How to setup ExpressVPN on your Gargoyle (v1.8.1) Router

The purpose of this documentation is to configure your purchased ExpressVPN service on your router running Gargoyle v1.8.1 firmware. Having done so, all network traffic that goes through your router, will now also pass through the configured VPN service keeping your browsing secure and safe.

These steps may need slight changes for different versions of Gargoyle.
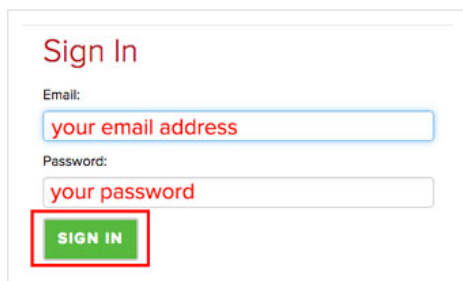
Lastly, this documentation is a combination of:

- ExpressVPN's official DD-WRT documentation
  https://www.expressvpn.com/support/vpn-setup/manual-config-for-dd-wrt-router-with-openvpn/
- How to Set Up a Gargoyle Router with PIA -post by- ooru
  https://www.reddit.com/r/PrivateInternetAccess/comments/65soyr/how_to_set_up_a_gargoyle_router_with_pia/
- Manual setup for PIA (VPN Service Provider) with Gargoyle OpenVPN -post by- encro
  https://www.gargoyle-router.com/phpbb/viewtopic.php?f=11&t=9129
  and
- My own tweaks!

>> And the race is on! <<

Time to get all of the files we need, together in one place.

1. Go to https://www.expressvpn.com/users/sign_in and login

2. Once you've logged in, click on Set up ExpressVPN on the Active Subscriptions page
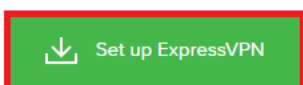
3. Click on Manual Config on the left side of the screen

Set Up ExpressVPN On All Your Devices

If you are installing ExpressVPN on **Windows, Mac,** or **Linux,** copy and paste your **activation code** below during installation.

Activation Code: ███████████████████

⊞	Windows	⍟	Mac
▢	iPhone, iPad & iPod	🤖	Android
◉	Google Chrome	◉	Mozilla Firefox
tv	Apple TV	a	Kindle Fire
⏻	PlayStation	⊗	Xbox
△	Linux	⌁	Router
⚙	**Manual Config**	🖥	MediaStreamer

4. Then select the OpenVPN tab on the right side of the screen

Manual Configuration

OpenVPN   PPTP & L2TP-IPSec
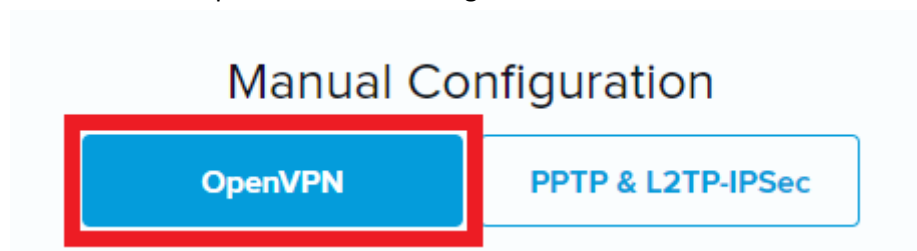
5. At "1." Click on the copy icon for Username

Username:

Copied!

███████████████████

6. Now, go to your desktop, r-click your desktop, select New, then Text Document
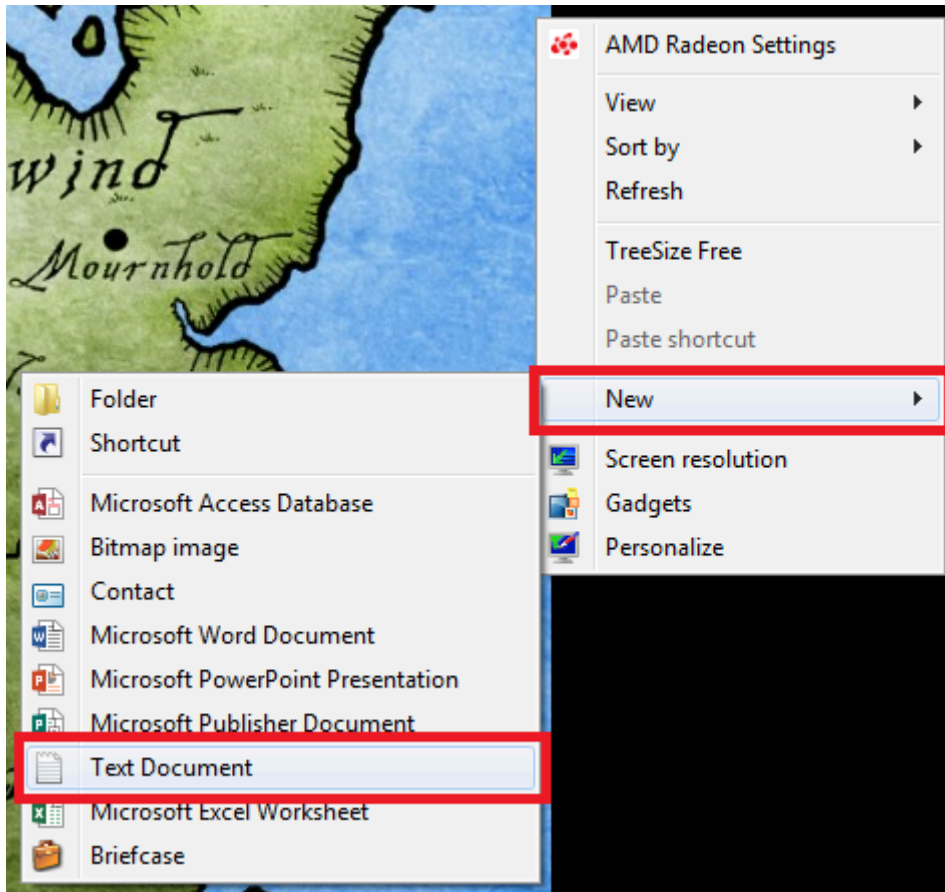
7. Change the name of the text document from "New Text Document.txt" to "auth.txt"
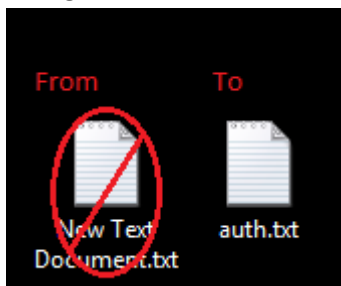
8. Open the text document now called "auth.txt" and paste your Username, then hit enter

