

# CD Series 3G/NextG Cellular Routers

## ***Product Datasheets***

(CDM-882seu & CDR-780seu)

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# Call Direct Cellular Solutions

## CD Series Cellular Router User's Manual



This manual covers the following products:-

**CDR-780seu**  
**CDM-882seu**

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## 1 Introduction

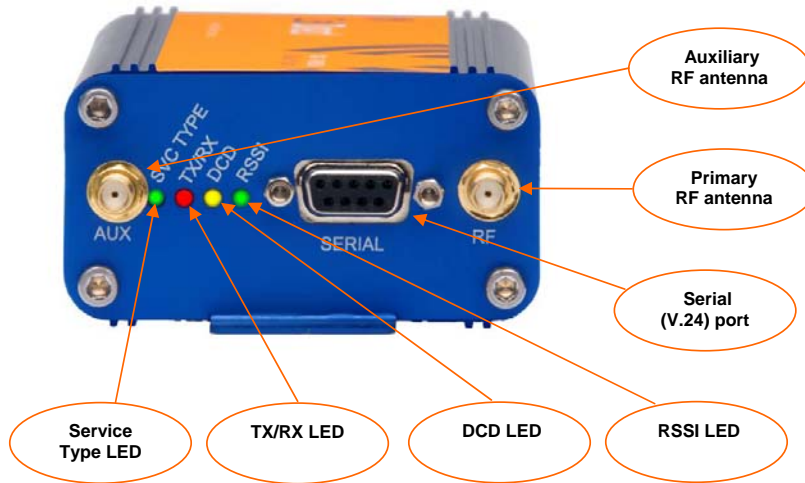
Thank you for purchasing the Cellular Router from Call Direct Cellular Solutions. This manual illustrates how to set-up and configure your Cellular Router appropriate for your application.

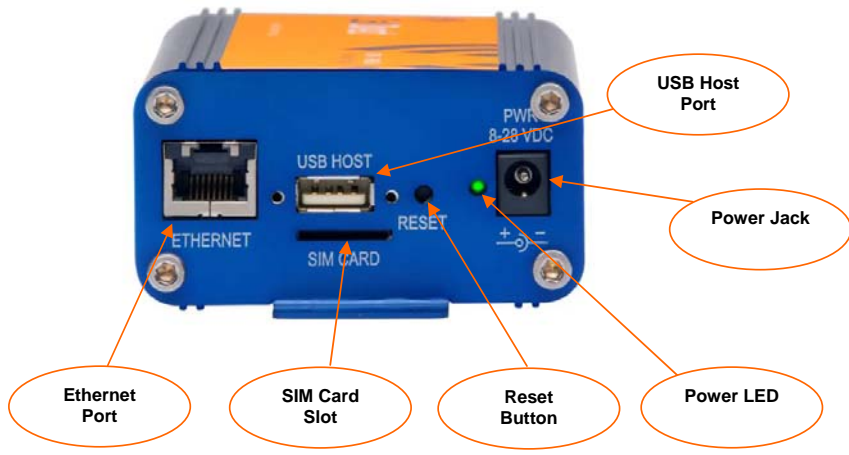
The Cellular Router is configured via a web browser. This manual will take you through the steps required to configure and use your unit correctly.

Additionally the router may be configured via the units serial (V.24) port using "AT" (V.250) commands, this method of operation is further detailed in the document "*CDSeriesCellularRoutersV250(AT)manual*"

## 2 Cellular Router Overview

This section describes the main physical features of the Cellular Router.





## 2.1 Status Indicators

There are a total of five LED's on the Cellular Router: three green, one amber and one red. The green LED next to the DC power jack is the DC Power Indicator. The other four LED's are grouped on the opposite end of the router, next to the RF antenna connector. Listed below are the specifications of the LED's and their corresponding colours.

### **POWER (Green)**

The green Power LED indicates correct power is applied to the DC power input jack.

### **DCD (Amber)**

The amber Carrier Detect LED illuminates to indicate a Data connection.

### **Tx Rx (Red)**

The red LED will light upon data being sent to or received from the cellular network.

### **Service Type (Green)**

The green LED will illuminate when cellular network coverage is detected.

<b>Solid on</b>	: indicates UMTS/HSDPA available coverage
<b>Flashing</b>	: indicated EDGE available coverage
<b>Off</b>	: Indicates GSM/GPRS available coverage only.

### **RSSI (Green)**

Of the three radio link status indicators, the green LED is used to show Received Signal Strength.

There are three possible states that the RSSI LED can operate in, based upon signal level:

<b>Solid</b>	: Indicates the RSSI level is -90dbm, or greater (strong)
<b>Flashing once per second</b>	: Indicates the RSSI level is -110dbm and -90dbm, (medium)
<b>Off</b>	: Indicates the RSSI level is less than -110dbm (poor)

### 3 What you will need to configure the Cellular Router

You will need the following hardware components to set up the Cellular Router:-

- Power Supply (8-28VDC)
- Ethernet cable
- Laptop or PC.
- Active Telecommunications carrier SIM card (USIM)

NOTE – The Ethernet port on the Cellular Router is a DTE non-auto switch so you will need a crossover cable if connected directly to your PC. However, if there is a Hub/Switch connected between the Cellular Router and PC you will need to use a straight through cable.

How to access the Cellular Router using the Web Browser

Install the supplied antenna to the Cellular Router. This needs to be screwed to the RF Antenna connector.

- For 850MHz networks use the black antenna provided
- For 2100/1900MHz networks use the Gray antenna provided

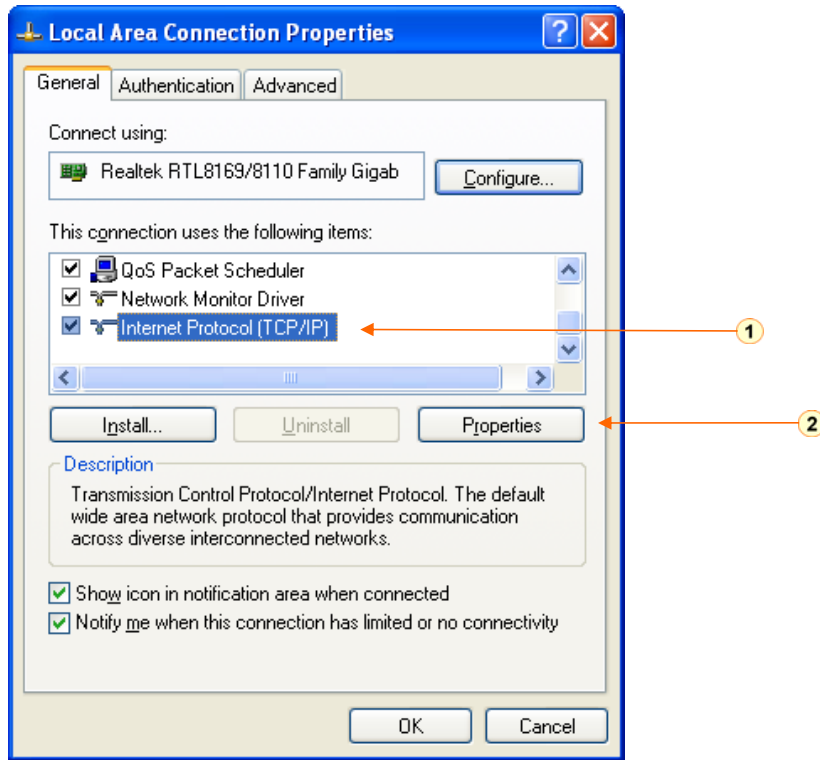
Connect power adapter to the mains and plug the output jack to the power jack of the Cellular Router. The green Power LED on the panel should illuminate.

Wait for a while (about 30 seconds) until Service LED and RSSI LED turn solid green indicating that the Cellular Router has booted up successfully.

Connect an Ethernet crossover cable or straight through cable as appropriate between the Cellular Router's Ethernet connector and the Ethernet Connector on your PC or switch. Configure your PC's Ethernet interface to be dynamically assigned an IP address by doing the following:

For Windows users:

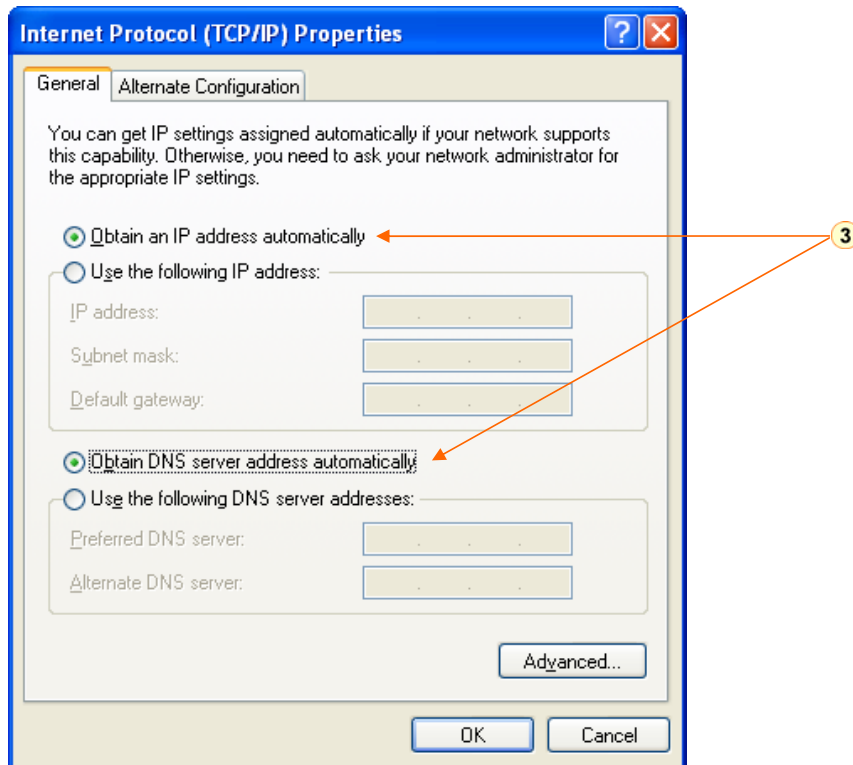
Follow the path Start -> Control Panel -> Network Connections. Right click Local Area Connection and select Properties to open the configuration dialogue box of Local Area Connection as below:



Find and click Internet Protocol (TCP/IP) ① from the protocol list box and then click the Properties button ②. The TCP/IP configuration window will pop up as illustrated below.

