.110.241.1
Jun 10 15:42:28 raspberrypi pppd[12157]: secondary DNS address 112.110.249.5
Jun 10 15:42:28 raspberrypi pppd[12157]: Terminating on signal 15
Jun 10 15:42:28 raspberrypi pppd[12157]: Connect time 0.0 minutes.
Jun 10 15:42:28 raspberrypi pppd[12157]: Sent 0 bytes, received 0 bytes.
Jun 10 15:42:28 raspberrypi pppd[12157]: Connection terminated.
Jun 10 15:42:29 raspberrypi pppd[12157]: Exit.
Jun 10 17:15:08 raspberrypi pppd[1181]: pppd 2.4.6 started by root, uid 0
Jun 10 17:15:12 raspberrypi pppd[1181]: Child process /usr/sbin/chat -v -f /etc/chatscripts/gprs -T imis/internet (pid 1188) terminated with signal 15
Jun 10 17:15:12 raspberrypi pppd[1181]: Connect script failed
Jun 10 17:15:12 raspberrypi pppd[1181]: Exit.
Jun 10 17:53:48 raspberrypi pppd[804]: pppd 2.4.6 started by root, uid 0
Jun 10 17:53:49 raspberrypi pppd[804]: Serial connection established.
Jun 10 17:53:49 raspberrypi pppd[804]: Using interface ppp0
Jun 10 17:53:49 raspberrypi pppd[804]: Connect: ppp0 <-> /dev/ttys0
Jun 10 17:53:50 raspberrypi pppd[804]: Remote message: Login OK
Jun 10 17:53:50 raspberrypi pppd[804]: PAP authentication succeeded
Jun 10 17:53:53 raspberrypi pppd[804]: local IP address 100.88.57.4
Jun 10 17:53:53 raspberrypi pppd[804]: remote IP address 192.200.1.21
Jun 10 17:53:53 raspberrypi pppd[804]: primary DNS address 112.110.241.1
Jun 10 17:53:53 raspberrypi pppd[804]: secondary DNS address 112.110.249.5
pi@raspberrypi:~ $ 

```

In the terminal type **ifconfig** and enter.



```

pi@raspberrypi:~ 
File Edit Tabs Help
pi@raspberrypi:~ $ sudo pon rnet
pi@raspberrypi:~ $ ifconfig
eth0      Link encap:Ethernet HWaddr b8:27:eb:54:d4:8e
          inet6 addr: fe80::2b27:ebff:fe54:d48e/64 Scope:Link
          UP BROADCAST MULTICAST MTU:1500 Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536 Metric:1
          RX packets:192 errors:0 dropped:0 overruns:0 frame:0
          TX packets:192 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:15552 (15.1 KiB) TX bytes:15552 (15.1 KiB)

ppp0     Link encap:Point-to-Point Protocol
          inet addr:100.88.57.4 P-t-P:192.200.1.21 Mask:255.255.255.255
          UP POINTOPOINT RUNNING NOARP MULTICAST MTU:1500 Metric:1
          RX packets:4 errors:0 dropped:0 overruns:0 frame:0
          TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:3
          RX bytes:64 (64.0 B) TX bytes:125 (125.0 B)

wlan0    Link encap:Ethernet HWaddr b8:27:eb:01:81:db
          inet6 addr: fe80::ba27:ebff:fe01:81db/64 Scope:Link
          UP BROADCAST MULTICAST MTU:1500 Metric:1
          RX packets:47 errors:0 dropped:47 overruns:0 frame:0
          TX packets:23 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:12508 (12.2 KiB) TX bytes:4487 (4.3 KiB)
pi@raspberrypi:~ $ 

```

A new section **PPPO** can be seen with the IP 192.200.1.21. In the modem the blue led will blink fast continuously as the connection is ON. To close the connection, type: **sudo poff rnet**. Well, rhydolabZ modem is all you need now to start browsing on your Pi. The working is much similar to any of those commonly available internet dongles. We have made these to work with the PI,

why dont we go for the same on a desktop PC?? We hope to have a post that will explain all of it. 😊 Keep reading our posts, and feel free to comment/share 😊

[access Internet](#)[GPRS](#)[How to](#)[Modem SIM900](#)[Raspberry Pi](#)

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## 127 Responses to "Raspberry Pi : How to access the Internet using GSM / GPRS Modem (SIM900/SIM800)"

**Anas** says:

October 14, 2016 at 5:39 pm



will this work on raspberry pi other than raspberry pi 3?

[Reply](#)

**Mahesh** says:

October 19, 2016 at 10:16 am



yes...

[Reply](#)

**Anas** says:

October 20, 2016 at 10:57 am



are you sure? will this work on raspberry pi b+?

[Reply](#)**IPTR** says:

November 9, 2016 at 11:17 pm



Thank you! It works fine. You saved me a lot of time!

[Reply](#)**karthikvenkatesh** says:

November 23, 2016 at 5:44 pm



Very useful article. Thanks.

[Reply](#)**Belal** says:

December 6, 2016 at 3:45 pm



Thanks, I was looking for a well explained way to do this for about a month

[Reply](#)**judson antu** says:

December 22, 2016 at 9:42 am



can we attach files , like for eg, images and send such datas, through this procedure?

