



#5443

Accessing Diagnostics using a Dialup Modem

September 28, 2004

Purpose

This application note is meant to guide a user through the setup and use of a dial-up modem to retrieve diagnostics data from a remote master.

Equipment Used

This application note was written specifically for a U.S. Robotics 56K .V92 External Dialup modem. Detailed jumper information and configuration strings are geared for use with these models. Other brands and models may be used, however initialization strings and configurations may change. Figure 1 shows the modem used for this application note. It is also a requirement that the master radio be an FGR or 'I' series radio, this includes Ethernet radios.



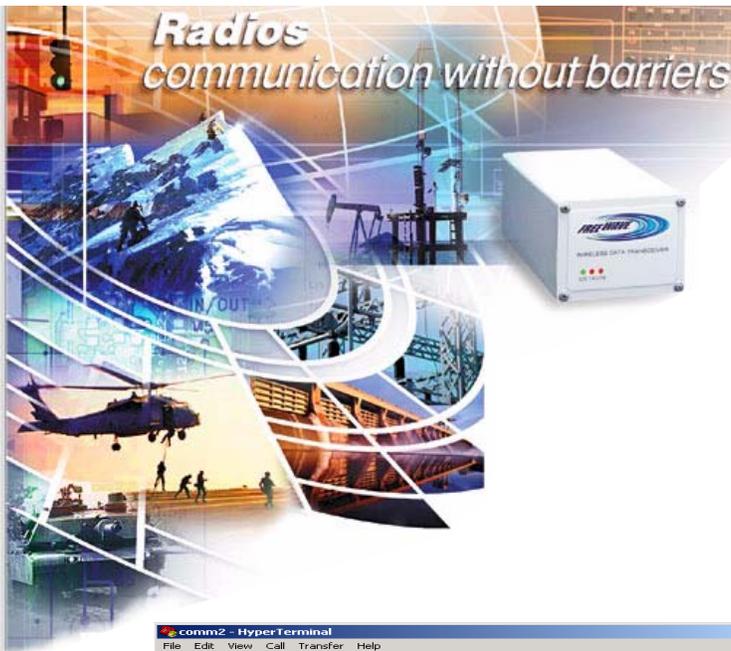
Figure 1

FreeWave Radio Setup

The master radio must have a diagnostics setting of 128 (Figure 2). If the setting's lower, the master radio will produce what is known as status packets. The time between status packets decreases with the diagnostics setting. A setting of 128 will turn this status packet off and require that all the diagnostics data be polled from the master radio. If diagnostics is not set to 128, a dial-up connection between the modem and the diagnostics software will not be possible. The reason for this is that most, if not all, modems will hang up and disconnect if they receive ANY data characters before the connection is completed.



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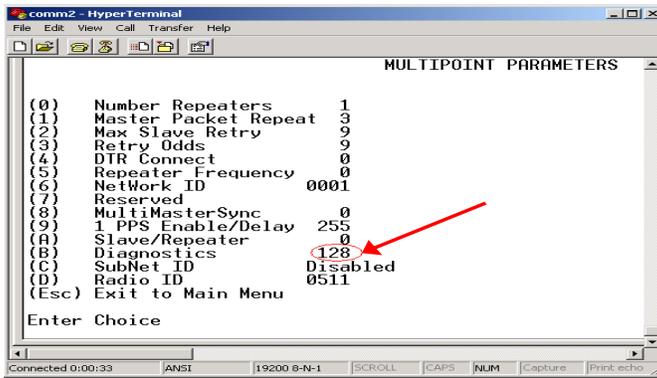


Figure 2

Wiring

The wiring between the FreeWave master and the modem should consist of:

- ◆ 1 DB-25 to DB-9 converter (if Required)
- ◆ 1 Null Modem Adapter
- ◆ 1 Standard diagnostics cable
- ◆ Gender changer may be required depending on cable.

Figure 3 shows the setup for the standard modem to radio latch-up.



Figure 3



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Modem Setup

In order to successfully complete a dialup diagnostics connection, it is essential that the following setup changes be made to all external modems:

1. Modem **MUST** be set to Auto-Answer on 1 Ring.
2. DTE Communication Speed **MUST** be set to 115200
3. Modem **MUST** be set to Ignore DTR
4. Modem Echo **MUST** Be Turned OFF
5. Flow Control **MUST** be Set To None (No RTS/CTS)
6. Result Codes **SHOULD** Be Turned OFF
7. Modem **SHOULD** Be set to Dumb Mode (If Equipped)

Most of these settings on the U.S. Robotics modem can be set using the jumpers located on the back of the modem. Refer to Table 1 for a list of the jumper settings.

