Quick Note 012

Using 2 APNs simultaneously
(Applies to Siemens/Cinterion modules only)

UK Support

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Contents

1 VERSION

Version Number	Status
1.0	Published
2.1	Rebranded and updated

1.1 Corrections

Requests for corrections or amendments to this application note are welcome and should be addressed to: Tech.Support@digi.com

Requests for new application notes can be sent to the same address.

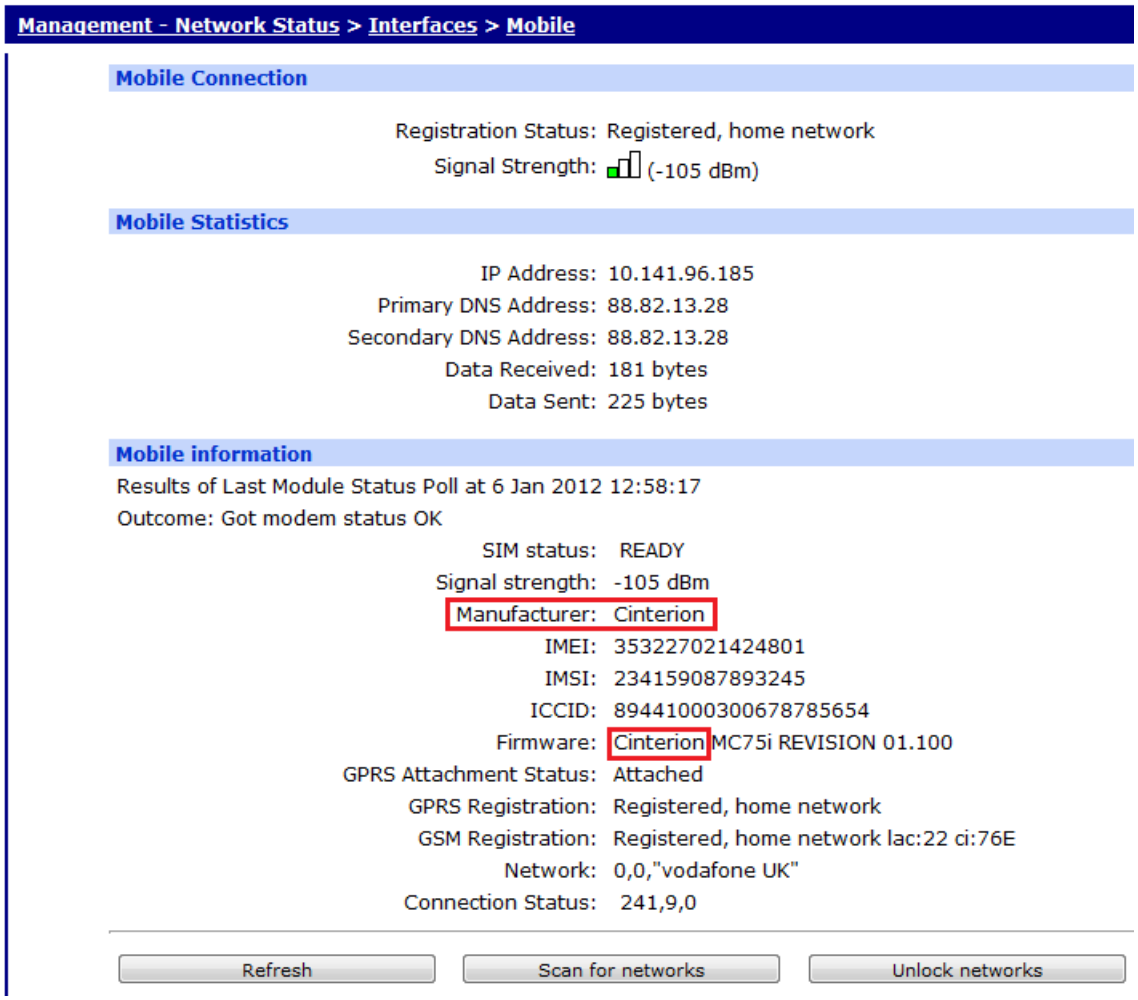
2 SCENARIO & PREREQUISITES

The ability to connect to two APNs **simultaneously** is only available in wireless routers with Siemens/Cinterion W-WAN modules.

