Configuring a Terminal Server application on DX family of routers.

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DX Terminal Server Setup

This example steps through the various configuration screens to setup two Serial Ports on a DX40 for use in a typical terminal server application where a remote IP based system requires access to equipment attached to the DX40 over the two serial ports. Whilst this example shows the steps using a DX40 the configuration steps would be identical across all DX platforms including the 10ETS and 10XTS models.

Summary of steps:

- Define IP address
- Set Router Default Gateway
- Serial Port Profiles
- Activate Serial ports
- Terminal Server associations
- Save Configuration Changes

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1.0   IP address Assignment

If this is a new unit the factory default IP address is 192.168.1.2, also note that all ports on a factory default setting will be disabled with the exception of the **highest** Ethernet port number. So for a DX40 connect your PC initially to E2.

If you can't access the DX40 via the Ethernet port, because its address is unknown, then the IP address can be set via the Console port BOOT application. The DX40 does not have a dedicated Console port, but a BOOT console application can be temporarily activated by connecting a terminal device to Serial Port S1 (38,400 bps, no parity, 8 data bits and 1 stop bit) using a standard cross over cable and holding down the SPACE bar after a DX40 power cycle.

> **GarrettCom, Inc.**
> **MNS-DX ROM version 1.3.3 (RC1)**
>
>
> *Starting boot menu...*
>
> *MNS-DX Boot Menu*
> *----------------*
>
> *1: View System Information*
> *2: Assign System IP Address*
> *3: Install Initial Software Image from FTP Server*
> *4: Install Initial Software Image via TFTP*
> *5: Install Initial Software Image via XMODEM*
> *6: Load Temporary Image from FTP Server*
> *7: Load Temporary Image via TFTP*
> *8: Load Temporary Image via XMODEM*
> *9: Restore System to Factory Defaults*
> *n: Select Active Network Interface for Boot Menu*
> *c: Boot Once with Console on Port S1*
> *b: Boot*
>
> **MNS-DX>**

Simply use Option 2: to define the initial IP address, then Option b: to boot. From the factory the initial IP address of the DX40 should be 192.168.1.2.

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Once the address is defined then launch a HTTPS: session to the address that was defined. For this example we are using 172.31.249.50 Mask 255.255.255.240.
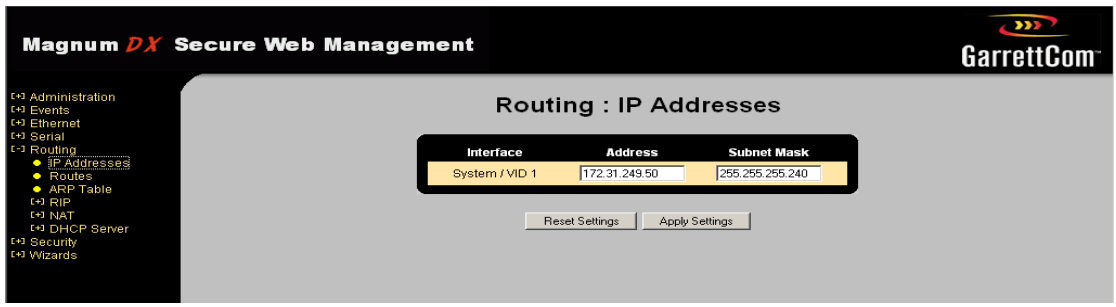
If the plan is to use both Ethernet ports then you can go to Ethernet port administration and change the Admin status of E1 to enabled.

