Quick Note 401

Digi Connect WAN 4G and ConnectPort Sprint/CLEAR 4G Configuration

Quick Start

There are two ways to activate and use Sprint or CLEAR 4G service:

1. **Pre-activate** the account.
    a. Record the WiMAX MAC address from the Digi device.
    b. Submit this MAC address to your Sprint representative.
    c. Wait for Sprint to confirm the MAC address is activated.
    d. Connect to the Digi device via Ethernet and use a web browser to configure the Digi device's 4G WiMAX and other settings as described below.
    e. Test data service.
2. **Self-activate** the account.
    a. Connect to the Digi device via Ethernet and use a web browser to configure the Digi device's WiMAX and other settings as described below.
    b. Browse to the appropriate account setup page and sign up for 4G service by attempting to browse to any site.
    c. Test data service.

Complete details follow.

Digi Technical Support
January 2011

Contents

1 DOCUMENT VERSION

Version Number	Status
1.0	Initial release – 2011-Jan-27

2 INTRO TO DIGI CONNECT WAN 4G & CONNECTPORT X4 4G

The Digi Connect WAN 4G router and ConnectPort X4 4G gateway come with an embedded 4G WiMAX module. They have one each Ethernet, serial and USB ports. They support NAT, IP Filtering, IP Forwarding, 5 IPSec VPN tunnels, basic routing and a host of other features.

There are three Digi 4G models:

- Digi Connect WAN 4G: features listed above
- Digi Connect WAN 4G IA: same as above plus Modbus bridging, Class 1 Div 2 and screw terminal power (no AC power supply included)
- ConnectPort X4 4G: same features as the Digi Connect WAN 4G plus a Digi XBee (ZigBee, 802.15.4 or DigiMesh) module and Modbus bridging

More product details are available at www.digi.com.

NOTES:

- Today these Digi devices are 4G *only*. Fall back to CDMA/EVDO will be supported in future models.
- Sprint and CLEAR 4G documentation and/or account setup screens apply to any Digi Connect or ConnectPort 4G device regardless of the device referenced.

3 SPRINT / CLEAR 4G PLAN INFORMATION

It is important to check with your carrier on the type of plan needed for your application. Digi International does not activate wireless plans.

3.1 Plan Types

CLEAR plans are Internet connected plans with dynamic Wireless WAN IP address.

Sprint has two types of 4G plans that are similar to CDMA plans:

- Standard Internet connections
- DataLink for private IP addressing and custom configuations

For DataLink subscriptions Sprint will assign user authentication credentials for the Realm name, username (typically in the form username@exampleserver.dl.sprintpcs.com) and password. These are entered into the Digi's WiMAX configuration as described below in section 4.

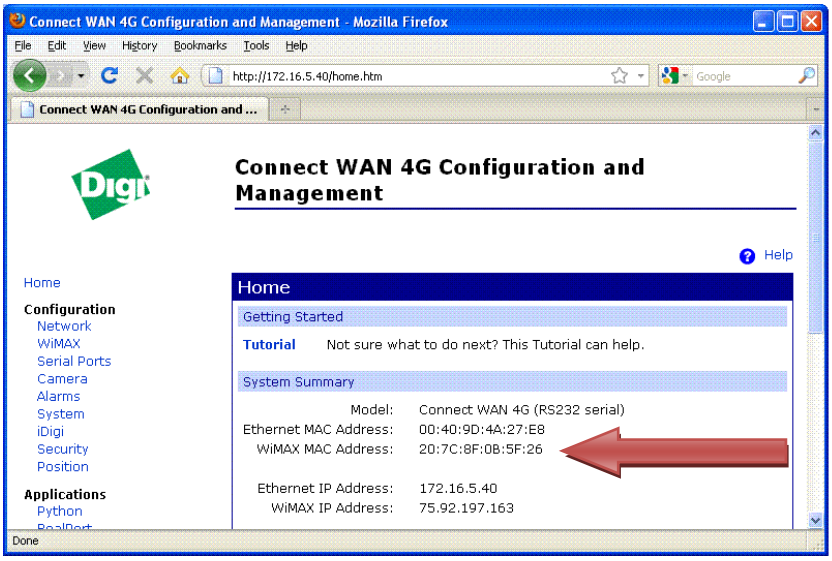
Both Sprint and CLEAR data plans can be either monthly or a day-pass type of service agreement.

