Application Note 14

Configure a Dual SIM cellular router to automatically failover to a second SIM card and revert back to the original SIM after a specified amount of time.

This configuration will fail-over to a temporary "on demand" cellular connection using the second SIM card. Whenever the second SIM card is used, after a specified period of inactivity or after a maximum amount of time has been reached or the inactivity timeout is reached, the backup link will deactivate and the TransPort will attempt to use the first SIM card again. This method is useful when it is not desirable to use the second SIM card indefinitely. (For example if some functionality is lost or the data charges are higher.)

UK Support

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Contents

1 INTRODUCTION

Cellular technology has proven to be extremely reliable. However, the consequences of loosing contact with a remote unit many miles away are so severe that it warrants extra precautions.

The configuration detailed in this note causes the TransPort to monitor TCP traffic over an active cellular connection to a specified IP address. When a problem is detected with the data transfer the TransPort will drop the active cellular connection and activate the secondary cellular link using a second SIM card.

Other techniques for monitoring cellular connections (such as automatic pings) are available but not detailed in this application note.

It is also possible to monitor other types of traffic such as UDP or ICMP instead of TCP. Again these methods are not detailed in this application note.

1.1 Outline

There are two distinct **methods**, this Application Note covers method 1. For method 2, please see Application Note 15;

1. The first will be to back-up to a temporary "on demand" cellular connection using the second SIM card. Whenever the second SIM card is used, after a specified period of inactivity or after a maximum amount of time has been reached, the backup link will deactivate and the TransPort will attempt to use the first SIM card again. This method is useful if it is not desirable to use the back-up SIM card indefinitely. (For example if some functionality is lost or the data charges are higher.)

2. The second method will cause the TransPort to give each SIM and associated cellular link equal priority. Unless a problem is detected the TransPort will permanently keep active whichever SIM card it happens to be using. This method is useful if maintaining a connection to the remote cellular TransPort router is a priority. For this configuration see Application Note 15.

1.2 Assumptions

This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product and of the requirements for their specific application.

This application note applies only to;

Model: All Dual SIM TransPort routers

Firmware versions: 4.674 or later.

Configuration: This Application Note assumes that the TransPort product is set to its factory default. Most configuration commands are only shown if they differ from the factory default.

1.3 Corrections

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

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

1.4 Version

Version Number	Status
1.0	Published
1.1	Removed AODI timer settings
1.2	Removed AODI timer settings from screen shots and config files
1.3	Added dialling defaults for PPP 2. Changed title to reflect all dual SIM wireless products

2 CONFIGURATION

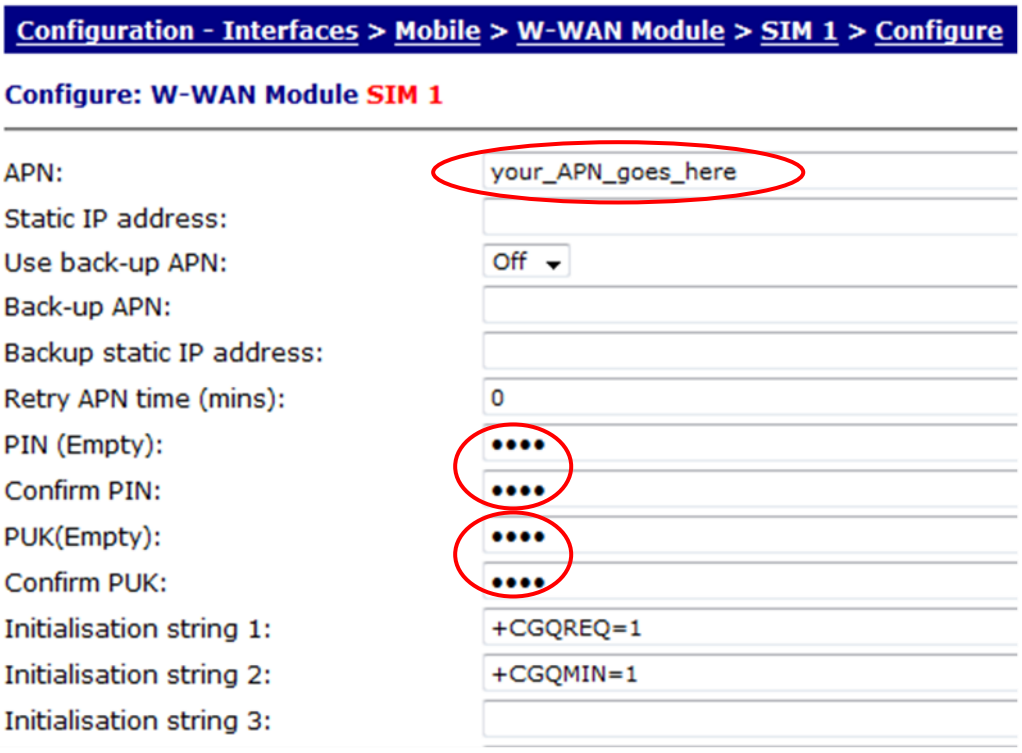
2.1 Configure the cellular Module

2.1.1 Parameter settings for SIM 1

Using the TransPort's web interface browse to **Configuration - Interfaces > Mobile > W-WAN Module > SIM 1 > Configure**.

Enter the APN (Access Point Name) and PIN number (if required) for SIM card 1. (Usually these will be provided by your mobile operator.)

Parameter	Setting	Description
APN	internet	Enter the correct APN for your network
PIN	1234	Enter the PIN number for your SIM card if required
PUK	1234	Enter the PUK number for your SIM card if desired

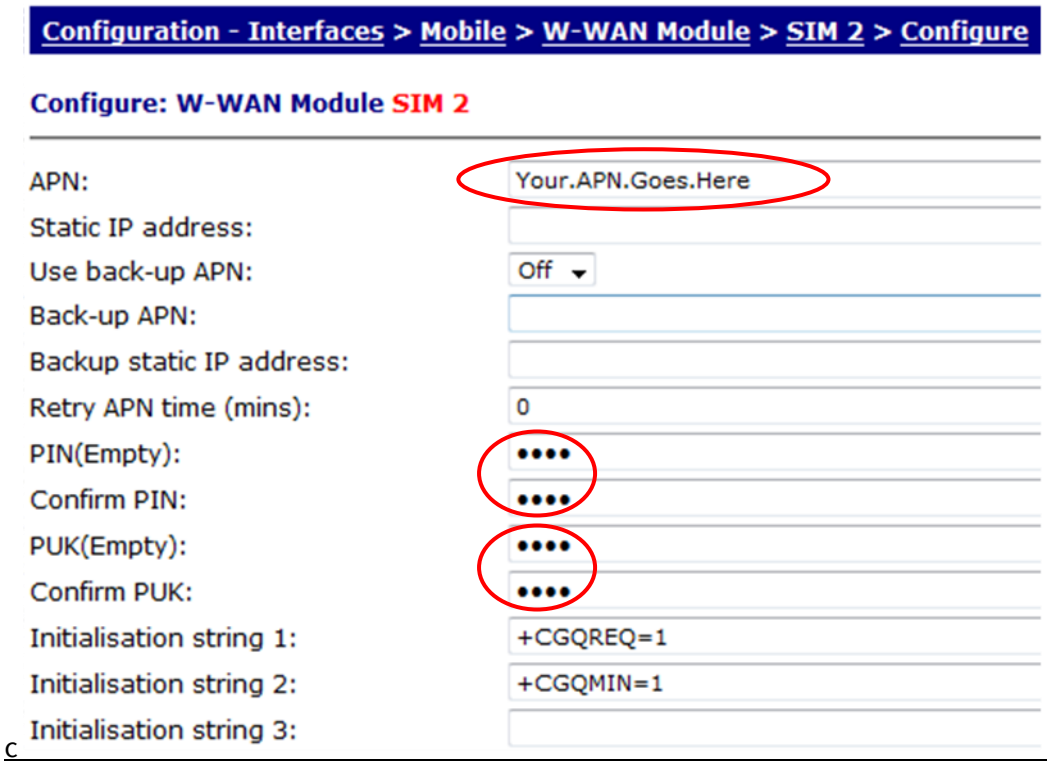


2.1.2 Parameter settings for SIM 2

Using the TransPort's web interface browse to **Configuration - Interfaces > Mobile > W-WAN Module > SIM 2 > Configure.**

Enter the APN (Access Point Name) and PIN number (if required) for SIM card 2.