[Reply](#)

**Mahesh** says:

December 28, 2016 at 12:07 pm



hai Judson

Yes

Reply

**judson antu** says:

January 31, 2017 at 5:29 pm



thank you, it worked.

Reply

**susilkumar** says:

December 26, 2016 at 10:41 pm



Can this used for internet

Reply

**Mahesh** says:

December 28, 2016 at 11:57 am



yes

Reply

*Raspberry Pi & Quectel M66 / Raspberry Pi* says:

January 12, 2017 at 2:38 am

[...] <https://www.rhydolabz.com/wiki/?p=16325> [...]

[Reply](#)**Varunjith** says:

March 9, 2017 at 9:43 am



Very well explained!

[Reply](#)**Sweatha** says:

January 30, 2017 at 5:13 pm



I could not proceed further beyond this step:

**nano /etc/chatscripts/gprs**

On entering this command, what I got was:

-bash: syntax error near unexpected token `newline'

Anybody help me to resolve this error please..

What should be my next step then?

[Reply](#)**Mahesh** says:

February 7, 2017 at 6:36 pm



Hai Sweatha

Hope you had updated the OS and make install all the modules mentioned....

[Reply](#)**Matevz** says:

February 6, 2017 at 1:32 pm

Will we be able to receive phone calls after establishing this connection?



Is there any way that we can use USB modem for internet and also receive calls?

Reply

**Mahesh** says:

February 7, 2017 at 6:26 pm



Hai Matevz...

Using this module we can Get the calls..

We need a ttl to USB converter for connecting the modem to Raspberry Pi.

Reply

**sreeresmi** says:

February 15, 2017 at 3:33 pm



Hai,

After entering '**cat /var/log/syslog | grep pppd**' I got following comments "bash:  
syntax error near unexpected token `newline`".

Again I enter 'cat /var/log/syslog | grep pppd' I got comment like

```
Nov 25 23:01:05 raspberrypi pppd[2681]: pppd 2.4.6 started by root, uid 0
Nov 25 23:01:17 raspberrypi pppd[2681]: Connect script failed
Nov 25 23:01:59 raspberrypi pppd[2681]: Connect script failed
Nov 25 23:02:41 raspberrypi pppd[2681]: Connect script failed
Nov 25 23:03:00 raspberrypi pppd[2716]: pppd 2.4.6 started by root, uid 0
Nov 25 23:03:11 raspberrypi pppd[2681]: Device ttyS0 is locked by pid 2716
Nov 25 23:03:12 raspberrypi pppd[2716]: Connect script failed
Nov 25 23:03:42 raspberrypi pppd[2716]: Device ttyS0 is locked by pid 2681
Nov 25 23:03:53 raspberrypi pppd[2681]: Connect script failed
Nov 25 23:04:23 raspberrypi pppd[2681]: Device ttyS0 is locked by pid 2716
Nov 25 23:04:24 raspberrypi pppd[2716]: Connect script failed
Nov 25 23:04:54 raspberrypi pppd[2716]: Device ttyS0 is locked by pid 2681
Nov 25 23:05:05 raspberrypi pppd[2681]: Connect script failed
Nov 25 23:05:35 raspberrypi pppd[2681]: Device ttyS0 is locked by pid 2716
Nov 25 23:05:36 raspberrypi pppd[2716]: Connect script failed
```

Nov 25 23:06:06 raspberrypi pppd[2716]: Device ttyS0 is locked by pid 2681  
Nov 25 23:06:17 raspberrypi pppd[2681]: Connect script failed  
Nov 25 23:06:47 raspberrypi pppd[2681]: Device ttyS0 is locked by pid 2716  
Nov 25 23:06:47 raspberrypi pppd[2681]: Exit.  
Nov 25 23:06:48 raspberrypi pppd[2716]: Connect script failed  
Nov 25 23:07:31 raspberrypi pppd[2716]: Connect script failed  
Nov 25 23:08:13 raspberrypi pppd[2716]: Connect script failed  
Nov 25 23:08:55 raspberrypi pppd[2716]: Connect script failed  
Nov 25 23:08:55 raspberrypi pppd[2716]: Exit.  
How can I solve this problem?? Please help me.

Reply

**sreeresmi** says:

February 20, 2017 at 10:50 am



Please help me. How to solve this problem??

Reply

**Kamal Sharma** says:

May 22, 2018 at 9:54 pm



your power is low please connect your gsm module with 1A mobile charger.

Reply

**Mahesh** says:

February 22, 2017 at 3:38 pm



Hai sreeresmi..

I the above tutorial is done in RPi3.

Hope u are using RPi3, follow the instructions as described in the tutorial.

Reply

**sreeresmi** says:

March 3, 2017 at 4:35 pm



Hi,

I'm using RPi3,

• **cat /var/log/syslog | grep pppd**

- o Here I got error like "-bash: syntax error near unexpected token 'newline'"
- o I change the command to "cat /var/log/syslog | grep pppd" , I got the message
- o For the successful connection, the message will be "Connect: ppp0 □> /dev/ttyS0"
- o But I get "Device ttyS0 is locked by pid 3052"

[Reply](#)

**Mahesh** says:

March 7, 2017 at 10:58 am



Hai sreeresmi,

The command should be entered in this format—  
nano /etc/chatscripts/gprs

No need of adding the content 'strong'..i think it will be some issues  
in the browser text format

[Reply](#)

**Anil Sagar** says:

April 19, 2017 at 10:46 am



Check if changing the baud rate to 9600 solves the problem in  
rnet. It solved for me.