3.2 Plan Activation

WiMAX 4G behaves more like Wi-Fi than CDMA in its activation process. Instead of activating an ESN or MEID and then provisioning a modem, the Wireless WAN WiMAX MAC address is *automatically* activated on the network. *Provisioning* the modem is *not* necessary.

There are two ways to activate a 4G account, described below:
1. Pre-activation where the account is activated before the device is to be used, and
2. Self-activation where the user browses to the Internet and signs up for Sprint or CLEAR service.

1. **Pre-activation**: Contact the carrier and provide them the WiMAX MAC address of the Digi device. The WiMAX (or WAN) MAC address is located on labels on the shipping box and on the bottom of the unit itself. The MAC address can also be obtained by browsing to the device's LAN IP address (default 192.168.1.1) and obtaining the MAC address from the home page:



Instructions for configuring the Digi device for the appropriate service are in section 4 below.

2. **Self-activation**: Similar to Wi-Fi, the user can activate an account by connecting a computer to the Digi's Ethernet port, allow the computer to obtain an IP address from the Digi device and then attempt access to any website, such as www.digi.com. This attempt should *redirect* the browser session to a Sprint or CLEAR landing page prompting the user to sign up for service.

   Important: This address depends on the *Subscription* selected in the Digi's WiMAX configuration page described below in section 4. Currently there are three choices:

Clear:	Redirects user to the CLEAR signup site
Sprint 4G:	Redirects user to contact Sprint to sign up for a permanent service
Sprint PCS:	Redirects user to sign up for one-day service

4 CONFIGURING THE DIGI DEVICE FOR 4G / WIMAX

4.1 Important Antenna Information

Digi 4G products require *two* antennas to work properly. Two direct-connect antennas are normally included with the product. These antennas are specific to the Sprint and CLEAR *2.5GHz* 4G frequency band. External antennas can be used if required. However, when possible it is best to place the Digi device where it gets the best signal – like near a window – and run longer Ethernet cable versus using antenna extension cables. The

antenna connectors on the Digi device are 50 Ohm RP-SMA. Contact Digi sales at 952-912-3444 if external or other antenna options are required.

4.2 Basic Digi Setup Info

Full setup details and documentation are available on Digi's support site at http://www.digi.com/support/. Select the appropriate product and then *Documentation*.

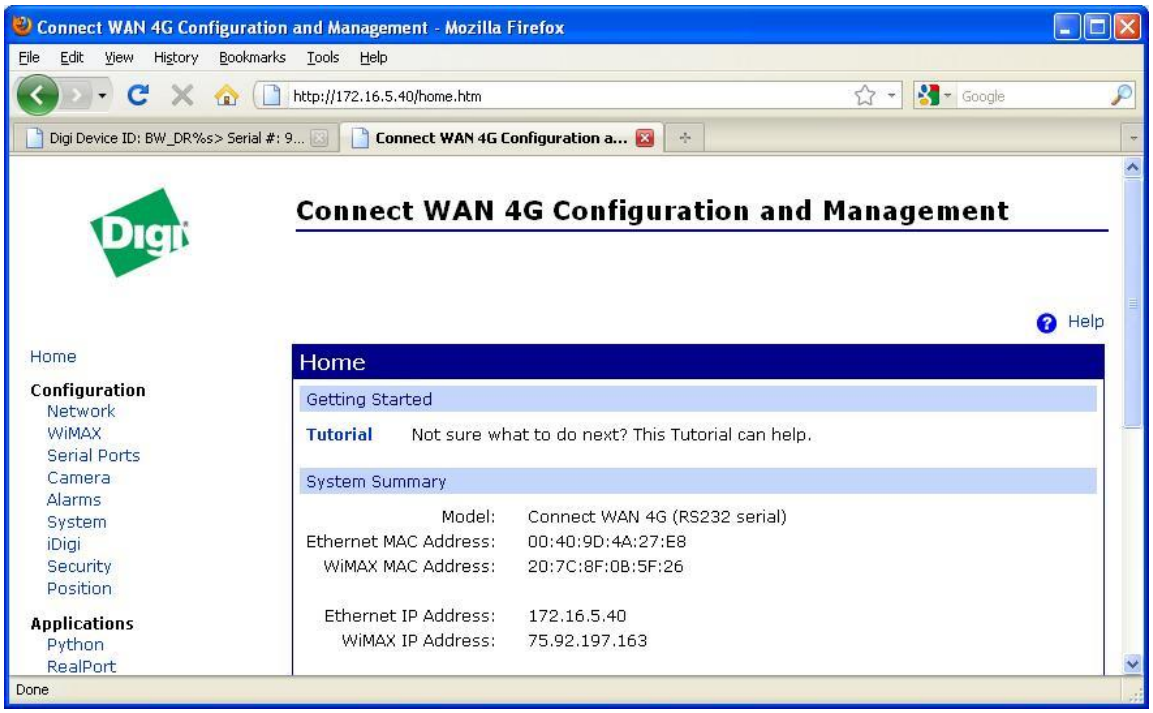
The default Ethernet port IP address is 192.168.1.1, assuming the Digi device is new or at factory default. The Digi's DHCP server will assign addresses starting at 192.168.1.100 to DHCP clients connected via Ethernet. Use the following steps for initial setup. Use Digi's WebUI built-in "**?** Help" link for assistance.

