HyQuest Application Note AN0029

Migrating to the HyQuest GDSP

1 Introduction

The HyQuest Global Data Services Platform (GDSP) provides a number of advantages over the existing iQuest GPRS APN which will be closed on 1st July 2017.

One significant difference between the legacy APN and the GDSP is the SMS functionality. On the GDSP, SIMs installed in remote devices do not have an associated phone number. Therefore the devices cannot be sent an SMS message directly, either from HydroTel™ for initiating call-ins or from a mobile phone for manual interaction. To maintain SMS functionality, the GDSP includes a comprehensive SMS gateway to manage the sending and receiving of SMS messages to/from remote devices.

Overall, the SMS operation is exactly the same as before, with the SMS commands being identical. However, any SMS messages requiring a response (such as RQ) now need to include the device's IMSI (which is obtained from the SIM) and the messages are sent to a common number rather than the remote device directly.

The sections below explaining how to migrate devices to the GDSP. These provide details and examples to use the SMS functions and also change the configuration to enable IP communication.

2 Prerequisites

The following software components are required for full GDSP SMS functionality.

NOTE: If a GDSP SIM is installed in an existing device without the software version (or later) as listed below, it will still respond correctly to a GOL (Go On Line) SMS command.

- HydroTel™ version 4.23
- iLink 2012 version 4.4.22
- iCE3 FX software version 1.80
- iRIS 350 FX software version 2.10
- iRIS 350 and iRIS 350X must be upgraded to iRIS 350FX

The only exception to this is the iRIS 320 GPRS/UDP product. Although the hardware is capable, these devices must be extensively upgraded to work on the GDSP which only supports TCP/IP communication. The minimum versions for iRIS 320 GDSP compatibility are listed below:

Please contact HyQuest for assistance in upgrading these legacy units should you have any still in service.

- iRIS 320 Firmware version 2.70
- iRIS 320 Software version 1.90
- Wavecom Q2406 modem Open AT version 1.06

3 Mobile Phone SMS and Remote Devices

3.1 Receiving SMS from Devices

Responses to mobile phone SMS requests and also unsolicited SMS messages sent direct from devices will always appear to have come from the GDSP Common SMS Number. This number is similar to that described in the next section, although the last digit or two may vary.

3.2 Sending SMS to Devices

SMS messages to a device cannot be sent directly from a mobile phone. The message must be directed to one of two "gateway" numbers listed below. The message is forwarded along with the source (mobile) number for the device to reply to if this is required.

Either:

The GDSP Common SMS Number: **`+6421011924220`**

Or

The SMS number of your organisation's SMS agent.

If your SMS Agent number is unknown, it can be obtained from your mobile phone. Send a test SMS message from HydroTel™ using the client's 'Send Message' tool. The phone must be available as a contact.

NOTE: It is recommended that a clearly named, e.g. "GDSP" contact entry is associated with the chosen destination number to more easily direct SMS requests for any of your remote devices on the GDSP.

All SMS messages sent to a device must include a unique five digit short code followed by a comma or space then the desired command or request. This code is the last five digits of the IMSI number.

E.g. For a logger with an IMSI number of (204049999999912345) , the short code is **12345**.

See below for examples and also the next section for how these codes are obtained.

SMS Message Examples

Any SMS command supported by your target device can be used. These examples all assume the example short code 12345. In each example, the message is sent to the GDSP gateway number or your SMS agent

Go On Line (GOL)	**`12345,GOL`**	There is no response to this message
ReQuest (RQ)	**`12345,RQ`**	The response will originate from the GDSP gateway number.
SDI-12 Command	**`12345,sdi=0I!`**	The response will originate from the GDSP gateway number.

3.3 SMS Short Code

The SMS Short Code can be obtained in several ways.

1. Device LCD Screen (iRIS 320 / iRIS 350FX)

The IMSI is viewable on the logger's LCD status screen 3.

```
MSI:204049999912345
MEI:123456789098642
OAT Version: 1.06
```

Example short code 12345 obtained from the device's IMSI

2. iLink 2012 Terminal (All Devices)