[Reply](#)

**Srisha G** says:

September 22, 2017 at 3:24 pm



got to

sudo raspi-config and the first it will ask access to config for login  
shell say no to it and next enable to the serial then it will work

[Reply](#)

**Amrit Kumbhakar** says:

April 10, 2018 at 5:47 pm



Apr 10 17:33:47 raspberrypi pppd[1512]: Device ttyS0 is locked  
by pid 1244

Apr 10 17:34:17 raspberrypi pppd[1512]: Device ttyS0 is locked by pid 1244

Apr 10 17:34:47 raspberrypi pppd[1512]: Device ttyS0 is locked by pid 1244

Apr 10 17:34:47 raspberrypi pppd[1512]: Exit.

Apr 10 17:39:23 raspberrypi pppd[1305]: pppd 2.4.6 started by root, uid 0

Apr 10 17:39:35 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:40:18 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:41:00 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:41:42 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:42:25 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:43:07 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:43:49 raspberrypi pppd[1305]: Connect script failed

Apr 10 17:44:32 raspberrypi pppd[1305]: Connect script failed

I am too getting this error. Please provide support to troubleshoot this issue.

Note: I am using RPi 3 model B

[Reply](#)

**Mahesh** says:

April 18, 2018 at 12:31 pm



Hai Amrit,

Please install the latest Raspbian OS and enable the serial  
port dev/ttyS0.

<https://www.rhydolabz.com/wiki/?p=15764>

Then repeat the same steps...

[Reply](#)**sreeresmi** says:

March 9, 2017 at 10:05 am



I have a doubt regarding GPRS communication of RPi3 using SIM900. I install the raspbian latest software in my RPi, What are the configurations setup is required for the same. Please give me a step by step instruction for a successful communication.

[Reply](#)**sreeresmi** says:

March 18, 2017 at 9:41 am



"usr/sbin/pppd: In file /etc/ppp/peers/rnet: unrecognized option  
'/dev/ttyS0' "

How to solve this problem

[Reply](#)**Abhisha Bhesaniya** says:

April 19, 2017 at 12:51 pm



i am not getting ttyS0 file in dev folder

[Reply](#)**Mahesh** says:

April 20, 2017 at 10:10 am



Hai Abhisha

This tutorial is based on Raspberry Pi 3.

Hope you are using the previous version , then instead of ttyS0, ttyAMA0 will be the device.

[Reply](#)**Emmanuel Caster** says:

April 20, 2017 at 4:29 pm



using ttyAMA0 I don't get the AT nor the OK command

but when I use d :

"enable\_uart =1" in my /boot/config.txt

and

edited my /boot/cmdline.txt

to

```
dwc_otg.lpm_enable=0 console=tty1 root=/dev/mmcblk0p2  
rootfstype=ext4 rootwait  
from  
dwc_otg.lpm_enable=0 console=ttyAMA0,115200 kgdboc=ttyAMA0,115200  
console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4 rootwait
```

I realize I have disabled ttyAMA0. Normally for previous pi you could disable the getty on that serial port in `/etc/inittab` by commenting

```
#2:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100
```

but since Jessie pixel it seems that directory no longer exist

Although I get an

The 'AT' command printed to screen but I don't get the 'OK' reply what could be the problem

So I guess I am asking what I'm not getting right cause some times it prints some messages that should show at login prompt but this time they are incomplete. e.g login:\_\_ ,inux Raspbian, etc more like a leakage.

[Reply](#)**Emmanuel Caster** says:

April 20, 2017 at 10:04 pm

So I am using the SIM808 so had to read the datasheet and realised I had some issues with my wire which was broken inside so I replaced that.  
Now I am having this error Log that says ttyS0 is locked



since you asked Abhisha to try ttyAMA0 I want to try that which means I have to revert all my settings

[Reply](#)

**Mahesh** says:

April 21, 2017 at 11:29 am



Hi Emmanuel  
As you have the ttyS0 port, follow the same instructions in the tutorial..  
if you want to check your modem just refer the link given below.  
<http://www.rhydolabz.com/wiki/?p=10450>  
Change the port to ttyS0 and check the modem...

**pawan** says:

May 19, 2017 at 8:15 pm



I can connect the internet to raspberry pi through GSM module and I want to transfer that internet connectivity to my smartphone via wifi by using ESP8266 module so that I can access internet to my smartphone.

[Reply](#)

**Mahesh** says:

May 22, 2017 at 9:54 am



Hai Pawan,  
If you are working with Raspberry Pi 3, it could be possible to make it as a wifi router.

[Reply](#)**Nagesh** says:

May 28, 2017 at 5:57 pm



Hi,

I am using RPI 3 and did all the steps as given, but still I am not able to access internet.  