Under General tab, select radio button Obtain an IP address automatically and Obtain DNS server address automatically. **3** Then press OK button to close TCP/IP configuration window.

Press the Close button to complete the computer preparation for the Cellular Router.



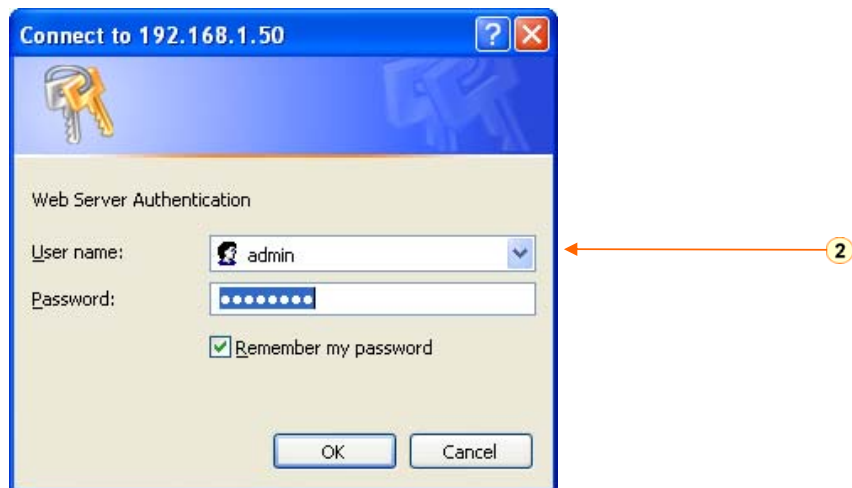
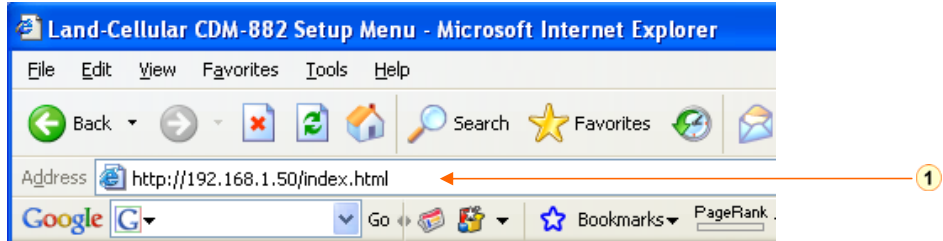
Enter the address below in your web browser and connect **1**. The username and password **2** are defined below. Whenever you make changes please refresh your web pages to prevent errors due to caching of web pages.

<http://192.168.1.50>

Username: admin

Password: password

Below illustrates the steps required to access the Cellular Router's web browser:



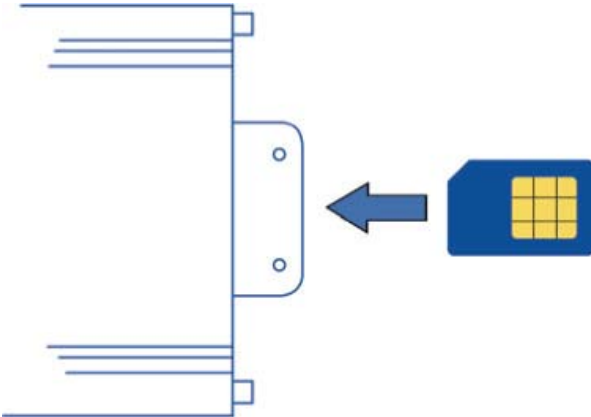
NOTE – If the Ethernet IP address of the Cellular Router needs to be changed then refer to the section: [Configuring the Ethernet IP address.](#)



## 4 Installing and unlocking the SIM card

### 4.1 Inserting the SIM card

First make sure the SIM card is inserted correctly. You insert the SIM with gold side up and in the direction as shown below:



## 4.2 Unlocking the SIM

If the SIM card is locked you will need to unlock it with a PIN provided with your SIM card.

You can find out if the SIM is locked by viewing the SIM Status on the Home page:

Status	
<b>LAN</b>	
IP	192.168.1.53 / 255.255.255.0
MAC Address	00:11:DB:00:60:67
<b>System Information</b>	
System Up time	38 seconds
Router Version	Hardware: 1.04_e Software: 1.52.2
Phone Module	Model: MC8780 Hardware: 1.0 Firmware: F1_0_0_9AP Temp: 33 C
Serial Number	00:11:DB:00:60:67
<b>PPP</b>	
PPP Status	DOWN
PPP IP Address	N/A / N/A
PPP P-t-P	N/A
IPsec	N/A
<b>PPTP</b>	
PPTP Status	DOWN
PPTP IP Address	N/A / N/A
PPTP P-t-P	N/A
<b>Connection Status</b>	
Provider	Emergency only
Service Type	No service
Coverage	Circuit Only
Connection Status	Idle
Modem	
IMEI	354219010239562
Frequency	WCDMA V 850
Signal Strength (dBm)	-70 (strong)
SIM Status	<b>ENTER PIN</b>

If the SIM Status is ENTER PIN as above then do the following:-

Click on the "Security" Link on the left ①

Status	
<b>LAN</b>	
IP	192.168.1.153 / 255.255.255.0
MAC Address	00:11:DB:00:60:67
<b>System Information</b>	
System Up time	1013 seconds
Router Version	Hardware: 1.04_e S
Phone Module	Model: MC8780 Ha
Serial Number	00:11:DB:00:60:67
<b>PPP</b>	
PPP Status	DOWN
PPP IP Address	N/A / N/A
PPP P-t-P	N/A
IPsec	N/A
<b>PPTP</b>	
PPTP Status	DOWN
PPTP IP Address	N/A / N/A
PPTP P-t-P	N/A
<b>Connection Status</b>	
Provider	Emergency only
Service Type	No service
Coverage	
Connection Status	Idle
Modem	
IMEI	354219010239562
Frequency	WCDMA V 850
Signal Strength (dBm)	-68 (strong)
SIM Status	ENTER PIN

## 4.2.1 Enter PIN

Enter the PIN code and confirm the PIN code. Then click Save.

### PIN Settings

PIN Settings	
PIN	<input type="password" value="••••"/>
Confirm PIN	<input type="password" value="••••"/>
Remember PIN	<input checked="" type="radio"/> Yes <input type="radio"/> No
Disable PIN	<input type="radio"/> Yes <input checked="" type="radio"/> No

Once the SIM has been unlocked you will see a pop up confirming this.

Now Click on the Home Button and the Home Status page should look as below with SIM Status OK:

<b>Status</b>	
<b>LAN</b>	
IP	192.168.1.53 / 255.255.255.0
MAC Address	00:11:DB:00:60:67
<b>System Information</b>	
System Up time	203 seconds
Router Version	Hardware: 1.04_e Software: 1.52.2
Phone Module	Model: MC8780 Hardware: 1.0 Firmware: F1_0_0_9AP Temp: 34 C
Serial Number	00:11:DB:00:60:67
<b>PPP</b>	
PPP Status	DOWN
PPP IP Address	N/A / N/A
PPP P-t-P	N/A
IPsec	N/A
<b>PPTP</b>	
PPTP Status	DOWN
PPTP IP Address	N/A / N/A
PPTP P-t-P	N/A
<b>Connection Status</b>	
Provider	Telstra
Service Type	UMTS Service
Coverage	UMTS
Connection Status	Idle
Modem	
IMEI	354219010239562
Frequency	WCDMA V 850
Signal Strength (dBm)	-70 (strong)
SIM Status	OK

#### 4.2.1.1 Enter PUK

If after three attempts you are requested to enter a PUK code, you will need to contact your carrier to obtain this number.

Your carrier will issue you a PUK code to enable you to unlock the USIM enter a new PIN code.

Enter the new PIN **1** and PUK codes, **2** press submit **3** and you should end up back at the "Home" Status page with the SIM Status now showing OK.