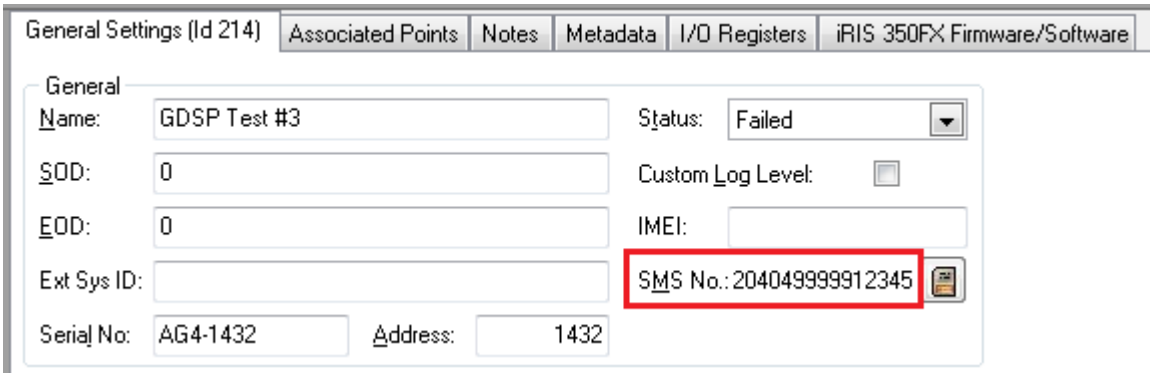
The IMSI is also displayed on entry to the modem diagnostics mode on the terminal.

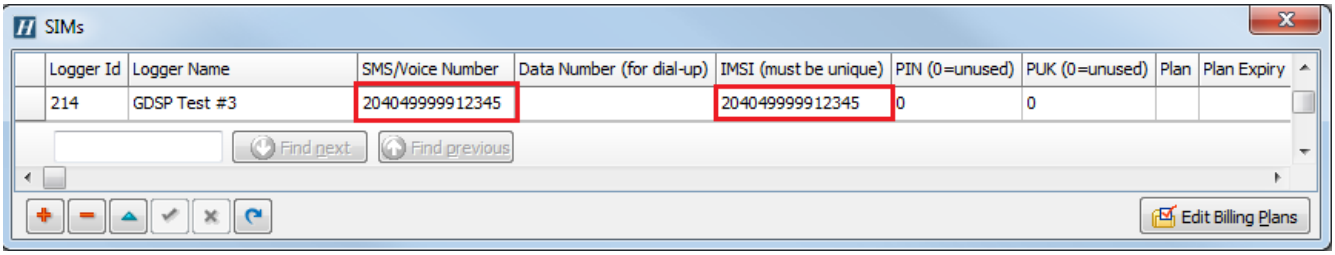
```
Modem:    WAVECOM MODEM
Version:  657g00gg.Q2406B 1972992 102208 17:08
IMEI:     354056002741605
IMSI:     204049999912345
LIP:      N/A
RSSI:     -67 dBm
Status:   Ready
>
```

Example short code 12345 obtained from the device's IMSI

3. HydroTel™ Client

The device IMSI is displayed in two places in the HydroTel™ client. The Loggers form and the SIMs form.





4. HydroTel™ SQL Report

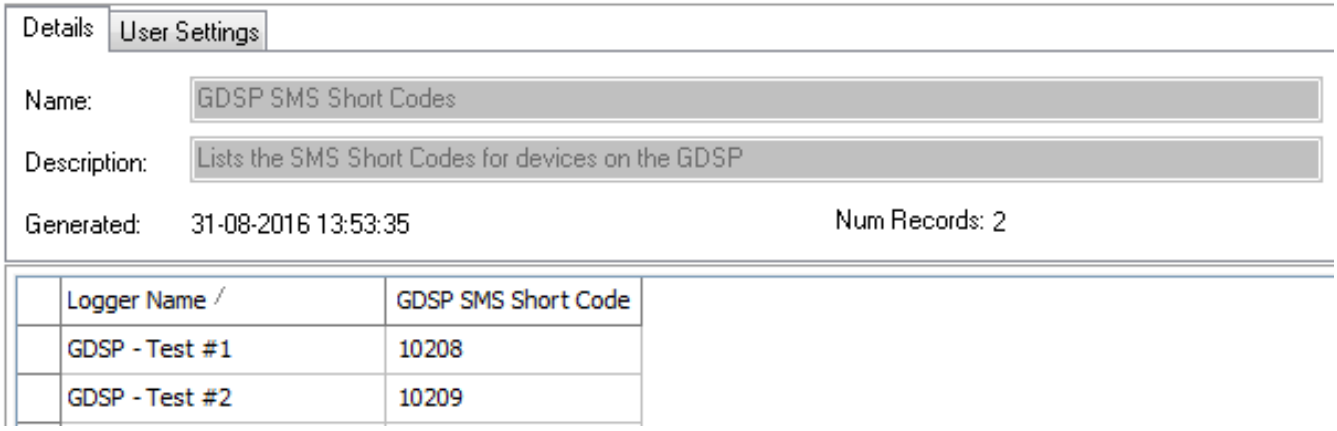
To make a convenient list of the SMS short codes for the whole system, a SQL report is recommended. This is easily created in the HydroTel™ client, or can be run externally from a database tool.