1. Attach a PC/laptop to the Ethernet port of the Digi.
2. The PC should obtain the following settings:

IP address:	192.168.1.100
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.1
DNS Server:	192.168.1.1

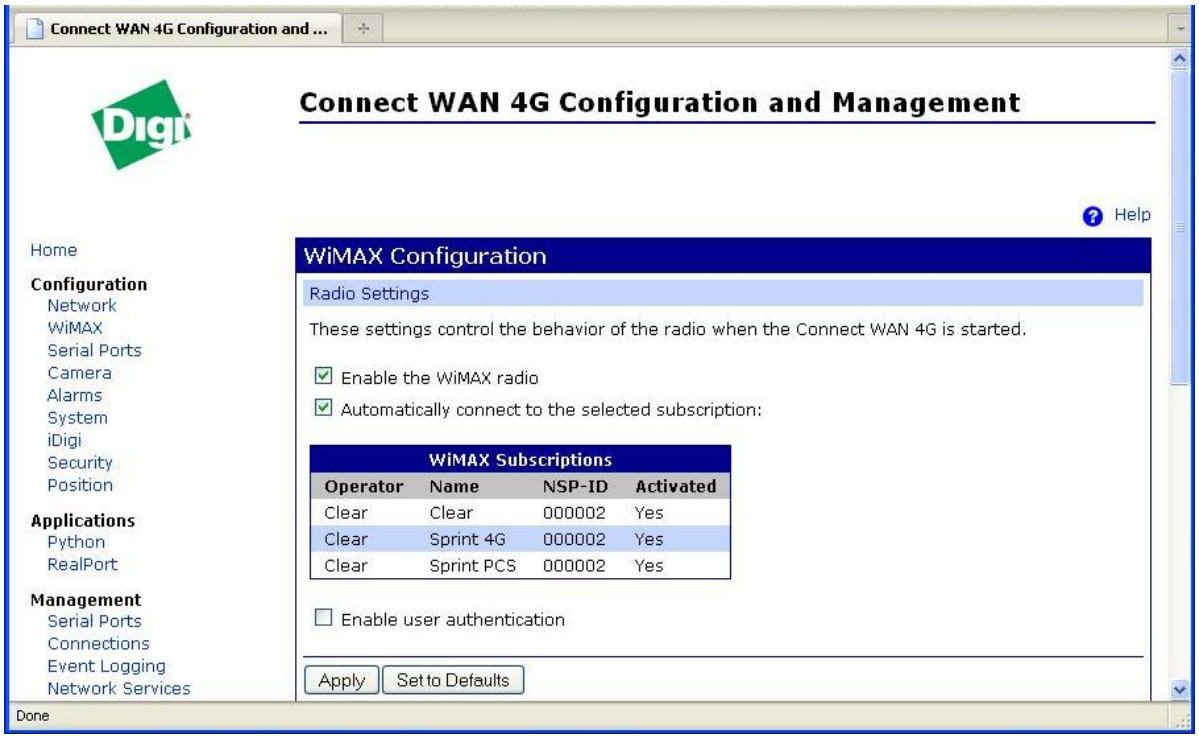
   If not, check that the Ethernet cable is connected and the Ethernet link LED is illuminated. In the PC's command prompt enter "*ipconfig /release*" then "*ipconfig /renew*". Observe the IP address obtained is 192.168.1.100.