The screenshot shows a web page dialog titled "Enter PUK -- Web Page Dialog". The dialog has a dark blue header with the text "Enter PUK". Below the header, there are four input fields, each with a label to its left: "PIN" (with 4 dots), "Confirm PIN" (with 4 dots), "PUK" (with 8 dots), and "Confirm PUK" (with 8 dots). At the bottom left of the dialog is a "Submit" button. Three orange arrows point from numbered circles (1, 2, 3) to the PIN field, PUK field, and Submit button respectively. The status bar at the bottom of the dialog shows the URL "http://192.168.1.50/PUKDialog.html" and "Internet".

### 4.3 *The 'Remember PIN' feature*

This feature is intended to allow the router to automatically send the PIN to the USIM each time the USIM asks for it (usually at power up).

The intent of this feature is to ensure that a USIM removed from a router installed in an unattended location by an unauthorized user cannot be used to make calls or otherwise be of any value outside the router on which it is installed.

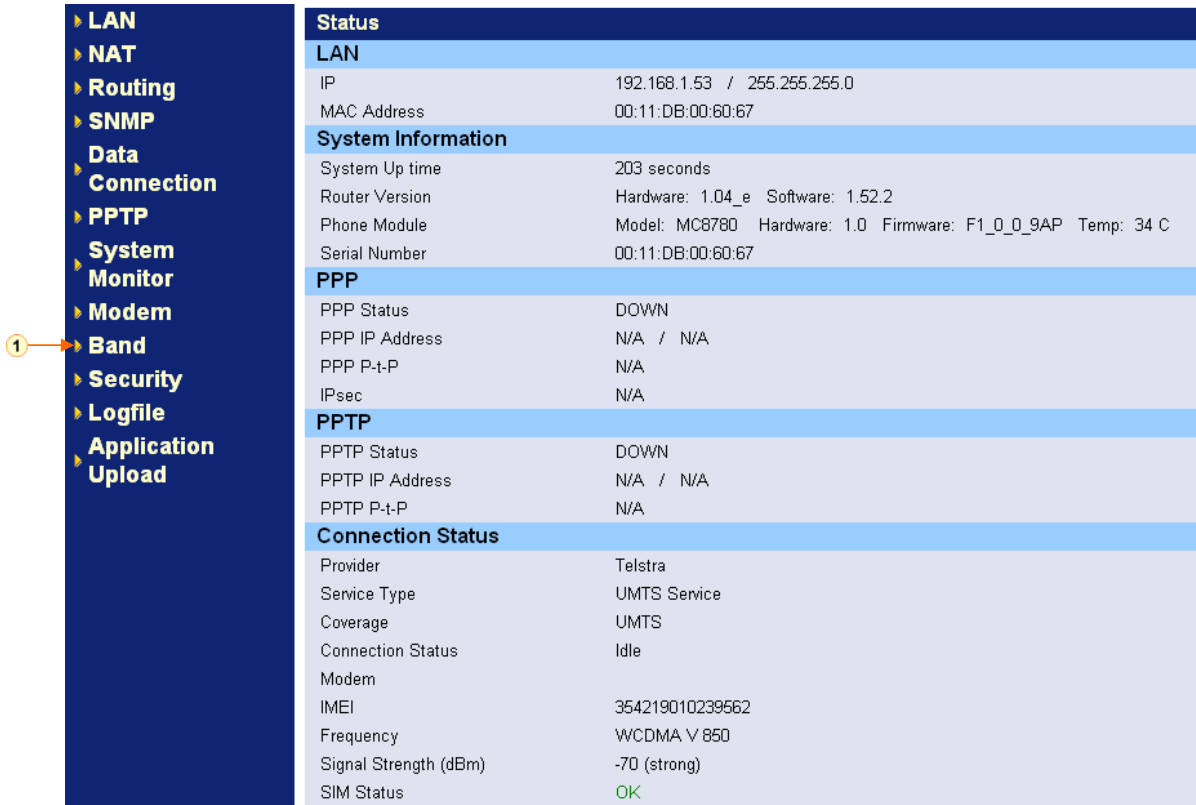
When this feature is enabled the PIN entered by the user when they set the "Remember PIN" feature is encrypted and stored locally in the CDM882seu, the next time the USIM asks the 882 for the PIN the 882 decrypts the PIN and automatically sends it to the USIM without user intervention.

When this feature is disabled and the USIM is PIN locked the user must manually enter the PIN via the 882's configuration interface, this is clearly not desirable where the 882 is unattended.

## 4.4 Locking to a specific band

You may want to lock the Cellular Router on to a specific band, to do this click on the “**Band**” link. ①

You may want to do this if you’re using the router in a country with multi frequency networks that may not all support HSDPA, you can select the router to only connect on the network frequencies that suit your requirements.



The screenshot shows a router's web interface. On the left is a dark blue sidebar with a list of menu items: LAN, NAT, Routing, SNMP, Data, Connection, PPTP, System, Monitor, Modem, Band, Security, Logfile, Application, and Upload. The 'Band' item is highlighted with a yellow circle containing the number '1' and an orange arrow pointing to it. The main content area is titled 'Status' and contains several sections: LAN (IP: 192.168.1.53 / 255.255.255.0, MAC Address: 00:11:DB:00:60:67), System Information (System Up time: 203 seconds, Router Version: Hardware: 1.04\_e Software: 1.52.2, Phone Module: Model: MC8780 Hardware: 1.0 Firmware: F1\_0\_0\_9AP Temp: 34 C, Serial Number: 00:11:DB:00:60:67), PPP (PPP Status: DOWN, PPP IP Address: N/A / N/A, PPP P-t-P: N/A, IPsec: N/A), PPTP (PPTP Status: DOWN, PPTP IP Address: N/A / N/A, PPTP P-t-P: N/A), and Connection Status (Provider: Telstra, Service Type: UMTS Service, Coverage: UMTS, Connection Status: Idle, Modem: IMEI: 354219010239562, Frequency: WCDMA V 850, Signal Strength (dBm): -70 (strong), SIM Status: OK).

## Band Settings

Band	
Band	<input checked="" type="radio"/> UMTS 850Mhz Only <input type="radio"/> WCDMA All <input type="radio"/> UMTS 850Mhz,2G <input type="radio"/> All Bands (autoband) <input type="radio"/> 2G

<b>UMTS 850MHz</b>	= UMTS 850 MHz
<b>WCDMA ALL</b>	= UMTS 850/1900/2100MHz
<b>UMTS 850MHz, 2G</b>	= UMTS 850 MHz EDGE/GPRS/GSM 900/1800/1900MHz
<b>All Bands</b>	= UMTS 850/1900/2100MHz EDGE/GPRS/GSM 900/1800/1900MHz
<b>2G</b>	= EDGE/GPRS/GSM 900/1800/1900MHz

NOTE – After changing the band if the band does not get set correctly or is not reflected on the frequency field on the “**Home**” Status page then you may need to reboot the unit by clicking on the Reset Button on the top right hand corner of the page.

## 4.5 *How to Establish a Connection to the cellular network*

This section describes how to set up the Cellular Router to initiate a Wireless connection.


There are 2 different ways to set up a wireless connection via PPP:-

- Initiating the PPP Connection directly from the Cellular Router acting as the PPP Client (most common).
- Initiating the PPP Connection from a different PPP client (i.e. laptop or router) with the Cellular Router running in PPPoE mode. This mode is used for example, when you also have an ADSL connection present such that if the Wireless connection on the Cellular Router fails then the ADSL router can be used as backup.

## 4.5.1 Initiating a PPP Connection from the Cellular Router

The home page of Cellular Router Setup will now be displayed as below.

The PPP status on the page should be DOWN network (as indicated by the large arrow) as your new device is not yet configured to connect to the cellular network.

Click the **"Data Connection"**  link on the left panel of the screen to open the **"Data Connection"** web page.



Status	
<b>LAN</b>	
IP	192.168.1.53 / 255.255.255.0
MAC Address	00:11:DB:00:60:67
<b>System Information</b>	
System Up time	203 seconds
Router Version	Hardware: 1.04_e Software: 1.52.2
Phone Module	Model: MC8780 Hardware: 1.0 Firmware: F1_0_0_9AP Temp: 34 C
Serial Number	00:11:DB:00:60:67
<b>PPP</b>	
PPP Status	DOWN 
PPP IP Address	N/A / N/A
PPP P-t-P	N/A
IPsec	N/A
<b>PPTP</b>	
PPTP Status	DOWN
PPTP IP Address	N/A / N/A
PPTP P-t-P	N/A
<b>Connection Status</b>	
Provider	Telstra
Service Type	UMTS Service
Coverage	UMTS
Connection Status	Idle
Modem	
IMEI	354219010239562
Frequency	WCDMA V 850
Signal Strength (dBm)	-70 (strong)
SIM Status	OK

First you must enter the relevant details in the PPP User Configurable Profile Setting section as shown below.

Make sure that the APN name **1** field is correct. This is very important. The example below just shows the APN name to be "apnname" as an example but yours will be specific to your carrier.

As for the APN, the "User" and "Password" fields will need to be set appropriately for your specific carrier.

You may leave the other profile settings as their default values shown below.