Parameter	Setting	Description
APN	internet	Enter the correct APN for your network
PIN	1234	Enter the PIN number for your SIM card if required
PUK	1234	Enter the PUK number for your SIM card if desired



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2.2 Configure the Default Routes

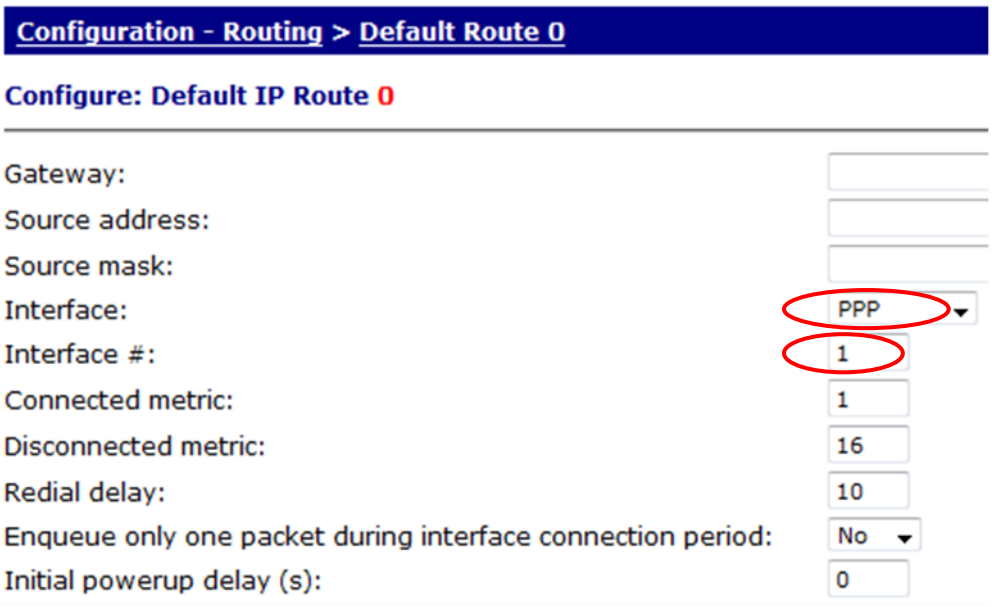
2.2.1 Default Route 0

Configure **default route 0** to send packets to destinations not on the local are network out of PPP 1. Interface PPP 1 is configured for cellular using SIM 1.

Browse to **Configuration - Routing > Default Route 0**

Parameter	Setting	Description
Interface:	PPP	Identifies the interface type to be associated with default route 0.

Interface # :	1	Identifies the instance number of the interface to be associated with default route 0.

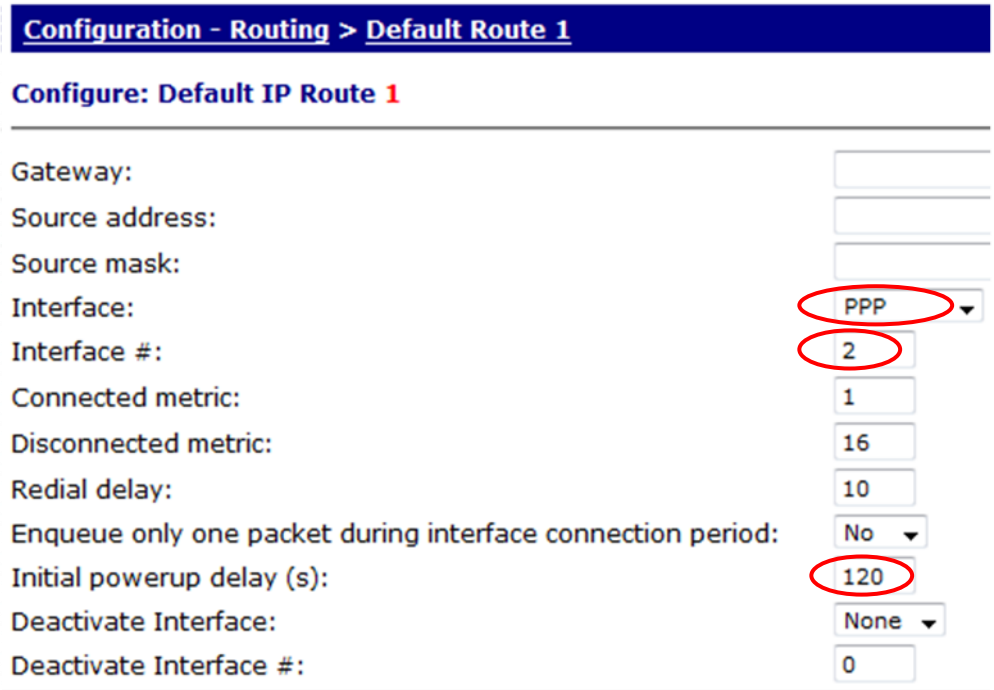


2.2.2 Default Route 1

Interface PPP 2 is configured for cellular using SIM 2.

Browse to **Configuration - Routing > Default Route 1**

Parameter	Setting	Description
Interface:	PPP	Identifies the interface type to be associated with default route 1.
Interface # :	2	Identifies the instance number of the interface to be associated with default route 1.
Initial Power Up delay (s):	120	Delays activation of the PPP 2 link after power-up for two minutes (recommended). This is to prevent conflict of the two cellular interfaces.