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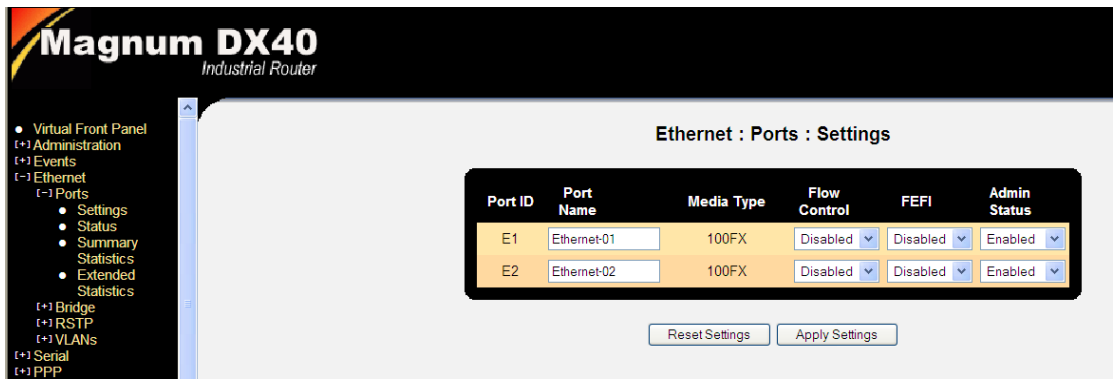
2.0   Default Gateway Assignment

If there are no plans to use automatic IP discovery protocols like RIP to automatically populate the routing table then we need to define a default gateway which is an address of another upstream router. For DX and most other networking equipment, the default gateway is signified by entering a static route defined as Route Destination 0.0.0.0, Route Mask 0.0.0.0, and Next Hop for example 172.31.249.49

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3.0   Serial Port Settings

We have two different requirements for the serial ports in this example, so first start by defining two serial port profiles to match the requirement. We have named them SERIAL PORT 1 and SERIAL PORT 2, set the interface type (RS232), Speed and Stops bits and Parity to match the attached serial device. The other settings we recommend are: "Ignore DSS" set to YES, this overrides the normal requirement to have an active incoming "data set signal" from the attached device and also modify the "Pkt Time" parameter from 200 to 20 (20mS forwarding timer).

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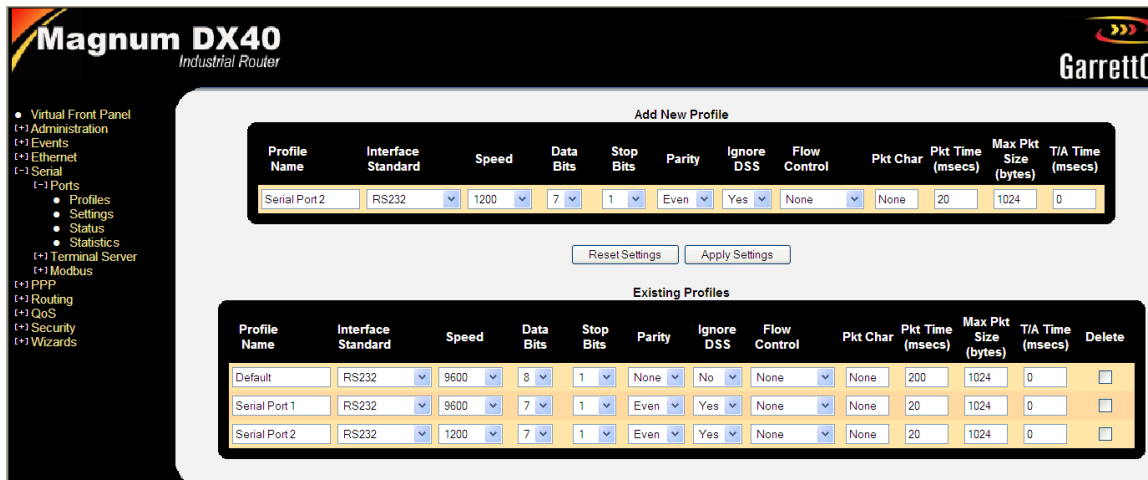
4.0 Serial Port Admin Status

In order to meet some of the new security requirements for this type of equipment the DX40, by default, disables any serial ports that have not been explicitly activated. So this step is required to activate the appropriate ports, S1 and S2 and also to apply the PORT Profile to each of the ports. In this case S1 will use the "Serial Port 1" profile, and S2 will use the "Serial Port 2" profile, that we had defined in Step 3. Don't forget to change the Admin Status to Enabled on both ports to prepare them for operation.