It will produce a meaningful list of loggers and their associated short codes. This can then be exported or printed for distribution.

Recommended SQL Query

```
SELECT l.Name AS 'Logger Name', RIGHT(s.SMSNumber,5) AS 'GDSP SMS Short Code' FROM
dbo.Loggers l INNER JOIN dbo.SIMS s ON l.Logger = s.Logger WHERE s.SMSNumber LIKE
'20404%'
```

Example Report Output

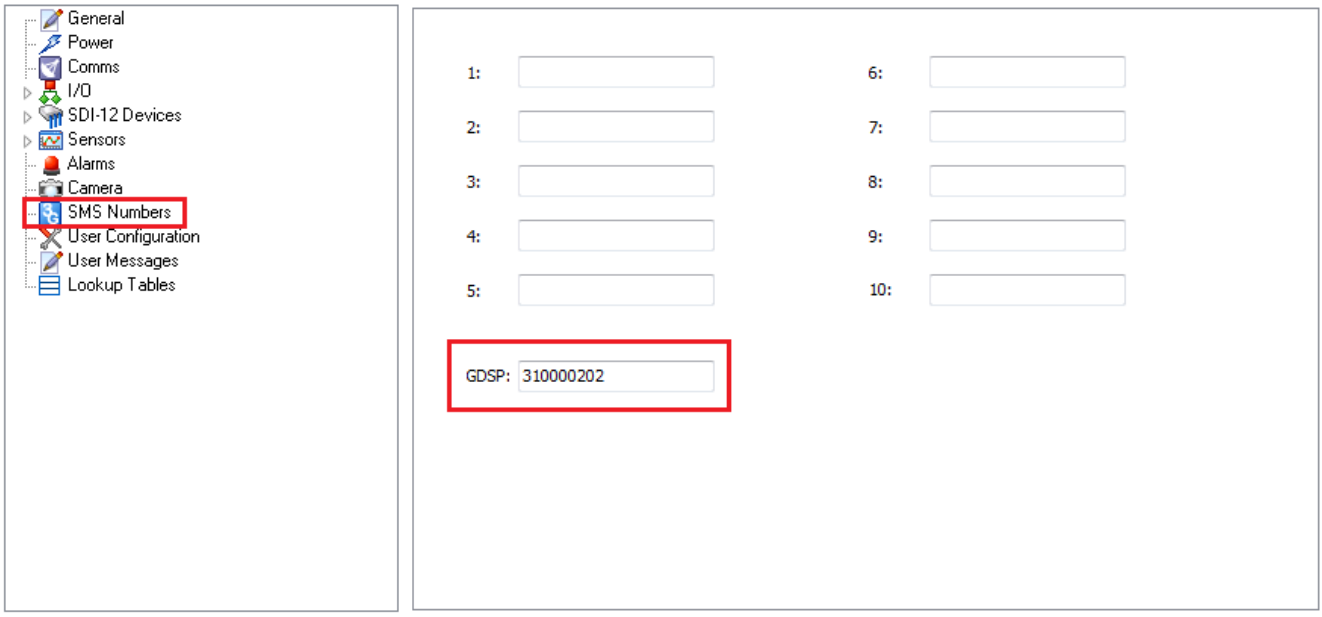


Logger Name	GDSP SMS Short Code
GDSP - Test #1	10208
GDSP - Test #2	10209

4 Configuring Remote Devices

4.1 SMS Configuration

Configuring the device for SMS is the same, except the device automatically determines that the SIM is a GDSP one, rather than a standard network SIM. There is an extra field on the configuration form's SMS Numbers tab to define the GDSP source number. The default is **310000202** and this should never be changed unless HyQuest Solutions advises otherwise.