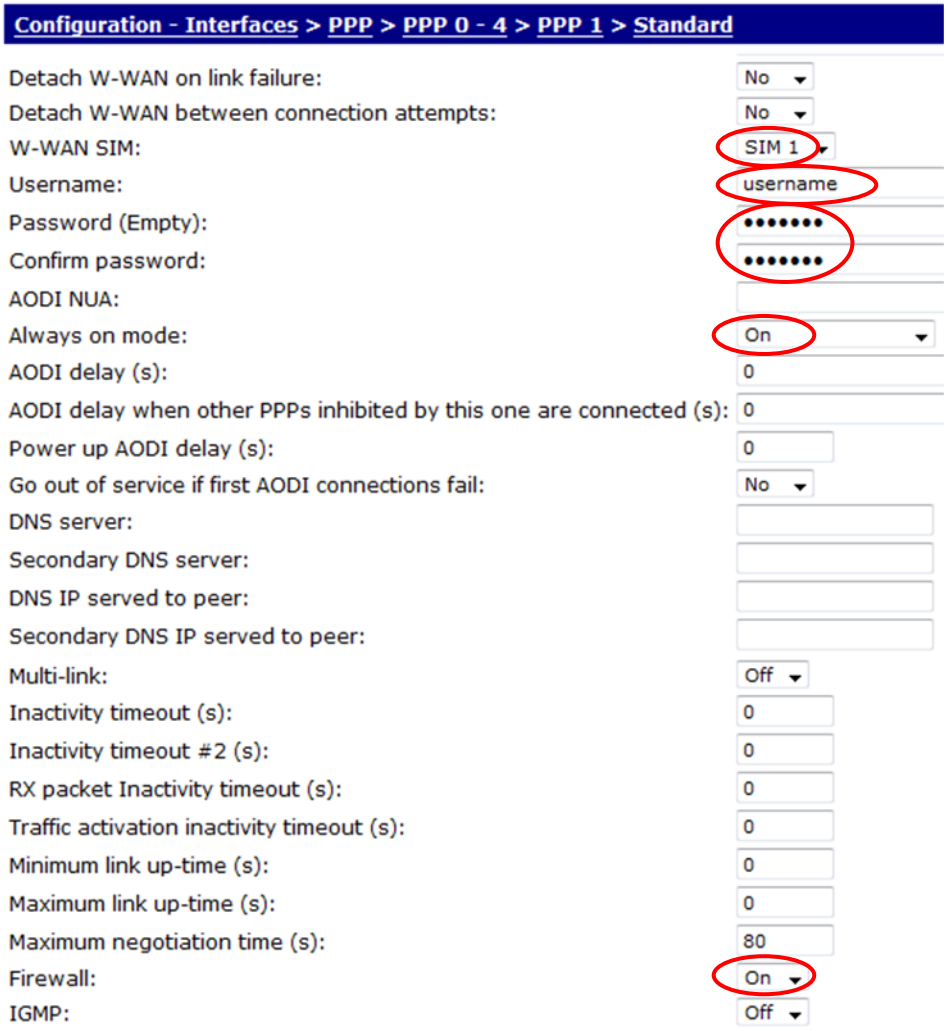


2.3 Configure the PPP interface for SIM card 1

2.3.1 PPP 1 Standard Page

Browse to **Configuration - Interfaces > PPP > PPP 0 - 4 > PPP 1 > Standard**

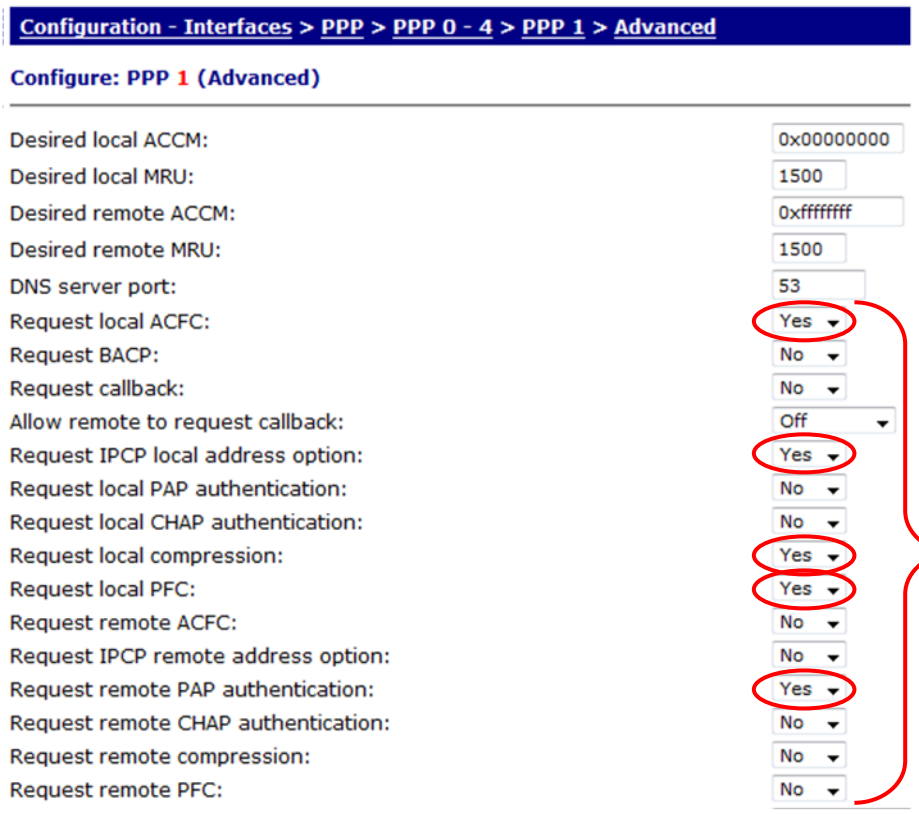
Parameter	Setting	Description
Dial-out number:	*98*1#	Dial string to attach to the cellular network
Use W-WAN /external modem:	Any W-WAN Channel	Configures the TransPort to use any available cellular channel
W-WAN SIM:	SIM 1	Configures cellular Link on PPP 1 to use SIM card 1
Username:	username	Username given by the cellular provider
Password:	password	Username given by the cellular provider
Confirm Password:	password	Same as above
Always On Mode:	ON	Auto activates PPP 1 and keeps the link up
Firewall	ON	Activates the Firewall/Stateful Route Inspection on PPP 1



2.4 Configure advanced parameters the PPP interface for SIM card 1

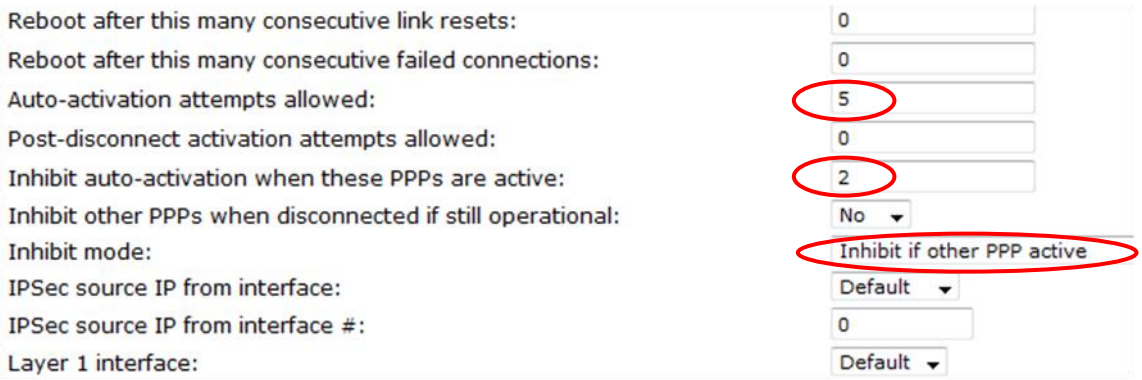
Browse to **Configuration - Interfaces > PPP > PPP 0 - 4 > PPP 1 > Advanced**

Parameter	Setting	Description
Auto-activation attempts allowed:	5	Allows PPP 1 a total of 5 activation attempts before the PPP 2 link can override it
Inhibit auto-activation when these PPPs are active:	2	Configures PPP 1 to inhibit PPP 2 from raising it's cellular link whilst PPP 1 is active
Inhibit mode	Inhibit if other PPP active	Stops PPP 2 from activating when PPP 1 is UP



These parameters are configured correctly by default, however, please check your PPP Advanced parameters match these.

