

IM7200-L

Cellular Wireless Addendum

This addendum relates to the *IM7200-L* (IM7200-LA, IM7200-LR and IM7200-LV) products, and should be read in conjunction with the *IM7200 Quick Start Guide (QSG)*. The IM7200-LR has an internal 4G modem (LTE, HSPA+, EDGE, GPRS, GSM) which supports most cellular networks in EMEA, APAC and ANZ. The IM7200-LA has a 4G LTE 700/HSPA (LTE, HSPA+, GSM, GPRS, EDGE) and supports AT&T (USA). The IM7200-LV has a 4G LTE 700/3G EVDO which supports Verizon (USA).

Before powering on the IM7200-L

The IM7200-LR has a Mini-SIM card slot and three SMA antenna connectors (for cellular with receive diversity and GPS). Included in your IM7200-L kit are two cellular antennas (with one 10 foot coaxial cable and magnetic antenna screw mount base for mounting outside the rack). If cellular signal strength is an issue, higher gain and directional antennas can be used.



- Screw the first cellular antenna (or cable) onto the *CELL (MAIN)* SMA connector (1) and screw the diversity antenna onto *CELL (AUX)*

Note: If you have purchased a GPS antenna, screw it on to *GPS*

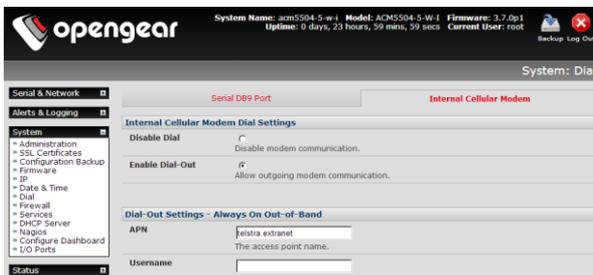
- Your carrier will provide you with a Mini-SIM card. Insert the card into the *SIM CARD* slot and it will lock into place (2)

Take care to insert Mini-SIM card with contacts facing downwards

- Complete to Step 4 (*Configure Serial and Network Devices*) in the QSG then connect to your wireless carrier as detailed below.

Connect the cellular modem in OoB access mode

- Select the **Internal Cellular Modem** tab on the **System: Dial** menu
- Check **Enable** for **Dial-Out Settings-OoB** and enter the carrier's **APN**



You may also need to use alternate DNS servers from those provided by your carrier:

- Enable **Override DNS**. Then check the **Override returned DNS Servers** box and enter the IP of the DNS servers into the spaces provided.

Note: Your 4G LTE carrier may have provided you with connection details. However, you generally will only need to enter your provider's APN and leave the other fields blank. If provided a Pin Code you may need to use it to unlock the SIM card.

- Check **Apply** and a radio connection will be established with your cellular carrier. *Out-of-band access* is enabled, so the cellular modem connection is always ON

You can view the current status of your Internal Cellular Modem at any time by navigating to the **Cellular** page on **Status: Statistics**:

- Verify the *Connection Status* in the **Statistics - Failover& Out-of-Band** tab is shown as *Connected*. You can also check your allocated *IP address*
- You can measure the received signal strength *RSSI* from the **Cellular Statistics** page on the **Status: Statistics** screen. -99 dbm to -90 dbm = Weak Coverage, -89 dbm to -70 dbm = Medium, -69 dbm or greater = Strong. For advanced detail and logging you can examine **Status: Syslog**

Note: You can also see the connection status from the *CELL* LED. OFF is shown when in *reset* mode or not powered. When powered, it will go ON and while searching for service it will flash off briefly every 5sec. Once a radio connection has been established with your cellular carrier (i.e. after an APN has been properly configured) the *CELL* LED will blink rapidly.

Access your IM7200-L over the cellular link

Once the cellular modem has connected to network, you can directly access your IM7200-L remotely. To do this your IM7200-L needs to have a Public IP address (and the remote access path must not have SSH firewallled).