What could be the issue?

ifconfig shows,

```
ppp0 Link encap:Point-to-Point Protocol
inet addr:100.121.176.241 P-t-P:192.200.1.21 Mask:255.255.255.255
UP POINTOPOINT RUNNING NOARP MULTICAST MTU:1500 Metric:1
RX packets:4 errors:0 dropped:0 overruns:0 frame:0
TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:3
RX bytes:64 (64.0 B) TX bytes:125 (125.0 B)
```

Route shows

```
root@raspberrypi:/etc/ppp/peers# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 192.168.2.1 0.0.0.0 UG 303 0 0 wlan0
192.168.2.0 * 255.255.255.0 U 303 0 0 wlan0
192.200.1.21 * 255.255.255.255 UH 0 0 0 ppp0
```

Note: I have disable wlan0 by "ifdown wlan0" to try ppp0 connection

[Reply](#)**Mahesh** says:

May 30, 2017 at 10:20 am



Hai Nagesh,

Hope you had provide separate power for GSM module and shortened its ground to the Rpi as shown in the figure.  
Also the sim that you had used in the modem, must have internet activated.

[Reply](#)

**Nagesh** says:

June 3, 2017 at 3:14 pm



Thanks for the the input.

I found the issue, problem was with default route was not getting replaced from wlan0 to ppp interface.

I added replacedefaultroute after defaultroute in rnet file which resolved the problem

Regards

Nagesh

Reply

**Ravi Bhandari** says:

June 1, 2017 at 1:40 pm



Do I have to repeat the above steps on each restart of RPi3? Or I have to do it only once and it will automatically create a PPP connection on each restart.

Reply

**Mahesh** says:

June 5, 2017 at 10:50 am



Hai Ravi

Only this command 'sudo pon rnet' should be given for making the ppp connection and no need to do all the process for each restart.

Reply

**SANDEEP** says:

June 1, 2017 at 8:29 pm



hey mahesh which state in india  
can i make a wifi hotspot using it for rpi

Reply

**Mahesh** says:

June 5, 2017 at 10:47 am



Hai Sandeep,  
I didn't get you...  
Please make your points clear...

Reply

**Melvyn Sopacua** says:

June 9, 2017 at 2:16 am



I used the pi3-disable-bt overlay after a dist upgrade. This gives me /dev/ttyAMA0. It fails on getting an answer for "AT". So scaled down to 9600 bauds and sure enough, things worked better. Now it fails at AT+CGDCONT, but that's for another day.

Reply

**Mahesh** says:

June 14, 2017 at 10:47 am



Hai Melvyn  
As you are using RPi3, it would be better to use dev/ttyS0.

Reply

**kabir** says:

June 19, 2017 at 6:45 pm



Thank you it works great!

I am using 'http://www.amescon.com/products/pilot.aspx' board for my RPi3.I have managed to make ppp internet connection successfully, but I would also like to check for any SMS's being received, when I try to access my ttyP0 using a serial terminal (picocom in my case) I get a message 'FATAL: cannot open /dev/ttyP0: Device or resource busy'. I understand why I am getting this message as the devices is reserved and used for the ppp connection. Is there a way to also check or send SMS's?

Thanks in advance.

[Reply](#)**Mahesh** says:

June 23, 2017 at 12:20 pm



Hai Kabir,

The only option is to stop the PPP connection and then send the sms.  
this can be done through Python program itself.

[Reply](#)**ENTT** says:

July 12, 2017 at 6:02 pm



thank you for your tutorial, I want use SIM800C on OpenWrt ,is it possible????

[Reply](#)**Mahesh** says:

July 13, 2017 at 12:48 pm



Hai ENTT

This tutorial is also applicable for SIM800c.

[Reply](#)

**Léo Baccili** says:

July 13, 2017 at 5:39 am



Great Article!

It's possible to get GPS coordinates when PPP is active?

[Reply](#)

**Hari Krishnan** says:

October 5, 2017 at 3:39 pm



Hai Leo

It will be good to use a GPS usb dongle for getting the GPS coordinates as there is only one uart for Raspberry Pi.

[Reply](#)

**PiNewb** says:

July 30, 2017 at 5:05 am



First, thanks for this great tutorial. I've got this working with a RPi3.

Trying to do the same with RPi0w. I've changed the com port /dev/AMA0 but when I view the syslog, I only get "Connect script failed". Any suggestions?

[Reply](#)

**Mahesh** says:

August 2, 2017 at 10:34 am



Sorry PiNewb

We are not dealing with Rpi0. Any how we will look in to it and update you.

[Reply](#)

**Srisha G** says:

[August 28, 2017 at 11:57 am](#)



Plz help with the AT command is not coming OK instead of that its coming blank

[Reply](#)

**Mahesh** says:

[September 9, 2017 at 11:41 am](#)



Hai srisha

Hope you had made the proper connections as shown in the diagram, like providing extra power source for GSM modem with common ground to all. also make sure the connections to Tx and Rx pins are correct.