Some lines removed



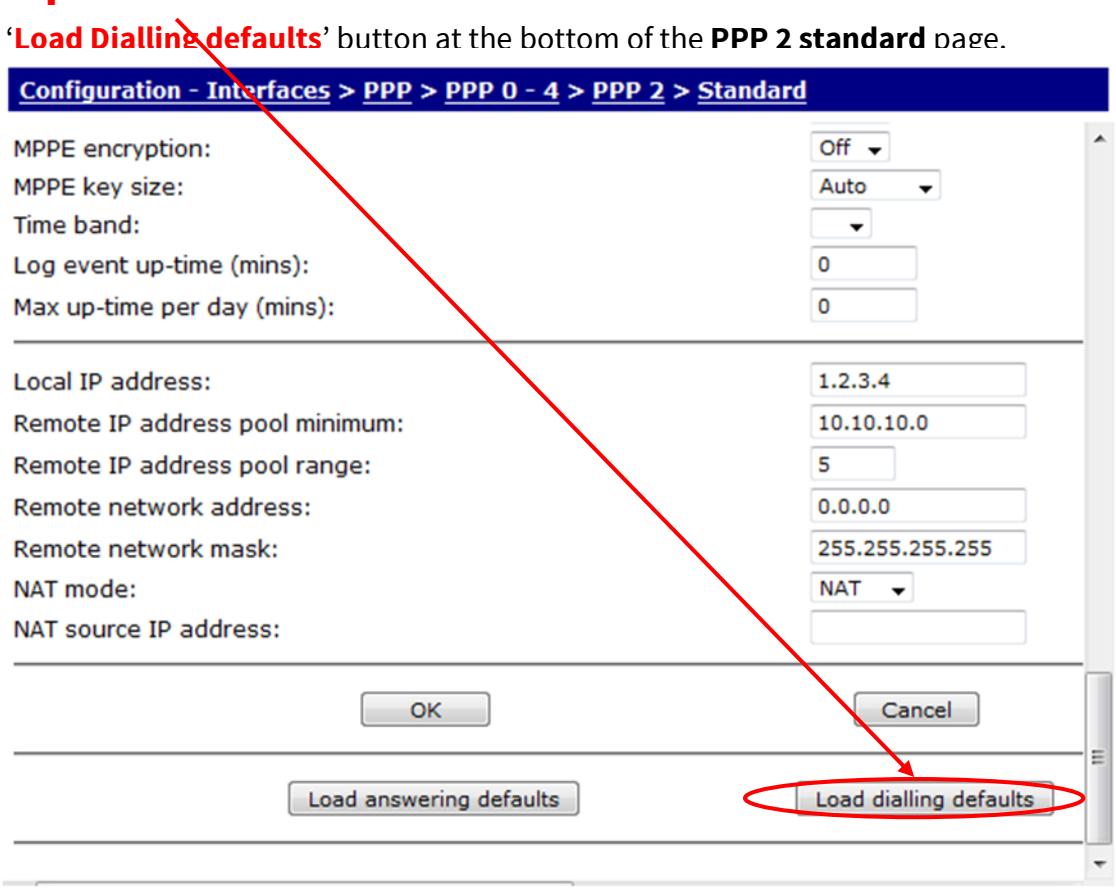
2.5 Configure the PPP interface for SIM card 2

2.5.1 Load the dialling defaults for PPP 2

Browse to **Configuration - Interfaces > PPP > PPP 0 - 4 > PPP 2 > Standard**

Very Important:

Click the '**Load Dialling defaults**' button at the bottom of the **PPP 2 standard** page.