9. Go back to your internet browser with the 'Set Up ExpressVPN On All Your Devices' page open from Step.4

10. At "1." Click on the copy icon for Password
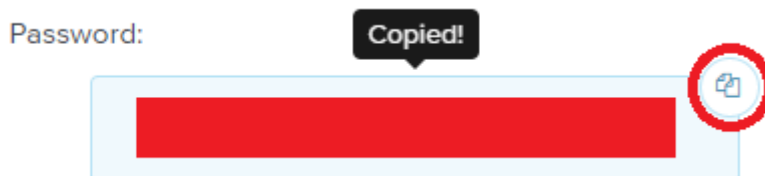
11. Go back to the open "auth.txt" file from Step.8 and paste your Password

12. Before saving make certain that line 1 is your username from Step.5 with no extra spaces at the end and that line 2 is your password from Step.10 with no extra spaces or a carriage return at the end. That is to say, there should be no line 3; the text cursor should be at the last character of your password and not be able to move any further than that point! Now close and save the text document.
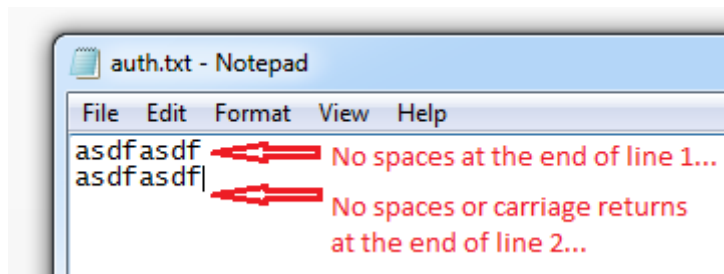
13. Go back to your internet browser with the 'Set Up ExpressVPN On All Your Devices' page open from Step.4 and go to "2."
First click on the geographic location you want to be connected within (I chose 'Americas')
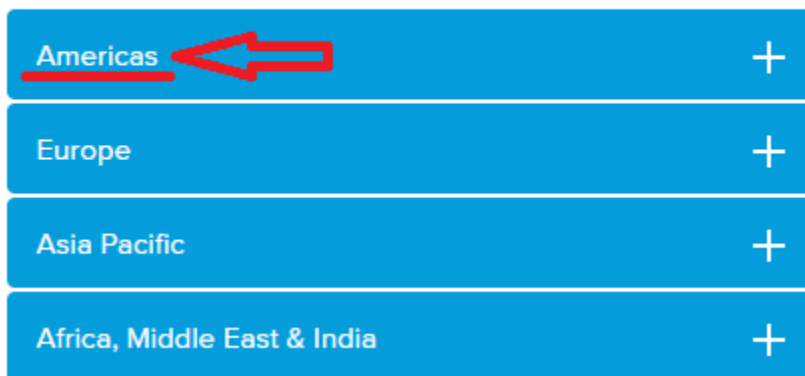
Then click on a location within that area for your actual connection (I chose 'USA – Los Angeles – 3')
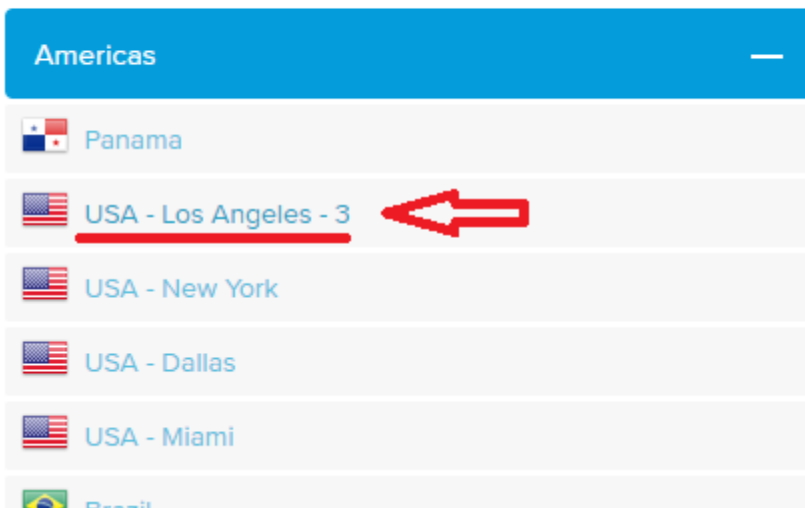
Clicking on this link will start the download of an OpenVPN configuration file (*.ovpn) which you should save to your desktop alongside of your "auth.txt" file

14. Now, due to the way Gargoyle implements OpenVPN, we also need ExpressVPN's optional zip file, so skip "3." And go to "4." and click on the hyperlink "ZIP file." And save this ZIP file to your desktop also.