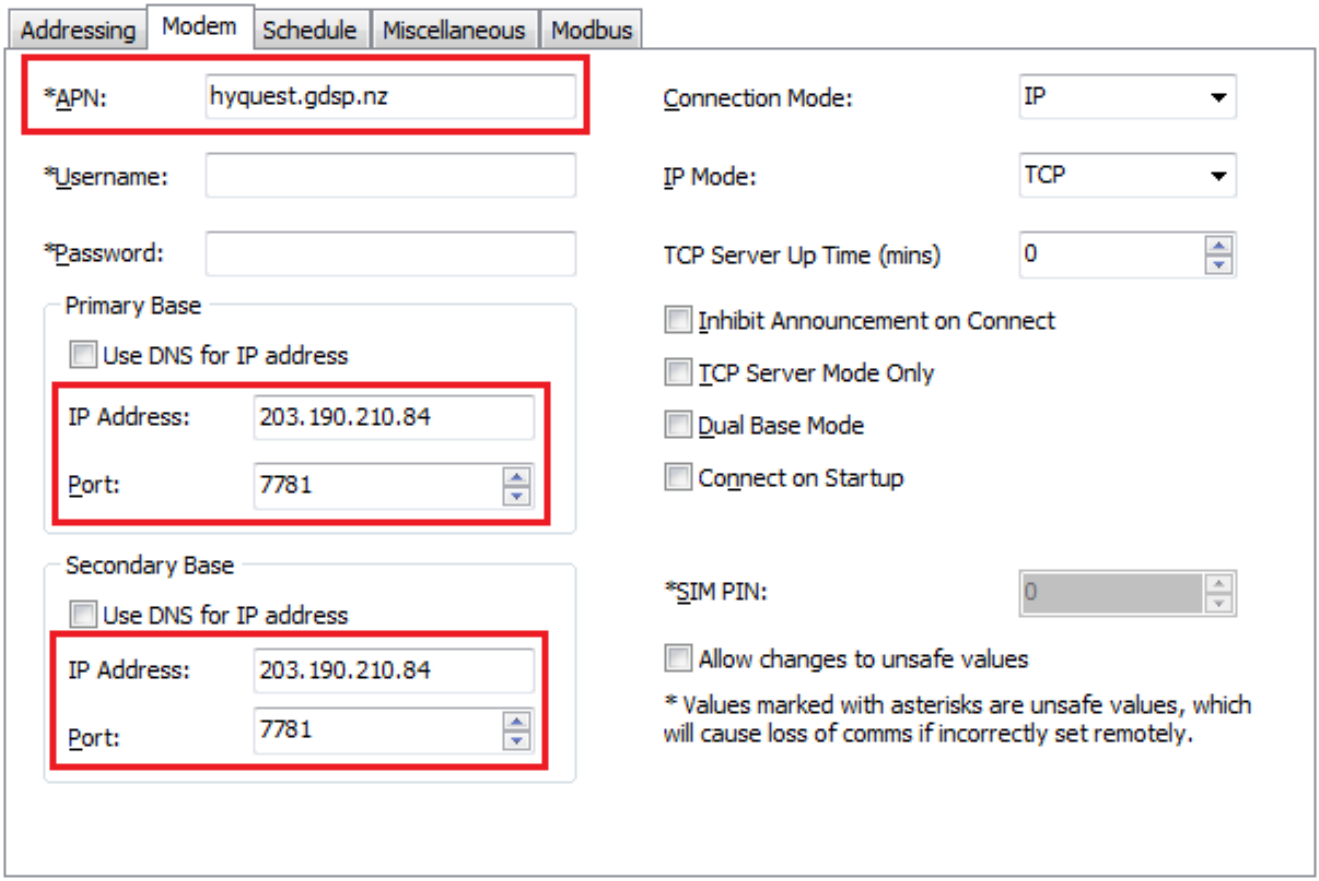
4.2 IP Configuration

The APN for all HyQuest GDSP devices is the same. If you are using the HyQuest GDN service to host your data, the settings are shown below. If you have your own HydroTel™ system, the IP address and port are specific to your organisation. Typically, the port is **7781**. The IP address is the static IP address advised by your IT department which has been "whitelisted" for access by the GDSP.
Please contact HyQuest Solutions if you require assistance.