<u>Jumper Number</u>	<u>Setting</u>
1	Down
2	Up
3	Down
4	Up
5	Up
6	Down
7	Up
8	Up*

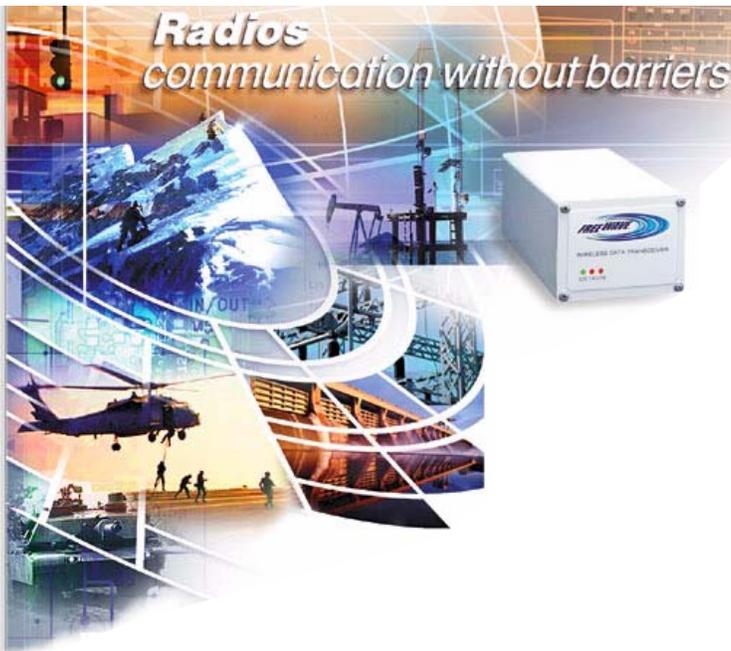
Table 1

*Setting jumper in UP position sets the modem into dumb mode. In this mode a user cannot change settings through the menu (command line). This jumper will need to be set down in order to configure the internal settings through the setup strings.

Next the internal EEPROM must be set. To do this open up a HyperTerminal window with a baud rate of 115,200bps, 8 Data Bits, 1 Stop Bit, No Parity, No Flow Control.



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Next enter the following strings:

- AT+PMH=1;+PHR=0;#CID=0 [Press Enter]
- ATSO=1S7=60&U0&N0&K1&M4S32=2S27=0S33=0;+PQC=0;+PIG=1;+PMH=1;+PSS=0 [Press Enter]
- AT&D0&C0&S0&B2X4E0F1&H0&I0&R1&A3 [Press Enter]
- AT&B2&W [Press Enter]

This will set all the internal settings to match those that were listed above as required. Some Modems may come with setup software that can apply those settings for you.

Software

Dial-up diagnostics is only available in Diagnostics version 2.13 and later. The latest version of diagnostics may be obtained by calling FreeWave at 1-800-548-5616.

To begin this software, it must be located on a computer that has a phone modem. Once this is the case open the diagnostics program by double clicking on the icon. Next change the COM port number to the COM port that the computers modem is located on as demonstrated in Figure 4. To do this click on the 'Communications' menu and selecting 'Chg Comm port' followed by selecting the proper COM port number from the popup dialog box.

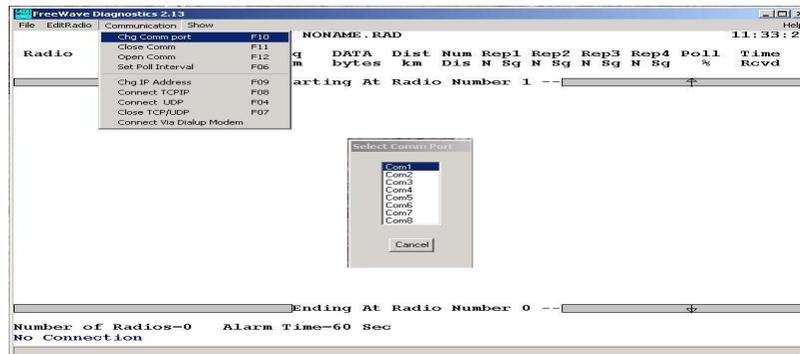


Figure 4



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Next select the 'Connect via dialup phone modem' option by clicking on the 'Communications' menu and selecting this option. A dialog will appear, as depicted in figure 5, requesting the phone number to dial. Enter the appropriate phone number and select OK. The program will dial and connect allowing for the full functionality and use of the diagnostics program.

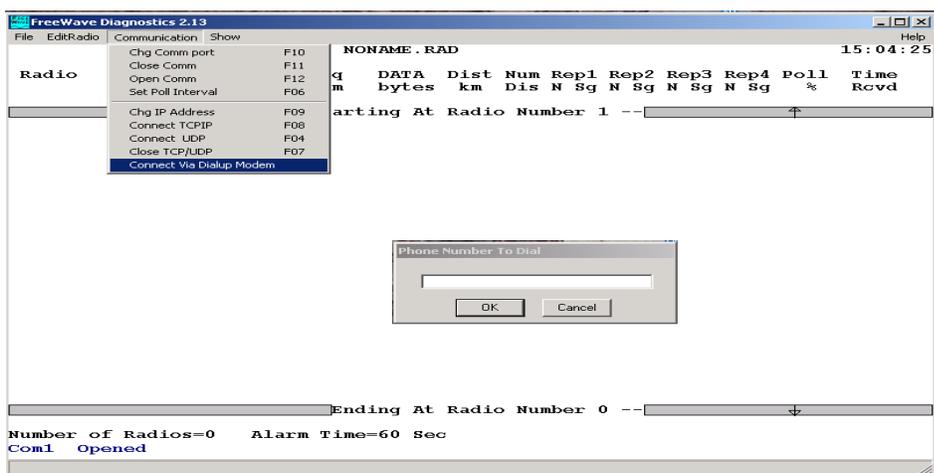


Figure 5

For more detailed information on the use and functionality of the diagnostics program or to obtain the latest version of the users manual please contact FreeWave Technologies Technical Support Department at 1-800-548-5616.



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