Once you have entered the appropriate detail in this section of the form click "**Modify Entry**" **2** to save this connection profile.

In PPP Profile Connect field, the Auto Connect option is currently Disabled - to make the Cellular Router operational you must enable it. Firstly click the radio button Enable **3** to activate Auto Connect. Then find a preferred profile from the bottom area of the web page and select its Item number in the dropdown list of Profile to connect to. Finally, press the Save button and wait until DCD LED becomes solid amber indicating that connection to the network is successful. From now on, Auto Connect will keep Enabled status unless you come back to this page and disable it.

**3**

**PPP Profile Connect**

Auto Connect  Enable  Disable

Reconnect Delay  ( 30-65535 ) secs

Reconnect Retries  ( 0-65535, 0=Unlimited )

Profile to connect to

**PPP User Configurable Profile Setting**

Profile number  **1**

Dial Number

APN name

User

Password

Remote Host

Port  ( 1-65535 )

Local Encoding  Enable  Disable

Pad Mode

PAD Auto Answer  Enable  Disable

**2**

Item	Num	APN	User	Rem Host	Rem Port	Loc	Enc	Mode	Ans
1	atd*99#	telstra.internet		0.0.0.0	0	Off	tcp	Off	
2	atd*99#	telstra.datapack		0.0.0.0	0	Off	tcp	Off	
3	atd*99#	telstra.pcpack		0.0.0.0	0	Off	tcp	Off	
4	atd*99#	telstra.corp		0.0.0.0	0	Off	tcp	Off	

To confirm the connection, press the Home button near the top right corner of the web page - you should see an updated home page as below. Please pay close attention to PPP field on the page (shown by the red arrow). PPP Status should be UP. PPP IP Address shows the current IP address that the network has allocated for the Cellular Router.

<ul style="list-style-type: none"> <li>▶ LAN</li> <li>▶ NAT</li> <li>▶ Routing</li> <li>▶ SNMP</li> <li>▶ Data</li> <li>▶ Connection</li> <li>▶ PPTP</li> <li>▶ System Monitor</li> <li>▶ Modem</li> <li>▶ Band</li> <li>▶ Security</li> <li>▶ Logfile</li> <li>▶ Application Upload</li> </ul>	<b>Status</b>	
	<b>LAN</b>	
	IP	192.168.1.53 / 255.255.255.0
	MAC Address	00:11:DB:00:60:67
	<b>System Information</b>	
	System Up time	506 seconds
	Router Version	Hardware: 1.04_e Software: 1.52.2
	Phone Module	Model: MC8780 Hardware: 1.0 Firmware: F1_0_0_9AP Temp: 33 C
	Serial Number	00:11:DB:00:60:67
	<b>PPP</b>	
	PPP Status	UP 
	PPP IP Address	10.237.31.232 / 255.255.255.255
	PPP P-t-P	10.64.64.64
	IPsec	N/A
	<b>PPTP</b>	
	PPTP Status	DOWN
PPTP IP Address	N/A / N/A	
PPTP P-t-P	N/A	
<b>Connection Status</b>		
Provider	Telstra	
Service Type	UMTS HSDPA Service	
Coverage	HSDPA	
Connection Status	Active	
Modem		
IMEI	354219010239562	
Frequency	WCDMA V 850	
Signal Strength (dBm)	-70 (strong)	
SIM Status	OK	

Your new Cellular Router is now ready to use!

## 4.5.2 How to establish a Connection using the Cellular Router in PPPoE mode

This facility is on the LAN page.

Note that when PPPoE is enabled, **1** the DHCP Server is automatically disabled. Once enabled you can initiate a PPPoE connection from your connected device. When PPPoE is disabled, you will need to reconfigure the DHCP server settings to use the DHCP server.

Note- Most people do not need to use PPPoE. If you do not know what PPPoE is, odds are you don't need this.

You will also have to specify the APN name **2** for your carrier.

In addition you may specify a "Service Name" **3** when a "Service Name" is specified the connected device must use the same service name when connecting.

This facility is particularly useful if you have more than one PPPoE router or modem on a single Ethernet network.

The image shows a screenshot of a web-based configuration interface titled "PPPoE Setup". The interface has a dark blue header with the title. Below the header, there are three rows of configuration options:

- The first row is labeled "PPPoE" and contains two radio buttons: "Enable" (which is selected) and "Disable". A callout **1** points to the "Enable" radio button.
- The second row is labeled "APN name" and contains a text input field with the value "apnname". A callout **2** points to this input field.
- The third row is labeled "Service Name" and contains an empty text input field. A callout **3** points to this input field.

## 5 Ethernet Related Commands

### 5.1 How to configure the Ethernet IP address

This facility is available on the LAN page.

The default IP of the Ethernet port is 192.168.1.50 with subnet mask 255.255.255.0.

If you wish to change this then simply enter the new IP address and click on the 'Save' button at the bottom of the page.

Since the IP address has changed you will have to re-enter the new IP address configured in your browser to access the configuration pages.

LAN Configuration				
Ethernet IP Address	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="50"/>
Ethernet Subnet Mask	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="0"/>

## 5.2 How to configure the DHCP Server

This facility is available on the LAN page.

Use the following procedure to change the Cellular Router DHCP server default settings.

Ensure your PC's Ethernet connector is configured to automatically obtain an IP and DNS server address.

When you plug in the Ethernet cable to your PC the Cellular Router should automatically assign it an IP address within 10-15 seconds. Please be aware that you will be sharing the bandwidth of the Cellular Router between all connected devices. You can manually set DNS1 and DNS2 or enable DNS Masquerade.

This default values example has a start address of 120, an end address of 200, lease time of 86,400 seconds, and uses the DNS servers that are auto-assigned by the network upon connection.

DNS Masquerade	
DNS Masquerade	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

If you do not enter the DNS1 and DNS2 addresses manually then to browse the Internet from your Ethernet connected device you must enable DNS Masquerade.

Upon enabling DNS masquerade, you will notice that the DNS1 address is automatically set to the IP address of the Ethernet port. DNS addresses are then automatically assigned by the connection to the network.

DHCP Configuration	
DHCP	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
DHCP start range	192 . 168 . 1 . 120
DHCP end range	192 . 168 . 1 . 200
DHCP Lease Time	86400 (seconds)
Default Domain Name Suffix	
DNS Server 1 IP Address	192 . 168 . 1 . 50
DNS Server 2 IP Address	0 . 0 . 0 . 0
WINS Server 1 IP Address	0 . 0 . 0 . 0
WINS Server 2 IP Address	0 . 0 . 0 . 0

### 5.3 How to configure the DHCP relay agent

This facility is available on the page.

To enable DHCP relay simply enable the DHCP relay agent and specify the DHCP server address as below:-

DHCP Relay Configuration	
DHCP Relay	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
DHCP Server Address	<input type="text" value="10"/> . <input type="text" value="10"/> . <input type="text" value="10"/> . <input type="text" value="10"/>

## 5.4 *How to configure your Device's IP address manually (no DHCP)*

If your device has a statically set IP address you can still have your device function on the Cellular Router by manually configuring your device to the following settings:

Set your devices IP address to any valid IP between 192.168.1.2 and 192.168.1.119 or disable the DHCP server and use any address. Do not use the IP address assigned to the modem's Ethernet Connector.

Subnet to: 255.255.255.0.

Set your Gateway to the IP address of the Modem's Ethernet Connector: 192.168.1.50

DNS (if required) set to 0.0.0.0 or manually set to your carriers DNS Servers.

## 6 Advanced Features

This section explains other features that you may want to enable depending on your application. Some features can add extra stability and error recovery. Other features are available assist with integrating the router with your application.

### 6.1 How to configure the Periodic Ping Reset Monitor

This facility is available on the "System Monitor" page.

The Periodic Ping Reset Monitor configures the modem to transmit controlled ping packets to 1 or 2 user specific IP address, should the router not receive responses to the pings sent the router will reboot.

This works as follows:-

- A. Every "Periodic Ping Timer" seconds the router sends 3 consecutive pings to the "Destination Address".
- B. If all 3 pings fail the router sends 3 consecutive pings to the "Second Address".
- C. The router then sends 3 consecutive pings to the "Destination Address" and 3 consecutive pings to the "Second Address" every "Periodic Ping Accelerated Timer" seconds.
- D. If all accelerated pings in step D above fail "Fail Count" times the router reboots.
- E. If any ping succeeds the router returns to step A and does not reboot.

"Periodic Ping Timer" should never be set to a value less than 60 seconds; this is to allow the router time to reconnect to the cellular network following a reboot.

To disable the Periodic Ping Reset Monitor simply set to "Fail Count" 0

Periodic PING Settings	
Destination Address	<input type="text"/>
Second Address	<input type="text"/>
Periodic PING Timer	<input type="text" value="0"/> (0-65535) secs
Periodic PING Accelerated Timer	<input type="text" value="0"/> (0-65535) secs
Fail Count	<input type="text" value="0"/> (0-65535)

**Periodic Ping Disabled**

### An Example Setup:

The setup below will ping 64.233.161.147 every 1 hour, if it fails, it then accelerates the ping attempts to once every 60 seconds and if 5 successive ping attempts at the one minute interval fails, the modem will reboot.