Common GDSP APN for all devices: hyquest.gdsp.nz

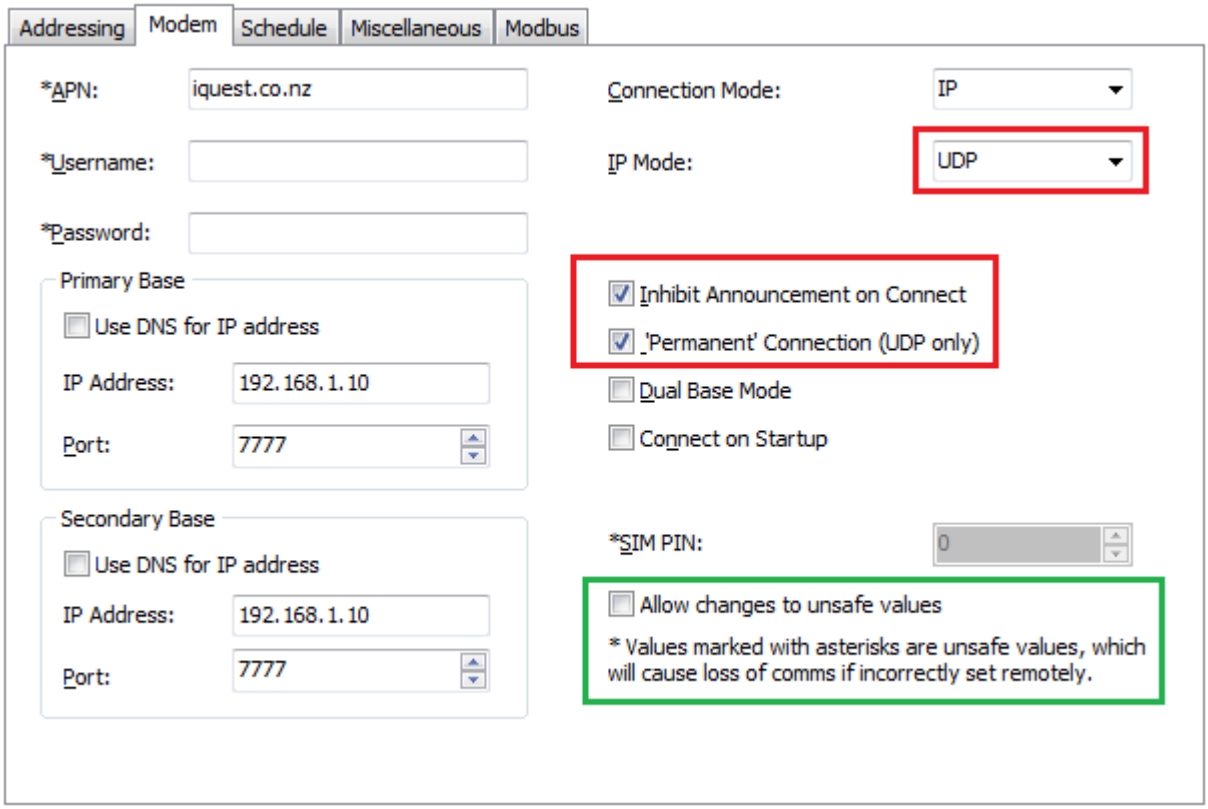
Below is the configuration for an iRIS 350FX using the GDSP to provide data to the HyQuest GDN.

Ensure the "Inhibit Announcement on Connect" checkbox is NOT checked.



4.3 Migrating from UDP

If your device is currently on the legacy iQuest APN as a “permanently connected” device (pollable on demand), this procedure must be followed to ensure it correctly calls into HydroTel™ on a schedule or SMS request. Typically, the existing UDP configuration will appear similar to this:

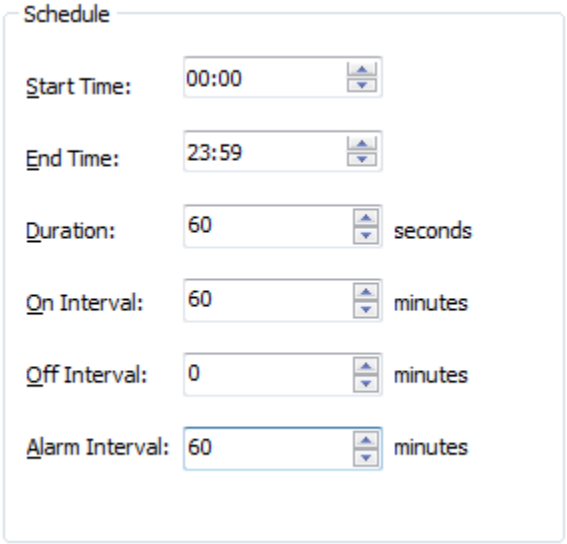


1. While still in UDP mode, uncheck the “Permanent Connection (UDP only)” checkbox. This should also uncheck the “Inhibit Announcement on Connect” checkbox which are highlighted in red above, shown in their UDP state.