Next, import the .ovpn file into your OpenVPN client. The file already includes all keys needed to connect to ExpressVPN using your account.

Note: If your account expires, you will need to delete the old files and download new versions here.
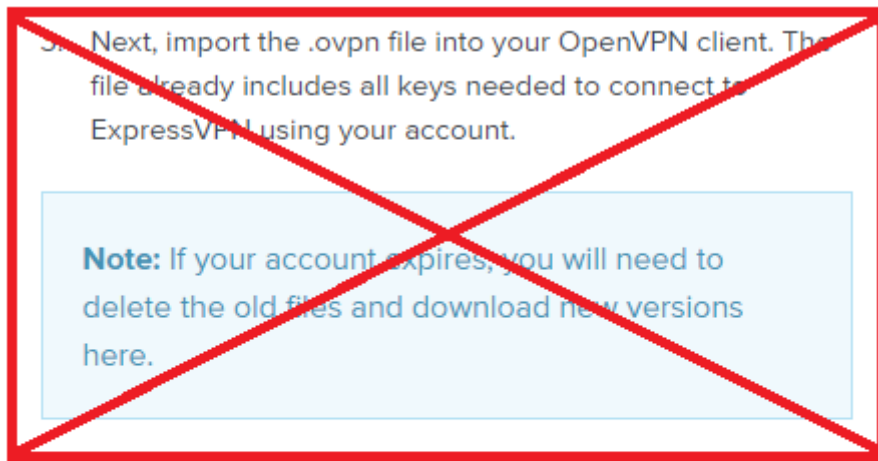
4. **Optional:** If your OpenVPN client requires you to enter certificates and keys separately, you can get them from this ZIP file.

15. Go to your desktop now and extract the ZIP file here so that you have the contents of the ZIP file (4 files) plus the auth.txt file from Step.6 and the *.ovpn file from Step.13 all in one place.
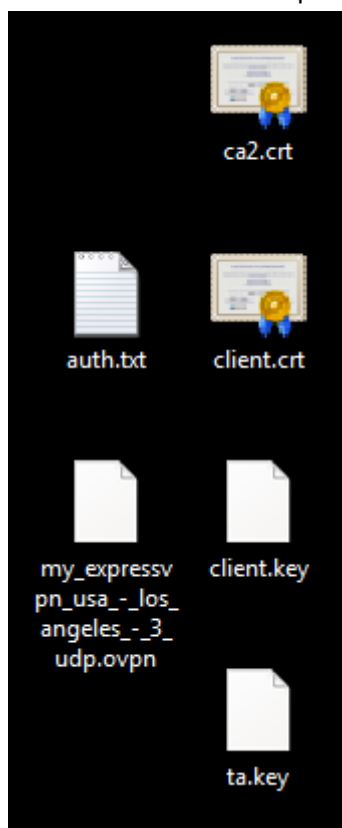
>> This is where things get a little tricky! <<

In this next section we need to upload our VPN authentication credentials and edit the *.ovpn file ready for use.

16. Download and install the latest version of WinSCP from https://winscp.net/eng/download.php

WinSCP Downloads

[Download WinSCP] [WinSCP Release Notification] [Download PuTTY]

Download WinSCP

WinSCP 5.9.6

Installation package (8.7 MB; 1,142,344 downloads to date)
Portable executables (7.1 MB; 149,518 downloads to date)
.NET assembly / COM library (7.1 MB; 6,675 downloads to date)
Source code (11.8 MB; 3,345 downloads to date)

[Release Notes, Checksums] [What's New] [Release Notifications]