[Reply](#)

**Srisha G** says:

[September 18, 2017 at 2:51 pm](#)



i am getting rasspberry pi GNU incorrect login  
so can help plz

[Reply](#)

**Bert S** says:

[September 12, 2017 at 2:03 pm](#)



HI, I recently bought a PI3 and SIM900 module from you and i tried to follow the above instructions. I have however an issue. When I disable the serial then the device /dev/ttyS0 is also gone so the script no longer can be followed. Do i need to manually enable ttyS0 one way or another to make this work? I also used ttyAMA0 when i disbaled serial but then I get for example a "6" as a response to the AT command and not ther expected "OK".

Regards,

Bert

Reply

**Mahesh** says:

September 12, 2017 at 4:41 pm



Hai Bert

After disabling the serial in the configuration settings, open the terminal and enter, sudo nano /boot/config.txt

In that change the parameter enable\_uart=1. then save the file and make a restart.

Reply

**bert s** says:

September 13, 2017 at 1:15 am



Hi Mahesh,

I tried your solution and i got a step further but now i get the following issue:

```
import serial
>>> import os, time
>>> port=serial.Serial("/dev/ttyS0", baudrate=9600, timeout=1)
>>> port.write('AT'+r/n')
Traceback (most recent call last):
File "", line 1, in
port.write('AT'+r/n')
File "/usr/lib/python3/dist-packages/serial/serialposix.py", line 475, in write
```

```
n = os.write(self.fd, d)
```

TypeError: 'str' does not support the buffer interface

Looked it up in the internet and apparently has to do with some change in pi3. Do i need to encode this and if yes how?

Regards,

Bert

Reply

**bert s** says:

September 13, 2017 at 3:49 pm



HI,

I have gone a bit further but not there yet. I get now a response back but it is like /x00/x00.... All squares. Can you help with fixing this?

Regards,

Bert

Reply

**Surya** says:

October 6, 2017 at 12:57 am



Sir, can we use this method for sending and receiving data on internet into raspberry pi.

Reply

**Hari Krishnan** says:

October 9, 2017 at 3:59 pm

Yes, we use this method for sending and receiving data on internet into raspberry pi.



Reply

**bert s** says:

October 11, 2017 at 4:38 pm



Hi,

I have linked the sim900 module to the pi3 and the communication work (ATD, AT, etc). However if i write a program in python 2 and i pone the module it returns:

+CLCC: 1,1,4,0,0,"+32495284161",145,"".

if i run the same program in python3 then it return different things:

b'\r\n+CLCC: 1,1,4,0,0,"+32495284161",145,""\r\n\r\nRING\r\n"

b'\r\n+CLCC: 1,1,4,0,0,"+32495284q61",145,""\r\n\r\n\x85\xaa\xca\xea\x5\n'

b'\xfd\n+CL\xd4\xe9q,1,4,0,0<"\r\n\xf2\x9aN\x8a\xb2\x8a\x12b\x8a\x2\xbe\x12\x1

Since the string is not always the same i cannot use it in a program. How can the sim900 module always return something else?

Regards,

Bert

Reply

**Nico** says:

October 18, 2017 at 4:12 pm



hello,

is it possible to open up a hotspot? I followed the steps and can successfully connect to the internet via sim800h fona. Now i want to open up a hotspot. I'm using a wireless usb

adapter which is capable to open a hotspot. I can't find something in the internet. Any suggestions?

Reply

**Hari Krishnan** says:

October 20, 2017 at 9:39 am

keep  
life  
simple

please verify this link for setting raspberry pi as wifi hotspot .

[raspberry pi as wifi hotspot](#)

Reply

**Shruthi G** says:

November 17, 2017 at 1:29 pm



Hi Mahesh,

Thank you for your information. I have established a ppp connection, now am able to access internet. But my problem is whenever am trying to send SMS, an error is occurring. From that error i got that the serial port is busy with the accessing internet. Here one way to send SMS is i have to stop the internet connection whenever i want to send SMS, but i don't want to do this. Is there any way to send SMS without disconnecting internet?. Can i connect to any other serial port to send SMS? ( using Raspberry pi 3).

Thanks in advance.

Reply

**Mahesh** says:

November 18, 2017 at 2:35 pm



Hai Shruthi,

The option is to connect the modem through USB...

Reply

**Shruthi G** says:

November 20, 2017 at 12:09 pm



Hi,

Actually, I want to use this GSM module (SIM900A) to send SMS, Making call and accessing internet. Is there any possibility to do this?.

[Reply](#)

**Sathiwk** says:

December 4, 2017 at 12:49 pm



Hi Mahesh,

Can i use UART (For call and SMS) and USB (To access internet) ports at a time on SIM900a?. If it is, can i use this (<https://www.elementzonline.com/cp2102-usb-to-serial-rs232-module-with-usb-cable-106>) converter.

It would be grateful, If you help me in this.

[Reply](#)

**Mahesh** says:

December 7, 2017 at 11:28 am



Hai sathwik,

RPi has got only one TX and Rx pins. With one GSM modem you can perform only one process.

If you are using RPi3, you can access internet using wifi connection...