Periodic PING Settings	
Destination Address	<input type="text" value="10.1.2.3"/>
Second Address	<input type="text" value="10.1.2.4"/>
Periodic PING Timer	<input type="text" value="600"/> (0-65535) secs
Periodic PING Accelerated Timer	<input type="text" value="60"/> (0-65535) secs
Fail Count	<input type="text" value="3"/> (0-65535)

### Periodic Ping Enabled

**NB: The traffic generated by the periodic ping feature is counted as chargeable usage, please keep this in mind when selecting how often to ping.**

## 6.2 How to configure a Periodic Reset Timer

This facility is available on the “**System Monitor**” page.

The modem can be configured to automatically reboot on a periodic interval specified in minutes. While this is not necessary, it does ensure that in the case of remote modem installations it will reboot the modem if some anomaly occurs.

The default value is 0 which disables the Periodic Reset Timer.

The maximum value is 65535 minutes.

On the Modem HTML Page you can configure the Periodic Reset Timer.

Force Reset Every	<input type="text" value="0"/> (0-65535) mins
-------------------	---

### 6.3 Remote Administration

Remote administration can optionally be enabled. You may connect to the IP address of the WAN (cellular) interface on port 8080 once it is connected to the cellular network via a data connection.

The ip address below is an example only, yours will be different.

<http://10.10.10.10:8080>

Username     admin  
Password     password

The port number can be changed via the html pages and you can change the password for enhanced security.

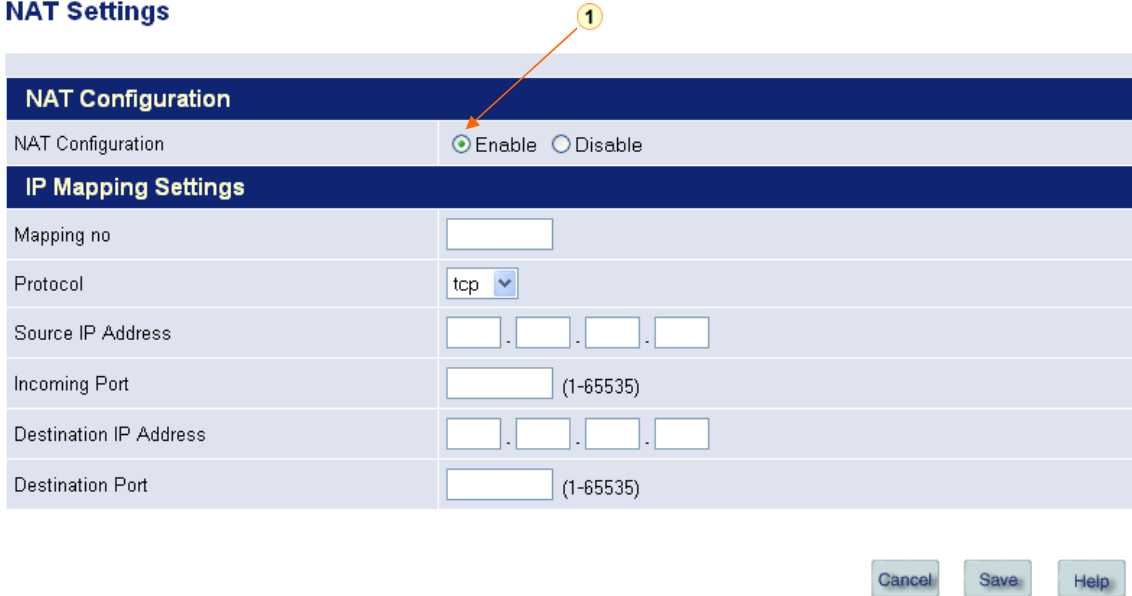
The password will only be changed if you enter two matching passwords and it is not necessary to change if you are changing the incoming port number.

Remote Administration	
Remote Configure	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Incoming Port	<input type="text" value="8080"/> (1 - 65534)
Admin Password	<input type="text"/>
Confirm Password	<input type="text"/>

## 6.4 NAT Configuration

You can enable or disable NAT simply by clicking on the radio button **1** appropriately in the NAT Configuration section and then clicking the "Save" button

### NAT Settings



**NAT Configuration**

NAT Configuration  Enable  Disable

**IP Mapping Settings**

Mapping no	<input type="text"/>
Protocol	tcp ▾
Source IP Address	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
Incoming Port	<input type="text"/> (1-65535)
Destination IP Address	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
Destination Port	<input type="text"/> (1-65535)

## 6.4.1 How to configure Port Forwarding

This facility is available on the “**NAT**” Link.

This is only needed if you need to map inbound requests to a specific port on the Cellular IP address to a device connected on the Ethernet interface, e.g. a web camera.

<Mapping No>	1 to as many as needed.
<Protocol>	TCP, UDP, All protocols
<Source IP>	Specifies either a “Friendly” IP address that is allowed to access the modem or a wildcard IP address of 0.0.0.0 that allows all IP address to access the modem.
<Source Port>	External port request comes in on.
<Destination IP>	Local Area Network Address of device connected to Ethernet Jack to forward inbound requests to.
<Destination Port>	Local Area Network Port to forward requests to.

Example:

Make sure NAT Configuration is enabled by clicking the 'Enable' radio button ①

Enter the information as appropriate ②

Click Save ③

## NAT Settings

NAT Configuration	
NAT Configuration	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
IP Mapping Settings	
Mapping no	<input type="text" value="1"/>
Protocol	<input type="text" value="tcp"/>
Source IP Address	<input type="text" value="166"/> . <input type="text" value="24"/> . <input type="text" value="139"/> . <input type="text" value="45"/>
Incoming Port	<input type="text" value="400"/> (1-65535)
Destination IP Address	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="1"/> . <input type="text" value="60"/>
Destination Port	<input type="text" value="400"/> (1-65535)

③

Item	Protocol	Incoming Address	Incoming Port	Destination Address	Destination Port
IP mapping Table empty					

Configured mappings are displayed as follows:

Item	Protocol	Source Address	Source Port	Destination Address	Destination Port	
1	0	166.24.139.45	400	192.168.1.60	400	<a href="#">Delete Entry</a>
2	0	166.24.139.45	400	192.168.1.65	401	<a href="#">Delete Entry</a>

The above command for mapping 1, will accept TCP requests to the routers cellular interface from the "Friendly" IP address of 66.24.139.45 on Port 400, and pass those requests to the device at the local area network address of 192.168.1.60 on Port 400.

You can then delete a mapping if it is no longer desired.

Click on the Delete Entry link from the list of IP Mappings.

Item	Protocol	Source Address	Source Port	Destination Address	Destination Port	
1	0	166.24.139.45	400	192.168.1.60	400	<a href="#">Delete Entry</a>
2	0	166.24.139.45	400	192.168.1.65	401	<a href="#">Delete Entry</a>

## 6.5 How to configure the Serial PAD (Packet Assembler and Disassembler)

The CDM/CDR Cellular Routers include a PAD feature to allow the transport of arbitrary Async serial data over the packet switched (IP) cellular network.

Specifically data received on the routers V.24 interface (serial port) can be encapsulated into TCP or UDP packets and sent to a remote host, likewise data contained in TCP or UDP packets received from a remote host may be forwarded to the routers V.24 interface (serial port).

This feature is further described in the document *“CDSeriesCellularRouterV250(AT)manual”*.

When configured through the browser based configuration interface this feature is configured using both the **“Data Connection”** and **“Modem”** pages.

The following items may be configured using the **“Data Connection”** page:-

Remote Host	<input type="text" value="0.0.0.0"/>
Port	<input type="text" value="0"/> (1-65535)
Local Encoding	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Pad Mode	<input type="text" value="tcp"/> ▼
PAD Auto Answer	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

### Remote Host

In client mode (router connects to host) this is the remote host to which the router will connect.

In server mode (remote host connects to router) the router will only accept incoming connections from the specified host, if you specify 0.0.0.0 the router will accept incoming connections from any host.

### Port

TCP/UDP port number to use

### Local Encoding

See *“CDSeriesCellularRouterV250(AT)manual”* for details of this parameter, this is normally disabled.

### PAD Auto Answer

When enabled the router accepts incoming connections (enables server mode)

These items may be configured separately for each of the 4 connection profiles.

The following items may be configured using the “Modem” page:-

Modem Settings	
Baud rate	115200 ▾
Inter Character Timeout	50 (0-65535) milliseconds
Id	<input type="text"/>
Ignore String	<input type="text"/>
Connection Settings	
Connect to	DialString ▾
DTR Action	Ignore ▾
DCD Action	Connect On ▾
Flow Control	Off ▾
RI Action	Always Off ▾
Circuit AutoAnswer Rings	Off ▾
Auto Dial Number	<input type="text"/>

### Baud Rate

The serial (V.24) port baud rate.

By default the serial line format is 8 data bits, No parity, 1 Stop bit.

See “*CDSeriesCellularRouterV250(AT)manual*” if you need to change the serial line format.

### Inter Character Timeout

The PAD will buffer any bytes received from the serial port until either 512 bytes have been received or no bytes have been received for “Inter Character Timeout” milliseconds, it will then send any bytes in the buffer to the remote host.