3. Open a browser and go to address *192.168.1.1*.
4. The Digi's Home page will appear as shown below. A WiMAX IP address may also be shown. This will likely be an address automatically obtained from the CLEAR or Sprint network.



4.3 4G (WiMAX) Configuration

Go to *Configuration > WiMAX.* The WiMAX configuration screen will appear as below.



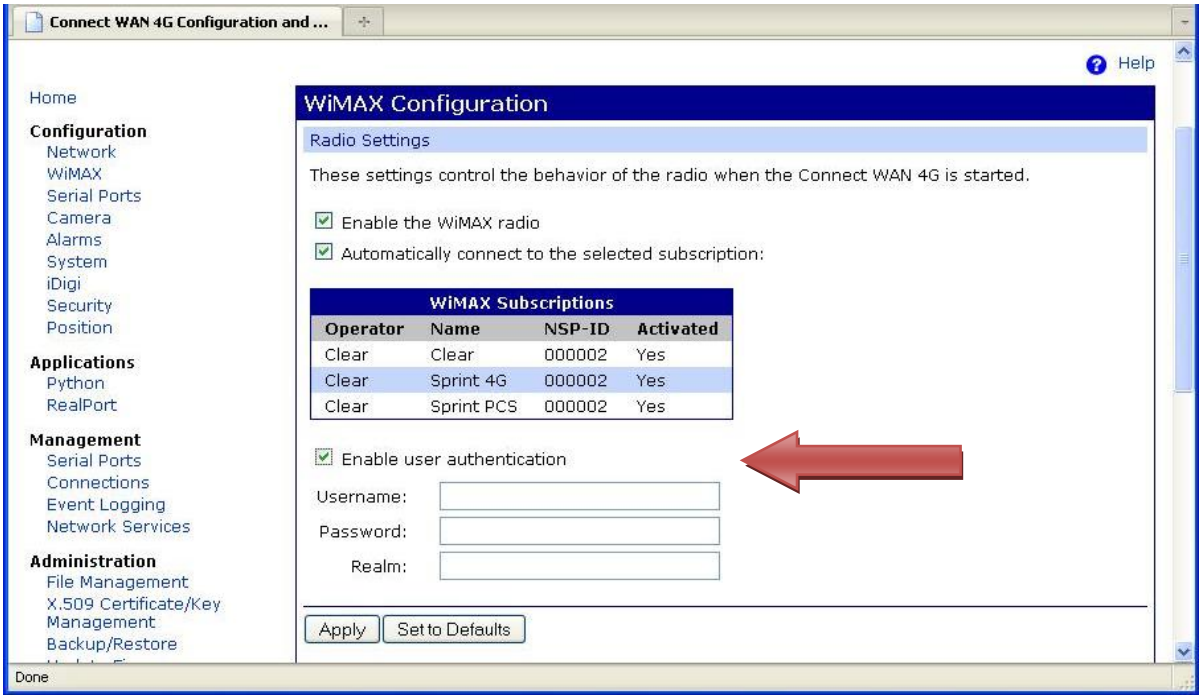
Select the plan by clicking on the appropriate *Subscription Name* and click the "*Apply*" button. Plans are described in section 3 above.

The *next* connection to the network will use this selection if changed. Activate the new setting by one of these methods:

1. Scroll to the bottom of the WiMAX configuration page and click the "*Disconnect*" button. Then click "*Connect*" to force a reconnection; or
2. via *Management->Connections*, select the WiMAX protocol connection and press the "*Disconnect*" button (it will automatically reconnect); or
3. *power cycle* the device.

4.4 Sprint DataLink Configuration

To use Sprint's DataLink service, select the "*Enable user authentication*" below the Subscription table. Enter the *Username, Password* and *Realm* provided by Sprint (Digi does not have this information). Note the Realm is a "subscription" and takes the place of any subscriptions selected in the table.