To check which W-WAN module is installed, browse to

Management - Network Status > Interfaces > Mobile

The W-WAN manufacturer will be shown in the output:



Configuring 2 APNs allows a connection to both the public APN of a mobile operator for internet access and a company owned private APN, keeping the traffic separate. In this example both APNs will be Vodafone's public UK APN. The router used for this quick note is a Digi TransPort DR64-EXA1-DE2-XX(MkII) with PPP instances 3 & 4 used for the 2 APNs.

3 CONFIGURATION

3.1 Configure the cell monitor

This step can be skipped on the DR64-EXA1-DE2-XX(MkII) go to the next step.

On older models, Cell monitoring needs to be disabled.

This is done via the command line (CLI). The command is

"cellmon 0 asy_add 255".

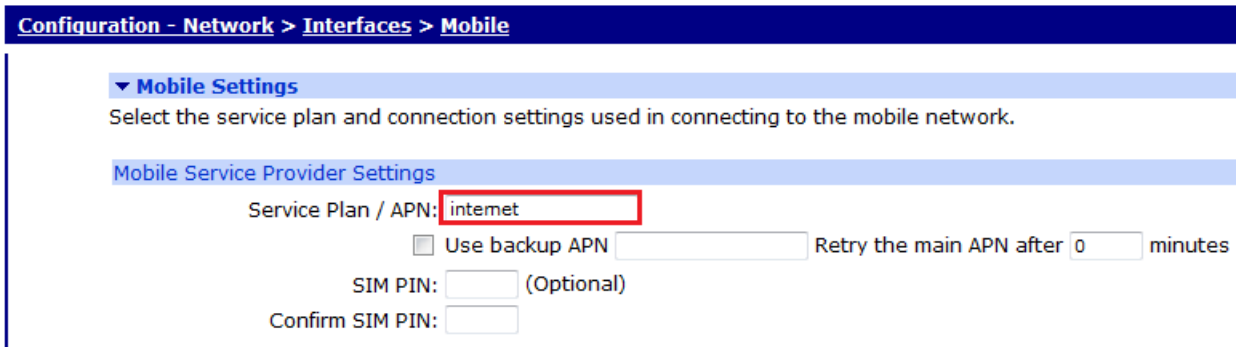
If an error is seen when issuing this command it confirms that the router's platform does not support this command.

```
cellmon 0 asy_add 255
OK
```

3.2 Configure the APNs

Configure the 1st APN using the browser interface. The APN shown here is Vodafone's public APN, replace this with the APN that the SIM will use.

Configuration - Network > Interfaces > Mobile



Click Apply

Alternatively configure the 1st APN via the command line issue this command:

```
modemcc 0 apn internet
```

The 2nd APN and extra modemcc parameters need to be entered via the command line.

Set the mux channel for modemcc instance 1. (This must be mux0 as mux channels 1 and 2 will be in use by modemcc instance 0). This is done in the following steps.

```
modemcc 1 asy_add mux0
```

Enable GPRS on this modemcc instance. Enter the command

```
modemcc 1 gprs ON
```

Set the 2nd APN. The command syntax is

```
modemcc 1 apn <2nd-APN>
```

Configure W-WAN link failure detection so that the W-WAN module is power cycled after 10 failed connection attempts. The command for this is “modemcc 1 link_retries 10

```
modemcc 1 link_retries 10
```