17. Start WinSCP and connect to your router that is running Gargoyle
    a. File protocol: SFTP (if you can't make a connection with SFTP, try SCP)
    b. Host name: Your router's IP address (Gargoyle default = 192.168.1.1)
    c. Port number: Your router's Port number (Gargoyle default = 22)
    d. User name: Your router's User name (Gargoyle default = root)
    e. Password: Your router's Password (Gargoyle default = password)
    f. Click the Login button
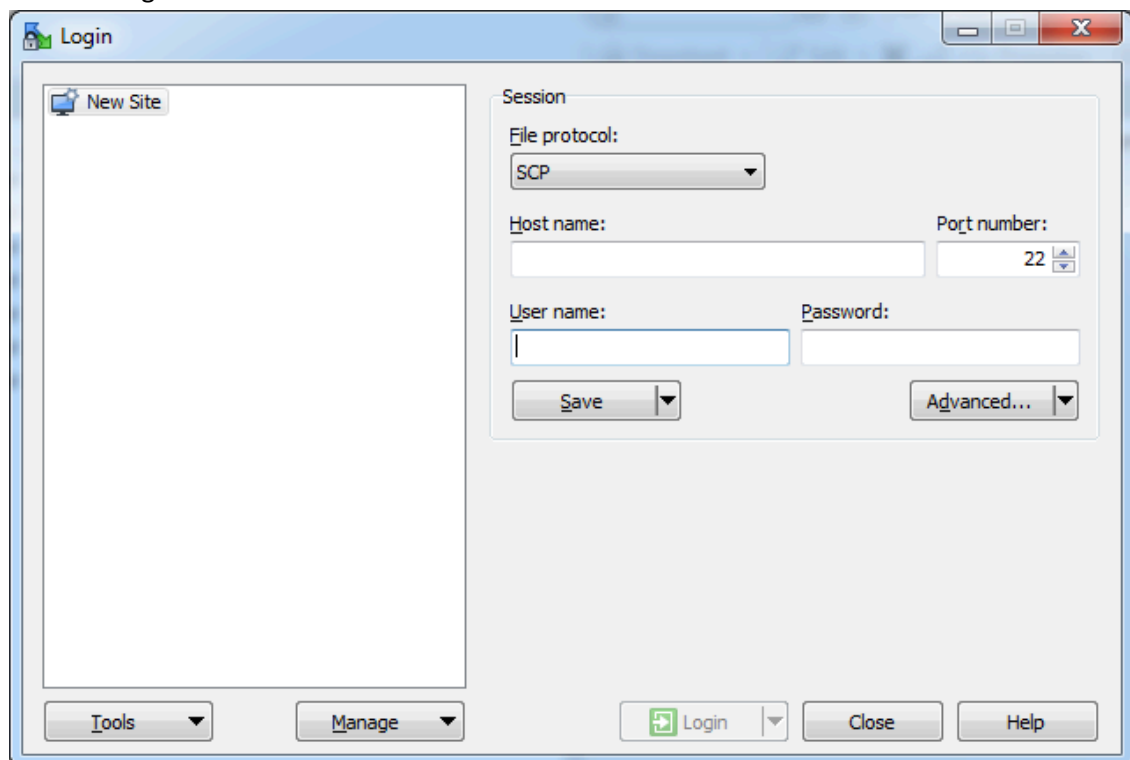
18. Once connected to your router that is running Gargoyle, on the left hand side navigate to your desktop and on the right hand side navigate to /etc/openvpn and drag and drop "auth.txt" from left to right

Name	Size	Type	Changed
..		Parent directory	20/08/2017 10:26:09 AM
auth.txt	1 KB	Text Document	20/08/2017 9:49:05 AM
ca2.crt	3 KB	Security Certificate	20/08/2017 12:09:26 AM
client.crt	2 KB	Security Certificate	20/08/2017 12:09:26 AM
client.key	2 KB	KEY File	20/08/2017 12:09:26 AM
my_expressvpn_keys.zip	5 KB	zip Archive	20/08/2017 10:09:32 AM
my_expressvpn_usa_-_los_angeles_-_3_udp.ovpn	6 KB	OVPN File	20/08/2017 10:03:33 AM
ta.key	1 KB	KEY File	20/08/2017 12:09:26 AM

Name	Size	Changed	Rights	Owner
..		12/08/2017 2:20 PM	rwxr-xr-x	root
auth.txt	1 KB	20/08/2017 9:49 AM	rw-r--r--	root
current_status	1 KB	20/08/2017 10:02 AM	rwxrwxrwx	root

19. On the right hand side, r-click "auth.txt" and choose properties

20. Make the properties for "auth.txt" as per below:
    a. Group = root
    b. Owner = root
    c. Permissions: Octal = 0600
    d. Click OK
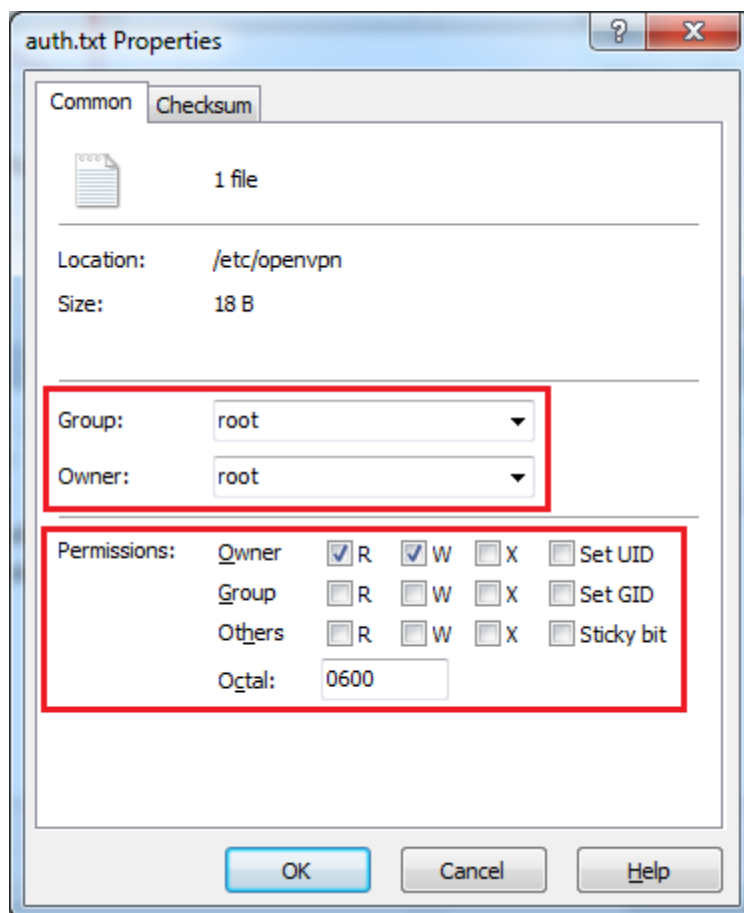
21. Close WinSCP