4.5 Selecting a Specific Network

These options can be used to explicitly control which network is used for the WiMAX connection. Use these options with care as the default settings are normally sufficient. It is suggested to check with the carrier (Sprint, CLEAR or other) and/or Digi technical support before using these options. These options can help specifically select a carrier if there are multiple WiMAX carriers in the vicinity.

The options are (as listed in the Digi's Help page):

Connect with automatic network selection: Select the subscription you wish to use from the subscription list. The best available network will be chosen automatically.

Connect to a specific network: Select the subscription you wish to use from the subscription list. Also select a specific network to connect from the network list. Note: some networks may not allow a connection with the selected subscription.

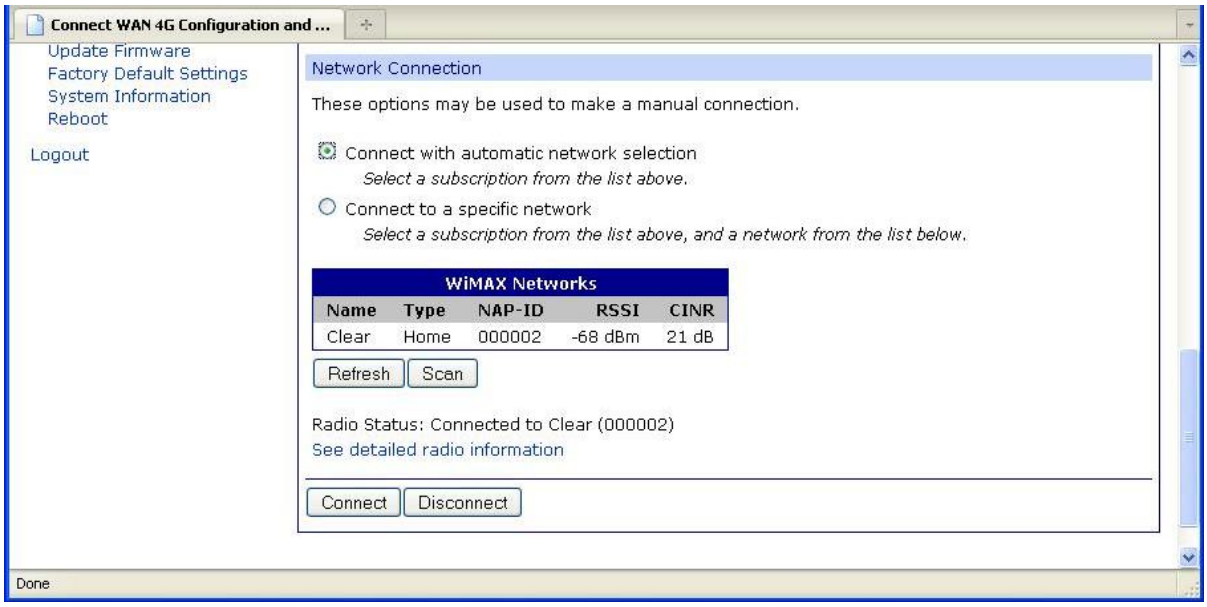
WiMAX Networks: A list of networks available for connections. These networks are discovered over the air by the radio during the scanning process. While connected, this list shows the networks found prior to connecting and will not be updated.

- **Name:** The name of the network access provider (NAP), the company that provides network connectivity.
- **Type:** The relationship to the subscribed network service provider:
    - **Home:** The network is operated by the network service provider.
    - **Partner:** The network is operated by a partner of the network service provider.
    - **Roaming:** The network provides roaming access for the network service provider.
    - **Unknown:** The network may not allow connections for the network service provider.

- **NAP-ID:** The identifier of the network access provider.
- **RSSI**: Received signal strength indicator; a measure of the signal *level* of the network.
- **CINR**: Carrier to interference and noise ratio; a measure of the signal *quality* of the network.

