

BGAN M2M Hughes 9502

Quick Sheet

Simple set up of a 9502 for SCADA
Testing

Version 1.3

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1.0 Objective

Program a BGAN M2M Hughes 9502 Terminal to maintain a connection to the network and provision the unit to have a Global Public IP Address that is translated to a PLC on the LAN.

2.0 Connecting to the BGAN Terminal

- Open the front panel of the BGAN M2M Terminals and insert the BGAN M2M SIM Card. (Note only BGAN M2M SIM cards will work in a BGAN M2M terminal). Ensure through Inmarsat or Dashboard that the SIM card has been activated.
- Connect Power to the BGAN 9502 Terminal. LEDs will conduct a boot up sequence and power LED flashing.
- Configure your laptop's network parameters to the following.
IP Address 192.168.128.101 Subnet 255.255.255.0 Gateway 192.168.128.100
- Connect the Laptop to the BGAN(s) via a 'Straight Through' Ethernet cable.
- Open Internet Explorer and type 192.168.128.100 in the address section to obtain the web interface.

3.0 Point the antenna

- Once you have your PC connected to the IDU. Monitor the Signal strength section.
 - Ensure that you have a GPS Fix
 - Certain higher elevation areas may require that you lay the antenna flat to speed up the GPS Fix process.
 - To activate the Pointing mode you will need to power cycle the IDU.
 - When power light starts to blink then short press the function button (Short Press is >2 Seconds)
 - At this point all three LEDs will blink simultaneously.
 - You will now see the Signal Strength section of the WebUI will indicate "Pointing"
 - Adjust the antenna to achieve the highest receive level <50db. Higher the Better of course
 - Once you have locked down the antenna and have a <50db signal perform another short press of the function button.
 - The unit will now proceed with the registration process.

4.0 Configuring the Terminal

IP Address /DHCP

- This section is left default but you must make sure that the Netmode is set to **NAT** mode. Relay mode is only selected if you require one IP address for one remote device connected to the terminal.

5.0 M2M Settings

Context Watchdog

- IP Watchdog will send a ping to a designated IP address to ensure the 9502 terminal can send traffic when required. If all of a list of addresses is unreachable, the terminal will automatically reboot. This avoids have to manually reboot the terminal if it does not communicate.
- Primary Ping Address - this needs to be a server that is on the network that the BGAN is set up on. For this example, the BGAN is routed to the Public Internet so we will use a DNS Serve (4.2.2.1)
- Secondary Ping Address - this needs to be a server that is on the network that the BGAN is set up on. For this example the BGAN is routed to the Public Internet so we will use a DNS Serve (8.8.8.8)
- Time between pings - this is how often the unit will send a ping out to test and make sure it can reach the ping addresses. If left default the unit will run a test ping every 8 hours.
- Ping required – Setting this to **NO** will save data and will not send a scheduled ping when data was recently passed.

Always On Context

- Always On context needs to be set to **ON**.
- Static ACA IP Address - this needs to be set up for the LAN IP Address if the device that you wish to always have an active connection across the BGAN. For Example the PLC's IP address is 192.168.128.103
- APN Configuration - you will need to associate your LAN IP address to the Stratos.bgan.inmarsat.com APN.
- You will be asked for to enter a Username and Password, Leave the Username and Password blank and click enter. This will enable you to always use the default profile of the SIM card that is installed in the unit.
- Apply changes
- You will be asked to reboot the unit, click Reboot and wait for the terminal to reboot.

6.0 Security

- Remote SMS Features
 - Remote SMS Control – The 9502 receives SMS messages by default, however will discard them if you do not set the SMS Control function to **ON**. Turning on the SMS Control allows the unit to receive remote control SMS Messages for function such as terminal wakeup and over the air firmware upgrades.
 - The phone number of the terminal will be prompted on the home page.
 - Only add numbers to Sender's White list if you wish to restrict which phone numbers the terminal will act remote control from.

7.0 Test Your Configuration

- At this point you should reboot the terminal.
- Return to the Manage Context Page; you should see the following information the top box:
 - Owner- 192.168.128.103
 - Service- Standard
 - APN- stratos.bgan.inmarsat.com
 - Global IP Address – i.e. 216.85.248.198 (This will be a private IP address if using an Inmarsat supplied VPN)

8.0 Summary

- ❖ The proceeding configuration allows a customer to have access to his asset over the internet via a public internet. The customer will need to point his polling engine at the global public IP address or private address if using an Inmarsat VPN.
- ❖ In the future when the customer makes an order for a 9502 terminal the unit will not be set up to transverse the internet. So parameter will need to be changed to reflect this. Watchdog timer setting need to be adjusted to ping internet address that are accessible within the customers private network. A good practice would be is to have the customer set the primary ping and secondary ping addresses to polling server located on the customers' network.

9.0 Tips

- ✓ It is also a good habit to have the LAN Address in your always on context a different IP address then the IP address you are using on your laptop. If you are unable to do this and your PC need to be set up as the same IP address as the customer SCADA Equipment. Complete the configuration and then power down the 9502, and then apply power back to the terminal with the customer equipment terminated to the 9502 terminal.

- ✓ The correct way to power cycle the device is to remove power from the unit!
- ✓ LED Status lights will go out after a period of time. To see the status of the terminal though the LED lights perform a short press of the function button. After the short press is performed the lights will temporarily come back on for 60 seconds.

10.0 Acronym List

- ACA - Automatic Context Activation
- APN - Access Point Name
- BGAN - Broadband Global Area Network
- GPS - Global Positioning System
- IDU - Indoor Unit
- LAN - Local Area Network
- LED - Light-emitting Diode
- M2M - Machine to Machine
- PC - Personal Computer
- PDP - Packet Data Protocol
- PLC - Programmable Logic Controller
- SCADA - Supervisory Controls and Data Acquisition
- SMS - Short Message Service
- TE - Terminal Equipment
- WebUI - Web User Interface