22. Now, go back to your desktop and make a backup copy of your downloaded *.ovpn file (copy then paste straight away!)

23. Open the *.ovpn file in Notepad or your preferred text editor
    a. Delete line 7; its empty and not needed

b. Delete line 26; its empty and not needed

```
24   rcvbur 529288
25   auth-user-pass
26   
27   <cert>
28   -----BEGIN CERTIFICATE-----
```

c. Delete everything starting at `<cert>` to `</cert>`, that is line 26 to 47, inclusive

```
25   auth-user-pass
26   <cert>
27   -----BEGIN CERTIFICATE-----
28   MIIDTjCCAregAwIBAgIDKzZvMA0GCSqGSIb3DQEBCw    MIGFMQswCQYDVQ
29   UzEL    A1U        C    xI   T gNVBAcTDFNhbkZy    sj  XNjbzEVMBMGA1
30   Rm9y                g        OD   9  3J0 JZ   nNO  4gQ0   ITAfB
31   9w0B   u W                        A    Nj    MwM  MThaG
32   MTEw  zA      rowa      a.      J     M   wC     QI    kkxE
33   BAoM    4cHJlc       aR    BA   V4cHJ       4  A  gNV
34   cHJ    cG      uG9      TAjB  g        F   iB  7
35   c3Z          EiMA0    GSIb3      JAA   wA  g        QC
36   uMD   3 Xg8  O4J   VI F    r2jr    uAF            O  H
37   1aN   un Ukv  1       bh  E2oA  s   90  w   gNX    XX
38   T5u   6Z Odr B      C  8PD  wp       qOEU4   1/cz   vs
39   I6   gP gG  i  9  xqf  vG  c   1  JQIi8P     p1pV    1/
40   Dx   mp            zfkLy  1Sqj5         nQ5
41   wPM       VAg  AGjP    w   EwEB/wO          /BA
42   MB0      N  BM    gF r2R          A   G  DBAQ
43   gQA+   +   17  s       D  b LeYYvD      Ow7dy
44   qzp4aKu   c       Vz    T     LdGUc5   MiLwiX
45   H6bGeeP  vB4+z    TE8hZhjhAL4F6y    vg3LDA==
46   -----END CERTIFICATE-----
47   </cert>
48   <key>
```

d. Delete everything starting at `<key>` to `</key>`, that is line 26 to 54, inclusive

```
25   auth-user-pass
26   <key>
27   -----BEGIN RSA PRIVATE KEY-----
28   MIIEpAIBAAKCAQEAqzmLfyjotrjAxnr96V4PI9UjuCf+BFVgxe7
29   7gBcdJ                        Yrnm1JL/0aZQn85558    4
30   qvv   BfY4DVz     HdLaEk+bhhOmaz        t  w
31   jhF0   Hatf      B79th    GY  IBkIov6fYrp  2i  m
32   IvD/  bxKdaV  GW  yzlK  g8Rb-   9SENGLvPEl  ZP  Ps
33   o+bi  Zya  3y      an   ab1QI QAB  IB  g
34   OZqJ3 xqo  0V7f  KWG    ZN xG       z  y0 Ja
35   3hDmw  W  HGv  i umd  OLo        eq2  2
36   KDKz0 0 sZ Jdn w Df E IWw x  3gK   kc4  I
37   kCmaM  gV +I P X 7 C0  N /I 8p  e  1nQ  h
38   827ZV  b/ Q sT 3 kVh rr o 7B ZR m  Shj X
39   EN12g  gYE o Sv j PaX n K  m B8  de8l
40   khKx1 TX0q s8b  JygZ  a1kIb       Tes
41   FkI7g  rAG8V H4w Rd0v 6YlCdE  u6LF   j9 5
42   9RkQ2 TBx5E b A0n3c mPicLl KV5D  Is 1
43   p8w  q9cCo  u  BT  aXWhUK/ 7f9Ze  hv  K
44   aPC Zq T e    q M3W7EyzRxDMC   rI
45   PIA n      W  F ku12H5wD Od  x
46   dcy     e  F  C JEzp o8R W
47   pSe  St  -4 6   Q  ck/ 7u7e HI E
48   zz7 3D5 v Ju cy 3 P f gD zzeS T 6
49   kzP y R tgSpY5 R3 v  w LZ    s
50   EEw         J YK5NN  7
51   Uhl5 GfMKkLShiON5P2oxZa+B0aPtQjsdns P aZkK4c++SS
52   p7/1CulE0z300sBekpwiuaqLJ9ZccC81g4+2  5c50rIAct3hx
53   -----END RSA PRIVATE KEY-----
54   </key>
55   <tls-auth>
```