5.0 Terminal Server Settings

The final step is to define the Terminal Server settings. The first field defines the direction of the IP connection, "In" i.e. this device is listening or waiting for a remote connection to connect to this service. To define a Terminal Server session simply build the session using the dialog boxes, select the Serial port, Set the call direction (In (remote)), Session type to RAW, the unit will automatically pick up the local IP address and assign a default "port" or "socket" number. In larger DX devices the terminal server will answer to any IP address that is defined on the unit, you have the option to select a single IP address instead .You can use the default (10201) or change it to the one defined in the remote IP application that is going to connect to this service. In this application we have defined a session for S1 and S2

6.0   Final Step, save configurations

Saving Configuration: Click on the highlighted Save button at the bottom of the page to ensure all changes are saved and will survive any unit power cycles.
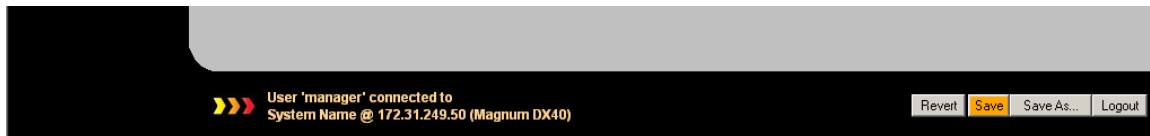
Some Informational Screens:

There are a number of ways to view the status of a Terminal Server session, but shown here are two options.
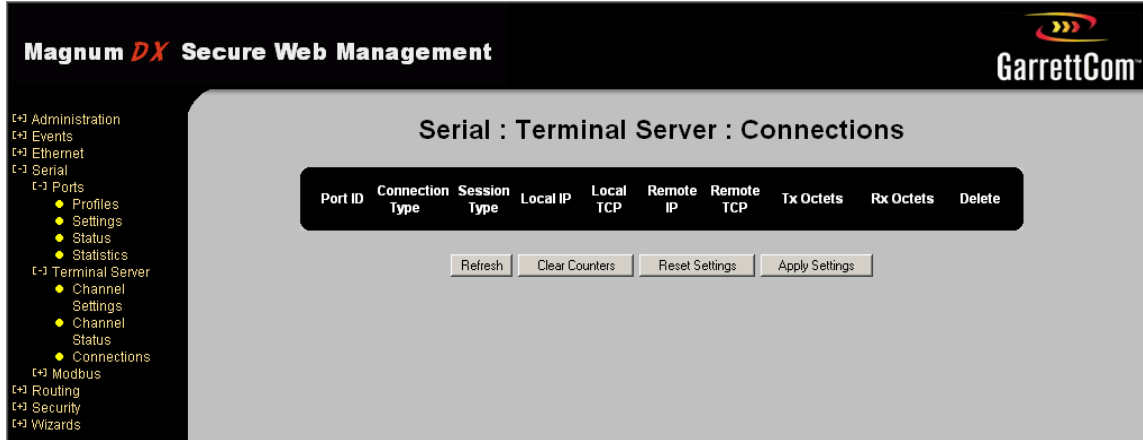
The first is under the Sub Tree: Serial/Channel Status

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The second, under the Sub Tree: Terminal server/Connections

7.0 TCP Keep-alive

Once a session is connected the DX40 does run a TCP Keep-alive feature that runs when a connection is established, it polls the server on a 20 second basis (Sends an TCP ACK) , this feature ensures that the two devices involved in the terminal server session remain in contact with each other and subsequently if contact is lost, through some network outage or disturbance, then the Terminal Server session will be automatically released/dropped within 60 seconds of detecting no response to the TCP keep-alive.

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