2. Change the IP Mode from UDP to TCP.

3. Enter the other modem configuration settings for the GDSP as described above in Section 4.2. This includes the APN and primary and secondary base IP address and port. You will need to enable “Allow changes to unsafe values” using the checkbox highlighted in green above.

4. Set up the comms scheduler to suit your application. Typical values are shown here which will cause a call-in every hour.



HydroTel™ Specifics

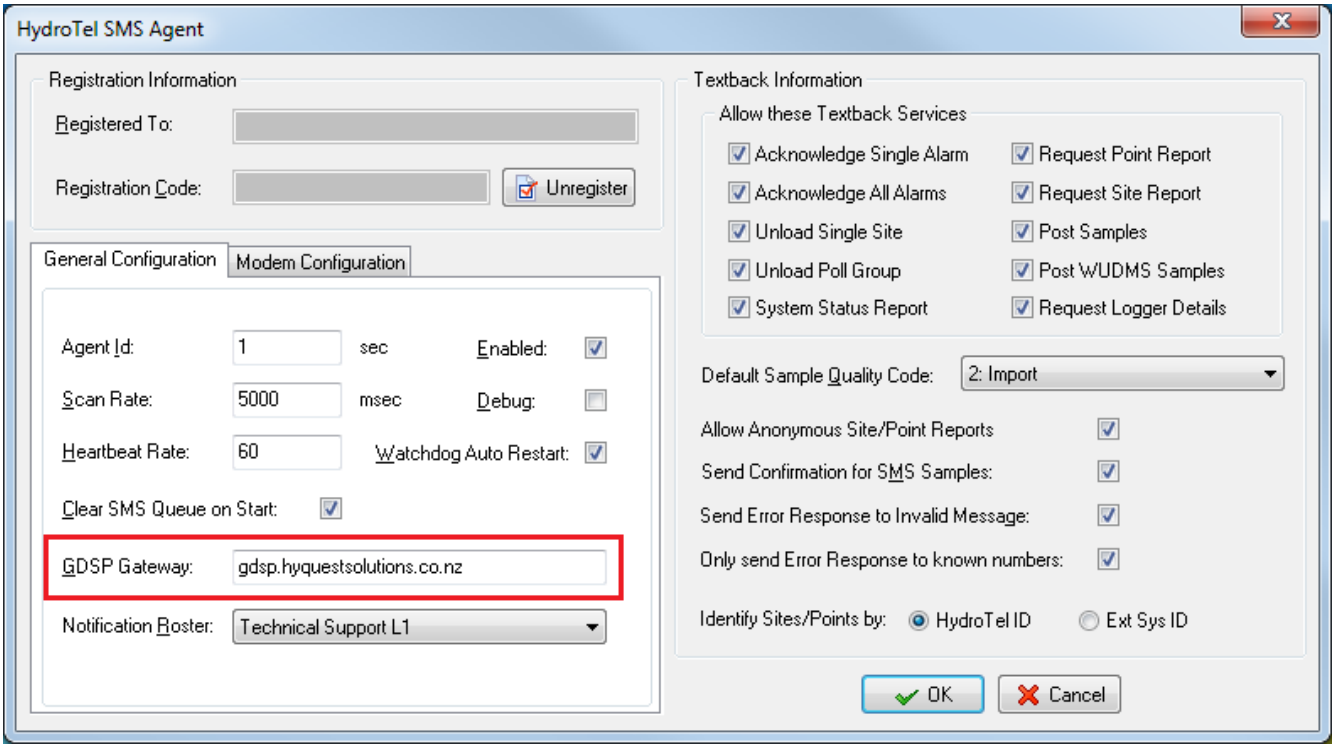
In the SIMs table, the voice/SMS number is identical to the IMSI and is automatically populated when a remote device initiates a call-in.

NOTE: All GDSP SIMs are easily identified by their IMSI which starts with **20404**.

4.4 SMS and HTTPSMS Agents

The SMS agent forwards "GOL" requests to loggers via the HyQuest GDSP gateway and the gateway address for this function must be configured as shown below.

The GDSP Gateway address is: **gdsp.hyquestsolutions.co.nz**



5 Revision History

Issue	Date	Comment
Issue 1	30/08/2016	Initial draft release.
Issue 2	07/09/2016	First official release. Includes confirmed GDSP Common SMS Number

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