e. Delete everything starting at <ca> to </ca>, that is line 49 to 84, inclusive

```
48   </tls-auth>
49   <ca>
50   -----BEGIN CERTIFICATE-----
51   MIIF+DCCA+CgAwIBAgIBATANBgkqhkiG9w0BAQ0FADCBhDELMAk
52   DI  KBg  VBAgM  OJWSTI  MBEGA1U  CgwKRXhwcm Vzc1ZQTjET  BE
53   cr  zc1  OTjEW  QGA1U  CAwwNRXh  cmVz  1ZQT  BDQT  1MCMG  5q
54   c3  wcG9  dEB1   ByZXI  tdnBuLmN  oTAe  w0xN  wMj  wMDAw  DB
55   MT  yMDE  MIGEl  wCQ   DVQQGEwJ  RzEM  AoGA  ECA  DQ1ZJ  RM
56   eH  vZXN  V1BOl  fwEQ  DVQQLDAp  eHBy  KNzV  BOMR  wFAYI  QQ
57   Vl  DIEN  MSUwI  XJKo  IhvcNAQk  ThZz  KBwh  JOQG  4cHJ1  3N
58   Ij  JBgk  hkiG9  DBAQ  FAAOCAg8  IIIC  gKC  EAxz  vHZ2  sE
59   9k  RLWJ  5OoVB  xob  iPhCsWv  upva  8CB  cqkV  hXu2  3F
60   Ay  jRpz  bDPWq  +G0  t0sjiJt  KPJ  IlN  ne6  sO9P  cp
61   ag  IQAr  JvYL1  g9A  sLb8JkY  H6G  DF8  TTqh  ppCc  sQ
62   Ta  CnTY  edwWp  UXP  TXFOvl  uxf  ug2  kpT  euWTc  Sy
63   Yur  qFt  QZMq3  LFZ  IN2gHR  gx  hu  p  PRo  jiFgQ  yL
64   91  KfC  +g9TB  RUt  r1neWc  yX  ic3  N  GA8  40Zo  1B
65   +1m  pTA  3/Dxz  GzH  VAmYa  xn  3VN  l  lg1  iCAu  jM
66   q0S  KQJ  T3AI/  PSv  CMWBy  1  Dp  KAK  ly  UT5  4bCN  7b
67   tF0  wB1  TIM3  yFr  I0j6j  R  60n  sgD  K  4L/  5rjd  Pu
68   Gkn  1Zk  v4yc  R48  CQwg  B  j0/  flv  Jv  YA  s9S  U  /g
69   uxN  Int  1nz  S  jrvl  CAwEf  a  zMF  wHQ  D  OO  BYEF  m  Gj
70   45V  DZRJMB  A1  dIw  MBa  FI  nQG  8xS  Dl  kl  gHD4  VV  ZR
71   /wQ  YAMBAf  Cw  DVROPBAC  Ag  MBEGCW  3  AGG  EIBA  QE  vI
72   9w0E  QOFA  CAg  bHfuMK  jm1  gX7qSU  R  2B5  BGOF  FP  4
73   z8cc  K90v  JnQE2  QmRzo  v3Xj  zV1xBW  5  EApisSI  i/4  N
74   GFTO  vDV  qNkZO  BmyVD  s1Y+  Ba+zB  kN  DEhOHZ  Q01  f
75   F5WH  Rv  mWTwX4  uCi  tx70C  KqhM  Zt  1UtHL  YcN  I
76   z9B8  s  juP+mfcj  OL  rY+2pJ  KO  RRna  IZZAB  IIis  3
77   yxyU1  KWHrvi0P  0m  nFahfugW.  Bsq  Seue  +ahn  P
78   eE8CW  9Y92b01up  P6wZOIm3Jy1  L5smD  h8  42dK  G
79   YfAy4  h/qbWY57KFc  x40bFsoI7Pe  GtT/d  ZRLW
80   0UeEC6CpATCS6uV18LVT1I02uulHUpFaRmTEOrmMx  t6UAw
81   1xKt  hbuN2  5   CLwoaj7+nSVi
82   GNCvtwy/fEegK9X/wlp2e2CF1IhFbadeXOBr9Fn8ypYPP17mTqe
83   -----END CERTIFICATE-----
84   </ca>
```

f. Go to what is now line 25 and change:
    From - auth-user-pass
    To - auth-user-pass /etc/openvpn/auth.txt

g. Go to what is now line 22, move the text cursor to the end of "auth SHA512" and hit enter

h. On the new line type in auth-nocache

i. Go to line 1, move the text cursor to the end of "dev tun" and hit enter

j. On the new line type in proto udp

k. Check you have 51 lines and that line 51 is blank/empty

l. Save and Close

>> Almost there … Stay on target! <<

Time to upload data into OpenVPN via Gargoyle and get it ready to work.

24. Let's get things setup in the router now, so head over there and login, via your preferred internet browser

Login

Enter Admin Password: [   ]