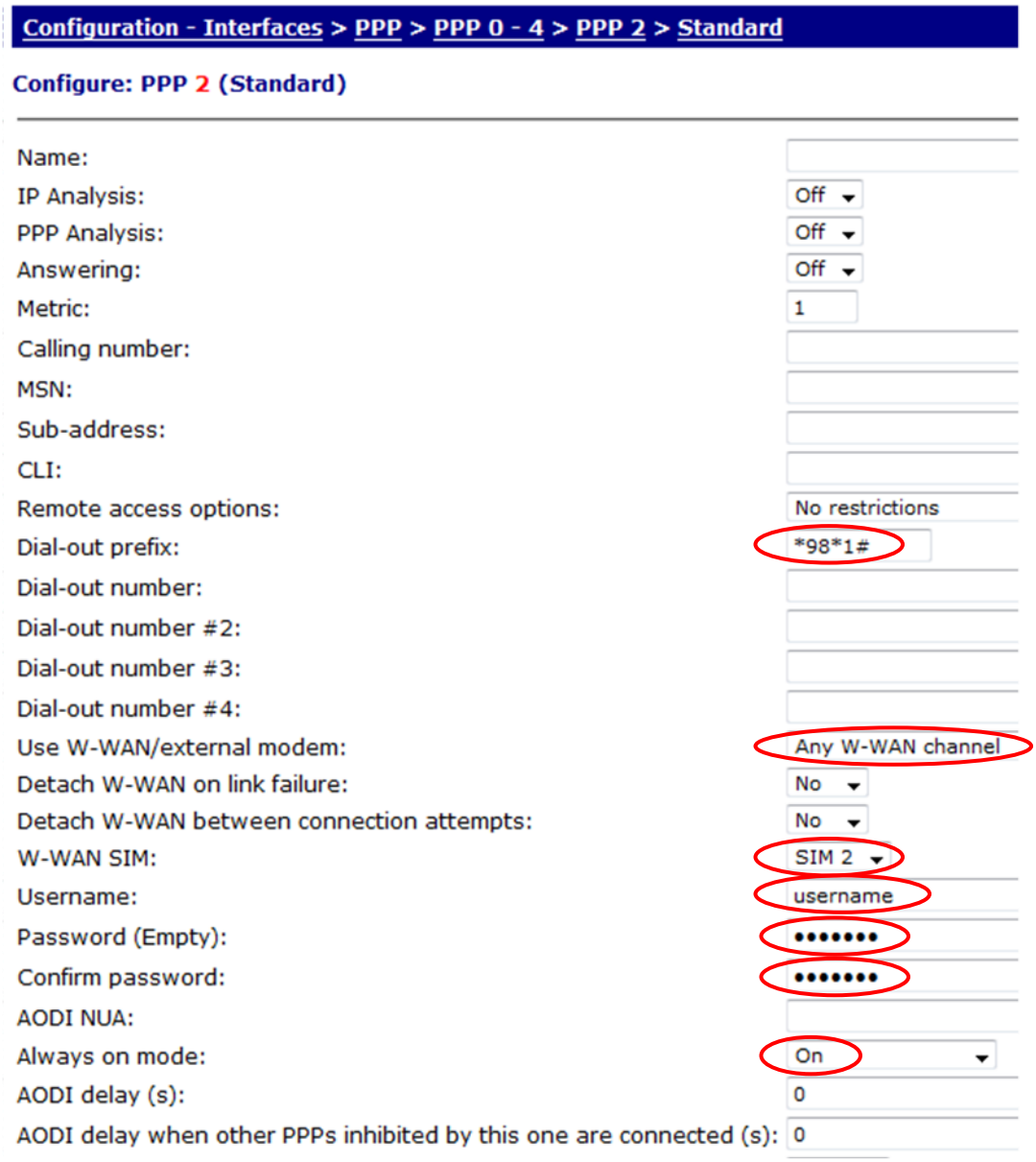


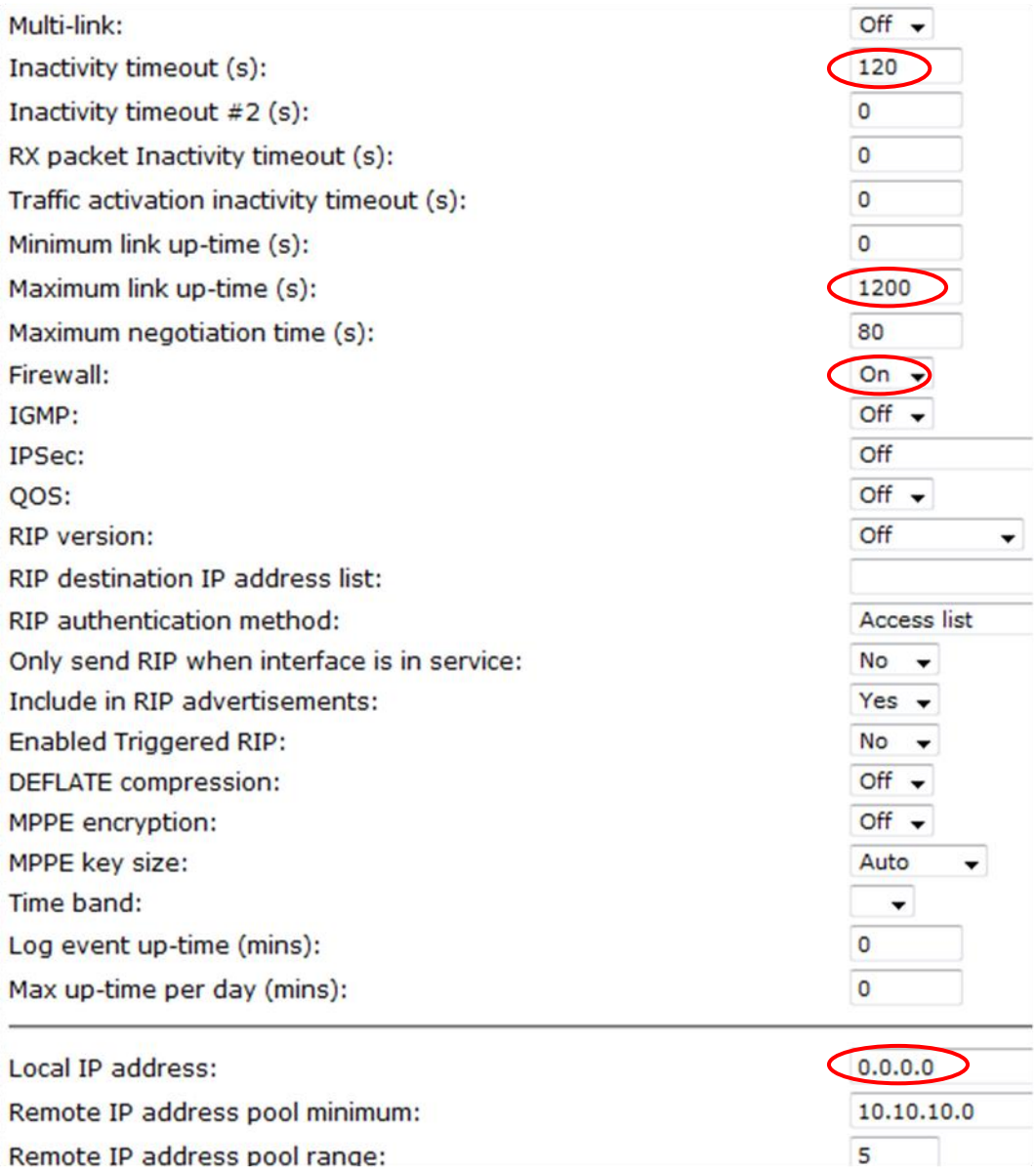
2.5.2 Configure PPP 2

Return to the PPP 2 Standard page and proceed with the following parameters;

Parameter	Setting	Description
Dial-out number:	*98*1#	Dial string to attach to the cellular network
Use W-WAN/external modem:	Any W-WAN Channel	Configures the TransPort to use any available cellular channel
W-WAN SIM:	SIM 2	Configures cellular Link on PPP 1 to use SIM card 2
Username:	username	Username given by the cellular provider
Password:	password	Username given by the cellular provider
Confirm Password:	password	Same as above
Always On Mode:	ON	Auto activates PPP 2 and keeps the link up
Inactivity Timeout (s):	**120**	**Causes the TransPort to drop this cellular link after specified period of inactivity on that link (variable)**
Maximum link up-time	**1200**	**Causes the TransPort to drop this cellular link after**

(s):		it has been active for the specified period of time (variable)
Firewall	ON	Activates the Firewall/Stateful Route Inspection on PPP 2
Local IP Address:	0.0.0.0	Requests an IP address from the cellular provider



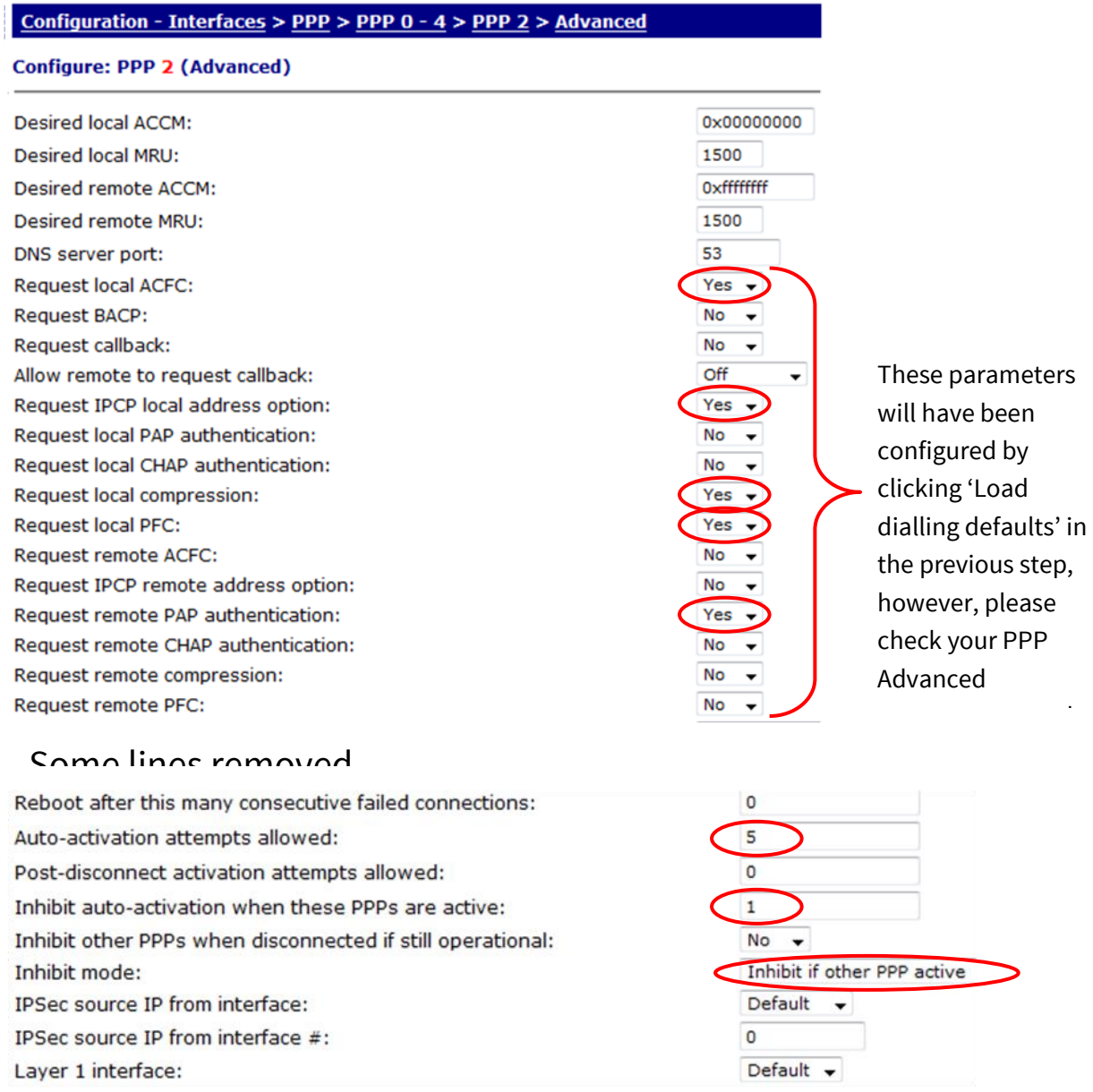

Multi-link: Off
Inactivity timeout (s): 120
Inactivity timeout #2 (s): 0
RX packet Inactivity timeout (s): 0
Traffic activation inactivity timeout (s): 0
Minimum link up-time (s): 0
Maximum link up-time (s): 1200
Maximum negotiation time (s): 80
Firewall: On
IGMP: Off
IPSec: Off
QOS: Off
RIP version: Off
RIP destination IP address list:
RIP authentication method: Access list
Only send RIP when interface is in service: No
Include in RIP advertisements: Yes
Enabled Triggered RIP: No
DEFLATE compression: Off
MPPE encryption: Off
MPPE key size: Auto
Time band:
Log event up-time (mins): 0
Max up-time per day (mins): 0
Local IP address: 0.0.0.0
Remote IP address pool minimum: 10.10.10.0
Remote IP address pool range: 5

2.6 Configure advanced parameters the PPP interface for SIM card 2

2.6.1 Parameter settings for the PPP 2 Advanced Page

Browse to **Configure → PPP → PPP 0 - 4 → PPP 2 → Advanced**

Parameter	Setting	Description
Auto-activation attempts allowed:	5	Allows PPP 2 a total of **5** activation attempts after power up before the PPP 1 link can override it
Inhibit auto-activation when these PPP's are active:	1	Configures PPP 2 to inhibit PPP **1** from raising it's cellular link whilst PPP 2 is active



2.7 Stateful Route Inspection

SRI or Stateful Route Inspection is a passive error detection technique. All TransPort units contain a powerful statefull firewall facility. In addition to the blocking of un-authorised traffic the firewall can be

used to monitor traffic on a particular interface and flag routes as OOS (out of service) or even deactivate PPP links. In the context of cellular problem detection this facility can be used to deactivate a PPP link to the cellular network and cause it to re-negotiate thus potentially fixing the problem detected. For the purpose of this application note we shall allow all traffic to pass through the firewall unhindered.