Here is the result of the above commands

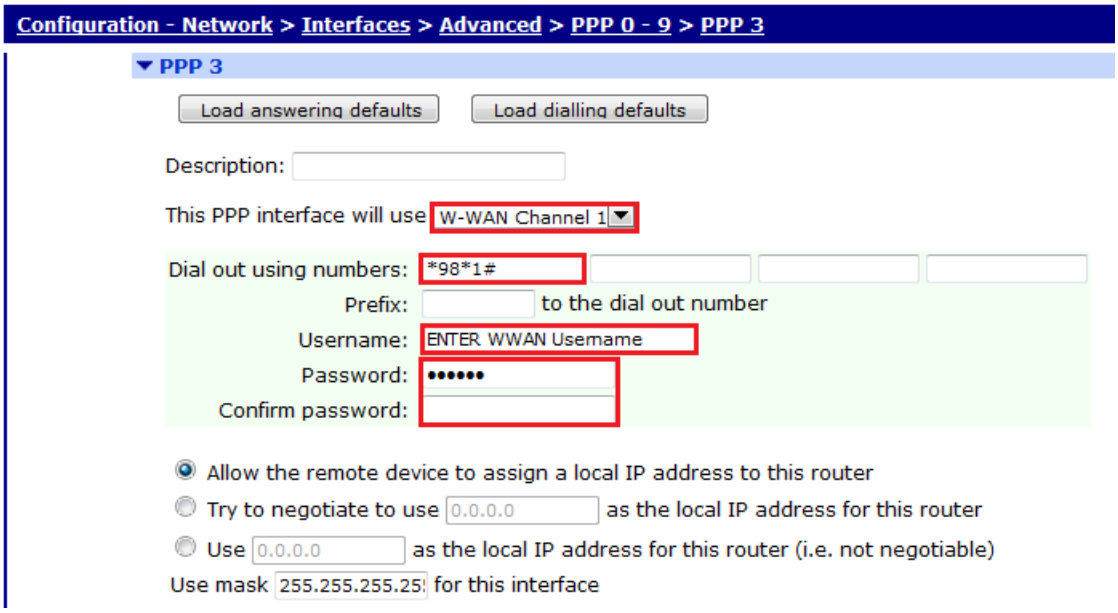
```
modemcc 1 asy_add "mux0"
OK
modemcc 1 gprs ON
OK
modemcc 1 apn "internet"
OK
modemcc 1 link_retries 10
OK
```

3.3 Configure the PPP links

3.3.1 Configure PPP 3

PPP 3 will be configured for the 1st APN. This should need minimal configuration as PPP 3 is the default GPRS connection on the DR64MKII. If you are configuring another router where PPP 1 is the W-WAN connection (e.g. ER4110, MR4110) this part of the configuration will apply to PPP 1.

Configuration - Network > Interfaces > Advanced > PPP 0 - 9 > PPP 3

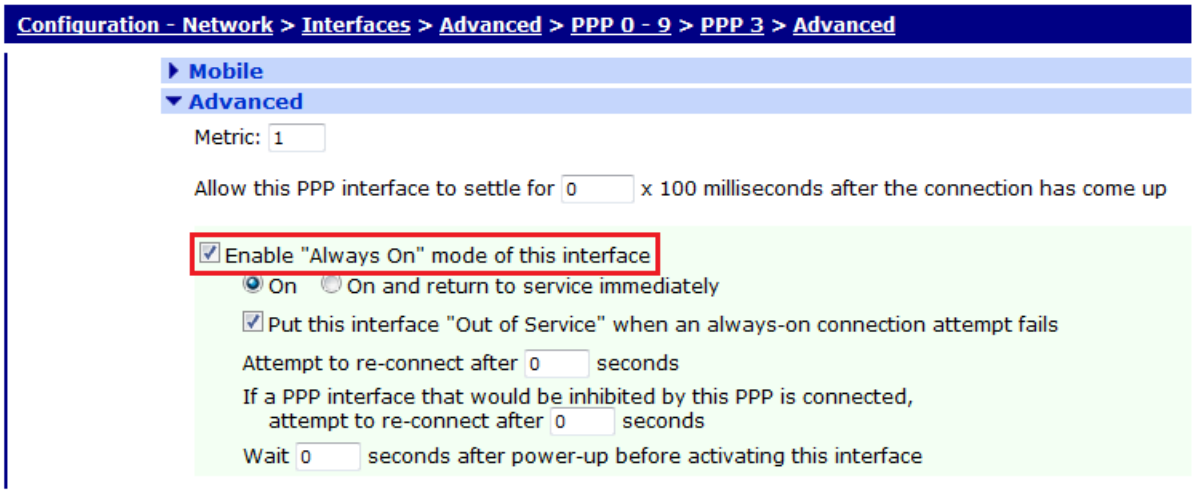


Change the parameter “Use W-WAN/external modem” to “W-WAN Channel 1”

Set the APN username and password if required.