### ID

When the ID field is not blank (empty) the defined ID will be sent to the remote host as follows:-

For UDP the 1<sup>st</sup> bytes of each datagram sent will be set to the contents of the ID field, data follows immediately after the ID

For TCP the ID is transmitted once immediately after the connection is established.

### Ignore String

When the "Ignore String" field is not blank (empty) the router will strip any character sequence that matches the "Ignore String" from the data stream received from the serial port

### Connect To

Determines how the router behaves when it receives an "ATD" command on the serial port.

- Profile Connect using "Data Connection Profile"
- Circuit Establish a circuit switched data connection
- Packet Connect to cellular packet network in PPP pass through mode
- DialString Examine the dialed digits and connect to Profile, Circuit or Packet as appropriate

### DTR Action

Determines how the router responds to change of state of the serial port DTR line

- Ignore Take no action
- Command (does not end call) High to Low transition of DTR causes the router to enter command mode
- Hangup command mode High to Low transition of DTR causes the router to end call and enter command mode
- High AutoDial Low to High transition of DTR causes the router to dial the Auto Dial Number, High to Low transition of DTR causes the router to end call and enter command mode
- Low AutoDial High to Low transition of DTR causes the router to dial the Auto Dial Number, Low to High transition of DTR causes the router to end call and enter command mode
- Low Pass To ATPort When DTR is low pass all AT commands directly to internal cellular data engine.

### DCD Action

Determines how the router controls the state of the serial port DCD line

- Always On DCD is always on
- Connect On DCD is on when a connection is established in response to an ATD command or DTR auto dial.
- Always Off DCD is always off
- PPP On DCD is on when the router has established a PPP session with the cellular network

### Flow Control

- Off Serial port flow control off
- Hardware Serial port uses RTS/CTS flow control

**RI Action**

Determines how the router controls the state of the serial port RI line

- Always On RI is always on
- Incoming Ring RI is on when an incoming connection request is received.
- Always Off RI is always off

**Circuit AutoAnswer Rings**

Sets the number of incoming rings after which the router will answer incoming circuit switched data calls

**Auto Dial Number**

Sets the number the router will dial if DTR Auto Dial is enabled and DTR changes state

## 7 Routing Features

### 7.1 How to configure PPTP Client

This page can be accessed by clicking on the PPTP link.

#### PPTP

PPTP Settings	
Enable PPTP	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Set Default Route to PPTP	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
PPTP Server IP Address	203 . 34 . 24 . 45
Username	user
Password	.....
<input type="button" value="Cancel"/> <input type="button" value="Save"/> <input type="button" value="Help"/>	

There are a couple of steps that you need to take before obtaining a PPTP interface:

#### 1 Get connected on to the Cellular network:

To do this click on the 'Data Connection' link and in the PPP Profile Connect section click 'enable' for one of profiles 1-4. To check that the PPP interface is UP click on the 'Home' Button and in the PPP section it should indicate UP.

You may need to refresh the page a few times as the interface may not be up immediately.

For more details on enabling a data connection refer to the [Data Connection section](#).

#### 2 Enable PPTP:

Click on the 'PPTP' link and enter the PPTP server IP address and user name and passwords in the appropriate boxes and click "Enable" **1** and "Save" **2**.

To check that the PPTP interface is up click on the 'Home' Button and in the PPTP section it should indicate that the status is UP. You may need to refresh the page a few times as the interface may not be up immediately.

Comment [S1]: Don't know what the two is for

NOTE – It may be necessary to add a static route using the 'Routing' link. The PPTP gateway is the PPTP server address and so in the static routes section under the 'Routing' link enter the PPTP server IP address in the Gateway IP address box.

Example:

If the PPTP server address is 203.44.251.100 and the IP address of the local PPTP interface is 10.1.3.42 (i.e a 10.0.0.0 address) then in the static routes section enter the following:

- 10.0.0.0 in the destination IP address box
- 255.0.0.0 in the IP subnet mask box
- 203.44.251.100 in the Gateway IP address box.
- 1 in the metric box.

Editing the PPTP credentials

If you need to edit the PPTP credentials you need to disable the existing PPTP connection and then enter the new credentials and re-enable the connection.

### **Disabling PPTP**

If you want to completely disconnect both the PPP and PPTP interface from the network then it is best to first disable the PPTP interface simply by clicking 'disable' and hitting 'save' then disabling the PPP connection by clicking disable for the appropriate profile number in the 'Data Connection' page.

However, if you want to leave the PPTP enabled for future use then just disable the PPP connection only using the 'Data Connection' page, then next time a PPP connection is enabled the PPTP interface will also come up.

## 7.2 Configuring Static Routes

This facility is available on the Routing HTML page.

Some routes are added by default by the Cellular Router on initialisation such as the Ethernet subnet route for routing to a device on the Ethernet subnet. A PPP route is also added upon obtaining a Wireless PPP connection.

However, if you have other routers (hence networks) on the Ethernet subnet for example, you may want to add some more static routes.

### Adding Static Routes

Static Routes						
Route no	<input type="text" value="1"/>	(1-65535)				
Route Name	<input type="text" value="route1"/>					
Destination IP Address	<input type="text" value="10"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>		
IP Subnet Mask	<input type="text" value="255"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>		
Gateway IP Address	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="50"/>		
Metric	<input type="text" value="1"/>	(1-65535)				
<input type="button" value="ADD"/>						
Item	Route Name	Dest IP	Subnet Mask	Gateway IP	Metric	
Static Route table empty						
Active Routing Table						
Item	Destination	Gateway	Genmask	Flags	Metric	RefUse Iface
1	192.168.1.0	*	255.255.255.0	U	0	0 0 eth0

Enter the values in the fields as above ①

Click Add ②

The Active Routing table at the bottom will show the new route added as shown below: **3**

Static Routes						
Route no	<input type="text" value="1"/> (1-65535)					
Route Name	<input type="text" value="route1"/>					
Destination IP Address	<input type="text" value="10.0.0.0"/>					
IP Subnet Mask	<input type="text" value="255.0.0.0"/>					
Gateway IP Address	<input type="text" value="192.168.1.50"/>					
Metric	<input type="text" value="1"/> (1-65535)					
<input type="button" value="ADD"/>						

Item	Route Name	Dest IP	Subnet Mask	Gateway IP	Metric	
1	route1	10.0.0.0	255.0.0.0	192.168.1.50	1	<a href="#">Delete Entry</a>

Active Routing Table						
Item	Destination	Gateway	Genmask	Flags	Metric	RefUseIface
1	192.168.1.0	*	255.255.255.0	U	0	0 0 eth0
2	10.0.0.0	192.168.1.50	255.0.0.0	UG	1	0 0 eth0

**3** (with arrow pointing to item 2 in the Active Routing Table)

NOTE that you must increment the Route no by 1 for each route in the Route no field otherwise that route will be overwritten.

Example:

If you have a router on the Ethernet side of the Cellular Router with a gateway 192.168.1.2 that interfaces to network 192.168.2.0 and you want to get to a device on that network then you enter:

- 192.168.2.0 in the Destination IP address field
- 255.255.255.0 in the IP Subnet Mask Field
- 192.168.1.2 in the Gateway IP address Field

The lower the metric value the higher the priority this routes has over other routes.

## Deleting Static Routes

Static Routes						
Route no	<input type="text"/> (1-65535)					
Route Name	<input type="text"/>					
Destination IP Address	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>					
IP Subnet Mask	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>					
Gateway IP Address	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>					
Metric	<input type="text"/> (1-65535)					
<input type="button" value="ADD"/>						
Item	Route Name	Dest IP	Subnet Mask	Gateway IP	Metric	
1	route1	10.0.0.0	255.0.0.0	192.168.1.50	1	<a href="#">Delete Entry</a>
Active Routing Table						
Item	Destination	Gateway	Genmask	Flags	Metric	RefUseIface
1	192.168.1.0	*	255.255.255.0	U	0	0 0 eth0
2	10.0.0.0	192.168.1.50	255.0.0.0	UG	1	0 0 eth0

Select the delete entry text (in blue) for the route as shown above **1**.

### 7.3 How to Configure RIP

RIP (Routing Information Protocol) is used for advertising routes to other routers. Thus all the routes in the Cellular Router's routing table will be advertised to other nearby routers. For example, the route for the Cellular Router's Ethernet subnet could be advertised to a Router on the PPP interface side so that a Router on this network will know how to route to a device on the Cellular Router's Ethernet subnet. You will have to add the routes appropriately in the Static Routes section – see [Adding Static Routes](#).

NOTE – it is possible that some routers will ignore RIP.

The RIP facility is available on the Routing HTML page.

Simply click enable in the RIP Routing section on the Routing Page ①

Click Save ②

**Routing**

RIP Routing	
RIP Enable	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
	<input type="button" value="SAVE"/>

## 7.4 How to configure VRRP

Virtual Router Redundancy Protocol (VRRP) is a non-proprietary redundancy protocol designed to increase the availability of the default gateway servicing hosts on the same subnet. This increased reliability is achieved by advertising a "virtual router" (an abstract representation of master and backup routers acting as a group) as a default gateway to the host(s) instead of one physical router. Two or more physical routers are then configured to stand for the virtual router, with only one doing the actual routing at any given time. If the current physical router that is routing the data on behalf of the virtual router fails, an arrangement is made for another physical router to automatically replace it. The physical router that is currently forwarding data on behalf of the virtual router is called the master router.