This configuration will cause the TransPort to send the data through a standby interface, which will be a cellular link using a second SIM card. Both SIM cards can be registered with the same or different cellular providers.

To detect a problem on a current cellular link the TransPort is configured to monitor traffic to a frequently used host over that connection. If the connection to that host fails (e.g. suffers packet loss) the TransPort can drop the current cellular link and raise another link using the second SIM card.

2.8 Configuring the firewall.

You need to configure three rules in the TransPort's firewall. The first is to monitor traffic to the host on the PPP 1 link. The second is to monitor traffic to the host on the PPP 2 link. As the default action for the firewall is to block all traffic the third rule is required to allow all other traffic to pass through.

The firewall can be configured in one of two ways.

The first is to write the firewall directly into the TransPort's web interface by browsing to **Configuration - Security > Firewall**.

The second is to write your firewall rules on single lines in a text file and name it "fw.txt". This file can then be uploaded via FTP to the TransPort's file directory.

2.8.1 Firewall Stateful Route Inspection Rules.

The rules are as follows

```
Rule 1: pass out break end on ppp 1 proto tcp from any to <Host IP Address> flags s!a
        inspect-state oos 1 t=5 c=2 d=2

Rule 2: pass out break end on ppp 2 proto tcp from any to <Host IP Address> flags s!a
        inspect-state oos 1 t=5 c=2 d=2
Rule 3:pass break end
```

- The first rule monitors tcp traffic on PPP 1 (when active) to the host IP address.
- The second rule monitors tcp traffic on PPP 2 (when active) to the host IP address.
- The third rule allows all other traffic to pass unhindered.

Inspect-State with Out of Service Option

This allows the stateful inspect engine to mark as "out of service" any routes that are associated with the specified interface. **oos 1** marks the route out of service for 1 second enabling the second default route to come in to service.

t=5 specifies the length of time in seconds the unit will wait for a tcp connection to the host to be succesfull

c=2 specifies the number of times that the rule must expire before the route is marked as out of service. This means that 2 tcp connections in a row to the host IP address will have to fail.

d=2 specifies the number of times that rule must expire before the PPP interface is deactivated. This means that 2 tcp connections in a row to the host IP address will have to fail

NB The rule will also expire (triggering interface deactivation and SIM switching) if 10 TCP re-transmit packets in a row are seen to leave the PPP interface with no reply received.

*Note: **c=n** and **d=n** should be the same value

3 STATUS AND TESTING

3.1 Diagnostics - Status Menu

The **Diagnostics - Status** menu of the TransPort's web interface is a useful tool for giving the user a definitive view of the routers current state and in the case of the eventlog a history of events.

3.1.1 Diagnostics - Status > Mobile

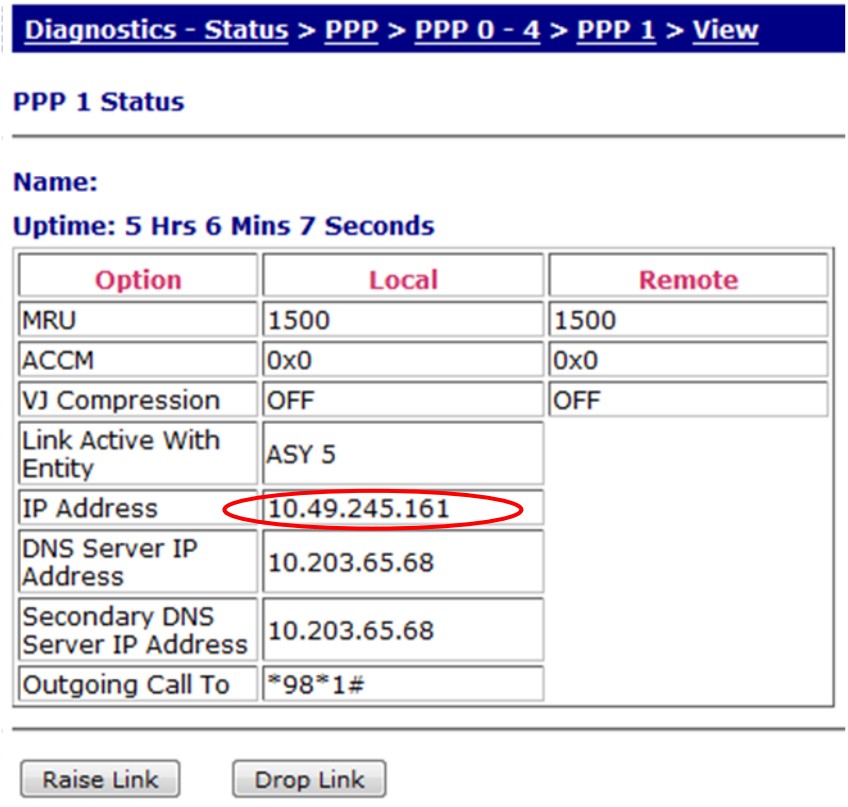
Diagnostics - Status > Mobile

Results of Last Module Status Poll:
Outcome: Got modem status OK:
Time: 18 Feb 2010 09:59:03

SIM status	READY
Signal strength	-61 dBm
Manufacturer	Option N.V.
Model	GTM378
IMEI	352375015625650,SE3983329C
IMSI	234159043530649
ICCID	89441000001802166072
Firmware	2.5.7Hd (Date: Jan 11 2008, Time: 11:18:56)
GPRS Attachment Status	Attached
GPRS Registration	Registered, home network
GSM Registration	Registered, home network lac:DF ci:BD51
Network	1,0,"vodafone UK",2
Preferred system	WCDMA first
GSM Cell mode	Unknown
WCDMA Cell mode	WCDMA+HSDPA
Last Error Report	No cause information available