Then under Advanced

Configuration - Network > Interfaces > Advanced > PPP 0 - 9 > PPP 3 > Advanced



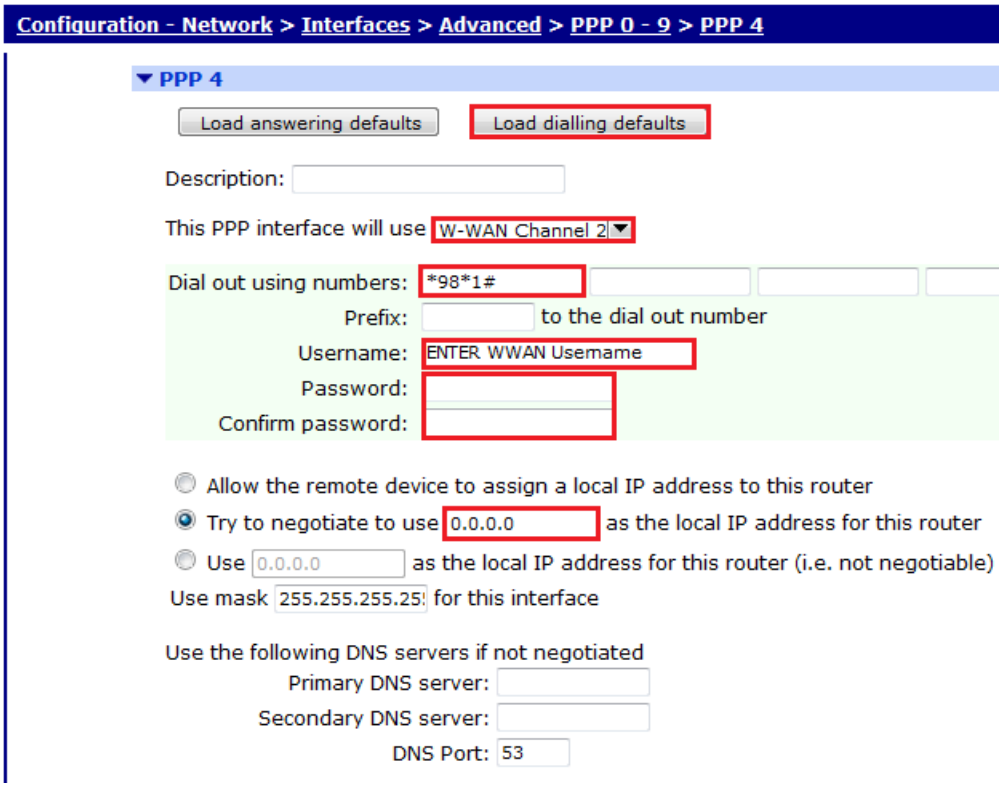
Enable “Always on mode”

Click Apply

3.3.2 Configure PPP 4

The 2nd APN will require a separate PPP instance to connect with. Pick an unused PPP instance. On this router PPP 4 was used as it was free, on the ER4110 or MR4110 this could be PPP 2.

Configuration - Network > Interfaces > Advanced > PPP 0 - 9 > PPP 4



Click on “Load dialling defaults”.

Add in the dial out number so it is the same as the other W-WAN PPP interface. E.g. *98*1#

Change the parameter “Use W-WAN/external modem” to “W-WAN Channel 2”

Set the APN username and password if required.

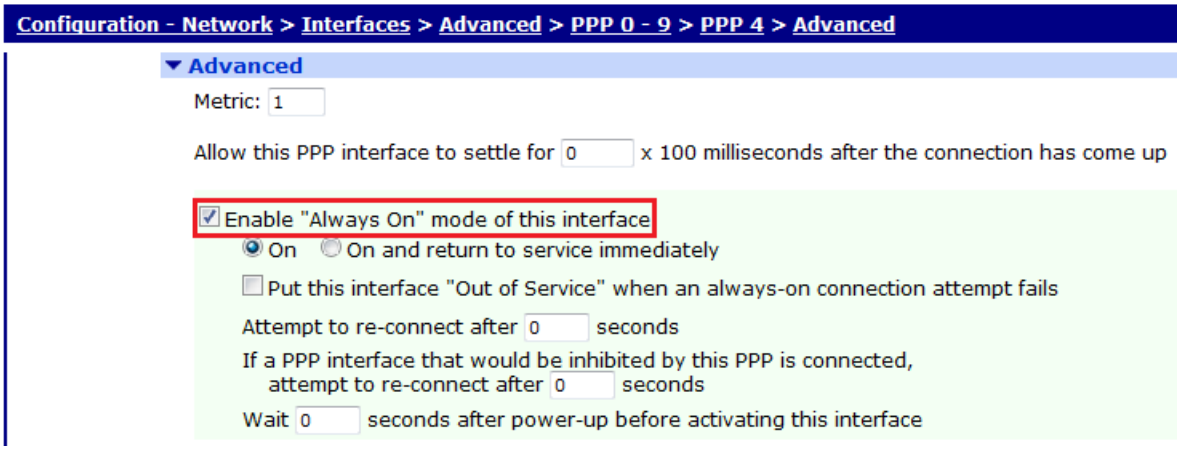
Ensure the “Always on mode” is set to “ON”.