[Login]
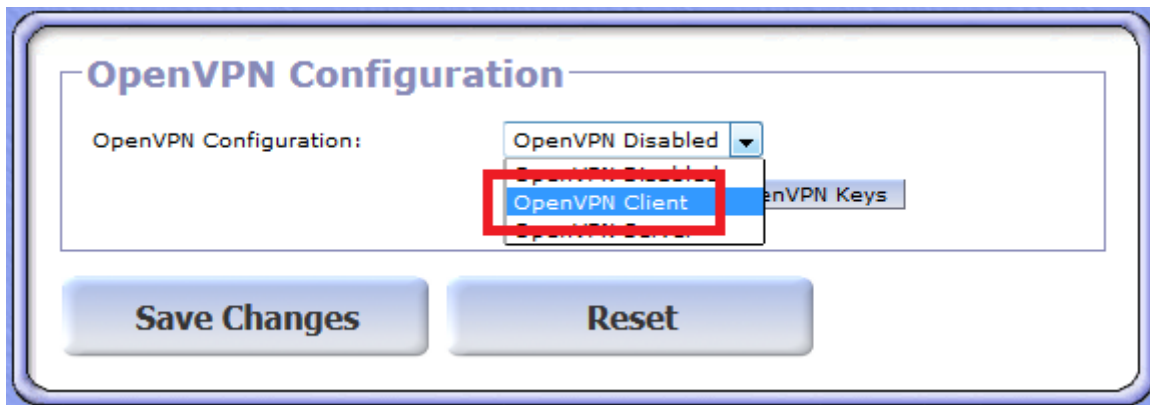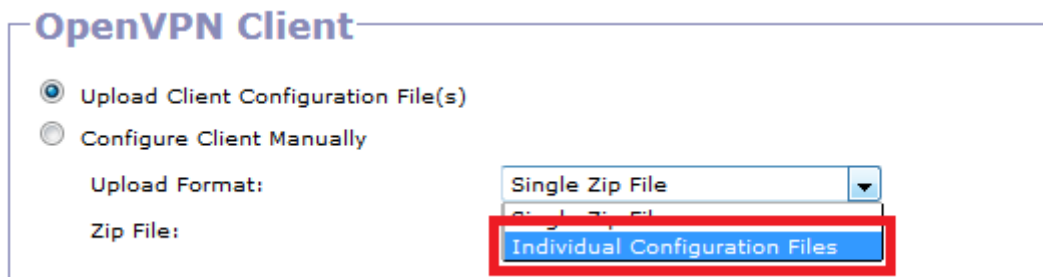
Current Date & Time

20/08/2017 11:30 AEST

25. When logged in, click on Connection on the left, then OpenVPN
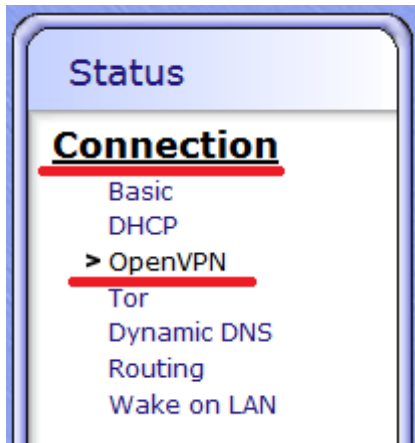
26. One the OpenVPN page, from the drop down list, select OpenVPN Client

27. In the OpenVPN Client section, in the drop down list for Upload Format, select Individual Configuration Files

28. Browse and select for the following:
    OpenVPN Config File: the *.ovpn file you downloaded from Step.13 and edited in Step.23
    CA Certificate File: extracted from the ZIP file at Step.15, downloaded at Step.14; mine was called ca2.crt
    Client Certificate File: extracted from the ZIP file at Step.15, downloaded at Step.14; mine was called client.crt
    Client Key File: extracted from the ZIP file at Step.15, downloaded at Step.14; mine was called client.key
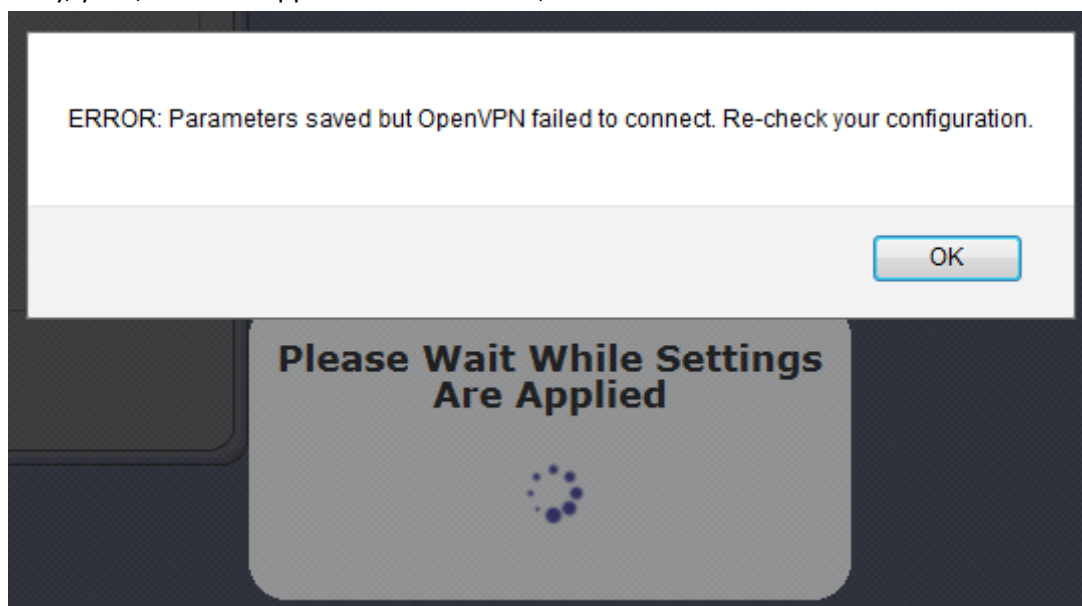
29. Save Changes
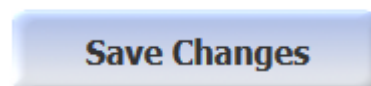
30. Waiting…

31. And…
Sorry, yeah, this will happen and its meant to, so click OK

>> The home stretch! <<

The error above happened because OpenVPN via Gargoyle cannot reference the one *.key and two *.crt files we just uploaded in Step.28 so we need to tell it where to look now; it is because of the random name generation of the uploaded files, that we couldn't do this until now.