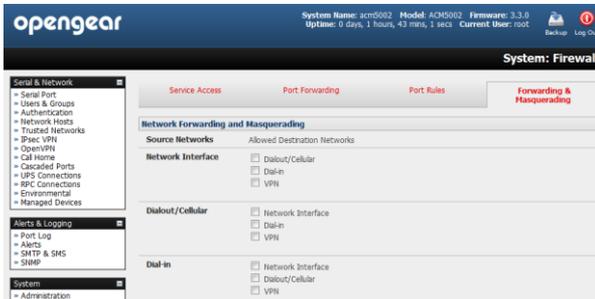
- If you obtained a fixed Static Public IP with your data plan, your IM7200-L will be assigned the same IP address each time it authenticates and accesses the Internet. So you can now try accessing the IM7200-L using the Static Public IP Address provided. However, by default, only HTTPS and SSH access is enabled on the OoB connection. So you can browse to the IM7200-L, but you cannot *ping* it
- If you have a dynamic Public IP address plan, then a DDNS service will need to be configured. Once this is done, you can then also try accessing the IM7200-L using the allocated domain name. Alternately for an inbound OoB connection you could use Call Home with a Lighthouse or set up a VPN connection

Note: Some carriers' data plans only provide dynamic Private IP address assignments. Such IP addresses are not directly visible across the Internet and the **Failover & Out-of-Band** tab on the **Status: Statistics** page, will show your carrier allocated a Private IP Address (i.e. in the range 10.0.x.x, 172.16.x.x or 192.168.x.x) and Call Home or VPN is required

An alternative mode: Cellular Router

In the default *OoB access mode*, the connection to the carrier cellular network is always on, awaiting any incoming access to the IM7200-L itself or attached serial consoles. The IM7200-L also provides *cellular router mode* (disabled by default) whereby IP traffic is selectively routed between the cellular connected network and the local Ethernet network (LAN). To enable routing:

- Select the **Forwarding & Masquerading** tab on **System: Firewall**
- *Network Forwarding* allows devices on the local private LAN to IP connect through to the public network. To enable, check **Dialout/Cellular** to be enabled as the *Destination Network* for the **Network Interface Source Network**



- *IP Masquerading* allows devices on the LAN to hide behind and share the one public IP address when cellular connecting to the public network. To enable check **Enable IP Masquerading (SNAT)** on **Dialout/Cellular**
- Configure **Port Forwarding** and set **Port Rules** so external users can selectively initiate connections to the masqueraded devices on the LAN
- Set the **Service Access** rules for routed connections to the IM7200-L itself
- Configure the devices on the LAN with new *Gateway* and *DNS* settings

Another alternative mode: Failover

In this default *out of band access mode* (and in *cellular router mode*) the connection to the carrier cellular network is always on. An alternative is *failover mode*. This will tell the internal cellular connection to remain idle in a low power state.

In this mode, the IM7200-L continually *pings* nominated primary and secondary probe addresses over the main network connection. In the event of *ping* failure the IM7200-L dials out and connects to the cellular carrier and access will be switched transparently to this network connection. Then when the main network connection is restored, access is switched back. Refer to the User Manual for set up details.

Other useful cellular functions

Watchdog “Keep Alive” This watchdog can be used to force a clean restart of the cellular modem and its services to work around any carrier issues (e.g. to prevent your carrier from disconnecting the cellular connection during idle periods).

This service periodically pings a nominated IP address. Each ping attempt sends out a configurable number of pings, and the ping attempt fails if none of these pings are successful. With the default settings, the keep alive ping attempts are sent at the 30 second intervals. Each ping attempt sends a set of 5 (64 byte) packets. Keep in mind you may also be charged for ping replies. Assuming this, the default setup will generate about 50MB monthly on top of normal data usage.

Monitoring cellular data usage It is recommended that *Cellular Data Usage* logging and alerts be enabled when running in this mode. This way you can monitor cellular traffic and be notified if traffic levels look to go beyond those you have provided for in your cellular plan with your carrier.

Alarm Sensor Alert	<input type="radio"/>	An alert will be triggered when an alarm condition occurs.
Cellular Data Usage Alert	<input checked="" type="radio"/>	An alert will be triggered when cellular data usage is exceeded.
Alert Trigger Settings		
Data Limit	<input type="text" value="1000"/>	<input type="text" value="MB"/> Units
Time Window	<input type="text" value="14"/> Days	<input type="text" value="0"/> Hours <input type="text" value="0"/> Minutes
Apply Alert To		
Applicable Cellular Modem(s)	<input checked="" type="radio"/> Internal Cellular Modem	
	The Cellular Modem(s) to apply this alert to.	

SMS initiated cellular connection Your IM7200-L can accept SMS text messages to trigger the cellular radio signal and connect to the carrier AP. This function is run using the Auto Response feature and calls to a custom script (refer online Knowledge Base for details).