[Reply](#)

**Sruthi** says:

December 11, 2017 at 11:25 am



Hi Mahesh,

How can i ON and OFF the ppp connection automatically? and whenever i OFF and ON the connection again, How can i automatically check the ppp connection is established successfully and am accessing the internet without any problem?

Reply

**Mahesh** says:

January 2, 2018 at 11:15 am



Hai sruthi ...

You can write a python code to run the terminal commands using 'call' function.

You can also check the internet connection by writing a python code to check the IP...

Reply

**Shubhankar R Butta** says:

January 11, 2018 at 5:27 am



What ports should I use if I am working on raspberry pi2? Will this tutorial work for pi2?

Reply

**Shubhankar R Butta** says:

January 22, 2018 at 3:20 am



Also, does it work for a 3G or 4G sim?

Reply

**Mahesh** says:

January 24, 2018 at 4:19 pm



Hai Shubhankar,

To make it work with 3G and 4G sim, you have use another type of modem.

The sim will work on this modem ,but it only provide the 2G speed...

[Reply](#)

**Mahesh** says:

January 24, 2018 at 4:28 pm



hai Shubhankar

for RPi2 dev/ttyAMA0 port must be used...

[Reply](#)

**Marium** says:

January 13, 2018 at 3:39 am



Hi! I am using <https://www.mikroe.com/gsm-2-click> with raspberry pi 3 and doing the same connections as mentioned but I am getting blank response. Any clue what could the issue be?

[Reply](#)

**palo** says:

January 16, 2018 at 5:44 am



Hi. Thank you for this post. I am getting this error in python shell.What am I doing wrong ?

>>> AT

Traceback (most recent call last):

File "", line 1, in

AT

NameError: name 'AT' is not defined

>>>

Reply

**Mahesh** says:

January 24, 2018 at 4:15 pm



Hai Palo,

Please make sure that AT is with in a single cots...

Reply

**palo** says:

January 16, 2018 at 5:51 am



I am getting this now.

Python 2.7.13 (default, Nov 24 2017, 17:33:09)

[GCC 6.3.0 20170516] on linux2

Type "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: /home/pi/sim800.py

=====

Traceback (most recent call last):

File "/home/pi/sim800.py", line 5, in

port = serial.Serial("/dev/ttyS0", baudrate=9600, timeout=1)

File "/usr/lib/python2.7/dist-packages/serial/serialutil.py", line 236, in \_\_init\_\_

self.open()

File "/usr/lib/python2.7/dist-packages/serial/serialposix.py", line 268, in open

raise SerialException(msg(errno, "could not open port {}: {}".format(self.\_port, msg)))

SerialException: [Errno 2] could not open port /dev/ttyS0: [Errno 2] No such file or  
directory: '/dev/ttyS0'

>>>

Reply

**Mahesh** says:

January 24, 2018 at 4:27 pm



Hai Palo,  
your Raspberry Pi's UART port is not enabled.  
type sudo nano /boot/config.txt in the terminal.  
and type enable\_uart=1.  
if the command already exist with enable\_uart=0, make it as 1.

Reply

**ja** says:

January 17, 2018 at 7:40 pm



Fantastic tutorial.Thank you. Can you see why I cannot connect to the internet ?

```
pi@raspberrypi:~ $ ifconfig
enxb827eb758d5d: flags=4099 mtu 1500
ether b8:27:eb:75:8d:5d txqueuelen 1000 (Ethernet)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
lo: flags=73 mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10
loop txqueuelen 1 (Local Loopback)
RX packets 65 bytes 17122 (16.7 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 65 bytes 17122 (16.7 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
ppp0: flags=4305 mtu 1500
inet 10.10.84.179 netmask 255.255.255.255 destination 192.168.254.254
ppp txqueuelen 3 (Point-to-Point Protocol)
RX packets 143 bytes 11740 (11.4 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 168 bytes 12733 (12.4 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
pi@raspberrypi:~ $ ping -I ppp0 http://www.google.com
ping: http://www.google.com: Temporary failure in name resolution
pi@raspberrypi:~ $
```

Reply

**Mahesh** says:

March 31, 2018 at 1:59 pm



Hai Ja,  
please check your net connection...

Reply

**srinadh** says:

January 24, 2018 at 6:05 pm



Hi Mahesh,

thanks for the artical i have a problem in working on it when i enter the command "cat /var/log/syslog | grep pppd" i'm getting this response can you please help me out

```
root@Pi3-GTK:/etc/ppp/peers# cat /var/log/syslog | grep pppd
Binary file (standard input) matches
```

Reply

**Mahesh** says:

March 31, 2018 at 1:58 pm



Hai srinadh,  
Please install the latest Raspbian OS and follow the same process.