Master routers have a priority of 255 and backup router(s) can have priority between 1-254.

A virtual router must use 00-00-5E-00-01-XX as its (MAC) address. The last byte of the address (XX) is the Virtual Router Identifier (VRID), which is different for each virtual router in the network. This address is used by only one physical router at a time, and is the only way that other physical routers can identify the master router within a virtual router.

In the VRRP Configuration section on the Routing HTML page:

Click enable **1**

Enter the relevant details **2**

- enter an id – this is the VRRP id which is different for each virtual router on the network.
- enter a priority – a higher value is a higher priority.
- enter the VRRP IP address – this is the virtual IP address that both virtual routers share.

Hit Save **3**

NOTE – configuring VRRP changes the MAC address of the Ethernet port and therefore if you want to resume with the web configuration you must use the new IP address (VRRP IP) or on a command prompt type: `arp -d <ip address>` (i.e `arp -d 192.168.1.50`) to clear the arp cache.(old MAC address).

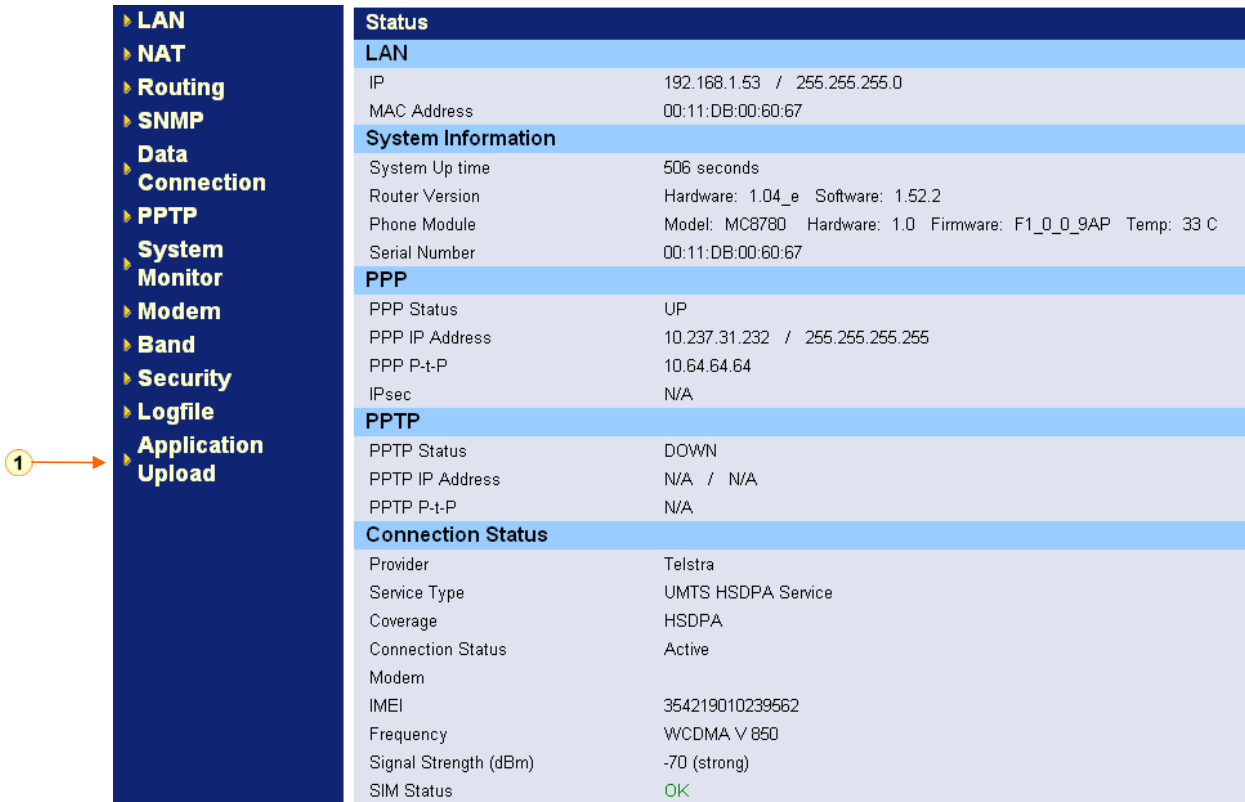
The image shows a web configuration page titled "VRRP Configuration". It contains several fields and a "SAVE" button. Three callouts are present: callout 1 points to the "VRRP Configuration" title; callout 2 points to the "Router Priority" field, which is set to 255; callout 3 points to the "SAVE" button. The "VRRP Enable" field has "Enable" selected. The "Virtual Device ID" is set to 200. The "Virtual IP Address" is set to 192.168.1.34.

VRRP Configuration	
VRRP Enable	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Virtual Device ID	<input type="text" value="200"/> (1-255)
Router Priority	<input type="text" value="255"/> (1-255)
Virtual IP Address	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="1"/> . <input type="text" value="34"/>
	<input type="button" value="SAVE"/>

## 8 Router Application Upgrade

To upgrade to a new router application version:

Click on the Application Upload link: ①



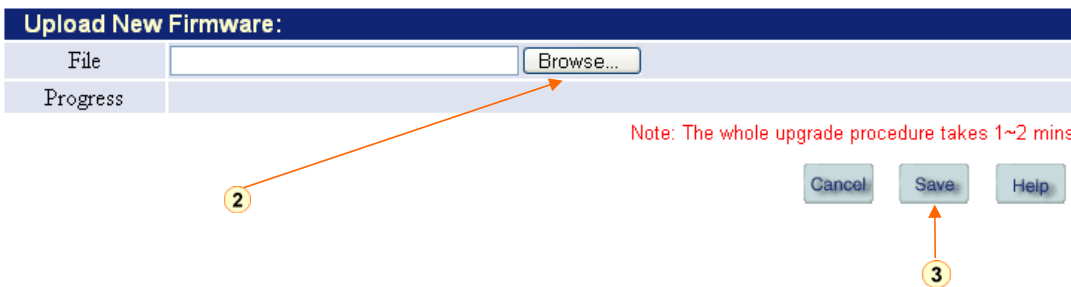
The screenshot shows the router's configuration menu on the left and the 'Status' page on the right. The 'Application Upload' menu item is highlighted with a circled '1' and an arrow. The 'Status' page displays various system and connection details.

Status	
<b>LAN</b>	
IP	192.168.1.53 / 255.255.255.0
MAC Address	00:11:DB:00:60:67
<b>System Information</b>	
System Up time	506 seconds
Router Version	Hardware: 1.04_e Software: 1.52.2
Phone Module	Model: MC8780 Hardware: 1.0 Firmware: F1_0_0_9AP Temp: 33 C
Serial Number	00:11:DB:00:60:67
<b>PPP</b>	
PPP Status	UP
PPP IP Address	10.237.31.232 / 255.255.255.255
PPP P-t-P	10.64.64.64
IPsec	N/A
<b>PPTP</b>	
PPTP Status	DOWN
PPTP IP Address	N/A / N/A
PPTP P-t-P	N/A
<b>Connection Status</b>	
Provider	Telstra
Service Type	UMTS HSDPA Service
Coverage	HSDPA
Connection Status	Active
Modem	
IMEI	354219010239562
Frequency	WCDMA V 850
Signal Strength (dBm)	-70 (strong)
SIM Status	OK

Click on the browse button and browse to where the upgrade file is located on your PC/laptop ②

Then hit Save ③

### Firmware Upload




The screenshot shows the 'Upload New Firmware' dialog box. It has a 'File' field with a 'Browse...' button, a 'Progress' field, and 'Cancel', 'Save', and 'Help' buttons. A circled '2' points to the 'Browse...' button and a circled '3' points to the 'Save' button.

Note: The whole upgrade procedure takes 1~2 mins.