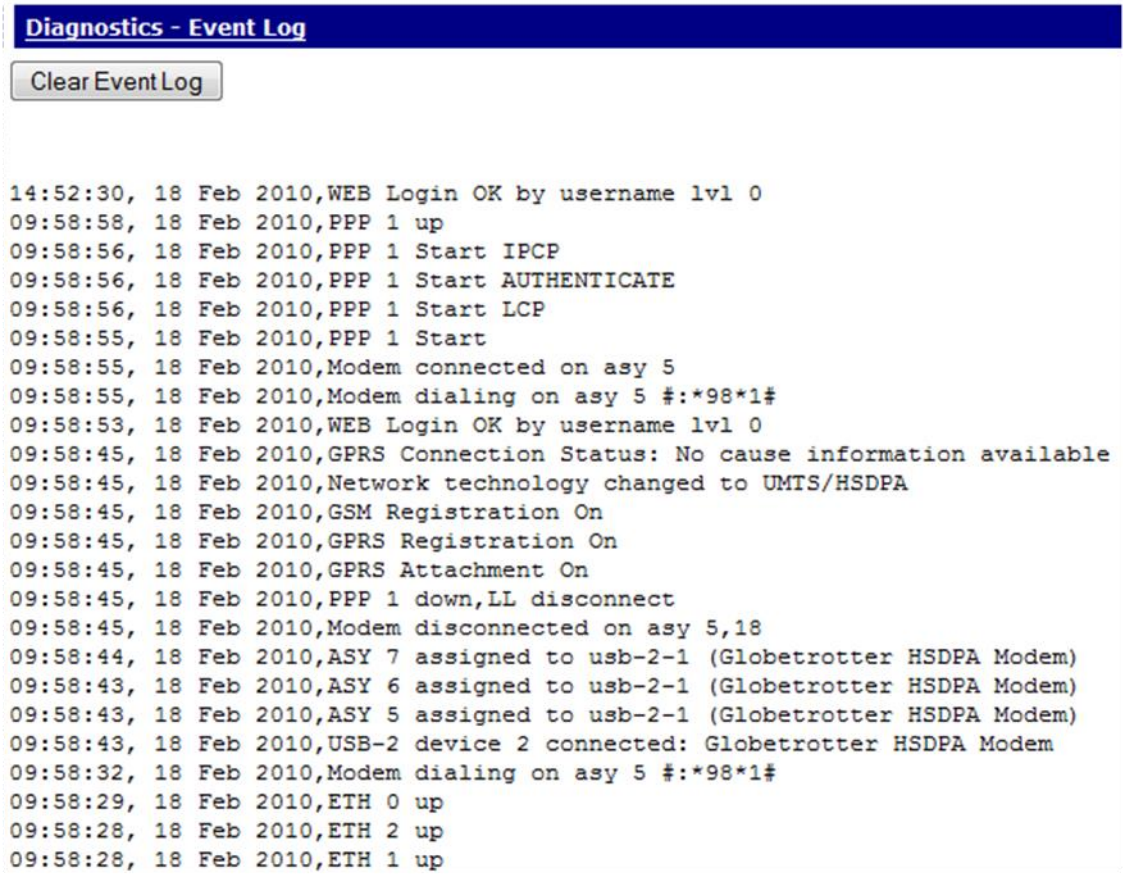
The SIM status should be 'Ready' and the should be a good signal strength (better than -95dBm). The router should be attached and registered on the home network.

3.1.2 Diagnostics - Status > PPP > PPP 0 - 4 > PPP n > View (n being the number of the PPP instance)



The PPP link should be up and have a valid IP address.

3.1.3 Diagnostics - Event Log



Any event that occurs in the TransPort router is logged in the Event Log.

3.1.4 Testing the behaviour when a cellular PPP link is unable to activate

To test this behaviour, remove the antenna so that the signal strength is too low to allow a connection. The TransPort is then unable to raise a link. (Unless you are located very close to a base station!)

You should see events similar to the following in the eventlog (Note that the example is presented as it would be seen in the eventlog i.e. most recent entries at the top) This means that you should start reading from the bottom of the grey box upwards:

```
The cellular link on PPP 2 comes up:

15:29:00, 16 Feb 2010,PPP 2 up
15:29:00, 16 Feb 2010,Event delay,Logger busy
15:28:56, 16 Feb 2010,PPP 2 Start IPCP
15:28:56, 16 Feb 2010,PPP 2 Start AUTHENTICATE
15:28:56, 16 Feb 2010,Event delay,Logger busy
15:28:53, 16 Feb 2010,PPP 2 Start LCP
15:28:52, 16 Feb 2010,PPP 2 Start

15:28:52, 16 Feb 2010,Event delay,Logger busy
15:28:51, 16 Feb 2010,GPRS URC CIEV: smsfull,0
15:28:51, 16 Feb 2010,GPRS URC CIEV: roam,0
15:28:51, 16 Feb 2010,GPRS URC CIEV: call,0
15:28:51, 16 Feb 2010,GPRS URC CIEV: message,0
15:28:51, 16 Feb 2010,GPRS URC CIEV: service,1
15:28:51, 16 Feb 2010,GPRS URC CIEV: signal,99
15:28:51, 16 Feb 2010,GPRS URC CIEV: battchg,5
```

Now the antenna has been replaced GPRS attachment and GSM registration can now occur:

```
15:28:50, 16 Feb 2010,GSM Registration On
15:28:50, 16 Feb 2010,GPRS Attachment On
15:28:46, 16 Feb 2010,PPP 2 down,LL disconnect
15:28:46, 16 Feb 2010,Event delay,Logger busy
15:28:39, 16 Feb 2010,LAPB 6 up
15:28:39, 16 Feb 2010,LAPB 5 up
15:28:39, 16 Feb 2010,LAPB 4 up
15:28:39, 16 Feb 2010,LAPB 3 up
15:28:29, 16 Feb 2010,DTR Up ASY 1
15:28:28, 16 Feb 2010,LAPB 6 down,Lower deactivated
15:28:28, 16 Feb 2010,LAPB 5 down,Lower deactivated
15:28:28, 16 Feb 2010,LAPB 4 down,Lower deactivated
15:28:28, 16 Feb 2010,LAPB 3 down,Lower deactivated
15:28:28, 16 Feb 2010,DTR Drop on GPRS
15:28:28, 16 Feb 2010,DTR Down ASY 1
15:28:27, 16 Feb 2010,LAPB 6 down,Lower deactivated
15:28:27, 16 Feb 2010,LAPB 5 down,Lower deactivated
15:28:27, 16 Feb 2010,LAPB 4 down,Lower deactivated
15:28:27, 16 Feb 2010,LAPB 3 down,Lower deactivated
```

Here the TransPort detects SIM 2 is present and powercycles the cellular module at this stage you need to re-connect the anntenna:

```
15:28:21, 16 Feb 2010,GPRS link failed -> power cycle,New SIM
15:28:21, 16 Feb 2010,GPRS SIM 2 present
15:28:21, 16 Feb 2010,GPRS using SIM 2 (present)

15:28:21, 16 Feb 2010,Event delay,Logger busy
```

Here you see that the TransPort is unable to raise the link on PPP 1:

```
15:28:18, 16 Feb 2010,PPP 1 down,LL disconnect
15:28:12, 16 Feb 2010,PPP 1 down,LL disconnect
15:28:06, 16 Feb 2010,PPP 1 down,LL disconnect
```

3.1.5 Testing the behaviour when data stops routing over the cellular network;

To test this scenario, either disconnect the host specified in the firewall stateful route inspection rules or change the host IP address to an address that does not exist. Configure the TransPort's Ethernet IP address as your PC's gateway and try and route data to that IP address. For a TCP connection you could test by attempting to make a telnet connections to that IP address.

You should see events similar to the following in the eventlog. Again read from the bottom of the grey box upwards:

The router is now up and running on PPP 2 and SIM 2:

```
16:20:49, 16 Feb 2010,Default Route 1 Available,Activation
16:20:49, 16 Feb 2010,PPP 2 up
16:20:47, 16 Feb 2010,PPP 2 Start IPCP
16:20:47, 16 Feb 2010,PPP 2 Start AUTHENTICATE
16:20:47, 16 Feb 2010,PPP 2 Start LCP
16:20:46, 16 Feb 2010,PPP 2 Start
16:20:46, 16 Feb 2010,Modem connected on asy 5
16:20:46, 16 Feb 2010,Modem dialing on asy 5 #:*98*1#
16:20:43, 16 Feb 2010,GSM Registration On
16:20:43, 16 Feb 2010,GPRS Registration On
```

```
16:20:36, 16 Feb 2010,Default Route 1 Out Of Service,Activation
16:20:36, 16 Feb 2010,PPP 2 down,LL disconnect
16:20:36, 16 Feb 2010,Modem disconnected on asy 5,18
16:20:35, 16 Feb 2010,Modem dialing on asy 5 #:*98*1#
16:20:33, 16 Feb 2010,ASY 7 assigned to usb-2-1 (Globetrotter HSDPA Modem)
16:20:33, 16 Feb 2010,ASY 6 assigned to usb-2-1 (Globetrotter HSDPA Modem)
16:20:33, 16 Feb 2010,ASY 5 assigned to usb-2-1 (Globetrotter HSDPA Modem)
16:20:33, 16 Feb 2010,USB-2 device 2 connected: Globetrotter HSDPA Modem
16:20:32, 16 Feb 2010,DTR Down ASY 7
16:20:32, 16 Feb 2010,DTR Down ASY 6
16:20:32, 16 Feb 2010,DTR Down ASY 5
16:20:32, 16 Feb 2010,ASY 7 unassigned
16:20:32, 16 Feb 2010,ASY 6 unassigned
16:20:32, 16 Feb 2010,ASY 5 unassigned
16:20:32, 16 Feb 2010,USB-2 device 2 disconnected
16:20:14, 16 Feb 2010,GPRS link failed -> power cycle,New SIM
16:20:14, 16 Feb 2010,GPRS SIM 2 present
```