Reply

**Manivannan** says:

January 25, 2018 at 10:38 pm



Hi Mahesh

I am getting this error in raspberry pi3 pixel image

```
File "gsm.py", line 11, in
ser.write('AT\r')
File "/usr/lib/python2.7/dist-packages/serial/serialposix.py", line 542, in write
abort, ready, _ = select.select([self.pipe_abort_write_r], [self.fd], [], None)
```

[Reply](#)

**Mahesh** says:

February 10, 2018 at 9:52 am



Hai Manivannan

Please try it with Raspbian Jessie

[Reply](#)

**Heber Sanchez** says:

March 16, 2018 at 7:05 am



hello, i cant continue after

" sudo pon rnet "

when I write

" **cat /var/log/syslog | grep pppd** "

the next message appears:

" /usr/sbin/pppd: In file /etc/ppp/peers/rnet: unrecognized option '/dev/ttyS0'"

what can I do?

[Reply](#)

**Mahesh** says:

March 31, 2018 at 1:30 pm

Hai Heber...

Hope you are using Raspbeery Pi 3.

In the Pi3 only the port /dev/ttys0 will be recognized. But after the raspbian installation, make the enable\_uart=1 in the config file, as intially it will be 0.

Then reboot the system and follow the same procedure.



[Reply](#)

**Reddy Jahnavi** says:

March 21, 2018 at 6:48 am



I need code for the same using Arduino i.e how to access internet using sim900a and send data to a webpage.

I also wanted to know how to receive response from webpage.

My project is with the latitude and longitude coordinates I get from the GPS I need to know the name of the location.

I completely only till getting GPS coordinates.

Could anyone please help me with this.

[Reply](#)

**Javier Sanz Sanchez** says:

March 26, 2018 at 4:08 am



Extremely useful information!!!!

Can I use a sim808 module for also get the GPS location??

The deal is configure the so for a new modem connection but still sending at commands to get the location info.

Cheers!

[Reply](#)

**Mahesh** says:

March 31, 2018 at 1:24 pm



Hai Javier

By using two modem you can operate this process, but one modem should be connected via USB as the Rpi has got only one UART.

Reply

**Sid** says:

April 11, 2018 at 12:10 pm



Hello

If I connect this module shall I re-enable the serial port. Because I need to work on both this module and serial port. So is it possible ?

Reply

**Mahesh** says:

April 18, 2018 at 12:26 pm



Hello Sid

Please try to perform serial communication via USB....

Reply

**siddharth sinha** says:

April 11, 2018 at 12:43 pm



Can i use it without disabling the serial port in raspberry as i am using arduino with Raspberry 3

Reply

**Mahesh** says:

April 18, 2018 at 12:25 pm



Hai siddharth

Raspberry Pi has only one UART connection. For performing serial communication, USB ports can also be used...

So you can either connect the Arduino via USB port and GSM through UART Pins....

[Reply](#)

**billyaugus5069** says:

April 13, 2018 at 11:52 pm



If some one wants expert view regarding blogging and site-building after that i advise him/her to pay a quick visit this weblog, Keep up the nice work.|

[Reply](#)

**azizi** says:

April 17, 2018 at 12:02 am



hello .

i need help. i used your coding to check whether my AT reply OK . but it does not reply anything .

[Reply](#)

**Mahesh** says:

April 18, 2018 at 12:18 pm



Hai azizi

Hope you had provide proper connections and separate power source to the GSM modem.

If you are using raspberry Pi 3, please enable the dev/ttyS0 port for serial communication...

[Reply](#)**Heng** says:

April 26, 2018 at 9:45 pm



May i know what should i do if i need to add in username and password for my APN ?

[Reply](#)**Mahesh** says:

May 2, 2018 at 1:21 pm



Hai Heng

APN is provided by the network service providers...

[Reply](#)**Kamal Sharma** says:

April 30, 2018 at 6:24 pm



When i run 'cat /var/log/syslog | grep pppd' command after 'sudo pon rnet' it shows "Binary file (standart input) matchees" that's it no log.

what should i do??

[Reply](#)**Salar Yunis** says:

May 9, 2018 at 4:36 pm



Hi,

Kindly i'm using a Raspberry pi zero with A7 GSM/GPRS/GPS model, and i'm trying to get a connection from my SIM card, i have followed all the instructions but it is showing me

error everytime, i tried with both ttyS0 and serial0:

- With ttyS0 it shows this error (Device ttyS0 is locked by pid 4777)
- With serial0 is shows this error (Connect script failed)

Please can you tell me if this method is possible with the modules that i'm using and how i could possibly solve problem

Reply

**Mahesh** says:

May 10, 2018 at 11:32 am



Hai Salar,

Please install the latest raspbian OS.

And also check whether the serial port S0 is enabled...You can check it by running the sample python code given in the tutorial...

Reply

**Salar Yunis** says:

May 14, 2018 at 2:37 pm



Hi Mahesh,

The Raspberry pi is already updated, and i'm checking the S0 port connection with the same above python code but i'm getting an (OK) it just execute it without printing anything and without showing an error, is this normal ? And i'm still getting the same error (Connect script failed).

In the peers folder there is the PPP login name which is by default (user "myusername@realm"), do i need to change anything here ?

And also do i need to modify anything in the (options) file in the (ppp) folder ?

Many thanks for your help!!