## 9 Troubleshooting

### 9.1 Viewing the system log

<ul style="list-style-type: none"><li>▶ LAN</li><li>▶ NAT</li><li>▶ Routing</li><li>▶ SNMP</li><li>▶ Data</li><li>▶ Connection</li><li>▶ PPTP</li><li>▶ System</li><li>▶ Monitor</li><li>▶ Modem</li><li>▶ Band</li><li>▶ Security</li><li>▶ <b>Logfile</b></li><li>▶ Application</li><li>▶ Upload</li></ul>	<b>Status</b>
	<b>LAN</b>
	IP 192.168.1.53 / 255.255.255.0
	MAC Address 00:11:DB:00:60:67
	<b>System Information</b>
	System Up time 506 seconds
	Router Version Hardware: 1.04_e Software: 1.52.2
	Phone Module Model: MC8780 Hardware: 1.0 Firmware: F1_0_0_9AP Temp: 33 C
	Serial Number 00:11:DB:00:60:67
	<b>PPP</b>
	PPP Status UP
	PPP IP Address 10.237.31.232 / 255.255.255.255
	PPP P-t-P 10.64.64.64
	IPsec N/A
<b>PPTP</b>	
PPTP Status DOWN	
PPTP IP Address N/A / N/A	
PPTP P-t-P N/A	
<b>Connection Status</b>	
Provider Telstra	
Service Type UMTS HSDPA Service	
Coverage HSDPA	
Connection Status Active	
Modem	
IMEI 354219010239562	
Frequency WCDMA V 850	
Signal Strength (dBm) -70 (strong)	
SIM Status OK	

To view the routers logfile click the "Logfile" link 

Date	Time	Machine	Level	Process	Message
Jan 6	05:17:15	cdcs	daemon.info	mdm_emu	Session state NDIS Packet
Jan 6	05:17:15	cdcs	daemon.info	mdm_emu	Network : Telstra Mobile
Jan 6	05:17:15	cdcs	daemon.info	mdm_emu	Coverage HSDPA
Jan 6	05:17:15	cdcs	daemon.info	mdm_emu	Link Status Context 2 Protocol Type 3 Profile ID 1
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	Script /etc/ppp/ip-up finished (pid 298), status = 0x0
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	Script /etc/ppp/ip-up started (pid 298)
Jan 6	05:17:15	cdcs	daemon.notice	pppd[269]	secondary DNS address 139.130.4.4
Jan 6	05:17:15	cdcs	daemon.notice	pppd[269]	primary DNS address 203.50.2.71
Jan 6	05:17:15	cdcs	daemon.notice	pppd[269]	remote IP address 10.64.64.64
Jan 6	05:17:15	cdcs	daemon.notice	pppd[269]	local IP address 10.162.218.149
Jan 6	05:17:15	cdcs	daemon.warn	pppd[269]	Could not determine remote IP address: defaulting to 10.64.64.64
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	rcvd [IPCP ConfAck id=0x5 ]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	sent [IPCP ConfReq id=0x5 ]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	rcvd [IPCP ConfNak id=0x4 ]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	sent [IPCP ConfAck id=0x1]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	rcvd [IPCP ConfReq id=0x1]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	sent [IPCP ConfReq id=0x4 ]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	rcvd [IPCP ConfRej id=0x3 ]
Jan 6	05:17:15	cdcs	daemon.debug	pppd[269]	sent [IPCP ConfNak id=0x0 ]

## 9.2 *Common problems and solutions.*

### 9.2.1 I cannot seem to access the web page interface

The default IP address of the unit is 192.168.1.50, so first try to open a web browser to this address.  
Also check that your laptop/PC is on the same subnet as the Cellular Router's Ethernet port.

### 9.2.2 The Cellular Router was connected but cannot get back on

You may need to enable the periodic ping timer using the System Monitor Link on the HTML pages.  
This ensures that if the connection drops (i.e outage on the network) that the CDM Router will reboot after so many failed pings and then force a re-connect. Set the timer to around 15 mins should be sufficient.  
NB: The traffic generated by the periodic ping feature is counted as chargeable usage, please keep this in mind when selecting how often to ping.

### 9.2.3 CDM Router is rebooting frequently

Check the Modem Link on the web page and see if the Periodic Reset timeout is set to something other than 0.  
If it is set to 1 this means the unit will reboot every minute regardless of what happens.  
Reset it to 0 if you don't want this feature or something quite large if you don't want the router to reboot so often.

### 9.2.4 CDM Router has connection but cannot access the internet

Check that DNS Masquerade is enabled by clicking on the LAN link on the configuration interface.  
Make sure that DHCP DNS server address 1 IP address is set to the same address as that of the Ethernet port.

### 9.2.5 I cannot seem to get a wireless connection

- Click on the Data Connection link on the HTML page and check that the APN is correct.
- Also check that the username and password credentials are correct if the APN in use requires these.
- Make sure that Auto Connect is enabled on the PPP Profile Connect section on the Data Connection page.

### 9.2.6 I have set the Band but now it does not show the correct Frequency on the Home page and I cannot get a connection

If this happens you must reboot the Cellular Router. The Reset button on the home page will reboot the Cellular Router.

### 9.2.7 The SIM status indicates that the SIM is “not installed or reboot required” on the Home page

If a SIM is installed correctly this may indicate that the SIM has been removed or inserted whilst the unit is powered up. In this case you must reboot the unit. The Reset button on the home page will reboot the Cellular Router.

## 9.2.8 How can I reset the cellular router's IP address to default

The IP address can be reset to default by the following actions.

**Read the following fully as you need to take action at certain points within a short period of time.**

The reason for forcing these actions is to prevent an accidental overwriting of your non-default IP address.

Getting this sequence correct may take a few tries.

- Power the unit up with the Ethernet connector NOT PLUGGED IN.
- The front lights will flash, then all the light will come on.
- When all the lights have come on, not before, not after they have gone off, plug a live Ethernet jack into the Ethernet port (live as in another device is at the other end).
- If you have done this correctly, the green left hand light will flash, otherwise the lights will go out and the device will continue to boot.
- Leave the Ethernet jack in until all the lights come on again. Then pull it out, but not before all the lights have come on.
- The red TX/RX light will now flash, then shortly all lights will come on again. At this point, not before all the lights have come on, put the plug back in and leave it in. The unit will now assign Ethernet address 192.168.1.50 to the Ethernet port. The lights will do a short 'chaser' sequence, each coming on in turn, to confirm this has taken place.
- If you have done this and you can't connect to the router, the problem is likely to be in your computers' routing, default gateway, or mask.

### 9.2.9 I am having problems getting a PPTP connection.

Check the routes on the "Routing" page

There should be 5 routes shown.

- One route for interface eth0.
- Two routes for interface ppp0.
- Two routes for interface ppp1.

If there are not 5 routes it is most possible:-

- PPTP is not enabled.
- The credentials on the PPTP HTML page are wrong, either the IP address or username,password.

Check the logfile:-

- If you see the message: "The synchronous pptp option is NOT activated" or "CHAP Authentication Failure" then the credentials are incorrect.

## 10 RS-232 Serial Port Integration Parameters

You can use the guide below to design serial cables to integrate the Cellular Router into your system.

Standard RS-232 DE-9 Pinout:

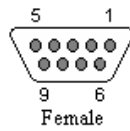
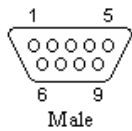
Pin	Name	Direction	Description
1	CD	—»	Carrier Detect
2	RX	—»	Receive Data
3	TX	«—	Transmit Data
4	DTR	«—	Data Terminal Ready
5	GND		System Ground
6	DSR	—»	Data Set Ready
7	RTS	«—	Request to Send
8	CTS	—»	Clear to Send
9	RI	—»	Ring Indicator

Note:

—» Output from router

«— Input to router

Below you will find pinout diagrams of the V.24 DB-9 Male and Female connectors:



Default RS-232 Communication Parameters:

Bits Per Second: 115,200  
Data Bits: 8  
Parity: None  
Stop Bits: 1  
Flow Control: Hardware

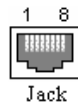
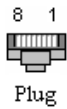
## 11 RJ-45 Ethernet Port Integration Parameters

You can use the guide below to design Ethernet cables to integrate the CDM-Cellular Router into your systems.

Standard RJ-45 Ethernet Pinout:

Pin	Function	Color
-----		
1	TX +	White/Orange
2	TX -	Orange/White
3	RX +	White/Green
4		Blue/White
5		White/Blue
6	RX -	Green/White
7		White/Brown
8		Brown/White

Below you will find pin outs of the RJ-45 Ethernet Plug and Jack connectors:



### NOTE:

The Ethernet port on the Cellular Router is a DTE non-auto switch so you will need a crossover cable if connected directly to your PC.

However, if there is a Hub/Switch connected between the Cellular Router and PC you will need to use a straight through cable.

## 12 Specifications

This section covers the specifications and cable pin outs.

Interface Connectors:	RS-232 DE-9F Connector (DCE) 10/100 Base-T Full Duplex USB 2.0 Full Speed (12Mbps) Host Controller
Power Connector:	2.1mm/5.5mm DC Barrel Jack (Center Positive)
LED Indicators:	Service, Tx/Rx, DCD, RSSI
Antenna Interface:	50 ohm SMA Female for Cellular Network (Labeled RF)
Size:	140mm L x 80mm W x 44 H
Weight:	250 grams
Power Input:	8-28 VDC @ 1.2W (Idle, 100ma @ 12VDC) 8-28 VDC @ 3.36W (HSDPA Call, 280 ma @ 12 VDC)
Temperature:	Operating: -30°C to +70°C (-22° to 140°F) 100% Duty Cycle Storage: -55°C to +85°C (-67° to 185°F)
Operating Humidity:	0 – 85% (non-condensing)
Flash Memory Size:	8MB
RAM:	16MB
Processor:	Atmel ARM AT91RM9200

## 13 Download and Upload Speeds

The speeds here are theoretical maxima, practically they may well be lower.

For UMTS (WCDMA) the upload speed is up to 384 Kbps and downstream is up to 384 Kbps.

For UMTS HSDPA the upload speed is 384Kbps and 7.2Mbps downstream.

For UMTS HSUPA the upload speed is 2.0Mbps and 7.2Mbps downstream.

### NOTE

If connected to a LAN via the Ethernet port, the connection status window may display high speeds such as 100Mbps, but this cannot be achieved over-the-air.

## 14 Copyright Notice

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