Change the “Inactivity timeout (s)” to “0”.

Set the “Local IP address” to 0.0.0.0 as this will be assigned by the mobile operator. Ensure the “NAT mode” is set to “NAT”.

Then under Advanced

Configuration - Network > Interfaces > Advanced > PPP 0 - 9 > PPP 4 > Advanced



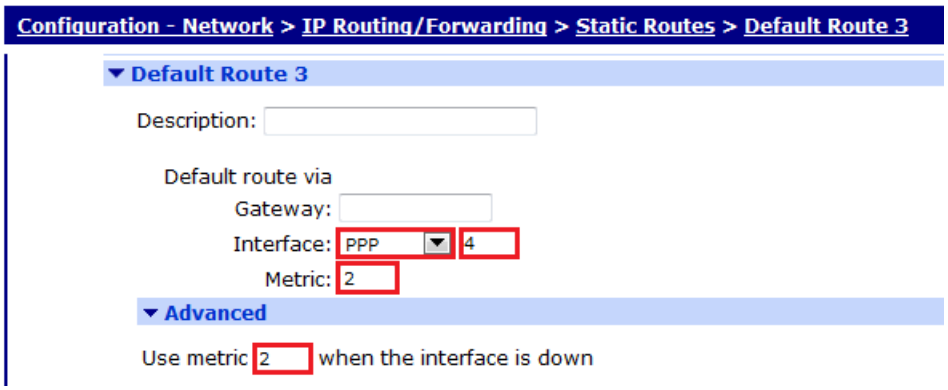
Enable “Always on mode”

Click Apply

3.4 Configure Routing

There is no default route setup to use the second W-WAN interface used in this quick note. So that test traffic can be sent out of the second interface, a quaternary default route (default route 3) will be setup for this interface so that it can be used for backup and a static route for a remote network that is reachable on this link.

Configuration - Network > IP Routing/Forwarding > Static Routes > Default Route 3

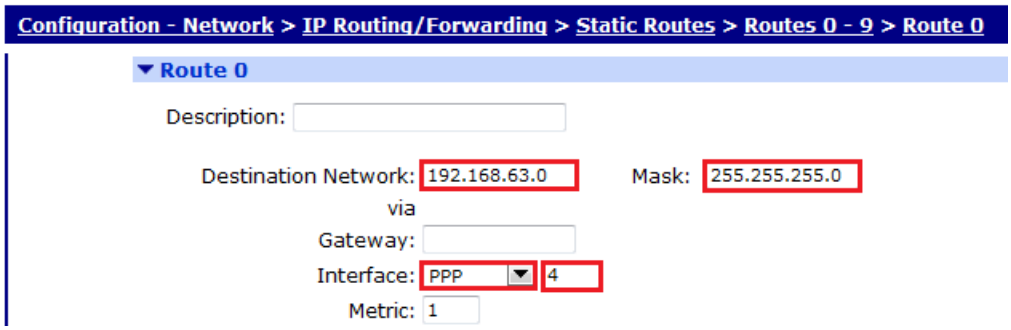


Click Apply

Next, Configure a static route for a remote network on second WAN connection.