Reply

**Salar Yunis** says:

May 15, 2018 at 3:55 pm



Sorry there was a typo, i wanted to say i'm not getting an (OK), when i execute the python script the result is blank, it does not show any reply or an error. Thank you for your help!

[Reply](#)

**Mahesh** says:

May 15, 2018 at 5:02 pm



Hai Salar

Hope you had made the proper connections.  
Also you must provide separate power for GSM module and the ground pins(power source, Raspberry pi and the gsm modem) must be shorted.

*Interfacing Gsm/Gprs/Gnss/Bluetooth Hat With Raspberry Pi 3* says:

May 14, 2018 at 10:11 am

[...] <http://www.rhydolabz.com/wiki/?p=16325>. (Use /dev/ttyUSB0 for serial communication). [...]

[Reply](#)

**Salar Yunis** says:

May 18, 2018 at 5:48 pm



Hi Mr. Mahesh

The module i'm using has only one UART serial port (ttyAMA0) and it is occupied by the GPS, and running (sudo minicom /dev/ttyAMA0) i can see the GPS data coming from there.

In this case is it possible to create a PPP connection also through the same UART port ? or i should use a (software serial) if it is possible with Raspberry ? or if there is any other way ?

I'm sorry for the many questions. Thank you for your help!!

Reply

**Mahesh** says:

May 19, 2018 at 9:56 am



Hai Salar,

Software UART is not possible in Raspberry Pi.

And at the same time you cant access both PPP connection and the GPS data from the same UART. so you need to provide a switching condition in your code for getting these properties.

You can clarify any doubts and i will help you at maximum..Please don't feel sorry...

Reply

**Salar Yunis** says:

May 23, 2018 at 11:09 am



Hi Mahesh,

Kindly do you have a code sample on this idea ? to put a break between the connection of the GPS and the GSM. So i can first connect with GPS for 15 seconds and save the data and then disconnect from the GPS and make the connection with the GSM SIM also for 15 seconds and send the data. And then this code will be looped over and over again.

Thank you!

Reply

**Pavel** says:

May 14, 2018 at 2:39 pm



Hi! Thank you for the great tutorial!

Finally i can see ppp0 in ifconfig with IP, but if i disable my wlan connection i can't get acces to internet. what should i do?

Reply

**Mahesh** says:

May 15, 2018 at 5:06 pm



Hai Pavel

Hope you had provided a simcard with proper internet connection....

Reply

**Akash Agarwal** says:

May 16, 2018 at 7:59 pm



I have used this method to send data to database. But it automatically after some time stop uploading data to the database and gsm modem needs to reset. After reset it again starts uploading data. How can I solve this problem so that I don't have to reset again and again.

Reply

**Mahesh** says:

May 17, 2018 at 4:31 pm



Hai Akash

As You are using 3G sim, that modem will be only provided with 2G speed.

So i thing, there must arise any hanging issues while updating the database. My suggestion is to decrease the speed rate of uploading the data.

[Reply](#)**Kamal Sharma** says:

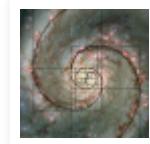
May 22, 2018 at 10:12 pm



I am using 3g module and 3g sim but getting 2g speed.  
what is the problem?

[Reply](#)**Edgar** says:

July 6, 2018 at 11:53 am



Thank you so much, very easy to follow, worked at the first try.

[Reply](#)**Vijaykandhasamy** says:

July 14, 2018 at 3:05 pm



Is it supported 800c gsm /gprs quad band TTL UART modem ?

[Reply](#)**Hari Krishnan** says:

August 28, 2018 at 4:22 pm



Yes,Raspberry pi support this TTL modem

[Reply](#)**Vijaykandhasamy** says:

July 14, 2018 at 3:52 pm



is it necessary for individual power supply?.. or if we give a power source from raspberry pi gpio pins..??

Reply

**Mahesh** says:

July 16, 2018 at 4:47 pm



Providing individual power supply is the safe option. otherwise some power fluctuation will make the module to restart.

Reply

**Vijaykandhasamy** says:

July 14, 2018 at 4:12 pm



how can we connect a txd,rxn,gnd , vcc in gsm800 c with individual power supply and raspberry pi gpio pin?

Reply

**Mahesh** says:

July 16, 2018 at 4:45 pm



Hai Vijaykandhasamy

Two wires from the ground pin of the power supply should be taken, one connected to the ground pin of RPi and another one to the sim800c module.

Reply

**omkar joshi** says:

July 14, 2018 at 8:52 pm

can this Modem used for 4g or 3g network and can u share from where you brought from or can you tell which one should be brought from aliexpress



Reply

**Hari Krishnan** says:

August 2, 2018 at 1:49 pm

keep  
life  
simple

These two modems are 2G supported. For 3G modem plse go through this link

and for 4G modem go through this link

Reply

**akhil m surendran** says:

July 19, 2018 at 1:00 pm



whicj os i want to install in pi

Reply

**Mahesh** says:

July 25, 2018 at 4:36 pm



Hai Akhil

Please use raspbian OS

Reply

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