32. Open up WinSCP again and log back into your router (if you need a refresher, check out Step.17)

33. On the right hand side, navigate to /etc/openvpn

34. Locate the file "grouter_client_[randomcharacters].conf" and r-click and select edit
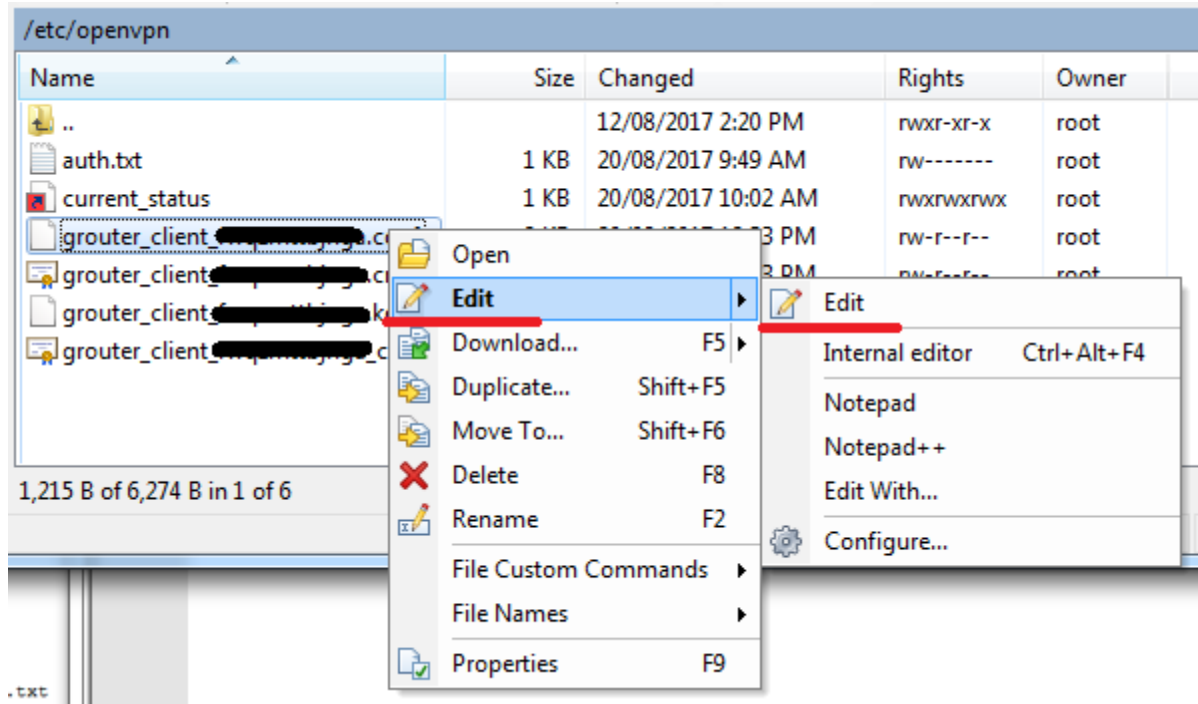
35. In the edit window, find the line "auth-user-pass /etc/openvpn/auth.txt", move the text cursor to the end and hit enter

36. On this new line, type ca then hit enter

37. Then type cert and hit enter

38. Then type key

39. Now, using the file names from within WinSCP at /etc/openvpn/ add the correct file names to the correct lines preceded by its location so that the lines become:
    a. ca /etc/openvpn/grouter_client_[randomcharacters]_ca.crt
    b. cert /etc/openvpn/grouter_client_[randomcharacters].crt
    c. key /etc/openvpn/grouter_client_[randomcharacters].key

40. Save changes by clicking on the save icon in the top left corner of the Edit window

41. Close the Edit window

42. Now change the permissions on the one *.key file and two *.crt files to the same as the "auth.txt" file back at Step.20

43. Exit out of WinSCP

44. Go back to the WebUI of Gargoyle and reboot the router (System > Reboot > Reboot Now)

System
- Router Access
- Identification
- Time
- Plugins
- USB Storage
- DLNA
- Webcam
- USB Printer
- Backup / Restore
- Update Firmware
- > Reboot
- About

Reboot Now

45. Wait a minute or two, should be no more than five, hit F5 to refresh if you don't get dropped back to the page or login screen

46. Navigate back to the OpenVPN page within the Gargoyle WebUI and look at the top for "OpenVPN Status:" Hopefully it will say - Running, Connected, IP: x.x.x.x

OpenVPN Configuration

| OpenVPN Configuration: | OpenVPN Client ▼ |
| OpenVPN Status: | Running, Connected, IP: |
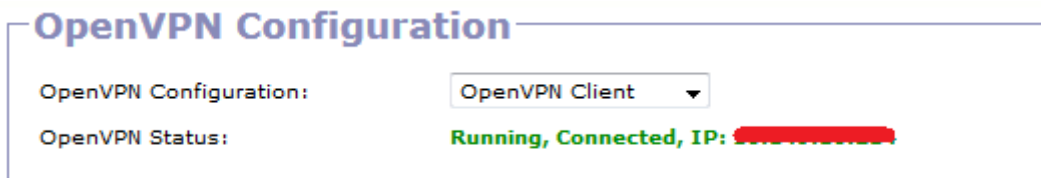
47. Ta-Da! Done and working.

From this point, if you have any other issues, best to drop a line to ExpressVPN and ask them (their customer service is pretty top notch!), otherwise, you can search and ask for help in the Gargoyle forums or Whirlpool forums or any other set of forums of your choosing I'm sure.

Have fun.