Browse to:

Configuration - Network > IP Routing/Forwarding > Static Routes > Routes 0 - 9 > Route 0

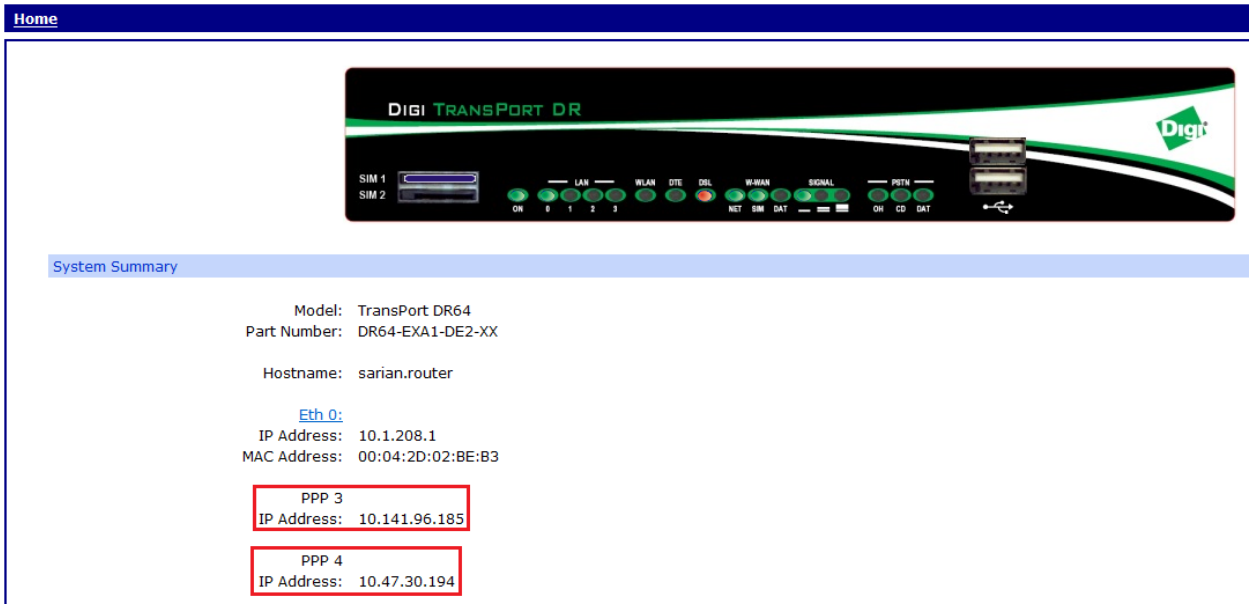


Click Apply

4 TESTING

4.1 Check the status of the PPP links.

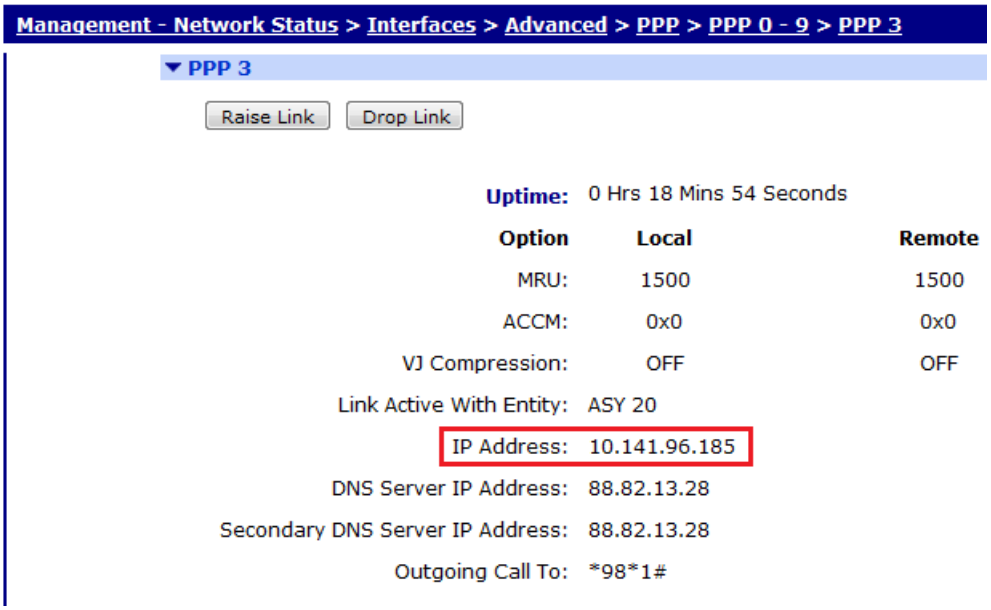
From the home page



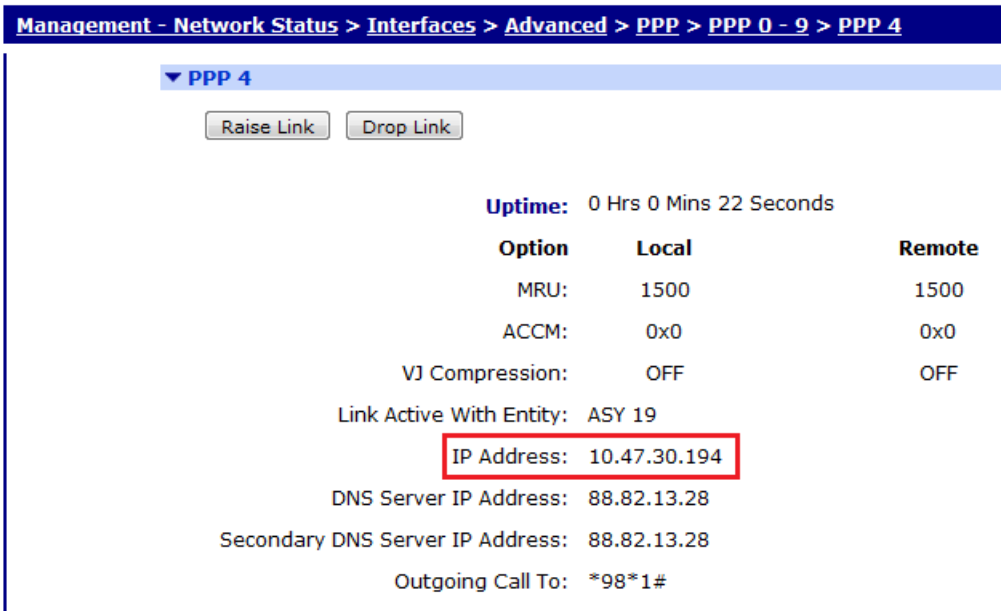
Notice that that PPP3 and PPP 4 are up and have both been assigned an IP address

The same information can be seen with more detail for each of the PPP interfaces using the PPP status.

Management - Network Status > Interfaces > Advanced > PPP > PPP 0 - 9 > PPP 3



Management - Network Status > Interfaces > Advanced > PPP > PPP 0 - 9 > PPP 4



The above information can also be found by using the CLI commands:

```
ppp 3 status
         Local MRU: 1500
        Remote MRU: 1500
        Local ACCM: 0x0
       Remote ACCM: 0x0
     Local VJ Comp: OFF
    Remote VJ Comp: OFF
  Link Active With: ASY 20
        IP Address: 10.94.194.86
DNS Server Address: 88.82.13.12
Secondary DNS Server Address: 88.82.13.12
  Outgoing Call To: *98*1#
            Uptime: 0 Hrs 1 Mins 39 Seconds
OK
```

```
ppp 4 status
         Local MRU: 1500
        Remote MRU: 1500
        Local ACCM: 0x0
       Remote ACCM: 0x0
     Local VJ Comp: OFF
    Remote VJ Comp: OFF
  Link Active With: ASY 19
        IP Address: 10.162.63.145
DNS Server Address: 88.82.13.60
Secondary DNS Server Address: 88.82.13.60
  Outgoing Call To: *98*1#
            Uptime: 0 Hrs 0 Mins 20 Seconds
OK
```

The routes added and the interface IP addresses can be seen in the output of the route print as below:

```
route print
       Destination          Gateway   Metric   Protocol  Idx Interface  Status
-------------------------------------------------------------------------------
        10.0.0.1/32     10.94.194.86      1     Remote     -   PPP 3      UP
        10.0.0.1/32    10.162.63.145      1     Remote     -   PPP 4      UP
        10.1.0.0/16       10.1.208.1      1      Local     -   ETH 0      UP
    10.94.194.86/32     10.94.194.86      1      Local     -   PPP 3      UP
   10.162.63.145/32    10.162.63.145      1      Local     -   PP 4       UP
    192.168.63.0/24                       1     Static     0   PPP 4      UP

         0.0.0.0/0                        1     Static     1   PPP 3      UP
         0.0.0.0/0                        2     Static     3   PPP 4      UP
         0.0.0.0/0                        -     Static     0   PPP 1     OOS
```