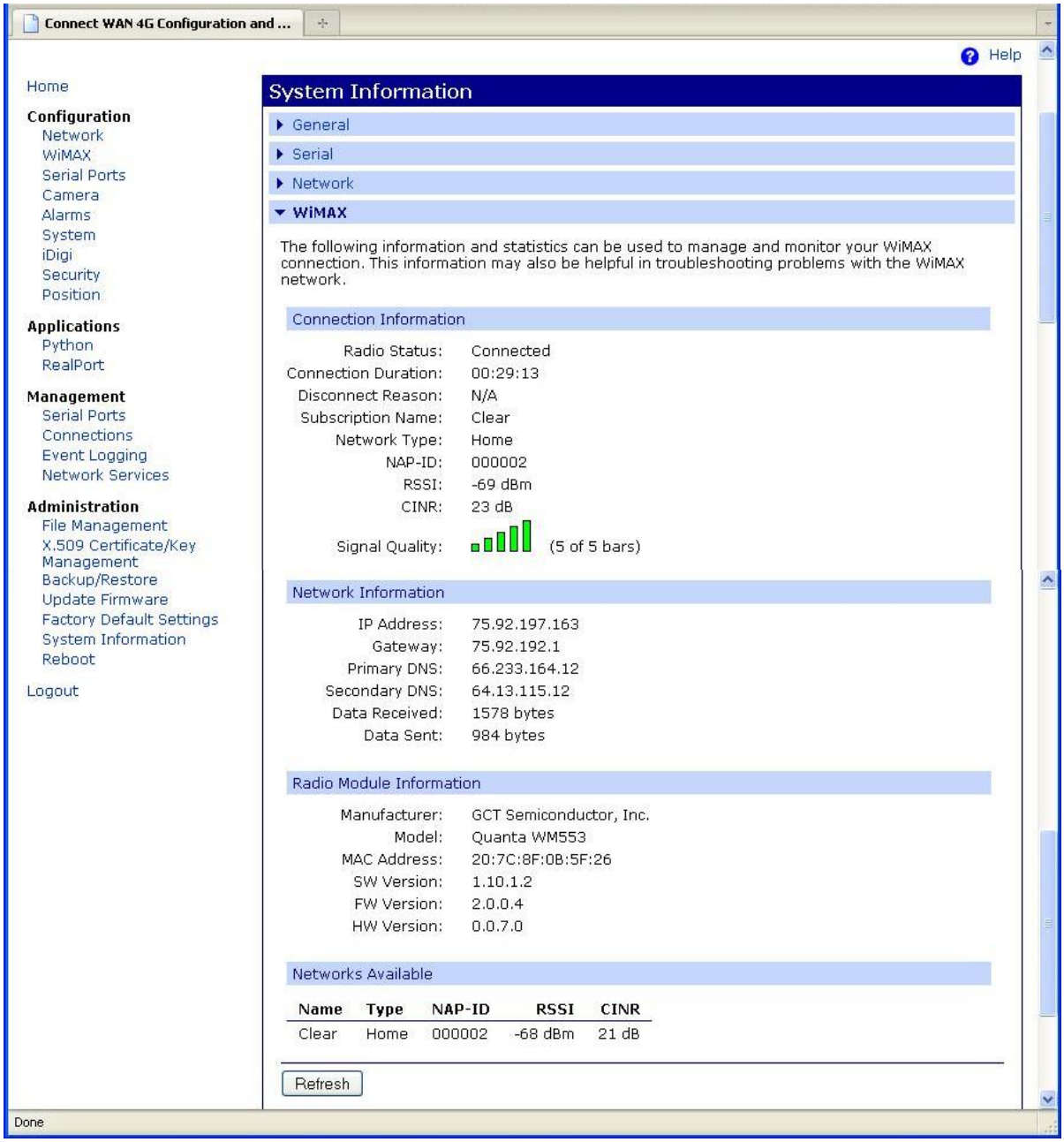
Refresh: Update the list of networks available. This may be used to see results of the scanning process.

Scan: Perform a wide-area scan for additional networks. This may be used to find networks on channels not used by the providers in the subscriptions list. The current network will be disconnected. The scan will take a few minutes to complete. During this time, the list of networks may be updated by clicking **Refresh**, and a connection may be started by clicking **Connect**.



4.6 Detailed Radio Information

As shown in the screen above, select *See detailed radio information* or browse to *Administration > System Information > WiMAX* to see detailed information about the connection. A sample follows:



5 MORE INFORMATION

For Digi hardware issues or questions:

- Digi Technical support: http://www.digi.com/support/ or 952-912-3456
- Digi Sales: 952-912-3444 opt. 2
- Product info: www.digi.com

Contact Sprint or CLEAR for 4G account information.