The router starts using SIM 2 instead:

```
16:20:14, 16 Feb 2010,GPRS using SIM 2 (present)
16:20:12, 16 Feb 2010,Modem disconnected on asy 5,Normal Breakdown
```

Telnet is tried to an IP address monitored by the firewall, the remote device has Telnet blocked. The stateful route inspection detects a problem on PPP 1 and the firewall rule causes PPP 1 to drop:

```
16:20:10, 16 Feb 2010,PPP 1 down,Firewall Request
16:20:10, 16 Feb 2010,Default Route 0 Out Of Service,Firewall
16:20:10, 16 Feb 2010,PPP 1 Out Of Service,Firewall
16:18:54, 16 Feb 2010,DTR Down ASY 0
```

PPP 1 is UP and working:

```
16:17:04, 16 Feb 2010,PPP 1 up
16:17:02, 16 Feb 2010,PPP 1 Start IPCP
16:17:02, 16 Feb 2010,PPP 1 Start AUTHENTICATE
16:17:02, 16 Feb 2010,PPP 1 Start LCP
16:17:02, 16 Feb 2010,PPP 1 Start
16:17:02, 16 Feb 2010,Modem connected on asy 5
16:17:01, 16 Feb 2010,Modem dialing on asy 5 #:*98*1#
16:17:00, 16 Feb 2010,GPRS Registration On
16:17:00, 16 Feb 2010,GPRS Attachment On
16:16:52, 16 Feb 2010,GPRS Connection Status: No cause information available
16:16:52, 16 Feb 2010,Network technology changed to UMTS/HSDPA
16:16:52, 16 Feb 2010,GSM Registration On
16:16:52, 16 Feb 2010,GPRS Registration Off
16:16:50, 16 Feb 2010,ASY 7 assigned to usb-2-1 (Globetrotter HSDPA Modem)
16:16:50, 16 Feb 2010,ASY 6 assigned to usb-2-1 (Globetrotter HSDPA Modem)
16:16:50, 16 Feb 2010,ASY 5 assigned to usb-2-1 (Globetrotter HSDPA Modem)
16:16:50, 16 Feb 2010,USB-2 device 2 connected: Globetrotter HSDPA Modem
16:16:46, 16 Feb 2010,DTR Up ASY 0
16:16:39, 16 Feb 2010,Modem dialing on asy 5 #:*98*1#
16:16:35, 16 Feb 2010,ETH 0 up
16:16:34, 16 Feb 2010,ETH 2 up
16:16:34, 16 Feb 2010,ETH 1 up
16:16:34, 16 Feb 2010,SD/MMC device connected: memory card
16:16:34, 16 Feb 2010,USB-2 device 1 connected: EHCI root hub
16:16:34, 16 Feb 2010,USB-1 device 1 connected: EHCI root hub
16:16:34, 16 Feb 2010,Power control profile 0 activated
16:16:34, 16 Feb 2010,Power-up[]
```

Router is powered up

4 CONFIGURATION FILES

4.1 TransPort Configuration Files

4.1.1 Method 1

This is the configuration file for method 1. SIM 2 will only be used when there is a problem with SIM 1. After a period of inactivity or the “link up time” timer expires, the MR2110 will attempt to use SIM 1 again.

```
eth 0 IPaddr "10.1.51.4"
eth 0 mask "255.255.0.0"
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 4 dtemode 0
lapb 5 dtemode 0
lapb 6 dtemode 0
def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
def_route 1 ll_ent "PPP"
def_route 1 ll_add 2
def_route 1 pwr_dly 120
ppp 0 timeout 300
ppp 1 r_chap OFF
ppp 1 IPaddr "0.0.0.0"
ppp 1 phonenum "*98*1#"
ppp 1 timeout 0
ppp 1 use_modem 1
ppp 1 gprs_sim 1
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 firewall ON
ppp 1 l1iface "Default"
ppp 1 ipanon ON
ppp 1 acttries 5
ppp 1 inhibitno "2"
ppp 2 l_pap OFF
ppp 2 l_chap OFF
ppp 2 l_addr ON
ppp 2 r_pap ON
ppp 2 r_chap ON
ppp 2 r_addr OFF
ppp 2 IPaddr "0.0.0.0"
ppp 2 prefix "*98*1#"
ppp 2 timeout 120
ppp 2 maxup 1200
ppp 2 use_modem 1
ppp 2 gprs_sim 2
ppp 2 aodion 1
ppp 2 autoassert 1
ppp 2 firewall ON
ppp 2 l1iface "Default"
ppp 2 acttries 5
ppp 2 inhibitno "1"
ppp 3 defpak 16
ppp 4 defpak 16
modemcc 0 info_asy_add 7
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 sms_access 1
modemcc 0 sms_concat 0
modemcc 0 init_str_2 "+CGQREQ=1"
modemcc 0 init_str1_2 "+CGQMIN=1"
modemcc 0 apn_2 "internet"
modemcc 0 link_retries_2 10
modemcc 0 stat_retries_2 30
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 0 name "Sarian"
user 0 epassword "Dw0iCw=="
user 0 access 0
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
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
```

5 TRANSPORT FIRMWARE VERSIONS

This is the firmware and hardware information from the WR41 used for this application note:

```
ati5
Digi TransPort WR41H-AEU-B00 Ser#:102691 HW Revision: 7103a
Software Build Ver5091.  Feb 04 2010 09:36:33  ZW
ARM Bios Ver 5.83 v36 399MHz B128-M128-F80-O140,0 MAC:00042d019123
Power Up Profile: 0
Async Driver              Revision: 1.19  Int clk
Ethernet Driver           Revision: 1.11
Firewall                  Revision: 1.0
EventEdit                 Revision: 1.0
Timer Module              Revision: 1.1
(B)USBHOST                Revision: 1.0
SDMMC                     Revision: 1.0
L2TP                      Revision: 1.10
PPTP                      Revision: 1.00
LAPB                      Revision: 1.12
X25 Layer                 Revision: 1.19
MACRO                     Revision: 1.0
PAD                       Revision: 1.4
X25 Switch                Revision: 1.7
V120                      Revision: 1.16
TPAD Interface            Revision: 1.12
GPS                       Revision: 1.0
SCRIBATSK                 Revision: 1.0
BASTSK                    Revision: 1.0
PYTHON                    Revision: 1.0
ARM Sync Driver           Revision: 1.18
TCP (HASH mode)           Revision: 1.14
TCP Utils                 Revision: 1.13
PPP                       Revision: 1.19
WEB                       Revision: 1.5
SMTP                      Revision: 1.1
FTP Client                Revision: 1.5
FTP                       Revision: 1.4
IKE                       Revision: 1.0
PollANS                   Revision: 1.2
PPPOE                     Revision: 1.0
MODEM CC (Option 3G)      Revision: 1.4
FLASH Write               Revision: 1.2
Command Interpreter       Revision: 1.38
SSLCLI                    Revision: 1.0
OSPF                      Revision: 1.0
BGP                       Revision: 1.0
QOS                       Revision: 1.0
PWRCTRL                   Revision: 1.0
RADIUS Client             Revision: 1.0
SSH Server                Revision: 1.0
SCP                       Revision: 1.0
CERT                      Revision: 1.0
LowPrio                   Revision: 1.0
Tunnel                    Revision: 1.2
OK
```