5 CONFIGS

```
config c show
eth 0 IPaddr "10.1.208.1"
eth 0 mask "255.255.0.0"
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 3 asyport 7
lapb 3 mux_0710 ON
lapb 4 dtemode 0
lapb 4 dlc 1
lapb 4 asyport 7
lapb 4 virt_async "mux0"
lapb 4 mux_0710 ON
lapb 5 dtemode 0
lapb 5 dlc 2
lapb 5 asyport 7
lapb 5 virt_async "mux1"
lapb 5 mux_0710 ON
lapb 6 dtemode 0
lapb 6 dlc 3
lapb 6 asyport 7
lapb 6 virt_async "mux2"
lapb 6 mux_0710 ON
route 0 IPaddr "192.168.63.0"
route 0 ll_ent "PPP"
route 0 ll_add 4
def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
def_route 1 ll_ent "PPP"
def_route 1 ll_add 3
def_route 3 ll_ent "PPP"
def_route 3 ll_add 4
def_route 3 upmetric 2
def_route 3 metric 2
snmpuser 0 eCommunity "PDZxU1VZRVBbXg=="
ppp 0 timeout 300
ppp 1 l1iface "AAL"
ppp 1 username "Enter ADSL Username"
ppp 1 epassword "PTJ5WU1NRFM="
ppp 1 IPaddr "0.0.0.0"
ppp 1 timeout 0
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 immoos ON
ppp 1 echo 10
ppp 1 echodropcnt 5
ppp 3 phonenum "*98*1#"
ppp 3 username "ENTER WWAN Username"
```

```
ppp 3 epassword "KD5lSVJDVVg="
ppp 3 r_addr OFF
ppp 3 IPaddr "0.0.0.0"
ppp 3 l_addr ON
ppp 3 timeout 0
ppp 3 use_modem 4
ppp 3 aodion 1
ppp 3 autoassert 1
ppp 3 immoos ON
ppp 3 l_pap OFF
ppp 3 l_chap OFF
ppp 3 r_chap OFF
ppp 3 defpak 16
ppp 4 phonenum "*98*1#"
ppp 4 IPaddr "0.0.0.0"
ppp 4 IPmin "10.10.10.0"
ppp 4 timeout 60
ppp 4 use_modem 5
ppp 4 aodion 1
ppp 4 autoassert 1
ppp 4 l_acfc ON
ppp 4 l_pfc ON
modemcc 0 asy_add "mux1"
modemcc 0 info_asy_add "mux2"
modemcc 0 init_str "+CGQREQ=1"
modemcc 0 init_str1 "+CGQMIN=1"
modemcc 0 apn "internet"
modemcc 0 link_retries 10
modemcc 0 stat_retries 30
modemcc 0 sms_interval 1
modemcc 0 init_str_2 "+CGQREQ=1"
modemcc 0 init_str1_2 "+CGQMIN=1"
modemcc 0 apn_2 "Your.APN.Goes.Here"
modemcc 0 link_retries_2 10
modemcc 0 stat_retries_2 30
modemcc 0 sms_interval_2 1
modemcc 1 asy_add "mux0"
modemcc 1 gprs ON
modemcc 1 apn "internet"
modemcc 1 link_retries 10
ana 0 anon ON
ana 0 l1on ON
ana 0 lapdon 0
ana 0 asyon 1
ana 0 logsize 45
cmd 0 unitid "ss%s>"
cmd 0 cmdnua "99"
cmd 0 hostname "sarian.router"
cmd 0 tremto 1200
cmd 0 web_suffix ".wb2"
user 1 name "username"
user 1 epassword "KD5lSVJDVVg="
user 1 access 0
user 2 access 0
```

```
user 3 access 0
user 4 access 0
user 5 access 0
user 6 access 0
user 7 access 0
user 8 access 0
user 9 access 0
user 14 epassword "Li94TkBfU1VcWg=="
local 0 transaccess 2
sslsvr 0 certfile "cert01.pem"
sslsvr 0 keyfile "privrsa.pem"
ssh 0 hostkey1 "privSSH.pem"
ssh 0 nb_listen 5
ssh 0 v1 OFF

Power Up Profile: 0
OK
```